

## The Formation of the Imperfective Verb Stem in Chadic\*

by Paul Newman

1. A widespread characteristic of Afroasiatic languages is the use of internal vowel changes (apophony) to indicate differences in aspect, e.g. the opposition in the Akkadian verb between *i-prus* (preterite) vs. *i-párras* (present) 'to divide'. Writing in 1952, shortly after his incorporation of the Chadic family within Afroasiatic, Greenberg pointed out similarities between the imperfective form of the verb in Mubi (an East Chadic language)<sup>1</sup> and his reconstructed Afroasiatic "present", characterized inter alia by the replacement of a basic stem vowel by the vowel *-a-*. In 1966, Jungraithmayr documented the use of internal *-a-* in forming the "Habitativstamm" in Ron (a group of West Chadic languages) and again raised the question of a possible historical connection between this stem and the Akkadian present, e.g. Ron (Daffo) *mot/mwaát*, Akkadian *muut/maat* 'to die'. This initial study was followed by a succession of interesting articles in which the formation of imperfective stems by apophony was documented elsewhere in Chadic and further explored from various typological and historical points of view. Over the past ten years, the idea that apophony plays a major role in the formation of imperfective stems in Chadic has advanced from a tentative hypothesis to a well-established, generally accepted part of our understanding of Chadic verbal systems. Very recently, for example, Schuh (1976) was able to assert without hesitation that the apophonically formed habitual verb stem in Ron (Daffo) could be taken as representative of Chadic as a whole, which, in turn, was "clearly related formally and semantically to Greenberg's reconstructed Afroasiatic Present stem" (p. 10).

The purpose of the present paper is to question this generally accepted idea regarding the role of apophony in building the imperfec-

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<sup>1</sup> Schuh (1976) correctly identified the language in question as Mubi. Greenberg had mistakenly labelled his examples as being from Sokoro, another East Chadic language.

tive stem in Chadic. The position I wish to take is that the formation of imperfective stems by apophony is not an old feature of Chadic, and thus that the similarity between isolated examples in Chadic and other Afroasiatic languages is due to accidental resemblance without historical significance. This claim is based on a reanalysis of Chadic materials, in which the examples commonly cited of apophonically formed imperfective stems can be seen to be either (a) a result of internal synchronic processes not formerly recognized<sup>2</sup>, or (b) the result of historical innovations of very shallow time depth<sup>3</sup>.

1.1. Before presenting the evidence, let me first place the question in its proper perspective by outlining the four major assumptions on which the presently-accepted view of the Chadic verbal system is based.

(1) FUNDAMENTAL BINARY DISTINCTION BETWEEN PERFECTIVE ASPECT AND IMPERFECTIVE ASPECT.

All Chadic languages have various conjugational means by which they express "past", "continuous", "future", "habitual", etc., these various categories generally being called "tense" or "aspect". The essence of this first assumption is that these various conjugational categories, however numerous, can be assigned at a higher level to one of two classes, Perfective vs. Imperfective. Following the suggestion of Jungraithmayr (1974b), I shall restrict the term "aspect" to the two higher-level categories, Perfective/Imperfective, and shall use the term "tense" for the individual conjugational forms. Thus in standard Hausa, individual "tenses" such as the perfect, relative perfect, negative perfect, subjunctive, and habitual would belong to the "Perfective Aspect", while the continuous, relative continuous, and negative continuous "tenses" would belong to the "Imperfective Aspect". It should be pointed out that the assignment of specific tenses to one or the other aspect varies from language to language. In standard Hausa, for example, the future tense has to be assigned

<sup>2</sup> One should emphasize that the term "apophony" (= "Ablaut" = "vocalic mutation") refers only to morphologically conditioned vowel changes and not to vowel changes conditioned by the phonological environment; see Andrzejewski (1975) and Kuryłowicz (1958).

<sup>3</sup> Diakonoff had prudently warned that semblances of archaisms in Chadic could be illusory since "the features in question may in point of fact prove to be the outcome of an isolated secondary development" (1965:14).

to the Perfective aspect, while in the Tibiri dialect of Hausa (Gouffé 1967/68), as in Kanakuru (Newman 1974), the future patterns with the continuous tense and belongs to the Imperfective aspect. Similarly, the Hausa habitual belongs to the Perfective aspect, while in Ron (Daffo), the habitual is the Imperfective Aspect tense par excellence.

(2) RELATIONSHIP OF PERFECTIVE ASPECT TO IMPERFECTIVE ASPECT SEEN AS ONE OF UNMARKED VS. MARKED.

