

FROM SEMIVOWELS TO ASPIRATION TO LONG CONSONANTS
in Ngyemboon-Bamileke

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The present paper focuses on the phonetic phenomena of "aspirated consonants" reported in various Bamileke languages spoken in Cameroon and on the previously unreported phenomena of long consonants. The particular language used for reference is Ngyemboon-Bamileke in which aspirated consonants are quite frequent. First, the paper examines the exact nature of this "aspiration" and concludes that it can best be described as "homorganic *voiceless* fricative offglides". Discussion then follows on the four semivowels, any one of which can occur between syllable-initial consonants and vowels, and their function in conditioning the presence of the aspiration, that is, these predictable offglides. The paper goes on to examine the previously unreported phenomena of "long consonants". By examining the distribution of the semivowels and the long consonants, it is found that these long consonants come from underlying voiceless fricatives before a semivowel. An additional voiceless fricative, that is, the offglide, is then generated before the conditioning semivowel is deleted. This simplifies the phonology by eliminating the need for long consonants on the underlying phonological level. The paper posits in conclusion that this kind of "consonant aspiration" is a characteristic property of the Bamileke language sub-family, contrasting it with all other Grassfields Bantu languages.

Le présent article traite des phénomènes phonétiques des "consonnes aspirées" relevés dans diverses langues bamileke du Cameroun et des phénomènes, jusqu'ici non-relevés, des consonnes longues. La langue de référence utilisée ici est le bamileke-nyemboon où l'on trouve assez fréquemment des consonnes aspirées. L'article commence par une étude de la nature exacte de "l'aspiration" qu'il semble finalement satisfaisant de décrire comme un relâchement fricatif sourd homorganique. Suit une discussion des quatre semi-voyelles qui toutes peuvent apparaître entre une consonne à l'initiale de syllabe et une voyelle et de leur rôle dans le conditionnement de la présence de l'aspiration, c'est-à-dire de ces relâchements que l'on peut prédire. Ensuite

l'article traite des phénomènes des consonnes longues, non-relevés jusqu'ici. En cherchant la distribution des semi-voyelles et des consonnes longues, on constate que ces consonnes longues viennent de fricatives sourdes sous-jacentes devant une semi-voyelle. Une fricative sourde supplémentaire est créée avant que la semi-voyelle conditionnant cette création ne s'efface. Ceci simplifie la phonologie en supprimant les consonnes longues au niveau phonologique sous-jacent. En conclusion on pose que cette sorte d'aspiration des consonnes est une caractéristique du sous-groupe linguistique bamileke qui distingue ce sous-groupe de toutes les autres langues du bantou des grassfields.

1.0. Introduction

The aim of this article¹ is to examine the nature of semi-vowels in Ngyembɔɔn-Bamileke² and to note their rôle in conditioning consonant "aspiration" and thereby long consonants. Although the phonetic phenomena of semivowels and "aspiration" have been duly noted in various Bamileke languages, both the exact nature of this "aspiration" and its various conditioning factors have often been a source of confusion. This paper attempts to explain both, as well as to show the rôle of each in conditioning the previously unreported phenomena of long consonants.

The following inventory of Ngyembɔɔn consonants and vowels is taken from the phonology (Anderson, 1976, pp. 98 and 112 respectively):

<u>Consonants</u>			<u>Vowels</u>		
	t	k	i		u
b	d	g	e		o
m	n	ŋ	ɛ	a	ɔ
pf	ts				
f	s				
v	z				
w	y				

It should be noted that several phonological processes produce a wide variety of phonetic realizations for the various units charted above (several variations appear in a phonetic chart below).

2.0. Semivowels

The semivowels which are in focus in this paper are those which occur between the syllable-initial consonant and the vowel. These specific semivowels have been previously explained as being the product of the interaction of two major prosodies, palatalization and labialization (Anderson, 1976, pp. 38-54). For the purpose of theoretical neutrality, however, we shall simply describe them here as possible realizations of a semivowel position (labelled S) within the basic syllable, as below:

C (S) V (C)

The preceding formula indicate the relative positions of the obligatory syllable-initial consonant and vowel, as well as the optional semivowel and syllable-final consonant.

Whereas only the two semivowels y and w can occur in the syllable-initial consonant position, four different semivowels can occupy the S position (more than reported for any other Bamileke language). These four phonetic possibilities are the following:

- y : spread front semivowel
- ÿ : rounded front semivowel
- w : spread back semivowel
- w : rounded back semivowel

There exist a few minor restrictions on which consonants can immediately precede the various semivowels. For example, the semivowel y never follows labio-dentals (f, v and pf). The semivowel ÿ never follows the same labio-dentals, nor the bilabials (p, b and m). The semivowels w and w, on the other hand, follow almost any consonant.

