Vowel Variations in Obolo language

Ebitare F. OBIKUDO	Department of Linguistics & Communication Studies, University of Port Harcourt, Nigeria
Wilberforce AYUWO	Department of Linguistics & Communication Studies, University of Port Harcourt, Nigeria

ABSTRACT

This paper provides a descriptive analysis of the vowel variations that exist in four dialects of Obolo, a Lower Cross language belonging to the Benue-Congo sub-phylum, namely Ataba, Ngo, Ilotombi, and Agwut-Obolo. Data elicitation was carried out with four competent native speakers using the Ibadan four hundred wordlist. The findings revealed that although the six vowel phonemes in the language /i e a ɔ o u/ occur in all positions of the word, /i/ and /u/ have a very high distribution word-initially, /ɔ/ and /o/ are predominant in the word-medial position, /a/ is mostly found in word-medial and word-final positions, while /e/ has free distribution across the three word positions. Furthermore, it was observed that vowel variation in the dialects was based on the part of the tongue, involved only four vowels /e a ɔ o/, and occurred in word-initial and medial positions. The alternations occurred between /a/ and /ɔ/ in word-initial and medial positions, between /a/ and /o/, and /e/ and /o/ in word-initial position. Factors conditioning vowel variation included labial assimilation and vowel harmony based on tongue backness. Contrary to earlier works that state that Obolo does not operate vowel harmony, the vowel variations discussed in this work provide evidence for a vowel harmony that is based on tongue backness and distinguishes between front and back vowels.

Keywords:	Lower Cross, Obolo, Phonological Variation, Vowel Variation and Vowel Harmony

1. Introduction

Linguistic variation is a common phenomenon in the languages of the world that occurs at different levels of linguistic analysis such as the sounds or pronunciation (phonetics and phonology), word forms (morphology), vocabulary or word choice (lexis), and grammar (syntax). It is common for a language to have a number of varieties that may be geographical, social, or functional. Wardhaugh and Fuller (2015, p. 38) assert that "regional variation in the way a language is spoken is likely to provide one of the easiest ways of observing variety in language." Accordingly, when a language has been spoken in a wide geographical location for many years, there are bound to be differences on the geographical continuum that affect pronunciation, word forms, word choice, and syntax.

Obolo is a Lower Cross language that belongs to the Cross River family (Williamson, 1989; Williamson and Blench, 2000). The Cross River family belongs to the Benue-Congo sub-phylum. The Obolo language is spoken in

Eastern Obolo local government area of Akwa Ibom state and Andoni local government area of Rivers state, both located in Nigeria, West Africa. Within the Obolo speech continuum, there are noticeable variations in the speech forms of the different communities. These differences have informed the dialectal classifications that are recorded in the literature. Aaron (1983) identifies three main dialects, which are Ngo, Unyeada, and Okoroete. Faraclas (1984) also makes a three-way dialectal classification namely, Western, Eastern, and Northern. The classification by the Obolo Language and Bible Translation Committee in 1985 identifies six dialects namely**,** Ataba, Unyeada, Ngo, Okoroete, Ibot-Obolo, and Iko. According to Enene (1995), the committee employed three criteria, which are, the name of the administrative headquarters where the dialect is spoken (that is, Ataba, Unyeada, Ngo, and Okoroete); the name of the biggest village in the area where the dialect is spoken across administrative borders (that is, Iko), and lastly, the name of the town or village where the linguistic variation is most strongly marked (that is, Ibot-Obolo, also known as Ibat-Obolo). The committee's classifucation is reflected in Aaron (2000) and is considered to be the decision of the Obolo people. On the other hand, Dienye (1987) identifies four dialects, Agana, Ilotombi, Uyeada, and Okoroete. These different classificatory attempts point to the fact that there are linguistic variations within the Obolo speech community.

Based on purposive sampling, the scope of this study spans four communities within the Obolo speech continuum found in Rivers state. These are Ataba, Ngo, Ilotombi, and Agwut-Obolo, located in Andoni local government area. The choice of Ataba and Ngo communities is based on the fact that they constitute two of the four administrative districts in the local government area. Ataba occupies the western territory, Ngo is at the center, while Ilotombi is located between both administrative districts. Agwut-Obolo was chosen because it is considered to be the spiritual home of the Obolo people. The aim of the study, therefore, is to examine the sound (phonological) variations that exist between the vowels in the speech forms of these four Obolo speaking communities. The communities are shown in yellow highlights in the map below.

