A PHONOLOGICAL STUDY OF FE'FE'-BAMILEKE

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A Phonological Study of Fe'fe'-Bamileke

A dissertation submitted in partial satisfaction of the requirements for the degree of Doctor of Philosophy in Linguistics

by

Larry Michael Hyman

Committee in charge:

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1972
The dissertation of Larry Michael Hyman is approved, and it is acceptable in quality and in form for publication on microfilm:

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Theo Fromkin

University of California, Los Angeles
1972
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A Nufi,

la lumière du peuple Bamileké

NUFI!

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ABSTRACT OF THE DISSERTATION

A Phonological Study of Fe've'-Bamileke

by

Larry Michael Hyman

Doctor of Philosophy in Linguistics
University of California, Los Angeles, 1972
Professor Victoria A. Fromkin, Chairman

This study is concerned with both synchronic and diachronic aspects of Bamileke phonology. The focus point of the study is a description of Fe've', one of the major Bamileke dialects spoken in the mountainous region of Western Cameroon. The phonological description is presented within the framework of generative phonology as represented by Chomsky and Halle (1968), *The Sound Pattern of English*. As such, it can be viewed as a test for some of the claims inherent in this particular theoretical model. While the study is primarily descriptive, it cannot help but be concerned with certain theoretical questions. In fact, certain inadequacies of the standard theory are revealed when applied to Fe've'; alternative hypotheses are therefore considered. The first section of this study deals with the synchronic phonology of Fe've'. After a discussion of the phonetic framework (Chapter II), particular attention is focussed on consonant alternations (Chapter III) and on the relationship between vowel length and "epenthetic" consonants (Chapter IV). Chapter V deals with reduplication and is particularly important for the light it sheds on the acoustic basis of
some distinctive features. The second section of the study deals with the diachronic aspects of Fe'fe' phonology. The history of tone (Chapter VI) is followed by a historical account of Bamileke noun classes (Chapter VII). Chapter VIII traces the history of syllable final *VC sequences. In all cases, data from a variety of dialects are presented.

This dissertation has already been published as Supplement #4 to Studies in African Linguistics and is available from the Department of Linguistics, University of California, Los Angeles.
CHAPTER I

Introduction

1.0. General Aims of the Study.

This study is concerned with both synchronic and diachronic aspects of Bamileke phonology. Specifically, one Bamileke dialect -- Fe'fe' -- will be described in detail. To understand the synchronic phonology of Fe'fe', however, and its relations to the other dialects of Bamileke, I have attempted to reconstruct Proto-Bamileke, in part, and to discuss in particular the history of Bamileke noun classes and the development of the present tone systems.

The phonological description will be presented within the framework of Generative Phonology (Chomsky and Halle [1968]). As such, it can also be viewed as a test for some of the claims inherent in this particular theoretical model. A general theory of phonology must be able to account for the "real" phonological processes at work in any particular language. Where it proves itself inadequate, the theory must be changed. Thus, while the study is primarily descriptive, it cannot help but be concerned with certain theoretical questions. In fact, as will be shown, certain inadequacies in the standard theory are revealed when applied to Fe'fe'; alternative hypotheses are therefore considered.

2.0. The Bamileke Language.

The term "Bamileke" refers to a group of people speaking diverse dialects in the mountainous region of Western Cameroon. The name derives from Dschang dialect "those in the ravine". The Bamileke people constitute the largest single ethnic group in Cameroon. Two questions concerning this language have not yet been settled: 1) is Bamileke a valid linguistic unit and if so what dialects does it encompass? 2) is Bamileke a member of the Bantu or "Semi-Bantu" group of languages?

Voorhoeve [1971a] convincingly argues that languages which have traditionally been considered "non-Bamileke" are, from a linguistic standpoint clearly dialects of this language, e.g. Ngemba and Bamoum. Ngemba is a group of dialects spoken in the vicinity of Bamenda and is mutually intelligible with some of the Bamileke dialects spoken in the Bamboutos
department in East Cameroon (formerly French Cameroon). For political reasons, the Ngemba of West Cameroon (formerly British Cameroon) do not refer to themselves as Bamileke. The term has usually been reserved for dialects spoken in East Cameroon. But the political divisions brought about by western colonialism do not represent true historical or linguistic subdivisions.

Bamum is spoken in East Cameroon, northeast of the other Bamileke dialects. The Bamum people are keenly aware of their identity as a single group. Again, linguistically this is less important than the fact that their language is closely related to Bamileke.

It is, of course, not the purpose of this study to discuss the question of language versus dialect. One may, if one wishes, call Bamileke a language family and what I call "dialects" individual languages. What is important is the close genetic and synchronic relationship of these languages or dialects since the similarities and differences provide evidence for certain historical changes, and for the theory of phonology.

