

# The Bilabial Fricatives in Ewe: Innovation or Retention? \*

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## 0. Abstract

Ewe is usually offered as a classical example of a language with a phonemic contrast between bilabial and labio-dental fricatives. As more and more data have become available on neighboring languages, a Gbe unit has been set up as one of the intermediary nodes between Kwa (ultimately dominated by Niger-Congo via Atlantic-Congo via Volta-Congo) and Ewe, such that it also dominates Fɔn, Gen-Mina, Gun, etc. The obvious question is whether the famous contrast was attested in Proto-Gbe. While exploring alternative views, the present paper argues that there was a contrast between the antecedents of these sounds, but that the bilabial fricatives, as presently attested in Ewe, have been innovated. It also touches upon issues related to the hierarchical representation of features and their contents.

## 1. Introduction

From a typological point of view, the bilabial fricatives [*f*, *v*] are less widely attested than, let us say the bilabial stops; in addition, in most languages that exhibit them, they are usually not distinctive, as they can be derived from the bilabial stops (as in Spanish, see Alarcos 1961) or from the labio-dental fricatives. Yet, right from the earliest description of Ewe, bilabial fricatives have been recognized as phonemic since they contrast with other labials in the language. This peculiar characteristic of Ewe makes one wonder whether it is an areal feature or a genetic one; whatever the answer is, some of our

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\* A first draft of this paper was read at a meeting of the Tuesday Colloquium at the Department of Modern Languages and Linguistics, Cornell University. I am very grateful for comments received at that time, especially from Carol Rosen, Abby Cohn and Nick Clements. Thanks are also due to the Fulbright Foundation for enabling me to spend a year at Cornell as a Scholar-in-Residence (1990-91).

received ideas in typological linguistics may be reconsidered as well as the theoretical apparatus usually proposed to account for them.

Geographically, Ewe is mainly spoken in the southern part of Eastern Ghana (Volta Region) and Togo, yet no other Ghanaian and Togolese language described so far has been reported as having phonemically contrastive bilabial fricatives. Genetically, it has been traditionally classified as a Kwa language: here again, it seems that only some Edoid languages (now classified as Benue-Congo, whereas Ewe remains Kwa: see Elugbe 1989, and Williamson 1989a) have the bilabial fricatives and apparently not from the same sources. In recent times, however, it has been forcefully argued that Ewe has very closely related neighbors such as Fɔ̀n, Gen, Gun, together with which it constitutes a Gbe node, an idea which was taken for granted in earlier accounts where "Ewe" was actually used as synonymous of Gbe even though only Ewe was described. Even here, the bilabial fricatives do not characterise Gbe as a whole (contrary to the impression given in earlier descriptions of "Ewe"), but only the Vhe section, made up of standard Ewe, Awlan, Pecí, Wací, Kpándo, etc. In fact Capo (1981 and 1988) crucially uses phonological evidence to suggest an internal classification of the Gbe lects as summarized in (1).

(1) An internal classification of Gbe lects:

- Vhe dialects:
- \*e and \*ɛ > e/ɛ/ə
  - \*tʰ > t, and \*dʰ > d
  - \*ɸʷ > v, and \*χʷ > f
  - \*Hʷ > w

(Ewe, Awlan, Pecí, Wací, Kpándo etc.)

- Gen dialects:
- \*e and \*ɛ > e
  - \*dʰ > d, and \*tʰ > t
  - \*tˢ > s, and \*dˢ > z
  - \*χʷ > p
  - \*Hʷ > w/ɸʷ

(Gē-Mina, Anexo, Agoi)

- Ajá dialects:
- \*e and \*ε > e
  - \*d<sup>h</sup> > d, and \*t<sup>h</sup> > t
  - \*t<sup>s</sup> > s, and \*d<sup>z</sup> > z
  - \*t > tʃ, and \*d > dʒ /\_u, ũ
  - \*H<sup>w</sup> > w
  - \*āi > īī, and \*ōi > ūī

(Aja, Stádó, Hwe, Dogbó, etc.)

- Fon dialects:
- \*t<sup>s</sup> > s, and \*d<sup>z</sup> > z
  - \*t<sup>h</sup> > s, and \*d<sup>h</sup> > z
  - \*H<sup>w</sup> > ɸ<sup>w</sup>
  - only two nominal prefixes (at most)

(Fɔn, Gun, Agbóme, Maxí, etc.)

- Phla-Pherá d.:
- \*t<sup>s</sup> > s, and \*d<sup>z</sup> > z
  - \*t<sup>h</sup> > s, and \*d<sup>h</sup> > z
  - \*H<sup>w</sup> > ɸ<sup>w</sup>
  - more than two nominal prefixes

(Tɔli, Tɔfin, Phla, Ayizɔ, etc.)