The marked nature of the Imperfective vis-à-vis the Perfective (Jungraithmayr 1974b: 4) holds at both the morphological and semantic levels<sup>4</sup>. Morphologically, the Imperfective is viewed as an "extended" form derived directly from the Perfective form, which is treated as essentially equivalent to the unmarked verbal base. Semantically, the Imperfective also seems to be the marked category, although this assumption has not been discussed. The term "Perfective" is thus misleading since it implies that the tenses belonging to this aspect share the semantic property of completed action, whereas in fact "Perfective" is simply a cover term for including everything that is not "Imperfective". Strictly speaking, a pair of labels such as "Non-durative" (= Perfective) vs. "Durative" (= Imperfective) — corresponding to "non-extended" vs. "extended" at the morphological level — would be preferable to Perfective/Imperfective; but for the purposes of this paper, I shall retain the familiar terminology that has now become established in the literature.

(3) ASPECTUAL DIFFERENCES FORMALLY MARKED BY A DIFFERENCE IN THE VERB STEM.

The general idea that used to be held about Chadic was that the verb itself was always invariant and that tenses (or aspects) were indicated by special forms of the pre-verbal pronoun and/or special auxiliary particles and/or by differences in word order. The only apparent exception concerned the verbal form used in certain languages in the progressive tense, but this was easily interpreted as a replacement of a finite verb by a verbal noun (nom déverbatif) and not as a true inflection of the verb stem per se (cf. Bagari 1971,

<sup>4</sup> In Jungraithmayr's 1966 paper, the Perfective was taken to be a marked category. This position was explicitly reversed in subsequent publications.

Jungraithmayr 1975, and Schuh 1976). The current view, however, is that, historically speaking, Chadic verbs were not invariant and that aspectual distinctions (such as Perfective/Imperfective) were marked by changes in the verb stem themselves in addition to whatever other markers (if any) that might have been used. Languages such as Gisiga in which the verb stem remains essentially unaltered regardless of tense/aspect are thus to be viewed as innovative and not representative of the Chadic family as a whole.

(4) IMPERFECTIVE STEM FORMED BY APOPHONY INVOLVING INTERNAL -a-.

In present-day languages in which the verb stem is altered in different aspects, the marked Imperfective stem is derived from the basic stem sometimes by apophony, sometimes by suffixation, and sometimes by tonal changes (or some combination of these three means). Apophony, involving the replacement of a stem-internal vowel by -a-, is regarded as the basic, historically earliest process by which the Imperfective stem in Chadic was formed. As such, this morphological process can be related to similar processes found elsewhere in Afroasiatic (cf. Jungraithmayr 1968). The other means by which Imperfective stems are now formed in Chadic are thus necessarily historically later developments.

1.2. How well do these four assumptions hold up under careful scrutiny? Assumption (1) might ultimately prove to be correct, although it is not obviously so. In order to evaluate it properly, the essence of the claim would have to be elaborated in greater detail. Specifically, one would need to know in what respects and at which levels is this basic binary distinction supposed to be valid. In modern West Chadic languages, for example, one often has to distinguish three different aspect stems at the morphological level — Perfective, Subjunctive, and Imperfective — whereas the binary Perfective/Imperfective opposition generally remains adequate for syntactic purposes. Assumption (2) seems even more questionable. The problem is that, while it is true that the Imperfective stem is usually morphologically marked, it is not true that the Perfective is always unmarked. Rather, it is quite common to find both the Imperfective and Perfective stems as marked forms in relation to some underlying lexical base, cf. the case of Ron (Jungraithmayr 1970). Assumption (3) is almost certainly correct. At an earlier period, when our conception

of Chadic was based almost exclusively on Hausa, it seemed reasonable to typify the Chadic conjugational system as one in which "as in surrounding languages of the Niger-Congo family, the verb remains unaltered..." (Greenberg 1952:7). However, with the information now available on a number of previously undescribed languages, we know that the invariant verb stem is not the Chadic norm and that many Chadic languages inflect the verb stem itself in order to indicate tense and/or aspect. Our awareness of the importance of verbal inflection in Chadic is due in great part to the comparative studies of Jungraithmayr (see References). Finally, assumption (4), the "apophony hypothesis", seems to me to be certainly wrong. In what follows, I shall demonstrate why I think that this is so and offer an alternative hypothesis as to how Imperfective stems might have been formed in Chadic.

