

Chapter 3

Further Phonological Issues Elucidated by Dialect Evidence (for short, FFIEBDE)

3.1 Nasalized noun prefix vowels

Adetugbo (1967, 175) cites a form áwā '3p pl independent pronoun' as characteristic of a dialect group which he calls Southeast Yorùbà ('SEY'). He contrasts áwā with àwā and ãã, forms found in other dialects. The contrast is given as partial substantiation of his claim that Proto-Yorùbá *ã became denasalized in many dialects.¹ I wish to show that the nasalized prefix vowel of áwā is not inherently [+Nasal], but is derivatively nasalized by a rule of nasal assimilation.

In most dialects a nasal vowel brings about the nasalization of some or all preceding non-consonantal elements (vowels, liquids, glides) within the word. Sometimes only the preceding liquid or glide takes on this secondary nasalization. These processes are in the nature of fairly low-level phonetic detail, and undoubtedly vary somewhat from speaker to speaker and perhaps even in the speech of a single person.

I give these rules as they might be formulated for five dialects. They are not given as definitive statements, but as indications of what a deeper analysis of the subject would have to take into account. The author is not a native speaker. Adetugbo is. However, whatever reluctance to offer counterevidence to that brought forward by a native speaker there may be is offset by the vast amount of evidence against the claim implicit in citing áwā and àwā/ãã as evidence that there is a contrast in nasality in the initial vowels of nouns, namely the claim that nasalized noun prefix vowels exist.

3.1.1 The evidence from Onḍó

In Onḍ, high vowels and glides seem to be subject to secondary nasalization. Note the forms:

52	iõ	62	iwã
196	uẽ	63	eyĩ
307	ũũ	68	oyã
266	uadĩ		

Compare with the following which nasalization does not take place: 2

212	eĩ	144	oũ	
60	ɛũ	63	eyĩ	(prefix vowel not nasalized)
64	ɔ̃	68	ɔya	" " "

There is no reason to order the nasalization of the high vowels and glides consecutively. In fact, imposing an ordering would be quite arbitrary. Thus what is called for is a rule which simultaneously nasalizes both sets of segments:

$$(1) \begin{bmatrix} -\text{Cons} \\ +\text{High} \end{bmatrix} \rightarrow [+Nasal] / \begin{bmatrix} \text{---} \\ +\text{Seg} \end{bmatrix} \begin{bmatrix} -\text{Cons} \\ +\text{Nasal} \end{bmatrix}$$

Both the glides w and y and the vowels i and u, and only these segments, meet the SD of the rule; and all nasalized glides and vowels and only these, meet the environmental restriction. Thus the rule provides the following contexts for the nasalization of the relevant segments (G = glide):

- a. V → [+Nasal] / ___ Ṽ c. G → [+Nasal] / ___ Ṽ
 b. V → [+Nasal] / ___ G̃ d. G → [+Nasal] / ___ G̃

Context d is disallowed by a MS condition (not given) which states that no succession of two or more non-vocalic segments is permitted in Oñ.

Before (1)

iwá
 eyí
 ĩ
 uádi

After (1)

iwá
 eyí
 ĩ
 uádi

3.1.2 The evidence from Òkítì Kpukpa

In Òk, the only vowel which is nasalized is u, apparently, and then only preceding the liquid r.³ Thus, secondary nasalization occurs on the first two segments of 196 ũrĩ

307 ũrũ

but not on the first two segments of 52 ir̃
 60 erũ
 64 ɔr̃

It is clear that r and u must be simultaneously nasalized, as are the glides and high vowels in *Ok*. But u and r in no way constitute a natural class, u being $\begin{bmatrix} +\text{High} \\ +\text{Back} \end{bmatrix}$ and r being $\begin{bmatrix} -\text{High} \\ -\text{Back} \end{bmatrix}$.

These specifications cannot be combined as $\begin{bmatrix} +\text{Voc} \\ \llcorner \text{High} \\ \llcorner \text{Back} \end{bmatrix}$, since

this feature set includes the nonhigh front vowels e and ɛ, which are not subject to secondary nasalization. The desired simultaneous nasalization of u and r can be achieved by a transformational P-rule:

(2) S.I. $\begin{bmatrix} +\text{Voc} \\ +\text{High} \\ +\text{Back} \end{bmatrix}_1$, $\begin{bmatrix} +\text{Voc} \\ +\text{Cons} \\ -\text{Anter} \end{bmatrix}_2$, $\begin{bmatrix} +\text{Voc} \\ -\text{Cons} \\ +\text{Nasal} \end{bmatrix}_3$

S.C. 1, 2, 3 \Rightarrow $\begin{bmatrix} 1 \\ +\text{Nasal} \end{bmatrix}$ $\begin{bmatrix} 2 \\ +\text{Nasal} \end{bmatrix}$ 3

Ok thus has a severely restricted process of secondary nasalization.

3.1.3 The evidence from *Ìfàkí*

Nasalization in *Ìf* is somewhat less restricted than in *Ok*. All high vowels (i, ɪ, u, o) can undergo it when preceding a nasalized r or any nasalized vowel. r is simultaneously nasalized with a preceding high vowel; within the same word it is not nasalized in the context # V. A transformational P-rule nearly identical to the rule for *Ok* produces this nasalization:

(3) S.I. # $\begin{bmatrix} +\text{Voc} \\ +\text{High} \end{bmatrix}_2$, $\left(\begin{bmatrix} +\text{Voc} \\ +\text{Cons} \\ -\text{Anter} \end{bmatrix}_3 \right)$, $\begin{bmatrix} +\text{Voc} \\ -\text{Cons} \\ +\text{Nasal} \end{bmatrix}_4$

S.C. 1, (2), 3,4 \Rightarrow 1 $\begin{bmatrix} 2 \\ +\text{Nasal} \end{bmatrix}$ $\begin{bmatrix} 3 \\ +\text{Nasal} \end{bmatrix}$ 4

Before (3)

After (3)

52 ɪrõ
196 orĩ
62 oõ
307 uũ

ĩrõ
õrĩ
õõ
ũũ

But excluded from the rule are, e.g.:

60	erõ	436	rĩ
212	erĩ	490	ra

Also excluded is 144 orĩrũ. We would expect the i + r to be nasalized, but they are not. This is accounted for by adding the word boundary to the left of the segment undergoing the change. Thus the rule claims that only word-initial high vowels can be nasalized by this process. Should this turn out to be false on further investigation, then the boundary must be eliminated and orĩrũ listed in the lexicon of If with a rule exception feature for rule (3).

3.1.4 The evidence from Kétu

Nasalization in K is far more pervasive than in On, Ok, and If. It affects the liquid r, the three glides w, y, h, and apparently the immediately preceding vowel, whatever its height, within the word. As with the preceding dialects, there seems to be no justification for any ordering except simultaneous. There are a few nouns of the shape VV in K, in which the prefix vowel is not nasalized:

109	voice	oõ
3p	sg independent pronoun	oõ ⁵
3p	pl independent pronoun	ãõ

This indicates that vowels may not be nasalized by a following nasal vowel.⁶ The nasalization of vowels thus requires a glide or liquid in its environment. Yet glides and the liquid r are nasalized in verbs, e.g.