Fig.1: Map highlighting the Obolo speech communities under study (Google, retrieved January 22, 2024)

2. Literature review

According to Cheshire (1982), a full understanding of a language must include an understanding of the nature and function of variation. As a language is used over time, variation is bound to occur in the sounds of the language. Phonological variation is concerned with the way in which different people produce the same sounds differently (Holmes and Wilson, 2017). It refers to the different ways in which a language is spoken based on varying factors that affect the speaker such as age, gender, social class, ethnicity, or geographical location. Phonological variation may affect speech sound segments such as vowels and consonants, thus triggering sound changes, or

suprasegments such as tone, stress, and length. The focus of this work is the variation that affect vowel sounds.

Vowels are identified by three parameters in their articulation. These are the height of the tongue, the part of the tongue, and the shape of the lips (Ladefoged and Johnson, 2015; Yul-Ifode, 2008). In many African languages, a fourth parameter based on the shape or size of the pharynx is necessary to distinguish between vowels. The height of the tongue is measured by the distance between the tongue and the roof of the mouth. The part of the tongue is determined by whether it is the front, center, or back of the tongue that is raised in the articulation of a vowel sound, while the shape of the lips distinguishes rounded vowels from unrounded vowels. Languages that employ the size of the pharynx in the articulation of vowels exhibit the advanced tongue root (ATR) harmony where vowels fall neatly into two harmonic sets with restricted co-occurrence; expanded or wide vowels ([+ ATR]), and non-expanded or narrow vowels ([- ATR]). Based on the ATR feature, Obolo lacks vowel harmony (Williamson, 1984; Ogbologugo, 2008).

There are many factors that condition vowel variations in natural language. Phonological factors such as vowel quality (for instance, tongue height, tongue backness, and lip rounding), vowel length or duration; lexical properties, stylistic factors, and geographical factors, are some reasons why vowels vary in the dialects of a language. Kiine (2021) reports vowel variations in seven Kana dialects based on vowel height and the part of the tongue. Vowel variations in Kana occur word-initially, word-medially, and word-finally. Obikudo and Amadi (2023) examine variation in the vowels of Achị and Mmakụ dialects of Igbo in word-initial, word-medial, and word-final positions based on the articulatory parameters of the height and part of the tongue, as well as the shape of the lips. They conclude that both phonological and geographical factors condition the vowel variations observed namely, phonetic similarity, lip rounding assimilation and geographic proximity. It is important to note that the variations discussed in the Kana and Igbo dialects do not impede mutual intelligibility among the speakers. Section 4 of this work will address the inter-community vowel variations observed in Obolo.

3. Methodology

The research was conducted on four Obolo dialects spoken in Ataba, Ngo, Ilotombi, and Agwut-Obolo communities. The Ibadan four hundred word list and oral interviews provided the research instruments used for the study. A total sample of four competent speakers were drawn from the four communities. The study adopted a purposive sampling method that enabled the researchers to select the speakers based on linguistic competence.

4. Results and discussion

The Obolo vowel system consists of six (6) vowel phonemes; /i/, /e/, /a/, /ɔ/, /o/ and /u/ (Faraclas, 1984; Dienye, 1987; Ogbologugo, 2012). There is no restriction to the distribution of the vowels in words. All six vowels may occur in the word-initial, word-medial, and word-final positions as seen in the vowel distribution table below.

Table 1: Vowel distribution in Obolo

Vowel phoneme	Phonetic description	Word-initial position	Word-medial position	Word-final position
/i/	Close front unrounded	/íbó/ 'dog'	/tʃít/ 'close'	/lìbí/ 'run'
/e/	Close-mid front unrounded	/ébót/ 'goat'	/bén/ 'carry'	/énê/ 'person'
/a/	Open front unrounded	/ágbá/ 'paint'	/tăp/ 'put'	/úgǎ/ 'mother'
/ɔ/	Close-mid back rounded	/ɔ̀bɔ̂m/	/tʃɔ̂k/ 'press	/bɔ̀kɔ̌/ 'take'

		'fingernail'	down'	
/o/	Close-mid back rounded	/òwò/ 'you'	/ʤǒp/ 'dance'	/íbó/ 'dog'
/u/	Close back rounded	/úbɔ́k/ 'hand'	/gʷûŋ/ 'child'	/ótú/ 'mouth'