1.3. The two languages most often cited as best exemplifying the use of apophony in the Imperfective stem forms are Mubi (East Chadic) and Ron-Daffo (West Chadic). These two languages will be examined for that reason. In addition, I shall also illustrate Imperfective stem formation in Somrai (another East Chadic language purported to use apophony) since it provides such a clearcut example of confusion between apophony as a morphological process and vowel assimilation as a natural phonological process.

2. The role of apophony in the formation of Imperfective stems in MUBI is usually illustrated by Perfective/Imperfective pairs such as the following (taken from Jungraithmayr 1973:2-3): *feric/ſrac* urinate; *goluc/guloc* ruminant; *bar/birar* give; *rot/rudda* enter.

2.1. The situation looks different, however, if one considers a larger list of Mubi verbs in which the infinitive form is also provided. Compare the following (taken from Jungraithmayr 1974a: 589):

	Perfective stem	Infinitive	Imperfective stem
(a) be silent	<i>sòl</i>	<i>súul-í</i>	<i>síllà</i>
enter	<i>rót</i>	<i>rúud-í</i>	<i>rúddà</i>
wash	<i>cóp</i>	<i>cúub-í</i>	<i>cúffà</i>
meet	<i>rób</i>	<i>rúub-í</i>	<i>rúffà</i>
cook	<i>reb</i>	<i>rúub-í</i>	<i>rúffà</i>
fly	<i>bër</i>	<i>bír</i>	<i>bírrà</i>

	Perfective stem	Infinitive	Imperfective stem
(b) weave	<i>rát</i>	<i>rád-é</i>	<i>ridát</i>
drive out	<i>ták</i>	<i>tág-é</i>	<i>tigák</i>
swallow	<i>sác</i>	<i>(sá'j-é)</i>	<i>si'jác</i>
give	<i>bār</i>	<i>bár</i>	<i>birar</i>
become tired	<i>wār</i>	<i>wár</i>	<i>wīrar</i>
(c) urinate	<i>feríc</i>	<i>ƒara'j-é</i>	<i>firác</i>
bite	<i>'ewít</i>	<i>'awad-é</i>	<i>'uwát</i>
fall	<i>ƒóót</i>	<i>'afad-é</i>	<i>'ufát</i>
die	<i>máát</i>	<i>(?)</i>	<i>muwát</i>
approach	<i>'jemík</i>	<i>'jemeg-é</i>	<i>'jimék</i>
ruminant	<i>golúc</i>	<i>golo'j-é</i>	<i>gulóc</i>
dance/play	<i>'udrík</i>	<i>'odog-é</i>	<i>'udóók</i>
wrap	<i>'usúk</i>	<i>'osog-é</i>	<i>'usóók</i>
(d) eat	<i>tìi</i>	<i>(?)</i>	<i>tíwàà</i>
drink	<i>sìi</i>	<i>(?)</i>	<i>síwàà</i>
take	<i>cii</i>	<i>(?)</i>	<i>cuwa</i>

2.2. It seems clear that the Imperfective stem in Mubi is formed not from the Perfective stem, but rather from the verb root, which can be identified as the infinitive form minus the final vowel<sup>5</sup>. Starting with the root as defined, the formation of the Imperfective stem can best be described not by reference to "apophony" in some general sense, but by a series of explicit rules applying regularly to phonologically specified classes of verb roots. (The letters below refer to the class of examples given above.)

(a) Diconsonantal roots with a high root vowel form Imperfective stems by a suffix *Cà* (where C represents a copy of the preceding consonant), i.e.

$$C_1V_{[+hi]}(V)C_2 \rightarrow C_1\check{V}C_2C_2\grave{a} \quad \text{e.g. } \textit{bir} \rightarrow \textit{birrà}$$

This rule is accompanied by a shortening of internal long vowels and by certain changes in the geminate consonants themselves, e.g. *riíb-* → *\*riíbbà* → *riífà*. Whether these changes are the result of automatic phonological rules in Mubi or whether they are morphologically restricted, they are clearly of a secondary nature.

<sup>5</sup> The infinitive marker appears to be -i after a high vowel, -e after a non-high vowel, and ø after a CVC root where the final C is a sonorant.

(b) Diconsonantal roots with /a/ as the root vowel form Imperfective stems by a suffix *áC*, i.e.

$C_1aC_2 \rightarrow C_1aC_2áC_2$  e.g. *tág* → \**tagág* → *tigág* [*tigák*]<sup>6</sup>

The replacement of /a/ in the first syllable by /i/ is due to a more general dissimilation rule to be described under (c).

(c) Triconsonantal roots use the root with final tone raised as the Imperfective stem. No suffix is added. The quality of the first vowel is determined by a dissimilation rule, shared by class (b), changing /o/ to /u/, and /e/ and /a/ to /i/ (with a further change of /i/ to /u/ when followed by a labial consonant)<sup>7</sup>, e.g.