436	walk	rĩ
527	yawn	yã
544	weave	hõ

Thus r and the glides do not require a preceding vowel in order to undergo secondary nasalization. I have no information on whether or not a preceding subject pronoun vowel is also nasalized,⁷ but verbs occur with subjects other than these pronouns, so this information is not crucial here. The rule thus must simultaneously nasalize (a) an optional vowel, and (b) r and the glides w, y, and h, in the environment before a nasalized vowel:

$$(4) \quad \begin{array}{ccc} \text{S.I.} & \begin{bmatrix} +\text{Voc} \\ -\text{Cons} \end{bmatrix} & \begin{bmatrix} \neq\text{Voc} \\ \neq\text{Cons} \end{bmatrix} & \begin{bmatrix} +\text{Voc} \\ -\text{Cons} \\ +\text{Nasal} \end{bmatrix} \\ & 1 & 2 & 3 \\ \\ \text{S.C.} & (1), 2, 3 \Rightarrow & \begin{bmatrix} 1 \\ +\text{Nasal} \end{bmatrix} & \begin{bmatrix} 2 \\ +\text{Nasal} \end{bmatrix} & 3 \end{array}$$

	<u>Before (4)</u>	<u>After (4)</u>
5	aró	aró
62	iwá	iwá
63	eyí	eyí
261	ehí	ehí
490	rá	rá
measure	wó	wó
527	yá	yá
544	hó	hó

3.1.5 The evidence from Common Yorùbá

3.1.51 CY is not a single, homogeneous dialect. It no doubt comprises a range of sub-dialects. This can be seen in the phenomenon of secondary nasalization under discussion here.

Abraham (1958) apparently had as informants speakers of CY who nasalized w and y, but not h and r.⁸ Whether the vowel before w and y is also nasalized is not indicated by his transcription conventions. Without the nasalization of the preceding vowel, the rule for this sub-dialect of CY (CY_a) is

$$(5) \quad \text{CY}_a: \begin{bmatrix} -\text{Voc} \\ -\text{Cons} \\ +\text{High} \end{bmatrix} \rightarrow [+Nasal] / \text{---} \begin{bmatrix} +\text{Voc} \\ +\text{Nasal} \end{bmatrix}$$

	<u>Before (5)</u>	<u>After (5)</u>
62	awó	awó
111	iwí	iwí
63	eyí	eyí
68	oyó	oyó

3.1.52 A very similar pattern of secondary nasalization can be seen in the variety of CY spoken by my informant. Only w and y are nasalized by a following [+Nasal] vowel; no vowel preceding the glides receives nasalization. The

difference between CY_a and this sub-dialect (CY_b) is that the oral form of $[\tilde{y}]$ is not $[y]$ but $[\text{ʒ}]$. This makes the statement of nasal assimilation considerably more complex, since \underline{y} and $\underline{\text{ʒ}}$ do not form a natural class:

$$(6) \text{ } CY_b: \begin{bmatrix} -\text{Voc} \\ +\text{High} \\ +\text{Voice} \\ +\text{Cont} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{Nasal} \\ \langle -\text{Cons} \rangle \end{bmatrix}^9 / \begin{bmatrix} +\text{Nasal} \\ \langle -\text{Cons} \rangle \end{bmatrix}^9 / \begin{bmatrix} - \\ - \end{bmatrix} \begin{bmatrix} +\text{Cons} \\ +\text{Strid} \end{bmatrix} \begin{bmatrix} +\text{Voc} \\ +\text{Nasal} \end{bmatrix}$$

This could be easily be remedied by considering the underlying form of $[\text{ʒ}]$ to be $/y/$. The nasalization rule would then be that of CY_a , and a subsequent rule would rewrite $/y/$ as $[\text{ʒ}]$ if an oral vowel followed. However, this solution is open to question on two grounds: (1) it violates the invariance condition on the relation between deep and surface representation in phonology. $[y]$ does not appear as a surface segment in this sub-dialect of CY ; so we must choose between an abstract representation $/y/$, with rules for $/y/ \rightarrow [\tilde{y}]$ and $/y/ \rightarrow [\text{ʒ}]$ in appropriate environments, and a concrete representation $/\text{ʒ}/$, with rule (6). (2) The rule required to convert $/y/$ to $[\text{ʒ}]$ before oral vowels seems a very unnatural rule:

$$(7) \begin{bmatrix} -\text{Voc} \\ -\text{Cons} \\ +\text{High} \\ -\text{Back} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{Cons} \\ +\text{Coron} \\ +\text{Strid} \end{bmatrix} / \text{---} \begin{bmatrix} +\text{Voc} \\ -\text{Nasal} \end{bmatrix}$$

What is gained in the simplification of the nasal assimilation rule is thus offset by the necessity of having to posit a rule one would rather avoid if possible. The nasalization rule of CY_b (6) requires ten features, while the same rule for CY_a (rule (5)) uses six features. But the rule to convert $/y/$ to $[\text{ʒ}]$ requires nine features, and lacks naturalness in an intuitive sense. Oral vowels simply do not seem to bring about changes in preceding non-vowels such as would be claimed by rule (7). I thus analyze CY_b as having (synchronically) a $/\text{ʒ}/$ and no $/y/$, contrasting with CY_a which, of course, has only $/y/$. It must be pointed out that the solution of setting up $/y/$ in CY_b receives its chief support from evidence drawn from another (sub-)dialect. There is little reason internal to CY_b for doing so. As I have stated earlier, it is my opinion that dialect comparative evidence cannot force an analysis not supportable by dialect-internal facts. The most it can do is perform a heuristic function.

3.1.53 There are other sub-dialects of CY which display nasal assimilation over r, w, y, h, as well as over a preceding vowel, within the word, unless it is e or o. The process thus extends over the class of liquids ¹⁰ and glides, i.e. $\begin{bmatrix} \alpha \text{Voc} \\ \alpha \text{Cons} \end{bmatrix}$, and the disjoint class of vowels $\begin{bmatrix} +\text{Tense} \\ +\text{High} \end{bmatrix}$ (/i, u/) _{ll} and [-Tense] (/ε, a, o /). This is a slightly less general process than in K, in which all vowels can potentially become nasalized, but it is a great deal more general than in CY_a and CY_b.

