Hyam consonant alternation

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1. Introduction

Consonant alternation or mutation is known to Indo-Europeanists through languages such as Welsh and is also familiar from Semitic. In Niger-Congo languages, its principal exemplars are the Atlantic languages, notably Fulfulde, where the phenomenon has been extensively analysed. Indeed it was the presence of consonant alternation in Atlantic languages other than Fulfulde, first pointed out in Klingenheben (1925) that finally put paid to the racially motivated 'Hamitic' speculations of Meinhof. Doneux (1975) and Storch (1995[1]) have published valuable cross-language surveys of consonant alternation in Atlantic. Outside Atlantic the phenomenon is known principally from some Mande languages (Manessy 1964); as these are in close contact with Atlantic there has been speculation that this is a contact phenomenon, although the mechanism of this has yet to be explained.

There is, however, another zone of Niger-Congo where consonant alternation is prevalent; among the Plateau languages of Central Nigeria. Following the publication of a wordlist of Aten by Bouquiaux (1964) this has been known to some specialists, but the absence of either a comprehensive listing or morphological analyses has left the incidence and historical origin of consonant alternation in Plateau largely ignored in relation to better-known examples elsewhere.

Additional problems have been created by the fact that many Plateau languages are known only from orthographic wordlists, often without plurals, written by students unaware of the ramifications of the consonant alternation system (Blench 2000). In Hyam, for example, there is a clear tendency to replace complex plurals with a simpler form using a **mo**- or **ma**- prefix. Such plurals are often given by younger speakers, although they recognise the 'correct' plural when an older speaker retrieves it. Presently, these **mV**- plural prefixes are placed in front of a stem that still retains the tonal aspect of the alternation, but a process of tone simplification is probably also under way.

Consonant alternation in Plateau is known principally from the languages of Plateau 2a or Beromic. Published Aten data is confined to Bouquiaux (1964) although more is found in Hoffmann (1978) and Blench (n.d., a). Bouquiaux (1967) has described nominal alternations for one dialect of Berom and Aten. Bouquiaux (1970) is the main source for Berom although data on a different dialect, Forom, is found in Kuhn (n.d.). Cara became known from a very short list in Shimizu (n.d.) and indeed its classification with Berom and Aten seems to be based on the presence of consonant alternation system rather than any profound lexical linkages. A more comprehensive lexical list of Cara is Blench (n.d., b) and analysis of the consonant alternation system in Blench (n.d., c). I have elsewhere expressed scepticism about the rough and ready methods used to classify Plateau (Blench 2000) and do *not* presently endorse this subgroup, despite the presence of consonant alternation.

The presence of so many unpublished papers is no encouragement to external comparativists even for this group. However, the purpose of this paper is to draw attention to the presence of consonant alternation in another nearby group of languages, the Hyam group. The description given here should make it clearer whether its likely historical origin is the same as Aten and similar languages.

Hyam is known in most of the published literature as 'Jaba' although this is a cover term for a group of rather disparate languages distinguished more by their cultural than their linguistic unity. Existing literature is confined to Gerhardt (1988, 1992) and Jockers (1992) where it is referred to a 'Kwoi'. The first of these deals with the morphology of Hyam of Kwoi, the second with some old sources for 'Jaba'. The present published classification (Crozier & Blench 1992) lists these groups as follows;

[1] Storch includes a highly comprehensive bibliography of this topic

Cori
Hyam cluster (incl. Kwyeny, Yaat, Sait, Dzar, Hyam of Nok)
Shamang
Zhire

It now seems likely that the Hyam cluster consists of only the following;

Hyam of Nok Sait Dzar

and the relationship of the others remains to be determined. Speakers of Hyam say that they find it easier to understand Gyong (Kagoma) than the other languages in the group so the whole cluster may be spurious, at least from the linguistic point of view.

Prosody alternation, i.e. the alternation between labialised and palatalised forms of initial consonants and plain forms is widespread in Plateau. The adjacent language, Gyong (Kagoma) has such a system (Adwiraah & Hagen 1983). However, mutation involving distinct consonants or clusters is much rarer. Consonant alternation is found in the Hyam languages and to a more limited extent in neighbouring languages.

