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OKPE AND UVWIE: A CASE OF VOWEL HARMONY GALORE

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This study is in two parts. The first part presents evidence from which Hoffman (1973) and Omamor (1973) concluded that although the speech of some speakers of Okpe and Uvwie indicates only seven vowels phonetically, both languages actually operate a system of nine phonemic vowels. The second part shows that the behaviour of the unadvanced high vowels /ɪ/ and /ʊ/ in Okpe and Uvwie points to an interesting inter-play between phonology and grammar which results in grammatical markers sometimes having four or more distinct phonetic shapes.

Cette étude comprend deux parties. La première présente l'évidence à partir de laquelle Hoffman (1973) et Omamor (1973) ont conclu, bien que le parler de quelques inter-locuteurs de Okpe et Uvwie ne révèle phonétiquement que sept voyelles, que les deux langues ont en réalité un système de neuf voyelles phonémiques. La deuxième partie montre que les voyelles hautes et non avancées /ɪ/ et /ʊ/ indiquent un jeu intéressant entre la phonologie et la grammaire et par conséquent que les indicateurs de grammaire ont quelquefois quatre ou plus réalisations phonétiques différentes.

0. INTRODUCTION

Okpe and Uvwie belong to the Kwa group within the Niger-Congo family of languages (Greenberg, 1963). They are each spoken by a group of the same name. Both are Edoïd languages and often described as dialects of Urhobo even though some recent studies (Elugbe, 1975; Omamor, 1976a) show that there is no serious linguistic basis for so describing them. Elugbe (1979) groups them under the South Western branch of Edoïd along with Eruwa, Isoko and Urhobo.

1. THE VOWEL HARMONY SYSTEMS OF OKPE AND UVWIE

1.1 1973 STUDIES

In a 1973 paper titled: 'The Vowel Harmony System of the Okpe Monosyllabic Verb or Okpe: A Nine-Vowel Language with only Seven Vowels', Carl Hoffman gives evidence that [e] and [o] in Okpe sometimes behave in ways that would lead any analyst to treat them as members of the open rather than the closed vowel harmony set.<sup>1</sup> The facts 'lead inevitably to the conclusion that particular occurrences of the vowels [e] and [o] will have to be seen...as recent developments from some other vowel, probably \*i and \*u (i.e. /ɪ/ and /ʊ/)' (Hoffman, 1973:80). In other words, the vowels \*i and \*u of an earlier stage of the language have phonetically changed to [e] and [o]'...while at the same time preserving their

features of being the open-vowel counterparts of the high vowels *i* and *u* in their harmony behaviour and in their membership in the high vowel set'. On the basis of the phonological behaviour of some Okpe monosyllabic verbs relative to the formation of what Hoffman terms an 'infinitive'<sup>2</sup> (1973:85) and of specific tense forms, he demonstrates the existence at the phonemic level of the high unadvanced vowels /*i*/ and /*u*/ and concludes (102-3) that 'phonemically, Okpe is really still a nine-vowel language although phonetically it has only seven vowels'.

In 'Uvwię: A Case of Vowels Merging?' (1973), the present writer shows that the situation in Okpe relative to the vowels /*i*/ and /*u*/ may not be peculiar to that language: '...it is rather difficult to auditorily determine whether there are phonetically seven or nine oral vowels in the language. But there is some internal evidence for postulating a nine-vowel system for Uvwię' (113). This internal evidence involves *e* and *o* (termed *e*<sub>2</sub> and *o*<sub>2</sub> in Uvwię) when they occur as the stem vowel in specific tense forms and in verbal nouns.

After examining the formant patterns of spectograms of two sets of vowels termed *e*<sub>1</sub> and *o*<sub>1</sub> and *e*<sub>2</sub> and *o*<sub>2</sub> occurring in prefix and stem position in Okpe and Uvwię, Omamor says (1973:133):

The results clearly show that in Uvwię there is some acoustic difference between *e*<sub>1</sub> and *e*<sub>2</sub> on the one hand and *o*<sub>1</sub> and *o*<sub>2</sub> on the other. They demonstrate that in the stem position, *e*<sub>1</sub> and *e*<sub>2</sub> and *o*<sub>1</sub> and *o*<sub>2</sub> have non-overlapping formant patterns. In this position, both vowel pairs are separated by the first formant and the second formant does not seem to play any role in distinguishing these vowels. The same results, however, suggest that the distinction is not so clear in prefix position; there is overlapping in formant patterns at this point although there is still a little differentiation that could be drawn from *F*<sub>1</sub>.<sup>3</sup> The results also show that there is a greater acoustic difference between the vowels in each pair in Uvwię than in Okpe.

She concludes that although Uvwię may not auditorily have a nine-vowel system, '...the formant patterns provide ample justification for postulating an underlying nine-vowel rather than a seven-vowel system for Uvwię'.

