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Proceedings of the Twenty-Seventh Annual Meeting of the Berkeley Linguistics Society: Special Session on Afroasiatic Languages (2001), pp. 123-167

Verbal Plurality in Chadic:
Grammaticalisation Chains and Early Chadic History

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1.   Introduction

Chadic languages appear to encode a semanto-syntactic dimension related to the expression of number, which is much wider in scope and grammatical distribution than, for instance, the category of "plural" as known, for instance, from Indo-European languages. Some Chadicists, like the present author, have hence come to use the term "plurality" in this wider sense: Plurality in Chadic appears to be a dimension crossing over several major grammatical divides and domains, i.e.

1. morphology and syntax (cf., in particular, Frajzyngier 1997a),
2. determiners and nouns (Wolff 1992a, 1992b, 1993, 1995, Frajzyngier 1997a),
3. nouns and verbs (Frajzyngier 1977, Wolff 1977, Newman 1990),
4. verbal derivation and verbal inflection (Wolff 1977, 1979, 1984a, 1987a, Newman 1990),
5. within verbal inflection: agreement with grammatical subject (Newman 1990) and henceforth so-called "extensive" verb forms as encoded in the aspect/tense systems (traditionally referred to as "imperfective aspect" stems in Chadic literature);

The issues under 3-5 in particular had been at the core of a heated and very productive discussion some twenty to thirty years ago, focussing on the nature and historical development of the verbal inflectional system in Chadic with particular reference to its possible historical connection with similar typological issues in Semitic and other Afroasiatic languages.[1] The international discussion

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[1] Cf. particularly Newman & Schuh (1974), Schuh (1976), Frajzyngier (1977), Newman (1977), Wolff (1977, 1978 published 1984a, 1979). The discussion rested heavily on previous and very influential work of H. Jungraithmayr published between 1966 and 1974 (cf. the quoted works for references). For another decade, the present author then took the investigation further, also giving particular attention to the emergence of tone in Chadic: Wolff (1982, 1983b, 1984b, 1984c, 1985, 1986, 1987a, 1987b, 1988).

ended somewhat abruptly,[2] and is only marginally referred to in P. Newman's otherwise excellent book on *Nominal and Verbal Plurality in Chadic*, which was published in 1990.

Recently, Frajzyngier (1997a) took up some of the salient issues again from the viewpoint of language typology and grammaticalisation theory. Had he previously argued in favour of a basically unilinear diachronic development of nominal plurality from verbal plurality (1977), he now argues in favour of more complex grammaticalisation paths from demonstratives to plural markers both for nouns and for verbs. Frajzyngier challenges Newman's (1990) distinction between inflectional plural subject agreement stems ("plural" verbs) and derivational plurality-of-event stems ("pluractional" verbs) on the basis that both share the same formal means of encoding plurality.[3] Independently and even more recently, the present author had also chosen to return to his once favourite research topic.[4] Interestingly, Frajzyngier's study (1997a) and most of the ideas propounded in Wolff (2000a, 2000b) tend to complement each other rather than provide conflicting accounts of what rests largely on the same data and similar assumptions concerning the nature and directions of grammaticalisation. The present paper readdresses the issue, also in the light of Frayjzyngier's latest contribution.

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[2] One of the reasons being that two of the authors who had critically taken up Jungraithmayr's pioneer studies on the history of the Chadic verbal inflectional system, had shifted their focus on issues in Hausa grammar in the 1990s: Newman published at least 18 important articles on Hausa since 1980, before his seminal work *The Hausa Language. An Encyclopaedic Reference Grammar* was finally published in 2000; Wolff published a few articles dealing with Hausa linguistics between 1990 and 1995 and compiled the first Hausa reference grammar (*Referenzgrammatik des Hausa*, 1993) since R. C. Abraham's days in the 1940s and 1950s.

[3] Frajzyngier's attempt to prove Newman wrong on this matter by adducing data from Muzgu, Gidar and Xdi rests, however, on the validity of his synchronic analyses, which not all experts on Central Chadic languages would automatically accept. As a matter of fact, with a few exceptions all of Frajzyngier's main arguments rest on selective data and their analysis which stem from F.'s own largely unpublished field notes: "Some or all data on Lele, Gidar, Masa, Mandara, Hona, Mina (also called Hina...), Xdi are from my field notes... The representation of data from the work in progress should be considered tentative pending the final analysis." (1997a: 238) The bulk of F.'s examples stem from his unpublished notes on Gidar, Mandara and Xdi. For the latter two languages the present author claims some expertise, which leads him to be quite sceptical about many of F.'s proposed analyses for the individual languages.

[4] Verbal plurality in Chadic was re-addressed in the light of some extra-linguistic historical and ecological factors (Wolff 2000a) and, closely linked to grammaticalisation theory, in terms of Chadic-internal areal contact and sub-classification (Wolff 2000b). Until some of the major details presented in this paper were first exposed to audiences at the 23rd West African Languages Congress (Legon, August 15-19, 2000) and at the 3rd World Congress of African Linguistics (Lomé, August 21-25, 2000), the present author had not seen the 1997a paper of Z. Frajzyngier to whom he is indebted for pointing out its existence on the occasion of the Lomé congress. The present paper thus supersedes the one presented in Lomé and duly acknowledges Frajzyngier's preceding publication.

2.   Grammaticalisation vs. re-grammaticalisation

The fundamentals of grammaticalisation involve cognitive and semantic strategies by which "complex contents are expressed by means of less complex and more basic contents, and abstract concepts by means of more concrete concepts".[5] The study of grammaticalisation processes in African as much as in languages elsewhere in the world, therefore, tends to accept a set of basic assumptions regarding the direction of these processes. It is generally argued [6] that grammaticalisation

- ➢ is exclusively unidirectional,[7]
- ➢ most often starts from a lexical source,
- ➢ in general, proceeds from concrete to abstract or, in any case, from less abstract to more abstract,
- ➢ if it proceeds from one grammatical morpheme to another, the direction is from less grammatical to more grammatical,
- ➢ is sensitive to areal factors.[8]

For the purpose of this paper and in order to catch peculiar and long since noticed instances of "re-employment of grammatical morphemes in Chadic",[9] I will use the term "grammaticalisation" in a rather narrow sense, i.e. only for unidirectional processes from lexical source to grammatical marker. The term "re-grammaticalisation" will be used to refer to unidirectional or bi-directional processes involving two grammatical markers, i.e. elements of a grammaticalisation chain other than the lexical source. I consider the proposed terminological distinction useful for the clarification of some major differences with regard to three basic mechanisms involved when we discuss grammaticalisation chains:[10]

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[5] Heine (1997:2); cf. also Lakoff/Johnson (1980).
[6] Traugott/Heine (1991), Heine/Claudi/Hünnemeyer (1991), Heine et al. (1993), Hopper/Traugott (1993).
[7] Heine (1997), but cf. Frajzyngier (1997b) for arguments in favour of bi-directionality.
[8] Heine (1997), which I take to involve genealogically and typologically motivated "drift" as much as interferences from neighbouring languages.
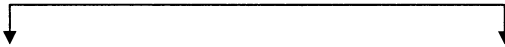[9] Cf. the notion of "redesignation" of verbal stem forms, which is so essential in the arguments of Wolff (1977, 1979, 1984a), which conceptually links up, with Schuh's (1990) notion of "re-employment" of grammatical morphemes in Chadic.
[10] For the notion of grammaticalisation chain cf. Heine (1992).

(1) GRAMMATICALISATION CHAIN, involving

GRAMMATICALISATION: FROM LEXICAL SOURCE TO GRAMMATICAL MARKER	RE-GRAMMATICALISATION: FROM GRAMMATICAL MARKER TO GRAMMATICAL MARKER
de-semanticization: semantic *bleaching*	Re-semanticization : semantic *reorientation*
de-categorialization: *loss* in morphosyntactic properties	Re-categorialization: *shift* in morphosyntactic properties
erosion: phonetic reduction	

Instances of re-grammaticalisation in the above sense are theoretically and typologically particularly interesting because they

➢ have no lexical source but proceed from one grammatical category or marker to another,
➢ thereby involve a tricky theoretical problem as to differences in degree of "grammaticalness" or "abstractness" regarding the grammatical categories involved,
➢ are sensitive to areal factors (mostly Chadic-internal in the present case),
➢ are likely to shake widespread assumptions about the exclusive unidirectionality of grammaticalisation in general.
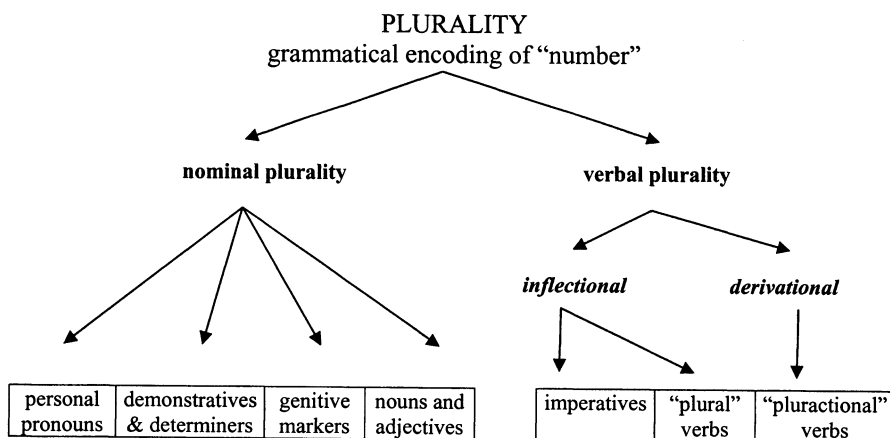
3.   Plurality in Chadic

For a full understanding of the issue in Chadic linguistic history under consideration, it would be essential to take into account some fundamental linguistic and extra-linguistic information, which, for lack of time and space, cannot be reported here in any detail.[11] Suffice it to say that the expression of plurality in Chadic ranks among the richest and most complex areas of grammar. It "encompasses various notions of pluralness or multiplicity including distributiveness and repetitiveness" (Newman 1990:1). It is, further, subdivided into several subsystems with – synchronically at least – their own sets of morphological and/or sub-morphemic formatives each. Intriguing and far from being fully understood by Chadicists and Afroasiaticists is the observation that

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[11] For a fuller linguistic picture the reader is referred to Paul Newman's excellent survey of *Nominal and Verbal Plurality in Chadic* (1990); for some details of the extra-linguistic background fostering areal contacts and questions of Chadic-internal interferences with their effects on Chadic sub-classification, reference is made to an unpublished paper presented to the *22nd West African Languages Congress* in Legon, Ghana (Wolff 2000a) whose major ideas, however, are repeated in the present paper.

some of the formatives cut across the subsystems in such a way that it is hard to know from which subsystem they originate and why and how exactly they have spread into other subsystems. The subsystems as found in most Chadic languages are given in (2).

(2)   Hierarchical display of domains of plurality in Chadic

PLURALITY
grammatical encoding of "number"

nominal plurality				verbal plurality		
					inflectional	*derivational*
personal pronouns	demonstratives & determiners	genitive markers	nouns and adjectives	imperatives	"plural" verbs	"pluractional" verbs

3.1   Verbal Plurality in Chadic
In addition to the more trivial manifestations of plurality, which most languages of the world appear to display in their nominal subsystems, Chadic languages possess – or did possess in earlier stages of their history – at least three more subcategories of plurality, neatly distributed over their verbal systems and therefore jointly referred to as "verbal plurality":

➢   plural imperatives are "used when a command is directed at more than one addressee" (Newman 1990:1);

➢   inflectional plural agreement verb stems are "required by concord rules" (Newman (1990:1) to match the grammatical subject and thus form part of inflectional verb morphology;

➢   pluractional (= plural action) verb formations "generally represent the free choice of plurality as a semantic element" and, therefore, "belong to the domain of optional derivational morphology rather than concordial inflection"; the "essence of these verb forms is 'plurality of process or action'" (Newman 1990:54).

