

A Dialectometric study among Akwá, Tòhú, and Likwála

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Résumé

Cette contribution offre une étude dialectométrique à partir des langues du groupe C20. Les données concernent les variétés Akwa (C22), Likwala (C26) et Tohu. L'étude est basée sur les fondements théoriques de Mous and Breedveld (1986) et Crowley (1995). Les résultats de cette étude montrent que les trois variétés dialectales appartiennent à un même groupe de langues, groupe C20. Les pourcentages de proximité entre le Tohu, le Likwala et l'Akwa sont dans l'ordre hiérarchique de 69,83%, 66,23% et 56,06%. L'intercompréhension entre les trois variétés dialectales ne pose pas de problème.

Mots clés : Akwá, Tòhú, Likwála, dialectometrie, phonème

Abstract

This research paper deals with a dialectometrical analysis of group C20 languages. Data are driven from Akwa (C22), Likwala (C26) and Tohu. This work is carried out under Mous and Breedveld (1986) and Crowley (1995) framework. This study demonstrates that the three language varieties are dialects of the same language from group C20. The percentages of proximity among the three dialects (Tohu, Likwala and l'Akwa) are 69.83%, 66.23% and 56.06% respectively. The intercomprehension among the three dialects does not matter.

Keywords: Akwá, Tòhú, Likwála, dialectometry, phoneme

INTRODUCTION

The main aim of this paper is to provide a dialectometrical scrutiny based Bantu C20 languages. There are some studies which had dealt with either of linguistic analysis Mboshi group (Guthrie 1948, 1971, Ndinga Oba 2003, Kouarata 2007, Embanga Aborobongui 2013, GombeApondza 2011, Ikemou 2018, Ndongo-Ibara 2021, Oba 2019). It is worth highlighting that two pieces of research work dealt with dialectometric and dialectological studies on Mbochi group notably Kouarata (2007) and Oba (2019). For the sake of the present work, we are concerned with a dialectological and dialectometric analysis of Akwa (C22), Likwala (C26) and Tohu (no existing classification). This paper addresses the following questions:

- (1) How similar and dissimilar are Akwá, Likwála and Tòhú in terms of sound variations?
- 2-How do percentages of similarity or intercomprehension vary among the three language varieties under scrutiny?
- 3-Are Akwá, Likwála and Tòhú dialects of the same language, languages of the same family or families in the same set within C20 group languages?
- 4-Are they derived from the same or different linguistic set?

This work includes two sections. The first provide some linguistic background of the three languages under scrutiny, whilst the last one deals with dialectometric analysis of the three languages.

I. Linguistic overview

This section aims at providing background information of Akwá, Tóhú and Likwálà. Akwá is a Bantu language spoken by Akwá people. It is classified in Embósi Group as C22 by Guthrie (1948). In fact, Akwá has a number of varieties among which: Akwá Opa, Akwá Onzé, Akwá Ndóngó pama (Likouala-Mossaka), Akwá bá Ohále (Mambíli), Akwá Boyá, Akwá fá Mángó, Akwá fá Otálá, Akwá fá Vuma, Epéré etc, (Oya Tsambi :2003). The Akwá dialect attests twenty-one (21) consonant phonemes as represented in the following chart:

(15) Consonantal sounds chart of Akwá

(229)		bilabial	alveolar	alveo-palatal	palatal	velar	labio-velar
stop	voiceless	p	t	ts		k	kp
	voiced	b	d	dz			
pre-nasal		mb	nd	ndz		ng	ngb
Nasal		m	n		ɲ		
Fricative		w	s	ʃ	y	h	

(Oya Tsambi,2003:9)

Based on Oya Tsambi (2003) and Ndinga Oba (2003), the Akwá dialect attests seven (7) vocalic phonemes as represented in the following chart:

(17) Vocalic sounds chart of Akwá

	unrounded/front	central	back/rounded
Close	i		u
Half close	e		o
Half open	ɛ		ɔ
Open		a	

(Oya Tsambi,2003:4)

It transpires that the phonological system of Akwá is constituted of seven (7) vocalic sounds. On the basis of Oya Tsambi (2003), these vowels are attested in initial, interconsonantal and final position except the vowel /u/ and /ɛ/ which is not attested in initial position