The major question addressed in this paper is whether, given the synchronic situation in the Gbe chain, one can reconstruct the bilabial fricatives in Proto-Gbe, or whether they have been innovated in the Vhe section, as suggested in (1). Our discussion starts with the relevant data (§2), then considers the alternative hypotheses (§3), and presents additional evidence for our preferred hypothesis (§4) before highlighting the implications of our conclusion for feature geometry (§5).

## 2. Relevant Data

Let us start with a survey of the labial consonants in Gbe. By labiality, we here refer to the participation of at least one lip in the production of the sound: thus labial consonants include the bilabials, labio-dentals, labial velars and "labialized" consonants attested in stems. An inventory of Gbe labial consonants is thus presented in (2).



(b) 5.	vu	ʋũ	ʋũ	ʋũ	ʋũ	'open'
6.	fú	pú	χú	χú	χú	'swim'
7.	fo	po	χo	χo	χo	'beat'
8.	-ʋɔ	ɛʋ̄	ɛʋ̄	-ʋ̄	-ʋ̄	'door'

Given the fact that in (4b), Vhe *f*, *v* correspond to *χ*, *ʋ* in Ajá, Fon and Phla-Pherá dialects, it becomes necessary to show that *χ* and *ʋ* are common to all Gbe lects, although not in the items illustrated in (4); this is done in (5), where these sounds occur before rounded (5b) as well as non-rounded (5a) vowels.

(5) Back (velar/uvular) fricatives in all Gbe lects:

	<u>Vhe</u>	<u>Gen</u>	<u>Ajá</u>	<u>Fon</u>	<u>Ph-Ph</u>	<u>gloss</u>
(a) 1.	aχa	aχa	aχa	aχa	aχa	'rib'
2.	aχa	aχ̄	aχ̄	aχ̄	aχ̄	'drink, n.'
3.	χe(ví)	χeví	χeví	χe	χe	'bird'
4.	χe	χ̄	χ̄	χ̄	χ̄	'breed'
(b) 5.	-χɔ	ɛχɔ	ɛχɔ	-χɔ	-χɔ	'hut'
6.	χo	χo	χ̄	χ̄	χo	'uproot'
7.	-χó	ɛχó	ɛχó	χó	-χó	'history'
8.	χũ	χũ	χũ	χũ	χũ	'mystery'
9.	aχ̄	aχ̄	aχ̄	aχ̄	aχ̄	'navel'

Given the fact that in (4) we established a correspondence series *f*, *v* : *χ*<sup>w</sup>, *ʋ*<sup>w</sup>, it would be good to establish the monophonemic status of *χ*<sup>w</sup> and *ʋ*<sup>w</sup> in the lects in which they occur; this is all the more necessary since in (4a) we have *χ*<sup>w</sup>, *ʋ*<sup>w</sup>, but in (4b) *χ*, *ʋ* in the same lects. We do this by shifting our attention to Gun, a Fon dialect, for which we present data in (6), using two arguments: the fact that *χ*<sup>w</sup> and *ʋ*<sup>w</sup> occur in most grammatical categories (6a), and their behavior in reduplication (6b): for details see (Capo 1978).

## (6) Back labialized fricatives in Fon, Ajá and Phla-Pherá dialects:

Gun as an example to show their monophonemicity

## (a) grammatical categories and the presence of /a, ā/

- |                                |                                  |
|--------------------------------|----------------------------------|
| 1. χ <sup>w</sup> e 'go'       | 5. χ <sup>w</sup> lé 'plane, v.' |
| 2. ɸ <sup>w</sup> e 'be small' | 6. ɸ <sup>w</sup> lé 'save'      |
| 3. aχ <sup>w</sup> á 'outcry'  | 7. χ <sup>w</sup> ì 'line'       |
| 4. ɸ <sup>w</sup> ā 'move'     | 8. -ɸ <sup>w</sup> ε 'judgement' |

## (b) sample of reduplication

	<u>stem</u>	<u>reduplication</u>	<u>gloss</u>
1.	ɸ <sup>w</sup> ā	ɸ <sup>w</sup> īɸ <sup>w</sup> ā	'move'
2.	ɸ <sup>w</sup> e	ɸ <sup>w</sup> īɸ <sup>w</sup> e	'be small'
3.	χ <sup>w</sup> á	χ <sup>w</sup> īχ <sup>w</sup> á	'be half-ripe'
4.	bε	bībε	'hide'
5.	sa	sisa	'sell'
6.	blá	blāblá	'tie'
7.	χyá	χyāχyá	'dry, v.'
8.	gblé	gblēgblé	'spoil'
9.	ɸ <sup>w</sup> lé	ɸ <sup>w</sup> lēɸ <sup>w</sup> lé	'save'