*golo'j* → \**goló'j* → *guló'j* [*gulóc*]

*'awad* → \**'awád* → \**'iwád* → *'uwád* [*'uwát*]

(d) The three monoconsonantal verbs ("monoverbs") for which I have data form Imperfective stems by use of a suffix (*u*)*wàà*. The exact formulation of the rule would depend on the form of the infinitive of these verbs, for which I have no examples; but the Imperfective marker itself seems straightforward in any case.

2.3. From the above, one can generalize that the major productive process in the formation of Imperfective stems in Mubi is suffixation, the choice of *Cà*, *áC*, or (*u*)*wàà* being predictable. To the extent that there is internal vowel change, it is of a secondary nature (a phonological appendage to the primary process) and not a reflex of true apophony functioning as a morphological device.

2.4. The real apophony in Mubi is to be found in the Perfective stem. As indicated earlier in discussing assumption (2), the Perfective is ideally an unmarked aspect and the Perfective stem is ideally an unmarked stem, identical to the underlying verb base. In Mubi, this happens not to be the case. Rather, the Perfective stem is also a marked, inflected form, being derived from the basic/infinitive form by certain morphological means — one of which, synchronically at least, appears to be apophony.

<sup>6</sup> One can assume that the *g* to *k* change in final position is simply a manifestation of a more general rule affecting all obstruents in Mubi, whereby the voiceless/voiced/glottalized contrast is neutralized in that position.

<sup>7</sup> If the /i/ is preceded by a palatal consonant, the change to /u/ is blocked, e.g. *'i/at* → *'u/at*, but *'jimek* remains as it is.

3. Another language said to employ apophony in the formation of the Imperfective stem is SOMRAI, also an East Chadic language, but belonging to a different subbranch from Mubi. Consider the following (taken from Jungraithmayr 1976)<sup>8</sup>:

	Perfec- tive	Imperfec- tive		Perfec- tive	Imperfec- tive
die	<i>mar</i>	<i>mara</i>	drink	<i>shà</i>	<i>shàa</i>
keep	<i>gam</i>	<i>gama</i>	give birth	<i>yà</i>	<i>yàa</i>
deceive	<i>là̄m</i>	<i>là̄ma</i>	stand up	<i>sò</i>	<i>s<sup>w</sup>àa</i>
cough	<i>'ásɛ</i>	<i>'ása</i>			
eat (meat)	<i>wom</i>	<i>wama</i>	show	<i>gìl</i>	<i>gìlè</i>
fill	<i>'won</i>	<i>'wana</i>	refuse	<i>gíny</i>	<i>gínyè</i>
call	<i>'wògɔ̀</i>	<i>'wàga</i>	bite	<i>yidi</i>	<i>yidè</i>
loosen (?), lose (?)	<i>nol</i>	<i>n<sup>w</sup>ala</i>	halt	<i>dìbi</i>	<i>dibè</i>
plant	<i>dév</i>	<i>d<sup>w</sup>áwa</i>	seize	<i>yè</i>	<i>yèè</i>
run	<i>wà</i>	<i>wàa</i>	descend	<i>shé</i>	<i>shéè</i>
swallow	<i>shé</i>	<i>sháa</i>	bury	<i>mù</i>	<i>mòo</i> ( <i>&lt; *mùè</i> )

3.1. As seen from the examples, the Imperfective stem in Somrai is formed in a regular manner by the addition of a vocalic suffix to the basic/perfective stem. In the case of polyconsonantal verbs with final *ɛ* (in all of which the final C is an obstruent), the *ɛ* is dropped before the suffix is added. The underlying form of the suffix is *-a*. The actually occurring surface forms result from the application of the following rules:

- (1) Assimilation of suffix to high stem vowel  
 $a \rightarrow \text{ə} / V_{[+h]} \text{—}$  e.g. *\*gìl-a \rightarrow gìlè*
- (2) Assimilation of mid stem vowel to suffix  
 $o/e \rightarrow a / \text{—}a$  e.g. *wom-a \rightarrow wama*

Note 1: "Hidden" labialization and palatalization reappear before *a*, i.e. *nola \rightarrow n<sup>w</sup>ala*

Note 2: The examples available suggest the interpretation of *o* and *e* as *ə* after labialized and palatalized C's, respectively, i.e. *nol < \*n<sup>w</sup>əl*, *dév < \*d<sup>w</sup>əw*. If this is correct, then assimilation rule (2) can be restated as  $\text{ə} \rightarrow a / \text{—}a$ , which is even simpler than the already simple  $o/e \rightarrow a$  rule.

