KIABÀRÀ

Journal of Humanities

Volume 7 Number II 2001

Archaeology, Creative Arts, Communication Studies, Comparative Literature, Development Studies, English Studies, Foreign Languages, History, Liberal Studies, Ligguistics, Museum Studies, Peace and Moral Studies, Philosophy, eatre Arts, Visual Arts, Archaeology, Religious S Comparative Literature, Development Studies, English Les, History, Liberal Studies, Linguistics, Museum Studies, Philosophy, Religious Studies, Theatre Arts, Creative Arts, Communication Studies, Comparative Studies, English Studies, Foreign Languages, History, **Auscum** Peace and Moral Studies, Liberal Studies, Philosophy, Religious Studies, Theatre Art Arts, Communication Studies, Comparati rts, Archaeology, Creative Development Studies, ages, Studies, Linguistics, English Studies, Foreign Languages, History, Lineral Studies, Linguistics, Museum Studies, Peace and Moral Studies, Philosophy, Religious Studies, Theatre Histor Creative Art, omnunication Studies, Arts, Visual Arts, Arc Figlish Studies, Comparative Literature, um Studies, Peace and Languages, History, Libera adies, Theatre Arts, Visual Arts, Moral Studies, Philosophy, parative Literature, Archaeology, Creative Arts, History, Liberal Studies, Philosophy, Development Studies, English Studio Studies, Linguistics, Museum Studies, en Languages, Religious Studies, Theatre Arts, Visual Arts, History, Liberal Studies, Linguistics, Museum Studies, Peace Philosophy, Religious Studies, Theatre Arts, Visual Arts, English Languages, History, Liberal Studies, Linguistics, Museum Studies, Peace and Moral Studies, Philosophy, English Studies, Foreign Languages, History, Liberal Studies, Linguistics, Museum Studies, Peace and Moral Studies, Philosophy, Religious Studies, Theatre Arts, Visual Arts, English Studies, Foreign Languages,

UNIVERSITY OF PORT HARCOURT

Vowel Harmony in Ibibio

Margaret M. Okon Department of Languages & Linguistics, University of Calabar

Abstract

In this paper, vowel harmony in Ibibio is discussed. The phenomenon, which is a dominant feature of the phonology of most Niger-Congo languages, is accounted for by simple phonological rules, namely vowel copying and assimilation, using autosegmental phonology to specify harmonizing features.

In Ibibio, vowel harmony is based on front-backness and height of the vowels concerned as well as on pure vowel copying, and operates at the lexical and morphosyntactic levels.

1. Introduction

According to Crystal (1985), the term "harmony" is used in phonology to refer to the way the articulation of one phonological unit is influenced by another unit in the same word or phrase. The two main harmonic processes in phonology are consonant harmony and vowel harmony, the later being predominant in the literature.

Vowel harmony is one of the most interesting features of the phonology of many African languages. There are many types of vowel harmony, like complete harmony which involves vowel copying and harmony by assimilation. In the later type, a vowel assimilates in certain features (e.g front-backness, tense-laxness, labiality, vowel height, tongue-root position, etc.) to another vowel.¹

Throughout most of the Niger-Congo family of languages to which Ibibio belongs, tongue root position has been established as the basis for vowel harmony. But, unlike in most of these languages, it is not possible to divide the Ibibio vowels into two sets such that a simple word may contain vowels of only one set. What is referred to as vowel harmony in Ibibio (Essien 1990) constrains vowels with common or near common articulatory features to appear in the same word or phrase. In this regard, vowel harmony is attested at two levels of the Ibibio grammar – the lexical and the morphosyntactic. In this paper, we shall examine vowel harmony at these two levels and the phonological processes which determine the harmony.

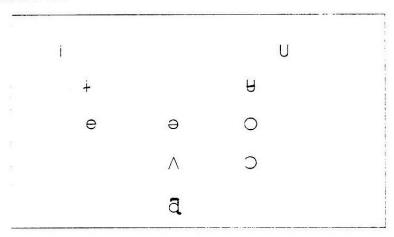
2. Theoretical Framework

We shall base our analysis mainly on autosegmental phonology as put forward by Goldsmith (1979). Autosegmental phonology is "an attempt to supply a more adequate understanding of the phonetic side of the linguistic representation" (Goldsmith, 1979: 16) Autosegmental phonology lays emphasis on the distinctive features of phonemes/segments, and how these features can be interrelated. Autosegmental phonology also has to do with how the various components of the articulatory system – the tongue, the lips, the larynx, the velum, etc., are co-ordinated. In a phonological analysis based on this approach, a phoneme is assigned appropriate feature specifications, for example [+ high] [- low], [+ front] [- back] [- labial] etc.

