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The Consonant That Dies So That Vowels Are Born In Kabiyè

[1]Tchaa PALI✣ [2]Essobozouwè AWIZOBA♣
[1]University of Kara, Togo
[2]University of Kara, Togo
*Corresponding Author:[1]Tchaa PALI

ABSTRACT:- There are phenomena in the Kabiyè vowel system that still require attention in the present era, when the theorization of the phonology of the language is very advanced and the results are of a rather remarkable level of description. Indeed, there are back vowels whose unstable behavior crucially poses the problem of their origin. The present study has explored the phenomenon from a diachronic perspective by using the rules of phonetic evolution of language. The analysis shows that the back stroke of the reduced soft velar consonant influences the neighboring vowels to modify their features.

Keywords: non-rounded back vowels, diachrony, Kabiyè, fusion, morphemic vowel

Résumé
Il est des phénomènes qui, dans le système vocalique du kabiyè, nécessitent que l'on s'y attarde encore à l'ère actuelle où la théorisation de la phonologie de la langue est très avancée et les résultats, d'un niveau de description assez remarquable. En effet, il existe des voyelles postérieures dont le comportement instable pose crucialement la problématique de leur origine. La présente étude a exploré le phénomène dans une perspective diachronique en mettant à contribution les règles de l'évolution phonétique de la langue. De l'analyse, il ressort que le trait postérieur de la consonne vélaire qui s'amuït influe sur les voyelles avoisinantes pour en modifier les traits.
Mots clés : voyelles postérieures non-arrondies, diachronie, kabiyè, fusion, voyelle morphémique

I.   INTRODUCTION

One of the guarantees of the stability of the language is its immutability. However, there are phenomena that are akin to a violation of this principle, such as phonetic/phonological change, which in most cases has a significant influence on other language systems. The present study examines the vowel system of Kabiyè, which is characterized by the presence of phonic units whose status and properties need to be elucidated. Indeed, the back, non-rounded vowels in this language are presented as the result of a morphological process. It is therefore a question of unveiling their real origin and the process by which their actualization was made possible. To do so, we rely on data reflecting their occurrence in the speech chain among native speakers. The approach is diachronic and follows the approach of T. Crowley (1992) who, starting from the observation that all languages are susceptible to change, develops a typology of phonetic-phonological changes highlighting the situations that can be faced: (i) the phonetic change involving the phonological change, (ii) the phonetic change that does not involve the phonological change, and (iii) the phonetic change without the phonological change. The author has particularly focused on the process of fusion as a diachronic mechanism that we use as a crutch in this study. The data analyzed are made up of lexical and morphosyntactic units. They were collected from ideal native speakers, in the Chomskyan sense of the term, in Kara (North Togo).

✣ Laboratoire des Recherches et Etudes en Linguistique, Psychologie et Sociétés (LaRELiPS), Université de Kara-Togo.

♣ Laboratoire Langues, littérature et Développement (LaLD), Université de Kara-Togo.

1. Inventory of works on the vocalic system of Kabiyè

The work on the phonology of Kabiyè gives an account of the system of functioning of consonants and vowels, from a general point of view. On the vowel level in particular, almost all researchers agree that Kabiyè is a language with vowel harmony based on the ATR[1] trait. But beyond this, there are also differences such as the opposing views on the phonological status of a fringe of short and long vowels and on the phonological properties of the non-rounded back vowels between K. K. Lébikaza (1999) and M. C. Padayodi (2010). The positions of the two authors are summarized in subsections 1.1. and 1.2. below for illustrative purposes.

1.1.   The vocal system of Kabiyè according to K. K. Lébikaza

K. K. Lébikaza (1999) notes that Kabiyè has a vowel system consisting of 18 phonetic joints (Chart 1), 09 vowel phonemes and one semi-vowel (Chart 2).

Chart 1: Vowel Phonetic Inventory

	Front		Back	
	NR[2]	R[3]	NR	R
Close	i	y	ɥ	u
	ɪ	Y	ɯ	ʋ
	e	ø	ɤ	o
Med	ɛ	œ	ʌ	ɔ
Open	a		ɑ	

Source: K. K. Lébikaza (1999: 39).

Chart 2: Vowel Phonemes

	+ ATR		Semi-vowel	- ATR	
	Front	Back		Front	Back
Close	i	u		ɪ	ʋ
Mid	e	o		ɛ	ɔ
Open				a	
			ɣ		

Source: K. K. Lébikaza (1999: 63), rearranged according to rounded and front features.