2. Consonant alternation systems

2.1 How do consonant alternation systems originate?

Systems of alternation such as that of Atlantic clearly can be reconstructed to deep levels in the language family and so perhaps their evolution is less visible. In the case of Niger-Congo languages, the most distinctive feature of nominal morphology is the system of alternating affixes, most well-known from the Bantu languages. It is usually considered that a prefix system should be reconstructed for East Benue-Congo (e.g. De Wolf 1971, Miehe 1991, Blench n.d, d). However, languages with consonant alternation have either no affix system or else it is severely reduced –unless it has been partly rebuilt. This absence makes it reasonable to assume that consonant alternation has evolved from the reduction of prefixes. In the case of Plateau, at least this is fairly transparent for some alternations, since they result from prefix incorporation in the stem. In the simplest model, palatalisation and labialisation of C_1 are created by incorporation of high front and back vowels into the stem. Thus;

i+CV(C) → CyV(C)
u+CV(C) → CwV(C)

Existing alternating prefixes may either be relics of the former system or (more likely) new prefixes added that have been adapted from neighbouring languages. Extreme multilingualism was the rule throughout the entire region in precolonial times and it remains an important source of lexical and grammatical innovation.

Hyam, however, poses an additional problem; consonant alternation appears to occur not only on nouns but also on verbs and adjectives.

2.2 Which prefix system?

As the data tables show, Hyam has numerous alternations, many of which are far from transparent. Not all these are easily explained in terms of the known prefix systems of EBC languages. In formal terms it would probably be correct to reconstruct whatever affixes give the synchronic result and then compare them with external affixes. However, Plateau languages, unlike other branches EBC, or indeed Niger-Congo, show a competing

prefix system, based on the reduplication of the first syllable of the stem. This is found in its most complete form in Hasha[2] [Yashi] where all nouns and verbs form their plural in this way. Table 1 shows some examples of how this operates;

Table 1. Exact reduplication of stem-initial CV in Hasha

Gloss	sg.	pl.
corpse	**ì-kum**	**ku-kum**
day	**ì-nim**	**ni-nim**
forest	**zəzaŋ**	**zə-zəzaŋ**
grass	**ì-tus**	**tu-tus**
masquerade	**ì-sɔ**	**sɔ-sɔ**
room	**ì-ti**	**ti-ti**
sand	**ì-juk**	**ju-juk**
seed	**ì-wur**	**wu-wur**
slave	**ì-tefe**	**te-tefe**
vine	**ì-ruʃ**	**ru-ruʃ**
wind	**ì-mem**	**me-mem**

Hyam has clear traces of such a system operating in the past.

Similar processes are known in the Plateau Chadic languages and it may be these are its historical source. Whatever the case, this pluralisation strategy has spread and interacted with the usual CV alternating affixes to create complex 'mixed' systems. So languages like Ningye and Bu have some nouns that form their plurals in this way, some with tones and yet others with class-affixes. If proto-Hyam also had some reduplicated plurals, this would explain the wide range of alternations now present in the language. Some of the proposals for the origin of specific alternations make this assumption.

2.3 Why verbs?

Hyam has a feature that distinguishes it from Aten and other languages with consonant alternation: processes apply equally to nouns and verbs. Although plural verbs are common in Plateau languages (e.g. McKinney 1979; Wolff & Meyer-Bahlburg 1979) and Cross River (Aron 1996/7) they have not been reported as universal in the lexicon of verbs, as appears to be the case in Hyam. In other words, every verb has a plural form, meaning either an iterative, habituative or implying a plural subject or object. Another language where plural verbs are universal is Hasha; Hasha forms plurals through prefixing, along the same lines as nouns. Assuming that this was also previously the case in Hyam, then verbs would have exhibited the same rightwards movement of the V of the prefix as nouns, giving the synchronic result of identical consonant alternation.

2.4 Stem tone

Most Atlantic languages have either no tone, accent systems or restricted tone. However, a notable feature of the Central Nigerian languages exhibiting consonant alternation is that they have complex tonal systems that go hand in hand with the alternations. Data on tone in Plateau is so weak that it is impossible to make proposals for the likely system of proto-Plateau. However, based on existing languages it presumably had three level tones and no underlying glides. Complex glides evolve when the prefixes move rightwards; the tone shifts to the stem-vowel(s) combining with the existing tone, while the phonological effects are prosodies on C_1 or the evolution of complex consonants. Such processes are now well-documented in the Mambiloid languages (Connell ref.)