<sup>8</sup> In the Somrai examples, *ɛ* represents the higher and *ə* the lower of the two centralized vowels; this is the reverse of the transcription system used by Jungraithmayr.



## (3) Vowel simplification in CVV verbs

CV<sub>1</sub>V<sub>2</sub> → CV<sub>2</sub>V<sub>2</sub>e.g. *yà-a* → *yàa**yà-a* → *yàa*

3.2. While there are obviously surface differences between vowels in some Perfective/Imperfective pairs in Somrai, these are fully accounted for by the simple, phonologically natural rules just presented. Recourse to apophony in these cases introduces a cumbersome morphological device into the picture for which there is no evidence and no need.

4. Within the RON group of languages (West Chadic), apophony is best illustrated by Ron-Daffo. Here the use of internal *-aa-* (plus certain tonal changes) to form the Imperfective stem ("Habitativstamm") is regular and presumably productive, as in the following (all Ron data taken from Jungraithmayr 1970):

## Ron-Daffo

	Basic Stem	Imperfective Stem		Basic Stem	Imperfective Stem
cook	<i>jih</i>	<i>jʷààh</i>	break	<i>ɓàk</i>	<i>ɓààk</i>
beat	<i>zut</i>	<i>zʷaàt</i>	be sly	<i>njulʷus</i>	<i>njulʷaàs</i>
cut	<i>léf</i>	<i>lʷaàf</i>	swear	<i>shidèt</i>	<i>shidʷaàt</i>
die	<i>mot</i>	<i>mʷaàt</i>			

4.1. In Ron-Kulere, only verbs with a high vowel in the basic stem form the Imperfective stem by internal *-aa-*. Other verbs form the Imperfective stem by adding a suffix *-ay*. This suffix is accompanied by obligatory stem-vowel assimilation in the case of stems with */e/*, optional or lexically specific assimilation in the case of stems with */o/*, e.g.:

## Ron-Kulere

	Basic Stem	Imperfective Stem		Basic Stem	Imperfective Stem
beg	<i>ndim</i>	<i>ndʷaàm</i>	kill	<i>zʷèl</i>	<i>zʷalày</i>
throw	<i>mbil</i>	<i>mbʷaàl</i>	die	<i>mot</i>	<i>mótày</i>
beat	<i>duk</i>	<i>dʷaàk</i>	pound	<i>lèt</i>	<i>lʷatày</i>
fall	<i>fur</i>	<i>fʷaàr</i>	do	<i>wot</i>	<i>wótày/wátày</i>
			pay	<i>tal</i>	<i>tálày</i>
know	<i>sʷen</i>	<i>sʷanáy</i>	jump	<i>làŋ</i>	<i>làŋáy</i>

4.2. Ron-Sha forms the Imperfective stem by reduplicating the final VC of the stem. Verbs with a high vowel in the basic stem replace the stem vowel by *a* before applying the reduplication rule. In verbs with more than one vowel, the vowel replacement applies only to the last vowel (as is also the case in Ron-Daffo), e.g.:

## Ron-Sha

	Basic Stem	Imperfective Stem		Basic Stem	Imperfective Stem
ask	<i>yɪl</i>	<i>yàlɪl</i>	mix	<i>yèr</i>	<i>yèrèr</i>
lick	<i>līg</i>	<i>lʷágáǵ</i>	die	<i>môt</i>	<i>mótót</i>
dance	<i>wun</i>	<i>wánán</i>	say	<i>tòn</i>	<i>tònòn</i>
grind	<i>nún</i>	<i>nʷánán</i>	pay	<i>tal</i>	<i>tálál</i>
jump	<i>bín</i>	<i>bʷánán</i>	break	<i>bàk</i>	<i>bàkàk</i>
send	<i>tìs</i>	<i>tʷàsàs</i>	spit	<i>tʷyàf</i>	<i>tʷyàfàf</i>
know	<i>sʷen</i>	<i>sʷénén</i>	repair	<i>dumo'</i>	<i>dumo'ò'</i>

4.3. From a synchronic point of view, one must acknowledge the existence of apophony in the formation of at least some Imperfective stems in at least some Ron languages. The situation is thus not the same as in Mubi, Somrai, and other East Chadic languages where apophony in the proper sense of the term does not exist. The question as it affects Ron is an historical one: is the use of apophony in forming Imperfective stems a retention of an archaic feature, as has been assumed (e.g. Jungraithmayr 1968), or is it the result of relatively recent innovations? If it were an archaic feature inherited from the earliest Chadic period, it should be easily reconstructable for the ancestor language of the closely related Ron group. But this is not the case. Consider the following table in which Imperfective stems in Daffo, Kulere, and Sha are put side by side.