In addition to oral vowels, the author identified nasalized vowels as well as long vowels on the margins of short vowels that are not phonologically attested.

1.2.   The vocal system of Kabiyè according to M. C. Padayodi

M. C. Padayodi (2010)'s description is critical of K. K. Lébikaza (1999). In her analysis, the author identifies 55 phonetic realizations:
-        18 short phonetic realizations called basic;

Chart 3: Basic Vocal Sounds

	+ ATR				- ATR			
	Front		Back		Front		Back	
Close	i	y	ɥ	u	ɪ	Y	ɯ	ʋ
Mid	e	ø	ɤ	o	ɛ	œ	ʌ	ɔ
Open					a		ɑ	

Source: M. C. Padayodi (2010: 183).

-        9 long duration vowels;

Chart 4: Long vowel sounds

	+ ATR		- ATR	
	Front	Back	Front	Back
Close	ii	uu	ɪɪ	ʋʋ
Midium	ee	oo	ɛɛ	ɔɔ
Open			aa	

Source: M. C. Padayodi (2010: 191).

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[1] ATR: Advanced Tongue Root.

[2] NR: Non-rounded.

[3] R: Rounded.

- 9 Extra-long duration vowels ;

Chart 5: Extra-long vowel sounds

	+ ATR		- ATR	
	Front	Back	Front	Back
Close	iii	uuu	ɯɯ	ʊʊʊ
Midium	eee	ooo	ɛɛɛ	ɔɔɔ
Open			aaa	

Source: M. C. Padayodi (2010: 191).

- 19 diphtongs ;

Chart 6: Diphtongs

+ ATR					- ATR				
iɥ	iu	ui			ɯ	ɯʊ	ʊɪ		
eɤ	ou	eu	ei	oi	ɛʌ	ɛʊ	ɔʊ	ɛɪ	ɔɪ
aɑ	aʊ	aɪ							

Source: M. C. Padayodi (2010: 192, ss).

Unlike K. K. Lébikaza (1999), M. C. Padayodi (2010) finds 19 vowel phonemes including the archiphoneme /K/.

Chart 7: Vowel phonemes

	+ ATR				vowel archiphoneme	- ATR			
	Front		Back			Front		Back	
Close	i	ii	u	uu		ɪ	ɪɪ	ʊ	ʊʊ
Midium	e	ee	o	oo		ɛ	ɛɛ	ɔ	ɔɔ
Open						a	aa		
					K				

Source: Padayodi (2010: 233)

From this chart it can be seen that not only are vowel phonemes established in terms of a double opposition of short vowels vs. long vowels and stroke vowels +ATR vs. stroke -ATR, but also a consonant /K/ is identified as an archiphoneme belonging to the vowel system. Moreover, in his logic, and at the antipodes of the theses of K. K. Lébikaza (1999), M. C. Padayodi (2010) considers that long vowels are phonemes. Such a point of view may seem truly debatable with regard to the properties of long vowels in Kabiyè. However, the present study does not take into account vowel duration.

The inventory of the above-mentioned works brings up again, among other things, the question of non-round back vowels, which is of fundamental interest to us in this study. In the perspective of an adequate explanation of their status, we cannot fail to imply the determination of the phonological properties of the consonant /k/ with which the said vowels have a close relationship, which would have motivated M. C. Padayodi to include it in his work as a vowel archiphoneme. What is really the case?

## II.   PHONOLOGICAL STATUS OF THE DEAF VELAR STOP /K/ IN THE KABIYÈ LITERATURE

The deaf velar consonant /k/ is considered a consonant phoneme (K. K. Lébikaza (1999), (M. C. Padayodi, 2010)) and a vowel archiphoneme (M. C. Padayodi, 2010). This double treatment by the latter author is, to say the least, most intriguing that we consider in section 2.2.

2.1. /k/ as a phoneme
According to J. Delord (1976) and K. K. Lébikaza (1999), the consonant /k/ synchronously has phoneme status. In its actualization, it is displayed with the [-Sound] stroke at the word initial position ((1.a)-(2.a)), while in the middle position it becomes [+Sound] ((1.b)-(2.b)).

