

MORE ON NASALS AND NASALIZATION IN KWA¹

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0. Introduction

Hyman [1972] makes a number of interesting and sometimes provocative proposals about the origin of nasalized vowels in Kwa languages. His basic proposition, that nasalized vowels in Kwa frequently result from earlier CNV < CVNV, I consider to be correct, and I shall present further evidence in support of it in section 2 below.

This proposal is, however, entangled with another which I believe to be basically incorrect. This is that [ẽ] and [õ], and to a lesser extent [ĕ] and [ō], are so uncommon in Kwa languages that it is necessary to suppose special restrictions on the shape of Proto-Kwa morphemes in order to account for their absence. He makes, very tentatively, the specific proposal that Kwa stems of the shape CV₁CV₂ had only /i a u/ in V₂ position, and that these vowels are likely to have been suffixes. I shall present evidence that this hypothesis is unnecessary.

1. Possible origins for nasalized vowels

1.1. Hyman discusses two possible sources for [CṼ]: CVN and CNV. One of his arguments for considering CVN an unusual source for Kwa CṼ is that alternations between CVN and CṼ have not been recorded. It should be noted, however, that Florence Dolphyne [1972] has reported alternations between CVNC and CṼ in the Brong dialect of Akan:

dane	~ dare	~ dã	'to turn over; house'
bone		~ bõ (?[bõ])	'to smell'

¹I am grateful to several of my colleagues who read the first draft of this paper and commented on it, especially Carl Hoffmann, Ben Elugbe, and Mona Lindau.

(Note that the last example shows an Akan dialect developing a mid nasalized vowel.)

Another example of a final nasal (this time syllabic) alternating with nasalized vowels is reported by R. G. Armstrong [personal communication] from the Agila dialect of Idoma:

éǵà ǵ h̄ɔ ǵ ~ éǵǵǵ h̄ɔ̄ǵ 'There is no room' (where ǵ is a negative marker)

Another rather marginal example is found in SE ɪjɔ. The neuter definite suffix -m̄ found in Nembe (and reconstructable to Proto-ɪjɔ) is reduced to nasalization of the preceding vowel in Akassa:

Nembe	ǎrù	'canoe'
	ǎròm̄ ~ ǎròm̄	'the canoe'
Akassa	ǎrù	'canoe'
	ǎrǔ	'the canoe'

1.2. A third possible source for nasalized vowels is by loss of a nasal between two vowels which were originally non-significantly nasalized. This process can be shown in ɪjɔ² with [ŋ]:

		'mother'	'run'
NE ɪjɔ:	Okrika	[n̄əŋf̄]	[m̄əŋf̄]
ɪzɔ:	Kolokuma	[ȳəŋf̄]	[b̄əŋf̄], [b̄ǎf̄]
	East Tarakiri	[ȳəf̄]	[b̄ǎf̄]
	Mein	[ȳf̄]	[b̄ǎf̄]
NEC ɪjɔ:	Biseni	[n̄ǔ-]	[m̄ǔ]

Observe how this sequence shows the reduction of [ŋ] to [ŋ̄], the nasalization of vowels adjacent to [ŋ̄], and the loss of intervocalic [ŋ̄], which is followed in some dialects by contraction of the vowel sequence to a single vowel.

An example of the loss of intervocalic -m- is found in NEC ɪjɔ. Compare the following forms:

²ɪjɔ is here treated as the group name for a group of four closely related languages:

North-Eastern ɪjɔ: a dialect cluster comprising the Kalapari, Okrika, ɪɸani and Nkɔrɔ dialects.

South-Eastern ɪjɔ: Nembe and Akassa dialects.

North-East-Central ɪjɔ: Biseni and Okordia dialects.

ɪzɔ (General ɪjɔ): all other ɪjɔ dialects.

	'hair'	'pound'	'hit'	'know'
Okordia	[dũmũ]	[tòmũ]	[fãmũ]	[númũ]
Biseni	[zũ]	[tõ]	[fõ]	[nóũ]

The first two Biseni forms could result from a process $C\tilde{V}N\tilde{V} > C\tilde{V}N > C\tilde{V}$.

But the vowel in the third example is obviously the result of a contraction of the two vowels which must have followed the loss of the nasal:

[fãmũ] > *[fãũ] > [fõ]

Similarly, the fourth example must result from earlier *[nõmũ] (cf. Okrika [némf]).

A similar process is hypothesized for two Niger Delta languages which show sequences of nasalized vowels but no single nasalized vowels (except for a few loanwords and interjections). These are Degema (a Delta Edo language) and Ogbia (a Benue-Congo language of the Delta-Cross sub-branch of Cross River). In such cases the second vowel of the sequence is always high (close). E.g. Degema 'tree', pl. 'fire', compare Egeṅe étàl 'tree, fire', Epie itāā 'tree, fire'. It is suggested that the stem of this word was originally *-taŋ .

