

SUFFIX VOWEL REGRESSION IN WESTERN-OTI/VOLTA NOMINALS

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The distinctive rule of regressive assimilation which Nikiéma (1987) gives for Moore is not without partial parallels in the related languages. In these systems the occurrent forms of nominals are determined by the interaction of fairly heavily consonantal canonical structures of the lexeme $CV(C(C)) + \{C(V)\}$ a surface phonetic pressure towards unmarked open syllables CVCVCV, and various morphophonemic rules like that mentioned above. Language-specific details of the selection and formulation of the rules and the interaction of the three types of principles yield the observed differences in the actual languages.

1. Introduction

Norbert Nikiéma gives an excellent survey of the morphophonemics of Moore (1987)¹, arguing the necessity of postulating CVC roots, in addition to those of CV structure. In the course of his discussion he formulates a group of rules which seem to be rather unusual in effect:

R.1 (=Nikiéma 2) Insertion of suffix vowel in the root

(a) a-Insertion

$$\emptyset \rightarrow a / \left[\begin{array}{c} \{ e \} \\ \{ o \} \end{array} \right] _ (V) (C) + (C) a \#$$

(b) o-Insertion (from sx. **-go**)

$$\emptyset \rightarrow o / V _ (C) + C_0 + \mathbf{go} \quad [-rd]$$

Odd as these rules appear, they account clearly and economically for the equally-odd word-formations, very distinctive and characteristic of Moore, in which they apply:

boaeega, loaeþga, leaokda, peosgo, bãongo, goeogo.

I was particularly pleased to read this presentation as I had not been able to come at a satisfactory analysis for these forms on the basis of the limited data available to me in an on-going project for a comparative lexical and morphonemic study of the Western-Oti/Volta group of languages to which Mõõre belongs (Naden 1993).

It is clear, however, that while this particular rule is unique to Moore, it may reasonably be juxtaposed to less-extreme but comparable rules in some of the other related languages². The suffix

*+KU (corresponding to MR *+go³), particularly, features in various rule specifications invoking backing and rounding, velarization and related processes. Rules like R.1 obviously operate in a direction counter to naturalness: an output like **boaeega** MR “goat” is more marked than the MP cognate **buuwa**⁴, and both than the underlying *BU+KA from which they both derive. However there must be sporadic counter-natural developments, otherwise, all languages would have reached the Hawaiian type of phonology long ago, even on the most fundamentalist dating of the Tower of Babel or mitochondrial Eve (according to taste). In general the underlying forms which are set up to account for nominals in each of the languages are very similar throughout the group. In the first section of this paper I consider these generalized canonical forms, showing that the patterns for which Nikiéma argues in Moore are widely typical of W-O/V.

In the third section I discuss rules, comparable to R.1 but different in detail, in a number of the languages, and some similar ‘non-natural’ processes. Of course not all morphophonemic rules in these languages introduce marked surface forms, and in the second section, I consider some of the more important ‘natural’ rules, especially those which are general across the sub-groups. The underlying patterns account for a lot of the similarity between the languages, the varying formulation and selection of morphophonemic rules account for the differences in surface form of cognate nouns from language to language and the similarities and contrasts in overall ‘feel’ of the spoken languages.

2. Canonical Structures

2.1 The Suffix. Nominal words in Western-Oti/Volta and, indeed, at least underlyingly or historically in the whole of Gur and of the ancestral Niger Congo and its descendants, are composed of at least two morphemes. The nominal comprises a stem and an affix – in W-O/V (and Buli/Kɔnni, Bimoba considered here in addition) a suffix.⁵ The suffixes are mostly associated correlative pairs marking singular and plural. These are often referred to as “class” suffixes but in most of these languages they do not govern the system of concords which makes this terminology appropriate (Wilson 1971, Naden 1982), so I prefer to term the suffix-sets declensions, as being primarily arbitrarily-selected nominal number-markers. The canonical form of these suffixes is mostly *+CV, with one *+C and three *+V (two with +CV variants).⁶ The suffixes are presented in Table 1 using the numbering system which I adopt for the declensions.

Table 1 : Nominal Declension Suffixes

Declension No.	Singular Suffix/es	Collective	Plural Suffix/es
I	*+O ~ *+A , ∅		*+BA
II	*+RI ^{7,12}		*+A ~ (*+YA)
III	*+GA		*+SI
IV	*+GU		*+TI ⁸ ~ +TU
		(*+TI ⁸ ~ +TU)	
V	*+FU		*+I ⁹ (~ +Ci)
VI	(*+FU)	*+M	(*MA)
VII	*+BU		

Notes on figure 1:-

- i) Very few other pairings occur in any one language's nominal inventory, so where they do occur these are treated as irregularities rather than sub-regularities. The only exception is that in many of the languages, especially the SE division of W-O/V, the plural of IV is *+A (II. pl.) when the stem ends in a nasal, and sometimes certain other consonants (BL [a few], DB [most], HG, KL, KR, MP, NB, TL, WL: not FR, MR, NT; BM; KM, BL [mostly]).

(1) *GBAN+ (Decl. IV) "skin":

MR	gaoongo/gaando
DB	gbəŋ/gbandi or gbana
HG	gbəŋŋu/gbana

- ii) I have given as summary forms those which correspond to the related anaphorics and other non-suffixed functions (Wilson 1971, Naden 1982,1986.a). In context the voicing of the plosives is largely neutralised, being voiced (*e.g.* 2) unless preceded by a plosive of the same point of articulation, which yields a voiceless geminate which is optionally (3.a) or obligatorily (3.b) degeminated (our R.6,10 below *cf.* Nikiéma's R.10). Final position (§ 3 below) may also allow a voiceless realization (4). In the normal ...V+CV context only the *+T- of the IV. pl. sometimes remains voiceless (5).

(2)

a. I pl. *+BA :

na + a / naa + ba ¹⁰	MP	"chief"
nur + o / nur + ba	BL	"person"

b. II sg. *+RI¹¹

ŋuu + ri / ŋu + ya	HG	"yam"
tus + er / tus + a	BM	"thousand"

c. III sg. *+KA

bii + ga / bii + si	MR	"child"
kol + ga / kol + he	FR	"well, river"

d. IV sg./pl. *+KU/+TI

mɔ + gu / mɔ + ri	DB	"grass"
wɔb + gu / wɔb + ri	MP	"elephant"

e. VII *+BU

sa'a + bu	MP	"t.z." ¹²
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(3)

a.	*-B+BA	(dab + a) / dab + pa	KR/SF	"man"
	*-G+KA	kuk + ka / (kug + si)	MP	"stool"
	*-G+KU	pek + ku / (pəgru)	SF	"bark, husk"
	*-D+TI/U	(wuut-ŋ)¹³ / wuut + ti	KM	"flower"