[2] The appendix gives list of Plateau languages to help readers situate examples.

and must certainly apply equally in Plateau. A consequence of this is that the transcription of glide-tones must be precise. Hyam has more glide-tones than level tones on single-syllable morphemes and can contrast different types of rising and falling tones according to the levels between which they move. With considerably more historical data the logic of Hyam stem-tones may become apparent.

2.5 The word in Hyam morphology

The most common word formula in Hyam is;

(N)C(P)VC

where N is a homorganic basal and P is any prosody. Words which appear to violate this rule, such as **kpyosu**$^{+}$ 'eye' turn out to be compounds (here 'seed of the face'). Longer forms represent reduplicated prefixes or old compounds;

e.g.

mimyet	to lie down	**ʒírikùm**	widow
dzádzákùn	soldier ant	**tìθəʒì**	female
ʒáʒakù	dragonfly	**kparihywòk**	bird sp.
ɦywàrɦywak	rock-slide		

More rarely, diphthongs occur. Where the two vowels are dissimilar there is usually not final vowel;

C(P)V(˜)V(˜)

e.g.	**yaù**	bell
	dəu	cockroach
	kaikáí	separately
	kwõĩ	to scratch

No CVV formula lexeme shows evidence of glide tones on individual vowels, suggesting strongly that either these represent a disappearance of C_2 or else the rightwards movement of a former prefix has been complete, with it now appearing word-finally. This second possibility is canvassed by the fact that V_2 usually is a high front or back vowel, the same widespread Plateau prefixes putatively responsible for labialisation and palatalisation.

Hyam admits sequences of two similar vowels. These occur in the context of numerals, where they are often cognates with long vowels in other Niger-Congo languages, e.g.

ʒìinì	one
faari	two
taat	three

but also on a variety of other words;

fáá	broom
xii	saliva
ʃuu	charcoal

the same restriction applies, that no glide tones occur on doubled vowels, and it seems likely that these do arise from deletion of C_2.

2.6 Rightwards movement in consonant alternation

Fulfulde and other languages are notable for the fact that consonant alternation proceeds rightwards across the word. Both in Hyam and Aten this procedure seems to be more haphazard. A few words exhibit this (see Table 4) but others do not and no rule has yet been established from a paucity of data.

3. The role of external cognates

Internal reconstruction of languages should ideally be done entirely from first principles and the results obtained thereby compared with putative relatives. However, especially where the morphological processes are far from clear, external cognates are very useful in showing which pair of the alternates needs to be explained, the assumption being that the form with external cognates has remained unchanged.

The other aspect of external cognates is that recent loanwords exhibiting consonant alternation must be examples of system harmonisation rather than the historical process. For example, in Aten, the word **kaasùwa**[3] 'market' alternates with its plural **paasùwà**. As a recent loanword from Hausa, it is unlikely to undergone prefix incorporation, so the k/p alternation, common in 'old' words, must represent recent system harmonisation.

4. Hyam: phonology and orthographic conventions

Hyam phonology is dealt with a greater length in Blench (2001) but the outline system is given below. Hyam consonants without prosodies are shown in the table:

	Bilabial	**Labio-dental**	**Alve-olar**	**Alveopalatal**	**Palatal**	**Velar**	**Labial-velar**	**Labial-dental-velar**	**Glottal**
Plosive	p b		θ t d		c j	k g	kp gb	ɢ	
Nasal	m		n̪ n		ɲ	ŋ			
Trill			r						
Fricative		f v	s z	ʃ ʒ		x ɣ			h
Affricates			ts dz						
Approximant					y		w		
Lateral Approximant			l		ɥ				

[3] From Hausa **kààsuwaa**

/p/ and /b/ are only contrastive in initial and medial position. Numerous combinations of prenasalised, labialised and palatalised versions of these consonants occur. A long /yy/ seems to be the only long consonant.