Moreover, Tóhú language is spoken by Tóhú people. Hence, it is crucial to mention that Tóhú is an unclassified language within Embósi C20 Group. In fact, their neighbours Ambósi, Akwá and Akoyó call them Angelé, i.e., downriver dwellers, while they identify themselves by ‘Así Tóhú’ as being proud of their community. Tóhú people reached the current land by migration under the guidance of the warrior Patriarch Mobambo due to the ethnic wars in the eastern part of DRC. After crossing the Oubangui and the Sangha Rivers, they settled in the forests straddling the Akwá and Koyó Ngandza areas for fear of being spotted by the enemies. On the basis of the results of each pair, the Tóhú phonemes can be represented in the chart according to the areas of the mouth they are produced as hereafter:

(51) Tóhú consonants phoneme chart

		bilabial	alveolar	alveo-palatal	palatal	velar	labio-velar	glottal
stop	voiceless	p	t	ts		k		
	voice	b	d	dz				
continuant	vl		s					h
	vd				j		w	
lateral			l					
pre-nasal		mb	nd	ndz		ng		
nasal		m	n		ɲ			

As can be seen, the phonological system of Tóhú dialect attests nineteen (19) consonantal phonemes. Nevertheless, each phoneme can occur either in initial or intervocalic positions. The upcoming subsection deals with vocalic

phonemes of Tóhú. The Tóhú vocalic sounds obtained in minimal pairs above can be represented in the chart according to the area they are produced in the mouth as hereafter:

(57). Tóhú vocalic sounds chart			
	unrounded/front	Central	back/rounded
Close	i		u
Half close	e		o
Half open	ɛ		ɔ
Open		A	

As can be notice, the phonological system of Tóhú dialect attests seven (07) vocalic sounds. Indeed, among the seven, five of them namely /i/, /e/, /o/, /ɔ/ and /a/ can appear either in initial, interconsonantal and final positions, while the two others /u/ and /ɛ/ are not attested in initial position, but in mid and final position only. The following subpart concerns Likwala language.

To begin with, Likwálà is the language for Likwálà people; classified in Mbochi as a C26 (Guthrie 1971, Louango1989, Ndinga Oba 2003). Likwálà attests 19 consonant phonemes which can be represented in the chart as follows:

(85) Likwálà consonants phonemes chart								
		bilabial	alveolar	alveo-palatal	palatal	velar	labio-velar	glottal
stop	voiceless	p	t	Ts		k		
	voiced	b	d	Dz				
continuant	vl		s					h
	vd				j		w	
lateral			l					
pre-nasal		mb	nd	Ndz		ng		
nasal		m	n		ɲ	ŋ		

This following lines aim at highlighting vocalic phonemes in Likwálà. As a matter fact, it results from the chart above that Likwálà attests seven (7) short vocalic phonemes.

(86). Likwálà short vowel chart			
	unrounded/front	central	back/rounded
Close	I		u
Half close	E		o
Half open	ɛ		ɔ
Open		a	

II. Comparison according to the Mous and Bredveld's method.

This subpart purports at comparing words of each dialect with those of others. In fact, since the three language varieties are subject to comparison, each of them should be compared to the two others. Hence, pairs of words are rated in relevance to phonematic differences observed. Nevertheless, the principle here is that, the more two forms are phonetically similar, the more likely they are to be understand among speaker-hearers of dialects under examination. Based on Leitch (2004:18) cited by Ndonga Ibara (2018:21):

Comme étant une mesure de l'intercompréhension entre deux parlers, en supposant que l'intercompréhension augmente proportionnellement avec le vocabulaire apparenté et diminue proportionnellement avec le vocabulaire non-apparenté. Simons qui a examiné en détail cette question affirme qu'il y a une forte relation entre le vocabulaire partagé et l'intercompréhension.⁸

⁸ As a measure of intercomprehension between two speakers, assuming that intercomprehension increases proportionally with related vocabulary and decreases proportionally with unrelated vocabulary. Simon, who has examined this question in detail, states that there is a strong relationship between shared vocabulary and intercomprehension. (My translation)

It emerges from Leitch's assertion that the intercomprehension is a criterion used in linguistics, referring to the ability of people to understand each other. As such, if two language varieties are mutually intelligible, they are string related or dialects of the same language, while if they are mutually unintelligible, they are different languages. Likewise, phonematic difference calculation among pairs of words scales as hereafter:

-The mark 4 is given for full segment similarity.

(393)

Akwá	e	ng	ú	l	ε	hunch-back
Tɔ́hú	e	ng	ú	l	ε	

-The mark 3 is given when there is one segment change.