		[<i>ct.</i> (wuu-ŋ) / wuu + ti	KM	“grass”]
	*-B+BU	tɔp + pu	MP	“war”
		[verbal noun of n-tɔbi “to go to war”]		
b.	*-B+BA	(da(b) + u) / dap ¹⁴	KLA	“man”
	*-D+RI	kante / (kanr + a)	FR	“big”
	*-G+GA	koka / (kog + he)	FR	“stool”
	*-G+GU	pyɔk / (pya'at)	TL	“bark”
	*-D+TI/U	(kur + go) / kuto	FR	“iron”
	*-B+BU	chip / (chib + sa)	BL	“rafter”
(4)	I pl.	(nir + Ø) / nir + ip	NB	“person”
	II sg.	karit / (kar + a)	KL	“baboon”
	III sg.	bɔ + k / (bɔ + i)	BM	“dog”
		bia + k / (baa + sa)	BL	“dog”
	IV sg./pl.	zob + uk / zɔb + it	NB	“hair/s”
	VII	saap	BL	“t.z.”

iii) IV. ‘pl.’ was probably originally collective with *+KU semantically back-formed as a singulative. (Manessy 1979, p.50); many mass-nouns still have this form only:

(5) “soup” *ZE(N)+TI/U :

BL	gyɛn + ta
DB	zɛ + ri
FR	zɛn + rɔ ¹⁵
HG	zii + ri
KL	zeen + d ¹⁵
KM	ji + ti
KR/MP	zeeri
NB	zeen + t ¹⁵
NT	cen + to ¹⁵
SF	zɛ + ru
TL	zeed

iv) Class V is a class with few if any regular items. The strong distinguishing feature is the plural with final **-i** and an umlaut of an open stem vowel. The singular is *+FU (6.a) in W.O/V but *+BU in Buli (6.b) and other languages (Manessy 1975): often extra consonants, especially **N**,

l and **r** seem to appear in the singular stem (found in compounds 2.2 ¶2 below) or plural (6.c). Often declension V. sg. or pl. is paired with a correlate proper to another declension (6.d).

- (6) a. **nim + fu / nin + i** MP “eye”
kaa + fu / (*ki→)kyi MP “cereal/s”
- b. “cow” *NAG+FU : HG/KR/MP/SF/
 KLA **naafu**
 DB/FR **naaf**
 NB/TL **nafo ~ nahə**
 BL/BM **naah^w**
 KM **naab**
 DR(Jirapa) **naagbu**
naabo
- c. “cow” *NAG+ DB/FR **na + fo/nig + i** (**g** in root, pl., not in sg.)
 “eye” *NIN+ KLA **ni + f/nin + i** (**n** in rt, pl., not in sg.)
 “money” *LAG+ MP **la'a + fu/ligd + i** (**g** throughout, add **d** in pl.)
 “cereal” *KA+ NT **kim + fo/ki** (**m** in sg. only)
 “guineaworm” *NYA+ MP **nyal + fu/nyir + i** (add **l** in sg., **r** in pl.)
 “gourd (sp.)” *NYI+ MP **nyir + fu/nyilli** (**r** in sg., **l(?+l)** in pl.)
 “genet” *PE+ KL **pief/piin + i** (add **n** in pl.)
 MP **peefu/pe + ri** (add **r** in pl.)
- d. “guineafowl” *KPAN+GU/I (IV sg. / V pl.) :
 BL **kpaŋ/kpina¹⁶**
 DB **kpaŋ/kpini**
 DR(Jirapa) **kpaũ/kpini**
 FR **kon'onŋo/kin'ini**
 KL **kpan'uŋ/kpin'in**
 KM **kpaaku/kpiini**
 MP **kpaanŋu/kpini**
 NB **kpaŋə/kpini ~ kpan'anŋ/kpin'in**
 SF **kiinŋu/kiini**
 TL **kpoonŋ/kpini**
 MR **kaoongo/kiini**
- d.i “fish” *ZIN+ : +FU/M (V sg. / VI pl.)
zinhə/zim FR
 +KA/I (III sg./V. pl.)
ziŋ/zimi KL/NB/TL
ziŋŋa/zimi MP

+FU/A (V sg./II pl.)

zimfu/zima MR/SF

jiihu/jima WL_

zumfo/zuma YR¹⁷

d.ii	(V sg. / III pl.)	KL	*siin+ “bee”	siinf/siins
		MP	*mol+ “antelope (sp.)”	mɔlfu/mɔlsi
d.iii	(V sg. / II pl.)	KL	*sun+ “heart”	sunf/sunya
		MP	*tu+ “bean”	tufu/tuya

v) While the same groups of referents tend to be in the same classes as each other, even when the actual lexemes change (Manessy 1969), the semantic correlates of the declensions themselves are mainly of the most generic:

- a) Declension I contains only persons (though persons also appear in other declensions).
- b) II, III, IV are large classes, of approximately equal size, for count nouns. III contains “tree” and names of specific trees – this seems to be a W.-O/V innovation: the fruits are often the same root with II or IV endings:

(7) *DO+ “dawadawa (*Parkia*)”:

+KA/SI	MP	doaa/doosi	“dawadawa tree”
+GU/TI	MP	doo/doori	“dawadawa pods”

*TAN+ “shea (*Butyrospermum*)”

+KA/SI	DB	taaŋa/taansi	“shea tree”
+RI/A	DB	taani/taama	“shea fruit”

Animals appear in all three classes, “lion” and “hippo” in II, for instance, “leopard” and “crocodile” in III, “hyaena” and “elephant” in IV. Domestic animals are somewhat concentrated in III whether ‘paired’ or otherwise, but “cow” and “horse” are ‘founder-members’ of V and “sheep” IV or irregular (sg. IV / other pl.).

c) Class VI is basically a class for masses and liquids. In some cases a plural develops for “fires”, “types, portions of water/beer” – a suffix *-ma appears for this in the southeastern group:

(8)	*DA +	“pito, local beer”	MP	daam/daama
	*KO +	“water”	HG/MP	koom/kooma

and some languages use other declension suffixes instead or as well:

(9)	BL uses IV pl.	bol + m/bol + ta	“fire/s”
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HG may use III pl.¹⁸ **ninta + m/nintam + si** “tears/many people’s tears”

while in FR at least *+FU is used as a singulative:

(10) FR *ko'+ “water”: **ko' + ho** “a drop of water”/ **ko' + om** “water”

This may well explain some of the peculiarities of declension V, “cows”, “guineafowl”, “grain” and “money” tend to come in herds/masses: but other ‘founder-members’ of the group like “snake”, “guineaworm” and (in this area) “horse” are not herd beasts.

d) VII is an ill-developed declension in W-O/V. It mainly contains *nomen actionis* verbal nouns (Nikiéma 1987, 3.3.1: Naden 2005, R.1 and examples). A few mass nouns may be in this declension instead of VI.

(11)	SAG+	“t.z.”: VII	MP	sa'abu(/sa'ama)
			MR/FR	sagabo
			KL/NB	sa'ab
			TL	saanb~sagbo
			NT	sagbo
			HG/KR	sɔgbu
			DR(Central)	saab
		VI	DB	sayim
			KM	saam

as noticed above, in BL + BM it replaces *FU in V¹⁹.