2. Further evidence for CNV

2.1. I am in complete agreement with Hyman that CNV is both a plausible and a common source for Kwa C \tilde{V} . To his discussion of Lower Niger languages I would like to add the following points.

(a) One reason for adopting the orthographic convention CNV for these languages (see Williamson [1970, 1972]) is precisely because they do have nasal plosion; e.g. Ogbah and Ikwerre dnà [d^{Nà}] 'fall'. Nasal plosion is also reported for İka (Elugbe [1969]).

(b) Hyman claims that a nasally released implosive is phonetically impossible. I can only report that the sounds written kp, gb in Ogbah and Ikwerre are, as far as I can determine, velarized bilabial implosives (which I write phonetically as [p^f], [b^f]) and that they have nasal releases parallel to those of the other stops. Thus we have the following forms in a number of Ikwerre dialects:

	'road'		'jaw'	
Ndele	àkpà	[ap ^h Nà]	àgbà	[àb ^h Nà]
Emòwhua	àkpà		àgbà	
Chobaa	àkpà		àbà	
Ọgbakiri	àkpà		àbà	
Ọbịọ	àpà	[àp ^h Nà]	àbà	

Observe the simplification (loss of implosion) that takes place in Ọbịọ for both voiceless and voiced, and in Chobaa and Ọgbakiri for the voiced stop. On the other hand, /kpn/ and /gpn/ must clearly be reconstructed to Proto-Lower Niger to account for the cases where Northern Igbo kp, gb correspond to Central Igbo ph, bh (which, as Hyman points out, result from *pn, *bn):

	'to drag, lead'	'jaw'	
Onitsha	!kpú	àgbà	< *àgbà
Ọhụfụ	!phú	àbhà	< *àbà < *àgbà

(cf. Ikwerre (Ọgbakiri) kpú)

It is thus clear that although nasally released implosives are difficult and liable to simplification they are not impossible.

In this connection it should be noted that phonetic sequences of implosive plus nasalized vowel (though not with nasal plosion) occur in Ịjọ; thus the forms for 'run' cited in 1.1 above are derived from *bàngí [bàngí]. In NE and SE Ịjọ /b/ is assimilated to /m/ and /d/ to /n/ under these circumstances, as Hyman suggests. On the other hand, in Ịzọn most dialects simply lose the implosion. A very few, however, keep it, like Boma in the following examples:

	'water'	'waves'	'pull'
	*bèndí	*dèngò	*dúnú
NE Ịjọ: Okrika	[mèngí]	(not cognate)	[núnú]
SE Ịjọ: Nembe	[mìndí]	[èngò]	[núnú]
Ịzọn: Boma	[bèní]	[dèngò]	[dúnú]
Kolokuma	[bèní]	[dèngò]	[dúnú]

It is thus possible, though rare, to have sequences of implosive plus nasalized vowel in Ịjọ.

2.2. We shall now consider whether in Ijò [C \tilde{V}] can be better derived from CVN or CNV. Synchronically, there is good reason to relate [C \tilde{V}] to CVN, for syllables of the type VN, CVN are common. The examples which follow are from Iẏon (Kolokuma):

[ɪndɪ:]	'fish'
[ãndá]	'to wrestle'
[òtómgbó ó]	'mosquito'
[ɪzóngò]	'jug'

It will be observed that VN, CVN syllables occur only when immediately preceding a stop. (The nasalization on the V preceding the N is slight and is a result of assimilation.) On the other hand, heavily nasalized vowels [C \tilde{V}] occur either preceding a continuant or finally:

[sã ð:]	'gills'
[áfáfá]	'type of tree'
[òvúvú:]	'dragonfly'
[tú]	'hat; to sing'

There is thus complementary distribution between VN (only preceding stops) and C \tilde{V} (elsewhere), and both can be considered realizations of an underlying sequence VN. The second set of words can therefore be written phonemically with VN, a convention which coincides conveniently with the traditional orthography:

/sanloó/	'gills'
/afánfán/	'type of tree'
/ovúnvúun/	'dragonfly'
/tún/	'hat; to sing'

This solution seemed to me quite satisfactory until I considered Hyman's hypothesis that [C \tilde{V}] might rather result from CNV than from CVN. At this point the distribution of C \tilde{V} and VN in Ijò took on a new significance. Accepting the analysis suggested above means that the syllable structure of Ijò can be described as (C)V(N). There are, however, various restrictions on the co-occurrence of different syllable types within the word which at first appear arbitrary.

1. It is not normally possible (there are a few marginal exceptions) to have an N element in more than one syllable in the word, except in reduplications.

2. It has already been observed that [VN], [CVN] occur only preceding stops, while [Ṽ], [C̃V] occur elsewhere. The normally occurring word shapes, however, show a rather more elaborate set of restrictions. In the generalized phonetic formulas in Table 1, P = any stop, F = any continuant, C = any consonant, N = homorganic nasal, Ṽ = heavily nasalized vowel, V = a vowel which is either oral or nasalized only by contact with the following nasal.