(364)

Likwála	e	y	ś	mb	ɔ	broom
Akwá	e	k	ś	mb	ɔ	

-The mark is 2 when there are two segment changes.

(395)

Likwála	o	k	u	nd	á	clear
Tɔ́hú	o	h	o	nd	á	

-The mark 1 is given when there are both morphological and phonological change, while the relationship is recognized among dialects.

(396)

Akwá	e	h	é	ng	ε	Lip
Tɔ́hú	e	b	ε	b	ú	

-The mark zero is selected when it comes to two different roots or there are more than three segment changes in the pair.

(397)

Likwála	n	u	mb	í		vagina
Tɔ́hú	i	s	ś	h	ś	

Further to the presentation of the method, the following subsection consists of proceeding with average calculations.

II.1 Calculation of the percentage of proximity among Akwá, Tɔ́hú, and Likwála.

The calculations of the percentage of proximity among languages require first the sum of values from the lists of pairs of words. Taking into account the length of the corpus of 1700 words of the three languages, I resolve to present this list in the appendix. Nevertheless, the obtained results are represented in the chart hereafter:

(398) Sum of values

	Akwá	Tɔ́hú	Likwála
Akwá		2029	1784
Tɔ́hú	2029		2720
Likwála	1784	2720	

Prior to the calculation of percentages of proximity, the following elements are required:

1- Input (IP)= 1700

2- Maximal Mark (MM)= 4

3-Number of dialects under comparison (NDC)=3

4- Maximal Marks Number (MMN)= IP x MM → 1700x 4=6800

5- Maximal Percentage (MP)=MMNx100/ MMN → 6800 x100/6800=100%

Thanks to the sum of values and the elements above, the percentage of proximity (PPR) between Akwá, Tɔ́hú and Likwála can be calculated. In fact, the percentage of proximity calculation formulaic looks like the following:

$$PPR = SV \times MP / MMN \rightarrow SV \times 100 / 6800$$

Hence, calculations of the percentage of proximity provide the following:

- Akwá and Tòhú: $PPR=2029 \times 100 / 6800 = 29,83\%$
- Akwá and Likwála: $PPR=1784 \times 100 / 6800 = 26,23\%$
- Tòhú and Likwála: $PPR=2720 \times 100 / 6800 = 40,00\%$

The results of percentages of proximity among the three language varieties under scrutiny can be represented in the chart as hereafter:

(399) Percentages of proximity chart.

	Akwá	Tòhú	Likwála
Akwá		29,83%	26,23%
Tòhú	29,83%		40,00%
Likwála	26,23%	40,00%	

Once percentages of proximity among the three languages varieties subject to comparison are determined, the following step consists of regrouping and classifying them in terms of the degree of intelligibility. Indeed, this operation points out whether Akwá, Tòhú and Likwála are dialects of the same language or three distinct languages within C20 group. To do that, the addition of percentages of proximity represented in each column of the chart above is required:

(400) Sum of percentages of proximity chart.

	Akwá	Tòhú	Likwála
Akwá		29,83%	26,23%
Tòhú	29,83%		40,00%
Likwála	26,23%	40,00%	
Sum total	56,06%	69,83%	66,23%

The sum of percentages of proximity above allow calculating the percentage of hierarchy among Akwá, Tòhú and Likwála. In addition, the following elements are required:

- Number of comparison $NC = NDC - 1 \rightarrow 3 - 1 = 2$
- Maximal percentage $MP = 100\%$
- Maximal sum of percentage $MSP = NC \times MP \rightarrow 2 \times 100 = 200$

On the basis of the elements above, percentages of hierarchy (PH) among the three language varieties under examination can be calculated. As a matter of fact, these percentages determine distances between languages. Likewise, these percentages are calculated thanks to the following formula.

- Percentage of Hierarchy $PH = SP \times MP / MSP \rightarrow SP \times 100 / 200$

Therefore, calculations of the percentages of hierarchy provide the following:

- Akwá: $PH = 56,06 \times 100 / 200 = 28,03\%$
- Tòhú: $PH = 69,83 \times 100 / 200 = 34,91\%$
- Likwála: $PH = 66,23 \times 100 / 200 = 33,11\%$

Percentages of hierarchy above can be represented in the chart as hereafter:

(401) Percentages of hierarchy chart.