Illustrations from the three major branches of Chadic are given below; the chart also shows that not all Chadic languages (still) make use of all domains of verbal plurality:[12]

(3)   Verbal plurality in Chadic

Chadic branch	language	imperatives [-pl] [+pl] [-fem] [+fem]		plural agreement		pluractional	
				[-pl]	[+pl]	[-pl]	[+pl]
West	Hausa	_tàfî_ go away! _kà-tàfî_ _kì-tàfî_ _kù-tàfî_				_búgàa_ beat _táfàsáa_ boil	_búb-bùgáa_ _tá-fár-fàsáa_
	Bole	_mek-kô_ _mes-sî_ _mak-kû_ return!	_dòppu_ (he) followed	_dòpp-an..._ (they) followed	_dàppu_ gather	_dà-dàppu_
Central	Margi	_tsa_ _ts-àm_ beat!				_ntàsà_ swallow	_ntà-ntàsə_
	Lamang	_ksá_ catch! _a-f-ksá_ _a-wa-f-ksa_ catch up!				_ksa_ catch	_k-a-sa_ _kasa-sa_ _kasa-kasa_
	Gisiga		_ʔi kaɗ_ I kill	_ʔi kəɗ-am_ we kill		
East	Dangla	_pilù_ _pil-oŋ_ open!				_sìbìr-_ make fire	_sib-aa-r-_
	Bidiya		_kinda ʔasí_ you (sg) came	_kunda ʔas-oŋ_ you (pl) came	_bàkàl-_ eat dry food	_bàk-àa-l-_

The semanto-syntactic categories of "sg/pl imperative" and "plural agreement (with grammatical subject)" don't appear to need any further comments. But note the semantic range of pluractional verbs in Chadic which encompasses a wide range of notions as given in (4).

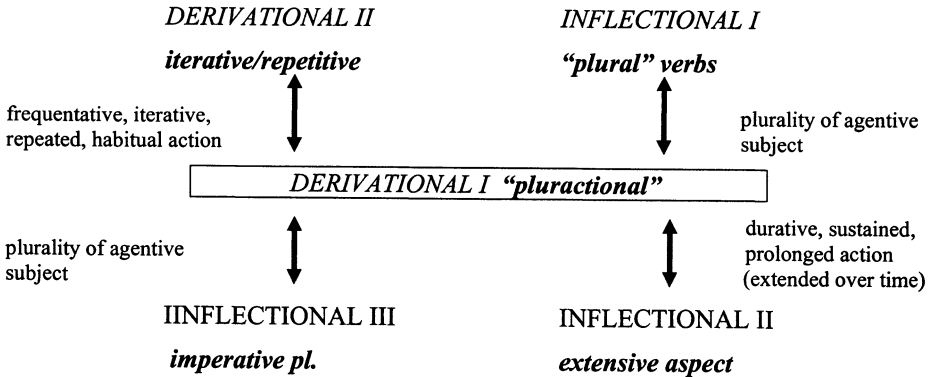(4)   Functional labels in the domain of "pluractional" verbs[13]
-    plurality of action or process
-    plurality of agentive subject
-    plurality of patient object
-    distributiveness of location where action takes place simultaneously or in sequence
-    frequentative, iterative, repeated, habitual action
-    durative, sustained, prolonged action (extended over time)
-    intensive action (usually involving repetition of action)

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[12] For the sake of convenience the reader is referred to Newman (1990) for most of the language data used in this paper.

[13] Labels like the following are used by various authors for individual language descriptions.

It is quite obvious from this list of functional labels that there is heavy semantic overlap with notions, which other languages tend to grammatically encode in their tense/aspect system, or elsewhere in their derivational system; this situation is captured in the graphic representation (5): [14]

(5)   Semantic overlap of "pluractional" readings with regard to other morphological categories

DERIVATIONAL II   *INFLECTIONAL I*

iterative/repetitive   ***"plural" verbs***

frequentative, iterative, repeated, habitual action

plurality of agentive subject

DERIVATIONAL I "pluractional"

plurality of agentive subject

durative, sustained, prolonged action (extended over time)

IINFLECTIONAL III   INFLECTIONAL II

imperative pl.   ***extensive aspect***

It would be interesting to know and accordingly will be addressed in this paper, whether and how these cases of semantic overlap have parallels with regard to re-grammaticalisation paths of grammatical marker.

3.2   Scope of this paper

In this paper, focus is on the subsystems of verbal plurality, and particular on pluractional verbs and their historical relationship to extensive aspect in Chadic, i.e. a particular inflectional category which is often labelled – quite inadequately, if not falsely – as "imperfective" and which, on first sight, would appear to have nothing to do with plurality in any way.[15]

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[14] Note that Newman, for instance, reconstructs PC (Proto-Chadic) *-tV as a derivational marker NOT marking pluractional and identifies it "definitely … as an iterative (pluractional-like) stem formative" (1990:86) – yet and unfortunately he discusses reflexes of this suffix indiscriminately under "pluractionals". For reasons of time and space, the highly interesting history of this suffix (and the grammatical category as distinct from pluractional verb formation) in Chadic cannot be dealt with in any detail in this paper.

[15] I have come to revise my own rather uncritical acceptance of the label "imperfective" for what I now prefer to call "extensive" aspect, taking "extension in time" as the salient semantic property of these formations. Also, avoiding the term "imperfective" allows to get rid of the unhappy and, as I believe, wrong idea that the formations in question enter a systematic marked: unmarked dichotomy relation with formations which need to be labelled "perfective". In previous studies I have attempted to show that this dichotomic approach to Chadic inflectional systems yields synchronically highly unsatisfying and diachronically false results and veils the fact that, often, Chadic languages have a tripartite system of unmarked : marked : marked relationship where both

In particular, the following threefold character of subsystem transfer will be looked at which pertains to three different levels of abstraction of grammatical structure:

1. between the grammaticalisation of NUMBER and the grammatical encoding of situation-related TIME
2. between *derivational* verb morphology and *inflectional* verb morphology,
3. between *pluractional* verb forms and *extensive aspect* formation.

This subsystem transfer is graphically represented in (6).[16] For lack of time and space, reference to likely other subsystem transfers from nominal into verbal

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so-called "perfective" and "imperfective" are the marked members which contrast with an unmarked member (which, for simple convenience, I tend to call "aorist").

[16] In order to understand the full range of possible subsystem transfers in Chadic with regard to plurality, it is useful to look at the nominal plural formatives as reconstructed by Newman (1990). Given our insights into other properties of PC grammar, such as the elements of the PC determiner system as reconstructed by Schuh (1983), a compositional analysis becomes feasible, which would reduce the number of historically "original" and true noun plural makers from five to possibly one: *-i*. Cf. Wolff (1992b, 1993, 1995) for such compositional reanalysis of Hausa plural markers as historically polymorphic complexes involving old determiners.

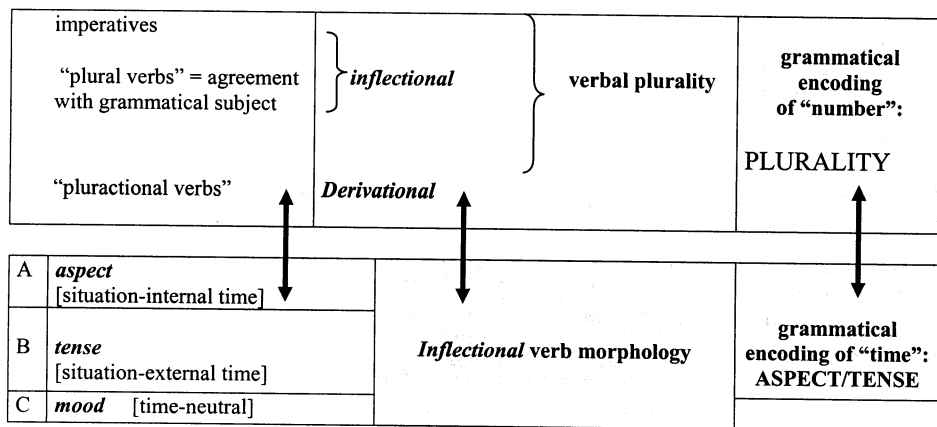(7)   Tentative compositional analysis of PC nominal plural markers

Newman (1990)	tentative compositional analysis	transfer into verbal system?
-aki	*-a-k-i* 1. internal a-insertion 2. determiner *-k 3. noun plural marker *-i	YES *-k-, *-(a)w(i) ~ -aw* (with internal a-insertion)
-n-	*-n-*	YES *-an* (with internal a-insertion)
-ɗ(i)	*-ɗ-i* 1. determiner *-ɗ 2. noun plural marker *-i	YES *-ɗ-*
-i	*-i*	YES *-i*
*-ai / *-ay*	*-a-i* 1. noun plural marker *-i 2. with internal a-insertion	YES *-ay*

An interesting question to be raised here is that of the possible cognation of the plural markers *i* and *n* with the determiners of the same shape – both reconstructed for PC by Newman (1990) and Schuh (1983) respectively. Frajzyngier (1997a) would appear to consider this question as already settled in favour of cognation. My own position is more cautious until we have more and harder comparative evidence with regard to how many different morphemes of this (or a similar) shape were around in PC grammar. As for *-i*, for instance, one could immediately think of at least six candidates from modern Chadic languages of which only some may actually be cognate:

➢ determiner ("definite"?) – cf. Schuh (1983),
➢ noun plural marker – cf. Newman (1990),

morphology and between subsystems within nominal morphology in this paper will be only in passing rather than in any detail.

(6)   Subsystem transfer involving verbal plurality in Chadic

imperatives "plural verbs" = agreement with grammatical subject "pluractional verbs"	} *inflectional* *Derivational*	} verbal plurality	**grammatical encoding of "number"**: PLURALITY

A	*aspect* [situation-internal time]		**grammatical encoding of "time"**: ASPECT/TENSE
B	*tense* [situation-external time]	*Inflectional* **verb morphology**	
C	*mood* [time-neutral]		

4.   Grammaticalisation and Reconstruction

Starting our exploration into Chadic linguistic history from pluractional verbs in modern Chadic languages, we begin by taking a closer look at the formatives reconstructed by Newman (1990) with more or less confidence; his list of formatives is given below under (9) with a number of modifications.[17] These modifications basically involve the recognition of "formative a-vocalisation" and the proposed tentative allomorphic distribution of the various markers of pluractionals.[18] The distinction in Chadic between "formative a-vocalisation" and

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➤   verb plural marker – as, for instance, in Muzgu and Munjuk,
➤   imperative (sg.) marker – cf. Newman (1990),
➤   subjunctive verb stem marker – cf. Newman/Schuh (1974) and Wolff (1979),
➤   verbal nominaliser – as, for instance, in Podoko and Xdi.

[17] Other modern pluractional formatives reconstructed by Newman (1990) which are not considered in this paper are

CVC-reduplication   innovative in Hausa, frozen in Bade, restricted in Pero

full reduplication   universal & iconic: found in Central-A (Margi, Mandara, Lamang, Daba)

Note that, since the following table is largely based on Newman (1990), the occurrence of *-i* as marker of verbal plurality is not included (cf. Frajzyngier 1997a: 214ff. for a critical appraisal of Newman's treatment of verbal plurality marking from a comparative point of view particularly regarding the "omission" of *-i* and an incomplete treatment of the marker *-an*). However, the marker *-tV* occurs despite it's being identified as different (only "pluractional-like") by Newman himself (cf. also fn. 14).

[18] The notion of *formative a-vocalization* is considered to be quite useful for the diachronic study of Chadic languages (cf., for instance, Wolff 1983, 1984b). Diachronically, it belongs to the oldest stratum of the language family and reflects a typological situation largely comparable to the

"internal a-insertion" is required in order to be able to account for double formations as the following:

(8)   Formative a-vocalization vs. internal a-insertion

	Ron-Daffo		Dangaleat			
monomorphemic base	ṛagot	'throw'	tapir-	'help'	mat-	'die'
*formative **a**-vocalisation*	ṛagwăt	[pluractional]	tápárí	[imperfective]	mata	[imperfective]
*formative **a**-vocalisation* **plus** *internal -**a**- insertion*	ṛagwa-á-t [habitative]		tapà-a-re	[durative]	matà-a-we [durative]	

Table (9) offers a first approximation to a historical analysis of verbal plurality formatives in Chadic; the shaded areas may already represent domains in which a functional merger or subsystem transfer occurred at an early period in Chadic history. Note that there are other verbal markers of similar shapes, which might have played a role, like nominalizing suffixes for verbs (forming verbal noun/gerunds). All these are included in a preliminary fashion in the table below, and some hypotheses are advanced as to possible allomorphic distributions of some markers.