	BASIC STEM FORM	IMPERFECTIVE STEM		
		Daffo	Kulere	Sha
CiC:	<i>jih/ndim/lig</i> cook beg lick	<i>jʷààh</i>	<i>ndʷààm</i>	<i>lʷág-ǵǵ</i>
CuC:	<i>zut/duk/bur</i> beat beat bury	<i>zʷaát</i>	<i>dʷáák</i>	<i>bʷár-ár</i>
CeC:	<i>hʷek/sʷen/sʷen</i> kill know know	<i>hʷáák</i>	<i>sʷán-áy</i>	<i>sʷén-én</i>

BASIC STEM FORM	IMPERFECTIVE STEM		
	Daffo	Kulere	Sha
CoC: <i>mot/mot/môt</i> die die die	<i>m<sup>w</sup>adt</i>	<i>môt-áy</i>	<i>môt-ôt</i>
CaC: <i>jah/tal/tal</i> pound pay pay	<i>jaáh</i>	<i>tál-áy</i>	<i>tál-ál</i>

4.4. Given the closeness in relationship of these languages and the regularity in the tonal correspondences, one can assume that the Imperfective stems in the three languages represent cognate constructions derived from a single Proto-Ron construction. If one tries to relate the present-day forms in a systematic way, it becomes clear that the proto-language could not have formed Imperfective stems according to the Daffo model. Rather, the comparative evidence points in the direction of a Proto-Ron system which looks most like Kulere. I would suggest the following model.

4.5. The primary process by which Imperfective stems were formed in Proto-Ron was by the addition of a suffix *-ay*<sup>9</sup>. This suffix was used with all verbs regardless of their phonological shape. Accompanying the suffixation was an obligatory assimilation rule *i/i/u* → *a* affecting the last vowel of the verb base, e.g. *CuC + ay* → *CuCay* → *C<sup>w</sup>aCay*. These vocalic changes, though assimilatory in origin, had probably already begun to acquire independent morphological value even before the break-up of Proto-Ron into its individual languages. The non-high vowels of Proto-Ron verbs presumably retained their values and did not assimilate to the *-ay* suffix.

4.6. The derivation of the present-day forms from this reconstructed system poses no problems. The innovations experienced by each of the three languages can be outlined as follows:

Daffo: (1) Extension of the stem vowel → *a* rule to all vowels regardless of height. (2) Deletion of the *-ay* suffix with compensatory lengthening of the preceding vowel<sup>10</sup>, e.g.:

\*C<sup>w</sup>oCay > \*C<sup>w</sup>aCay > C<sup>w</sup>aaC (mot/m<sup>w</sup>adt)

<sup>9</sup> In addition to Kulere, where its usage is still quite general, traces of the *-ay* suffix can also be found in Bokkos, Butura, and Sha.

<sup>10</sup> The correctness of this historical lengthening rule is evident when one looks closely at Kulere, where the Imperfective stem has a long vowel if the suffix is absent and a short vowel if it is present, whether the stem vowel has altered or not.

Kulere: (1) Deletion of the *-ay* suffix with compensatory lengthening of the preceding vowel but only in the case of vowel-altered stems, i.e. those with a high vowel in the basic form; retention of the suffix elsewhere. (2) Extension of the stem vowel → *a* rule to /*e*/ (obligatory) and to /*o*/ (optional), e.g.:

*C <sup>w</sup> aCay	>	C <sup>w</sup> aaC	(duk/d <sup>w</sup> áák)
*C <sup>y</sup> eCay	>	C <sup>y</sup> aCay	(s <sup>y</sup> en/s <sup>y</sup> ánáy)
cf. CoCay		[no change]	(mot/mótáy)

Sha: Replacement of the suffix *-ay* by a reduplicative suffix VC, e.g.:

*CoCay	>	CoCVC	(môt/mótôt)
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5. On the basis of the analyses of Mubi, Somrai, and Ron presented here, plus a careful examination of other commonly mentioned "apophony" languages (such as Migama and Mokulu), I have come to the conclusion that there is little evidence to support the idea that apophony played a role in the formation of the Imperfective aspect stem in Proto-Chadic or in any early period of Chadic linguistic history. I would add, moreover, that recourse to apophony as an explanatory device in the analysis of the verbal systems of modern Chadic languages is a highly questionable procedure even at the purely descriptive level. One can here draw parallels to the situation in Semitic studies, where the preoccupation with finding verb stems of the Akkadian "Present" type has sometimes led to "une vue a priori des systèmes verbaux de ces différentes langues et une interprétation inexacte de la documentation historique" (Cohen 1974: 285).