(1.a) **k**íɾe   "front"
(1.b) tí**g**íɾe   "foundation"
(2.a) **k**átɯʊ   "to meet"
(2.b) ʈí**g**átɩyɛ   "meeting place"

If the above data are reliable, then the following phonological rule can be deduced:

/k/ → [k]/ -
/k/ → [g] Elsewhere
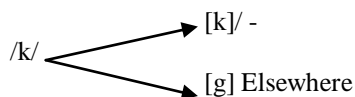
This rule is so generic that it will be reconsidered in section 3.

2.2. Consonant /k/ as archiphoneme

M. C. Padayodi (2010) attributes the status of phoneme to /k/ on the one hand and vowel archiphoneme on the other hand. According to the author, as a consonant phoneme, /k/ is opposed to /g/ which is also a phoneme. Her hypothesis is based on data such as those below in (3.a)-(3.c) which illustrate the updating of [k] in both initial and median, contrary to the rule induced by the data presented in 2.1. above.

(3.a) kɩjakʊ   "market"
(3.b) ʈɔkʊ́   "basket"
(3.c) kíwɛɛkím   "sin"

Coherently, M. C. Padayodi's hypothesis seems to be well-founded if one starts from the data she presents in her arguments. But it does not call into question the occurrences that reserve the [-Sound] feature for the initial and [+Sound] for the median. How can the reconciliation of the two points of view make it possible to describe velar occlusives in Kabiyè in an optimal way? An answer to such a question would seem hasty, since it requires an investment that would allow us to re-examine the phonological system of Kabiyè, a task that will be the subject of a later study.

According to M. C. Padayodi (idem), as a vowel archiphoneme, /K/ is at the origin of a number of vowels, particularly [ɥ, ɯ, ɤ, ʌ, ɑ], but also other later vowels such as [u, ʊ, o, ɔ]. In K. K. Lébikaza (1999), these vowels correspond respectively to the realizations [iɣ, ɩɣ, eɣ, ɛɣ, aɣ], each resulting from the combination of the phonemes /i, ɩ, e, ɛ, a/ with the semi-vowel /ɣ/. In the following chart are the representations of each of the two authors of the same vowels.

Chart 8: Representation of non-rounded back vowels

K. K. Lébikaza (1999)	M. C. Padayodi (2010)
iɣ	ɥ
ɩɣ	ɯ
eɣ	ɤ
ɛɣ	ʌ
aɣ	ɑ

Source: Synthesis made by Pali & Awizoba based on K. K. Lébikaza (1999) and M. C. Padayodi (2010).

The discrepancies seem obvious, at least in the representation of vowel realizations. However, the fact that M. C. Padayodi considers /k/ as an archiphoneme of vowels [ɥ, ɯ, ɤ, ʌ, ɑ] brings her closer to K. K. Lébikaza and vice versa. Indeed, if the author puts forward the hypothesis of the archiphoneme /K/, which is realized in the manner of the non-rounded back vowels, it is an implicit recognition that each of them is first and foremost a front vowel before being influenced by the consonant /k/ [+Back]. Similarly, K. K. Lébikaza's representation is consistent with M. C. Padayodi's hypothesis in that his "semi-vowel" /ɣ/ is only the result of the weak of the consonant /k/ as reported by M. C. Padayodi in connection with the results of J. Delord (1976). However, the analysis of the relationship between the identified phonic units remains to be elucidated.

III.   RELATIONSHIP BETWEEN THE PHONIC UNITS INVOLVED IN THE STUDY

The phonic units of interest to us in this study are the front non-rounded vowels, the back non-rounded vowels and the velar occlusive /k/. The aim is, in fact, to show that the front vowels and the back vowels, for example, correspond to each other in terms of their degree of aperture. The relationship between the non-rounded back vowels and the consonant /k/ is based on the place of articulation and the proximity of the phonetic features.

3.1. Front vowels *vs* non-rounded back vowels

The relationship between the front non-rounded vowels and the back non-rounded vowels is a correspondence relationship as long as the harmony based on the degree of aperture is respected in their

arrangement. Because front or back, non-rounded vowels are divided into four degrees of aperture: closed, close-mid, open-mid and open (Chart 6).

Chart 9: Non-rounded front vowels *vs* non-rounded back vowels, depending on the degree of aperture

	Front noun-rounded vowels		Back noun-rounded vowels	
	+ATR	-ATR	+ATR	-ATR
Close	i	ɪ	ɯ	ɯ
Close-mid	e		ɤ	
Open-mid		ɛ		ʌ
Open		a		ɑ

Source: Reconciliation made by Pali & Awizoba base on K. K. Lébikaza (1999) and M. C. Padayodi (2010).