(9)   Tentative historical analysis of verbal plurality formatives in Chadic

PC verbal plurality markers	? allomorphic distribution of PLURACTIONAL	other PC categories within verbal morphology	possible transfer from PC nominal plurality
*formative **a**-vocalisation*	"schwa verbs"		
*internal **a**-insertion*	non-"schwa verbs"		
C-reduplication *(pre-/suffixal)*	diconsonantal verbs		
infixal/suffixal *-k-	monoverbs (**-k- > *-w- ?*)		← nominal plural **-aki* ?
suffix *-ay/*-aw	monoverbs (**-w- < *-k- ?*)	nominaliser **-i/y ~ *-a-w* ?	
suffix *-d-			← nominal plural **-d(i)* ?
suffix *-tV		iterative	
suffix *-an		plural agreement	
suffix *-i/*-a		imperative	
suffix *-unu		imperative	

Semitic "root and pattern" system. "Internal a-insertion", on the other hand, is viewed as a still old but more recent device in Chadic languages and corresponds to morphological "infixation". One good reason to keep the two apart (and not lump them together indiscriminately as "internal-a") is the observation that the may cumulate, i.e. both occur together in one language; the resulting forms are synchronically different in terms of vowel length, cf. (8) and 6.1 below.

Cf. below for illustrations of some attested reflexes of PC suffixes, which may combine with other formatives, which the language may possess (examples, with the exception of Migama, from Newman 1990):

(10)   Some attested reflexes of PC derivational formatives of verbal plurality ("iterative" & "pluractional")

branch	language	*-Tv	*-k-
West-A	Pero	additional pluractionals: *fundò* > *fundu-t-ò* 'cook'	
Bole Group	Bole	"repetitive": *'yor-d-ù wo* 'he stopped again'	Schuh (n.d.) *biɗaa* > *bi-k-ɗaa* 'untie'
	Sura	frozen pluractionals: *mùut* > *mur-a-p* (<*mutat* ?) 'die'	
Central-A	Dghwede		in reduplicated continuous aspect: *à-bì-re-ba*>/*à-bì-re-bə̀-ge* frozen pluractionals: *ca* > *cə-gè* 'beat'
East-A	Kera	"iterative" (repetitive/habitual): *hàme* > *hàm-t-e* 'eat'	
	Kwang	additional pluractionals: *oge* > *og-d-e* 'call'	
	Tobanga	"répétitif/itératif" suffix *–de*	
	Somrai	pluractional: *cawa* > *caw-d-a* 'balance'	
East-B	Mukulu	"frequentative": *wâldu* > *wâld-ìt-u* 'slaughter'	
	Migama		"imperfective", bi-radical verbs: *maat-* ~ *matt-* ~ *mátá-kk-á* 'die' *luw-* ~ *lòwò-kk-á* 'sow'

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branch	language	*-ɗ-	*-ay/*-aw
West-A	Tangale	*ɗib > ɗibuɗ* 'cook'	
	Ron-Kulere		"habitative": *mot > mótáy* 'die'
	Ron-Bokkos		"habitative": *cu > cwáay* 'eat'
	Ron-Butura		"habitative": *wu > waáy* 'exceed'
West-B	Miya		additional to other formative (e.g. internal-*a*): *kàfə̀ > kàafà* 'send'
Central-A	Dghwede	monoradical verbs: *za > zaɗa* 'carry'	
	Podoko		pluractionals (with/without internal-*a*), may add repetitive/habitual meaning: *vəl > val(-aw)* 'sell', *tal > talaw* 'tough'
	Zulgo		*dzà > dzàyà* 'fall', *zəm > zama* 'eat'
	Daba		"durative": *pəm > pəmay* 'beat'
East-A	Lele		pluractionals: *al > al-wi* 'growl'
East-B	Bidiya	lexicalized: *law > lawàɗ* 'soften/become soft'	pluractionals, mono-/did-consonantal verbs: *laa > leyèw* 'pour', *tàl > tàlàw* 'see'
	Dangaleat		pluractionals, mono-/di-consonantal verbs: *té- > tiyaaw-* 'eat', *gìn- > ginaaw-* 'make'

Vis-à-vis the plethora of formatives, which are used in modern Chadic languages to indicate semantically similar concepts in the domain of verbal plurality, one wonders whether these do not – originally, in PC or even Pre-PC periods – represent different, albeit semantically similar, categories, which are related to each other through grammaticalisation chains. Quite possibly, the "old" Pre-PC system was already characterized by an inherited cross-over of formatives in the domain of "plurality" between inflectional nominal and (derivational) verbal morphology – or, in other words, plural marking was independent of category of speech, at least as far as the modern distinction of determiners, nouns and verbs was concerned.[19] The "new" system (post-PC) was then characterized, among

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[19] Incidentally, this rather simple hypothesis would account for a number of observations which otherwise could cause authors to take great pains in order to establish series of mutually supportive claims. One might wish to claim that plurality in Proto-Chadic was, first of all, a syntactic category (of the noun phrase) rather than an inflectional category (of the noun itself), and "that coding of plurality was deployed only with determined arguments" and that "when the plural verbal form occurred with a determined noun phrase, both of these means could have been considered as encoding the plurality of the argument" which, finally, receives support through a language acquisition process by which "a child, when confronted by the two forms that occur together when the noun phrase has a plural interpretation, may reanalyse any of the two forms as a sole marker of plurality" (Frajzyngier 1997a:210f.).

others, by further re-grammaticalisation crossing over the domains of derivational and inflectional verbal morphology, as to be outlined in the following sections of this paper.

5.   Proposed grammaticalisation chains
The grammaticalisation chains originally proposed in Wolff (2000b) and repeated here connect

- o   the Proto-Chadic determiner subsystems (viz. demonstratives, previous reference markers, definite markers),
- o   grammatical encoding of number, i.e. the overt marking of **plurality** (both in nominal and verbal morphology), and
- o   grammatical encoding of situation-internal time, i.e. aspect.

As graphically represented in (11) and (12) further below, the proposed grammaticalisation chains involve

1. most PC determiners as reconstructed by Schuh (1983; with the sole exception of *t* = marker of feminine sg.);[20]
2. all PC nominal plural markers as reconstructed by Newman (1990; with no exception);
3. both inflectional ("plural") and derivational ("pluractional") markers of verbal plurality; and
4. a particular connection between derivational verbal plurality marking and inflectional verbal aspect marking.

At variance with Frajzyngier's multidimensional model (cf. *Excursus* below and the two graphic representations therein combined), I am proposing grammaticalisation chains within a uni-dimensional model, which would appear to be quite conservative in terms of grammaticalisation theory, but challenges received wisdom with regard to the generally accepted uni-directionality of grammaticalisation by proposing highly localized instances of bi-directional grammaticalisation. Under (11), the semanto-syntactic categories are identified which take part in the grammaticalisation of plural markers as initially proposed in Wolff (2000b). Note that the grammaticalisation path from "determiners" to "noun plurals" as indicated by the broken line of the arrow is taken for granted as expected in the light of ample evidence from cross-linguistic grammaticalisation studies. Quite likely and incidentally, the direction from left to right in (11)

---

[20] Unless, however, we postulate cognation of the feminine sg. marker *t (reconstructed by Schuh) and the iterative marker *tV (reconstructed by Newman) – a step which, at the time of writing, I am very reluctant to take although elsewhere I have accepted re-grammaticalisation of PC *t(V) "feminine sg. marker" from nominal into verbal morphology as in Hausa efferential formations (Wolff 1993: 384f.).

represents the probable relative chronology of the diachronic processes (indicated by I ⇒ II ⇒ III):

(11)   Directions and chronological sequence of grammaticalisation in the domain of plurality in Chadic
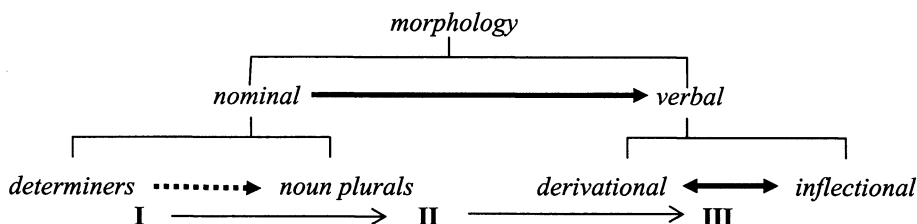
The details of the striking phonological similarity of the markers involved are made explicit under (12) below and are related to R. Schuh's (1983) and P. Newman's (1990) seminal comparative works on reconstructable Chadic determiners and plural markers respectively in much the same way, incidentally and independently, as in Frajzyngier (1997a). [21] Note that the arrows and shadowed categories in (12) should be read simply as "diachronically linked as possible cognates". [22]

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[21] The chart in (12) has been modified since its first presentation in Wolff (2000b), not the least by following Frajzyngier's analysis for Muzgu and Gera (1997a: 215 [Muzgu], 227 [Gera]), which I had not been aware of then.

[22] In the chart below, I have linked Schuh's PC determiner *-i to several of Newman's noun plural markers (*-i, *-ai, *-aki, *-d(i)) for the sake of showing "possible" cognation, although I am fairly convinced that PC *-i was a noun plural marker in its own right which only accidentally resembled a determiner. It will be useful to watch out for potential reflexes of formations where these two different markers co-occur within the same reconstructable noun form marked both for "definite + plural".

(12) Grammatical markers and categories possibly involved in grammaticalisation chains in the domain of plurality in Chadic

NOMINAL MORPHOLOGY

Schuh 1983: Reconstructable determiners in Chadic				
*-n-	gender sensitive	sg.m./pl.c.g.		demonstrative markers
*-t-	in sg. only	sg.f.		
*-k-	gender insensitive			previous reference marker
*-ɗ-				definiteness marker
*-i				definiteness marker

Newman 1990: Reconstructable noun plurals in Chadic		
*-aki		
*-n-		**grammatical**
*-d(i)		**encoding**
*-i		**of "number":**
*-ai		**PLURALITY**

VERBAL MORPHOLOGY

Newman 1990: Verbal plurality in Chadic		
imperatives		
"plural verbs" = agreement with grammatical subject	} *inflectional*	**grammatical encoding of "number": PLURALITY**
		verbal plurality
"pluractional verbs"	*derivational*	

A	*aspect* [situation-internal time]		
B	*tense* [situation-external time]	*inflectional* verb morphology	**grammatical encoding of "time": ASPECT/TENSE**
C	*mood* [time-neutral]		

Excursus: Grammaticalisation of number in Chadic (Frajzyngier 1997a)

Frajzyngier's most recent hypothesis on "the origin of segmental markers of plurality" is made explicit in the following graphic representation, which,
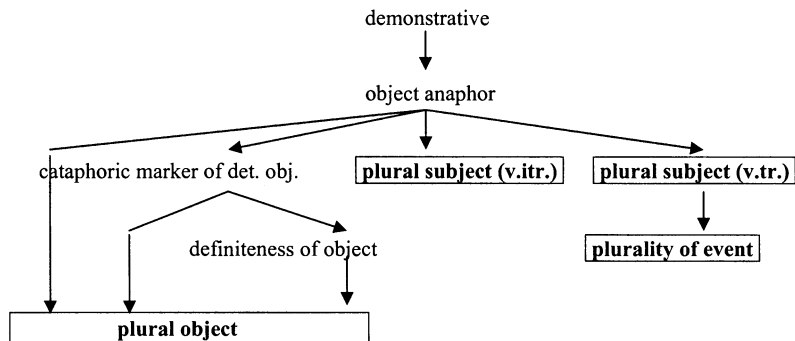
interestingly, involves two dimensions with regard to the directionality of grammaticalisation, which are graphically represented, by the horizontal and the vertical arrows. Both the graphic representation ("Figure 1") and the accompanying commentaries remain rather vague (1997a: 198f.):

"The plural markers developed from one or more elements of the grammaticalisation chain that included deictics, demonstratives, anaphors, and pronouns. Each element in the chain may be a source of nominal and verbal plural markers, as illustrated in Figure 1."

deictics   ⟶   determiners   ⟶   anaphors

Nominal   Verbal   Nominal   Verbal   Nominal   Verbal
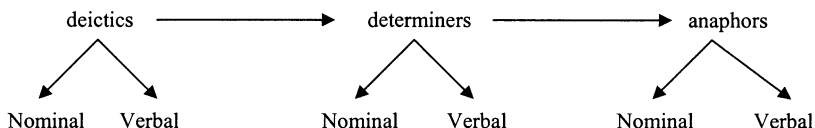
"Figure 1 does not imply that the same morphemes necessarily become plural markers in nouns and verbs, nor does it imply that the grammaticalisation of the two types of plural markers took place at the same time. It is quite possible that different elements in the grammaticalisation chain gave rise to different plural markers, and it is quite possible that different plural markers developed at different times."

