

On Nasals and Nasalization in Ọkọ

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1. Introduction

Several arguments have been put forward by some scholars regarding the source of nasalized vowels across languages. Greenberg (1966:509) posits that nasalized vowels derive from earlier states of oral vowels in proximity with nasal consonants. That is, a syllable-final sequence of an oral vowel followed by a nasal consonant, vN. According to Greenberg, the typical sequence of event from one point in the evolution of nasalized vowels to the final stage can be represented as: VN > $\check{V}N$ > \check{V} . It then implies that an oral vowel assimilates the nasal feature of a syllable-final N and the latter (i.e. the N-coda) is deleted. Hyman (1972:171) and Williamson (1973:115) have a different view regarding the source of nasalized vowels. They note that some Benue-Kwa¹ languages could historically have CNV sequence, meaning that the source of Kwa $C\check{V}$ developed from a historic CNV.

The aim of this paper is to contribute to the discussion by supporting the claim that the source of nasalized vowels in languages could only have derived from vN sequence.² One important fact to note about the vowel inventory of Ọkọ is that the language is one of the few Benue-Kwa languages in which all oral vowels have nasalized counterparts.³ In fact, among the West Benue-Congo languages, only Ọkọ and a few Southern Edoid dialects, Uvwie and Agbon (Urhobo) and the Delta Edo dialect, Epie (Williamson 1973:128), have a vowel system in which all the oral vowels have a corresponding nasalized counterpart. The implication is that the mid vowels /e/ and /o/ like every other vowel in Ọkọ can be nasalized (cf. 1). This therefore sets Ọkọ apart from some other Kwa languages such as, Nupe, Baoulé, Benin, Yorùbá, etc, in which the mid vowels cannot be nasalized (Hyman 1972:167).

1.

[íkẹ́]	‘town/city’	[éṅṳ̀]	‘palmwine’
[ìgbẹ̀]	‘buttocks’	[fṳ̀]	‘be far/to pound’
[ógbẹ̀]	‘child’	[ìṅṳ̀]	‘pregnancy’
[édzẹ̀]	‘journey’	[íkṳ̀]	‘name of a place in Ogori’

Within the limited space of this paper, we argue in support of the vN sequence as the most likely source of nasalized vowels. The evidence is based on data from Ọkọ. Even though Greenberg (1966:509) may be correct in positing that the syllable-final N has been deleted in some languages, Ọkọ gives a picture of a language in which the syllable-final N has been retained. Although it has been relegated to the underlying level, it is still realized on the surface in connected speech across morpheme and word boundaries.

¹ In recent classification Kwa is separate from Benue-Congo. Languages which once correspond to Eastern Kwa (Greenberg 1963a:7), are now classified as West Benue-Congo (Williamson & Blench 2000:29). These include languages spoken over the greater part of Southern Nigeria, Example, Yorùbá, Igbo, Benin etc. Included in the list is Ọkọ.

² The source of data in this paper is based on the author’s frequent fieldtrips to the Ọkọ speaking communities. The author’s fieldwork experience on Ọkọ has spanned a period of five years.

³ (see Williamson (1973:125) for a full list of vowel inventories of major Kwa languages). Unfortunately, Ọkọ is not in Williamson’s list even though it was Kwa. The reason could simply be that Ọkọ had not been investigated as at the time of Williamson’s report.

2. Ọkọ vowel inventory

There are seven phonemic oral vowels in Ọkọ, /i u e o ε ɔ a/. Each of the oral vowels has a nasalized counterpart, $\tilde{i} \tilde{u} \tilde{e} \tilde{o} \tilde{\epsilon} \tilde{\sigma} \tilde{a}$. The question is whether the so-called nasalized vowels are phonemic / $\tilde{i} \tilde{u} \tilde{e} \tilde{o} \tilde{\epsilon} \tilde{\sigma} \tilde{a}$ /, or whether they are merely allophonic variants of their oral counterparts [$\tilde{i} \tilde{u} \tilde{e} \tilde{o} \tilde{\epsilon} \tilde{\sigma} \tilde{a}$]. The first step is to check for oral/nasal contrast using minimal pairs. This is shown in (2).