3.1.6 What is noticeably absent from all of the dialects mentioned is the nasalization of vowels which precede true nasal consonants. Thus, there is no particular nasal quality in the articulation of the prefix vowels of nouns such as those in the following list:

	CY	K	On	Ok	If
44	àná	ànã	ànã	ànã	ànã
53	imú	imó	imó	imó	imó
160	iná	iná	uná	uná	oná
188	ònã	ònã	ònã	ònã	ònã
297	ení	ení	ení	ení	ení

It is not known whether there is any tendency in or among the dialects of Yorubá to broadening the application of this type of assimilatory nasalization. One can, however, imagine a maximally general process applying to all vowels, liquids, and glides before all [+Nasal] segments:

(8) [+Sonorant] → [+Nasal] / ____ [+Nasal]

3.1.7 Since it is predictable that there will be no nasalized prefix vowels in these dialects (and presumably in dialects not covered here as well) which are not [-Nasal] in their underlying form, there must be a MS condition to state this fact:

- (9) Positive Segment Structure Condition (presumably for all Yorubá dialects)

$$\text{PC} \left[\begin{array}{c} +\text{Voc} \\ -\text{Cons} \\ -\text{Nasal} \end{array} \right]_{\text{N}}$$

3.1.8 It should now be clear that the prefix vowel \hat{a} of $\hat{a}\bar{w}\bar{a}$ 'they', which Adetugbo sees as a reflex of a Proto Yorubá nasalized noun prefix vowel, is simply the result of a process of regressive nasalization that is shared in one form or another by most if not all dialects. More convincing evidence for the existence of nasalized prefix vowels would have been to find a dialect in which such vowels were followed by true consonants and oral stem vowels, e.g. * $\hat{y}b\bar{a}$, * $\hat{e}gb\bar{e}$, * $\hat{a}ko$.

3.2 There is a small number of consonant-initial nouns in each dialect. They are exceptions to the canonical form of nouns, which is VCV(CV). Courtenay (1968, 55) handles this problem by analyzing all such nouns as containing an underlying initial /u/. This /u/ is deleted by the first of the set of P-rules applying to nouns:

$$(10) \left[\begin{array}{c} \text{V} \\ +\text{High} \\ +\text{Back} \end{array} \right] \rightarrow \emptyset / \left[\begin{array}{c} \text{N} \end{array} \right]$$

She justifies this rule (for CY) by stating that it 'simultaneously eliminates the need for a special class of consonant-initial nouns and a rule [i.e., MS condition: EMF] to indicate the absence of nouns beginning with \underline{u} -' (55) The above rule and the quoted justification for it must be rejected on a number of grounds. I will summarize the objections here and then discuss each in more detail below: (1) The absence of an initial \underline{u} - in nouns in CY is not due to a synchronic rule which deletes it, but to an historical shift from \underline{u} - to \underline{i} -. (2) Consonant-initial nouns subdivide into a number of sets which have different derivations. They cannot be treated alike. (3) The rule makes a false claim about the speaker's knowledge of these nouns, as well as about his knowledge with respect to the non-occurrence of initial \underline{u} -. (4) The rule is formally inadequate and presents a serious difficulty even within the framework of the analysis itself.

3.2.1 (1) Cross-dialectal comparison indicates that i-initial nouns in CY may be either i- or u-initial in other dialects. Table I is a partial listing of such nouns. An historical shift brought about the collapsing of *i and *u as i in initial position in nouns. This process apparently affected both CY and K, since neither dialect contains initial u-, while all other dialects do. ¹²

Comparative evidence, to be sure, cannot by itself be used in the synchronic analysis of CY and K. But its heuristic function is quite clear in this case: it points up the inadequacy of Courtenay's solution and makes one look elsewhere for evidence which will bear on the problem.

	CY	K	On	If	Ok	Ak	ɔ̃b
89 buttocks	ídí	ídí	ùdí	ùdí	ídí	ùdí	(ùbo)
151 evening	íròlé	(alé)	ùwòlé	òròlé	ùròlé	íròlé	íròlé
160 fire	inó	iná	uná	oná	uná	uná	uná
181 forest	igbó	igbó	ugbó	ugbó	(agijù)	ugbó	ugbó
52 hair	irū	irō	iō	urō	irō	urō	irō
105 urine	ítò	ítò	ítò	ítò	ítò	ítò	ítò
163 tree	igi	egi	igi	igi	igi	igi	igĩ
233 louse	inó	iná	iná	uná	iná	—	iná

TABLE I. Cross-dialectal comparison of i- and u-initial nouns

(2) Consonant-initial nouns fall into several sets, and cannot all be treated alike:

(a) some are verb-noun compounds, e.g.

So kɛtu 'house' and 'fire' are homophonous?

	CY	K	On	Ok	ɔ̃b	
(11)	yɛrí	yɛrí	yɛí	yɛrí	yɛtí	338 earring
(12)	kpàkúté	(àjàkpá)	—	kpàkúté	tàkúté	rat trap
(13)	tɔ̃nɔ̃	tɔ̃nɔ̃	dáná	dáná	(àfòkpuná)	dúná dúná — firefly
(14)	kparamólè	kparamólè	kpaamólè	kparamálè	—	night-adder
(15)	šélèrú	(isò)	—	—	šélèrú	191 spring

The constituent morphemes of these compounds are as follows:

- (11) yɛ 'befits, is suitable for' + $\left\{ \begin{array}{l} 51 \text{ head (CY orí, K erí, On ? , Ok orí)} \\ 54 \text{ ear (ɔ̃b etí 13)} \end{array} \right.$
- (12) $\left. \begin{array}{l} 448 \text{ kill kpa} \\ 508 \text{ shoot ta (also 'pierce')} \end{array} \right\} + 251 \text{ rat èkúté (CY, Ok)} \\ \text{(ɔ̃b)}$
- (13) $\left. \begin{array}{l} tɔ̃ \text{ 'shine'} \\ dǎ \text{ 'create'} \end{array} \right\} + 160 \text{ fire } \left\{ \begin{array}{l} inǎ \\ ina \\ una \end{array} \right\} + \text{REDuplication} \begin{array}{l} \text{(CY)} \\ \text{(K)} \\ \text{(Ok)} \end{array}$
- (14) $448 \text{ kill kpa} + 97 \text{ body ara} + \left\{ \begin{array}{l} mǎ \text{ rest (CY, On)} \\ mǎ \text{ " (K)} \\ ma \text{ " (Ok) 14} \end{array} \right\} + 177 \text{ ground } \left\{ \begin{array}{l} ilè \text{ (CY, K, Ok)} \\ alè \text{ (On)} \end{array} \right.$
- (15) šé burst forth + 177 ground $\left\{ \begin{array}{l} ilè \\ alè \end{array} \right\} + \text{ru sprout (CY)} \\ \text{(ɔ̃b)}$

Thus these nouns have basically the following bracketing, and must be so entered in the lexicon: $[_N [_V]_V [_N]_N]_N$.¹⁵

(b) Some consonant-initial nouns are better seen as ideophones.¹⁶ Phonologically they deviate from the canonical norm for nouns not only in lacking an initial vowel, but in having a greater number of syllables, or containing a syllabic nasal, or otherwise violating MS constraints or P-rules. E.g.