Autosegmental phonology is appropriate for this work since harmony is obtained when certain distinctive features are shared by phonemes. Autosegmental phonology specifies such features.

3. The Vowel System of Ibibio

We shall make use of the ten-vowel sytem arrived at by the Ibibio Language Panel in 1983. According to Essien (1990), the vocalic inventory of Ibibio is represented thus:-



In the above chart, three tongue positions (front, central and back) and five degrees of opening have been represented. We shall not go into a detailed description of the vowel system here but we shall refer to it as the need arises in the course of our analysis.

4. Vowel Harmony in The Lexicon

One major characteristic of many disyllabic words in Ibibio is the repetition of the vowel of the first syllable in the second syllable.

In some trisyllabic words, the vowel repetition could occur on the last two syllables. Vowel copying occurs even in polysyllabic words.

The following examples illustrate this phenomenon:

(1)	a)	kárá	"govern"	b.	èmèm	"peace"
	c)	àmá	"lover"	d.	kpèmé	"take care of"
	g)	tòyố	"quarrel"	f.	ini	"time"
	i)	ùkù .	"fox –like animal"	h.	àkpásà	"basket"
	k)	ékpémé	"bottle"	i.	òkpókóró	"table"
	m)	àkpàráwà	"lad"	0.03°		

Vowels like /i/ and /n/ seem to be limited in distribution, as they are most often found only in close syllables. Consequently, when these vowels occur in the first syllable of the word, the second, if open, would not copy it. Rather, the language selects a vowel similar in some respect to the one found in the first syllable. Consider the following examples:

(2)	a.	tikke	"step down"	b. sɨne	"wear, put on"
	c.	bimme	"scramble for something	d. t í mmé	"be busy"
	e.	τλγό	"bend(oneself)	f. s\ko	"faint"
	g.	nλŋŋɔ໌	"salty"	h. ŋśmmɔ́	"have an acidic taste"
	i.	kpńkó	"uproot"	j. d'nkɔ́	"sift"

If we consider the phonetic base of the phonological features of $/\Lambda$ and $/\Im$ on one hand, and that of /i and /e on the other, we see that $/\Lambda$ and $/\Im$ are characterized by the features [+low],[-high] [-front] [+round]. Besides, they share the same degree of opening. It is these shared features that inform the selection of $/\Im$ in the second syllable of those words in which it occurs.

Similarly, the phonetic base of the articulation of /i/and /e/ is characterized by such features as [+front] [-back], [-low], [+high], hence the affinity.

 copying), the vowel of the first syllable harmonizes with a vowel lower in height in the second syllable of the same word. The explanation seems to hold true for words with no glaring harmony, as the examples below show:

(3)	a.	ùkà	"your mother"	b.	ùsɔ́	"your father"
	c	útố	"type, kind"	d.	ìbà	"two"
	e.	ćdí	"baldness"	f.	ċsò	"antelope"
	g.	ìtàm	"hat"	h.	ítêm	"advice"
	i.	únâm	"meat"	j.	ìtóŋ	"neck"

If we reverse the order of vowels in the words above, we obtain words that do not belong to the Ibibio lexicon. Though the predominant combination is high-low, a few combination of vowels of the same height do occur, as in:

(These involve vowels of the same degree of opening)

From the foregoing, and particularly based on the examples in (1) above, we can now suggest that the type of vowel harmony existing in the lexicon is based mainly on vowel copying. We therefore formulate the following rule to account for the co-occurrence of reduplicated vowels within the phonological word: This does not hold true for examples in (2) to (4)

(5)
$$V \longrightarrow V/-C \times V(C)$$

The formulation in (5) characterizes the vowel of the second syllable as depending on that of the first. In this case, it takes its identity (vowel copying) from the preceding syllable. This rule would predict the vowel combination that occurs in most Ibibio words:

(6) i-i, e-e; o-o; o-o; a-a; etc

To account for the examples in (2) and (3) above, we formulate the followings rules:

(7)
$$V \longrightarrow \begin{bmatrix} e \\ c \end{bmatrix} / \begin{bmatrix} c \dotplus c \\ c \land c \end{bmatrix} - (for(2))$$

(8)
$$/V/->[-high] /[+high]$$
 C-(for(3))

One thing is common to the three rules formulated. In all the three cases, the direction of harmonization is progressive, that is it is the following vowel that copies the features of the preceding one.