2.

a.	/i/	ṣí	‘to block’	b.	/u/	pú	‘to fold’
	/ĩ/	ṣĩ	‘to ask/request’		/ũ/	pũ	‘to sift/thresh’
c.	/e/	dʒé	‘to eat’	d.	/o/	fó	‘to die’
	/ẽ/	dʒẽ	‘to walk’		/õ/	fõ	‘to smash/pound’
e.	/ε/	fɛ	‘to skin’	f.	/ɔ/	dó	‘to hunt’
	/ẽ/	fẽ	‘to breathe/snore’		/õ/	dõ	‘be old’
g.	/a/	gá	‘to say/talk’				
	/ã/	gã	‘to greet/read/count’				

As shown in (2) above, it is possible to establish a surface oral/nasal contrast. However, this is not a sufficient criterion for determining the phonemic status of the nasalized vowels. One must also consider the environment in which the respective vowels occur. For instance, while the oral vowels can occur in any given position in a morpheme or word, the nasalized vowels can never occur at word-initial position. They can only occur at morpheme-final position, before a syllable-final N. In (3), we provide both phonemic and phonetic representations respectively. The syllable-final N is represented in the phonemic transcription by the archiphoneme N.

3.

/ékǫ́N/	[ékǫ́]	‘war’
/gǎ́N/	[gǎ́]	‘to greet/read/count’
/εgbǎ́N/	[εgbǎ́]	‘chest’
/óṣǫ́N/	[óṣǫ́]	‘leg’
/hǎ́N/	[hǎ́]	‘to shave’

Before further discussion, one important point to also consider is whether a word-final nasal vowel can contrast with a word-final vowel-nasal C sequence, where C is a nasal stop. Only then can one justify the claim that all surface nasal vowels are derived from an underlying /VN/. It is stated here that such contrast is not possible in the language, whether the final C is /n/ or /m/. The asterisk forms in the minimal pairs in (4) below are not possible in Ọkọ.

4.	ékǫ́	ìgbè	fǫ́	óbí
	*ékǫ́m	*ìgbèn	*fǫ́m	*óbím

3. Identifying the syllable-final N

When a word is pronounced in isolation (cf. 3), the syllable-final N is not articulated. But when words or morphemes occur in connected speech, for example, in compounds and in phrases, the syllable-final N gets a surface form. The N-coda creates a liaison effect between both morphemes. This is shown in examples (5a-d). It is also important to add, at this juncture, that all nouns in Ọkọ are vowel-initial, just like all verbs are consonant-initial.

(5)

a.	[ìgbè] + [óǫ́rè]	→	[ìgbènóǫ́rè]
	buttocks hole		‘anus’

- b. [óbí] + [utù] → [óbínutù]
king abode 'palace'
- c. [útú] # [àyɛ] → [útúm àyɛ]
work DEF.SG 'the job'
- d. [fɔ̃] # [ìgilà] → [fɔ̃m ìgilà]
pound yam 'pound yam'

Arising from the examples in (5a-d), the syllable-final N is realized as [n] and [m] across morpheme and word boundaries under the following conditions:

- i. the first word or morpheme must end with a nasalized vowel
- ii. the second word or morpheme must start with an oral vowel

In the case where the contiguous vowels that occur across a morpheme or a word boundary are both oral vowels, the first of the two vowels is either deleted (cf. 6a, b) or assimilated (cf. 7a, b). This shows that the intruding [n] and [m] in (5) are only realized in a nasalized environment, as they are not morphemes by themselves.

- (6)
- (a) [ábàrɛ̀] + [ófú] → [ábàròfu]
back bone 'spine'
- (b) [íwú] + [ogbigbɛ̃] → [íwógbigbɛ̃]
body strength 'health'
- (7)
- (a) [édá] + [úbó] → [édúùbó]
termite house 'termitarium'
- (b) [wó] # [ɛ̀sa] → [wɛ̀ ɛ̀sa]
weave cloth 'weave a cloth'

Also, having seen in (5a-d) that the syllable-final N alternates between [n] and [m], the next task will be to identify the phonological environment which determines the realization of any of the alternants of the N-coda.

The distribution of the variants of the N is phonologically conditioned. For instance, the realization of [n] across a morpheme boundary is often triggered by [- back] nasalized vowels [ĩ ẽ ɛ̃]. A list is provided in (8a-e).