6. Having rejected the role of apophony in the formation of Imperfective stems, the question that naturally follows is how were they formed? Without pretending to be able to give a full and complete answer at this stage, I would suggest that two things do seem very probable: first, that Imperfective stems were formed by suffixation — not by prefixation or infixation or apophony — and secondly, that the Imperfective suffix, which I shall symbolize as *\*(w)a*, contained the vowel *a*. Whether the suffix was actually *-a* or *-wa* or both, under phonologically determined environments (as I am inclined to think), or some other combination of consonant + *a* or *a* + consonant is still to be determined. The situation is complicated because many languages display variant surface forms of the Imperfective stem depending on the phonological shape of

the verbal base, the presence or absence of objects, or other factors. Moreover, it is not always possible in the case of individual languages to tell whether the Imperfective aspect stem one now finds is truly a reflex of the original Imperfective stem or whether it is an old verbal noun or perhaps a new verbal derivative. Nevertheless, the existence of Imperfective stems with a suffix containing *a* is so widespread throughout Chadic that we can be reasonably confident that this represents an inherited Proto-Chadic feature<sup>11</sup>. The following list, which does not purport to be exhaustive, illustrates strikingly the prevalence and widespread distribution of this *\*(w)a* suffix.

LANGUAGE	GLOSS	VERB BASE	SUFFIX	IMPERFECTIVE STEM
Mubi	fly	<i>bir-</i>	<i>Ca</i>	<i>bírrà</i>
Migama	wrap	<i>kutum-</i>	<i>Ca</i>	<i>kótómmá</i> <sup>12</sup>
"	eat	<i>ti-</i>	<i>wa</i>	<i>tééwá</i>
Jegu	ask	<i>maad-</i>	<i>a</i>	<i>maada</i>
Dangla	open	<i>pil-</i>	<i>a</i>	<i>pílá</i> (habitual)
"	"	"	<i>aw</i>	<i>pílaw</i> (progressive)
Mokulu	do	<i>'es-</i>	<i>a</i>	<i>'esá</i> (future) <sup>13</sup>
Sokoro	bend	<i>kon-</i>	<i>a</i>	<i>kóna</i>
Somrai	keep	<i>gam-</i>	<i>a</i>	<i>gama</i>
Zime (Dabrang)	die	<i>mat-</i>	<i>a</i>	<i>mata</i>
Ron (Kulere)	know	<i>s'en-</i>	<i>ay</i>	<i>s'ándy</i>
Proto-Ron		<i>*CVC</i>	<i>*ay</i>	<i>*CVCay</i>
Hausa	chop	<i>saar-</i>	<i>aa</i>	<i>sààràá</i> <sup>14</sup>
"	stop	<i>tsay-</i>	<i>waa</i>	<i>tsáyààwáá</i>

<sup>11</sup> Jungraithmayr obviously recognized the existence of *a* suffixes, but interpreted them in the context of apophony rather than as representing an independent process. Note his statement (1975:402) that in certain languages the "extension by means of an internal *-aa-* has been reduced to a suffix *-a*".

<sup>12</sup> For an interesting analysis of the Migama verbal system in terms of interacting morphological and phonological processes, see Wolff (1976).

<sup>13</sup> In Mokulu, it is the stem used in the future that reflects the original Imperfective, and not the form used in the progressive tense, which is a verbal noun (Lukas 1974/75).

<sup>14</sup> The interpretation of the final *-aa* of Grade II verbs as being etymologically related to the Imperfective stem suffix is a radical idea of mine that I hope to justify in due course.

LANGUAGE	GLOSS	VERB BASE	SUFFIX	IMPERFECTIVE STEM
Kanakuru	go out	<i>por-</i>	<i>ma</i>	<i>pórmá</i> <sup>15</sup>
Bole	fry	<i>surr-</i>	<i>a</i>	<i>súrrà</i>
Karekare	catch	<i>caw-</i>	<i>aa</i>	<i>càwáá</i>
Ngizim	cook	<i>bən-</i>	<i>a</i>	<i>bàná</i>

7. In Newman and Schuh (1974:8), we described the formation of the Imperfective stem in Chadic in terms of "suffixation or infixation of \**awa*". In Schuh (1976:9), the formula for the Imperfective is similarly given with both a suffixed and an infixed *a*. One can see that we were caught between the empirical/comparative evidence that pointed increasingly in the direction of a suffix \*(*w*)*a* and the generally accepted (and seemingly well-documented) view that apophony (specifically internal *-a-*) was the primary device by which Imperfective stems were formed in Chadic. The aim of the present paper has been to challenge the validity of this long-held apophony theory and to propose an alternative solution to the question of Imperfective stem formation in Chadic.