The restrictions between semivowels and the vowels which follow them are more significant, as shown in the following chart:

<u>Semivowel</u>	<u>w/unrounded V</u>	<u>w/rounded V</u>
y	X	
ÿ	X	
w		X
w	X	X

The preceding chart shows that all of the semivowels except w can precede the non-back unrounded vowels (i, e, ɛ and a). On the

other hand, only the back semivowels w and w̄ can precede the back rounded vowels (u, o and ɔ). The result of this limited distribution is that one could combine the spread back semivowel w with either y or w̄ to form a single phonological unit. For the purposes of this paper, we shall follow the convention adopted in the official orthography for the Ngyembɔɔn language and assign the phonetic realization of w to the y semivowel. Thus, y is realized phonetically as w before back rounded vowels. (An equally valid, though orthographically more complex solution was proposed in the phonology by Anderson, p. 54, where w was assigned to the same "unit" as w̄). An example of each of the semivowels mentioned above is given below:

pyé	'wait'		
t̄w̄e	'clean'		
		fwóɔg	'cold'
pwé	'feeble'	kwó'	'ladder'

3.0. "Aspiration"

The existence of "aspirated consonants" has been documented in several different Bamileke languages. However, several questions remain only partially answered, such as the exact phonetic nature of this phenomenon, its phonological status, and the nature of any phonological rules involved.

The phenomenon in question has been referred to in many different ways. In his work on the central Banjun language, Nissim quotes Thomas referring to these consonants as "aspirated", and Héroult as consonants "followed by a puff of air" (Nissim, 1972, p. 12). Nissim himself goes on to call them "affricates". The most thorough examination of these consonants to date is by Hyman in his examination of the southern Fe'fe language. He quotes Lindau as saying they are "characterized by heavy friction at the place of articulation" (Hyman, 1972, p.23). Hyman goes on to call them consonants with extremely heavy aspiration or even affrication. This comes very close to the point that will be made in this paper, namely that the phenomenon of "aspiration" is characterized by the following qualities:

1. homorganic point of articulation
2. *voiceless* fricative consonant offglide

Thus the whole process could be called "*voiceless* affrication". The *voiceless* quality of this process is crucial, and was missed by Nissim who posited regular affricates where the voicing quality remains the same. The fact is that both voiced and *voiceless* consonants at the same point of articulation receive the same *voiceless* fricative offglide whenever indicated. The reality of this *voiceless* quality will become apparent below.

The exact nature of these homorganic voiceless fricative offglides is shown in the following phonetic³ chart:

<u>Aspirated Consonants</u>						
p Φ	t θ	t θ	kx			
b Φ	d θ	d θ	gx			
	f:	s:	ʃ:			
	vf	zs	ʒʃ	gx		
		ts:	tʃ:			
	bv Φ	dzs	dʒʃ			
	l Φ	l Φ				

The preceding chart contains seven columns which represent, from right to left, the bilabial, labio-dental, dental, alveolar, retroflexed, alveo-palatal and velar points of articulation. The completely homorganic nature of the fricative offglides is shown by their occurring at all the possible points of articulation. The only initial consonant variants which never occur with a fricative offglide are the nasal consonants, the semivowels and the affricate pf.

The preceding chart also shows clearly the voiceless nature of the fricative offglides (even to the point of producing voiceless lateral fricatives). Especially easy to hear are the voiceless fricative offglides which follow voiced fricatives and affricates. More difficult to hear are the lengthening of voiceless fricatives and affricates. However, once one is aware of where the lengthened consonant variants occur, all of the above are clearly discernible.

This brings up the question of the phonological status of such homorganic voiceless fricative offglides. The picture here is quite fuzzy for the Bamileke language group as a whole. Neither Nissim in the Banjun language nor Tadadjeu and Tegomo-Nguetse (hereafter referred to as "T and T-N") in Dschang have found any phonological processes at work. They conclude that "aspiration" is phonologically constrastive in these languages and must be signalled in the orthography (Nissim proposes a complicated orthography including various affricates, while T and T-N choose the more general h to indicate the various predictable possibilities).

Hyman, however, in his work on the Fe'fe' language, did find a phonological process at work. He posited the "aspiration" of syllable-initial consonants when they are followed by a high short vowel in an open syllable (Hyman, 1972, p.23). This is identical to the "aspiration" in Bangangté which is caused by "closed" vowels (Voorhoeve, 1965, pp. 323-324). However, since Hyman goes on to

mention that his rule only applies to "most consonants" (Hyman, 1972, p.33), one wonders if Fe'fe' is not similar to Dschang where "aspiration" also only occurs before short high vowels in open syllables, but where it also contrasts with its absence (Ouamba, personal communication). This throws into question whether or not the phenomenon of "aspiration" is really contrastive at the phonological level or is merely a predictable phonetic characteristic.