Later in his paper, Frajzyngier proposes six "chains of grammaticalisation involving verbal plural in Chadic" (1997a: 217), which I here take the liberty to (hopefully correctly) compound into one graphic representation:

demonstrative

object anaphor

cataphoric marker of det. obj.   plural subject (v.itr.)   plural subject (v.tr.)

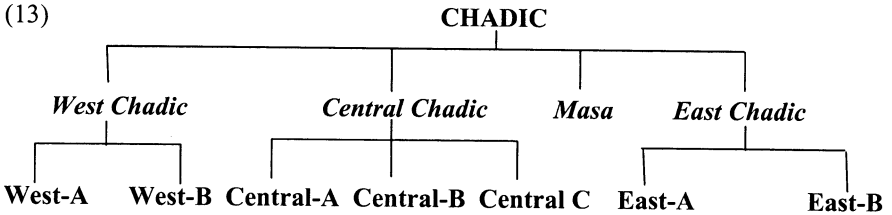definiteness of object   plurality of event

plural object

Note that the boxed markers represent the final stages of grammaticalisation chains attested in Chadic languages.

In addition to many details of Frajzyngier's particular language analyses, I also do not subscribe to some of his basic assumptions about plurality in Chadic. Rather following Newman (1990), I not only accept verbal plurality as an ancient category in Chadic (and Afroasiatic), but also in its various subsystems: grammatical agreement, pluractional, imperative, and a separate iterative-repetitive.

6.   Grammaticalisation chains and Chadic sub-classification

The Chadic language family is now generally accepted to have four branches, three of which with at least two sub-branches each (cf. Newman 1990 for a more recent presentation of Chadic sub-classification).[23] This sub-classification rests on lexical comparisons involving the observation of regular sound changes.

(13)   **CHADIC**

West Chadic   *Central Chadic*   *Masa*   *East Chadic*

West-A   West-B   Central-A   Central-B   Central C   East-A   East-B

The following table lists the languages, which are mentioned in this paper according to that sub-classification by branch, sub-branch, and group.

(14)   Chadic language sample by branches and groups

West Chadic	A	1	Hausa	Central Chadic	A	1	Ga'anda
		2	Bole, Kanakuru, Pero, Tangale			2	Bura, Margi
		3	Angas, Sura			3	Higi/Kapsiki
		4	Ron: Butura, Daffo, Kulere, Sha			4	Dghwede, Mandara, Lamang, Podoko
	B	1	Bade, Ngizim			5	Zulgo
		2	Miya, Pa'a			6	---
		3	Saya			7	Daba
East Chadic	A	1	Somrai			8	Bachama, Gude
		2	Lele, Tobanga		B	1	Buduma, Musgu
		3	Kera, Kwang			2	---
	B	1	Bidiya, Dangaleat, Migama, Mubi		C	1	---
		2	Mukulu	Masa		1	Zime-Mesme
		3	---				

---

[23] Compared to his earliest sub-classification of Chadic when Newman/Ma introduced the terms "Plateau-Sahel" and "Biu-Mandara" for the then two major divisions within the family in 1966, Newman later substituted the term "Plateau-Sahel" by "West" and "East", but retained "Biu-Mandara". In my own work, I have long since replaced "Biu-Mandara" by "Central". In this paper, I will re-introduce Newman/Ma's old term "Plateau-Sahel" and use it quite differently, namely for a historically relevant subdivision of Chadic which unites the ancestral pre-cursors of only some (!) of today's "West" and "East" Chadic languages.

When we base sub-classification on grammatical comparisons, however, the different nature of the selected criteria tends to lead to different sub-classifications. In the following section, it is the proposed grammaticalisation chains in the domains of verbal plurality that are chosen as criteria for sub-classification. Also and in a corroborating manner, this will link up to the ecology and history of the wider Lake Chad area where most of the Chadic language are spoken until this day.

(15)   Map of assumed migrations of "North Chadic" speaking groups due to ecological (desertification) and population pressure (Kanuri-Kanembu migrations and territorial expansions)
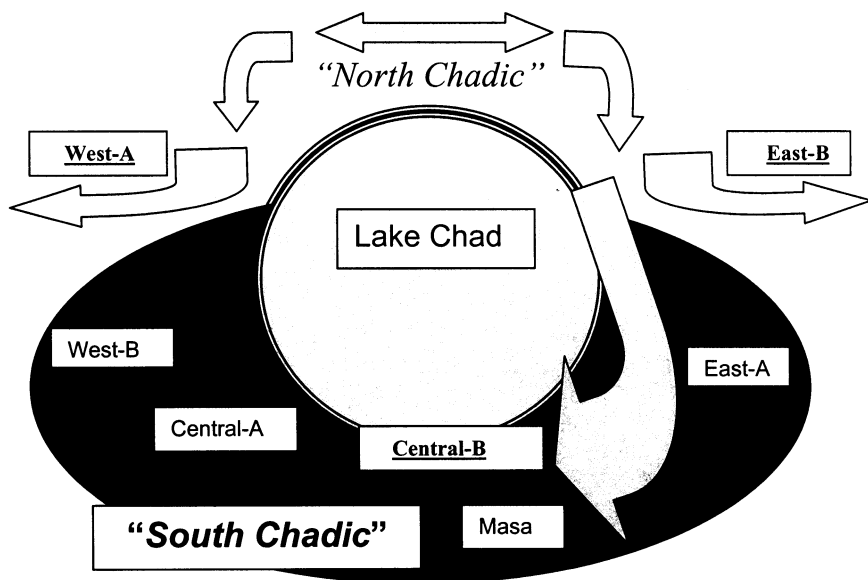

It is assumed that, before drastic ecological changes occurred and long before speakers of Saharan languages (particularly the Kanuri-Kanembu) began their south- and westward migration, the northern shores of Lake Chad were inhabited by speakers of Chadic languages – much as its southern and eastern shores were until quite recently (given the much larger surface of the Lake in past centuries and millennia). It is further assumed that these Chadic speakers shared in a PC dialect sub-continuum, which we could aptly call "North Chadic".[24] Also, a

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[24] These "North Chadic" populations would have been in contact with the people in a "greener" Sahara to their north (some of which would have been speakers of Afroasiatic languages,

"South Chadic" dialect sub-continuum existed embracing the Lake at its southern shores.

With extreme desertification affecting their original habitat and with the closing in of Saharan language speakers, "North Chadic" speakers were forced to migrate: Their only way was to move southward around the Lake – either along the eastern or the western shores! And if there was not enough space for all of them, some would have been forced away from the vicinity of the Lake altogether – either westward or eastward, following the river beds of *Komadugu Yobe* to the west, and the *Bar El-Ghazal* to the east. With some more ecological force pushing them further south, we should not be surprised then to find offsprings of the "North Chadic" populations and their languages more than a thousand kilometres apart today, i.e. near the Central Nigerian Plateau in the west, and the Wadai mountains of Central Chad in the East.

(16) Map of present distribution of the branches & sub-branches of Chadic in relation to Lake Chad, showing the approximate desert/sahel division line & Chadic's northern linguistic neighbours, and indicating assumed expansions of speakers of Saharan languages, particularly the Kanuri migration from Kanem to Borno.
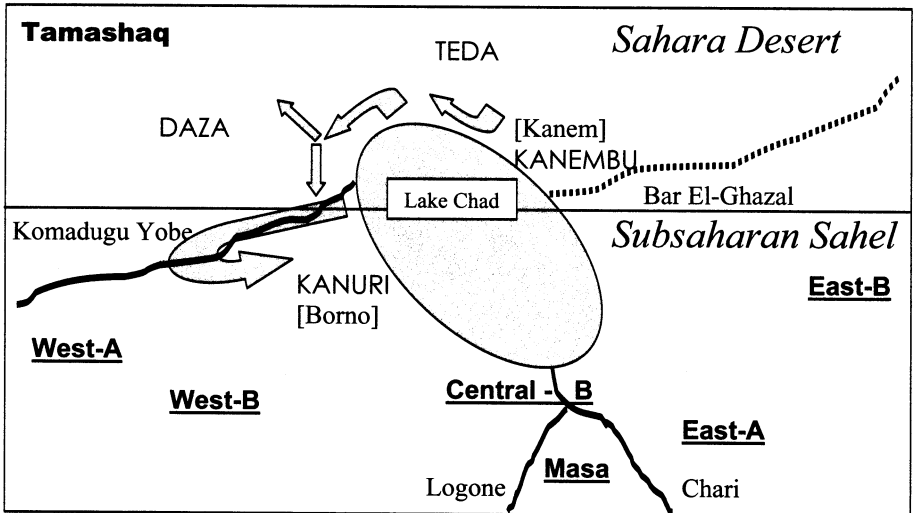

presumably, although the area is now inhabited almost exclusively by speakers of Saharan languages). I mention this in order to highlight the geographic position of "North Chadic" as being the closest of all Proto-Chadic dialects to the rest of Afroasiatic (Proto-Berber, Pre-Proto-Semitic, …) – if the homeland of Afroasiatic was to be seen in what is now covered by the Eastern and Central Sahara. This neighbourhood could then be taken to explain why "North Chadic" shared and maintained certain features (e.g. "consonant gemination") with some other Afroasiatic languages, but not with their "South Chadic" sisters!

The pre- and post-migration scenarios are represented in the following tree diagrams.

(17a) **Assumed Proto-Chadic dialect chain**
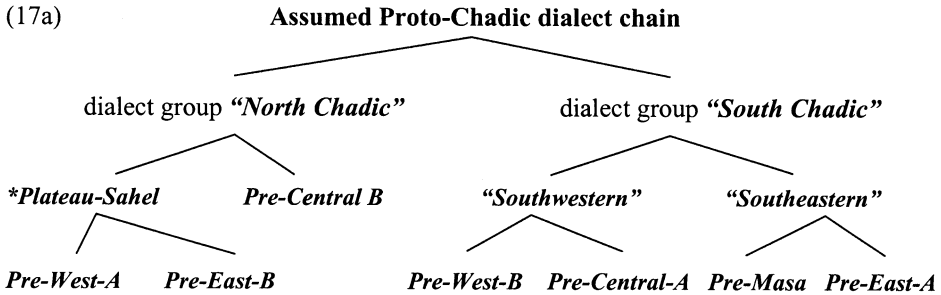
(17b) Post-migration **areal regrouping** of PC dialect groups:
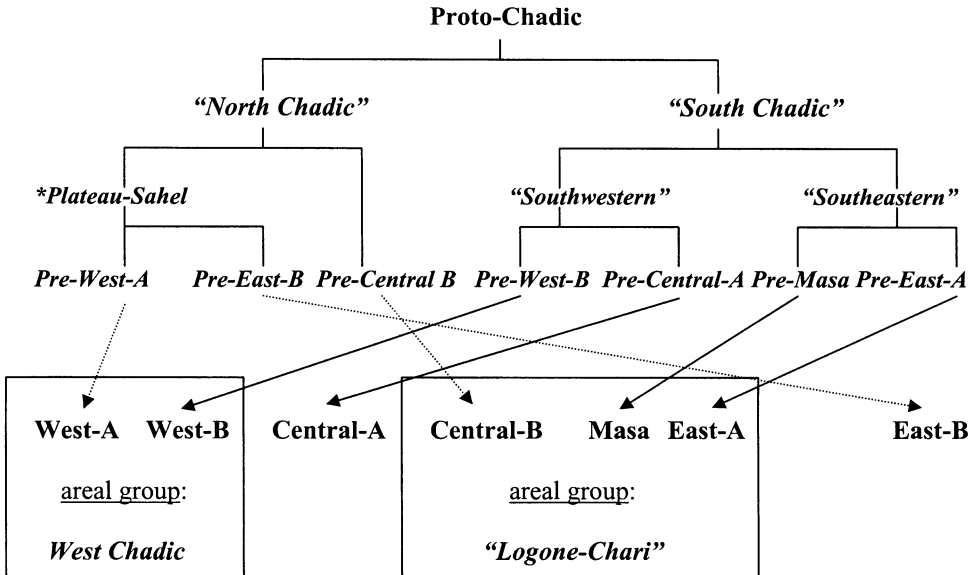
This migration scenario would exactly depict the historical background of a possible and plausible diachronic analysis of pluractional verb stem formation in Chadic. If we interpret our Chadic data[25] in front of this background, the following diachronic linguistic scenario would explain the present-day geographical distribution of linguistic facts. The linguistic criteria on which the

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[25] Data from about 40 languages have been taken into account, i.e. between 30-40% of the estimated total of 120-140 members of the Chadic family.

scenario is based are the following, which we interpret to be either shared innovations or linguistic interferences due to new language contact situations involving mainly Chadic languages, which originally belonged to different peripheral sections of the Proto-Chadic dialect continuum. Our diachronic analysis is, therefore, based on observations regarding

- the **original distribution** of reconstructable pluractional formatives,
- **loss** of reconstructable pluractional formatives,
- intra-Chadic inter-dialectal **borrowing** of reconstructable pluractional formatives,
- **functional re-distribution** of reconstructable pluractional formatives to mark different categories, and/or
- **fossilisation** and total loss of the "pluractional" category.