(12)	“t.z.”	BL	saap/siima
	“cow”	BL	naab/niiga
		BM	naab/nei

In NT there are more members to this group, especially “tree” and tree species, the plural is *-to (= IV pl.) :

(13)	NT	“tree”	tiibo/tiito
		“sheatree”	taambo/taanto

After all which detail, REMINDER:-

R.2

$$\text{Noun Word} = \text{stem} + \left. \begin{array}{c} \text{V,} \\ \text{CV,} \\ \text{C.} \end{array} \right\} \text{[suffix]}$$

2.2 The Stem The simplest noun stem is a root. As shown clearly in Nikiéma’s paper, both CV and CVC patterns are common canonical structures for roots; similar argumentation applies to all the languages *mutatis mutandis* (I have had privately similar discussions to that of Nikiéma vs. Kabore with Geoffrey Hunt on Hanga and Tony Pope on Mampruli). As illustrated for MR by Nikiéma, the underlying form of the root may be obscured in transcription by rules of lengthening and assimilation applying when stem and suffix are joined. The transcription and orthographies further obscure matters by varying treatments of transitional and epenthetic vowels. We can, however, give a few clear examples at this point; [e.g. 13 & 14 here] Far from taking kindly to the Procrustean bed of a ‘CV-hypothesis’ the languages have some noun-roots which seem to require analysis as CVCC, at least synchronically. This includes DB words like **ziln(+li)** “tongue”, **sheln(+li)** “porcupine”; quite a numerous little group of MP nominals like **gyent(+ri)** “spindle” (pl. **gyenn + a**), **saangunt + ri/saangunn + a** “giant millipede”, or **pont + ri/ponn + a** “toad” (cf. HG **pontiri/ponna**, DR **pontir**) and one or two MP words like **mugt + ri/mugr + a** “riding boot” and **sebs + ga** “gecko”. In the last case, there is a homophone “thatching needle” which has a tri-morphemic stem **sε+b+s+** from a verb series **se – seebi – se + b + si**. Of the middle group we might suspect items like “spindle” (and “mallet”, or even “yam-heap”, which have a similar form) of being verbal derivatives, but “toad” and “giant-millipede” do not suggest such an origin: it is probably only a matter of one’s theoretical preferences which would enable one to decide whether these are underlyingly *-nt+ assimilated in the plural when not ‘protected’ by the suffix consonant, or *-nn+ with the second n ‘hardened’ to t before *R, rules of both types are already needed; the same case arises in MP in verbs **n-dunni** “to urinate” **dunt + ra** “urinating” (imv.), and the nominal **dunn + m** (VI).

So we have a pattern:

R.3.

$$\text{Simple nominal} = \text{CV(C(C))} + \left\{ \begin{array}{c} \text{V} \\ \text{CV} \\ \text{C} \end{array} \right\}$$

[stem:root] - [suffix]

There are also a number of non-simple, plurimorphemic stem-types which I outline briefly here. In all cases the stem is composed of a string of roots or derivational elements with a single suffix which is that of the declension of the last, rightmost, root (or affix : cf. Campbell 1988).

The associative nominal stem has two nominal stems juxtaposed with a similar range of meanings, to the syntactic associative (genitive or possessive) construction (Hawkinson 1979). The simplest form has two roots:

- (15) *BUG+ “fire” *DA + “stick” → **buyda + o** “gun” NT
- *TAN+ “rock, mountain” *PI(N)+ “stone, rock” → **tam = piin + g** “threshing-floor” KL
- tam = pii + ya** MP
- *kom “water” *boo “valley” → **kom = boo** “river” WL
- *BAG+ “diviner” *KOL+ “skin bag” → **ba'a = kol + ug** “diviner’s bag” KL

	ba'a = kol + gu		MP
*wor+ “bush”	*	*nan+ “cow”	NT
	→	wor = nan + fo	“buffalo”

However some more complex cases suggest that there is no actual exclusion of anything that is itself a nominal stem entering recursively into associative compounds:

(16) (MP examples):

((na = mun) = pib) + ri		“lower lip”		((mouth = lip) = bottom)
		[cf. KM ((nɔ = gban) = va + a		((mouth = skin) = leaf)
(sa'a = (tam = pu)) + ri		“midden”		(trash = (soil = pile))
		[cf. KL tam = poo + r]		
*(wun = tan) + ka	→	wuntan̄a		“sun, sunshine”
(sun = heat, brilliance)				
(zug = sa) + ka	→	zugsaa		“up, high, heaven”
(head = sky, rain)				
(both the above) →		((wun = tan) = (zuy = sa))a		“noon, zenith”

The associative compounds do not affect the overall morphophonemics. The junction between the two stems follows general assimilatory rules.

2.2.2. Reduplication: A number of nominal stems give the impression of being reduplicated without any firm evidence for the corresponding unreduplicated forms or a strict structure for the reduplication²⁰.

(17)	pipib + ga	MP	“butterfly” (MR pilimpig + go)
	kpunkpam + a	MP	“wings, arms”
	zinzon + a	KL	“fruit bats”
	zinza'as	KL	“courtyards” (also za'as)
	titaa + ri	MP	“plaster” (cf. n-ta “to plaster”)
	-titaa + ri	MP	“big” (DB tita + li)
	chinchini	DB	“cloth” (MP kyinkyinni , YR chinciini)

2.2.3. Verb derivations: Nominals are derived from verb stems²¹, frequently with the addition of a derivational suffix * + D + before the declension suffix. These are usually agentives – forming these is probably a productive process – but also instrumental, locative, potential (verb-derived adjective nominals with meaning like “edible” (= “food”). These stems usually incorporate a nominal before the verb stem, usually representing the object, instrument or similar relation in the verb’s rôle-structure:-

(18) (MP examples):

n-se		“to sew”		seer + ga		“needle”
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m-mɛ dukku	“mould a pot”	:	duymeer+a	“potter”
m-mɛ tanni	“build (with) adobe”	:	tam+me+r+a	“builder”

As the verbs can be plurimorphemic, these stems can introduce more -CC+ and even some -CCC+ terminations:

(19)	NT	(naa=san)+t+ba	“brewers”	(beer=brew)+normalizer)
	DB	((ti+l+g)+r)=ba	“saviours”	(tilgi “save.” + nom.)
	MP	(pur+g)+ri	“half”	(divide +single-action)
	KL	(((bin=tam)=pig)+d)=ug	“dung-beetle”	(((dung-soil)-to make balls)-nom.)
	MP	*baN+g → baŋŋi	“know”	(discover-applicative)
		<i>(above)+*r+ba → baŋŋnba</i>	“wise men”	(nom.)

2.2.4. Adjectives The nominals are divided into substantives and adjectives. The adjectives are mostly descriptive in meaning, and in the majority of the languages only occur as part of a complex nominal word. The adjective comes in last place²² and has its own declension suffix²³: it can be added to any nominal stem wherever it is semantically appropriate, while the other compound and complex nominals are rather more lexicalised. Thus this is an outer element with regard to the basic stem:

<u>R.4</u>	a.	Nominal word	=	Substantive stem (+Adjective root)+ Suffix
	b.	Substantive stem	=	<ul style="list-style-type: none"> i) Root + ii) Stem=Stem+ iii) (Stem=) Verb Stem (+r)+

(20)	NT	wafo	“horse” →	warpierfo	“white horse” ((war = pier) + fo)
	MP	tiiya	“tree” →	tiwɔkku	“tall tree” ((ti = wɔk) + ku)
	FR	fuɔ	“shirt” →	fupɔlɔgɔ	“new shirt” ((fu = pɔl) + go)
	LW(DR Birfu) ²⁴	yir	“house” →	yipaala	“new houses” ((yi = paal) + a)
	MP			tammeersunŋa	“a good builder” <i>cf. e.g.</i> (18)
				wuntanzugsapeelli	“sunlit sky ²⁵ ” <i>cf. e.g.</i> (16)

3. Widespread ‘natural’ rules

The rules for regressive influence of suffix vowels and similar phenomena as exemplified by ‘Nikiéma’s Law’ for MR (R.1 above) form the primary theoretical focus of this paper and are discussed in the following section. The surface form of nominal words in these languages is also, however, affected by some rather more phonologically-natural processes which are considered at this

point. Some of these processes apply in the same or similar form in many of the languages. These common rule-types fall into two major groups, assimilations and epentheses.