As to the classification of Bamileke as a Bantu or Semi-Bantu language, Hyman and Voeltz [1971] and Hyman, Voeltz and Tchokokam [1970] argue for the inclusion of the language within Bantu. Richardson [1957], however, concludes that Bamileke should be included in his heterogeneous "Bantoid" group for the following reasons (p.43):

"The term Bantoid is applied to languages with (a) an elaborate system of class prefixes showing no regular relationship to the Bantu classes, (b) a vocabulary which is at times reminiscent of Bantu, but which cannot be related by fixed rules to a set of hypothetical common roots."

This definition assumes two of Guthrie's criteria used for classifying a language as Bantu: 1) an elaborate system of corresponding prefixes, and 2) a vocabulary related by fixed rules to a set of hypothetical common roots.

Richardson, and others who classify Bamileke as "Semi-Bantu", relying on these criteria point to the fact that Bamileke is said to have noun class prefixes which do not correspond in a regular fashion to Bantu mu/ba, mu/ml, etc. They also state that lexical items resembling Bantu
roots do not correspond to these roots in a regular way. Hyman, Voeltz and Tchokokam [1970], however, produce noun class correspondences from Fe*fe* overlooked by the pro-Bantuoid group. More important, the inade-
quacy of the criteria used has been pointed out by Greenberg [1963].
Because of the need for new criteria, Crabb [1965] suggests that a
language should be considered Bantu if in addition to criteria cited by
Richardson, classes 1, 3, 4 and 6 are characterized by a nasal consonant
(the Proto-Bantu forms are *mu, *mu, *mi and *ma, respectively. Non-
Bantu languages do not show a nasal reflex in the appropriate forms.
For example, Basila, a Togo-Remmant language classified as Kwa by Greenberg
[1963], has the respective prefixes u-, u-, i- and a-; Heine [1968]).
Accepting the Greenberg and Crabb criteria, Bamileke is Bantu. The
most adequate Proto-Bamileke prefixes which can be reconstructed are *N-
(class 1), *N- (class 3), *mN- (class 4) and *mN- (class 6). (For addi-
tional discussion, see Chapter VII.)
If Bamileke is indeed a Bantu language, further study is necessary
to relate it to other Bantu languages. An initial attempt to classify the
languages of the Cameroon area is available in Williamson [1971a] with
some revisions in Voorhoeve [1971a]. It is interesting to note, in this
connection, the similarities between Bamileke and Ekoid Bantu.
This study will not attempt to deal with this complex question. In
fact, prior to an attempt to provide a viable genetic classification of
Bamileke within the Bantu language family, much more research is required
on the individual dialects of Bamileke, and the relationships between them.
This study must therefore be considered a necessary step. The only
other phonological description available of a Bamileke dialect is that of
Bangangte (Voorhoeve [1965]).
Besides the lack of detailed descriptions on other Bamileke dialects,
there are further difficulties which present themselves in the attempt to
subgroup the dialects of Bamileke. This is exemplified under (1), where
the word for 'fire' is given in its phonetic form as spoken in five villages:
three villages of Fe*fe* (for justification, see below), Batcha village of
Nda*nda*, and Bandjoun. I have reconstructed the form for 'fire' in Proto-
Bamileke as *mug, on the basis of arguments to be presented later in this
study.
All dialects of Bamileke devoice consonants in final position. (I shall still argue for underlying /g/ in Banka Fe‘fe‘ because 'my fire' is realized as [muy a]; see Chapter III.) Two additional changes have occurred. Some villages have changed [k] to [h] and some villages have lowered [u] to [o].

Ideally, sound changes such as these should serve as criteria for subgrouping. In this case, however, this is very difficult (see below, however). The three villages of Fe‘fe‘ all pronounce this (and comparable morphemes ending in *ug) differently. Baponen has undergone both sound changes mentioned, while Banka has undergone neither. Bandja, on the other hand, has lowered the vowel, but has not modified the final consonant. Thus, there is considerable diversity among Fe‘fe‘ villages (at least with respect to the treatment of PEke *ug). And yet inhabitants of Baponen, Banka and Bandja invariably refer to themselves and to each other as Fe‘fe‘.

In addition, non-Fe‘fe‘ dialects are in some cases affected by these same sound changes. Like Baponen (which is representative of what I shall term "Central Fe‘fe‘", abbreviated CF), Batcha has undergone the k > h sound change, though not the vowel lowering. Similarly, Bandjoun, like Bandja Fe‘fe‘, has undergone the vowel lowering sound change, but has not changed [k] to [h].