The historio-linguistic scenario can be presented in terms of subsequent stages.

(18) Proposed sub-classification of Chadic based on a diachronic analysis of grammaticalisation chains in the domain of verbal plurality (upper part) & received sub-classification based on lexical reconstructions (lower part)
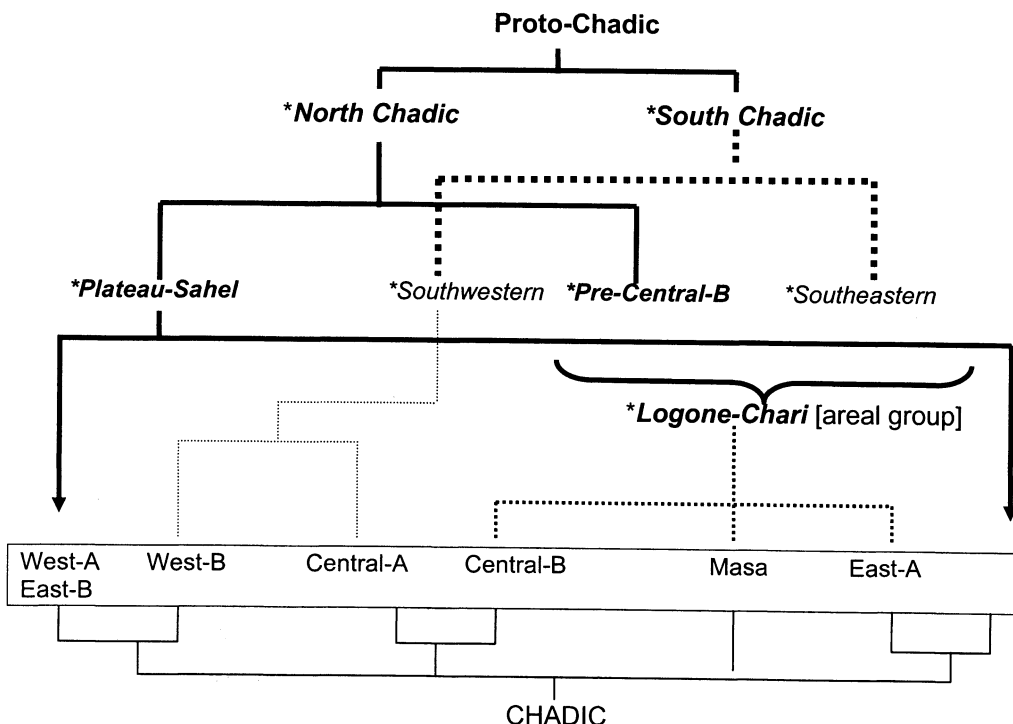
In the following subsections, I will outline the linguistic scenario on which this particular sub-classification of Chadic is based.

6.1   Proto-Chadic Pluractionals

As a shared characteristic feature, all PC dialects are assumed to have had a productive pluractional category. The availability, choice and combination of formatives were governed by PC dialect differences plus phonotactic (root structure) conditions similar to those still found in some present-day languages. I tentatively offer the following diachronic hypotheses.

1. Prefixal and suffixal reduplication did not co-occur in the same PC dialect:

    o   NORTH CHADIC dialects strongly preferred **suffixal** reduplication;
    o   SOUTH CHADIC dialects strongly preferred **prefixal** reduplication.

2. **Internal-a** (as reconstructed by Newman 1990) does not represent a uniform marker, quite contrary to our expectations, which are shaped by received Afroasiatic wisdom. As I have long since proposed, we distinguish between

    o   **formative a-vocalisation** as a unique pluractional marker which was available to all PC dialects and was limited to "internal schwa verbs";[26] and
    o   **internal-a insertion**, which was an additional (redundant/pleonastic) marker, which some languages would use to accompany the reduplicative or suffixal formations or "strengthen" the formative a-vocalisation.[27]

3. No clear picture emerges concerning possible reflexes of the suffix(es) of the shape ***-ay/*-aw** (including synchronic –a). If they were at all pluractional formatives in PC, my hunch is that they could have been originally restricted to mono-radical verbs.[28]

---

[26] "Internal schwa verbs" are verbs whose internal lexical vowel(s) are either phonemic schwa (if the proto-language had such a phoneme) or contained no internal phonemic vowel at all; we can symbolise their base structure as $*C\partial C\partial/V \sim *CC(V)$. Tri-consonantal schwa verbs would have at least one vowel slot filled by schwa or zero, e.g. $*C\partial C\partial C(\partial/V) \sim *CCC(V)$, $*CVC\partial C(\partial/V) \sim *CVCC(V)$, $*C\partial CVC(\partial/V) \sim *CC(V)C(V)$.

[27] It is this "redundant"/"pleonastic" nature of *internal-a* in Chadic, also seen in noun plural formations, which causes analytical problems as to which subsystem, nominal or verbal, to reconstruct it for. Further below I will advance the hypothesis that this "internal-a" was probably one of the earliest re-grammaticalisation cases in Afroasiatic linguistic history.

[28] On the other hand, this suffix may also be the reflex of a different PC stem formation altogether. It could be a "durative/habitual", like in present-day Ron, Daba, and Podoko. Alternatively, it could be a nominalizing suffix to form verbal nouns, which – characteristically – were and still are widely used in periphrastic constructions, which are traditionally referred to in Chadic studies as manifestations of "imperfective" aspect (with linear ~progressive ~ durative, sometimes habitual,

For PC, I propose roughly the following allomorphic systematics illustrated in (19).

(19)   Proposed allomorphic systematics of pluractional marking in Proto-Chadic

PC dialects	*-ay/*-aw	a-vocalisation	*C_1V_1-	*-C_f
NORTH	mono-radical verbs	schwa verbs	---	other verbs
SOUTH	*C(ə/V)	*CəCə/V ~ *CC(V)	other verbs	---

The pluractional formatives could further enter combinations with **internal a-insertion**, which would yield something like the following surface structures, which are still found in some of the modern Chadic languages and are illustrated next.[29]

(20)   Combinations of pluractional formatives with internal a-insertion:

simple formations	*-ay/*-aw	a-vocalisation	*C_1V_1-	*-C_f
complex formations with **internal –a-**	*-a-ay/*-a-aw	*-aa-	*C_1-a(a)-	*-a(a)-C_f

6.2   "North Chadic" vs. "South Chadic": Innovations in Pluractional Formation

"North Chadic" is postulated as the common proto-language for languages found today in the sub-branches West-A, Central-B, and East-B. These languages are now found, on the one hand, closest to Lake Chad (i.e. those belonging to the sub-branch Central-B), and at the very western and eastern periphery on the other (i.e. West-A and East-B)![30] Innovations in North Chadic pluractional formation are

- o   *internal consonant gemination;*[31]

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functions). Cf., for instance, Wolff (1987) for a discussion of synchronic "imperfective stems" in Chadic as possibly resulting from both pluractionals and verbal nouns.

[29] On the other hand, languages which do not (or: no longer) contrast vowel length, would neutralise these distinctions and make it difficult if not impossible for us to know whether we are dealing with reflexes of "base" level (lexical) or "stem" level (post-lexical) polymorphic formations.

[30] Interestingly, this totally independently arrived at regrouping of Chadic languages in terms of "North Chadic" dialects of PC coincides largely with the earliest assumptions of genealogical relationship in the Lake Chad area, i.e. Westermann's "Hausa-Kotoko" group of the 1930s and later Lukas' "Chadohamitic" group of the 1950s, which were both heavily based on internal typological criteria like, for instance, the mere existence of overt grammatical gender marking, but also other grammatical features.

[31] Note that we find reflexes of two different types of internal gemination which, however, overlap and thereby create some confusion:

o preference[32] for *suffixal *-C_f reduplication;*[33]

C_2 **gemination proper** (i.e. even in verbs with more than two consonants where C_2 is not the final root consonant), no further combination with internal-a appears to be possible.

West-A	East-B
Hausa	**Mubi**
"frozen" (C_2 = mostly a sonorant):	*lèlè'-e / làl-l-à'je* 'taste'
fal-l-àsaa 'shame s.o.'	
din-n-ìƙaa 'fill with smoke'	
tsàw-w-alà 'become serious'	
Arabic origin:	
bayyànaa 'explain'	
dawwàmaa 'endure'	
kammàlaa 'finish'	
Pero	
ligunò / lig-g-unò 'answer'	
daaf-ò / daf-f-ufò 'apply cream'	
cuuk-ò / cuk-k-u-ò 'spread water'	

Final consonant gemination (which in many instances, but accidentally so, may be C_2!); some languages combine this with either formative a-vocalisation or internal-a insertion.

West-A	Central-B	East-B
Bole	**Buduma**	**Migama**
ɗolu / ɗòl-l-u 'swallow'	final C = r~l :	"imperfective" with formative a-vocalisation (triconsonantal roots):
alternatively with **C_1V_1-* reduplication:	*nàrì / nár-r-ì* 'carry away'	*kútùm- / kótóm-m-*
pataa / pat-t-a ~ pa-patta 'go out'	*hàgàrá / hàgár-r-á* 'mount'	(< **kwatwam-m-*) 'wrap' with dummy C_3 and internal-a insertion (di-consonantal roots):
salu / sà-sàl-l-u 'slash'	with internal –a insertion:	*pan- / pan-a-kk-* 'build'
	həli / h-a-əl-l-i [hʌlli] 'sow'	
Kanakuru		**Mukulu**
murì (*mut-) / mutè (*mut-t-) 'die'		*ziiɗa / ziɗ-ɗ-e* 'marry'
goowè (*goop-) / goopè (*goop-p-) 'pass by'		

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[32] I deliberately speak of "preference" here because I consider the available data as not sufficient to postulate a watertight complementary distribution between the two PC dialect groups. Quite likely, the PC dialects should be viewed as forming a dialect chain with degrees of mixed occurrence of "typical" North and South Chadic features. Note, for instance, the isolated occurrence of prefixal reduplication in East-B Mukulu (1 example only) and the somewhat isolated occurrence of (productive!) suffixal reduplication in two languages of the Mandara Group (Lamang, Dghwede). It is hard to know whether the closely related Central-A languages Lamang and Dghwede have innovated suffixal reduplication, or whether this has some historical significance of yet uncertain dimension.

[33] Some languages pleonastically insert **internal -a** to the left of the reduplicated stem-final consonant:

Note that the prefixal reduplication, which is found in some but not all modern West-A daughters of „North Chadic" dialects, is viewed as borrowing from now neighbouring West-B languages, which originate from "South Chadic" dialects of PC. Likewise, West-B languages like Bade and Ngizim have borrowed some suffixal reduplication from West-A languages! [34] Note also that the eastern modern daughters of North Chadic dialects have drastically reduced and restructured their inherited pluractionals – a likely areal feature that they share with neighbouring "Logone-Chari" areal group languages within Chadic!