	CY	K	On	if	
(16)	mǎnǎmǎnǎ	(àrá)	(àá)	mǎnǎmǎnǎ	141 lightning
	Ok	Àk	ɔ̃b		
	imǎnǎmǎnǎ	mǎnǎmǎnǎ	mǎnǎmǎnǎ	"	"

	CY	K	Oṛ	Ìf	
(17)	gbòḡgbò	gbòḡgbò	(egbìgbò)	gbòḡgbò	165 root
	Òk	Àk	Ḷb		
	gbòḡgbò	gbòḡgbò	(irí (=104))		"
	CY	K	Oṛ	Ìf	
(18)	kpètèkpétè	yèkpè	(amā)	—	179 mud
	Òk	Àk	Ḷb		
	ìkpètèkpétè	yèkpè	iyèkpè		"
	CY	K	Oṛ	Ìf	
(19)	kétékété	kétékété	kétékété	kétékété	239 donkey
	Òk	Àk	Ḷb		
	kétékété	—	kétékété		"
	CY	K	Oṛ	Ìf	
(20)	tòlótóló	tòlótóló	tòlótóló	tòlótóló	255 turkey
	Òk	Àk	Ḷb		
	tòlótóló	—	tòlótóló		"

Ideophones will be marked with the morphological feature [+Ideophone]. They will need to be exempted from the MS conditions as well as from various P-rules. Just how this ought to be formalized is still an open question.

(c) Loan words constitute a third subset of consonant-initial nouns, and will be marked with the feature [+Foreign] (or [-Native]). The preponderance of loan words in Yorùbá derives from English and Hausa. E.G.

	CY	K	Oṛ	Ìf	Òk	
(21)	(àmúga)	(àmóga), sòsì	(ámga)	(ámóga)	sòsì	302 scissors (←English)

	CY	K	On	Iɾ	Ok	
(22)	(òót ́), gàsíkíá	(òót ́), gàsíkíá	(òtít ́)	(òtít ́)	(òtít ́)	321 truth (<Hausa)
(23)	má'ngòrò	má'ngòrò	má'ngòrò	—	má'ngòrò	mango (<English)
(24)	(àkpá)	gorodóm	—	—	(àgbá)	oil drum(<English)

(d) Some consonant-initial nouns cannot be classed into any of the above groups. They are simply exceptions to the MS condition which states that nouns are of the form VCV(CV), and will receive the exception feature [-MS Condition n].¹⁷
E.g.

		CY	K	On	Iɾ	
(25)	30 father	baba, bábá ¹⁸	baba	bái	ábá	
		Ok	Àk	ɔ̀b		
		iba	aba	iba		
		CY	K	On	Iɾ	
(26)	31 mother	yèyé, ¹⁸ iye, iyá	iyá	yèi, iye	èyé	
		Ok	Àk	ɔ̀b		
		yeye, ¹⁸ iye	èyé	iye		
		CY	K	On	Iɾ	
(27)	142 sky	sómò	(ojú òrò)	(ojúò)	sómò	
		Ok	Àk	ɔ̀b		
		(òfúrufú)	(òrò)	(òrò)		
		CY	K	On	Iɾ	
(28)	190 well	kòga	kāga	kāga	kāga	
		Ok	Àk	ɔ̀b		
		kāga	—	kòga		

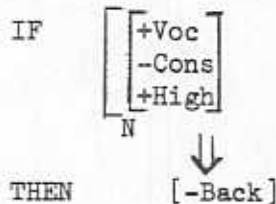
		CY	K	On	Ìf
(29)	336 shoe	bàtá	bàtá	bàtá	bàtá
		òk	àk	ǰb	
		bàtá	—	bàtá	
		CY	K	On	Ìf
(30)	337 hat	fílà,(ate)	fílà	(àkóó)	fílà
		òk	àk	ǰb	
		fílà, (àkòró)	—	fílà, (ate)	
		CY	K	On	Ìf
(31)	spoon	šíbí	šíbí	šíbí	—
		òk	àk	ǰb	
		síbí	—	—	
		CY	K	On	Ìf
(32)	pit	kòtò	kòró	ukòtó ¹⁹	—
		òk	àk	ǰb	
		ukòtó ¹⁹	—	—	

(3) Courtenay's rule claims that the native speaker of CY posits an underlying initial /u/-. Since there is no initial /u/- on the surface in any noun, nor, a fortiori, any alternation of /u/- with \emptyset , the language learner has no basis for arriving at this underlying representation. The analysis involves the absolute neutralization of /u/- and \emptyset - as surface \emptyset -, which, as Kiparsky (1968a) has argued, is a violation of the strong form of the alternation condition, and ought to be disallowed in phonological description. It also violates Postal's naturalness condition (1968) since there is no motivation to posit a deep phonological representation that is different from the surface form (other

than a desire for pattern congruity and to avoid stating a MS condition).

The desire to avoid having to posit a MS condition I find a bit strange. Since these conditions make generalizations concerning segments and sequences in underlying lexical representations, they serve a predictive function. And one presumably wants to capture as many generalizable facts about morphemes in the lexicon as possible. Looked at in this way, Courtenay's analysis of consonant-initial nouns prevents rather than avoids the making of a valid generalization and prediction. The MS condition on the non-occurrence of initial /u/ in CY (and K) nouns is a necessary part of their lexicons:

(33) CY, K: If-Then Segment Structure Condition



This condition came about as the result of the merging of initial *u- with /i/- in these two dialects. In chapter 1, sec. 1.4, I cited a case in which the dropping of a rule left behind a constraint on morpheme structure. Here we have an instance of an historical merger resulting in a constraint. That is, the merger of *u- and *i- as /i/- has eliminated a segment from a given position, and this has resulted in a synchronically predictable fact about what segment can occur in that position.

(4) Courtenay's rule presents a difficulty even within the framework of her analysis. All vowels in the lexicon are specified for a given tone. If the rule is to delete initial /u/-, it must delete not only its segmental features but also its tone. This can be done by including in the SD the specification [≠LOW], to indicate that the tone is mid or low (there are no high-tone initial vowels in nouns in Yorùbá.) But the fact is that the tone of this /u/- is indeterminate. This is so because it alternates with no real segment. It is merely a phonological fiction. There is no basis for assigning it either a low or a mid tone in the lexicon. And its lexical specification cannot be [≠LOW] since this does not meet the requirement of full phonological

specification required by the theory. Courtenay avoids this dilemma by quite illegitimately writing a mid-tone /u/- in her sample derivations (1968, 55).

3.3 Are a-i and a-u permissible sequences in nouns?

I have mentioned several times that a study of derivational morphology in Yorùbá may well help to provide answers to unresolved issues that arise at the phonological level. The question of whether to consider a-i and a-u permissible or impermissible sequences is another such issue.

When one looks at the occurring sequences of vowels in VCV nouns, one is struck by the fact that a-i and a-u are virtually non-existent. I have found only three such nouns, each possibly unique to a single dialect:

	CY	K	On	If	Ok	Àk	Ìb
36 jr. sibling	àbùrò	àbùrò	àbùò	àbù	àbùrò	àbó	àbùrò
287 type of oil	àdí(≈àdí) ²⁰	ekpo	ekpo	ekpo	ekpo	ekpo	ekpo
S175 fish net	àwò	àwò, àdù	—	—	—	—	—

We can speculate about the etymologies of these nouns. If àbù probably stems from the trisyllabic noun àbùrò. CY àdí~àdí may consist of a nominalizing prefix à + the verb dí 'fry'. There are a number of trisyllabic nouns which have àdí as the first element, and which are clearly nominalization, e.g. àdídù 'type of fried meat' (dù 359 be sweet); àdígbé 'thing fried without oil' (gbé 372 be dry); àdíjò 'thing burned while being fried' (jò 468 burn). K àdù may be a nominalization of the verb dù 'scramble, compete'. But whether these guesses are accurate or not does not seem to be crucial. Their correctness would only give added support to the conclusion to be drawn from the paucity of examples, namely, that a-i and a-u are probably not permissible sequences in disyllabic nouns.