It was clear from these two studies that vowel harmony in both Okpe and Uvwię operates with the two sets of harmonising vowels shown below:

I	<u>Advanced</u>	II	<u>Unadvanced/Retracted</u>
	<i>i</i> <i>u</i>		<i>e</i> <sub>2</sub> <i>o</i> <sub>2</sub>
	<i>e</i> <sub>1</sub> <i>o</i> <sub>1</sub>		<i>ɛ</i> <i>ɔ</i>
	<i>a</i> ?		<i>a</i>

In purely phonetic terms, the two sets of vowels would be:

<u>Advanced</u>		<u>Unadvanced/Retracted</u>	
i	u	ɪ	ʊ
e	o	ɛ	ɔ
a?		a	

The studies also showed that personal subject pronouns and most affixes occurring with verbs tend to have two different phonological shapes depending on the vowel harmony set of the stem vowel.

## 1.2 FROM 1973 TO THE PRESENT

From 1973 to today, a few more aspects of Okpe and Uvwie have been investigated (Omamor, 1981, 1983, 1985, 1986) and other studies are still in progress. These show that vowel harmony in these two languages may not operate as simply as the 1973 studies indicated.

The purpose of this study, therefore, is to show that vowel harmony in Okpe and Uvwie involves more than providing two shapes for specific morphemes, one occurring with open vowels and the other with closed vowels. Tense and other verbal forms will be examined to show how vowel harmony interacts with specific tenses and/or aspects and other grammatical categories to yield many more markers than was suggested by Hoffman (1973) and Omamor (1973). We shall also see how vowel harmony affects the process of verb-adjectivalisation via reduplication and verb-nominalisation in the two languages.

## 2. INTERPLAY BETWEEN VOWEL HARMONY AND GRAMMAR

Discussion in this section will centre around how vowel harmony affects the structure of the forms indicated. Illustrations will be provided from each of the two languages and the effect of vowel harmony will then be highlighted.

### 2.1 VOWEL HARMONY AND THE FORMATION OF IMPERFECT TENSE FORMS

The forms termed 'imperfect' are those whose use and interpretation in Okpe and Uvwie indicate a specifically imperfect meaning. They are usually interpreted as either continuous/progressive or habitual depending on the context in which they occur or the semantics of the particular verbs. When the sentences in which they occur contain an overt indication of past time e.g. a past time deictic adverbial, the forms are given a past imperfect interpretation.<sup>4</sup> Otherwise, they are construed as referring to imperfectivity in the present. Examples:

#### OKPE<sup>5</sup>

#### 1. ne 'defecate'

mì é!né	'I am defecating/I ususally defecate'
wù é!né	'You are defecating/ you ususally defecate'
o é!né	'He/she/it is defecating etc.
àmí é!né	'We are...etc.
àrí é!né	'You (pl.) are...etc.
àyí é!né	'They are ...etc.

2. ze 'run (away)'

mì	á!zè <sup>6</sup>	'I am running (away)/I usually run (away)'
wù	á!zè	'you are running (away) etc.
o	á!zè	etc.
àmí	á!zè	
àrí	á!zè	
àyí	á!zè	

These examples show that the formation of the imperfective verb form in this language is essentially effected by either an *e* occurring before a verb stem with an advanced vowel or an *a* occurring before a verb stem with an unadvanced vowel, i.e. in conjunction with the tonal pattern characteristic of the imperfective tense form. In the phonetic realisation of these forms, the *i/í* of all subject pronouns involving these vowels is desyllabified to yield the glide [j] before the imperfective marker, but the vowels of other pronouns are assimilated to the vowel marking imperfectivity.

We find, however, that when the vowel of the appropriate verb stem is any of the high vowels *u*, *u*, *i* or *í*, the imperfective form is also suffixed by a vowel *-e* for verb stems with a closed-set vowel and *-a* for those involving an open-set vowel.<sup>7</sup> This suffix vowel has the additional effect of desyllabifying the vowel of the preceding verb stem, yielding the glides [j] for *i* and *í* and [w] for *u* and *u*. Examples:

3a.	<u>du</u>	'be big';	mì	á!duá	[mja dwa]
			wù	á!duá	[wa dwa]
b.	<u>fu</u>	'swell/be swollen';	mì	é!fué	[mje fwe]
			wù	é!fué	[we fwe]
c.	<u>rí</u>	'eat';	mì	á!ríá	[mja rja]
			wù	á!ríá	[wa rja]
d.	<u>bi</u>	'be black/dark';	mì	é!bié	[mje bje]
			wù	é!bié	[we bje]

The fact that *a* alternates with *e* as its closed-set counterpart suffix introduces some complication into the otherwise neat system of vowel harmony in Okpè. Hoffman (1973:98) draws attention to the fact that the vowel *e* itself is a member of the open set which should not normally '... be able to co-occur with close vowels'. He finds no internal explanation for this disparity and suggests none. What seems important is that the verb forms (3b) and (3d) not only violate the co-occurrence restrictions operating within the word and the phrase in Okpè, they also represent the one instance in the present study in which the phrase as a secondary grammatical category does not contain just vowels from the same vowel harmony set. Although it is possible that *e* may have originated from some other vowel historically, there are at the moment no clues as to the exact nature of that vowel.