Comparing relevant data in (5) and (6), one realizes that χ<sup>w</sup> and ɸ<sup>w</sup> contrast with χ and ɸ; however, there is a distributional gap in that whereas χ and ɸ occur before both rounded and non-rounded vowels (in all lects), χ<sup>w</sup> and ɸ<sup>w</sup> occur only before non-rounded vowels. In Capo (1981), we have postulated a synchronic rule in Fon, Ajá and Phla-Pherá lects delabializing /χ<sup>w</sup>, ɸ<sup>w</sup>/ before rounded vowels; it appears now that, instead of a P-rule, we must account for this gap by a Morpheme Structure Condition, because a verb like [χo] 'beat', which we interpreted as /χ<sup>w</sup>o/, reduplicates as [χiχo], not [χ<sup>w</sup>iχo] as we would have expected, given the fact that the reduplicative vowel *i* is not an appropriate environment for the delabialization rule. We present the suggested MSC informally as (7).

$$(7) * \left\{ \begin{array}{l} \chi^w \\ \phi^w \end{array} \right\} \left[ \begin{array}{l} V \\ +\text{round} \end{array} \right]$$

### 3. Interpretations

#### 3.1. Guiding Principles

We shall now consider three alternative hypotheses as to the sources of the bilabial fricatives being considered in this paper. Our hypotheses are based on a number of principles outlined in (8).

(8) Some guiding principles:

- (a) There is no majority rule;
- (b) Dialect distribution *per se* is not important;
- (c) Changes must be seen in terms of rules/processes;
- (d) Rules should be evaluated on the basis of plausibility, naturalness, and predictability;
- (e) Pattern congruity may enhance the direction of change;
- (f) Proto-segments may coincide with attested phonemes in at least one daughter language, but they may also not surface in any of the daughter languages.

#### 3.2. First Hypothesis

Suppose that Proto-Gbe had \*p and \*B, or \*'p and 'b (where B stands for an indeterminate voiced bilabial stop, and 'p, 'b stand for lenis bilabial stops), then we would need the diachronic rules in (9) to derive the modern reflexes:

(9) Diachronic rules if the Proto-Gbe phonemes were \*p,\*B or \*'p,\*'b

- a) \*p > f or \*'p > f (Vhe)  
\*B > v or \*'b > v (Vhe)  
i.e. [-cont] > [+cont]
- b) \*p > χ<sup>w</sup> or \*'p > χ<sup>w</sup> (Aj, Fo, Ph-Ph)  
\*B > ɸ<sup>w</sup> or \*'b > ɸ<sup>w</sup> (Ge,Aj,Fo,Ph-Ph)  
i.e. [+lab, -cont] > [+rnd, +cont, +back]

According to this hypothesis and its entailed diachronic rules, Gen lects are partly conservative (in that they retained basically the voiceless bilabial stop),

while Vhe lects on the one hand, and on the other Ajá, Fon and Phla-Pherá lects are innovative. We may point out, however, that whereas the process depicted in (9a) seems a reasonable innovation (as a lenition process changing stops to fricatives, even though the process also occurs word initially), the one in (9b) seems hard to justify in that we fail to see what would motivate the backness and roundness of the reflexes (in addition to their fricative nature) in (Gen), Ajá, Fon and Phla-Pherá dialects.

### 3.3. Second Hypothesis

Suppose that Proto-Gbe had  $*f$  and  $*v$ , then we would need the diachronic rules in (10) to derive the modern reflexes:

- (10) Diachronic rules if the Proto-Gbe segments were  $*f, *v$
- a)  $*f > p$  (Gen), i.e. [+cont] > [-cont]
  - b)  $*f > \chi^w$  (Ajá, Fon, Ph-Ph)
  - $*v > \mathfrak{B}^w$  (Gen, Ajá, Fon, Ph-Ph), i.e. [+lab] > [+back, +rnd]

According to this hypothesis and its entailed diachronic rules, Vhe lects are conservative (in that they have retained the bilabial fricatives, as attested in the parent language), while Gen lects on the one hand, and Ajá, Fon and Phla-Pherá lects on the other are innovative. We may point out, however, that whereas (10a) can be argued for on the ground that the strengthening may be due to the absence of /p/ in the parent language (pattern congruity), (10b) seems hard to justify in that we fail to see what would motivate the backness and roundness of the reflexes in (Gen), Ajá, Fon and Phla-Pherá dialects.