3.1 Assimilation Processes

3.1.1. Nasal assimilation: One of the most common of morphonological rules in language is the homorganic assimilation of a syllable-final nasal to the point of articulation of a following consonant. One of the weaknesses of classical generative phonology is the non-availability of the generalization ‘point of articulation’ so that you can’t strictly say:

R.5



This rule works generally between roots in compound stems in W.O/V nominals :

- (21) MP **kyinkyimpeelli** “white cloth”
kyinkyinzeoo “red cloth”
kyinkyiṅkurgu²⁶ “old cloth”

Stem-final nasals may contrast three ways *-m+ -n+, -ŋ+ in some languages at least (-ŋ+ is in any case rare). Because of R. 5 the contrast can only surface when followed by a vocalic suffix. I.sg., II(IV).pl, V pl:

- (22) MP **saana** “stranger” [ct. **zooṃa** “blindman” (I sg.)]
KR **gooma** “walls” [ct. **kpana** “spears” ; ct. **baṅa** “agamas” (II pl.)]
KL **nini** “eyes” [ct. **zimi** “fishes” (V pl.)]
MP (-**suṅṅu**)/-**suma** “good” [ct. (**soṅṅu**)/ **soṅa** “mats” (IV pl.)]
-maṅni/-**maṅa** “real” [ct. (**lanni**)/**lana** “testicle”; (**kamni**)/**kama** “bitter-tomato”]

The contrast is neutralized elsewhere, so nasal-final stems which do not precede these suffixes, especially those in declension III (*+KA/SI) and V (*+M(/MA)) can only be assigned an archiphonemic nasal – -N+. Where a suffix boundary comes in, however, the rule may need more constraints, at least to allow for variant pronunciations. We first need another rule which nasalizes the suffix-initial C following a nasal:

R.6.²⁷

C	→	C	/	C	+	_____
[+stop]		[+nasal]		[+nasal]		
[α place]		[α place]				

This applies clearly in MP where the cross-assimilation of R.5 **and** R.6 gives geminate nasals:

- (23) *SAN+BA “strangers” → **saamma**
- *TAM+RI “sheaf-fruit” → **taamni** (R.6) *or* **taanni** (R.6, R.5)
- *BUN+KA “donkey” → **bugga**
- *ZON+KU “hall” → **zɔŋɔ**
- *BEI]+RI “beanleaf” → **beɲni** (R.6) *or* **benni** (R.6, R.5)
- *DUNDURM+KU “spitting-cobra” → **dundurɲu**

Similar effects are seen in some other languages :

- (24) HG *KINKAN+GU “figtree” → **kiŋkaŋɔ**
- KR *LIN+GA “lid” → **liŋga** (also MP)
- SF *NYIN+RI “tooth” → **nyinni** (also MP, NN, KM)
- KM *TAN+RI “stone(def.)” → **tanni**
- NN *YUM+RI “year” → **yuunni**

Normally any geminate C may be optionally pronounced short: However some of these items may be more consistently pronounced long because of the functional load they carry :-

- (25) *ZOM+A/BA “blind-man/men” :: MP **zooma/zoomma**.

Rule 6 is often constrained in various ways: Many languages do not allow it to apply to the *B- of I.pl.:

- (26) *SAN+BA “strangers” :: MP **saamma**; BM **saamm**; FR **saama**; KL/TL **saam**;
- (- R.6) DB/HG/WL
- saamba** ; MR **saamb(a)** ; NT **camba**
- (- R.5 also) DR(Burkina Faso)
- saanbe** ; BL **nechaanba** ; BR **saanba**

3.1.2. -L+ and -D+

Root-final *-L+ usually retains its form, and may control progressive assimilation in the *+R of the II pl. suffix:

R.7²⁵

*+r → l / -l+ ___

- (27) HG **kal+li/kal+a** “kohl flask”
 MP **gyel+li/gyel+a** “egg” (*cf. /ct.* HG/MP **tub+ri/tub+a** “ear”)

*-L+ before *+D in verbs is nasalized, even with no nasal feature in sight:

R.8

*-l+ → n / ___ *+d : COND verb stem

This is found in Mooré (Nikiéma 1989 p.96 1.2.a)) and even applies when the verb stem is nominalized:

- (28) DB **m-mali** “to make, mend”
 → **Bə ka o mana?** “What is s/he making?”
 → **mana/mamba** “blacksmith” (*mal + d + a/ba)

The same change occurs irregularly in some languages in the rare -l+ final nouns of Declension IV in the plural:

- (29) MP **kəl+gu/kən+a** “skin bag”
 KL **kol+ug/kon** 1. “skin bag” ; 2. “harp”
sil+ug/sin “hawk [sp.]”
but ct. MP **kpiil+gu/kpiil+a** “thigh”
 KL **yel+ug/yel+a** “palaver” (also MP **yel+gu/yel+a**)

Stem-final *-D+ is usually maintained (in most cases as the non-initial or post-vocalic allophone [-r-] except that it undergoes the very general rule which yields a voiceless geminate of two like stops across a +-boundary *cf.* Tchagbale, 1984):

R.9²⁸

C + C → CC
 [+stop] [+stop] [+stop]
 [α place] [α place] [α place]
 [-voice]

This applies also in verbs and an identical rule is stated for Mooré (Nikiéma 1989 1.2.c0** p. 97) and is exemplified with the stems mentioned above and the IV. pl. suffix:

- (30) *dood+di → **dootti** “illnesses” MP
 *wuud+ti → **wuutti** “grasses” KM
 cf. *bud+d → **butti** “sowing” MP (imperfective verb sx.)
 and for other stops:
 *dab+ba → **dappa** “men” MP (I.pl.)
 *kug+ga → **kukka** “stool” and “mahogany tree” MP (III.sg.)

Some cases, however, may take the II.pl. alternative (fig.1, Note 1).

- (31) MP **-kurgu/-kura** [*-kud + gu/a] “old”
 cf./ct. **kurgu/kutti** [*kud + gu/di] “iron”

The failure of the II.sg. suffix to undergo rule 8 justifies our abstract morphophonemic representation of it as *-R although in these languages, except DB, it has in most contexts the surface form -[r]- which is an allophone of /d/, and the corresponding free anaphoric is *DI. MP has three variations for this concatenation:–

- (32) *KPAD+RI → **kpatri ~ kparli ~ kpalli** “baboon” (plural **kpar-a**)

HG/KM only shows the first, **kpatri/kpara** “baboon”, **satiri/sara** “tobacco”, comparable in NT **ny tre/ny ta** “nose”.

In KL the reversal of the suffix (below) gives **kparit/kpara**.