The data in the chart above reveal the existence of a derivability rule that assumes an evolutionary process of certain vowels resulting in other vowels. Hence the need to question the mechanism and direction of this evolution. But before delving deeper into this conjecture, it is important to explore the probable affinities between the consonant /k/ and the back, non-round vowels.

3.2. Non-rounded back vowels *vs* dull velar stop consonant /k/
It is not usual to bring together two sounds of a language that everything seems coherently to oppose. Since a vowel even a back one remains a vowel above all else and as such, it is in the system of sounds at the antipode of consonant realizations, and what is more, of the deaf velar occlusive /k/. To do this, we start from the distributional and phonetic properties of the sounds cited as objects.

- ***Distributional characteristics***
In Kabiyè, the distribution of non-rounded back vowels and the consonant /k/ shows that the consonant /k/ never updates directly after a non-rounded back vowel. This one, on the other hand, is always preceded by another so-called base vowel, which it most often assimilates. This distributional behavior prompted previous authors (J. Delord (1976), K. K. Lébikaza (1999) and M. C. Padayodi (2010)) to postulate that the appearance of the non-rounded vowel is conditioned by a previous environment characterized by the presence of a front vowel.

(4.a) kɛ-ʌ   "being (imperfective aspect)"
(4.b) heɤlím   "wind"
(4.c) káálím   "immature peanut pod"
(4.d) teɤ   "singing"
(4.e) táɑlím   "sorghum must"
(4.f) keɤtíwu   "circumscribe"

From the distributional properties illustrated in the above data ((4.a)-(4.f)) results the assumption that the non-rounded back vowel is a substitute for the deaf velar consonant. This hypothesis is justified by the fact that in Kabiyè the basic syllabic structure is the CV scheme (K. K. Lébikaza (1999), T. Pali (2013), E. Awizoba (2017)). In addition, the feature back that characterizes these vowels is one of the properties of the consonant /k/. However, a question remains because the CV syllabic structure announced as the canonical structure of Kabiyè is not the one illustrated by the data in (4.a)-(4.f) above. The syllabic pattern in (4.a), which is identical to that of the initial syllables in (4.b)-(4.f), is CViVj, Vj being in the case of back and non-rounded features. The occurrence of this sequence of vowels, the second of which is a back stroke, motivates us to postulate a fusion within the syllable CV in which the attack function C, originally assumed by the deaf velar consonant /k/, has transmitted its back stroke V as a function of syllabic nucleus. This feature back V is the one that occupies the position of Vj in the CViVj scheme. This explains the occurrence of non-rounded back stroke vowels inherited from /k/.

- ***Phonetic proximity***
The non-rounded back vowels share a common feature with the consonant /k/: the [+Back] feature. Apart from the articulatory mechanism distinguishing the consonant /k/ from the vowels of interest in this study, the displacement of the organs during the production of all these units follows the same path. The point of articulation of these sounds is the same: the velum.
The observation of the distributional properties of the non-rounded back vowels appears essentially following other so-called base vowels that they assimilate. This leads to the hypothesis of a derivation of the non-rounded back vowels of the consonant /k/, but to demonstrate this, we rely on the diachronic approach,

which allows us to analyze this derivation as an evolution of the language in time, moving it from a state X at a time T1 to a state Y at a time T2.

IV.   DIACHRONIC PROCESS OF THE FORMATION OF NON-ROUNDED BACK VOWELS

In this diachronic approach we favor the hypothesis of change by fusion. However, it seemed necessary to demonstrate the involvement of the consonant /k/ in the formation of the non-rounded back vowels before explaining the process by which the mutation took place.

4.1. Relevance of the role of the dull velar consonant in the occurrence of non-rounded back vowels

The analysis of the affinities between the back, non-rounded vowels and the dull velar consonant /k/ allowed us to postulate that the back feature of the velar occlusive /k/ is responsible for the mutation of the front vowels into back vowels. This hypothesis is based on the principle that a process may have changed the velar occlusive /k/ from a consonant to a vowel. A few morphosyntactic phenomena coupled with a clarification of the diachronic process of the V-shaped CV fusion bring a touch of relevance to this hypothesis.