West-A		Central-B	
Hausa "frozen"; with internal –aa-:		**Buduma**	
sùl-aa-l-à	'warm up'	*kawe/kawe-w-e*	'roast'
kwàr-aa-r-à	'stalk'	*hobi / hobi-b-i*	'herd'
Pero *daaf-ò / daff-uf-ò*	'apply cream'		
cuuk-ò / cukk-uk-ò	'spread water'		
*Ron: Sha **"habitative"; with internal –a-:***			
bàk / bàk-à-k	'break'		
môt / mót-ô-t	'die'		
lîg / lyág-â-g	'lick'		

West-B interference from West-A		
Bade		
only Ca(a)CV verbs: *gàfu / gàaf-ǝf-u*	'catch'	
tàahlu / tàahl-ǝhl-u	'break'	
frozen: *CCV; with internal-a:		
à skw-à-kw-u	'spend time'	
before suffix: *kàr-mu / kàr-à-r-mu*	'chop'	
càp-tu / càp-à-p-tu	'gather'	
Ngizim		
with internal –a: *gànu / gàn-à-n-u*	'get'	
vàrku / vàrk-à--k-u	'shoot'	

[34] If, however, for some independent reason we need to assume that North Chadic dialects used both prefix and suffix reduplication, then we could attribute the non-occurrence of prefix reduplication in East-B languages to areal influence from neighbouring "Logone-Chari" areal group languages within Chadic.

6.3 "Proto-Plateau-Sahel":[35] Innovations Affecting North Chadic Pluractionals

The North Chadic dialects eventually split into two groups: "Pre-Central-B" and "Proto-Plateau-Sahel". "Pre-Central-B" probably migrated first, leaving the homeland on the northern shores of the Lake. The Buduma retired to the floating islands and eastern shores, their fellows moved on to the southern shores and the land between the two rivers, Logone and Chari. Here they are still found today as languages of the Central-B sub-branch. Left behind on the northern shores for quite some time were the "Proto-Plateau-Sahel" groups, they became ancestral to today's West-A and East-B sub-branches. The major innovation concerning pluractionals was their "grammaticalisation" in terms of partial subsystem transfer from derivational to inflectional grammar. More precisely some, in some languages even all of the pluractional formatives were re-analysed and re-assigned functionally to mark *"extensive aspect"* (formerly referred to as "imperfective").

6.4 "Proto-Logone-Chari": Innovations Affecting South Chadic Pluractionals

Within South Chadic, its Southeastern dialects (Pre-Masa & Pre-East-A) became separated from their Southwestern sisters (Pre-West-B & Pre-Central-A) by a kind of wedge, which the intrusion of the North Chadic Pre-Central-B group created (cf. maps above). The modern languages stemming from these old Southeastern dialects still live in fairly close neighbourhood and are geographically separated from East-B and Central-A languages. The Masa group languages, however, have thereby become direct neighbours to Central-B languages. It is not surprising, therefore, to observe areal features, which are shared by Masa, East-A and Central-B languages. This areal complex is referred to as "Logone-Chari" comprising of both former Southeastern and North Chadic (Pre-Central-B) languages. With regard to pluractionals, the languages of this new "Logone-Chari" areal complex underwent drastic *fossilisation* of the pluractional category with desemanticization in some and total *loss* in other languages, including loss of the characteristic formatives.[36] Today, the pluractional subsystem as such is no longer productive. We observe only a few fossilized pluractionals in each of these languages.[37] Note that in Buduma, quite exceptional

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[35] The label "Plateau-Sahel" revokes the first post-Greenberg sub-classification of Chadic by P. Newman and R. Ma (1966) and pays homage to the two authors. Note, however, that their *Plateau-Sahel* corresponded largely to present-day West Chadic & East Chadic. In later works, P. Newman gave up the term *Plateau-Sahel* and with it the idea of a common node for West and East Chadic in the genealogical tree. As pointed out in fn. 23, I am employing the term here in a related but different sense.

[36] Other – rarer – suffixes survive or have been redesigned, e.g. in Lele –**wi**, and Somrai –**d/b**-.

[37] Traces of prefixal $*C_1V_1$- **reduplication** can be seen in the initial consonant devoicing in Kwang, Kera and Tobanga (East-A) and the Zime-Mesme cluster (Masa Group); cf. Wolff (1985, 1986). Occasionally, $*C_1V_1$- reduplicated forms have spread into the neighbouring Central-B languages, resulting in lexicalised occurrences in, for instance, Muzgu and Buduma:

for a Central-B language, the pluractional has remained quite productive, making use of several formatives which reflect the double origin of both its North Chadic (= genealogical) and South Chadic (= areal) sources, used in addition to general inherited formatives from Proto-Chadic times:

(21) Double origin of Buduma pluractionals

		Buduma	
Common PC heritage	suffix *-aw	*ci / c-o*	'catch'
		fì / f-o	'beat'
	inernal-a insertion	*həm / haəm [hʌm]*	'eat'
		həli / haəlli [hʌlli]	'sow'
North Chadic heritage	C_f gemination	**final C = r~l :**	
		nárì / nárrì	'carry away'
		həgárá / həgárrá	'mount'
	suffixal C_f reduplication	*kawe/kawe-we*	'roast'
		hobi / hobi-bi	'herd'
		taba / taba-ba	'change'
South Chadic interference	prefixal reduplication	*təraku / tə-təraku*	'tear'
		lan / la-lan	'fill out'
		with internal –a:	
		tu / ta-du	'buy'
		tə / ta-də	'pound'
		fì / fa-bi	'beat'

7. Typology of re-grammaticalisation cases in the domain of verbal plurality

In this section, the linguistic scenario summarized in the previous section of the paper will be described and illustrated with data from all branches of Chadic.

7.1 Emergence of "extensive" aspect as a new verbal aspect category

One major innovation of Proto-Plateau-Sahel dialects was the creation of "**extensive aspect**" achieved by diagnostic re-grammaticalisation from

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Musgu	*tì-tìmi*	'taste'
Buduma:	*təraku / tə-təraku*	'tear'
	lan / la-lan	'fill out'

Traces of **internal-a** (or: external-a of the -ay/-aw suffix?) can be found in Zime-Mesme mono-radical verbs. Fossilized formations of either internal-a insertion or formative a-vocalisation are also found in Central-B Muzgu (adverbs tend to have a-vocalisation, whereas etymologically related verb stems have an overall high-vowel vocalisation) and Buduma (some mono-radical verbs):

Muzgu	adv. *tam*	verb *tìtìmi*	'taste'
Buduma	*tu > ta-du*		'buy'
	tə > ta-də		'pound'
	fì > fa-bi		'beat'

derivational to inflectional verb morphology. More precisely, some pluractional formatives, in some languages even all of them, were re-analysed and re-assigned functionally to mark "extensive aspect". I am here suggesting the term "extensive aspect" as a cover term for inflectional categories, which share the semantic notion of **extension in time**. This new term has two advantages:

a. It avoids the highly misleading if not totally inadequate or even false, term "imperfective aspect" which has hitherto been widely used to label this category.[38]
b. The proposed term highlights the common semantic denominator underlying the various language-specific usages of this category, i.e. "extension in time" as implied in descriptive terms like *frequentative, iterative, repeated, habitual, durative, prolonged, sustained action.*[39]

Note that prefixal reduplication (which was probably not a feature of the old North Chadic dialects anyway) does not appear to have been redesigned to mark extensive aspect in any Chadic language.[40] In some languages, pluractionals and extensive aspect coexist side by side using basically the same inherited formatives (like in Ron-Daffo, cf. also East Dangaleat), other languages have totally given up pluractional as a productive category after the sub-system transfer to "extensive aspect" had taken place. Sometimes new formatives, for instance, full reduplication and a peculiar CVC-reduplication have developed. In many instances it is impossible to know which formative or combination of formatives, lie behind the various "imperfective", "habitative", "habitual", etc. stems which share not only a morphological extension but also the notion of "extension in time" of the verbal action.[41] The following table illustrates the various formatives occurring in extensive aspect manifestations across "New Plateau-Sahel" languages.

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[38] The term "imperfective" immediately but unhappily and unnecessarily evokes the notion of a binary contrast of "perfective" vs. "imperfective" which is by no means implied in the diachronic grammaticalisation of "extensive aspect" from pluractionals in Chadic. Likewise, the otherwise fairly appropriate and better known term "linear" aspect would evoke yet another irrelevant binary contrast with "punctual" aspect. I consider it to be quite important to insist that "extensive" aspect does not take part in any kind of intrinsic aspectual dichotomy!

[39] Even their reading as describing *intensive action* can be understood as meaning *intensity* of action as achieved through *repetition* of action.

[40] I hereby explicitly disregard the one example from Mukulu (East-B): *niirè / ni-niirè* 'push'. "In Mukulu ... only one example of a pluractional formed by prefixal reduplication was found. It is hard to know whether this represents a real archaism or whether it is an isolated example of no significance." (Newman 1990: 63)

[41] H. Jungraithmayr, who had published several articles on the issue, occasionally referred to them in a semantically and functionally neutral way as "long stems" as opposed to "short stems", resting the distinction on the presence or absence of added phonological/morphological material. This useful formal distinction, however, becomes obsolete when more than one "marked" stem form part of the aspect system.

(22) "Extensive" Aspect Formations in New Plateau-Sahel Using PC "Pluractional" Markers

	West-A	East-B
C$_f$-gemination		**Migama** *with formative a-vocalisation:* *kutum- / kótómm-á* 'wrap' plus dummy C$_3$ for bi-radical verbs: *maat- / matt- / mátá-kk-á* 'die' *luw- / lòwò-kk-á* 'sow'
		Mubi with *–ay/*-aw suffixation: *bír- / bírr-à* 'fly' *zèɗî / zìɗɗ-áà* 'grow old'
C$_f$-reduplication	**Ron-Sha** with petrified formative a-vocalisation *(*mut > *mwat > mot)*: *mot- / mót-ôt* 'die'	
internal-a = formative a-vocalization & a-insertion	**Ron-Kulere** *duk- / dwá-á-k 'beat'* **Ron-Daffo** *mot- / mwa-á-t* 'die' **Ron-Bokkos** *lûl / lwá-à-l* 'ask'	**Mubi** *fílík / fílá-a-* 'exchange' **Dangaleat** *"imperfective"*: tapir- / tápárí *'help'* "durative": *tapir- / tapà-a-re* 'help'
suffix –ay/-aw	**Hausa** *dáfà- /dáfàa-wáa* 'cook' *fìtá / fìtá-a* 'go out'	**Migama** *ti- / tée-wá* 'eat'
	Kanakuru *pór- / pór-má* 'get out'	**Jegu** *maad- / maad-a* 'ask'
	Bole *sùrr- / súrr-à* 'fry'	**Dangaleat** "imperfective": *t- / tá-a* 'eat' *mat- / mat-a* 'die' "durative": *t- / tiyà-awe* 'eat' *mat- / matà-awe* 'die'
	Karekare *càw- / càw-áa* 'catch'	**Mubi** *bír- / bírr-à* 'fly' *zèɗî / zìɗɗ-áà* 'grow old'
	Ron-Kulere mot-/ mot-ay *'die'* **Ron-Sha** *nyà / nyà-y-ày* 'sleep'	

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7.2 New Plateau-Sahel: Parallel Formations in Verbal Derivational and Inflectional Morphology

In the newly established Plateau-Sahel group of languages, PC high confidence formatives of pluractionals co-occur both in their original derivational function and in their re-grammaticalized inflectional function. In West-A Tangale and the languages of the Ron Group as well as in East-B Dangaleat and Mubi, for instance, the same formatives, which are used for the innovated extensive aspect, we also find in their original derivational function in other languages of the group.