Because this paper is written in conjunction with the Hyam orthography project, throughout the remainder of the paper, common orthographic conventions will be used. These are:

θ	th	ʒ	zh	x	kh	tʃ	c	ɥ	yw	ɢ	g’
ʃ	sh	ɲ	ny	ɣ	gh	dʒ	j	ʃw	shyw		

Hyam has seven phonemic vowels;

	Front	**Central**	**Back**
Close	i		u
Close-Mid	e	ə	o
Open-Mid	ɛ		
Open		a	

of which /i/, /u/, /o/ and /a/ also occur in contrastive long forms.

5. Hyam consonant alternations and their evolution

Table 2 sets out all the alternations presently recorded, together with as many examples as have been recorded and hypotheses about the stages of evolution of the synchronic data. The final column gives external cognates where identified. The table also shows examples on ‘non-alternations’, i.e. cases where the singular or plural consonant is simply retained. Table 3 shows examples of consonants that are apparently always stable. Table 4 shows some cases of multiple consonant alternation in a single lexeme.

Table 2. Hyam consonant alternations and their possible historical origins

No.	Pairing	Singular	Plural	Gloss	Stage I	Stage II	Commentary
1.	**b/dz**	**bam**$^{+}$	**dzam**$^{+}$	come			
		bat^{+}	**dzat**$^{+}$	touch			
		baŋ$^{+}$	**dzaŋ**$^{+}$	to hold, breast			
		bevi	**dzevi**	stammering			
		bim	**dzim**	to fetch			
		bír	**dzír**	locust-bean cakes			
		but^{+}	**dzut**$^{+}$	to hide, cover			
		bwɔt	**dzwɔt**	remains of s.t.			
		byén	**dzyén**	to deceive			
2.	**c/ts**	**cám**	**tsàm**	to make ridges			
		cát	**tsàt**	to be uncertain			
		cí	**tsì**	death			
		cin	**tsin**	bravery			
		cir	**tsir**	firestone, to warn, advise			
		co^{+}	**tsò**	sore			
		cú	**tsù**	soul			
		cûm	**tsùm**	to be fat			
		cyam	**tsyam**	to put marks on			
3.	**d/gy**	**dàk**	**gyǎk**	leg			
		dar	**gyar**	to pull			
		deri	**gyeri**	to pull			
		dɛk	**gyɛk**	to trample soil			
		dìdèŋ	**gigyèŋ**	to stand			
		dos	**gyos**	to wobble			
		dùk	**gyùk**	to rub			
		duŋ	**gyuŋ**	deepness			
		dút	**gyùt**	to catch s.t. thrown			
		dwas^{+}	**gywas**$^{+}$	to keep quiet, calm			
4.	**dy/gy**	**dyěn**	**gyen**$^{+}$	to remove husks			
		dyer	**gyer**	to stir food			
		dyɛŋ	**gyɛŋ**	to make porridge			
		ndyêt	**ngyèt**	chin			

No.	Pairing	Singular	Plural	Gloss	Stage I	Stage II	Commentary
5.	**f/s**	**fáá**	**sàà**	broom			
		faár	**saár**	to count			Widespread **ba** or **fa** 'to count'
	But:	**saàr**	**sáàr**	garden egg			
		fáp	**sap**$^{+}$	to crowd s.o.			
		for	**sor**	to strip grain from the cereal head			
		fɔt	**sɔt**	to climb			
		fur	**sur**	to broadcast seed			
		furi	**suri**	to burst out			
		fyɛm	**syɛm**	to be very quick			
6.	**g/gy**	**gak**$^{+}$	**gyak**$^{+}$	to dilute			
		gan	**gyan**	slavery, to surpass			
		gaŋ$^{+}$	**gyaŋ**$^{+}$	to unlock			
		gàp	**gyàp**	to share out, divide			
		gar	**gyar**	to untie			
		gari	**gyari**	to untie			
		gòs	**gyòs**	to buy			
		gɔk	**gyɔk**	to grind			
		gun	**gyun**	to pull up a plant			
		gus	**gyus**	to come back			
7.	**gb/gbw**	**gbiŋ**	**gbwiŋ**	to close			
8.	**gb/gby**	**gbaŋ**	**gbyaŋ**	to lock			
		gbap	**gbyap**	to put together			
	But:	**gbis**	**gbis**	to wash			
		gbɔ	**gbyɔ**	to fall down			
		gbɔs	**gbyɔs**	to shout			
9.	**ɣ/y**	**ghaŋ**	**yaŋ**	to check for s.t.			
		ghap	**yap**	to search			
		ghen	**yen**	to plant			
		gher	**yer**	to weep			
		ghet	**yet**	to step on s.t.			
		ghə	**yə**	to enter			
		ghi	**yi**	to eat			
		ghim	**yim**	to try			