### 3.4. Third Hypothesis

Suppose that Proto-Gbe had  $*\chi^w$  and  $*\mathfrak{B}^w$ , then we would need the diachronic rules in (11) to derive the modern reflexes:

- (11) Diachronic rules if the Proto-Gbe segments were  $*\chi^w, *\mathfrak{B}^w$
- a)  $*\chi^w > f$  (Vhe)
  - $*\mathfrak{B}^w > v$



- i.e. [+back, +rnd] > [+lab, (-rd)]
- b) \* $\chi^w$  > p (Gen)
- i.e. [+back, +rnd, +cont] > [+lab, -cont, (-rd)]

According to this hypothesis and its entailed diachronic rules, Ajá, Fon and Phla-Pherá dialects are conservative (in that they have retained the labialized velar/uvular fricatives of the parent language), while Gen lects are partly innovative (p being a creation) and Vhe lects innovative. We would like to point out that both (11a) and (11b) seem plausible in that: (i) the labiality of the output segments was already present in the input segments as roundness; (ii) the backness of the input segments was exchanged for the reinforcement of the labiality in the output segments; (iii) the output in (11b), i.e. the fact that we have a stop, can be argued for on account of pattern congruity (see (10) above).

There is a problem associated with this hypothesis, however, in that it claims that the MSC proposed in (7) for (Gen), Fon, Ajá and Phla-Pherá dialects would not apply to Proto-Gbe, since it clearly reconstructs \* $\mathfrak{B}^w\bar{u}$  'open', \* $\chi^w\acute{u}$  'swim', \* $\chi^w\circ$  'beat' and \* $\mathfrak{B}^w\bar{\mathfrak{C}}$  'door' for items 5-8 in (4) above, as opposed to \* $\chi\bar{\mathfrak{C}}$  'hut', \* $\mathfrak{B}\bar{\mathfrak{C}}$  'uproot', \* $\chi\acute{o}$  'history', \* $\mathfrak{B}\bar{u}$  'mystery' and \* $a\mathfrak{B}\bar{\mathfrak{C}}$  'navel' for items 5-9 in (5) above. That is the only way to arrive at the Vhe reflexes.

#### 4. Additional Evidence for the Third Hypothesis

The above-mentioned problem is not an insurmountable one. In fact, our preferred hypothesis is that the Vhe *f*, *v* indeed developed from Proto-Gbe \*/ $\chi^w$ ,  $\mathfrak{B}^w$ /, and we present below additional evidence to support this stand and clear up possible objections.

The first set of evidence comes from the fact that in a few Vhe words where one would have expected *f* and *v*, we have  $\chi$  and  $\mathfrak{B}$  instead; it seems reasonable to view these items as relics to which the Vhe-specific diachronic rules failed to apply. Some of these items are presented in (12) below.

(12) Failure to obtain *f* and *v* in a few words in some Vhe dialects:

	<u>Awlan</u>	<u>Pecí</u>	<u>Kpándo</u>	<u>Wací</u>	<u>gloss</u>	<u>Fon</u>
1.	vɔtrú	ɛɔtrú	ɛɔtrú	vɔtrú	door	ɛɔ
2.	avɔtʃo	avɔtʃo	avɔtʃo	--	liar	--
3.	afélí	afélí	afélí	axwélí	a deity	axwélí

(see also Nutsugan 1975 where more compounds are found)

The second set of evidence comes from the fact that in all present-day Gbe lects, there is a coalescence rule that gives rise to labialized consonants, including labialized velar/uvular consonants. There is every reason to believe that such a coalescence rule was already present in Proto-Gbe, and therefore  $\chi^w$  and  $\varkappa^w$  could be synchronically derived in Proto-Gbe as phonetic entities; if this is accepted, the fact that they became phonemicised would not be unexpected. Examples of such synchronic labialized consonants are presented in (13) from different dialects.