The formation of the imperfective tense form in Uvwie is much simpler than in Okpe. Examples:

UVWIE

4. ne 'defecate'

mèmè é nè	'I am defecating/I usually defecate'
guè é nè	'You (sg.) ...'
òyìn é nè	'He/She/it ...'
òrìn é nè	'We are ...'
mámá é nè	'You (pl.) ...'
òwán é nè	'They are ...'

5. dje 'run (away)'

mèmè á djè	òrìn á djè
guè á djè	mámá á djè
òyìn á djè	òwán á djè

6a. bi 'be black/dark'

mèmè é bì	'I am getting/usually get black/dark'
guè é bì	'You (sg) are ...'

b. ri 'eat'

mèmè á rì	'I am eating/I usually eat'
guè á rì	'You (sg) are ...'

c. du 'be big/grow'

mèmè á dù	'I am growing/getting big/I usually ...'
guè á dù	'You (sg) are ...'

d. furhu 'swell/be swollen'

mèmè é fùrhù	'I am swelling up/usually swell up'
guè é fùrhù	'You (sg) are ...'

The formation of the imperfective tense form in Uvwie simply involves the occurrence of a specific vowel before the verb stem. This vowel is *a* if the verb stem has an open-set vowel (5, 6b and 6c); it is *e* if the verb stem has a closed-set vowel (4, 6a and 6d). (6a) through (6d) with high vowels show that, unlike Okpe, vowel height is of no special significance in the formation of the imperfective tense form.

Comparison of the facts relative to imperfective tense formation in Okpe and Uvwie make it clear that it is the combination of vowel harmony and significant vowel height that accounts for the greater complexity in the Okpe system.

## 2.2 VOWEL HARMONY AND PAST TENSE FORMS

The formation of past tense forms is discussed in detail in Hoffmann (1973:88-94) and Omamor (1973). The two studies show that the past tense in Okpe is marked by the suffix *-rV* where *V* can be *i*, *ì*, *u* or *ù* depending on the nature of the stem vowel of the appropriate verb.<sup>8</sup> It is *ì* for all open-set vowels except *ù* ([*ɔ*]), and *i* for all closed-set vowels except *u*. When *ù* and *u* occur as stem vowels, the vowel of the past tense marker is *ù* and *u* respectively, i.e., [*ɔ*] and [*u*].

The situation in Uvwie parallels the one in Okpe except that the consonant of the suffix marking past tense in this language is *n* and not *r*. In other words, past tense in Uvwie is marked by a suffix *-nV* attached to the verb stem with *V* manifesting as *i*, *ɪ*, *u* or *ʊ* in the same circumstances as for Okpe. Examples:

OKPE

7. ò <u>bírí</u>	'it was/became black'	ò <u>rírí</u>	'he ate'
ò <u>kpé́rì</u>	'he killed'	ò <u>dé́rì</u>	'he bought'
ò <u>né_rín</u>	'he defecated'	ò <u>tín_rín</u>	'he refused'
ò <u>só_rí</u>	'he stole'	ò <u>tò_rí</u>	'he lived long/ it lasted long'
ò <u>hú_rú</u>	'he died'	ò <u>há_rí</u>	'he took/it succeeded'
		ò <u>sú_rú</u>	'he sang'

UVWIE

8. ò <u>bínì</u>	'it was/became black/dark'	ò <u>rínì</u>	'he ate'
ò <u>né_nì</u>	'he defecated'	ò <u>dé_nì</u>	'he bought'
ò <u>té_nì</u>	'it was enough'	ò <u>sín-nì</u> <sup>9</sup>	'he refused'
ò <u>chónì</u>	'he stole'	ò <u>tónì</u>	'he lived long/ it lasted long'
ò <u>gúnù</u>	'he died'	ò <u>súnù</u>	'he sang'
		ò <u>shánì</u>	'he went'

The left hand and right hand columns illustrate the marking of past tense on the verb in Okpe and Uvwie. They also reveal that although the vowel *a* is said to be common to the two sets of harmonising vowels (cf. Section 1.1 above), it actually behaves like an open or unadvanced vowel in the process of past tense formation.<sup>10</sup> The examples with nasalised vowels also show that such vowels behave in the same way as their oral counterparts vis à vis past tense formation; they require, however, that *-rV* in Okpe be realised as *-rV̄*.