Examples of a-ĩ and a-ũ are not hard to find. Thus one is not surprised at the occurring nouns àmí 'distinguishing mark on something', amí 'scout, spy', àmú 'water pot.'²¹ Note, however, that an analysis of nasalized vowels which follow nasal consonants as underlyingly oral would be faced with the then anomalous fact that a-i and a-u is so rare with oral consonants in intervocalic position (cf. next section).

When we look at nouns of three or more syllables we find an abundance of instances in which a is the first vowel and i or u the second. E.g. :

	CY	K	Oñ	Ìf
74 armpit	abíyá	abíyá	abíyá	abíyá
	Òk	Àk	ǰb	
	abíyá	àbíyá	abíyaká	
	Cy	K	Oñ	Ìf
247 chicken	adiɛ adire	ediɛ	ajiɛ	adiye
	Òk	Àk	ǰb	
	ediye	adiye	ajiɛ	
	Cy	K	Oñ	Ìf
248 cock	àkùkò	àìkò	àkìkò	àkìkò
	Òk	Àk	ǰb	
	àkùkò	—	àkìkò	
	CY	K	Oñ	Ìf
120 old man	arúgbó	arúgbó	àgbàlagbà	àgbàlagbà
	Òk	Àk	ǰb	
	arúgbó	arúgbó	arúgbó	
	CY	K	Oñ	Ìf
235 sheep	àgùtò	àgùtǎ	àgùtǎ	àgòtǎ
	Òk	Àk	ǰb	
	àgùtǎ	—	àgùtǎ	

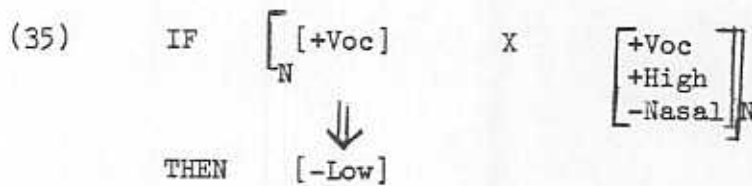
	CY	K	On	If
S46 ward, quarter	àdúgbò	àgó	àdúgbò	—
	òk	Àk	òb	
	àdúgbò	—	—	
	CY	K	On	If
S167 lamp	àtùkpà	àtùkpà	àtùkpà	—
	òk	Àk	òb	
	àtùkpà	—	—	

This difference between the minimum VCV structure of nouns and nouns consisting of a larger number of segments points up the acute need for an investigation of the morphological composition of nouns, of such processes as nominalization, reduplication, compounding, and perhaps pre- and suffixation. Perhaps in a large number of cases we are simply confronted with the synchronic residue of derivational processes which are no longer productive. I suspect, however, that many nouns will lend themselves to synchronic analysis into smaller constituents.

The probability that occurring a-i and a-u sequences in disyllabic nouns are violations of a constraint which disallows these sequences brings with it the question of how the constraint is to be captured by MS condition. The condition which up to now has characterized dialects which, unlike If, do not require a P-rule of tenseness assimilation, is Sequence Structure Condition (6) sec. 1.3.2. It is repeated here for convenience of reference:

$$\begin{array}{l}
 (34) \quad \text{IF} \quad \left[\begin{array}{c} +\text{Voc} \\ -\text{High} \\ -\text{Low} \end{array} \right]_N \quad \text{X} \quad \left[\begin{array}{c} +\text{Voc} \\ -\text{High} \\ \llcorner \text{Tense} \end{array} \right]_N \\
 (= (6)) \quad \quad \quad \downarrow \\
 \quad \quad \quad \text{THEN} \quad [\llcorner \text{Tense}]
 \end{array}$$

The condition which states that a-i and a-u are impermissible is ²²



It does not appear that the condition needs to mention the tenseness of either of the two segments involved. To do so would only add redundant information, since the [-Low] segment is not dependent for its tenseness on the tenseness value of the [+High] segment, but may be either plus or minus Tense. The constraint is one which synchronically is based simply on height. There is no way to collapse this condition with the condition on tenseness agreement. It will therefore have to be stated separately. Note that it is a constraint which applies to *ɪf* as well, whereas the tenseness agreement condition is absent from this dialect (cf. Chapt. 1).

Courtenay (1968, 135) lists *a-i* and *a-u* as permissible sequences. She apparently failed to notice the extreme poverty of exemplification. As the example of *a-i* she lists *adɪɛ* 'chicken', a noun of three syllables and thus exempt from the constraint. And as the example of *a-u* she gives *atú* 'a soft type of yam', which is not lexically a noun, according to Abraham (1958), but a nominalization of the derivational prefix *a-* plus the verb *tú* 'crumble'.

3.4 Nasalized vowels following nasal consonants.

In all dialects, only nasalized vowels follow nasal consonants.

E.g.	CY	K	Oñ	Íf	Òk	Àk	ɔ̃w	ɔ̃b
38 child	ɔm̃	ɔm̃	ɔm̃	ɔm̃	ɔm̃	ɔm̃	—	ɔm̃
44 in-law	àñ	àñ	àñ	àñ	àñ	àñ	—	àñ
160 fire	iñ	iñ	uñ	oñ	uñ	uñ	uñ	uñ
426 drink	m̃	m̃	m̃	m̃	m̃	m̃	m̃	m̃
493 know	m̃	m̃	m̃	m̃	m̃	m̃	m̃	m̃
S361 stretch	ñ	ñ	ñ	—	ñ	—	—	—

Only those vowels occur after the nasal consonants (m and n) which are inherently nasalized. For example, the sub-dialect of CY spoken by my informant has the systematic phonemic nasal vowels /ĩ, ũ, õ/, and only these vowels occur following m and n; /e, ɛ, a, o/ do not. ²³ On the other hand, there are relatively few occurrences of nasal vowels after b. Courtenay (1968, 14-15) uses this observation about distributional limitation to analyze all phonetic sequences of m + Ṽ as underlyingly /bṼ/. A low-level rule converts /b/ to [m] (as well as nasalizing liquids, glides, and /l/) before nasal vowels.

3.4.1 The analysis of m as underlyingly /b/ must be challenged on several grounds. Let me first point out that Courtenay and I are in agreement that the environment m ___ is not one of contextual neutralization. Oral vowels which have no [+Nasal] counterpart do not occur in this position. Thus, the vowels that do occur are inherently [+Nasal]. This is clearly evident in If, which has the nasal vowels /ĩ/ and /õ/, but no underlying oral vowels /i/ and /o/. therefore, forms such as 53 nose mõ, 216 crocodile ĩ, and 426 drink mõ, can only be sequences of nasal consonant + nasal vowel. The same deduction must be made from the study of a-i and a-u sequences of section 3.3. It was concluded there that the grammar must contain a MS condition which disallows these sequences. But the sequences aCĩ and aCũ are not excluded. Thus, the nasalized ĩ and ũ of nouns of the shape [amĩ] and [amũ] are underlyingly [+Nasal]. They cannot derive from underlying oral vowels.