(13) Derivation of labialized consonants in all Gbe lects:

(a) Wací as an example:

1. /ɔɔ + i / → [ɔɔɛ] ~ [ɔwɛ] ~ [ɔ<sup>w</sup>ɛ] 'take it'
2. /tu + i / → [tui] ~ [twi] ~ [t<sup>w</sup>i]
3. /ekɔ + a / → [ekɔa] ~ [ekwa] ~ [ek<sup>w</sup>a] 'the neck'

(b) Agbóme as another example:

4. /ɛu + i / → [ɛui] ~ [ɛwi] ~ [ɛ<sup>w</sup>i] 'kill it'
5. /gbo + i / → [gboɛ] ~ [gbwe] ~ [gb<sup>w</sup>e] 'cut it'
6. /dũ + ɔ / → [nũɔ] ~ [nwɔ] ~ [n<sup>w</sup>ɔ] 'the thing'

(c) Awlan as yet another example:

7. /ɔɔɔ + i / → [ɔɔɔúí] ~ [ɔɔɔwí] ~ [ɔɔɔ<sup>w</sup>í] 'old'
8. /kɔkɔ + i / → [kɔkɔɛ] ~ [kɔkwe] ~ [kɔk<sup>w</sup>e] 'saint'
9. /tʃí + go + í / → [tʃígúí] ~ [tʃígwí] ~ [tʃíg<sup>w</sup>í] 'tube'

The third set of evidence, and by far the strongest, comes from the curious status of / $\chi^w$ / in Gen dialects. Synchronically, although there is a / $\varkappa^w$ / phoneme in Gen dialects, / $\chi^w$ / occurs in only two stems and would be at best treated as a marginal phoneme. Within the hypothesis adopted, we expect

the Gen lects to evolve Proto-Gbe \* $\chi^w$  to /p/. This is exactly what happens, as illustrated in (4) above. There is, however, a very common word, the one for 'home', that is rendered in Gen by / $\alpha\chi^w\acute{e}$ / and not by / $\alpha p\acute{e}$ / as expected; what makes the situation interesting is that we do have the expected / $\alpha p\acute{e}$ / in some compounds, as illustrated in (14) below, together with a near synonym / $\alpha\chi\acute{o}$ / which corresponds to / $\alpha\chi^w\acute{e}$ / in Fon dialects, for example.

(14) The curious status of / $\chi^w$ / in Gen:

	<u>Fon</u>	<u>Vhe</u>	<u>Gen</u>	<u>gloss</u>
1.	$\alpha\chi^w\acute{e}$	$af\acute{e}$	$\alpha\chi^w\acute{e}$	house/home
2.	$\chi^w\acute{e}t\acute{o}$	$af\acute{e}t\acute{o}$	$\alpha\chi^w\acute{e}t\acute{o}$	landlord
3.	( $m\acute{e}d\alpha\chi\acute{o}$ ) X	$af\acute{e}t\acute{o}$ X	$\alpha p\acute{e}t\acute{o}$ X	Mr. X
4.	( $g\acute{a}$ )	$af\acute{e}t\acute{o}$	$\alpha p\acute{e}t\acute{o}$	boss
5.	$\alpha\chi^w\acute{e}$	$af\acute{e}$	$\alpha\chi\acute{o}$	home/residence
6.	$\chi^w\acute{l}\acute{e}$	( $fl\acute{e}$ )	$\chi^w\acute{l}\acute{e}$	offer in sacrifice

The near synonymy of / $\alpha\chi^w\acute{e}$ / and / $\alpha\chi\acute{o}$ / in Gen is illustrated in (15), where Gen utterances are compared with Fon and Vhe utterances of the same meanings.

(15) Gen utterances compared with Fon and Vhe

Gen: 1a:	$\acute{e}$ yi $\alpha\chi^w\acute{e}$	'he went home, i.e. to his home town'
1b:	$\acute{e}$ yi $\alpha\chi\acute{o}$ me	'he went home, i.e. to his residence'
1c:	$\acute{e}$ yi Kofí bé $\alpha\chi\acute{o}$ me	'he went to Kofi's house'
Fon: 2a:	$\acute{e}$ yi $\chi^w\acute{e}$	'he went home, i.e. to his home town'
2b:	$\acute{e}$ yi $\chi^w\acute{e}$ gbe	'he went home, i.e. to his residence'
2c:	$\acute{e}$ yi Kofí sín $\chi^w\acute{e}$ gbe	'he went to Kofi's house'
Vhe: 3a:	$\acute{e}$ yi $af\acute{e}$	'he went home, i.e. to his home town'
3b:	$\acute{e}$ yi $af\acute{e}$ me	'he went home, i.e. to his residence'
3c:	$\acute{e}$ yi Kofí $f\acute{e}$ $af\acute{e}$ me	'he went to Kofi's house'