We find from (7) and (8) that vowel height exerts the same influence on the marking of past tense in the two languages, and that what seems like a proliferation of markers partially results from vowel harmony acting in conjunction with significant vowel height.<sup>11</sup>

The fact that nasalised vowels in Okpe and Uvwie behave in the same way as their oral counterparts means that *-rV* in Okpe has eight possible phonetic realisations, i.e., the four possibilities with oral vowels plus four possibilities involving the corresponding nasalised vowels. However, Uvwie where the past tense suffix itself involves the nasal consonant *n* has just four shapes associated with the same marker. The examples cited as (9) confirm what has been said here about the possible shapes in which the past tense marker surfaces in Okpe when the associated verb stem has a nasalised vowel.<sup>12</sup>

## OKPE

9. ò <u>nérín</u>	'he defecated'	ò <u>kpénrín</u>	'it peeled'
ò <u>gbónrín</u>	'it stank/got rotten'	ò <u>tónrín</u>	'he dug'
ò <u>dínrín</u>	'it overgrew/it is overgrown (of hair and grass)	ò <u>dánrín</u>	'he flew'
ò <u>búnrún</u>	'it was much/plenty'	ò <u>fúnrún</u>	'it was clean/ white'

When the forms in (9) are compared with those cited in (7), it becomes clear that the vowel of the past tense marker -rV in Okpe is nasalised if the associated verb stem has a nasalised vowel. In other words, for all nasalised unadvanced vowels except un, -rV is realised as -rín whereas for all nasalised advanced vowels except un, it is -rín. For un and un, it is -rún and -rún respectively.

## 2.3 VOWEL HARMONY AND FUTURE TENSE FORMS

Futurity in the two languages is expressed in two different ways. Hoffman (1973) does not discuss future tense forms in Okpe; and Omamor only focusses on one way in which futurity is expressed in the language e.g.:

10. de 'buy'

	<u>Singular</u>		<u>Plural</u>	
1st	mí <u>nà dé</u>	'I will buy'	ámí <u>nà dé</u>	'we will buy'
2nd	wú <u>nà dé</u>	'you will buy'	àrí <u>nà dé</u>	'you will buy'
3rd	ó <u>nò dé</u>	'he will buy'	àyí <u>nà dé</u>	'they will buy'

11. fe 'be rich'

	<u>Singular</u>		<u>Plural</u>	
1st	mí <u>nè fé</u>	'I will be rich'	ámí <u>nè fé</u>	'we will be rich'
2nd	wú <u>nè fé</u>	'you will be rich'	àrí <u>nè fé</u>	'you will be rich'
3rd	ó <u>nò fé</u>	'he will be rich'	àyí <u>nè fé</u>	'they will be rich'

The verb in (10) has an unadvanced vowel as stem vowel, whereas the one in (11) involves an advanced vowel. These and other examples show that futurity may be expressed by a morpheme nV occurring before the appropriate verb stem.

The vowel of this morpheme is ọ when the following verb has an open-set vowel and is in 3rd pers.sg., and o if the verb has a closed-set vowel. For all other persons, this vowel is a with open-set vowels and e with closed-set vowels.

Other examples show that vowel height also affects the marking of futurity. In addition to co-occurring with the future tense marker nV, monosyllabic verb stems with a closed-set high vowel carry an additional suffix o while their open-set counterparts have a suffix ọ. The presence of this suffix vowel has the further effect of desyllabifying the high vowel of the verb stem to yield the glides [j] for i and ị and [w] for u and ụ eg. the future tense forms of bí 'be black/dark', fi 'leak, hu 'die', sụ 'sing', dụ 'grow/be big' and rị 'eat':

12. *mí nè bió* 'I will be/become black/dark'      *mí nà rió* 'I will eat'  
       *ó nò fió* 'it will leak'                      *ó nò rhíó* 'he will come'  
       *ó nò huó* 'he/she/it will die'           *ó nò suó* 'he will sing'  
       *ó nò kuó* 'it will be cheap'            *ó nò duó* 'he will grow'

(13) and (14) illustrate the other way in which futurity is sometimes expressed in Okpe:

13. *nya* 'to go'

- Sg. 1. *mì a!sá mà nyá* 'I am going to/will go'  
       2. *wù a!sá mà nyá* 'you are...'  
       3. *ò [a]!sá mà nyá* 'he is going...'  
 Pl. 1. *àmí a!sá mà nyá* 'we are...'  
       2. *àrí a!sá mà nyá* 'you are...'  
       3. *àyí a!sá mà nyá* 'they are...'

14. *rhe* 'to know'

- Sg. 1. *mì á!sá mè rhé*                      Pl. *àmí á!sá mè rhé*  
       2. *wù á!sá mè rhé*                      *àrí á!sá mè rhé*  
       3. *ò [á]!sá mè rhé*                      *àyí á!sá mè rhé*

- 15a. *mì á!sáà nyá* [mja saa ja]; *nya* = 'to go'  
 b. *wù é!sèè fé* [we see fe]; *fe* = 'be rich'  
 c. *ò [á]!sáà dé* [o saa de]; *de* = 'to buy'

In (13) futurity is marked by a *sa ma* occurring between the subject pronoun and the verb stem if it has an open vowel. If, however, the vowel of the verb stem comes from the closed set, as in (14), the last vowel of this marker is *e*. The effect of vowel height on this second marker of futurity is the same as that outlined for *nV* earlier. Like all other tense forms in Okpe, future tense forms also have a characteristic tonal pattern which can be inferred from (15a).