Table 1

The occurrence of some word types in Ijò

(Normal types are unstarred; non-existent or rare types are starred.)

A.		PV
B.	VN-PV	*V-P̃V
	CVN-PV	*CV-P̃V
	CVN-PV-CV	*CV-P̃V-CV
	V-CVN-PV	*V-CV-P̃V
C.		F̃V
D.	*VN-FV	V-F̃V
	*CVN-FV	CV-F̃V
	*CVN-FV-CV	CV-F̃V-F̃V
	*V-CVN-FV	V-CV-F̃V

Table 1 can be summarized by the observation that sequences VP̃V (with or without a preceding consonant) do not occur; instead, VNPV occurs. There is no general restriction on the occurrence of nasalized vowels after stops, because P̃V occurs in isolation; nor is there a general restriction on the occurrence of nasalized vowels after vowel + consonant, since VF̃V occurs.

It is suggested that VNPV results from an earlier stage *VPNV by metathesis of the stop and nasal, provided that a vowel precedes. Metathesis of continuant and nasal does not take place. We may therefore assume the following:

*VPNV > VNPV
 *VFNV > VF̃V

The earlier stages may be collapsed as *VCNV, and the earlier stages of the word types treated in Table 1 will be assumed to be as in Table 2.

Table 2

Assumed earlier forms of some Ijò word types

A, C	CNV
B, D	V-CNV
	CV-CNV
	CV-CNV-CV
	V-CV-CNV

Observe that none of the restrictions earlier noted exist at this earlier hypothetical stage.

Various other scattered pieces of evidence can be cited to support the proposal that stop-nasal metathesis has taken place in Ijò:

1. There is free variation in Kolokuma between [ṣṣṣ] and [ṣṣṣ] 'lime'.

2. So far, the impression has been given that all Ijò dialects have VNPV and none have VPṼ. The Okordia dialect of NEC Ijò, however, has no -NP- sequences except -mb-. Corresponding to the -NP- sequences of other dialects it normally has either -P- or -P̃ (the conditioning factors for one or the other are not yet clear). Thus we have the following cases with VPṼ:

<u>Okordia</u>	corresponding to normal	
àgbà	'cheek'	[àṣṣṣbà]
ìgbó	'bone'	[ìṣṣṣbó]
ìdó	'breast'	[ìṣṣṣdó]
ìzì	'fish'	[ìṣṣṣzì]

(d > z before /i/ regularly)

Until recently Proto-Ijò forms have been reconstructed as in the second column, and the Okordia forms were regarded as resulting from a metathesis the other way round (VNPV > VPṼ). In the light of the other evidence, it now appears that Okordia is rather preserving, partially, an older situation, and that Proto-Ijò must be reconstructed with VNPV rather than VNPṼ.

3. Two Ijò words which are certainly related to and probably borrowed from Lower Niger show VNPV corresponding to Lower Niger VPV:

<u>Lower Niger</u>		<u>Ijò</u>
/àgbnà/ [àb ^h nà]	'jaw, cheek'	[àṅmgbà]
(but cf. Okordia [àgbà])		
/èdnò/ [àd ^h no]	'yellow'	[òndò]

4. A number of Ijò words can be tentatively related to words in other Niger-Congo languages if it is assumed that present-day Ijò VNCV < *VCNV < **VCVNV. Examples are:

- (a) Ijò ɪndɪ 'fish' < *idNi < **idVNi
Cf. in the Edo languages forms like Iyayu é̀tèní, Epié and Ègèṅè è̀-sèní (pl. i-); cf. also Andoni ɪrɪŋ.
- (b) Ijò ɪmbú 'navel' < *ibnu < **ibVNu
Cf. Eleme (Ogoni group) opū
- (c) Ijò *bèndɪ 'water' ***bèdni ***bèdVni
Cf. Onitsha Igbo m̀-ɪf'ɪf, where ɪ < *d; cf. also Proto-Jukunoid *mbyed 'water' (Shimizu [1971])
- (d) Ijò pàmbà 'wing' < *pabNa < **pabVNa
Cf. Proto-Benue-Congo *-babaŋ, -pabaŋ 'wing'
(De Wolf, 1971).

2.3. Hyman suggests (pp. 177-78, footnote 8) that a parallel process of metathesis may be postulated to explain the development of nasalization to aspiration or breathy voice in Southern Igbo. He posits the following process:

$$(a) \quad (b) \quad (c) \quad (d) \quad (e)$$

$$*V-CV_1NV_2 > V-CNV_2 > V-NCV_2 > V-NC^hV_2 > V-C^hV_2$$

He claims that in stage (d) the consonant becomes aspirated or breathy voiced because "the preceding nasal creates a strengthening environment" and that "if stage (d) is not postulated, then it is not clear how or why nasally released stops should develop into aspirated and breathy voiced stops." A dialect of Igbo has been reported, however, which clearly shows an intermediate stage in which stops are followed by "aspiration" co-occurring with nasalization of the following vowel; in

this dialect there is no nasal preceding the stop (Orlu, as reported by Armstrong [1967] and confirmed by personal observation). This suggestion must therefore be rejected.