This defines what the problem is not: it is not simply a matter of a P-rule which nasalizes vowels after nasal consonants. It has been necessary to state in which direction the solution does not lie to make explicit what in Courtenay's treatment is left implicit.

3.4.2 The criticism of the /b + Ṽ/ analysis is as follows:

(1) There are a number of cases of b + Ṽ in the surface (all citations are from CY, unless otherwise noted):

- | | |
|-------|--|
| bũ | 506 (> ífibũ, n. the giving: ɛbũ gift; íbũ forms compounds, e.g. íbulaye, n. giving a chance to someone) |
| íbõ | type of disease |
| íbõ | S150 gun (K íbõ, On àbã, Ok íbã, Ak íbõ, ɔb íbõ) |
| obĩri | 114 woman (K obĩri, On obĩɛ, If ɔbĩrĩ, Ok obĩrĩ, Ak ɔbĩrĩ, ɔw obĩɛ, ɔb obĩrĩ) ²⁴ |

Bitù female name (<Hausa < Arabic 'daughter')

There are also a number of ideophones with $\underline{b} + \tilde{V}$, although, as Courtenay has rightly noted, ideophones are not subject to many of the P-rules which characterize the rest of the phonology.

It will be seen that all three nasal vowels of CY are represented in the environment \underline{b} ____.

In the dialect of $\int b$ there is a pair of verbs which leave no doubt, at least with respect to that dialect, that the underlying representation of \underline{m} cannot be /b/: 381 sharp, 505 take (homophones) mú, and 449 abuse, insult bú.

To Courtenay, the examples in CY (the dialect she treats) are taken as exceptions, which presumably receive the rule feature [- b+ m]; not as infirming the analysis. I take them as one of various considerations which, taken together, do lead to a disconfirmation.

(2) There is no alternation of \underline{m} and \underline{b} . In contractions of a verb and its noun object the segmental features of the vowel of the verb are usually deleted. Thus the preceding consonant of the verb comes to adjoin the initial (prefix) vowel of the noun. This vowel is always an oral vowel (cf. MS Condition (9), sec. 3.1.7). E.g.

(36) mú + oògù → móògù²⁵

take medicine

Thus in the course of a derivation \underline{m} can come to stand before an oral vowel without that vowel being nasalized, and without the \underline{m} alternating with \underline{b} . The absence of alternation where an analysis of \underline{m} as underlying /b/ would lead one to expect such alternation is no disconfirmation of the analysis, to be sure. But it gives additional support to the suspicion that the analysis may be in error.

(3) Courtenay's rule for /b/ → [m] is (105):

(37)
$$\left\{ \begin{array}{l} [+Voc] \\ [+Cons] \end{array} \right\} \rightarrow [+Nasal] / \left\{ \begin{array}{l} V \\ +Nasal \end{array} \right\}$$

$$\left\{ \begin{array}{l} -Voc \\ +Cons \\ +Anter \\ -Coron \\ -Back \end{array} \right\}$$

This rule also nasalizes the glides w, y, h, and the liquids l and r.²⁶ The SD itself makes obvious that no natural class is involved.

(4) Beside the analysis of [m] as /b/, there are two other solutions possible:

(a) instead of deriving [m] from /b/, [b] could be equally well derived from /m/. Thus, /m + V/ would be re-written as [b + V]; /m + V/ would remain unchanged, just as /b + V/ is in Courtenay's analysis. No more features are required to state this process than is required for the reverse change:

$$(38) \quad \begin{array}{c} \left[\begin{array}{l} -\text{Voc} \\ +\text{Cons} \\ +\text{Anter} \\ -\text{Coron} \\ +\text{Nasal} \end{array} \right] \\ \underline{m} \end{array} \rightarrow \begin{array}{c} [-\text{Nasal}] / \\ \underline{b} \end{array} \quad \text{---} \quad \begin{array}{c} \left[\begin{array}{l} \text{v} \\ -\text{Nasal} \end{array} \right]^{27} \end{array}$$

(b) $\underline{m\tilde{v}}$ could be derived from an underlying /p \tilde{v} /, although this would require an additional feature, since p is [-Voice] (cf. Awobuluyi (1964, 31), who entertained this as a possible alternative to m from b). This would fill the gap in the pattern of systematic phonemic stops: b d g gb.

- t k kp

But there is no evidence for p at all; no morphophonemic alternations, no skewed distributions, no positions of neutralization, no borrowed forms with p. If symmetry were the goal of synchronic linguistics, this would be a proper solution. But without evidence for p it is a highly unnatural solution.

(5) What may partially have motivated an analysis of m as /b/ is a desire to eliminate nasals at the systematic phonemic level. This seems to be part of a desire for underlying symmetry, for n is analyzed as /l/, and for this there is better justification (see below for discussion). But there is, in my view, perhaps equally compelling motivation to eliminate b as a systematic segment. For without an underlying b there would be no gap in the system which cries out to be

filled by p. The only counter which there may be to this argument is that there are languages without m but few, if any, which do not have oral labial stops.

The question is what kind of claim are we implicitly making by setting up underlying /b/ + nasal vowel? It cannot be a claim that the native speaker recognizes all surface m's to be underlyingly /b/. There is not a single case of m-b alternation, and b's could equally well be underlying /m/'s. The only claim possible, it seems to me, is one based on the notions of gap-filling and system symmetry. Put in psychological terms this claim might say: the speaker is aware that m is followed only by nasal vowels and that b, discounting such surface forms as bū and ibō, is followed only by oral vowels. This systematic imbalance in some way forces him to conclude that one of the two sounds is superfluous and must be eliminated at the level at which he formulates lexical representations. He eliminates m, possibly parallel to his elimination of n as underlying /l/.

3.4.3 The solution which avoids these objections is to recognize underlying sequences of /m/ + /V/. Because /m/ can be followed only by nasal vowels, there must be a MS condition in the grammar which predicts this. I believe this condition is valid for all dialects I have investigated (for apparent exceptions, see below):

(39) If-Then Sequence Structure Condition

If	C +Nasal	[V]
			↓	
Then			↓	+Nasal

There is no corresponding condition to claim that sequences of /b/ + /V/ are impermissible.

3.4.4 The forms which appear to violate this condition are shown in all but one case to be the result of vowel assimilation or deletion rules.

1p sg Pronoun Copy mo [mo]: this derives from /mĩ/ by assimilation in non-tonal features to the Subject Marker ó. This derivation was discussed in Chapter 2.

lp sg Pronoun Copy mà [mà]: this also derives from /mĩ/ when it precedes the marker of Future I á, by assimilation in non-tonal features to the marker (the tone change has not yet been accounted for).