The examples of (15) represent common stylistic variants of (13) and (14).

In the phonetic realisation of forms such as (13) through (15), *i/i* of all pronouns subject is desyllabicated to yield the glide [j] before the initial vowel of the mark of futurity. The vowel of the 2nd pers. sg. pronoun subject is usually assimilated to the initial vowel of the same marker, whereas it is this initial vowel that gets assimilated to the 3rd pers. sg. pronoun subject *o/ò*. The examples of (15) illustrate some of these processes.

There are indications that the choice between the forms cited as (10) through (12) on one hand, and those of (13) and (14) on the other, is a direct function of definable pragmatic considerations. Such discussion is outside the scope of this paper, but is the focus of attention in a separate study by the present writer.

The interplay between vowel harmony and grammatical categories such as tense and person is such that the future marker in Okpe can have any of four different shapes with significant vowel height introducing a little more complexity into the system of

marking. The fact that Okpe distinguishes a 'will' and 'going to' form in expressing futurity, and that vowel harmony and significant vowel height interact with the two separate forms, complicates the picture even more with a resulting proliferation of markers.

The situation in Uvwie matches the one described above in many respects. For instance, futurity is marked in two different ways. One method involves the morphemic marker **móò/mọ̀ọ̀**, harmonising with the vowels of the following stem. The other possibility involves exploiting the tonal resources of the language. Vowel height also influences the marking of futurity in Uvwie. Examples of **móò/mọ̀ọ̀**:

16. **de** 'buy'

Sg. 1.	mì mọ̀ọ̀ dé	Pl. 1.	órín mọ̀ọ̀ dé
2.	ù mọ̀ọ̀ dé	2.	màamá mọ̀ọ̀ dé
3.	ò mọ̀ọ̀ dé	3.	òwán mọ̀ọ̀ dé

17. **fe** 'be rich'

Sg. 1.	mì móò fé	Pl. 1.	òrín móò fé
2.	ù móò fé	2.	màamá móò fé
3.	ò móò fé	3.	òwán móò fé

18. mì móò bíò 'I will be/ become black/dark'	mì mọ̀ọ̀ ríọ̀ 'I will eat'
ò móò fíò 'it will leak'	ò mọ̀ọ̀ r híọ̀ 'he will come'
ò móò gúò 'it will die'	ò mọ̀ọ̀ r úọ̀ 'it will ripen (of boils)'
ò móò kúò 'it will get cheap'	ò mọ̀ọ̀ dúọ̀ 'it will grow/be big'

Note that the future tense form has a characteristic tonal pattern associated with it. The forms in (18) involve high vowels, with the closed-set high vowels in the left hand column and the open-set in the right. It is also clear from (18) that in addition to co-occurrence with a preceding **moo/mọ̀ọ̀**, monosyllabic verb stems with high vowels in Uvwie require a suffix vowel to express futurity. This vowel is **ò** with closed-set vowels and **ọ̀** with open-set vowels. Unlike Okpe, the suffix vowel in Uvwie does not desyllabicise the vowel of the verb stem. (16) through (18) parallel the Okpe examples (10) through (12) and a comparison of the two sets highlights the essential differences between the marking systems of the two languages.

The following examples illustrate how futurity sometimes uses tonal resources in Uvwie:

19a. **de** 'buy'

Sg. 1.	mí dé	Pl. 1.	órín dé
2.	ú dé	2.	màamá dé
3.	ò dé	3.	òwán dé

b. cho 'steal'

Sg. 1.	mí chó	Pl. 1.	órín chó
2.	ú chó	2.	mà má chó
3.	ó chó	3.	òwán chó

20. kpo 'leave/go home'

Sg. 1.	mí kpóò	Pl. 1.	órín kpóò
2.	ú kpóò	2.	mà má kpóò
3.	ó kpóò	3.	òwán kpóò

21. sha 'go/walk'

Sg. 1.	mí sháà	Pl. 1.	órín sháà
2.	ú sháà	2.	mà má sháà
3.	ò sháà	3.	òwán sháà

22a. bi 'be black/dark'

Sg. 1.	mí bíò	Pl. 1.	órín bíò
2.	ú bíò	2.	mà má bíò
3.	ó bíò	3.	òwán bíò

b. ri 'eat'

Sg. 1.	mí ríò	Pl. 1.	órín ríò
2.	ú ríò	2.	mà má ríò
3.	ò ríò	3.	òwán ríò

c. gu 'die'    ú guò 'you are going to die'  
ru 'ripen (of boils)    ò rúò 'it will ripen'

The data available suggests that the pattern exemplified by the forms shown in (19) is probably peculiar to transitive verbs, while the one exemplified by (20) through (22c) is associated with intransitive verbs or intransitive uses of specific verbs. The examples in (20) and (21) involve non-high vowels as the vowel of the verb stems while those of (22) involve high vowels. Forms with high vowels in the verb stem have a suffix *o* for closed-set high vowels and *ò* for open-set. Verb stems with non-high vowels have their stem vowels lengthened to accommodate the tonal pattern associated with futurity.