What can we make out of (14) and (15)? First, it seems reasonable to argue that in Gen / $\alpha\chi^w\acute{e}$ / 'home' is a relic of the Proto-Gbe form / $\alpha\chi^w\acute{e}$ / because whereas the Gen-specific diachronic rule failed to apply, the Vhe-specific diachronic rule did apply. Secondly, the very fact that in most other Gbe lects

we have the same phonological form to cover both Gen /aχó/ and /aχ<sup>w</sup>é/ is an indication that our intuition of near synonymy is a valid one. In fact, it leads us to believe that if the two items are not the same, they are nonetheless definitely related. Now, let us assume that items 1 and 5 in (14) were two different lexical items in early Proto-Gbe, yet related such that 1 was derived from 5 through an \*{-i}- suffix (discussed in Capo 1983), i.e. \*/aχó/ and \*/aχóí/, the latter realized as \*[aχóé] ~ \*[aχwé] ~ \*[aχ<sup>w</sup>é] (just like in (13) above); this would explain the situations in the various lects in two ways. (i) Gen dialects would typically reflect the situation in Proto-Gbe, and hence the basically same meaning of the two forms but used in different contexts; (ii) in other lects, only the form with the {-i} suffix would have survived and the morphological derivation been consequently blurred so that the [χ<sup>w</sup>] would have been seen as a unit phoneme instead of a sequence of /χ+o/ followed by another vowel. Our assumption is borne out by independent evidence in Ajá dialects, where a similar, if not identical form, /-χ<sup>w</sup>é/ used as a suffix (or better still a second element of a compound) in Fon and even Gen dialects, is rendered as /χú/ in Ajá dialects in place-names, as evidenced in (Ajá) Akplaxú : (Fon) Akplax<sup>w</sup>é : (Waci) Akplafé 'name of a settlement founded by Akpla.' Note that current thinking (e.g. Heine and Reh 1984) claims that the locative suffix -χ<sup>w</sup>ε/-fε is a bleached noun aχ<sup>w</sup>ε/afε, i.e. item 1 in (14) above. However, based on our knowledge of the synchronic phonology and morphology of the Ajá dialects, we can only postulate the underlying form of [akplaxú] as /akpla+aχó+i/; this is because, not only is the {-i} suffix realized as [-i] after /o/, it also closes /o/ (and /e/) to [u] (resp. [i]), and in most cases, the {-i} suffix itself gets deleted, its presence being recoverable through the vowel closing rule (see also Capo 1985). Note, in this regard, that Ajá dialects also have the [aχó] ~ [aχ<sup>w</sup>é] pairing in the lexicon (see Tchitchi 1984 for a similar, but partly different account).

The three sets of evidence confirm that we cannot but reconstruct \*χ<sup>w</sup> and \*ɣ<sup>w</sup> in Proto-Gbe, and therefore treat the Vhe bilabial fricatives as innovations. In addition, we have seen how [χ<sup>w</sup>] and [ɣ<sup>w</sup>] themselves emerged as coalesced forms of χ and ɣ plus back rounded vowels when followed by another vowel, and there was an indication of how the biphonemic complex became reinterpreted as monophonemic. The

monophonemic re-interpretation is crucial to the evolution into *f* and *v* in the Vhe dialects.

### 5. Related Issues

This account seems compatible with the feature geometry being worked out by Clements (see references). In particular it supports the idea that the same feature [labial] can occur at the C-place tier as well as the V-place tier. Clements (1989) has specifically proposed a tier promotion rule of the form reproduced in (16).

(16) Tier promotion (Clements 1989):

[labial]: V > C

Complex Segment Simplification: yes (unmarked).

This rule claims that the labiality occurring at the V-place tier on a consonant can be promoted to the C-place tier, i.e. a secondary labial articulation may evolve to a primary labial articulation; in other words a "labialized consonant" can become a true labial consonant. That is exactly how one would derive diachronically the Vhe bilabial fricatives and, with a strengthening process motivated by pattern congruity, the Gen voiceless bilabial stop within the framework of the hypothesis we argued for above. Such a scenario can be better understood from the feature matrices outlined in (17).

(17) Sound shifts illustrated with the voiceless series

		<i>x</i>	<i>x<sup>w</sup></i>	<i>f</i>	<i>p</i>
<i>*x<sup>w</sup></i> > <i>f</i> > <i>p</i>	C-place				
<i>*x<sup>w</sup></i> > <i>v</i>	labial	-	-	+	+
	dorsal	+	+	-	-
	V-place				
	labial		+		

One immediate implication of the tier promotion concept is that Gen /p/ would not be a direct reflex of *\*x<sup>w</sup>*, but would necessarily transit via *\*f*. Does that also imply that there is a common ancestor of Gen and Vhe dialects

below the Proto-Gbe node? And if that is the case, would the \*v of that ancestor (from Proto-Gbe \*ɸ<sup>w</sup>) revert to /ɸ<sup>w</sup>/ in Gen dialects? It would be difficult to answer those questions in the affirmative, given the fact that Gen dialects share other important characteristics with Ajá, and even Fon and Phla-Pherá dialects, as can be observed in (1) above. The other alternative would be to claim that *f* and *v* were not innovated at the same time.