B. O. Elugbe [personal communication] suggests an alternative process; that devoicing set in on the nasal segment at stage (b) yielding aspiration (i.e. a period of voicelessness following a stop) in the case of a voiceless stop, and breathy voice (phonetically intermediate between voicing and voicelessness) in the case of voiced stop. What still requires explanation, however, is why devoicing should develop in such an environment.

C. Hoffmann [personal communication] points out the parallel in Swahili, where in Class 9 Proto-Bantu N- is replaced by aspiration of the initial consonant of the stem if it is a voiceless stop. He assumes a process as follows:

$$N\text{-}\underset{\cdot}{P}V > \underset{\cdot}{N}\text{-}\underset{\cdot}{P}V > \underset{\cdot}{N}\text{-}\underset{\cdot}{P}N\underset{\cdot}{V} > \underset{\cdot}{P}N\underset{\cdot}{V} > \underset{\cdot}{P}^h\underset{\cdot}{V}$$

He further points out "the existence in Kyibaku (Chibbuk, Cibak), a Chadic language, of the prenasalized consonants mp , nt , nk where the completely devoiced nasal onset sounds as if someone is heavily breathing through the nose."

2.4. There is evidence of stop-nasal metathesis, such as that assumed here for ɛjɔ , in at least one other Kwa language of Nigeria. This is a language whose various dialects have no common name; for convenience, I have been referring to it as the Northern Akoko cluster. Most of its dialects are spoken in Kwara State, in the village of Ayere.

E. M. Fresco regards this language as belonging to the same group as Yoruba [personal communication]. It is therefore reasonable to make comparisons between it and Yoruba. Examples are given here from the dialects of Ahan (near Omuo) and Urò. The Ahan material was collected by Mr. E. A. Babalola, a student who had done one year of linguistics; the Urò data is from an orthographic list completed by Mr. D. E. Adu, a former student at the University of Ibadan. The Yoruba forms are from Fresco [1970]. Mid tone is unmarked in both Ahan and Yoruba; the Urò data is not tone marked.

	<u>Ahan</u>	<u>Urò</u>	<u>Common Yoruba</u>	<u>Oba Yoruba</u>
'one'	aŋká	kenka	ǎkǎ	(Inǎ)
'five'	intú	into	àrú	àrú, èrú
'twenty'	óŋgú	(ugboṛo)	ogú	ogú
'thirty'	ɔŋgbà	oŋgba	ɔgbǎ	ɔgbǎ
'tree'	iŋgu	oŋgo	igi	igí
'ear'	éńf	(uto)	etf	etf
'ashes'	endúndún	oŋdo	eérú	eérú

In these examples it can be clearly seen that sequences of consonant plus nasalized vowel in Yoruba correspond to sequences of nasal plus stop plus oral vowel in Ahan and Urò. The easiest way to account for both languages is to assume that the original shape for these forms (except 'ashes', which is reduplicated) was VCNV. From this Yoruba develops modern VC \bar{V} (sometimes > VCV), while Ahan and Uro undergo a metathesis like that already described for Ijò. There is thus comparative evidence in favor of original VCNV for Yoruba (cf. the discussion in Hyman [1972]). Original VCVN, as posited by Stahlke [1971], would be much less likely in that the metathesis would have to be over two segments instead of one.

2.5. Another piece of evidence for CNV rather than CVN as the source of nasalized vowels comes from the restriction noted for Yoruba that nasalized vowels do not occur in initial position in VCV nouns (Bamgboṣe [1966]). It is my impression that this restriction is widespread among Kwa languages. If the earlier or underlying syllable structure of Yoruba were (C)V(N) then it is a strange restriction that VN can occur only after C. If, on the other hand, C \bar{V} results from CNV < CVNV there is of course no possibility of a nasalized vowel occurring in a prefix, which consists only of V; the N element which produces nasalization can occur only after C.

3. Occurrence of /ǎ/, /ǎ̄/, /ě/, /ě̄/ in Kwa

3.1. I should now like to present evidence on the occurrence of nasalized vowels within Kwa (Table 3). The majority of the languages cited come from

Nigeria, but those presented from further west show the same kind of patterns. No attempt has been made to be particularly representative; languages which were easily accessible to me have been taken.

Table 3

Vowel inventories of some Kwa languages

(Under "System" the number of oral vowels is given to the left of the colon, the number of nasalized vowels to the right.)