3.2. Epenthesis

The other major process which affects the underlying ‘canonical forms’ of Western-Oti/Volta nominals which are sketched in section 1 above is a rule of epenthesis which inserts a vocalic element between some of the consonants juxtaposed in the underlying structure. The primary type of situation is where a consonant-final stem is followed by a consonant-initial suffix. In most general terms:–

R.10

∅ → V / -C+ _____ +C(-)

We may assume that the features of the underspecified epenthetic vowel can be supplied by rule or default condition according to our theoretical and notational preferences. Nikiéma 1989 p.95 says “voyelle e (prononçable de diverses manières)”. Phonetically it is normally somewhat higher and to

the front of schwa, [ɪ] > [ə], but back/round vowels and labial and /or velar consonants in the environment may give a backer and rounder realization [ʊ] with various possible intermediate positions. The strength of articulation of this vowel also varies with the context. Thus we have a range of cases (in MP but these examples are similar in many of the languages):–

- (33) a) *bug + m → [bʊgʊm] “fire”
 *dunn + m → [dʊnnʊm] “urine”
 *yaar + m → [jaarəm] “salt”
 *nyag + s + m → [ɲæʔəsɪm] “sweetness”
- b) *kul + ga → [kʊl^hga] “waterhole”
 *kul + si → [kʊl^osi] ~ [kʊlsi] “---- [pl.]”
 *dib + ga → [dib^oga] “(small) stick”
 *zob = saas + ga → [zɔbsa:h^hga] “comb”

Rule 10 is, of course, too wide as it stands: geminates have no epenthetic vowel and if the first C is a nasal the epenthesis is very weak or absent depending on the second C and on the specific language. Allowance will also need to be made for CCC(C) sequences in languages where these occur. In all the MP cases cited in 1.2.1. above, the first C is realized as a coda of the preceding phonetic syllable, with the epenthetic vowel occurring between the second and the third [gyɛn.t^ori], [sɛb.s^oga] and so on, and this seems to be the norm, but *tul+g+r(+a) yields [tʊl^og^hra] with both possible epentheses while its plural which yields a four-consonant underlying sequence *tul+g+r(+ba) may be [tʊl^og^or^hba] or [tʊl.g^hr^hba]. The examples are so few that it might not be possible to find a secure motivation for conditioning rules whether based on sonority hierarchy, properties of specific segments or segment classes, or whatever. The DB examples, underlyingly *ziln(+li) &c., yield a long nasalized l [zil^hli]; whether there is any phonemic resting-place, systematic or classical, between the underlying form and this phonetic surface is unclear.

A full phonology of each language may broaden the application of this rule to deal with verbal forms. Arguably, though more controversially amongst Gur scholars, some pronouns and preverbal particles and some verb affixes both derivational and inflectional may consist of a single consonant with surface vocalization provided by the epenthesis rule/s²⁹.

3.3 Degemination

There is a widespread applicability of a process of degemination:

R.11

C_iC_i → C_i

This is operational, at least as an option, in all the languages. In many it is obligatory. Where it applies it simplifies the geminates which result from -C+C- assimilations as well as underlying

boundary-geminates and therefore blurs the stem +suffix juncture. This is most striking in the II.sg. where the very common nasal-final, and -l/-r final stems assimilate and then degeminate; with the natural assumption that the consonant belongs to the stem, the suffix appears to be reduced to a vowel:–

(34)	*G/JEL + RI/A: “egg”	gali/gala	DB	(MP gyelli)
		geli/gele	DR (some)	(SF gelli/gela)
		jili/jila	KR	(HG jilli)
		gili/gila	KM	
		jeli/jela	WL	
		gele/gela	FR	
	*DUN/M + RI/A: “knee”	duni/duna	DB/KR	(NN/MP/HG dunni)
		duni/dume	DR (some)	
		dune/duma	FR	
		<i>cf.</i> sami/sama	WL “debt”	(MP samni ~ sannni)

While the languages which drop the final vowel lose representation of the suffix altogether:

35)	gel/gela	KL.A
	gəl/gela	KL.T, DR (some)
	gyel/gyela	TL/NB
<i>cf.</i>	jen/jena	BM
	dunn/duna	BM
	dun/dume	DR (some)
	dun/duna	NB, TL
<i>cf.</i>	wam/wama	“calabash” KL

The question arises in these latter groups of languages whether a synchronic intra-language analysis should ignore the comparative/historical evidence and set up an +i(~e), and/or a zero, allomorph of the II.sg. suffix in these cases. This raises the old discussion of appropriateness of various bases for analysis (Callow 1965). *Prima facie* it certainly seems uneconomical to generate by rule geminates none of which surface. However it should be noted that this is not a question of underlying abstract items which have no realization, as the final C of the stem is seen in the plural forms, and the C of the suffix appears with vowel-final stems:

36)	*SO + RI/A “path”	sore/sɔya	FR
		suer/sueya	KL
		solɪ/sɔya	DB
		suor/soya	TL
		sõr/sõya	NB
		sɔri/sɔɛ	WL

<i>cf.</i>	yiri/yie “house”	DR/WL
	joor/joa “mountain”	BM

Following the comparative pattern therefore saves suffix allomorphy at the cost of the non-surfacing geminates. This also gives a reasonable explanation of the changing place of articulation in forms like DR **duni/dume** (34) or **dun/dume** (35) :– the *-r of the suffix is present in the form of the alveolar place; similarly the comparative-based analysis explains the voiceless plural suffix of KL **dap** “man” (*cf.* **po'ab** “woman”) or FR **doko** “pot” (pl. **dogoro**, and *cf.* **kɔnbego/kɔbersɔ** “hair/s”) by rule (our R.8 and R.10).

On the other side, it must be admitted that casting our comparative net wider, to the whole Oti/Volta group, Tāmari of the Eastern subgroup and, more significantly, Buli included in the languages considered here because of geographical contiguity and many relevant similarities to the W.O/V languages, have a * + V allomorph of the II.sg. suffix. Thus in BL the pattern **dai/daa** “day”, **bage/baga** “shrine”, seems as frequent as the pattern **biri/bia** “seed”, especially as most of the nasal-final stems pattern as **beni/bena** “year”, though this is obscured by a surface realization of the -Vni sequences as -Vĩ : these seem to be genuinely arbitrary subclasses, I can see no means of accounting for the differences between the two lists in a principled way³⁰. It should also be considered whether cases where the plural contains the whole of the singular plus some material (e.g. 35) might not be a factor in reshaping the system towards the ‘external plural’ pattern as in English (Naden MS).

3.4 ‘Weak G’

A further (morpho)phonemic effect which may obscure the underlying structure of nominals is usually referred to as a weakness of the (voiced) velar consonant ‘G’. Strictly it would be better, if it should be acceptable to ones theoretical stance, to treat affixal and non-initial velar – and indeed all – stops as unspecified for voice. There is no contrast of voicing in these positions³¹: stops are normally voiced, unless adjacent to an identical C (Rule R.8 above), or in cases of glottal allophones described in this section³².

There are two distinct cases, the final consonant in nominal or verbal roots (CVg-), and the initial or only consonant in affixes, which involves the singular suffixes of nominals of declensions III and IV (respectively * + ga and * + gu) and the verbal extension morpheme * + g + .