In addition, if the MSC postulated in (7) for (Gen), Fon, Ajá and Phla-Pherá dialects is to be maintained, it must be properly understood as the result of a diachronic P-rule (similar to my initial synchronic P-rule), viz (18):

$$(18) \quad \left\{ \begin{array}{l} *ɸ^w \\ *ɸ^w \end{array} \right\} > \left\{ \begin{array}{l} ɸ \\ ɸ \end{array} \right\} / \_ \left[ \begin{array}{c} V \\ +round \end{array} \right]$$

Otherwise it may have two interpretations, being the source of two potential rules in case a sequence of  $\chi^w$ ,  $\varkappa^w$  plus a rounded vowel would be expected; in other words one of the following repair strategies will apply:

(19) Two ways of correcting the violation of the MSC:

- (a) either  $\chi^w$ ,  $\varkappa^w$  surface, but the vowels change to their corresponding nonback nonrounded counterparts; or
- (b)  $\chi^w$ ,  $\varkappa^w$  change to  $\chi$ ,  $\varkappa$  and the back rounded vowels surface.

Another related issue concerns the attestation of the bilabial fricatives in other Gbe lects. Our initial fieldwork reported in Capo (1981) showed that these sounds were noticed in Alada and Ayizɔ (Phla-Pherá dialects) and in Dogbó (an Ajá dialect), but only before the high front vowels /i, ī/ and the yod /y/; in such a context they are in free variation with /f, v/, and we have derived them from the latter, even though we were wondering what could be the motivation for such a rule occurring in a typical "palatalization environment." More recently, Anago (in prep.) has reported that in Tɔfin (a Phla-Pherá dialect) the bilabial fricatives have indeed phonemic status and that the language does not have underlying labio-dental fricatives (because the latter occur only in the speech of the bilingual town dwellers but not with the rural monolingual speakers). On comparative basis, however, it is clear that these Tɔfin bilabial fricatives do not have the same sources as those of the

The dialects, because they correspond to *f, v* in all other Gbe lects (including the dialects), as illustrated in (20).

(20) *f* and *v* in a few other Gbe dialects (Tɔfin and Ayizɔ́),  
based on Anago (in prep.) and Capo (1981)

	<u>Wací</u>	<u>Ayizɔ́</u>	<u>Tɔfin</u>	<u>Agbóme</u>	<u>gloss</u>
1.	afɔ	afɔ	afɔ	afɔ	foot
2.	fá	fá	fá	fá	be cool
3.	fɔ́	fɔ́	fɔ́	fɔ́	wake up
4.	efe	ɔfɛ	ɛfɛ	fɛ	nail
5.	efú	ofú	ofú	fú	hair
6.	afí	afí	afí	afí	ash
7.	vo	vo	vo	vo	be free
8.	vɔ	vɔ	vɔ	vɔ	finish
9.	vé	vé	vé	vé	be bitter
10.	eví	oví	oví	ví	child
11.	afé	ox <sup>wé</sup>	ɔx <sup>wé</sup>	x <sup>wé</sup>	home
12.	ava	aɖ <sup>wa</sup>	aɖ <sup>wa</sup>	aɖ <sup>wa</sup>	war

In my previous works, I have reconstructed the correspondence sets illustrated in (20) as *\*f*, *\*v* in Proto-Gbe. From that point of view, Tɔfin would have the diachronic rule informally stated as (21):

(21) Emergence of /*f*, *v*/ in Tɔfin:

*\*f*, *\*v* > *f*, *v*

How natural is (21), especially as it is a context-free rule? Note that if one adopts such a rule, it would be nice to argue that it is shared by Alada, Ayizɔ́ and Dogbó also, except that in those dialects, it would only apply before /*i* *ĩ* *y*/.