5. Vowel Harmony And Morphosyntax.

At the morphological level, vowel harmony occurs mainly in certain inflectional verbal affixes. The most obvious occurrence is in negation .In Ibibio, negation is expressed by suffixing the morpheme /-CV/ to the verb root and also by the concord marker which varies depending on whether the verb is in the affirmative or negative form, as shown below:

(9)	-]	Person	Affirmative	<u>Negative</u>
	Singula	r 1 st	\acute{N}^2	Ń
		2 nd	à	ú
		3 rd	á	í
	Plural	1 st	í	í
	ı	2 nd	è	í
		3 rd	é	í

The examples below illustrate the use of these concord markers in both affirmative and negative sentences :

(10)	Affirmative	Sentences	Negative Sentences		
	ń-díà	"I eat"	ń-diá-yá	"I do not eat"	
	à-dìà	"you eat"	ú-dľá-γá	"You do not eat"	
	á-díà	"He/She eats"	í-díá-γấ	"He/She does not eat"	
	ì-dìà	"We eat"	(nnyin) í-díá-γá	"We do not eat"	
	è-dìà	"You (pl) eat"	(mbufo)í-díá-ya	"You (pl) do not eat"	
	é-díá	"They eat"	(ommo)í-díá-ya	"They do not eat"	

As had already been said, /CV/ is suffixed to the verb root in the negative verbal form. In the process, assimilation takes place during which /C/ assimilates the features of the final consonant of the verb ,while /V/assimilates the features of the final vowel of the verb. This assertion holds true especially for monosyllabic verbs, as the examples show:

(4.4)					
(11) a.	nám	"to do"	/nám –CV/	[nám –má]	"not to do"
b.	nèm	"be sweet"	/nèm –CV/	[nèm-mé]	"not be sweet"
c.	mèm	"be soft"	/mèm-CV/	[mèm-mé]	"not be soft"
d.	díá	"to eat"	/díá-CV/	[díá-yá]	"not to eat"
e.	bá	"to be(somewhere)"	/bá-CV/	[b á- á-γá]	"not to be"
f.	dó	"to be (something)"	/dó-CV	[dó-ó-ɣó]	"not to be"
g.	dố	"to marry"	/dố CV/	[dɔ́-ɔ́-γɔ́]	"not to marry"
h.	tố	"to plant"	/tố –CV/	[t၁-၁-γ၁]	"not to plant"
i.	bòʻ	"to take"	/b ò-CV/	[bò-ò-γό]	"not to take"
j.	n∧́k	"to push"	/nk-CV/	[nʌk-kó]	"not to push"
k.	diòŋ	"to repair"	/diòŋ-CV/	[d່ໃວ້ກູ-ກູວ໌]	"not to repair"
1.	tók	"urinate"	/tók-CV/	[tɔ́k-kɔ́]	"not to urinate "
m.	tèm	"cook"	/tèm-CV/	[tem-mé]	"not to cook "
n.	d ú m	"bite"	/d ú m-CV/	[dúm-mó]	"not to bite"
0.	sɨn	"put"	/sin-CV/	[sɨn-né]	"not to put"
p.	bén	"take, pick"	/bén-CV/	[bén-né]	"not to take ,pick"
q.	biàt	"spoil"	/biat-CV/	[bìàt-tá]	"not to spoil"
r.	dí	"come"	/dí-CV/	[dí-é-yé]	"not to come"
s.	tìé	"sit down"	/tié-CV/	[tiè-ye]	"not to sit down"

t.	túúk	"touch"	/túúk-CV/	[túúk-kó]	"not to touch"
u.	táŋ	"pick"	/táŋ-CV/	[táŋ-ŋá]	"not to pick"
v	dòp	"keep quite"	/dòp-CV/	[dòp-pó]	"not to keep quite"
. W .	brě	"play"	/brĕ-CV/	[brĕ-ké]	"not to play"

It would be observed that with open syllables, /C/becomes voiced / γ / in the negative suffix because of the intervocalic nature of its new environment. It is not so with close syllables, where /C/assimilates the features of the final consonant. In both cases, the vowel of the negative morpheme harmonizes with the vowel of the verb preceding it in an assimilatory process.