3.4.1 In most of these languages the root-final velar stop has a phonetic form which is neither [k^h] nor [g], the normal root-initial allophones of /k/ resp. /g/, when it is in word-medial, and especially intervocalic position. The precise phonetic forms and conditions are specific to each language (and even each dialect, see below), but may generally be considered to be effects of weakening, from stop to fricative or flap, or towards indeterminate voicing or glottal rather than oral closure.

The most common is a voiced velar fricative: this is found in HG, FR, TL, and some members of the DR cluster. It is also found in DB, where the orthography actually represents this allophone, using the IPA symbol [ɣ]: however it is often actually heard as a flap – velar, uvular, or

even pharyngeal. The other common realization is a glottal stop, characteristic of MP and KLA: this occurs following non-high vowels; after /i/ and /u/ a voiced (or semi-voiced) velar plosive or fricative is found. Where the glottal stop or the flap articulation is found, a strong, fairly low central transitional vowel is heard before a following consonant. Central and Eastern Mampruli have [ʔ] as the allophone, but some far western have a DB-style [ɣ]³³, while between the latter and the White Volta a plosive [g] is pronounced even intervocalically: thus the village marked on the map as ‘Yagaba’ is pronounced **Ya'aba** by those to its east, **Yayaba** (pharyngeal flap) by those to the west, and **Yag^əba** by the inhabitants!

37)	*P ⁰ / _A G+BA	“women”	
	KR	pɔɣba	
	YR	pɔɣba	
	HG	pogiba	[pɔɣ ^h ba]
	WL	pɔgiba	(pron. probably as HG)
	FR	pɔgɔba	[pɔɣ ^ɔ ba] (“wives” see note ³¹)
	TL(F)	pɔɣaba	(“wives”)
	MR	pagba or pagab	(g probably fricative)
	DB	paɣba	[pɔɣ ^h ba]
	NN	pɔ'abi	[pɔɽabɪ]
	NB	pɔ'ɔb , or as NN	(“wives”)
	MP	pɔ'aba	[pɔɽaba]
	KLA	pɔ'ab	[pɔɽæb]
	TL(N)	pɔ'ab	(“wives”)

DR group have everything from [pɔgbɔ] through [pɔɣbɔ] to [pɔbɔ] and [pɔɔb] (with the ultimate weakening being disappearance [pɔɔ] ³⁴).

3.4.2 The foregoing effects are commonplace allomorphy, only of interest in that the orthographic **ɣ** and ' and the writing of the strong epenthetic vowel may at first sight obscure resemblances between cognates and between actual language forms and reconstructed or underlying formulæ. Rather less expected is the behaviour of the velar consonant of suffixes, which often disappears altogether leaving an uncharacteristic diphthong or even no trace at all. Consider MP **baa** “dog”, plural **baasi**. Taken by itself one would have to say that there is no suffix in the singular. If we bring into consideration **noaa/noosi** “fowl” (KLA **nua**, YR **noa**, DB/HG **noo**) and **deaa/deesi** “warhog” (DR **dia**, NKB **dia**, DB/HG/TL **dee**), the comparative evidence, and the regular correspondence of a suffix **-ga** on singulars whose plural has **-si**, we feel justified in proposing a tentative rule like:–

R.12.a

g → Ø / -V+ _____ a#
[-hi]

– Actually the vowel spelled **o** or **e** in **n_oaa** and **d_eaa**, although it represents the root vowel **ɔ** resp. **ɛ**, is pronounced as a non-syllabic high-mid vowel or semivowel – [n^oaa ~ n^waa], [d^eaa ~ dⁱaa] :-

R.12.b

V → V a / _____ + g
[mid] [mid]
[-syll]

We now have to go further and consider the high-vowel roots *bi- “child” and *bu- goat, which yield **biya/biisi** and **buwa/buusi**. The **y** and **w** spelling of the singular represents an analytical choice in the area of what in classical phonemics is called ‘interpretation of suspicious sequences’, the glide between the unambiguous high vowel in the first syllable and the clear low vowel in the second being interpreted as a consonantal semivowel rather than a mere transition between adjacent vowels or a further vowel unit in a triphthong. This interpretation is based on the strong template CVCV... (2.7 below), and the fact that the **a** is short, rather than long as in the preceding two sub-cases. Many comparable forms in related languages are treated analytically and/or orthographically as diphthongal :

MP **biya** ; HG **biya** “child” // DB,FR,NKB,NT **bia** ; DR,WL **bie**

This application of the rule is less general for the group :

KL **biig**; MR **biiga** ; BL **biik**

The application of the same rules in verbs is seen in the MP set with the +g+ extensor with derivational meanings applicative, inersive (“tie” : “untie”) and singulative (MP **gba** “catch” / **gbaasi** “catch many” / **gbaai** “catch one”):

*PA “put on, come next”	+ G	paai “arrive, reach” (DB paai , KLA paae)
*DE “receive, get”	+ G	deaai “receive” (DB deei , KLA di’e , KLT de’e)
*DO “lie down”	+ G	doai “get up”
*BO “pour”	+ G	boai “pour (some of)” (DB booi , KLA bu’e)

Nikiéma observes exactly the same phenomenon in MR, except that it is optional, summarising “Étant donné le conditionnement de l’allongement vocalique on peut dire que +g peut être facultativement effacé dans n’importe quel mot, mais pas g+ .” (1987 : 154).

3.5 Vowel Harmony

Vowel harmony of various types may operate in these languages, both intralinguistically, when words are built up from roots and affixes, and interlinguistically, affecting the forms of cognates, characteristically making relationships less immediately apparent. However harmony is not a dominating principle as it is in some phonologies. Two types are mentioned here, Cross-Height VH and rounding harmonization of suffixes: regressive assimilation or anticipation of the suffix vowel is the topic of § 3 below.

3.5.1 In general these languages do not have the cross-height vowel harmony (\pm ATR) found in many West African languages: they tend rather to 5- or 7-vowel systems multiplied by length and in some cases contrastive nasalisation (Manessy 1975, Naden 1989). There is, however, a developing CHVH system in at least some Dagaari dialects, and VH has also been postulated for Kɔnni. The distribution of consistent harmony can be simply stated; it is found in transcriptions of linguistic researchers but not in those of linguistically-trained anthropologists, educators and Church leaders, including speakers of the languages. There are two possible explanations for this fact: one is that some of the contrasting vowels in the harmony system, particularly ɪ/e and ʊ/o are very easily confused and can only be discriminated by skilled phoneticians. The other possibility is that transcribers who know about the vowel harmony allow their hearing to be guided by extant partial harmonies to postulate harmonic distinctions in other places where they have not yet developed. I consider the harmony to be an ongoing innovation rather than a waning retention because harmony is not found in any of the nearest O/V languages, because lexical items do not show the same value for the ‘ATR’³⁵ feature across dialects, and because the DR languages are separated from the rest of W.O/V by the southwestern Grusi languages Sisaala, Chakali, Tampulma and Vagla which do have CHVH. The main place where the harmony may impinge on our concerns here is in an $\text{e}\sim\text{ɛ}$ alternation for the * + A suffix of II.pl.. The fact that many of the DR dialects dispense with the final vowels of the * + CV suffixes, and the general confusion of their reflexes of the declension system (Manessy 1967/71; 3. below) make any further general comment on the effects of CHVH impossible. It is more important for our purposes here to go on to consider the development in the whole DR group (most DR dialects, WL and some items in SF) of a back/round harmony.