No.	Pairing	Singular	Plural	Gloss	Stage I	Stage II	Commentary
		ghoŋ	**yoŋ**	to excrete			
10.	**h/hy**	**ham**$^{+}$	**hyám**	to roll			
		hap^{+}	**hyáp**	to split (e.g. wood)			
		has^{+}	**hyas**$^{+}$	to take			
		har^{+}	**hyàr**	house			
		haŋ$^{+}$	**hyàŋ**	to fight			
		hat^{+}	**hyàt**	to break			
		hɔk	**hyɔk**	to hide			
		hɔŋ	**hyɔŋ**	to breathe			
		hɔp	**hyɔp**	to stoop			
		hum	**hyum**	to yield			
11.	**hw/hy**	**hwɛk**	**hyɛk**	money			
		hwɔm	**hyɔm**	to take out of water			
		hwɔn	**hyɔn**	to fear			
		hwɔp	**hyɔp**	to leave, to rear animals			
		hwɔr	**hyɔr**	to swim			
12.	**k/ky**	**kàn**	**kyàn**	to wind around			
		kaŋ	**kyaŋ**	to arrange cooking stones			
		kap	**kyap**	to dig			
		kas	**kyas**	to crawl			
		ko	**kyo**	to be ripe			
		kɔm	**kyɔm**	corpse			
		kus	**kyus**	left-over			
		kuub	**kyuub**	short person			
		kuum	**kyuum**	to gather			
	But:	**kù**	**mòku**	masquerade			
13.	**kh/khy**	**khaa**	**khyaa**	tail			
		kham	**khyam**	to respect, honour, to fast, to avoid certain types of food			
		khep	**khyep**	town			
		khə	**khyə**	to take			
		khi	**khyi**	head			
		khiis	**khyiis**	to pack			
		khit	**khyit**	to hit			

No.	Pairing	Singular	Plural	Gloss	Stage I	Stage II	Commentary
14.	**kh/sh**	**khaik**	**shaik**	to carry			
15.	**khw/hyw**	**khwa**	**hywa**	to drink			
		khwam	**hywam**	to break into pieces			
		khwɛ̌p	**hywɛ̂p**	to whistle, wing			
		khwɛ̋t	**hywɛ̋t**	to beat s.o.			
		khwɛ̌k	**hywɛ̌k**	to force-feed baby			
		khwɛ̋m	**hywɛ̋m**	to strip palm-fruits from a head			
		khwɔk	**hywɔk**	name			
16.	**kp/kpy**	**kpaŋ**	**kpyaŋ**	peg			
		kpau	**kpyau**	fat			
		kpebi	**kpyebi**	to blink			
		kpes	**kpyes**	cow hoof, human instep			
		kpit	**kpyit**	cloth			
		kpo	**kpyo**	porridge			
17.	**kpw/kpy**	**kpwek**	**kpyek**	to be thankful			
		kpweŋ	**kpyeŋ**	to do s.t.			
		kpwyeŋ	**kpyeŋ**	to pound			
18.	**m/n̻**	**mam**	**nnyam**	to make into balls			
	(=nn)	**mat**	**nnat**	to give birth			
		mek	**nnek**	year			
		mimyet	**nninnyet**	to lie down			
		miri	**nniri**	to pinch s.o.			
		mo	**nno**	to give			
		mok	**nnok**	to lick			
		mɔt	**nnɔt**	heavy			
		myɛm	**nnyɛm**	to imitate			
		myɛn	**nnyɛn**	character, wisdom			
19.	**n/ny**	**nam**	**nyam**	body			
		ni	**nyi**	to look			
20.	**ŋg/ŋgy**	**ŋgát**	**ŋgyə̀t**	to be across			
21.	**p/kpy**	**pɔr**	**kpyɔr**	weeding			
22.	**p/py**	**par**	**pyar**	to have a good aftertaste			
23.	**r/y**	**ris**$^{+}$	**yîs**	to see			
24.	**ry/y**	**ryə̀s**	**yás**	to hide			