Language	SP	PH
Tòhú	69,83%	34,91%
Likwála	66,23%	33,11%
Akwá	56,06%	28,03%
Sum total=96,05%		

It results from the percentages of hierarchy above that Tòhú dialect (34,91%) is the most intelligible among the three speeches, followed by Likwála dialect (33,11%) and finally Akwá dialect (28,03%). Simply put, under the hierarchy of intelligibility, speaker-hearers of Tòhú understand the two others than their speaker-hearers. Then come Likwála and Akwá respectively. This phenomenon is frequent in most chain of dialects in a geographical area. Interestingly, Chambers and Trudgill (2004:5) elucidate the fact in these terms:

The effect of this may therefore be, if the distance involved is large enough, that (if we arrange villages along our route in geographical order) while speakers from village A understand people from village B very well and those from village F quite well, they may understand village M speech only with considerable difficulty, and that of village Z not at all. Villagers from M, on the other hand, will probably understand village F speech quite well, and villagers from A and Z only with difficulty. In other words, dialects on the outer edges of the geographical area may not be mutually intelligible, but they will be linked by a chain of mutual intelligibility.

In this connection, the issue remains to determine whether the three language varieties under comparison are dialects of the same language, three distinct languages of the same group or families in the same set. Likewise, the calculation of the partition index (PI) is required. In fact, the PI refers to an average that each of the three language varieties under comparison should reach as to be claimed dialect. Therefore, to point out the PI, the following elements are needed:

-Maximal sum of the percentage of hierarchy (MSPH)

MSPH= $NDC \times 100 \rightarrow 3 \times 100 = 300$

-Maximal percentage (MP)= 100%

-Sum of percentage of hierarchy (SPH)= 96,05%

Thanks to the elements above, the partition index (PI) can be calculated as follows:

-PI= $SPH \times MP / MSPH \rightarrow 96,05 \times 100 / 300 = 32,01\%$

As can be seen, the partition index rises to 32,01%. Based on results of percentages of hierarchy in (506), it appears that Tóhú PI= 34,91% and Likwála PI=33,11% are claimed dialects since they exceed the index established. However, Akwá PI=28,03%, does not reach the required index, failing near about 3,38%. According to Mous and Breedveld (1986:48), Akwá not reaching this index would be disregarded as a dialect. However, Nerbonne and Wieling (2014:25) state that: '*Dialectometry has made significant progress in developing techniques for identifying the most important (diagnostic) individual linguistic items underlying aggregate dialect variation*'. Under those circumstances, Grieve and al. (2011:25), argues that a 3,38% markdown is not enough to unrelate dialects while they have a common lexical background with sums of percentages of proximity (SP) beyond 50%. As such, the following chart recalls the SP of the three language varieties under comparison:

(402)Sum of percentages of proximity chart.

	Akwá	Tóhú	Likwála
Akwá		29,83%	26,23%
Tóhú	29,83%		40,00%
Likwála	26,23%	40,00%	
Sum total	56,06%	69,83%	66,23%

As can be seen, the sum of the percentages of proximity of the three language varieties under scrutiny amount to more than 50%. As such, it comes out that Akwá, Tóhú and Likwála descend from a single proto-language. However, based on Crowley (1995:175)' strata, to recall:

Level of sub-grouping	Percentage of shared matches in the basic vocabulary
dialects of the same language	(81-100%)
Language of the same family	(36-81%)
Families in the same set	(12-36%)

On the basis of the intervals above, the scale of percentages of similarity among the three language varieties under examination provide the following interpretation:

-Tóhú and Likwála: 40,00%, they are claimed two distinct languages of the same family.

-Akwá and Tóhú: 29,83%, they are declared Families in the same set.

-Akwá and Likwála: 26,23% are claimed Families in the same set

-Akwá, Tóhú and Likwála have a common lexical background.

-They belong to the same linguistic set.

This study elucidates types of linguistic kinships among C20 group languages in general, between Akwá, Tóhú and Likwála in particular. It results that the degree of intercomprehension among the three language varieties under comparison depends on the types of linguistic relationships they have. Nevertheless, it pinpoints from the percentages of hierarchy that Tóhú dialect is the most intelligible among the three dialects. This accounts for its geographical location in the interval between Akwá area and Likwála area. Moreover, speaker-hearers of Tóhú share some common villages with speaker-hearers of Akwá such as Ibándza village in the north, and others with speaker-hearers of Likwála such as Nganda I village in the south. In this respect, Chambers and Trudgill (2004:5) states that:

There are many parts of the world where, if we examine dialects spoken by people in rural areas, we find the following type of situation. If we travel from village to village, in a particular direction, we notice linguistic differences which distinguish one village from another. Sometimes these differences will be larger, sometimes smaller, but they will be cumulative.