- (8)
- (a) [óbí] + [utù] → [óbínutù]
king abode 'palace'
- (d) [dʒí] # [údʒũ] → [dʒín udʒũ]
open door 'open a door'
- (c) [ógbé] + [ofòro] → [ógbénofòro]
child male 'boy'
- (d) [ógbé] # [òórɛ] → [ógbén óòrɛ]
child one 'one child'
- (e) [émé] # [íbɛ] → [émén íbɛ]
bush interior 'inside a bush'

On the other hand, [m] is triggered by [+ back] nasalized vowels /ũ õ ǫ/. This is also shown in examples (9a-d) below.

- (9)
- | | | | |
|-----|------------------|---|--------------------|
| (a) | [útú] # [àjɛ] | → | [útúm àjɛ] |
| | work DET | | ‘the job’ |
| (b) | [útú] + [ɛfà] | → | [útúm ɛfà] |
| | work place | | ‘workplace/office’ |
| (c) | [fǒ] # [igilà] | → | [fóm igilà] |
| | pound yam | | ‘pound yam’ |
| (d) | [fǒ] # [ikerese] | → | [fóm ikérese] |
| | enter vehicle | | ‘board a vehicle’ |

4. The bilabial onset

The phonological rules that determine the surface form of the underlying N, namely, [+ back] or [- back] nasalized vowels triggering [m] or [n] respectively, are not as straightforward as they appear. In some other environments, [n] is triggered by [+ back] vowels. This is shown in example (10a-c).

- (10)
- | | | | |
|-----|-----------------|---|--------------|
| (a) | [úmũ] # [ɛbɛ̀] | → | [úmún ɛbɛ̀] |
| | goat INDF.PL | | ‘some goats’ |
| (b) | [òmũ] # [àbɛ] | → | [òmún àbɛ] |
| | cap DEF.PL | | ‘the caps’ |
| (c) | [ámǒ] # [àjɛ] | → | [ámǒn àjɛ] |
| | oil DEF.SG | | ‘the oil’ |

The examples in (10a-c) show that the back nasalized vowels [ũ], [ǒ] trigger [n] rather than [m]. This contradiction can only be explained by looking beyond the nasalized nucleus to the onset. The onset consonant sometimes plays a role in determining the surface form of the underlying N. We note from the examples that where the syllable contains a bilabial onset, in this case, a bilabial nasal onset (cf. 10a-c), a [+ back] vowel triggers [n] rather than [m]. The suspicion is that the language automatically invokes the obligatory contour principle (OCP), which prohibits the occurrence of adjacent identical segments. That is, a bilabial onset C does not trigger the bilabial variant of the N-coda.

Similarly, when the nasalized vowel [ã], occurs across morpheme boundaries it can trigger [n] or [m]. The choice of any the variants of the syllable-final N is also determined by the place of articulation of the onset consonant. For instance, [ã] triggers [n] if the onset is bilabial. In the following examples in (11a-d), the following bilabial consonants occur as onset /p w m/.

- (11)
- | | | | |
|-----|------------------|---|----------------|
| (a) | [épã] + [òsèsɛɛ] | → | [épãn ósèsɛɛ] |
| | head breaking | | ‘headache’ |
| (b) | [épã] + [òfũ] | → | [épãnófu] |
| | head bone | | ‘skull’ |
| (c) | [wã] # [úwó] | → | [wãn uwo] |
| | kill dog | | ‘kill a dog’ |
| (d) | [mã] # [érɛ̀] | → | [mán érɛ̀] |
| | sit front | | ‘sit in front’ |

On the other hand, where the onset consonant is non-bilabial, the surface form of the syllable-final N is always [m] after the nasalized [ã]. Interestingly, the bilabial constraint is so strong to the extent that consonant sounds that have a labial feature such as: the labio-dental /f/ and the labial-velars /kp, gb/, are treated the same way as other consonants which have no labial coloring; for instance: /t d k g r/, as seen in the list (12a-l) below.