No.	Pairing	Singular	Plural	Gloss	Stage I	Stage II	Commentary
25.	**r/yw**	**rus**	**ywus**	to dry			
26.	**ʃ/s**	**ʃak**	**sak**	to cook			
		ʃeʃit	**sesit**	blackness			
		ʃû	**sŭ**	face			
27.	**t/ky**	**tam**$^{+}$	**kyâm**	cheek			
		tat	**kyat**	to throw			
		tɛm	**kyɛm**	to open slightly			
		tim	**kyim**	to shake			
		tip	**kyip**	to shift			
		toŋ	**kyoŋ**	to learn			
		tɔm	**kyɔm**	to send message			
		tuk^{+}	**kyûk**	day (24 hours)			
		tyeŋ	**kyeŋ**	to set fire to			
28.	**v/z**	**vin**	**zin**	to tighten			
		vêb	**zêb**	to bare the teeth			
29.	**w/wy**	**wam**	**wyam**	to brush			
		waŋ	**wyaŋ**	to rub			
		was	**wyas**	to associate freely			
		wir	**wyir**	to make rope			
		wɔk	**wyɔk**	to find s.t.			
		wut	**wyut**	to come out			
30.	**zh/z**	**zhu**	**zu**	room			

Table 3 is a list of lexemes with tone or prefix plurals where there is no trace of alternation. The logic of their stability compared with apparently similar consonants that do show mutation is not yet apparent. Initials where there are no examples where it takes part in consonant alternation are marked 'S', initials where the consonant occurs in a plural but not in a singular are marked 'P'.

Table 3. Stable initial consonants

	Initials	Singular	Plural	Gloss
P	dz/dz	**dzùŋ**	**dzûŋ**	housefly
		dzom	**dzóm**	elephant
		dzye	**dzyé**	power
S	j/j	**jàr**	**mojàr**	bag
		jàŋ	**majàŋ**	leaf
P	khy/khy	**khyăp**	**khyâp**	childishness
		khyim	**khyim**	vein
P	ny/ny	**nyak**$^{+}$	**nyák**	cow
		nyàm	**nyám**	meat
	r/r	**rinás**	**mo-rínas**	horse
P	s/s	**sŭŋ**	**mo-sûŋ**	snake
		saù	**sáù**	crocodile
		saàr	**sáàr**	garden egg
S	hyw/hyw	**hywek**	**hywék**	bee
		hywam	**hywám**	thatching grass
S	ts/ts	**tsàt**	**tsát**	feather
		tsù	**tsú**	plague locust
	w/w	**we**$^{+}$	**wè**	child
		wòk	**wôk**	to find
P	y/y	**yak**$^{+}$	**yák**	voice
		yaŋ$^{+}$	**yáŋ**	fire
	yw/yw	**ywè**	**ywé**	tuber
		ywaa	**ywaa**	war
	z/z	**zì**	**zî**	tooth
		zaŋ	**zaŋ**	to roam about

Table 4 shows those few words so far identified that show internal alternations. They are so diverse that no conclusions can be drawn until further examples are available.

Table 4. Multiple alternations in single lexemes

Singular	Plural	Gloss
rituk^{+}	**yicùk**	night
shadur	**sagyur**	redness
shabur	**sadzur**	whiteness

In the case of 'night' the first syllable undergoes r/y alternation attested elsewhere and the second syllable undergoes t/ky alternation which is common. The /ky/ then weakens to /c/ in intervocalic position. Similarly ʃ/s, d/gy and b/dz are all attested elsewhere. What remains unexplained is why multiple alternation occurs on so few words.

6. Conclusion

Hyam has one of the most complex consonant alternation systems attested for Plateau languages. Unpublished data on Aten and Cara, both of the Berom group show similar complexity. Broadly speaking, the key processes are the erosion of V and CV prefixes, which occur only partially, with the tone moving rightwards to the stem. Where the V of the prefix is lost, or creates palatalisation or labialisation of the stem, the consonant of the prefix, now adjacent to the C_1 of the stem produces complex consonants distinct from the singular and thus the effect of alternation is produced.

It is striking, however, that alternations are very sporadic; they do not occur on all nouns or verbs

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