The distinction between future tense forms with the morphemic marker *moo/moò*, and those in which futurity is expressed by the tonal resources of the language is essentially a distinction between 'will' and 'going to'. The choice between the two seems to be dependent on pragmatic constraints outside the scope of this study.

Although the structure of the future tense forms in Okpe and Uvwie is influenced by vowel harmony, significant vowel height and specific grammatical factors such as person (Okpe) and transitivity (Uvwie), the network of influences results in greater complexity in the Okpe marking system.

## 2.4 VOWEL HARMONY AND THE FORMATION OF VERBAL NOUNS

Both Hoffman (1973) and Omamor (1973) discuss the role of vowel harmony in the formation of verbal nouns (termed infinitives by Hoffman) in Okpe and Uvwie. They will therefore not be discussed in detail here. But they are included in order to present as complete a picture as possible of the ways in which vowel harmony interacts with grammar in the two languages, especially as they also represent one instance in which the interplay between vowel harmony, grammar and other aspects of phonology does not result in the complexity found in the tense forms discussed above.

Virtually all verbs in Okpe and Uvwie can form nouns in the way suggested by the following table:

<u>OKPE</u>		
<u>Verb stem</u>		<u>Related Verbal Noun</u>
kpe	'kill'	èkpé
so	'steal'	èsó
bi	'be black'	èbió
rhi	'be tall'	èrhió
ri	'eat'	èrió
ṭin	'refuse'	èṭiòn
ṣu	'sing'	èsuó
f̣un	'be clean/white'	èfuòn
f̣o	'be cold/quiet'	èfó
ḍe	'buy'	èḍé
nya	'go/walk'	ènyá
<u>UVWIE</u>		
kwe	'kill'	èkwéèmú
cho	'steal'	èchóòmú
bi	'be black/dark'	èbiòmú
ru	'do'	èrúòmú
ri	'eat'	èriòmú
ṣin	'refuse'	èṣiòmú
ṣu	'sing'	èṣuòmú
ḍe	'buy'	èḍéèmú
sha	'go/walk'	èsháàmú
gua	'be strong/hard'	ègúàmú

Verbal nouns in Okpe are formed by the prefixation of e/è harmonising with the vowel of the verb stem. Verb stems with one of the high vowels i, ì, u and ù take an additional harmonising suffix o/ò. This suffix vowel then desyllabifies the stem vowel of the verb to yield the glides [j] for i and ì and [w] for u and ù. All verbal nouns from monosyllabic verbs in Okpe have a characteristic LOW-HIGH tonal shape, whereas disyllabic verbs yield trisyllabic verbal nouns with a LOW-HIGH-LOW tonal pattern.

The situation in Uvwie is different from that in Okpe. Monosyllabic verb stems involving non-high vowels form verbal nouns by:

- (i) lengthening their stem vowels
- (ii) suffixation of -mú/-mù harmonising with the verb stem
- (iii) the prefixation of e/ẹ harmonising with the verb stem.

Verb stems with high vowels are suffixed by a harmonising o/o before (ii) and (iii) take place.

The above shows that any complexity in the formation of verbal nouns in Okpe and Uvwie results from an interaction between vowel height and vowel harmony, rather than from the operation of vowel harmony per se. To the extent that verbal nouns in Okpe do not have the suffix associated with their counterparts in Uvwie, the overall process of verbal noun formation in Okpe is less complex than in Uvwie.

## 2.5 VOWEL HARMONY AND VERB ADJECTIVALISATION

The derivation of adjectives from a specific sub-class of verbs in Okpe and Uvwie is described in detail in Omamor (1986:9-10). These adjectives are either partial or total reduplications of particular verbs. The following table illustrates the two types of reduplication described in that study:

<u>Verb stem</u>	<u>Type I Reduplication</u>	<u>Type II Reduplication</u>	
'be...'	'rather...'		
<u>OKPE</u>			
du 'be big/grow'	dùádù 'rather big'	òdùádù	'big/large'
kamù	kàákámù	òkúkámù	'small'
gbaùn	gbàágbàùn	ògbùgbàùn	'hard/strong'
lohò	lòólòhò	òlùlòhò	'soft/gentle'
gbe	gbèégbè	ògbégbè	'dirty'
bi	bìèbì	òbíèbì	'black/dark'
fùn	fùáfùn	òfùáfùn	'white/clean'
rhomu	rhòórhòmù	òrhórhòmù	'good/beautiful'
biomu	bìóbìòmù	òbíóbìòmù	'bad/deteriorate'
<u>UVWIE</u>			
grẹn	grẹngrẹn	ù-grẹngrẹn	'cold/quiet/ gentle'
kamù	kàkámù	ù-kàkámù	'small'
gua	gùágùá	ù-gùágùá	'hard/strong'
gbe	gbègbè	ù-gbègbè	'dirty/filthy'
bi	bìbì	ù-bìbì	'dark/black'
fùn	fùnfùn	ù-fùnfùn	'white/clean'
rhomu	rhòrhómù	ù-rhòrhómù	'good/beautiful'
nurẹn	nùnúrẹn	ù-nùnúrẹn	'bad/ugly'