(23)   Verbal derivation ⟹ Verbal inflection in New Plateau-Sahel languages

	derivational morphology: pluractional	inflectional morphology: "extensive" aspect
formative a-vocalisation	*lexicalised*: Ron-Daffo; *internal schwa verb*: Miya, Ga'anda, Lamang, Podoko, Mandara, Zulgo, Gude	
internal a-insertion	*lexicalised*: Angas; *generalized*: Miya, Saya, Bidiya (*polyradical verbs*)	➔ *habitative:* Ron Group ➔ *durative-repetitive:* Dangaleat ➔ *imperfective:* Mubi
C-reduplication (pre-/suffixal)	(a) prefixal *heavy 1st syllable verbs*: Bole *frozen*: Hausa, Ron, Ngizim; Margi, Kapsiki, Mofu-Gudur, Muzgu; Kera, Kwang, Tobanga; Mukulu; *generalized*: Bade, Pa'a, Miya; Ga'anda (b) suffixal *doubtful*: Pero; *frozen*: Hausa, Dghwede; *one of two strategies*: Ngizim; Bade, Lamang (c) final consonant "gemination" *generalized:* Pero *lexicalised*: Bole, Kanakuru, Mubi, Mukulu *CVVCV verbs:* Migama	(a) prefixal ➔ *iterative* Tangale (b) suffixal ➔ *habitative* Ron Group

7.3 From Nominal to Verbal Morphology

Looking at potential reflexes of a common PC pluractional marker *-k-, the following unsatisfactory picture emerges:

(24) Likely and unlikely cognates of PC pluractional marker *-k-

	derivational morphology: pluractional	inflectional morphology: "extensive" aspect	inflectional morphology: plural agreement
infixal/suffixal *-k-	frozen/monoverbs: Dghwede (-ge)	➔ fossilized repetitive -k-: Bole ➔ imperfective -kk-: Migama (diconsonantal verbs)	➔ plural agreement: Daba (-igí), Tera (-kú), Gisiga (-ak/-am)

This interpretation is unsatisfactory for at least two reasons:

o   The formatives in Dghwede, Gisiga, Daba and Tera (all Central-A sub-branch) are phonologically and functionally too different from those found in Post-Plateau-Sahel Bole and Migama. Newman (1990:118) offers a plausible explanation according to which Daba –igí, Tera –kú, and Gisiga –ak were pluralizers borrowed directly from the nominal system after the loss of the original *-an plural verb stem. I see no reason why not to relate the Dghwede mono-verb pluractional marker –ge also to the nominal system.

o   The Central-A languages Dghwede, Gisiga, Daba and Tera have no immediate Proto-Plateau-Sahel ancestry, as opposed to West-A Bole and East-B Migama.

It would be more plausible to postulate the following two direct cross-over re-grammaticalisations from nominal to verbal morphology as we would postulate for a second case as well, i.e. the subsystem transfer of the marker *-ɗ(i):[42]

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[42] The true historical nature of Proto-Plateau-Sahel *-k- as reflected fossilized in West-A Bole, and productive in East-B Migama, however, must remain unclear until we can be more certain as to whether it is an original noun plural marker of its own standing, or whether it represents the "unweakened" manifestation of the plurality marker which is discussed below under *-aw, the likely fact notwithstanding that it's ultimate source is more likely the PC determiner *k as reconstructed by Schuh (1983)!

(25)   Verbal derivation/inflection ⟸ Noun plurals ⋅∵⋅∵⋅∷∷∷∷ Determiner

	derivational morphology: pluractional	inflectional morphology: plural agreement/extensive aspect	source: noun plurals < *det
marker *-k-	➜ *monoverbs/ fossilized* Dghwede ➜ *fossilized* Bole (repetitive)	➜ *plural agreement* Tera, Gisiga, Daba ➜ *extensive aspect* Migama	suffix *-(a) k (i)
suffix *-ɗ-	➜ *generalized*: Tangale ➜ *monoverbs*: Dghwede ➜ *lexicalised*: Bidiya		suffix *-ɗ (i)

7.4   The Special Case of Gisiga

Central-A Gisiga provides a very spectacular case of multiple re-grammaticalisation within its verbal morphology:

o loss of plural agreement verb stem marking with ***-an** leads to a compensational re-grammaticalisation and complementary distribution of two distinct morphemes: -ak (from the nominal system?!) and –am (from the imperative subsystem); [43]

o the marker –am/-ak thus acquires a generalized function to indicate "finite verb plurality" in the sense of a redundant feature of any "normal" subject-verb number agreement system. Highly economically but uniquely, Gisiga subsequently reduced this redundancy by doing away with the plural subset of subject pronouns, i.e. the functional load of plural marking is shifted entirely onto the verb:[44]

(26)   Gisiga finite verb pluralization through suffix *-am*

ʔi	kaɗ	'I kill'	ʔi	kəɗ-am	'we kill'
kə	kaɗ	'you kill'	kə	kəɗ-am	'you (pl) kill'
ʔa	kaɗ	'he/she/it kills'	ʔa	kəɗ-am	'they kill'

7.5   The Unsolved Problem of the *-aw/*-ay Suffix: How many Sources?

The nature and origin of the reconstructed suffix *-ay/*-aw remains somewhat "inconclusive … since glides often derive through weakening of other consonants (e.g. ***k > w** or ***sh > y**) or by means of epenthetic insertion at a very shallow time

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[43] The synchronic allomorph –ak occurs in non-final position (followed by an object pronoun or the ventive extension), -am occurs elsewhere.

[44] Lukas 1970. The following paradigm, however, is taken from Newman (1990:113).

depth" (Newman 1990:85). There are other disturbing observations to be made:

- o The marker *-k- above is found only in two Post-Plateau-Sahel languages in which the fairly widespread reflexes of *-ay/*-aw are conspicuously absent – reason enough to assume "weakening" of */k/ and to postulate cognation?
- o Whether East-A Lele –wi belongs here or rather reflects a direct crossover from noun plural marking (source PC *-i, with dissimilated epenthetic glide [-w-]?) remains to be investigated in more detail.
- o Miya's final –a may reflect a redundant feature of pluractional verbs (formative a-vocalisation) rather than a suffix in its own right.
- o The geographic distribution of *-aw appears to cut across the whole range of Chadic sub-branches; this would strengthen its reconstructability for PC.[45] When we remove the doubtful cases from this list, the remaining distribution – Central-A (Podoko), East-B (Bidiya & Dangaleat) – renders the issue inconclusive. Likewise, the distribution of *-ay remains inconclusive.[46] If, however, we follow Newman (1990) and take *-ay/*-aw to represent a single pluractional marker, the present-day distribution would point again towards **Plateau-Sahel** (West-A: Ron Group, East-B: Bidiya and Dangaleat) – with its reflexes in Central-A (Podoko, Zulgo, Daba) remaining to be accounted for!
- o Finally, the suffix PC *-ay/*-aw could also reflect a nominalizing morpheme in Chadic of yet not fully investigated distribution. Verbal nouns are often used as the predicate basis for periphrastic constructions, which cover many of the semantic domains, which we have attributed to extensive aspect.[47] This would be an accidental phonological similarity to begin with. Note, however, that this accidental phonological similarity may have favoured the conceptual merger of extensive aspect formation and a particular verbal noun formation at a later stage, i.e. re-grammaticalisation of a verbal nominaliser as extensive aspect marker. This hypothesis, however, still needs more detailed investigation.

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[45] Candidates are found in West-A (Hausa -`wáa ?), West-B (Miya –a ?), Central-A (Podoko), East-A (Lele –wi ?), East-B (Bidiya & Dangaleat).

[46] It is found in West-A Ron ("habitative"), Central-A Zulgo ("pluractional") and Daba ("durative").

[47] This overlap had already been noticed in early works ultimately related to the question of Chadic "imperfective" stems (Klingenheben 1928/29:262ff. on Proto-Semitic; Wolff 1977, 1979, 1984a, 1987a.)

(27)   Verbal derivation ⟹ Verbal inflection

	derivational morphology: pluractional	inflectional morphology: "extensive" aspect
suffix *–ay/*-aw < *-(a)k- ?	*-aw *mono-/bi-radical verbs:* Bidiya *generalized:* Podoko *(may add repetitive/ habitual reading)* *doubtful:* Lele, Miya *-(a)ya *non-schwa verbs:* Zulgo	*-aw ➔ *durative:* Dangaleat (mono-/biradical verbs) *-(a)y ➔ *durative:* Daba ➔ *habitative:* Ron Group

(28) Likely reflexes of PC nominaliser

suffix *-(a)y/w = nominaliser ?	nominaliser: e.g. Hausa (weak VN -ʾwáa ?), Lamang (-o), Migama (-aw/-o) nominaliser (y-prosody): Podoko, Ga'anda (VN linker)

7.6   From Derivational to Derivational

The PC suffix *-tV which Newman reconstructs "definitely…as an iterative (pluractional-like) stem formative" (Newman 1990:86) is considered to represent a derivational rather than an inflectional category, its use in addition to other reflexes of pluractional formation reflects its original nature as a derivational suffix.[48] Therefore, its usage as pluractional formative represents an instance of re-grammaticalisation from one derivational category to another.

(29)   Verbal derivation ⟸ Verbal derivation

	derivational morphology: pluractional	source: derivational iterative/repetitive
suffix *-tV	➔ *lexically restricted:* Sura ➔ *generalized:* Pero ➔ *lexicalised:* Kwang ➔ Somrai	*repetitive* stem: Bole *iterative:* Kera *repetitive/iterative:* Tobanga

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[48] Cf. also Bybee (1985:151): "…where there is inflectional aspect, the iterative stands outside the general system as a derivational rather than an inflectional category."

7.7   From Inflectional to Inflectional

In passing, we note one more instance of re-grammaticalisation, which Newman (1990) had already pointed out, i.e. the substitution of the (pre-) PC plural imperative marker (***-a**) by a suffix containing a diagnostic nasal consonant. Newman assumes this suffix to be cognate to the old plural agreement marker of the verb. This allows us to state re-grammaticalisation from one inflectional category to another.

(30)   Verbal inflection   ⬅━━━   Verbal inflection

imperative subsystem	source: plural agreement
➔ *plural imperatives*: *-un(u)* Saya, Ron-Sha, Logone, Dangaleat, Migama, Bidiya, Mubi	suffix *-an

8.   Summary and Conclusion

Verbal plurality forms a complex and old set of subsystems in the grammar of Chadic languages. Most Chadic languages have pluractional verb stems either as a productive category, or they have given up pluractional as a productive category and only show fossilized reflexes of it, if any. Some Chadic languages have innovated an inflectional formation referred to as "extensive aspect". In very few languages, pluractionals and extensive aspect coexist side-by-side using basically the same inherited formatives (like in Ron-Daffo and Dangaleat). Few languages have also retained a system of plural agreement with the grammatical subject that is marked on the verb. Many again use a special marker for plural imperatives. Many languages use same or very similar formatives, but at times for quite different categories, derivational and/or inflectional. Some of these formatives appear to have spread into verbal morphology from nominal morphology and can ultimately be traced back to markers of the PC determiner system.

Regarding grammaticalisation chains and the re-grammaticalisation processes involved, we arrive at the following conclusions:

1. **Areal factors:** Our study confirms, first of all, the sensitivity of grammaticalisation processes to areal factors as expected following Heine (1997). Indeed, grammaticalisation processes can be used to identify early divisions of the Proto-Chadic dialect chain.
2. **Exclusivity of unidirectionality:** As expected, a fair number of re-grammaticalisation processes were unidirectional:

(31)   Unidirectional re-grammaticalisations

subject-verb plural agreement	➔	plural imperative
	➔	finite verb plurality
noun plural	➔	plural agreement (subject-verb)
	➔	pluractional
	➔	extensive aspect (continuous/progressive, durative, frequentative, habitual, etc.)

However, as Frajzyngier had already argued (1997a, interestingly also using Chadic data), we are forced to also accept bi-directionality, at least for cases here referred to as re-grammaticalisation, i.e. from one grammatical marker to another. If our analysis is historically correct, then PC pluractional markers were re-grammaticalized as either extensive aspect markers or as otherwise indicating durative and habitual connotations of repeated actions and processes in several New Plateau-Sahel languages (West-A and East-B), and the PC iterative marker was re-grammaticalized (in a merger of categories) to mark pluractionals in at least four languages quite independently in two branches (West-A: Sura, Pero; East-A: Kwang, Somrai), which share no particular connection in our historical scenario.