Observation from the data collected show that although all the vowels can occur in all three positions in the word, some have a higher frequency of occurrence in certain positions. The close front unrounded vowel /i/ has a very high distribution at the word-initial position. The close-mid front unrounded vowel /e/ is freely found in all three positions. The open front unrounded vowel /a/ occurs mostly in word-medial and word-final positions. The open-mid back unrounded vowel /ɔ/ is more frequent in the word-medial position. The close-mid back rounded vowel /o/, like the open-mid rounded vowel /ɔ/, has a higher distribution in the word-medial position. The close back rounded /u/ is predominant in the word-initial position. Note that the vowels /i/ and /u/ are [+ high], /a/ is [- high], /ɔ/ and /o/ are [+ mid], [+back], while /e/ is [+mid], [- back]. Using these phonetic features, we can summarize the frequency of the distribution patterns of the vowels thus;

i.   [+ high] vowels have a higher distribution word-initially.
ii.   [- high] vowel has a low distribution word-initially.
iii.   [+ mid], [+back] vowels have a higher distribution word-medially.
iv.   [+mid], [- back] vowel is freely distributed across all word positions.

4.1 Vowel variations in Obolo dialects

The vowel variations observed in the Ataba, Ngo, Ilotombi, and Agwut-Obolo dialects are based on one criterion – the part of the tongue and occur either in word-initial or word-medial positions. In Obolo, all front vowels are unrounded while all back vowels are rounded, hence the choice of the part of the tongue as the only criterion. The variations are discussed in the sections that follow.

4.1.1 Variation between /a/ and /ɔ/ in word-initial position

The data on table 2 show alternations between the open front unrounded vowel /a/ and the open-mid back rounded vowel /ɔ/ in word-initial position.

Table 2: Variation between /a/ and /ɔ/ in word-initial position

Ataba	Ngo	Ilotombi	Agwut-Obolo	English gloss
/álɔ́m/	/álɔ́m/	/ɔ́lɔ́m/	/álɔ́m/	'tongue'
/àkúkɔ̀/	/àkɔ́kɔ̀/	/ɔ̀kɔ́kɔ̀/	/àkúkɔ̀/	'feather'
/ákɔ́ŋ/	/ákɔ́ŋ/	/ɔ́kɔ́ŋ/	/ákɔ́ŋ/	'war'
/àkɔ̀p/	/àkɔ̀p/	/ɔ̀kɔ̀p/	/àkɔ̀p/	'ten'
/árɔ̂ŋ/	/árɔ̂ŋ/	/ɔ́rɔ̂ŋ/	/árɔ̂ŋ/	'sheep'

In the above data, /a/ in Ataba, Ngo, and Agwut-Obolo alternates with /ɔ/ in Ilotombi in word-initial position. Wherever these three dialects use the front unrounded vowel /a/ in word-initial position, Ilotombi employs the use of the back rounded vowel /ɔ/. Note that in all the dialects, the vowels in non word-initial position are back vowels. While Ataba, Ngo, and Agwut-Obolo alternate between front and back vowels in the data, Ilotombi maintains only back vowels. Going by the rule of majority principle, one may opine that the front vowel /a/ is the proto-form for the sounds in alternation. However, it is noteworthy that Ilotombi maintains only back vowels in all the words.

4.1.2 Variation between /a/ and /ɔ/ in word-medial position

There are also alternations between the open front unrounded vowel /a/ and the open-mid rounded vowel /ɔ/ word-medially as shown in the data below.

Table 3: Variation between /a/ and /ɔ/ in word-medial position

Ataba	Ngo	Ilotombi	Agwut-Obolo	English gloss
/íwâŋ/	/íwɔ̂m/	/íwɔ̂m/	/íwɔ̂m/	'nose'
/ímâm/	/ímɔ̂m/	/ímɔ̂m/	/ímɔ̂m/	'laughter'
/ìwăn/	/ìwɔ̆n/	/ìwɔ̆n/	/ìwɔ̆n/	'good'
/úwáŋ/	/úwɔ́ŋ/	/úwɔ́ŋ/	/úwɔ́ŋ/	'fish scale'
/úmàn/	/úmɔ̀n/	/úmɔ̀n/	/úmɔ̀n/	'female'

Table 3 reveals Ataba as the only dialect that employs the use of /a/ while Ngo, Ilotombi, and Agwut-Obolo use /ɔ/ in word-medial position.