(12)

- | | | | |
|-----|--------------------|---|----------------------|
| (a) | [tǎ́] # [íkúsájé] | → | [tǎ̀m íkúsájé] |
| | chew groundnut | | ‘chew groundnuts’ |
| (b) | [tǎ́] # [ósá] | → | [tǎ̀m ósá] |
| | chew chewing stick | | chew a chewing stick |
| (c) | [àdǎ́] # [ájɛ] | → | [àdǎ̀m ájɛ] |
| | chair DEF.SG | | ‘the chair’ |
| (d) | [ádǎ́] # [òbè] | → | [ádǎ̀m óbè] |
| | curse INDEF.SG | | ‘a curse’ |
| (e) | [fǎ́] # [ógbé] | → | [fǎ̀m ógbé] |
| | save child | | ‘save a child’ |
| (f) | [àkǎ́] # [épé] | → | [àkǎ̀m èpé] |
| | jaw hair | | ‘beard’ |
| (g) | [gǎ́] # [óbí] | → | [gǎ̀m óbí] |
| | greet king | | ‘greet king’ |
| (h) | [gǎ́] # [emumu] | → | [gǎ̀m emumu] |
| | read book | | ‘read book’ |
| (i) | [kpǎ́] # [íwú] | → | [kpǎ̀m iwú] |
| | scratch body | | ‘scratch one’s body’ |
| (j) | [kpǎ́] # [úǵé] | → | [kpǎ̀m úǵé] |
| | lift burden | | ‘lift a burden’ |
| (k) | [égbǎ́] # [òǵìǵǎ] | → | [égbǎ̀m óǵìǵǎ] |
| | chest broadness | | ‘broad chest’ |
| (l) | [àrǎ́] # [ájɛ] | → | [àrǎ̀m ájɛ] |
| | smoke DEF.SG | | ‘the smoke’ |

5. Summary

The distribution of the syllable-final N across morpheme boundary in Òkò is synchronically predictable. Its distribution is summarized as follows: N is realized as [n] after [- back] nasalized vowels [ĩ ẽ ẽ] (cf. 8a-e). Also, N can be realized as [n] after the nasalized [ã] (cf. 11a-d); however, the onset consonant of the syllable must be bilabial. Furthermore, N is realized as [n] after [+ back] vowels (cf. 10a-c), but the onset consonant of the syllable must be bilabial. On the other hand, N is realized as [m] after [+ back] nasalized vowels (cf. 9a-d), with the condition that the onset consonant must be non-bilabial. Finally, N is realized as [m] after [ã] (cf. 12a-l), but the onset consonant of the syllable must be non-bilabial.

From the summary of the distribution of the surface form of the syllable-final N it is clear that the language prohibits the occurrence of adjacent identical segments at the suprasegmental level. That is, a

bilabial onset cannot be followed by the bilabial variant of the N-coda [m]. This is why the forms in (13) are not acceptable.

- (13)
- | | | | |
|-----|---------------|---|--------------|
| (a) | [úmú] # [èbè] | → | *[úmúm ébè] |
| | goat INDF.PL | | ‘some goats’ |
| (c) | [ámǫ] # [àjè] | → | *[ámǫm ájè] |
| | oil DEF.SG | | ‘the oil’ |
| (b) | [épá] + [òfú] | → | *[épámófu] |
| | head bone | | ‘skull’ |
| (c) | [wá] # [úwó] | → | *[wám uwo] |
| | kill dog | | ‘kill a dog’ |

6. Conclusion

In conclusion, the facts about nasalization in Òkò further strengthens the claim that some disappearing language features are usually found in lesser known languages; for instance, the reduction in number of nasalized vowels and the loss of the syllable-final N. This may be due to the fact that such ‘smaller’ languages are usually protected from the usual negative effect of language contact. In this paper, we show that all the seven vowels of Òkò have nasalized counterparts. Secondly, the nasalized vowels are only oral vowels which occur in the environment before a syllable-final N. The oral vowels assimilate the nasality feature of the underlying N-coda. This argument favors the already established claim by Greenberg (1966) that nasalized vowels developed from a vN sequence. Also, even though the claim in this paper draws from Greenberg’s claim of a historical vN sequence, this paper diverges from Greenberg’s view that the assimilated syllable-final N in a vN sequence has been deleted over time. This may be true for some languages, but not for Òkò. We have shown in this paper that the syllable-final N in Òkò has been retained. It is underlying when a word is pronounced in isolation, but it gets a surface form across morpheme and word boundaries. It has also been shown that the surface form of the syllable-final N in Òkò is synchronically predictable. The choice of the variants of the N-coda whether as [n] or [m] depends on the phonological environment in which it occurs.

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