Accordingly, the evidence proves that in the chain of dialects in a geographical area the degree of intercomprehension varies regarding distances which separate them. Sometimes, these differences will be larger, sometimes smaller. Indeed, the three language varieties under comparison are spoken all along the river Likouala-Mossaka in the Cuvette department. From upriver to downriver, one should first cross the Akwá area, then Tóhú area and finally Likwála area. Hence, they are accounted for as dialect continuum. To quote Campbell and Mixco (2008:43)

Dialect continuum also called dialect chain: a group of geographically contiguous dialects in which the dialect traits that separate those that are in direct contact are fewer but increase in number and complexity with an increase in distance. Thus, in a dialect continuum, neighboring dialects are mutually intelligible to a high degree.

Simply put, the degree of intercomprehension in the chain dialects in a geographical area has never constant. As mentioned above, sometimes these differences will be larger, sometimes smaller, but they will be cumulative. Therefore, Dimmendaal (2011:164) opines:

There are numerous ideas about what causes languages to diversify involving, for example, migration, war and conquest, trade, geographical isolation, cessation of communication, social and economic organization (e.g. mounted warriors with expansionist proclivities, militaristic patriarchies), linguistically-marked group identity entailing rights to resources, technological advantage (in, for example, food production, herding, navigation, metallurgy, military organization), various religious notions,

Accordingly, reasons advocated by Dimmendaal constitute the main cause that scatter groups of people in a given geographical area. However, the scattering lead a group of people to settle a new land, may be already settled by another group of people using another language. In that case, if they set agreements of settlement, this contact in the course of age may evolve a kind of variety that the degree of intelligibility will either be partial or total with the linguistic set of contacted languages. The reason why the degree of intercomprehension among language varieties within a group of languages varies regarding types of linguistic relationships they have. One can imagine a tree, its branches represent different language families, and the leaves represent different languages and languages emerge dialects. Nevertheless, by tracing these branches back, one can arrive at larger branches that eventually lead to the main trunk of this tree into which all of the language or from which all of the language families have derived. Ndongo Ibara (2018:21) provides an interesting example that: *'La langue est comparable à une armée qui a différents corps qui ont chacun des particularités quant à leurs formes d'identification et missions'*.⁹ Simply put, the hierarchy of intercomprehension among dialects in a geographical area varies regarding what each dialect encountered in the course of its development, but they remain varieties of the same language. Therefore, on the basis of Ndongo Ibara (2018)'s rewriting of Bantu languages classification, I suggest a new classification of Embósi language including Tóhú dialect as hereafter:

⁹Language is comparable to an army that has different branches, each of them has its own particularities in terms of forms of identification and missions.

(403) Ndongo Ibara (2018)'s
Rewriting Classification

My New Suggestion of Embósi Language Classification	
Language	Dialectal Varieties
Embósi	Akwá
	Koyó
	Embósi
	Ngáre
	Mboxo
	Tóhú
	Likwála
Embósi	Likuba

As can be seen, Ndongo Ibara (2018) concerns with the rewriting of the Bantu languages classification pattern, in particular within the group Mbochi C20 of the Zone C. After questioning the terms « *Group* » and « *Language* » used by Guthrie, he suggests a new classification pattern by substituting the term “*Group*” by “**Language**” and “*Language*” by “**Dialect**”. In the same perspective, this research work finds out an additional dialectal varieties **Tóhú** that completes **Embósi** C20 languages.

Conclusion

In the light of lexico-statistical method put forward by Mous and Breedveld (1986) for African languages, updated with synchronic studies provides percentages of proximity, we succeeded to determine the types of relationships that Akwá, Tóhú, and Likwála have within the Group C20. Nevertheless, the results of the percentages of proximity are interpreted on the basis of Crowley (1995, p.170) which stratifies that percentages of proximity between dialects of the same language should vary between 81% and 100%; languages of the same family between 36% and 81%, while families in the same set between 12% and 36%. Consequently, it comes out from this study that the percentage of intercomprehension between Tóhú and Likwála amounts to 40,00%; they are claimed two distinct languages of the same family. Next, the percentage of the proximity between Akwá and Tóhú raises to 29,83%, whereas between Akwá and Likwála amounts to 26,23%; they are declared families in the same set. On balance, Akwá, Tóhú and Likwála have a common lexical background and they belong to the same linguistic set.

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