In Okpe Type I reduplications are partial reduplications made up of two parts of which the second corresponds to the original verb stem. The first part of a Type I reduplication whose verb stem does not have a high vowel is made up of:

- (i) the initial consonant of the original verb stem, followed by
- (ii) the lengthened form of the stem vowel of a monosyllabic verb; or
- (iii) the lengthened form of the first vowel of a disyllabic verb.

For verb stems with high vowels, *e* is suffixed to those with *i* and *u*, *a* to those with *ɪ* and *ʊ* e.g.:

<b>bi</b>	'be black/dark'	<b>bìébi</b>	'rather black/dark'
<b>fu</b>	'swell/be swollen'	<b>fùéfù</b>	'rather swollen'
<b>fɔn</b>	'be white /clean'	<b>fùáfùn</b>	'rather white/clean'
<b>kɪn</b>	'be sour'	<b>kìánkìn</b>	'rather sour'

All Type II reduplications in Okpe have a harmonising prefix vowel *o/ɔ*. In addition, the long vowel of the corresponding Type I reduplication is reduced to the short vowel unless the vowel concerned is *a*, *e*, *i* or *ɔ*. In this case, the long vowel of the Type I reduplication is replaced by the vowel *u*.

Thus, in Okpe, verb adjectivalisation via reduplication is controlled by either vowel harmony or vowel harmony acting with significant vowel height.

Verb adjectivalisation is a less complex process in Uvwie. Type I reduplications are either partial reduplications of disyllabic verb stems or total reduplications of monosyllabic ones. The partially reduplicated forms are made up of the first syllable of the verb stem followed by the full form. They are all characterised by LOW-HIGH-HIGH tonal pattern.

Type II reduplications have a low tone-bearing prefix *u/u* which harmonises with the stem vowel. This vowel and the tonal shape LOW-HIGH-LOW-LOW of which the last low tone only surfaces on reduplications of disyllabic verb stems is all that distinguishes this class of reduplications from their Type I counterparts.

The relative simplicity of verb adjectivalisation via reduplication in Uvwie derives from the fact that vowel height, though significant in the language, plays no role in this particular process. This is different from Okpe where vowel height combines with vowel harmony to introduce greater complexity.

## 2.6 VOWEL HARMONY AND THE SUBJECT-VERB CONCORD MARKER IN OKPE

Comparison of sentences with noun as subject and others with pronoun as subject reveals that the former require that a subject-verb concord marker occur between them and a following verb. Examples from Okpe:

- 23a. **òmó ná ò témrún wáàn-náná.**  
 child Det. CONC. speak+past just now  
 'the child spoke just now.'



26. Òmò ná ó sèí!né. 'The child can/is able to defecate'  
 Òmò ná ò sàí!zè. 'The child can/is able to run'  
 Èmò ná à sàí!zè. 'The children can/are able to run'  
 Èmò ná è sèí!né. 'The children can/... defecate'

We find, however, when the above examples are compared with the next set, that it is the tense associated with the modal in the above examples rather than the modal per se that combines with plurality to influence the operation of vowel harmony.

27. Òmò ná ò sèí nè. 'The child was able to defecate'  
 Òmò ná ò sàí zè. 'The child was able to run/escape'  
 Èmò ná ì sàí zè. 'The children were able to run/escape'  
 Èmò ná ì sèí nè. 'The children were able to defecate'.

The only difference between the forms in (26) and those in (27) is that the tense associated with the modal in the latter is past whereas that of the former is imperfective. The shape of the plural subject-verb concord marker associated with the modal in past tense is the more common *i/ì*. We therefore conclude that it is the imperfectivity associated with the modal in the examples of (26) that accounts for the shape which the plural subject-verb concord marker assumes in them, and not modality per se.

In summary, the singular subject verb concord marker has two basic shapes determined by the operation of vowel harmony, whereas its plural counterpart has four possible phonetic shapes, two of which result directly from the interaction between vowel harmony and grammatical factors like plurality, and tense. The slight proliferation is a direct result of a combination of factors, rather than the operation of vowel harmony per se.

### 3. SOME CONCLUDING REMARKS

Vowel harmony, acting alone or in conjunction with significant vowel height, nasalisation or even grammatical factors such as person or transitivity, dominates a variety of grammatical processes such as the formation of some tense forms, the nominalisation of verbs and the process of verb-adjectivalisation via reduplication. The result is a complicated but rich and interesting system in which vowel harmony plays a major part.