At least in the Ngyembɔɔn language, the addition of homorganic voiceless fricative consonant releases is merely a phonetic feature produced by a phonological rule. However, since this rule is not the same as those posited for other Bamileke languages, it leaves open the status of "aspiration" in the group as a whole. Whereas in other Bamileke languages, this phenomenon seems to occur only with high vowels, in Ngyembɔɔn it only occurs with mid vowels, and then only in the presence of an intervening semivowel. Therefore the Ngyembɔɔn rule must contain the following restrictions:

1. open syllable
2. short mid vowel (e or o)
3. presence of semivowel between consonant and vowel

Through examples of these voiceless fricative offglides are very numerous in Ngyembɔɔn, perhaps the most revealing are those with the various front vowels, as below:

<u>without fricative release</u>		<u>with fricative release</u>	
kyé	'jump'	kxyé	'abandon'
kwë	'go out'	kxwë	'take'
ngwë	'seed'	ngxwë	'to laugh'
kwé	'attach'	kxwé	'die'
ngwe	'sleeve'	ngxwé	'dogs'
zwë	'rumble'	zswë	'finish'
swe	'take off'	s:we	'cover'

The preceding examples not only show the addition of the voiceless fricative offglide but they also show how this offglide combines with a previous voiceless fricative consonant to become a phonetically lengthened consonant (indicated by a colon following the consonant). This lengthening of voiceless fricative consonants will become crucial in the next section where we will examine seeming phonological contrast of consonant length.

The preceding examples showed us that the voiceless fricative offglides were present with mid vowels in open syllables. The following examples show that the offglides are not present with the same mid vowels in the presence of a syllable-final consonant:

<u>without fricative release</u>		<u>with fricative release</u>	
kwón	'want, like'	kxwô	'foot'
žwoŋ	'chase'	žšwo	'take off'
zyeen	'wake up'	zsye	'start'
kyeen	'take off skin'	kxyé	'abandon'

4.0. Long Consonants

There exist in Ngyembɔɔn certain pairs of words which seem to show a phonological contrast between short and long consonants, as below:

<u>short consonant</u>		<u>long consonant</u>	
sé	'his'	s:é	'ground or god'
sǒ	'friend'	s:ó	'fish'
fó	'come from'	f:o	'leaf'

There are also words which begin with a voiced fricative or affricate which are then followed by a voiceless fricative, as below:

zse	'follow'	ndzsǒ	'cloth'
zsé	'know'	vfo	'sew'
ndzsê	'path'	vfó	'cooked'
ndzse	'taboo'	mêmbvfó	'goat'

In the light of what we now know about voiceless fricative releases in Ngyembɔɔn, both of the preceding groups of words seem to follow rather closely the required conditions. All of the preceding words not only contain a voiceless fricative in the appropriate place, they also contain open syllables and mid vowels (either e or o), two of the conditions required for producing fricative releases. What they are missing is the intervening semivowel which must also be present in order to trigger the addition of voiceless fricatives.

Since the above words almost seem to fit our system of predictable consonant releases, we must ask ourselves if an underlying semivowel was deleted *after* having triggered the addition of the

voiceless fricatives. In order to answer this question, we must examine the environments in which our "long consonants" occur and compare them with the environments in which the more regular fricative releases occur.

The following chart shows which semivowels and vowels (grouped into front vs. back vowels) co-occur with which consonants:

	<u>Y</u>		<u>W̥</u>		<u>W</u>	
	<u>front</u>	<u>back</u>	<u>front</u>	<u>back</u>	<u>front</u>	<u>back</u>
bilabials	y	w			w	w
labiodentals		w		F	w	w
dentals	y	w	W̥			w
alveolars	y	w	W̥	F	F	w
velars	y	w	W̥		w	w

In the preceding chart, the symbols y, w, W̥ and w stand for the semivowels which occur as the phonetic output before front and back vowels. The symbol F stands for those cases where a fricative release is present in the absence of a semivowel. It thus can be seen that the two systems are in complementary distribution. This allows us to posit an underlying W̥ semivowel before "long consonants" preceding back vowels, and an underlying w semivowel before "long consonants" preceding front vowels. Both of these posited semivowels are then deleted *after* they have triggered the addition of the voiceless fricatives, as in the following examples:

<u>Underlying</u>	<u>w/ vl. fric.</u>	<u>after S-deletion</u>	
/swe/	s:we	s:e	'ground or god'
/zwe/	zswe	zse	'follow'
/fwo/	f:wo	f:o	'leaf'
/vwo/	vfwo	vfo	'sew'
/swo/	s:wo	s:o	'fish'
/nzwo/	ndzswō	ndzso	'cloth'

The preceding discussion seems to show that at some deep (diachronic if not synchronic) level, voiceless fricative releases without accompanying semivowels come from a structure including a semivowel. It is perhaps significant at this point that Ngyemboon speakers found the underlying structure (with semivowel) too abstract for orthographic purposes. They adopted the more transparent orthographic convention of writing an s or an f for voiceless fricative releases when a semivowel is not present. This might indicate that from a current psychological point-of-view, the "long consonants" and other fricative releases without accompanying semivowel are now seen as

separate phonological units. The derivation of these fricative releases from a situation where a semivowel is present would thus be a purely diachronic process.

5.0. Bamileke Characteristic

We have seen above that "aspirated consonants" are found in many (if not all) Bamileke languages. To put these languages into perspective, let us refer to the classification of the GBWG (Grassfields Bantu Working Group) below (from Leroy, 1977, pp. 17-18):

A) Western Grassfields

1. Ring
2. Menchum
3. Widikum
4. Lower Mundani-Njen

B) Mbam-Nkam

1. Nkambe: Limbum, etc.
2. Non: Bamun, etc.
3. Ngemba: Mankon, etc.
4. Bamileke: Bangang, Dschang, Fe'fe', Banjun,
Bangangté

Since we have testified to the presence of homorganic voiceless fricative consonant offglides in each of the Bamileke languages above, one wonders if this phonetic phenomenon is found in any other languages of the Mbam-Nkam subgroup. The Mankon language (spoken not far from Bangang), while having both labialized and palatalized consonants, has nothing resembling aspirated consonants (Leroy, 1977, p. 45). The Limbum language also has both labialized and palatalized consonants. Some of its dialects also have fricative releases (f, v, s and z) of the initial consonant (Fiore, 1977, p. 25). Though the voiceless releases might resemble the releases found in Bamileke languages, the Limbum releases are most often not homorganic with respect to the preceding consonant. Thus it seems that the kind of homorganic voiceless fricative consonant releases described in this paper might very well be a distinctive characteristic of Bamileke languages, separating these languages even from those other languages within the Mbam-Nkam sub-family.

6.0. Conclusion

We have examined the nature and distribution of the numerous semivowels which can occur between consonant and vowel in Ngyemboon.

We have also noted their important rôle in conditioning what has previously been referred to as consonant "aspiration". In examining more closely the exact nature of this "aspiration" in Ngyembɔɔn, we found that it can be more accurately labeled a "homorganic *voiceless* fricative consonant offglide". We then saw that this process is predictable in Ngyembɔɔn, occasionally resulting in phonetically lengthened voiceless fricatives. This in turn gave rise to examining closely similar lengthened consonants which occur in the absence of a conditioning semivowel. By looking at the distribution of these consonant releases, we found that these seemingly phonological long fricatives could also be derived from underlying forms including a semivowel which was then later deleted. Thus, the previously unreported phenomenon of long consonants in a Bamileke language can be traced (synchronically or diachronically) to the rule adding consonant "aspiration". Finally, these modified consonants seem to be a distinctive characteristic of the Bamileke sub-group of languages. These findings should prove helpful to investigators working in other Bamileke languages, as they examine more closely the phenomenon of consonant "aspiration", its phonological status, and its possible rôle in conditioning unusual consonant modifications.

FOOTNOTES

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² The Ngyemboon dialect of the Bamileke language group is spoken in the Northwestern corner of the Western Province of the United Republic of Cameroon. Its approximately 80,000 speakers reside mostly within the Batcham sub-division of the Bamboutes division, and most make their living by cultivating the cash crop of coffee. The Ngyemboon dialect belongs to the Eastern Grassfields sub-division of the Grassfields Bantu language family (see section 5.0. above). The author has been living in the village of Bangang and studying this particular dialect on and off since early 1974.

³ The initial consonant variants found in this chart and not found in the preceding phoneme chart are due to two general phonological rules. The first produces phonetic alternatives p, v, ɓ, z and g when the consonant is word-initial and their respective alternatives b, bv, d, dz and g when the consonant is preceded by a syllabic nasal. The second rule is a backing rule which changes dental and alveolar consonants to their respective retroflexed and alveopalatal alternates when followed by a high back vowel (see Anderson, 1976, pp. 87-115).

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