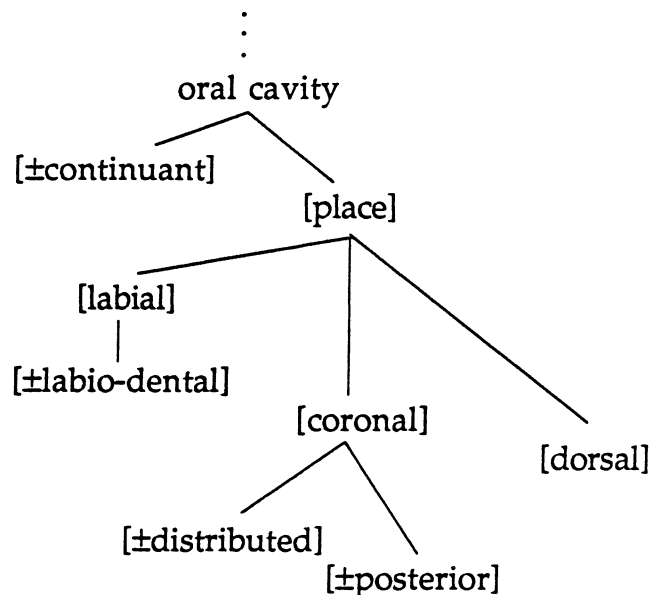
Although I would like to continue with this view, perhaps one can also speculate that *f* and *v* were widely attested in the Gbe chain as a whole and might be reconstructed in Proto-Gbe. With this second alternative, Tɔfin (and Alada, Ayizɔ́ and Dogbó) would be conservative whereas most of the present-day Gbe dialects would have applied the diachronic rule informally stated in (22).

(22) Emergence of /f,v/ in most present-day Gbe lects:

$*f, *v > f, v$

This alternative seems attractive because typologically many languages have the labio-dental fricatives and not the bilabial fricatives, which means that if a language (such as Proto-Gbe) had the bilabial fricatives but not the labio-dental fricatives, chances are that the bilabials would evolve into the labio-dentals (on cross-language analogical grounds). Should this be the correct prediction, the theory of phonology should incorporate it into its formal apparatus. This is, however, difficult as at now, because in the stop series it is the bilabials that are the most widely attested, and the geometry proposed in Clements (1990) assumes, I believe, that the default value for [labial] is bilabial, since labio-dentals need to be so specified explicitly. We reproduce in (23) the relevant portion of the feature geometry proposed by Clements (1990).

(23) Feature geometry (Clements 1990):



## 6. Conclusions

We would like to suggest here that perhaps late Pre-Gbe/early Proto-Gbe had both  $*f, *v$  and  $*\chi^w, *b^w$ , but not  $*f, *v$ . This suggestion implies the following scenarios outlined in (24).



(24) Some sound changes in the history of Gbe:

- a) Middle Proto-Gbe had innovated  $*f, *v > f, v$  (perhaps on the basis of snobism/language contact); by the time of this change, the Tɔfin speakers were already in the process of migration, hence they maintained the earlier state (without  $f, v$  but with  $f, v$ ) !
- b) Proto-Vhe (one of the daughter languages of Proto-Gbe) had innovated  $*\chi^w, *ɖ^w > f, v$ ; apart from its naturalness as argued earlier, this change was facilitated by the fact that Proto-Gbe  $*f, *v$  had already shifted to  $f, v$  (as in (a)), and so there was no merger, nor confusion.
- c) Probably independently, Fon, Ajá and Phla-Pherá dialects have innovated  $*\chi^w, *ɖ^w > \chi, ɖ / \_ [+round]$  vowel.
- d) Assuming the wave theory model, the Proto-Vhe innovation spread to Gen only for the voiceless fricative where it was taken a step further, hence  $*\chi^w > f > p$ , while the "delabialization rule" also spread to Gen from the other end in respect of the voiced fricative.

The discussion in this paper has raised at least two interesting issues. First, if indeed the unmarked value for [labial] is [-labio-dental], i.e. bilabial as implied in (23), why is it that  $/f, v/$  are rare in the languages of the world, whereas  $/p, b/$  are quite common (with due recognition that stops are more widely attested than fricatives)? Or is it the case that, as borne out by the typological patternings observed, the unmarked value for [labial] should be correlated with the value of [continuant]? Notice however, that since [labial] is dominated by [place] which is a coordinate branch of [continuant], this formal correlation is difficult to express. Obviously, more research is needed in this area. The second issue raised has to do with data (20), especially with the  $f, v$  shown by Ayizo. If one adopts my earlier analysis postulating a synchronic rule  $/f v/ \rightarrow f v / \_ i, y$ , the question would be: what is the feature shared by both  $[f, v]$  and  $[i, y]$ ? If one adopts the alternative considered in (22), that is a diachronic rule  $*f, *v > f, v$  (except before  $i, y$  in some dialects), the question would be: what in  $/i, y/$  is responsible for the non-application of the sound shift? Thus in both alternatives, there is a "hidden principle" yet to be uncovered with regard to the theory of distinctive features.

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