The attributive forms of the numerals: méjǎ [méjǎ] '2', métà [mètà] '3', méri [méri] '4', marú [marú] '5', etc. These derive from the cardinal numbers (phonologically and syntactically nouns) èjǎ, éta, éri, arú, etc. when these are prefixed by a form (perhaps once a verb) which consists of /m/ + a high tone nasal vowel. ²⁸ The high tone of this vowel displaces the low initial tone of the numeral, and the vowel itself is deleted.

mélǒ [mélǒ] 'how much/many' is also an attributive quantifier, as in

òkpá	mélǒ	1-	o	<u>ǎ</u>	fɛ?	How many walking sticks
walking-	how	Focus	2p	sg	want	do you want?(the hyphen
stick	many	Marker	PC			indicates morpheme
						division)

Its nominal form is [èlǒ] 'how much/many'. Presumably its derivation is identical with that of the attributive numerals.

The noun málú [málú] 231 cow appears to be a genuine exception in that it is not synchronically capable of being decomposed into constituent morphemes. It thus requires a feature exempting it from MS condition (39) (sec. 3.4.3).

All of the above forms except málú are the result of P-rules, and thus do not constitute counterexamples since MS conditions apply to dictionary matrices.

3.4.5 I have so far not discussed the analysis of the other surface nasal consonant, n. It too is followed only by nasal vowels. The liquid l is never followed by nasal vowels. Moreover, there is some evidence for the morphophonemic alternation of n and l. As first suggested by Ladefoged (1964, 23-4) and Awobuluyi (1964), these facts seem to call for a single base representing sound, and both investigators suggest /l/, as does Courtenay. ²⁹

Courtenay's rule (1968, 105) (rule (37), sec. 3.4.2, above) to derive n from /l/ only nasalizes /l/ (along with the other liquid, /r/, and the glides /w, y, h/). Thus we have intermediate forms such as

(40) lǐ 'have' (from /lǐ/)

ĩǎ 'stretch' (from /lǎ/)

ĩũ 'wipe' (from /lũ/)

From here she proceeds with a series of rules deriving syllabic nasals (106-7) from certain intermediate forms of the shape $\underline{l} + \underline{i}$. But no rule is provided which converts all other \underline{l} 's to \underline{n} 's. Presumably the rule is:

$$(41) \begin{bmatrix} +\text{Voc} \\ +\text{Cons} \\ +\text{Cont} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{Voc} \\ -\text{Cont} \end{bmatrix} / \text{---} \begin{bmatrix} \text{V} \\ +\text{Nasal} \end{bmatrix}$$

The fact that two rules are required to convert underlying /l/ to surface [n], while the conversion of /b/ to [m] requires a single rule, shows quite clearly that what may be implied in the analysis of \underline{m} and \underline{n} as /b/ and /l/, respectively, namely that parallel phonological processes are at work, is in fact no parallel at all.

I accept the analysis of \underline{n} as /l/ because (1) there are cases of \underline{n} - \underline{l} alternation, (2) there is surface complement distribution of nasal and oral vowels after \underline{n} and \underline{l} , and (3) there are no exceptions to this distribution of which I am aware. None of these conditions are true of \underline{m} and \underline{b} , and thus these two sounds must receive separate systematic phonemic representation.

Footnotes

1. Adetugbo must clearly be referring here to the prefix vowel, since all three forms contain \tilde{a} in the stem. The only other example he gives of this alleged \tilde{a} - a contrast is the verb 527 yawn: SEY $\underline{y\tilde{a}}$, other dialects $\underline{y\acute{a}}$. Neither the distribution of the 3p pl pronoun nor that of $\underline{y\tilde{a}}$ - $\underline{y\acute{a}}$ is borne out by my data. He draws an isogloss only for $\underline{y\tilde{a}}$ - $\underline{y\acute{a}}$ (fig. 5.19, 174). The isogloss indicates that the area covered by SEY $\underline{y\tilde{a}}$ includes Ok, for which I have $\underline{y\acute{a}}$; and that the area covered by $\underline{y\acute{a}}$ includes CY and K, which have $\underline{y\tilde{a}}$ in my data. Although Adetugbo does not give the distribution of $\underline{aw\tilde{a}}$, my data do not indicate a nasalized prefix vowel in any dialect (cf. Chapt. 2, p.69, fn.4 for a listing of the realizations of the independent pronouns).

2. Some anticipatory nasalization no doubt takes place in the transition from non-nasal to nasal segment. To my

knowledge, no instrumental study in Yorùbá has been done of this or any area of assimilatory nasalization.

3. l is also an occurring liquid, but does not precede nasalized vowels. It may be that glides are also nasalized in this dialect, but I have no clear indication of this.

4. See Chomsky and Halle (1968, 360) for a discussion of the necessity of incorporating this type of rule into phonological theory.

5. Syntactically and phonologically the independent pronouns are nouns. Cf. sec. 2.1.

6. Comparison with other dialects indicates that an h has been lost in o, and a back glide or a velar nasal in ò and à. But it will be argued in sec. 4.2.1 that there is no synchronic justification for recognizing underlying intervocalic segments in these nouns.

7. Subject pronouns are included within the word since they are analyzed as being dominated by the same V as the verb. See chapt. 2.

8. He describes the w and y which precede nasal vowels as 'velarised n' and 'palatalised n', respectively (p.vi), and writes them as w̃ and ỹ, explaining that these symbols represent unit ñw and ñy. Whether this is articulatorily accurate is open to question, but the point is that nasalization of the glides w and y before nasal vowels is a feature of the speech of his informants. Assuming Abraham was consistent - and I have no reason to doubt that he was - if h and r had been similarly nasalized, he would have symbolised them as h̃ and r̃, perhaps calling them glottalised n and retroflexed n, respectively. On p. 180 one finds a pair of alternate forms 'Ehin éyin' (76 back), in which are clearly contrasted a 'palatalised n' and a plain h.

9. This segment (i.e.,

-Voc
-Cons
+Nasal
etc.

) must link with a

Universal Marking Convention which switches stridency, all glides being [-Strid]. Chomsky and Halle's UMC (XV) (1968, 405) cannot be used because it takes as input only consonantal segments (i.e.,

-Voc
+Cons

) which are [+Nasal] and makes them

[-Cont], as well as [+Sonorant, -Strid]. True nasal consonants

are predictably [-Cont], so a rule which creates these segments need not state this fact, but will link with UMC (XV). The nasalized glide which rule (6) creates is predictably [+Cont], as are all glides. A UMC for [+Nasal] segments other than true nasal consonants (i.e. nasalized vowels, liquids, and glides) needs to state the following redundancies:

[+Nasal] →

+Sonorant
+Continuant
-Strident

 .

10. l is also an occurring liquid, but it does not occur before nasal vowels. There will thus never be an l to which the rule could apply.

11. u never occurs as a prefix vowel in CY; therefore there is never any u available as input to the rule.

12. Note in the table that Òk, Àk, and Ǿb are inconsistent in that they sometimes display an i- where other u-dialects have u-. There is also a lack of consistency across dialects, e.g. Ok has idi where Ak has udi; but Ok has uròlé where Ak has iròlé. Because of this irregular vertical and horizontal comparability, and because other dialects (e.g. On, If) are fairly consistent in the u-forms, my feeling is that such i-initial nouns as Ok idi and Ak and Ǿb iròlé are borrowed, probably from the inter-dialect communication medium, CY. But dialect internal conditioning factors, perhaps no longer in evidence, cannot be ruled out in attempting to account for this distribution of u- and i-. I have no evidence which could shed light on this issue.