The phonetic environment that hosts the alternations in the data is characterized by either a bilabial nasal /m/ or a voiced labial-

velar approximant /w/ before the alternating vowel which suggests that the occurrence of /ɔ/ in this position is due to a labial assimilatory process. It is also observed that all the dialects accommodate the co-existence of both front and back vowels in the data.

4.1.3 Variation between /a/ and /o/ in word-initial position

The data below show alternations between the open front unrounded vowel /a/ and the close-mid back rounded vowel /o/ in word-initial position.

Table 4: Variation between /a/ and /o/ at word initial position

Ataba	Ngo	Ilotombi	Agwut-Obolo	English gloss
/ókʷân/	/ókʷâŋ/	/ákʷâŋ/	/ókʷân/	'river'
/ótâ/	/ótâ/	/átâ/	/ótâ/	'hunter'
/ògààŋ/	/ògààŋ/	/àgààŋ/	/ògààŋ/	'antelope'
/ókʷà/	/ókʷà/	/ákʷà/	/ókʷà/	'song'
/ójâŋ/	/ójâŋ/	/ájâŋ/	/ójâŋ/	'moon'

Based on the above data, it is observed that in Ataba, Ngo, and Agwut-Obolo, the front vowel /a/ alternates with the back vowel /o/ in Ilotombi in word-initial position. Again, we see Ilotombi exhibiting vowel harmony based on tongue backness, this time only front vowels co-occur within the word.

4.1.4 Variation between /e/ and /o/ at word-initial position

The data below show alternations between the close-mid front unrounded vowel /e/ and the close-mid back rounded vowel /o/ in word-initial position.

Table 5: Variation between /e/ and /o/ in word-initial position

Ataba	Ngo	Ilotombi	Agwut-Obolo	English gloss
/ébót/	/ébót/	/óbót/	/ébót/	'goat'
/óríè/	/óríè/	/édíè/	/óríè/	'male'
/ògè/	/ògè/	/ègè/	/ògè/	'machete'
/ékóp/	/ékóp/	/ókóp/	/ékóp/	'navel'
/ólík/	/ólík/	/élík/	/ólík/	'rope'

From the data, it seems that the alternation between the front vowel /e/ and the back vowel /o/ is arbitrary in Ataba, Ngo, Agwut-Obolo, and in Ilotombi. All the dialects seem to alternate between both vowels. However, we can observe that the alternation in Ilotombi is conditioned by tongue backness causing a restriction on the co-occurrence of front and back vowels. In the words for 'male', 'machete', and 'rope', only front vowels co-occur. This explains why /e/ occurs word-initially in these words. On the other hand, in the words for 'goat' and 'navel', only back

vowels co-occur. Thus, /o/ occurs word-initially instead of /e/.

The data presented on tables 2, 3, 4 and 5 reveal Ilotombi as the most varied dialect, followed by Ataba to a lesser extent. These two dialects show the most cases of variation than the other two. The variations which are based on the part of the tongue criterion, show evidence of a vowel harmony in the Ilotombi dialect that is conditioned by tongue backness. Thus, front and back vowels do not co-occur. This harmony is observed only when the

variation occurs in word-initial position. Earlier works (Williamson, 1984; Ogbologugo, 2008) cite the non-existence of vowel harmony in Obolo. This is true to the extent that the defining feature is ATR. However, the data from Ilotombi when compared to the other dialects provide evidence for a form of vowel harmony that distinguishes between front and back vowels.