-        *Morphosyntactic phenomena*

The occurrence in some nominal and verbal roots (such as those in (5.a)-(5.b), infra) of non-rounded back vowels reveals a quasi-systematic phonological curiosity: they always have a long duration. This phonological phenomenon is only the apparent face of the outcome of a process of disintegration of the consonant /k/, attacking an original syllable CV whose nucleus is responsible for the vowel lengthening observed on the surface. Morphophonological mechanisms are also involved.

(5.a) **kpɑɑ**-wʊ	"take"
(5.b) **tʌʌ**-wʊ	"traditional trade tax"
(5.c) **tɤɤ**-nim	"irritating hairs of the baobab fruit"
(5.d) **káájí**-ʊ́	"rainbow"

Consider the verbal root *kpaa*- "take" (5.a). Its unfulfilled form is *kpakɪ-ɯ* [kpakɯ-ɯ]. It shows the front low vowel [a] instead of the back vowel [ɑ]. This leads to the conclusion that the base vowel in this root is [a]. So, how did we get to [ɑ]? The answer is revealed in the structure of this root with the unfulfilled aspect, notably by the appearance of the syllable –kɪ- not actualized in the neutral root[4]. From then on, the basic syllabic structure finds its place again, i.e. CVCV. We deduce from this that the second vowel of the infinitive root comes from the mutation CV -ki- into V. Also, since the result of the mutation gives a vowel, let us consider the onset /k/ as having undergone the process of deletion. Only, a simple reduction would have given the diphthong [ai]; which is not the case. So, what really happened?

The aspectual morphemes provide elements indicating what appears to be a derivation of vowels from the consonant /k/ such as the flexif -kV or from -V (E. Awizoba, 2017) to the unfulfilled aspect.

(6.a) lí-**ɯ**	"dip."
(6.b) lí-**ki**	"swallow"
(6.c) há-**ɑ**	"give"
(6.d) há-**kɪ**	"to be satiated"
(6.e) má-**kɪ**	"knock"
(6.f) má-**ɑ**	"build"
(6.g) té-**ɤ**	"singing"

The apparent formal variation of the flexif of the uncompleted verbs in (6.a)-(6.g) above is only illusory. Indeed, these are varieties of signifiers of the same morpheme, notably –kɪ, the same one we mentioned in the previous paragraph. Under certain pressures, transformations have reduced it to a vowel morpheme (Cf. (6.a), (6.c), (6.f), and (6.g)) according to a process whose illustration can also be seen in the nominal gender markers designating the menu in its singular form. As a reminder, in Kabiyè, the gender marker is reflected on all the linguistic units of lexical or functional categories that refer to the nominal that carries it. Thus, in order to appreciate the deep structure of the gender suffix in the nominal, we refer to the other units that relate to it, as presented in (7.a)-(7d).

(7.a) kémá-**ɑ**   ka-nɛ́   ka-tʊʊzaá
    Straw-Sg Deic-Prox 3Sg-be.straight.Prf
"This straw is straight."

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[4] We call neutral root, the bare lexical base, without flexives of TAM modalities.

(7.b) kɔɔ-**ká**   ka-nɛ́   ka-cɛjaá
  quiver-Sg Deic-Prox 3Sg-be.solid.Prf
"This quiver is solid."
(7.c) koli-**ɑ́**   ka-lɛ́ ka-ɖʊ́   lím
Hook-Sg Deic-Dist 3Sg-set.Prf   water
"This hook fell into the water.''
(7.d) ʈá-**ká**   ka-lɛ́   ka-bɛlaá
wood-Sg Deic-Dist   3Sg-break.Prf
"This wood is broken."

Likewise, as in the data observed in (6.a)-(6.g), two signifier varieties contextually represent the menu-type marker: **-a** and **-ka**. Is the flexif **-a** the result of the evolution of **-ka**, even though this evolution does not seem systematic? This question is imposed on the researcher in front of data such as those presented in (7.a)-(7d) and from which the following rule can be deduced:

-ka   >   -ɑ
                    -ka   >   ka

While the hypothesis of the evolution of -kv into v is justified, it is not complete in all language varieties. A comparison of some data from two varieties of Kabiyè (pʊ́fálí[5] vs kɛwɛɛ́[6]) shows that the flexif of the -kv structure survives in one (pʊ́fálí) while in the other (kɛwɛɛ́) it is practically represented by its -v variant (Chart 7). Pali (2015:92) notes, in a synchronic approach to the morpheme /-ka/ its instability in the varieties of Kabiyè: "/-ka/ shows some signs of formal instability. From one dialectal variety to another, the same morpheme shows a great proliferation of allomorphs: eleven varieties were found for the same significant unit. The variation of signifiers is described as having phonological peculiarities." Moreover, this work confirms the updating of the /-ka/ scheme in pʊ́fálí[7].