(32)   Bi-directional re-grammaticalisation

pluractional	➔	extensive aspect (continuous/progressive, durative, frequentative, habitual, etc.)
	←	iterative/repetitive

3. **Direction from less grammatical or abstract to more grammatical or abstract:** Since the cases of re-grammaticalisation discussed in this paper involve exclusively grammatical markers rather than lexical sources, any classification in terms of more and less abstract and/or grammatical would appear, on first sight, to be rather ad hoc. However, looked at in terms of grammaticalisation **chains** – and if our basic assumptions about the directions of grammaticalisation hold – we would be able to identify the Chadic-internal degrees of grammaticalness and/or abstractness as indicated by the unidirectional arrows in (33):

(33)   Grammaticalisation chains in the domain of verbal plurality in Chadic

less grammatical/abstract   more grammatical/abstract
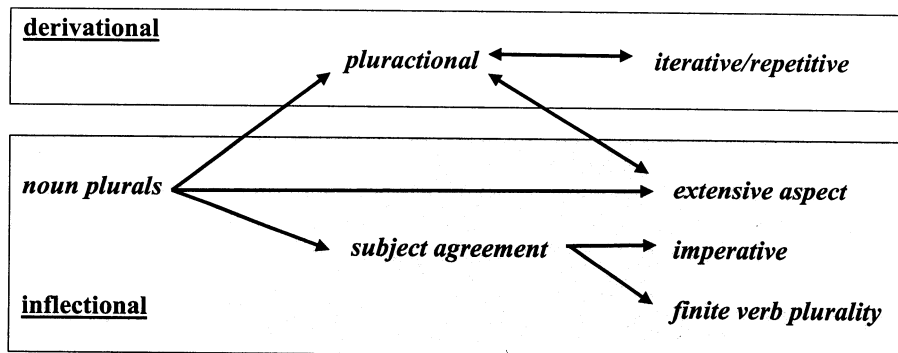
Taking the generalizations a bit further, the following overall pattern of re-grammaticalisation is identified, taking into account a wider array of grammatical subsystems in Chadic: Re-grammaticalisation of plurality markers appears to proceed, first of all, unidirectionally from nominal morphology to verbal morphology. Within nominal morphology, it appears likely that it proceeds unidirectionally from determiners to nouns. Within verbal morphology, however, re-grammaticalisation may proceed bi-directional between derivational and inflectional morphology, yet with what appears to be a systematic lack of symmetry between the three grammatical categories involved:

(34)   Asymmetry of re-grammaticalisation within verbal plurality
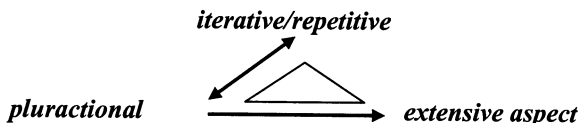
Further, we notice that all inflectional (imperatives, agreement with subject, aspect) and all derivational (pluractional, iterative) categories within the domain of verbal plurality are affected, but that the highly remarkable bi-directional re-grammaticalisation processes in all cases affect at least one member of the derivational subsystem (pluractional, iterative). However, if we are willing to accept that "extensive aspect" in Chadic, because of its derivational origin from pluractionals, remains a derivational category (somewhat counter-intuitively when we look at its integration into the synchronic inflectional systems of the languages where it is found), then we are allowed one further generalization to the effect that bi-directionality of re-grammaticalisation is restricted to derivational categories

(and if only diachronically derivative!). Future investigations into other grammatical subsystems within or beyond Chadic must show how "local" or how "universal" this last generalization is.

APPENDIX:
Overall discussion of grammaticalisation of plural marking in Chadic, i.e. beyond verbal plurality as treated in the present paper

Within an overall discussion of grammaticalisation of plural marking in Chadic, we are faced with different scenarios expressed in the literature:

1. Morphological plural marking said to be independent of or prior to, noun/verb distinction in Chadic or Afroasiatic (Frajzyngier 1977:37).

2. Origin: Pre-existing different plural marking paradigms: A. nominal & B. verbal, with subsequent "internal borrowing" A ⇔ B (Frajzyngier 1977:37, Newman 1990); in particular
    o Verbal plural markers ⇒ nominal plural markers
       Frajzyngier (1977) for consonant gemination, syllable reduplication, a-insertion;
    o Nominal plural markers ⇒ verbal plural markers
       Newman (1990) for Daba *{-igi}*, Tera *{-ku}*, Gisiga *{-ak}*.

3. Common source (deictic/determiner/anaphor) morpheme(s) ⇒ nominal & verbal plural markers, combined with hypothesis that "nominal plural markers in Chadic languages are never inflectional" (Frajzyngier 1997a: 194ff.).

On the other hand, the truth for Chadic may lie in the typological validity of all three scenarios with regard to the "expression" of plurality in both the common proto-language as well as a given modern language:

(a) "Plurality" could have well been also a syntactic category (domains: clause, noun phrase, verb phrase – deictic / determiner / anaphor / pronominal subsystems); this would explain some of the idiosyncrasies of Chadic plural marking:
     "In the majority of Chadic languages, even if a languages has nominal number coding, its use is said to be 'rare' or 'optional'. In no Chadic language can the nominal plural marker, even if bound to a noun, be said to be an inflectional morpheme in the sense of being obligatory when the referent of the noun is more than one." (Frajzyngier 1997a: 195)

(b) "Plurality" was most likely <u>also</u> an inflectional category for both nominal & verbal lexemes; this would mean to accept

- a PC system with bound determiner morphemes as reconstructed by Schuh (1983) which, however, became functionally weak and was superseded by "new" determiner systems; the "old" determiner markers either became defunct and fused with the noun stem (cf. Lamang dialect forms *fiti ~ fitək* 'sun', *pala ~ palak* 'rock', etc.) or became re-employed elsewhere in the language, for instance, for overtly and redundantly marking plurality;
- and a kind of "weak" noun plural marking (probably by simple vocalization patterns: vocalic polarity of some sort, possibly prominent: final *-i*, cf. below) which later became "reinforced" by re-grammaticalisation of other markers to overtly but pleonastically re-mark noun plurals where necessary (e.g. internal-a and semantically re-orientated PC determiners);
- "strong" marking of plurality in the verbal system, both inflectionally (imperatives, plural subject agreement) and derivationally (pluractional, iterative);
- once the "new" overt noun plural markers had established themselves, they began to fluctuate between the domains of verbal and nominal morphology.

This is basically the underlying assumption regarding the graphic representation in (12) further above – allowing for uni- and bi-directional re-grammaticalisation processes.

If our proposed historio-linguistic assumptions are acceptable, then the grammaticalisation story of Chadic plural marking will have to be revised again towards a more complex scenario (35) to supersede the rather simplistic one depicted in (11) further above and to be compared to the one proposed by Frajzyngier (1997a, cf. *Excursus* further above):

(35)   Revised scenario of re-grammaticalisation of plurality in Chadic
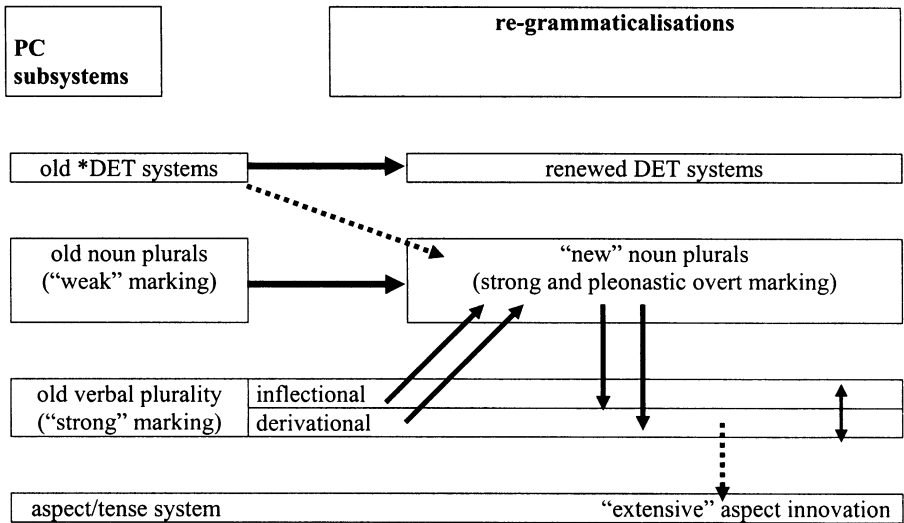
A basic and yet unsolved problem underlying this scenario remains and needs further study: If most synchronic markers of nominal and verbal plurality in Chadic are cognate to PC determiners and can or must be explained in terms of re-grammaticalisation – what were the original markers of nominal and verbal plurality? An outlook on possible answers is given below.

1. In terms of my present working hypothesis, it might turn out that there was initially a partial number-sensitive **vocalic polarity** at work in the morphology of PC verbs (cf. Newman 1990:135 for PC imperatives and reference to Cushitic), and possibly in nouns as well:

		SINGULAR	PLURAL	
	VERBS	***-i [~u]***	***-a***	/ imperatives
vocalic		***schwa verbs***	***-a-***	/ pluractionals
polarity				
	NOUNS	***ə [~i ,~u]***	***a [~e,~o]***	
		a [~e,~o]	***ə [~i~u]***	vocalic polarity

2. The verbal plural formative ***a** of schwa verbs ("*formative a-vocalisation*"), the archaic **-i/*-a* polarity of the imperative, plus the [+low] vocalic pattern

for some noun plurals later together developed into a "new" generalized plural morpheme *-a-* ("*internal-a*") which could freely and pleonastically combine with verbs and nouns independent of lexical vowel patterns and morphological structure. As such, "internal-a" is neither verbal nor nominal by origin, it rather represents a very early instance of re-grammaticalisation![49] At about the same time, the [non-low] vocalic pattern for the other nouns could have developed into a generalized (noun) plural marker *-i*.

3. The re-grammaticalisation scenario sketched out in (35) would yield complex overt plural marking involving two or more formatives of different origin; this would also provide tentative answers to some of the questions left open in Newman's (1990) comprehensive study. Still in terms of working hypotheses, I would assume the feasibility of the following more specific reconstructions:

(36) Tentative compositional analysis of PC nominal and verbal plural markers

Newman	noun plural marker	proposed	compositional analysis
(1990:16ff.)	*-aki	*-k-i* *-a-k-i*	*-k* previous reference *-i* noun plural *-a-* internal-a
(1990:21ff.)	*-n- (-VN, -NV, -VN ?)	*-n-i,* *-a-n-i*	*-n* demonstrative [non-f/sg] *-i* noun plural *-a-* internal-a
(1990:26ff.)	*-ɗ (i)	*-ɗ-i* *-a-ɗ-i*	*-ɗ* definite *-i* noun plural *-a-* internal-a
(1990:28ff.)	*-i ([-e])	*-i* *-a- + -i*	*-i* noun plural *-a-* internal-a (before final C)
(1990:31ff.)	*-ai/*-ay ([-e])	*-a-y-i*	*-i* noun plural *-i* definite or [-y-] epenthetic glide *-a-* internal-a
(1990:36ff.)	-au / -aw	?	phonological variant of *-a-y-i* ?

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[49] This would explain why "even though internal-a noun plurals are widely found in Chadic, the evidence for reconstructing them back to the PC level is weak... The numerous examples of internal-a pluractionals, on the other hand, do look like cognates deriving from a common reconstructable structure." (Newman 1990:134)

	pluractional marker		
(1990:72ff.)	*vocalic ablaut/apophony*		*formative a-vocalisation (&) *-a-* internal-a*
(1990:77ff.)	**-ɗ-**	***-ɗ*** / ***-a-ɗ***	*-ɗ* definite / *-a-* internal-a / cf. noun plurals *-ɗ-i, *-a-ɗ-i*
(1990:78ff.)	**-ay/-aw , (-a)**	***-a-y***	*-i* definite / *-a-* internal-a / cf. noun plurals *-a-y-i*

	agreement marker		
(1990:117f.)	**-(a)n**	***-a-n***	*-n* demonstrative [non-f/sg] / *-a-* internal-a / cf. noun plurals *-n-i,*-a-n-i*

	imperative marker		
(1990:127ff.)	**-a**		
(1990:125ff.)	**-am(ə)**	***-a-mə***	Proto-Central-A innovation (1990:131) / *-mə* pers. pronoun [pl. incl.] ? / *-a-* internal-a
(1990:129ff.)	**-unu**	***-nə*** / ***-a-n(a)***	*-n* demonstrative [non-f/sg] / *-a-* internal-a / cf. plural agreement *-a-n* / cf. noun plurals *-n-i,*-a-n-i*

	iterative marker		
(1990:80ff.)	**-tV**		purely accidental phonological similarity with *-t* demonstrative [+f/sg]

It is hoped that comparative Chadicists and Afroasiaticists might find all this a useful starting point for further investigations.

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