What has been noted in respect of specific grammatical processes in this study may be true of many (if not all) others in the languages concerned or even in other Edoid languages. That question cannot be resolved in a single study. It must await the results of future research on these and other Edoid languages. But this study provides further validation of the 1973 analyses of Okpè and Uvwie as phonemically nine-vowel languages in which vowels must be regrouped first in terms of the harmony set to which they inherently belong and secondly in terms of a height feature which separates vowels in these languages into a high set and a low set.

## NOTES

<sup>1</sup>The labels 'open' and 'closed' correspond to '(tongue-root) unadvanced' and '(tongue-root) advanced' respectively with which they are used interchangeably. The distinction involved is the same as what Tucker (1966, cited in Antell et.al, 1973:3) subsumes under the labels open/lax vs. close/tense respectively.

<sup>2</sup>Hoffman's infinitive (1973:85-86) is a verbal noun similar in use, function and interpretation to what is sometimes described as a gerund. Hoffmann himself explains in a footnote (5, p. 108) that his choice of label was determined solely by the fact that his '...informant produces this form as the equivalent of the English infinitive with to'.

<sup>3</sup>The open/unadvanced vowels were shown to consistently have a lower  $F_1$  than their closed/advanced counterparts. Jenewari (1973: 60-61) refers to X-ray studies of vowels in Okrika by Orupabo (1973) showing the two sets of harmonising vowels separated by  $F_1$  in this same way as being distinguished by differences in 'pharynx width controlled by advancing tongue root.' Jenewari describes this as consistent with a claim by Halle and Stevens (reported in a personal communication by Lindau) that '... the widening of the pharynx has considerable effect on the lowering of Formant one [ $F_1$ ]'.

<sup>4</sup>The tense and aspect systems in these two languages are described in some detail in a separate study under preparation.

<sup>5</sup>The orthography used here is largely impressionistic as a full description of the sound system is yet to be completed. It takes cognisance, however, of the recommendations of the panel set up by the Bendel State Government in 1974 to report on the question of an adequate orthography for all the languages spoken in the state. Here, as elsewhere,  $e = [ɛ]$ ;  $o = [ɔ]$ ;  $i = [i]$  and  $u = [u]$ . Tones are marked thus: = High,  $\grave{}$  = Low and ! = a downstepped high tone.

<sup>6</sup>(i) The downstep has been used to ensure consistency with the practice in Hoffmann (1973). I am not myself certain whether what we have is a downstepped high tone, a raised low tone or whatever.

(ii) No tones are marked on the citation form of verbs in this study because the indications are that in these languages, as in most other Edoid languages, verbs derive their tones from the syntactic contexts in which they occur. They therefore do not have any inherent tone in isolation.

<sup>7</sup>Both Hoffmann (1973) and Omamor (1973) point to the significance of vowel height in Okpe and Uvwie. They provide evidence to show that in addition to recognising two sets of harmonising vowels, there is a further need to regroup the vowels into a high set and a low set.

The behavior of the high vowels  $i$ ,  $i$ ,  $u$  and  $u$  relative to the formation of imperfective tense forms in Uvwie suggests that the influence of vowel height in this language may not quite be as all-pervasive as it is in Okpe.

<sup>8</sup>Although most of the forms that will be cited as examples in this section translate into appropriate past tense forms in the better-known languages

of the world, there are verbs whose -rV suffix-bearing forms actually describe a present state. This is the case with *fe* 'be rich'; *ò féri* 'he is/was/became rich', for instance.

<sup>9</sup>The hyphen in this example is used to keep the two n's occurring in such forms separate so as to ensure accuracy with respect to phonetic realisation.

<sup>10</sup>Jenewari (1973: 62) describes the 'neutrality' of *a* in relation to the two sets of harmonising vowels in Kalabari as 'superficial' because, '... in terms of harmony behaviour, it is inherently a member of the unadvanced set'.

<sup>11</sup>The expression 'significant vowel height' in this study refers to the feature that distinguishes vowels of the high set in Okpe and Uvwie from those of the low set. It is this feature (cf. footnote 7) that necessitates regrouping vowels in these languages into a high set made up of *i*, *i̇*, *u* and *u̇* and a low set comprising *e*, *o*, *ė*, *ȯ* and *a*.

<sup>12</sup>Nasalisation is indicated orthographically by an *n* occurring after the vowel that is nasalised. When two nasalised vowels follow each other, this *n* is usually placed after the second of such vowels.

<sup>13</sup>This example and others involving the vowel *a* in the present study confirm the point made earlier with respect to the behaviour of *a vis à vis* the two sets of harmonising vowels in Okpe and Uvwie. Here, as elsewhere, *a* behaves as if it is simply a member of the unadvanced or open set, even though it is said to be common to the two vowel harmony sets. See also footnote (11).

The point made in footnote (6) in connection with other examples featuring a downstepped high tone applies with equal validity to these ones.

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