Chart 10: Comparison of pʊ́fálí and kɛwɛɛ́

pʊ́fálí (dialect of Pʊ́fálí)	kɛwɛɛ́ (dialect of Kozah)	Glose
há-**ka**	ha-**ɑ**	dog
léé-**ka**	lé-**ɣ**	funeral
ma líí-**kı**	ma lı-**ɯ**	I'm going out
ma líí-**ki**	mlí-**ɰ**	I soak
ma laa-kı	ma lá-**ɑ**	I sacrifice

Source: Made by ourselves from field data.

-     *Fusion causing the phonetic change*
    T. Crowley (1992) theorizes fusion as a process of phonetic change in which "two originally separate sounds become a single sound [...] some of the features of one sound and some of the features of the other sound are taken and a new sound is produced that is different from both, yet also shares some features of both of original sounds. (1992: 46-47). In Kabiyè, the problem of non-rounded back vowels is due to the mutation of the syllabic morpheme -kv into the syllabic morpheme -v with transmission of the stroke [+Back]. The process of this evolution can be represented as follows:

$$\begin{bmatrix} C \\ +Back \\ -Round \end{bmatrix} + \begin{bmatrix} V \\ -Back \\ -Round \end{bmatrix} > \begin{bmatrix} V \\ +Back \\ -Round \end{bmatrix}$$

According to the principle of the direction of change (L. Campbell (1998), C. Sambiéni (2005)), any phonetic change respects a given direction that goes from the articulatory loudest to the weakest sounds. It is therefore easier for a deaf consonant to lose the dull stroke in favor of the sound stroke than the reverse.

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[5] One of the Lamadisi dialects which itself is a variety of Kabiyè spoken in Binah, a locality considered to be the cradle of the Lama peoples. This variety is characterized by its structure which seems older compared to others such as kabiyè (variety spoken in the Kozah).
[6] Kabiye dialect spoken in the Kozah.
[7] Pali (2015) adopts the name Boufalé for pʊ́fálí. We preferred to this official toponym, the phonetic transcription as produced by the speakers.

Similarly, it is easy for an occlusive consonant to weaken to become a fricative and a semi-vowel respectively. On the basis of this principle, we have elaborated rules tracing the mutations of the deaf velar consonant /k/ until its disappearance.

Synchronically, the dull velar occlusive becomes sonorous in intervocalic position, according to the following rule:

/k/ ⟶ [g] / V-V

(8.a) kátʊʋ　　　　　　　"meet"
(8.b) pa-gatáa
　3Pl-se.croiser. Prf
　"They've crossed paths."
(9.a) kesi　　　　　　　"straw"
(9.b) ɲe-**g**ési
Poss2Sg-straw
"your straw"

The mutation can go to a lower level. This explains the occurrence of the semi-vowel [ɣ] inventoried by K. K. Lébikaza (1999).

/k/ ⟶ [ɣ]

(10.a) ɲénéɣa　　　　　　"small plate"
(10.b) haɑnaɣa　　　　　"satiety"

It is important to note, however, that this form is very rare in the Kɛwɛɛ́ variety of the localities where we collected the data analyzed in this study. On the other hand, it is very frequent in the Kʉáŋ variety. Its instability in the varieties of Kabiyè may explain its identification by J. Delord 1976 and K. K. Lébikaza 1999 and its problematic treatment in M. C. Padayodi (2010).

Diachronically, /k/ drops in middle position. It disappears completely, according to the following rule:

-/k/-　　　>　　-ø-

We can deduce from this that the consonant /k/ disappears in a permanent median position, and weakens in an occasional median position. In the weak position, this consonant does not affect the vowels in its immediate environment. On the other hand, when it disappears, its back feature remarkably affects those vowels making them back.

- ***From non-rounded front vowels to non-rounded back vowels***
The complete disappearance of the velar consonant leads to major phenomena in its immediate phonic environment:
- ***the merging of phonetic strokes:*** this is a kind of casting or union between the [+Back] stroke of the disappeared velar consonant and the [+Front] stroke of the subsequent vowel. This process leads to the transformation expressed through the following rule:

$$\begin{bmatrix} V \\ -Back \end{bmatrix} \quad > \quad \begin{bmatrix} V \\ +Back \end{bmatrix}$$

Once the merger has taken place, other phenomena follow, including assimilation and harmonization.