<u>Group and language</u> (dialect names after semicolon)	<u>Vowel inventory</u>	<u>System</u>	<u>Source</u>
<u>Group 1 - Kru group</u>			
Grebo	ɪ ɪ̃ ɛ ɛ̃ ə ɔ ɔ̃ u ʊ ʊ̃	9:7	Innes [1967]
<u>Group 2 - Togo remnant group</u>			
Basila; Giseda	ɪ ɪ̃ ɛ ɛ̃ ə ɔ ɔ̃ ɔ̃̃ ʊ ʊ̃	9:6	Heine [1968]
Lelemi	ɪ ɛ ɛ̃ ə ɔ ʊ ʊ̃	7:4	Hoftmann [1971]
Lelemi; Tetemang	ɪ ɛ ɛ̃ ə ɔ ʊ ʊ̃	8:8	Heine [1968]
Logba	ɪ ɛ ɛ̃ ə ɔ ʊ ʊ̃	7:5	Heine [1968]
Adele	ɪ ɛ ɛ̃ ə ɔ ʊ ʊ̃	8:7	Heine [1968]
Likpe	ɪ ɛ ɛ̃ ə ɔ ʊ ʊ̃	8:8	Heine [1968]
Santrokofi	ɪ ɛ ɛ̃ ə ɔ ʊ ʊ̃	7:7	Heine [1968]
Akpafu-Lolobi; Akpaflu	ɪ ɛ ɛ̃ ə ɔ ʊ ʊ̃	7:7	Heine [1968]

<u>Group and language</u>	<u>Vowel inventory</u>	<u>System</u>	<u>Source</u>
Avatime	i e ε a ɔ o u ɾ ẽ ẽ̃ ǎ ǎ̃ õ õ̃	7:7	Heine [1968]
Nyangbo-Tafi; Nyangbo	i e ε a ɔ o u ɾ ẽ ẽ̃ ǎ ǎ̃ õ õ̃	7:7	Heine [1968]
Bowili	i e ε a ɔ o u ɾ ẽ ẽ̃ ǎ ǎ̃ õ õ̃	7:7	Heine [1968]
Ahlo	i e ε a ɔ o u ɾ ẽ ẽ̃ ǎ ǎ̃ õ õ̃	7:7	Heine [1968]
Kposo	i e ε a ɔ o u õ õ̃	7:3	Heine [1968]
Kebu	i e ε ə a ɔ o u ɾ ẽ ẽ̃ ẽ̃̃ ǎ ǎ̃ õ õ̃	8:8	Heine [1968]
Animere	i e ε ə a ɔ o u ɾ ẽ ẽ̃ ǎ ǎ̃ õ õ̃	8:7	Heine [1968]
<u>Group 3</u>			
Ewe	i e ε a ɔ o u ɾ ẽ ẽ̃ ǎ ǎ̃ ũ	7:5	Ansre [1961]
Fon	i e ε a ɔ o u ɾ ẽ ẽ̃ ǎ ǎ̃ ũ	7:5	Yai [1969]
<u>Group 4 - Volta-</u>			
<u>Comoe</u>			
Akan	i ɪ e ε ə a ɔ o u u ɾ ĩ ẽ̃ ẽ̃̃ ũ̃ ũ̃̃	10:6	Schachter and Fromkin [1968]
Baoulé	i ɪ e a o u ɾ ĩ ẽ̃ ẽ̃̃ ũ̃ ũ̃̃	7:5	Vogler as cited by Hyman [1972]
Gonja	i e ε a ɔ o u (r, ɔr)	7(+2):0	Painter [1970]
<u>Group 5</u>			
Itsekiri	i e ε a ɔ o u ɾ ẽ ẽ̃ ǎ ǎ̃ ũ	7:5	Opubor in Dunstan [1969]

<u>Group and language</u>	<u>Vowel inventory</u>	<u>System</u>	<u>Source</u>
Yoruba;			
(a) Kétu	i e ε a ɔ o u	7:5	(a) Adeliyi [1972]
(b) Ikálẹ̀	ɾ ɛ̃ ã ɔ̃ ù		(b) Işola [1969]
(c) Ondo			(c) Fqlarin [1967]
Yoruba;			
(a) Standard	i e ε a ɔ o u	7:4	(a) Bamgboşe [1966]
(b) Ijebu	ɾ ɛ̃ ɔ̃ ù		(b) Adeniran, K. [1968]
Yoruba;			
(a) Ìjèsà	i e ε a ɔ o u	7:3	(a) Jeje [1972]
(b) Owe	ɾ ɔ̃ ù		(b) Adeniran, W. [1971]
(c) Isanlu (Yagba)			(c) Joda [1971]
Yoruba;			
(a) Ife	i e ε a ɔ o u	7:3	(a) Ogunşina [1972]
(b) Esie/Oro (Igbomina)	ɾ ã ù		(b) Adeoye [1971]
Igala	i e ε a ɔ o u	7:0	Armstrong [1965]
<u>Group 6</u>			
Ebira (Igbirra);	i i e ε a ɔ o u u	7:0	
(a) Standard			(a) Scholz [1972]
(b) Igara (Etunọ)			(b) Adigun [1970]
<u>Group 7 - Confluence</u>			
group (I. George);			
Niger-Kaduna group			
(Larry Hyman)			
Nupe	i e a o u	5:3	Smith in Dunstan [1969]
	ɾ ã ù		
Gwari	i e a o u	5:0	Hyman and Magaji [1970]
<u>Group 8 - Edo group</u>			
<u>Northern Edo group</u>			
Etsako; Aviele	i e ε a ɔ o u	7:0	Laver [1969]
<u>Central Edo group</u>			
Bini (Edo)	i e ε a ɔ o u	7:5	Ogieriaikhi [1968]
	ɾ ɛ̃ ã ɔ̃ ù		