It is however observed that the verb 'bre' becomes [bre-ke] and not [bre-\gammae] as is the case with other open syllables. Essien (1989)in accounting for the contour tone of 'bre' analyses the word as having historically been a disyllabic word with a/CVCV/ structure which lost the first /V/ in the course of time leaving the tone of the lost/V/ on the second /V/. Going by this analysis, 'bre' behaves like/CVCV/ verbs (that it was originally) which simply take the suffix /-ke/, as the following examples shows:

(12)	a.	sòrơ	"to squat"	sòró-ké	"not to squat"
	b.	n í mé	"to quench(a fire)"	n i mé-ké	"not to quench(a fire)"
	c.	dòró	"to be bitter"	dôró-kế	"not to be bitter"
	d.	támmá	"to jump"	támmá-ké	"not to jump"
	e.	bèré	"to lean on"	bèré-ké	"not to lean on"

Another observable feature in the negation process is the lengthening of the vowel in open syllables before the addition of the negative suffix (Cf.e.f.g.h.i).

Where the vowel of the open syllables is /i/, the lengthening is done with the aid of the vowel /e/(cf.5.r). It would appear that there is a constraint in the nature of vowels that occur in the negative suffix. From the data, it appears that the vowels must be [High] while agreeing in degree of backness with the vowel in the preceding mora. /u/ and /o/ for instance agree in degree of backness. They are both [-Front,+Back] and that explains why /o/ appears in the negative suffix in examples (n) and (t). Because /i/ and /e/ agree in degree of backness ,and /e/ is [-High] compared with /i/ ,verbs ending in /i/ select/e/ to end the syllable and to harmonize with the vowel of the negative morpheme.

Another case of vowel harmony operating across morpheme boundaries is in the past tense (affirmative) form with the first person plural. The past tense morpheme involved is $/-k\epsilon-/3$

The vowel of /-ke-/ harmonizes with the first person plural concord marker /i-/ as we can see in the following examples:

```
/i-ké-kpi/
                               [i-kí-kpì]
(13)
                                                      "We cut"
       a
                               [i-ki-bre]
               /i-ké-brè/
       b.
                                                      "We played"
               /i-ké-kòp/
                               [i-kí-kòp]
                                                      "We heard"
       c.
               /i-ké-bòòrò/
                              [ì-kí-bɔ̀ɔ̀rɔ̀]
                                                      "We replied"
       d.
               /i-ké-dà/
                               [i-kí-dà]
                                                      "We stood"
       e.
               /i-ké-n\k/
                               [i-kɨnλk]
                                                      "We pushed"
       f.
             /i-ké-b<del>uù</del>k/
                               [i-kí-b<del>ùù</del>k]
                                                      "We buried"
       g.
                               [i-kí-bok]
               /i-ké-bôk/
                                                      "We cooked"
       h.
               /ì-ké-sɨn/
                               [i-ki-sɨn]
       i.
                                                      "We put"
```

In the above examples, the vowel of the past tense morpheme harmonizes with that of the immediately preceding morpheme –the first person plural concord marker. When this happens, the vowel of the past tense morpheme is identical with the preceding vowel.

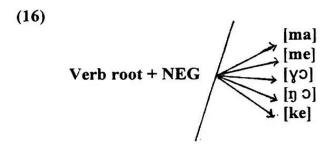
There is another case of vowel harmony at the morphological level in Ibibio, namely the second person singular past negative form, as in:

```
[ú-kú-má-á-yá]
              /ú-ké-má-ké/
                                                                "You did not like"
(14)
       a.
              /ú-ké-brě-ké/
                                   [ú-kú-brě-ké]
                                                                "You did not play"
       b.
                                   (ú-kú-bɔɔ̀ɔrɔ́-ké)
                                                                "You did not respond"
              /ú-ké-bòòró-ké/
       c.
                                   [ú-kú-kòp-pó]
              /ú-ké-kòp-ké/
                                                                "You did not hear"
       d.
                                   [ú-kú-túá-yá]
              /ú-ké-túá-ké/
                                                                "You did not cry"
       e.
              /ú-ké-n/k-ké/
                                   [ú-kú-n/k-kó]
                                                                "You did not dance"
       f.
              /ú-ké-sɨn-ké/
                                   [ú-kú-sɨn-né]
                                                                "You did not put "
       g.
              /ú-ké-töörő-ké/
                                   [ú-kú-tòòró-ké]
                                                                "You did not praise"
       h.
                                   [ú-kú-kpi-yé]
              /ú-ké-kpì-ké/
                                                                "You did not cut"
       i.
              /ú-ké-níé-ké/
                                   [ú-kú-nie-yé]
                                                                "You did not have"
       i.
```

In the examples above, the vowel of the past tense morpheme harmonizes with that of the second person singular negative concord marker. Here again, the direction of harmonization is progressive. It is observed that in (13) and (14) above, it is the lower vowel that assimilates into the higher one, that is to say, /e/ harmonizes with the high vowel /i/ and /u/. This process of assimilation is captured by the following rule:

(15)
$$/V/\longrightarrow [+high]/[+high]$$
 C-

On the whole, the "readjustment rules" (Chomsky & Halle, 1968: 9-14) which relate syntax to phonology can capture the entire process of vowel harmony at the morphological level. Under readjustment rules, according to orthodox Generative Grammar, surface structures are modified in various ad hoc ways by phonological rules into phonetic representations. Applying this to Ibibio, particularly with regard to negation, the harmonic process could be summarized thus:



The phonetic realization of the negative morpheme is therefore phonologically conditioned by the syllable structure of that verb in that the negative morpheme harmonizes with the final vowel (and in some cases the final consonant) of /CV/, /CVV/, /CVC/and /CVVC/ verbs only . It is not so with verbs of other syllable structures, like /CVCV/, where the negative morpheme remains /ke/.

Conclusion

This paper has considered an interesting phenomenon in Ibibio phonology – vowel harmony, and has tried to show that it could be adequately accounted for by simple phonological rules, namely vowel copying and assimilation, with the help of Autosegmental phonology to specify harmonizing features.

Unlike most Niger —Congo languages, Ibibio has not got a tongue root position harmony system, but as asserted by Essien (1990), vowel harmony in Ibibio is based on front - backness and height. In most cases, vowel harmony is based on pure vowel copying. Where the vowels concerned differ in height, as is the case with the past tense affirmative form (cf.13) and the second person singular past negative form (cf.14) it is the vowel with the feature [-high] that assimilates the features of the vowel [+high]. It is remarkable that in the whole process of assimilation the tone of /ke/ is maintained.

At this point, more fundamental questions need to be raised: why the affinity between /e/, /i/ and /u/ as attested by the past tense marker /-ké-/ and some concord markers? Can a more plausible explanation be found to account for why/\(\lambda\)/attracts /O/ and /i/ attracts /e/ as is the case at the lexical level? These and others are areas for further research.

Notes

- 1. These vowel harmony types are as attested by Aoki (1968) and Hyman (1975) and acknowledged by George (1973) and Essien (1990) respectively.
- 2. N represents an archiphoneme, a homorganic nasal which assimilates to the following consonant.
- 3. Ibibio has two past tense morphemes /ké/ and /mà/

References

- Chomsky, N & Halle, M. (1968). The Sound Pattern of English New York, Harper & Row. Cook, T. L. (1968). "The Chameleonic Vowel in the Harmonizing Prefixes of Efik" in Koen Bogers, Harry Van der hulst and Maartan Mous (eds.), The Phonological Representation of Suprasegmentals: Studies on African Languages Offered to John M. Steward on his 60th Birthday. Publication in African Languages and Linguistics 4, Foris Publications, Dordrecht-Holland, 209-232.
- Crystal, D. (1985). A Dictionary of Linguistics and Phonetics. Oxford, Basil Blackwell.
- Essien M. M.(1989) Étude de quel ques operateurs de la grammaire ibibio en contraste avec l'anglais et le français. Ph. D. dissertation. Université de la Sorbonne Nouvelle, Paris.
- Essien, O. E. (1990). A Grammar of the Ibibio Language. Ibadan. University Press Limited.
- George, I. (1973). "Vowel Harmony: Why so restricted in Yoruba?" in George, Isaac et al(eds.) Research Notes from the Department of Linguistics and Nigerian Languages. University of Ibadan. 6: 1-3, 171-188.
- Goldsmith, J. 1979). Autosegmental Phonology. New York, Garland Press.
- Hoffman, C. (1973) "The Vowel harmony system of the Okpe Monosyllabic verb" in George, Isaac et al. (eds) Research Notes from the Department of Linguistics and Nigerian Languages, University of Ibadan. 6: 1-3, 79-111.
- Hyman L.M.&Schuh R.G.(1974). "Universals of Tone Rules: Evidence from West Africa" in *Linguistic Inquiry* 5, 1, pp.81-115.
- Jenewari, C.(1973). "Vowel Harmony in Kalabari Ijo" in George, Isaac et al (eds) Research Notes from the Department of linguistic and Nigerian Languages University of Ibadan. 6: 1-3, 59-78.
- Kenstowicz, M. (1994). Phonology in Generative Grammar, Cambridge blackwell.
- Oyebade, F.O.(1997). "Domain and scope in Ika Vowel Harmony" Paper presented at the 9th Niger-Congo Syntax and Semantics workshop, University of Ghana, Legon.