13. Ǿb 54 ear is eti. Most other dialects have eti. What yeti reflects about the contemporary form eti is not known.

14. This verb was not separately elicited in Ok, but because 177 ground is ilè in this dialect, and the i- has been deleted, the a of kparamalè indicates that the verb is ma.

15. Firefly will require, in addition, the feature [+REDuplication]. Night-adder will need to be bracketed as $[_N [_V]_V [_N]_N [_V]_V [_N]_N]_N$. Spring contains two

verbs in serial order. Presumably these are contiguous in the deep structure, and are moved to their correct position by transformation. The lexical entry for 'spring' will thus

be: [N [V]V [V]V [N]N]N.

16. For a preliminary discussion of ideophones in Yorùbá, see Courtenay (1968, 138ff).

17. See Courtenay (1968, 24) for this positive sequence structure condition.

18. Comparison with other dialects would indicate that baba and bábá, yeye and yéyé all derive from VCV bases by reduplication, according to the following formula: $\left[\begin{array}{c} V_1 \\ \alpha_{LOW} \end{array} \right] C_1 V_2 \rightarrow C_1 \left[\begin{array}{c} V \\ \alpha_{LOW} \end{array} \right] C_1 V_2$. But I do not posit this as a synchronic

account of these consonant-initial nouns, because of lack of dialect-internal evidence. Possibly in Ók this reduplication process is still productive. Note that both yeye and iyé are current. But positing a rule to derive yeye from iyé is still unwarranted unless it can be shown to apply to more such pairs.

19. This is the only noun to my knowledge that could be used to argue in favor of Courtenay's analysis of consonant-initial nouns as having an underlying initial /u/. It is hardly sufficient to establish the correctness of the analysis, even if one were to admit evidence from other dialects as the sole justification for an analysis; and it must, in my view, be discounted in the face of the evidence being presented here which argues strongly against Courtenay's position.

20. These two forms are from Abraham (1958). The C.M.S. dictionary (1913) also lists them. They are evidently alternates of the same noun meaning 'oil from the kernel of the palm-nut'. Both dictionaries also list ekpo, the noun meaning 'palm oil', or 'oil' in general. Unfortunately, I did not elicit for this specific type of oil from my informants.

The C.M.S. dictionary also lists the alternants aki ~ akí 'bravery, a brave person'. Abraham gives only akí.

21. These nouns are from Abraham (1958). C.M.S. (1913) also lists amí 'sign, omen', which is not in Abraham, and amí 'amen', which Abraham gives as àamí. I elicited for amū 'water pot' in four dialects: CY amū, K ikòkò amō (cf. 306 pot ikòkò), On ùkòkò omí (cf. 306 ùkòkò, 133 water omí), Ok ùsà.

22. This can also be given in the form of a negative condition:

$$NC \sim \left[\begin{array}{c} +Voc \\ +Low \\ N \end{array} \right] \quad X \quad \left[\begin{array}{c} +Voc \\ +High \\ -Nasal \end{array} \right] N$$

As stated earlier (sec. 1.3.3), until it can be shown that the need for negative conditions is well-justified, and that such conditions are to be preferred over the various non-negative conditions when their cost in features is equal, I will avoid their use.

23. There are a few apparent counterexamples. These are discussed below in sec. 3.4.4.

24. This noun is no doubt the result of compounding. Whether the component morphemes can still be recovered is doubtful. Abraham (1958) gives them as abo 'female' + irū with no gloss. This must be viewed with considerable suspicion. It cannot be ruled out that the i that follows b is perhaps nasalized by the final vowel.

25. Elicited from Oyĕkà Owómóyèlá, a speaker of CY whose home town is Ošogbo.

26. The $\left[\begin{array}{c} +Voc \\ +Cons \end{array} \right]$ in the SD of the rule is no doubt a typographical error, and should read $\left[\begin{array}{c} \neq Voc \\ \neq Cons \end{array} \right]$.

27. Since m is $\left[\begin{array}{c} +Voice \\ -Back \end{array} \right]$, this rule will not erroneously change m to kp (which is $\left[\begin{array}{c} +Anter \\ -Coron \\ -Voice \\ +Back \end{array} \right]$) instead of to b.

28. Armstrong (1962, 36) calls this an 'm- prefix'. The tonal shape of the attributive numerals shows that its form must be mV.

29. Morphophonemic alternation of n and l appears to be limited to formatives of the shape n + i. Thus, surface n is realized as l when, by deletion of the i, it precedes an

oral vowel in various constructions. E.g.

(i) $\begin{matrix} n\check{i} & \text{'have'} \\ n\check{i} + i\check{w}\check{e} & \rightarrow & n\check{i}-w\check{e} \end{matrix}$ (the hyphen indicates morpheme division)
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but $\begin{matrix} n\check{i} + e\acute{d}\acute{e} & \rightarrow & l-\acute{e}\acute{d}\acute{e} \\ & & \text{shrimp} \end{matrix}$

(ii) $\begin{matrix} n\check{i} & \text{'say'} \\ \acute{o} & n\check{i} & k\acute{p}\acute{e} & & \text{He said that...} \\ 3p & sg & PC & & \text{that} \end{matrix}$

but $\begin{matrix} \acute{o} & l- & \acute{o} & & \text{He said that he (another} \\ & & & & \text{third person)...} \end{matrix}$

(iii) $\begin{matrix} n\check{i} & \text{'Focus Marker (FM)'} \\ e\acute{d}\acute{e} & n\check{i} & K\acute{u}l\acute{e} & r\grave{a}. & \text{It was shrimp that K\acute{u}l\acute{e} bought} \\ \text{shrimp} & \text{FM} & \text{proper name} & \text{buy} \end{matrix}$

but $\begin{matrix} e\acute{d}\acute{e} & l- & \acute{o} & r\grave{a} & \text{It was shrimp he bought} \\ \text{shrimp} & & 3p & sg & PC & \text{buy} \end{matrix}$

This alternation does not apply to \underline{n} + other nasal vowels. Thus, for example, the verb S361 stretch $\underline{n\grave{a}}$ has no alternant in \underline{l} when, by deletion of its vowel, it directly precedes an oral vowel:

(iv) $\begin{matrix} \acute{o} & n\grave{a} & \epsilon s\grave{e} & & \text{He stretched (his) legs} \\ 3p & sg & PC & & \text{legs} \end{matrix}$

The verb and the noun object can be optionally contracted in two ways:

(v) $n\grave{a}-s\grave{e}$
(vi) $n-\epsilon s\grave{e}$

In the second contracted structure, \underline{n} precedes the oral vowel [ε].

This limitation of the $\underline{n-l}$ alternation to $\underline{n} + \check{i}$ sequences has apparently been overlooked by previous investigators. (The alternate contracted forms in (v)-(vi) were elicited from Timothy Ilòrí, a speaker of CY whose home town is Ǿyó. This subdialect of CY distinguishes \tilde{a} and \tilde{o} phonetically (cf. sec. 4.3 for discussion of \tilde{a} and \tilde{o} in CY).