3.5.2 Much more significant for our concerns is the development in the whole DR group (most DR dialects, BR, WL and some SF items) of a tendency to harmonize on the front/spread::back/round dimension, particularly progressively – the stem vowel affecting the suffix:–

- | | | | | |
|-----|------------------|----------|----------|----------------------|
| 38) | *DEB + ~DAB + BA | “men” | DR(some) | dɔbɔ |
| | *BA = LOG + RI/A | “armpit” | DR | balogr/balogo |

	*PU + KA/SI	“belly/s”	WL	puo/puuhi
<i>ct.</i>	*BA + KA/SI	“dog/s”		baa/baahi
	*YUN + RI/A	“year”	WL	yuoni/uomo
<i>ct.</i>	*TAM + RI/A	“bandage”		tani/tama
	*KU-RI	“hoe”	SF	kuuri or kuuru
	*NU + GU/TI ³⁶	“hand”	DR(Manessy)	nu/nuru
			BR(of Tuna)	nuo/nuro
	<i>ct.</i>		DR(many)	nuu/nuuri

There does not seem to be a consistent rule

(* +V → +V[+round] / V[+round](C)+(C) ____)

fixing this development in any dialect. Labial and velar consonants help the process (DR **balog+o** as above, and **zunzug+o** “clouds”, **kɔb+to** “hairs”, but **nuo+rɪ/nuɔ** “mouth/s”, **kɔntɔn/kɔntɔm+ɛ** “bush-sprite/s”): these consonants may also disappear word-medially to yield a back/round vowel – this is frequent in this cluster and sporadic elsewhere (Naden 1999 *e.g.* 2 and fn.) :-

(38) a) *WOB+GU/TI “elephant”

wɔb/wɔbr DR (*e.g.* Nandom)
 → **wab/wɔɔr** DR (*e.g.* Lawra)
 → **wɔb/wɔr** BR
 → **wɔɔ/wɔɔr(ɛ)** DR (*e.g.* Jirapa)
woowa³⁷/wobiri HG

[*cf.* MP **wɔbgu/wɔbri**]

b) *NA+BU “cow” *cf.* *WA+BU “snake
naabo DR (*e.g.* Kaleo) **waabo**
 → **naab** DR (*e.g.* Lawra, Nandom) **waab**
 → **naao** DR (*e.g.* Jirapa) **waao**

c) *CUG+TI “months”

kyugr DR (*e.g.* Nandom)
 → **kyuuri** DR (Jirapa, Kaleo, Lawra [some])

and, with back/round assim., → **kyuuru** (other Lawra)

- d) protoO/V *S^A/oB(L)+ → ‘proto’DR *sobl~sogl “black”
sebla DR (e.g. Nandom, Lawra)
 → **sɔglaa** DR (e.g. Jirapa [some], Kaleo)
 → **sɔɔlaa** DR (e.g. Jirapa [other])

[cf. *SAB+GU/SI “wind” HG **sau/sausi**]

- e) *DAB+O~Ø~A “man”
 KL **dau**
 MP **doo~doowa**
 BM **jɔɔ**
 cf. MR **ɔɔɔɔ** “manliness” (other MR examples – Nikiéma 1987, p.148)

- (39) a) *POG+ O~Ø~A “woman”
 DG **pɔw** cf./ct.. DR (Lawra) **pɔg**
 BR **pɔv**
 BM **poo**

- b) *YOG-RI “gourd [sp.]”
 MR **yɔɔɔɔ** (other MR examples – Nikiéma 1987, p.149)

cf./ct. MP **yɔkku/yɔgri**

- c) *BOG+(?³⁸)GU “valley”
bɔg DR [some]
 → **bɔɔ** DR [other],WL

- d) *KUG+RI “stone” (Naden 1998.b Vocab. #9)
 DR [some],WL **kuuri**

cf./ct. MP **kugri/kuga** ; KL **kugir/kuga**

- e) *MO+GU “grass, bush” (Naden 1998.c Vocab. #1)
 MP,HG,KR,SF **moo**
 FR,MR **mɔɔ**

cf./ct. DB **mɔɔyɔ**
 MR **moogo**

(42)

Lang.	“something”	“water”	“path”	“dogs”	“sheafruits”	‘stranger’
DB	sheli	kom	solli	bahi	tama	sana
MP	seelli	koom	soori	baasi	taama	saana
HG	seela ⁴³	koom	soori	baasi	taami	saana
MR	-----	koom	sore	baase	taama	saan
TL	siim, siem ⁴⁴	koom, kuom	sor, suor	baah	?	saan
FR	se'ere	ko'om	sore	baahe	taanhe	saana
WL	?	kuɔŋ	sɔri	baahi	?	saana
KLA	si'el	ku'om	suer	ba'as	ta'ama	saan(a)
DR	?	koɔŋ, k ɔ, kũ , koɔ	sole, sori, sɔr	baar(i/e)	tam	saan(a)
BR		kũɔ	sɔr	baar	tɔɔn/tɔɔma	saan

4. Regressive Effects

Against the background of the foregoing general picture of the underlying structure of nouns in the Western -Oti/Volta languages and the morphophonemic rules which relate forms within and across languages, we can now turn to the consideration of some of the more unusual features of certain of these languages, unusual both in terms of general features of human language and in terms of their W-O/V neighbours.

4.1 Declension IV Umlaut

In

4.2 C-Final Languages

4.2.1 -V#-drop

4.2.2 Metathesis(?)

4.2.3 Lingering Flavours

4.3 O-effects

BL

MP(DB,HG)

?FR,KL

DR

5. Summary

The

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¹ Since this paper was written there has appeared Nikiéma 1989 which gives a more detailed account of the MR nominal system. Specific correspondences between his presentation and mine will be footnoted below.

² See ‘SOURCES’ for the abbreviations used for languages and groups.

³ Upper-case starred forms represent summary forms for cognate sets represented in all or most of the languages considered. They are not formally-reconstructed proto-forms, though many may well represent historical ancestral vocabulary. Lower-case starred forms will represent abstract or underlying formulæ in a particular language – “MR *+go” (i.e. the suffixal morpheme in Moore of which the basic allomorph is represented thus) “is the reflex of the W.O/V suffix *+KU” (Which represents the cognacy of suffixes in the various languages with surface forms such as -go, -gu, -nu, -ku, -ug &c. Boundary symbols used are + for an affix boundary, = for the boundary between two lexical roots in a compound stem, and – for additional material irrelevant to the point at issue. Thus +C means a suffix consisting of a single consonant, and +C- a suffix beginning with a consonant.

⁴ Data from printed sources is represented in the transcription given in the source: preference is given to official orthographic forms. Material from my own or others’ phonetic field notes are given in a broad transcription comparable to the phonemic or orthographic forms unless narrow phonetic detail is under discussion. Symbols in general have their expected values : ky, c, ch all represent a voiceless palatal affricate, with corresponding voiced gy, j (where sources write z = I use j) ; ʔ represents glottal stop ; allophones sh [ʃ] of /s/, r of /d/, and in some cases h of /s/ and ʔ of /g/ may be separately presented. In addition to the above, digraphs kp, gb, nm, ny represent unitary phonemes.