<u>Group and language</u>	<u>Vowel inventory</u>	<u>System</u>	<u>Source</u>
Esan (Ishan)	i e ε a ɔ o u ɿ ē ǣ ɔ̃ ũ	7:5	Akpamu [1971]
<u>Southern Edo group</u>			
Isoko	i ɪ e ε a ɔ o u u	9:0	Mafeni in Dunstan [1969]
Urhobo;			
(a) Uvwie	i e ε a ɔ o u	7:7	(a) Umukoro [1968]
(b) Agbon	ɿ ẽ ẽ̃ ǣ ɔ̃ õ ũ		(b) Kelly in Dunstan [1968] ³
<u>Delta Edo group</u>			
Epie	i ɪ e ε a ɔ o u u ɿ ĩ ẽ ẽ̃ ǣ ɔ̃ õ ũ ũ	9:9	Thomas and Williamson [1967]
Eg̃eṅe (Engenni)	i ɪ e ε ẽ a ɔ o u	10:0	Thomas and Williamson [1967]
Degema	i ɪ e ε ẽ a ɔ o u u		Thomas and Williamson [1967] ⁴
<u>Group 9 - Lower Niger</u>			
<u>group</u>			
Izi	i ɪ e ε a ɔ o u u	9:0	Bendor-Samuel and Meier [1967]
Ukwuani	i ɪ e ε a ɔ o u u	9:0	Williamson [1968] ⁵
Ika	i ɪ e a ɔ o u u ɿ ĩ ẽ ǣ ɔ̃ ũ ũ	8:7	Elugbe [1969] ⁶

³Kelly's treatment is prosodic; I have re-interpreted it as a phonemic one.

⁴As noted in 1.1, Degema has sequences of nasalized vowels although there are no single nasalized vowels.

⁵Possibly Ukwuani could be reanalysed with only eight vowels, with a distribution similar to that reported for Ika by Elugbe [1969].

⁶Ika is analyzed by Elugbe with oral vowels in contrast with nasalized ones; it could equally well be treated with /CnV/ structures resulting in [CV]. As noted below, /õ/ is [ɔ̃].

<u>Group and language</u>	<u>Vowel inventory</u>	<u>System</u>	<u>Source</u>
Igbo;			
(a) Onĩca	i i e a ɔ o v u	8:0	(a) Emenanjọ [1971]
(b) Oka (Awka)			(b) Enem [1969]
Igbo;			
(a) Oñuñu	i i e a ɔ o v u ɽ ĩ ẽ ǎ (õ?) ǒ ũ ü	8:(7)	(a) Green and Igwe [1969]
(b) Ezinehite			(b) Swift, Ahagho- tu and Ugorji [1962] ⁷
(c) Owerri			(c) Armstrong [1967 [1967] ⁷
(d) Olu (Orlu)			(d) Armstrong [1967] ⁷
Ogbah (Ogba)	i i e a ɔ o v u ɽ ĩ ẽ ǎ ǒ ũ ü	8:7	Olori (ms. ⁷)
Ikwerre	i i e a ɔ o v u ɽ ĩ ẽ ǎ ǒ ũ ü	8:7	Williamson [1970] ⁷
Ekpeye	i i e e a ɔ o v u	9:0	Clark [1969]
<u>Group 10 - Ijọ group</u>			
N.E. Ijọ; Kalaḅari	i i e e a ɔ o v u ɽ ĩ (ẽ) ẽ ǎ ɔ ũ ü	9:(8)	Williamson in Dunstan [1969] ⁸
S.E. Ijọ; Nembe	i i e e a ɔ o v u ɽ ĩ ẽ ẽ ǎ ɔ (õ) ũ ü	9:(9)	Williamson in Dunstan [1969] ⁹
Izon; Kolokuma	i i e e a ɔ o v u ɽ ĩ (ẽ) ẽ ǎ ɔ (õ) ũ ü	9:(9)	Williamson in Dunstan [1969] ⁹

⁷In Southern Igbo, Ogbah, and Ikwerre, nasalization is treated by all authors as a feature of consonants, or an underlying nasal segment, rather than as a phonological feature of vowels. Hence the nasalized vowels given here are the result of abstracting the phonetic vowels from structures analysed as /CV/ or /CnV/. Note the curious absence of [õ]; in the syllabary in Green and Igwe [1963] there is no instance of a nasalized syllable except ñọ, a harmonizing variant of ño '3rd singular pronoun (indirect speech)'. I have not made an exhaustive check, but I certainly cannot easily find any other example of [õ] except after [n], which can be analyzed as /Ino/.