### References

- Andrzejewski, B. W., 1975. "Verbs with vocalic mutation in Somali and their significance for Hamito-Semitic comparative studies", in *Hamito-Semitic*, ed. by J. and T. Bynon, pp. 361-76. The Hague.
- Bagari, D., 1971. "Lexicalist hypothesis and Hausa", *Stud. in Afr. Ling.* 2:197-216.
- Cohen, D., 1974. "Review of Studies in Semitic Grammar and Metrics by J. Kuryłowicz", *BSL* 69(2):281-86.
- Diakonoff, I. M., 1965. *Semito-Hamitic Languages*. Moscow.
- Gouffé, C., 1967/68. "Les problèmes de l'aspect en haoussa. III — L'inaccompli négatif et l'ingressif", *GLECS* 12:27-51.
- Greenberg, J. H., 1952. "The Afro-Asiatic (Hamito-Semitic) present", *J. Amer. Or. Soc.* 72:1-9.
- Gingraithmayr, H., 1966. "Zum Bau der Aspekte im Westschadohamitischen", *ZDMG* 116:227-34.
- , 1968. "Ancient Hamito-Semitic remnants in the central Sudan", *Afr. Lang. Rev.* 7:16-22.

<sup>15</sup> The Kanakuru stem with the suffix *-ma* is the correct form to cite here. Kanakuru also has a stem involving replacement of final vowels by *a* (Newman 1974); but since this form is used in the negative perfect and the relative perfect, it is unlikely that it is related in any way to the Chadic Imperfective stem.

- , 1970. Die Ron-Sprachen. Glückstadt.
- , 1973. "Apophony and grammatical tone in the tense system of Chadic languages". Paper presented at the Third International Congress of Africanists (Addis Ababa). (Published in AuÜ 60: 79–82. 1977.)
- , 1974a. "Perfektiv- (Kurz-) und Imperfektiv- (Lang-) Stamm im Aspekt-system osttschadhamitischer Sprachen", ZDMG Supplement 2: 583–95.
- , 1974b. "A tentative four stage model for the development of the Chadic languages". Paper presented at the Second International Congress on Hamito-Semitic Linguistics (Florence).
- , 1975. "Types of conjugational forms in Chadic", in Hamito-Semitic, ed. by J. and T. Bynon, pp. 399–409. The Hague.
- , 1976. "Apophony and tone in the Afroasiatic/Niger-Congo frontier area". Paper presented at the Twelfth West African Languages Congress (Ife).
- Kuryłowicz, J., 1958. "Esquisse d'une théorie de l'apophonie en sémitique". BSL 53(1): 1–38.
- Lukas, J., 1974/75. "Ein Text in der Sprache der Djonkor des Gera-Massive (République du Tchad)", AuÜ 58: 212–26.
- Newman, P., 1974. The Kanakuru Language. West African Language Monograph Series 9. Leeds.
- Newman, P., and R. G. Schuh, 1974. "The Hausa aspect system", Afroasiatic Ling. 1(1): 1–39.
- Schuh, R. G., 1976. "The Chadic verbal system and its Afroasiatic nature", Afroasiatic Ling. 3(1): 1–14.
- Wolff, E., 1976. "Radical structure, syllable weight, and numerus-sensitivity in Migama verb stems". Paper presented at the Twelfth West African Languages Congress (Ife). (See the modified version "Verb Bases and Stems in Migama", AuÜ 60: 163–177. 1977.)

## Tschadische Studien I

### Beiträge zur Kenntnis des Mukulu

(République du Tchad)

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#### Konjugationsformen (KjgF)

9.35 ImpfB und PfB sind Ausgangspunkte für eine Anzahl von Konjugationsformen (KjgF). Dieser allgemeine Ausdruck wird hier verwendet, da sich eine detailliertere Unterscheidung der einzelnen KjgF vorläufig nicht mit Erfolg durchführen läßt. Hierin sind auch die Imperativformen eingeschlossen, von denen einige adhortatives Gepräge aufweisen und bei denen der Gebrauch von Subjektspronomen