- ***vowel assimilation:*** it is regressive in Kabiyè. As soon as the vowel acquires the [+Back] trait following the disappearance of the velar consonant, it will in turn impose this [+Back] trait on any vowel in its immediate environment, respecting the direction of assimilation, which is always regressive; as a result, we obtain a sequence of two non-rounded back vowels, according to the following rule:
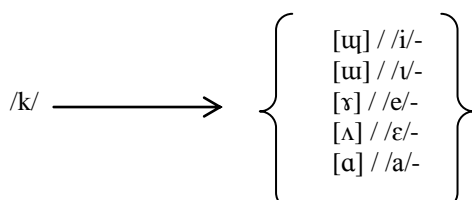
$V_1V_2 > V_2V_2$

- ***vocal harmonization:*** This is the harmonization of the degree of vowel aperture.
The vowel affected by the [+Back] stroke after the /k/ consonant reduction will adapt to the aperture of the vowel to which it transmits its new [+Back] stroke, especially the vowel to its left. Thus, the merging of [k] and [i] can lead to the same result as the merging of [k] and [a]. In the names *léɣ* [lé-ɑ] "funeral" and *háa* [há-ɑ]

"dog", it is the vowel of the root that forces the vowel [ɑ] resulting from the fusion mutation to harmonize according to its degree of aperture mid-high [ɤ] or low [ɑ].

- ***Status of the non-rounded back vowels***

We do not repeat in this study the systematic phonological analysis of the non-rounded back vowels. The aim is to express our point of view on their status in Kabiyè, based on data collected in the field and in view of the divergent treatments reserved for them in the literature. They do not have the status of phonemes, nor are they allophones of the same phoneme. What they have in common is that they are back, but they are specific to the environment in which they are updated. K. K. Lébikaza (1999)'s choice to use a representation using the semi-vowel /ɣ/ makes their mode of articulation indisputable, but does not reflect their status or origin. But it seems more unlikely to us to postulate, as M. C. Padayodi (2010) does, a theorization that derives from vowels a consonant that would be an archiphoneme, as shown below:

$$/k/ \longrightarrow \begin{cases} [ɥ] \ / \ /i/\text{-} \\ [ɯ] \ / \ /ɪ/\text{-} \\ [ɤ] \ / \ /e/\text{-} \\ [ʌ] \ / \ /ɛ/\text{-} \\ [ɑ] \ / \ /a/\text{-} \end{cases}$$

In fact, the inevitability of their status stems from their morphophonological origin which makes them aspecto-temporal morphemic vowels (12.a)-(12.b) or even nominal genus markers (11.a)-(11.b). In doing so, they house many different processes. As a result, we treat them as vowel sounds with no relevant phonological range in Kabiyè.

(11.a) ha-**ɑ** / ha-sɪ   "dog"
(11.a) le-**ɤ** / le-si   "funeral"
(12.a) ma-lɪ-ɯ   "I'm going out"
(12.b) ma-ma-**ɑ**   "I build"

We are part of the approach of Z. Tchagbalé (1982) which calls for breaking the boundary between phonology and morphology. Morphological unity is not necessarily the result of a combination of distinctive units. It can be the result of this as it could correspond to a distinctive unit. It is also not excluded that it is the result of the fusion of phonic units.

V.   CONCLUSION

We set out to revisit the vocal system of Kabiyè, paying particular attention to the non-rounded back vowels, whose occurrence poses the problem of their origin and phonological status in the language. The analysis is based on the diachronic approach and particularly on the principle of phonetic fusion from the strongest articulatory sound to the weakest one. The results obtained show that the back non-rounded vowels are not only the result of the fusion of the occlusive consonant dull velar and the subsequent front non-rounded vowels, but also of a regressive assimilation of the [+Back] stroke coupled with the harmonization of the degree of aperture in the vowel sequence V_1V_2 generated by the reduction of the velar /k/. This result contrasts with those of previous works, especially when it calls into question the hypothesis of a consonant archiphoneme /K/ representing contextually the non-rounded back vowels.

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*Corresponding Author:1Tchaa PALI♣
¹University of Kara, Togo

♣ Laboratoire des Recherches et Etudes en Linguistique, Psychologie et Sociétés (LaRELiPS), Université de Kara-Togo.