⁸/ẽ/ recorded in one item only.

⁹/ẽ/ and /õ/ only in ideophones.

<u>Group and language</u>	<u>Vowel inventory</u>	<u>System</u>	<u>Source</u>
<u>Group 11</u>			
Idoma; Central	i e ε a ɔ o u	7:0	Armstrong [1963]
Yala; Ikom	i e ε a ɔ o u	7:0	Armstrong [1968]
Igede	i I e ε a ə ɔ o u u	10:0	Bergman [1971]
Etulo	i e ε ə a ɔ o u	8:3	Armstrong [1964]
	ĩ ě ǔ	(?)	(tentative)

3.2. Table 3 shows oral vowel systems with 10, 9, 8, 7, or 5 vowels. I agree with the suggestion by Stewart [1971:203-4] that the "ten-vowel system goes back to the latest common ancestor of the Kwa languages," with nine-vowel systems resulting from the loss of /ə/ and seven-vowel systems from the loss of /ə/, /ɪ/, /ʊ/. Other systems are relatively uncommon; those found in Table 3 are:

8 vowels:

- (a) Loss of /ɪ/ and /ʊ/ while retaining /ə/: three cases among Togo remnant languages.
- (b) Loss of /ε/ by merger with /e/ and/or /a/: the normal situation in Lower Niger languages; there is reason to suspect that the /ε/ of Izi, Ʋkwɔ̀nɔ̀ and Ʋkpɛ̀yɛ̀ is a reintroduction rather than a retention.

5 vowels: only in the Confluence/Niger-Kaduna group.¹⁰ It may further be noted that vowel harmony is normal for languages with more than seven vowels, and that even those with seven vowels most often (though not invariably) show a reduced form of harmony (e.g. Yoruba; see Bamgbose [1967], Awobuluyi [1967]).*

¹⁰ There is evidence that Confluence/Niger-Kaduna *Cɛ and *Cɔ developed into present day [Cʲa] and [Cʷa], and that Nupe [Cʲä] and [Cʷä] go back to an earlier [Cĕ] and [Cõ] (Larry Hyman [personal communication]). Hyman reconstructs these last two sequences as Proto-Niger-Kaduna *CNɛ and *CNɔ.

*Editor's note: cf. Oyelaran, in this issue.

With Stewart, then, I assume that we are dealing with systems that show varying degrees of reduction and re-systematizing from an original system of ten vowels with cross-height harmony.

Turning now to nasalized vowels, we find that in a number of languages we have the same number of vowels as with the oral set:

9:9 Epie; marginally, two Ijò languages

8:8 three Togo Remnant languages

7:7 six Togo Remnant languages; Urhobo

All of these contain at least seven vowels and therefore have both /ẽ/, /õ/ and /ɛ̃/, /õ̃/. They represent four out of our eleven groups.

The most common pattern of all is to have two nasalized vowels less than the number of oral vowels.

9:7 Grebo

7:5 one Togo Remnant language; Ewe, Fon; Itsekiri, some Yoruba dialects; two Central Edo languages

5:3 Nupe

Of these, all but Nupe contain /ɛ̃/ and /õ̃/, representing five of our eleven groups (cf., however, footnote 10).¹¹

The remaining languages display more reduced systems. In many cases, these are also less symmetrical, suggesting that the system is unstable and in the process of reduction. The clearest illustration of this is among the Yoruba dialects, where 7:5, 7:4 and 7:3 systems can all be found. The ultimate result is seen in Igala, where the modern dialects that have been described have no nasalized vowels; Koelle [1854], however, records a dialect of Igala with nasalized vowels.

¹¹It should be noted that Gwari, a language closely related to Nupe, does not have any underlying nasalized vowels, but instead has underlying (and phonetic) CNV sequences (Hyman and Magaji [1970]). While the sequences CNi, and CNU and CNa are found, the sequences CNe and CNo are not found.

Table 4

Occurrence of /ẽ/, /õ/, /ē/, /ṣ/ in the 11 groups

	1	2	3	4	5	6	7	8	9	10	11
/ẽ/	-	X	-	-	-	-	-	X	X	(X)	-
/õ/	-	X	-	-	-	-	-	X	X	(X)	-
/ē/	X	X	X	-	X	-	-	X	-	X	X
/ṣ/	X	X	X	-	X	-	-	X	-(?)	X	X

(X means that the vowel occurs in at least one language of the group.)