⁵ The only exception in these languages is a group of monomorphemic relationships nouns *BA “father”, *MA “mother”, *ZO “friend”.

⁶ The special developments, in HG + MR have led to different analyses of these particular languages involving a ‘noun forming suffix’ (G.R. Hunt, P.C) or ‘nominant’ (Nikiéma 1989) and other derivations from the scheme given here. These may be the best analyses for those languages taken in isolation (though I personally doubt it) but the present scheme is certainly the way to account for the whole group.

⁷ *R represents a consonant which surfaces as /d/ (normally allophonically [r]) or /l/.

⁸ *T is often voiced, and therefore this suffix confused with II.sg. (note ⁷ above).

⁹ Plus umlaut of stem vowel.

¹⁰ In usage this sg. is used in address, and the plural as a plural of majesty to refer to one chief : “chiefs” forms a double plural.

¹¹ II sg. has a special variants after *-D + :- *KPAD + (II) sg. “baboon” → MP **kparli** or **kpalli** or **kpatri**, KL **kparit** : its underlying or historical form, may be some *tertium quid*, neither *D which has reflexes /d/ [d] ~ [r] nor *L which is nearly always /l/. Note that the anaphoric (object form) and the suffix in DB are **li**. I therefore use *R to summarize the consonant here.

¹² The staple thick cereal porridge : “tee zed” from schoolboys’ Hausa tuon zafi “hot porridge”.

¹³ For the form of the KM singular see Naden 1986.b.

¹⁴ Because of the tendency of intervocalic *b to be lost (via assimilation **b** → **w** → **u**) the root-final

*-b+ is not always apparent in the singulars : it is deduced underlyingly from the plurals and the cross-language cognates (cf. (3.a)).

¹⁵ In FR, KL, NB, NT and also in BM a syllable-final n represents nasalization of the preceding vowel; a nasal consonant in such a position is shown by a second nasal consonant letter.

¹⁶ BL realizes suffix-final *-l as -a in pause.

¹⁷ YR = Yaari, language of the Kantoonsi (Naden/Schaefer/Schaefer, in prep.)

¹⁸ Though the use of -si as an external plural marker in various functions is a special feature of this languages – Naden MS (1984)

¹⁹ In FR **bo** is the anaphor for the -hɔ--fɔ class (V sg.). Nikiéma (1989 p.p. 104 ff.) has an interesting discussion of the -fu ~ bo relationship, and also, by a *tour de force*, draws in the -gu singular as well.

²⁰ *ct.* Bisa, unrelated though spoken in the area, which has a systematic verb-reduplication with consistent plural sense – Naden 1973, 219 ff.

²¹ Detailed discussion of just this type of example is presented in Naden 2005.

²² Occasionally two adjectives are used together, the second modifying the meaning of the first and controlling the suffix : MP (**bun=(zɛ=peel)+li** “something pink” (thing-red-white). On adjectives see Naden 1997, 2006.

²³ Some adjectives, especially in BL and in FR, have a number of different possible declension endings. In no case, however, is there a full class-concord operating as it found in the BL and FR anaphorics (Canu 1968/71).

²⁴ From the village of Birifu : this is not the same as Birifor (BR) – see Goody 1956/67.

²⁵ lit. ‘zenith-white’

²⁶ Orthographically MP does not write the velar nasal in this position : **kyinkyinkurigu**.

²⁷ NT does not make these assimilations, e.g. : **taande** “sheafruit”, **comba** “blindmen” and appears to lack -l+ -final roots : “egg **cende/cena** (cf. BM in e.g. (36) and *ct.* the other languages in (35), (36)) “horn” **yeende** (*ct.* MR **yiile**, MP **yiilli**)

²⁸ See 1.1 above, note 2, e.g. (3.a). This is essentially Nikiéma’s (1987) R.10. A default condition will voice medial stops elsewhere; other conditions or special rules according to language. On the underlying unspecification of voice see 2.4 below.

²⁹ The verb “to give”, citation form based on *Tl, irregularly follows these items with imperative suffix or pronoun (indirect-)object, acting as if it is simply *t .

³⁰ There is a preponderance of polysyllabic roots with *-ri and of monosyllabic with *-i, and the former group contains a higher proportion of nouns which closely resemble Mampruli and its congeners, but there are plenty of exceptions to both statements in both directions.

³¹ Exceptionally Frafra distinguishes between “woman” and “wife”, the general *POG root being realized in declension III (*-ga/-si) and I (*-a/-ba) respectively. *pog+ka undergoes rules R.9 and R.11 to yield **pɔka**, thus contrasting with *pog+a → **pɔga**.

³² Apparent voice-distinction in starred forms of nominal suffixes, *+KA, +KU, *TI/U vs. *BA, *BU, *RI is based on the related free anaphorics (see Wilson 1971, Manessy 1975, Naden 1982, 1986.a) where the morpheme-initial C is also word-initial.

³³ This is also found in the mid-south of the area adjacent to Dagomba territory.

³⁴ For the suffix vowel quality see 2.5.2; for [pɔɔb] see 3.3.4.

³⁵ Since the work of Stewart and Pike in the 1960s (**) the distinction between the two ‘cross-height’ sets is always labelled ‘±ATR’, but I am not aware that anyone has verified whether the criterial gesture is actually tongue root advancement in each of the languages.

³⁶ The plural suffix may, in fact, be *+SI, cf. MP **nuusi**, DB **nuhi**, KLA **nu’us**; these languages are in a zone where rhoracism applies to languages of different genetic affiliations, changing the **ɔ** of cognate languages to **ɪ**.

³⁷ The ending in HG is *-ga, not *-gu – Naden MS, forthc.

³⁸ This root goes with a variety of different declension-suffixes across, and even within, languages of the group (see Naden 1998 Vocab. #7-9).

³⁹ In MP it provides additional evidence for the distinction of underlyingly simple vs. derived verbs of CVC- pattern discussed in Nikiéma, *op.cit.*, 4.3 : *bas+ **basi** “throw away” is underived, shown both by its verbal-noun suffix *+bu (**bas+bu** “throwing away”) and as having a short vowel, in contrast with *ba+s+ **baasi** “cause to ride” (**ba** “ride”) which has lengthened vowel and verbal noun **baas+gu**.

⁴⁰ cf. Naden, 1999

⁴¹ This is probably the source of confusion over the vowel systems, both amongst analysts and within the languages themselves. There are basically ten vowels in two sets, one set being phonetically short and ‘tongue-root advanced’, the other long and ‘retracted’. As these sets are related by rules like R.13, it seems to be more natural to speak of 5 vowels which may be + or – length, rather than 10 equipollent vowels contrasting on ±ATR as well as height and roundness, with length as a conditioned variable. This situation, however, makes it understandable that the tongue root position may come more into prominence and CHVH develop as suggested in 2.5.1. (or how harmony-enthusiasts manage to find CHVH everywhere – Dakubu 1997).

⁴² Toende rather CV₁(?)V₁C

⁴³ “somewhere” cf. MP **seela**.

⁴⁴ Adverb “somehow” cf. MP **seem**.