Conclusion

This study investigated vowel variations in four dialects of the Obolo language namely, Ataba, Ngo, Ilotombi, and Agwut-Obolo, spoken in Andoni local government area of Rivers state, Nigeria, West Africa. The study established the distribution frequency patterns of all six vowels /i e a ɔ o u/ in the language. High vowels (/i u/) have a higher distribution word-initially, while the low vowel /a/ has a low distribution word-initially. The mid back vowels (/ɔ o/) have a higher distribution word-medially, while the mid front vowel (/e/) is freely distributed across all word positions. The vowel variations observed were based on one parameter that hinged on vowel quality; the part of the tongue, and occurred in word-initial and word-medial positions only. Thus, /a/ in Ataba, Ngo, and Agwut-Obolo, alternates with /ɔ/ in Ilotombi in word-initial position, but in word-medial position, /a/ in Ataba alternates with /ɔ/ in Ngo, Ilotombi, and Agwut-Obolo. The alternation of /a/ and /ɔ/ word-medially is conditioned by the presence of the labial consonants /m/ and /w/ in Ngo, Ilotombi, and Agwut-Obolo. Again, the front vowel /a/ in Ataba, Ngo, and Agwut-Obolo alternates with the back vowel /o/ in Ilotombi in word-initial position. The alternations between the front vowel /e/ and the back vowel /o/ in word-initial position (in addition to the other alternations in the same position) provide strong evidence for a vowel harmony based on tongue backness as the choice of either /e/ or /o/ word-initially in Ilotombi is determined by the backness feature of the following vowel in the word. The word-initial position is the domain that triggers the harmony. This marks Ilotombi as the dialect exhibiting the most variation. The variations however, do not impede mutual intelligibility among Obolo speakers. Rather, an understanding of the variations enhances one's understanding of the Obolo language.

From the foregoing, we conclude that the vowel variations in Ataba, Ngo, Ilotombi, and Agwut-Obolo are based on the part of the tongue and conditioned by labial assimilation and tongue backness. The data also provides evidence for tongue backness harmony thus making a novel contribution to the literature on the Obolo language.

References

1. Aaron, U. E. (1983). Language variation in Obolo. In J. A. Edmondson (Ed.), *Pilot studies in sociolinguistics: Variation, use and attitudes* (pp.135–142). Summer Institute of Linguistics.
2. Aaron, U. E. (2000). Obolo. In E. N. Emenanjo (Ed.), *Orthographies of Nigerian languages Manual VI* (pp. 57–75). Nigerian Educational Research and Development Council.
3. Cheshire, J. (1982). Linguistic variation and social function. In S. Romaine (Ed.), *Sociolinguistic variation in speech communities* (pp. 153–166). Edward Arnold.
4. Dienye, G. K. (1987). *A comparative phonology of four dialects of Obolo; Agana, Ilotombi, Unyeada, and Okoroete dialects* [Unpublished undergraduate thesis]. University of Port Harcourt.
5. Enene, E. N. (1995). *Comparative morphology of tense in the Obolo dialects* [Postgraduate seminar paper presentation]. University of Port Harcourt.
6. Faraclas, N. (1984). *A grammar of Obolo*. Indiana University Linguistics Club.
7. Google. (2024). [Map of Andoni local government area]. Retrieved January 22, 2024, from Google Maps.
8. Holmes, J. & Wilson, N. (2017). *An introduction to sociolinguistics*. 5th ed. Routledge.
9. Kinne, M. T. (2021). *Phonological variation in Kana* [Unpublished Master's thesis]. University of Port Harcourt.

10. Ladefoged, P. & Johnson, K. (2015). *A course in phonetics*. 7th ed. Cengage Learning.

11. Obikudo, E. F. & Amadi, E. U. (2023). Vowel variations in Áchị and Mmakụ dialects of Igbo. *Inquiry in African Languages and Literatures*, *16*, 1–11.

12. Ogbologugo, J. (2012). *Phonological variation in Obolo* [Unpublished undergraduate thesis]. University of Port Harcourt.

13. van Oostendorp, M. (2004, October 4–8). *Variation in phonology: Theory and evidence* [Paper presentation]. National Research Training Seminar. Center for Advanced Study in Theoretical Linguistics, Tromsø, Norway.

14. Wardhaugh, R. & Fuller, J. M. (2015). *An introduction to sociolinguistics*. 6th ed. Wiley Blackwell.

15. Williamson, K. (1984). *Practical orthography in Nigeria.* Heinemann Educational Books Ltd.

16. Williamson, K. (1989). Benue-Congo overview. In J. Bendor-Samuel (Ed.), *The Niger-Congo languages* (pp. 246–274). University Press of America.

17. Williamson, K. & Blench, R. (2000). Niger-Congo. In B. Heine & D. Nurse (Eds.), *African languages: An introduction* (pp. 11–42). Cambridge University Press.

18. Yul-Ifode, S. (2008). *Basic phonetics.* University of Port Harcourt Press.