3.3. In Table 4, only three groups (4, 6, and 7) show no evidence of any of the four vowels. Group 6, which has no nasalized vowels at all, is obviously irrelevant to the discussion. This leaves only Group 4 (Volta-Comoé) and Group 7 (Confluence/Niger-Kaduna), which are the two groups upon which Hyman's argument chiefly rests. When they are compared with the other eight groups which have some or all of /ē/, /ṣ/, /ẽ/, /õ/, it appears that the non-occurrence of any of the four vowels is an idiosyncratic fact of the two groups involved and not a general feature of Kwa. It is therefore quite unnecessary to assume any restrictions on the V_2 of CV_1CV_2 stems in Proto-Kwa.

3.4. Some explanation is, however, required for the relative infrequency of /ẽ/, /õ/ as compared with /ē/, /ṣ/. Here I accept the explanation rejected by Hyman, that the absence of [ẽ] and [õ] might be due to a merger of these vowels with other nasalized vowels, in most cases [ē] and [ṣ]--cf. Ansre [1961:82] on Ewe: "Westermann says that all vowels can be nasalized, but gives no example of */õ/....The present author's finding, however, is that *[ẽ] and *[õ] do not occur. [e] and [o] tend to become [ē] and [ṣ] when nasalized."

Extremely strong evidence for this analysis comes from Elugbe's study of Ika [1969]. He shows that Ika has phonetic [ē] and [ṣ] which have to be interpreted as phonemic /ẽ/ and /õ/ because of vowel harmony. The oral vowels fall into two sets as follows:

<u>Set 1</u>		<u>Set 2</u>	
i	u	I	U
e	o	a	ɔ

The two vowels /e/ and /a/ are partially neutral in that they can occur with vowels of the opposite set. [ɛ] is an allophone of /e/ when it co-occurs with set 2 ([éká] /éká/ 'hand') and an allophone of /a/ when it co-occurs with set 1 ([ètù] /àtù/ 'beard'). [ē] and [ō] are phonemically /ě/ and /õ/ because they require harmonizing vowels from set 1 and not set 2:

/m ^é /	'do'	[mē] or [mɛ]
/ém ^é ímá/	'I did it'	[émēímé]
/g ^ó /	'buy'	[gō]
/èg ^ó ímá/	'I bought it'	[ègōímé]

Here the harmonizing prefix is è- (set 1) and not à- (set 2); contrast:

/àí ^ó ímá/	'I dreamt it'	[àíómá]
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Similarly, the vowel of the suffix -má appears in its [ɛ] allophone because it is co-occurring with set 1 vowels. (A further argument is that it would be very awkward to have /ē/ when there is no /ɛ/ in the language.)

It is therefore obvious that in Ika phonetic [ē] and [ō] result from a lowering of /ě/ and /õ/. Compare the situation in Ogbah and Ikwerre which apparently have /ě/ (phonetically [ē]) and /õ/ but no /ō/.¹²

4. "Proto-Kwa"

Hyman [1972:171] suggests that "Proto-Kwa word structure was *(C)V̄-CVCV for nouns and *CVCV for verbs, where the final vowel may have been a suffix in both cases." But later (p. 187) Hyman cites some "Proto-Kwa" reconstructions which include *b^ó 'hand' and *d^é 'to look at'. For the first he adds a note that the probable form is *b^{ok}, comparing Efik ubok and Proto-Bantu *boko. For the second he compares Proto-Bamileke *d^{ég} 'to look at' but does not suggest a final consonant in Kwa; if Ijọ is considered Kwa, however, it provides a cognate *d^{ík} or *d^{íg} 'to look at', showing CVCV.

¹²Cf. footnote 7. I do not at present have any explanation for the absence of [ō]. The Lower Niger situation shows a curious reversal of the normal one.

If Proto-Kwa roots are *-CVC(V), then they should be consistently cited as such and not as *-CV. It is true that *-CV is so common among Kwa languages that one of the traditional defining characteristics of Kwa has been the following: "Most roots (Verb or Noun) are monosyllabic, consisting in CV" (Westermann and Bryan [1952:91]). But clearly if $C\bar{V} < *CNV < *CVNV$, then it is likely that other roots were of the shape *CVCV; this shape is normal in Ijò (Williamson [1971:283]).

The further conclusion from this is that there is no distinction in basic root shape between Kwa and Benue-Congo languages. It has already been generally accepted that the presence or absence of noun classes is not a criterion for distinguishing between Benue-Congo and Kwa languages. (For Benue-Congo languages which have lost their noun classes, see Shimizu [1971] and De Wolf [1971]; for Kwa languages which have retained their noun classes, see e.g. Bunkowske [1971], Heine [1968], and Thomas and Williamson [1967].) We have shown that neither is the criterion considered in Hyman's conclusion (treatment of nasalization) a valid criterion for distinguishing Kwa from non-Kwa languages. The question to be posed is therefore the following: is there any other criterion which will distinguish between Kwa and Benue-Congo languages, or are they rather to be regarded as a single branch of Niger-Congo?¹³

¹³Cf. the doubts expressed by Clark [1971] about the usefulness of the label "Kwa".

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