In other words, these sound changes have both bypassed certain Fe‘fe‘ villages, and have occurred in certain non-Fe‘fe‘ villages. Thus, their appropriateness as measures of relatedness between dialects is inadequate. The maps on the following pages reveal that Batcha is in close geographic proximity with Central Fe‘fe‘ (e.g. Bana) and Bandjoun is in close geographic proximity with Bandja (the Northernmost Fe‘fe‘ village, which is identical with arrondissement center Company on the maps). If we conceive of the two sound changes as waves distributing across part of Fe‘fe‘ country and part of non-Fe‘fe‘ country, the resultant forms can be explained. The important fact is that these waves have little respect for
Principal Villages of the Haut-Nkam Department
CAMEROON

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the valid linguistic boundaries (cf. my definition of Fe’rebelow).
While the precise details of a complete subclassification of
Bamileke may not be available, I have found it plausible to view Bamileke
(including the closely related dialects of West Cameroon and Bamoum) as
consisting of two subgroups, which again have geographic correlates.
The first subgroup, West Bamileke, includes all related dialects found
west of Bamendjou; the second subgroup, East Bamileke, includes all related
dialects found east of Bamendjou. Bamendjou is the link between the two
and belongs to neither. It is the "pivot" of Bamileke.

It is significant that West Bamileke dialects such as Ngemba and
dschang retain typical Bantu-like noun class prefixes that correspond in
a regular fashion to Proto-Bantu reconstructions. For example, class
pairing 5/6 is represented in Dschang (Fto) by the following:

(2)  Class 5 :  li-soŋ  'tooth'
     Class 6 :  mv-soŋ  'teeth'

This should be compared to the typical li/ma prefixes of these classes
in Central (or Narrow) Bantu (cf. Meinoph [1932]). Class 6 is represented
as far as I know by mv- in all West Bamileke dialects, which include all
dialects in the Menoua department (e.g. Dschang), in the Bamboutos depart-
ment (e.g. Mbouda dialects) and the West Cameroon dialects (e.g. Ngemba).
Class 5 is subject to some variation, but always has either [l] or [n]
followed by [t], [e] or [i], e.g. Mbuti ni-soŋ, Ngemba mv-soŋ (Eastlack
[1968]), Batcham te-soŋ, all meaning 'tooth'. I shall demonstrate in
Chapter VII that West Bamileke dialects are characterized by a complete
set of noun class prefixes.

East Bamileke dialects, on the other hand, have lost all noun class
prefixes except for the nasal prefixes in classes 1, 3, 4, 6, 9 and 10
(see Chapter VII). (A few remnant forms of the lost prefixes exist in
Fondanti, Fondjomekwet and Fotuni, however.) In other words, classes 2,
5, 7 and 8 have lost their respective Proto-Bamileke prefixes *br-, *d-,
*a- and *l-. Compare class pairing 5/6 in the following East Bamileke
dialects in (3):
In the examples under (3) it can be seen that all East Bamileke dialects have lost the class 5 prefix characteristic of West Bamileke. These East Bamileke dialects include those spoken in the Haut-Nkam department (e.g. Fe*fe*, Fondanti, Batcha), the Mifi department (e.g. Bandjoun), the Nde department (e.g. Bangangte) and Bamoum, whose form for 'tooth' (class 5) is [so].

Since the basis of my tentative classification is the presence or absence of noun prefixes in classes 2, 5, 7 and 8, the objection may be raised that this is an arbitrary typological classification, rather than a genetic one. Clearly, we shouldn't want to classify the languages of Africa by the presence or absence of noun classes, and in fact, this was one of the faults inherent in Richardson's classification. However, there is evidence to believe that this criterion may in fact be genetically motivated in this case.

There are other reasons to believe that the Bamileke dialects on one side of Bamendjou constitute one linguistic unit as opposed to the Bamileke dialects on the other side, as schematized in (4):

(4)\[\begin{array}{c}
\text{W} & \text{Ngemba} & \text{Bamendjou} & \text{Bandjoun} & \text{Bangangte} & \text{E} \\
\text{Mbouda} & \text{Dschang} & \text{Fe*fe*} & \end{array}\]

The dialects listed in (4) are intended to be representative of the composition of each linguistic unit.

Perhaps the most persuasive argument that this is more than a typological subclassification is the fact that certain isoglosses coincide with this distinction. Although I have just stated above that sound changes do not necessarily respect the linguistic boundaries that are ascertainable from other criteria, there are in some cases striking coinciding sound changes (coinciding isoglosses as opposed to overlapping ones). In this case, there is the treatment of PBke *z. In roots such as PBke *zam 'axe', *zab 'vegetable', *zum 'back' (cf. Igbo àzú) and *zob 'to sing',

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West Bamileke dialects exhibit an initial /z/ (sometimes realized as [dz] because of a preceding nasal prefix), while East Bamileke dialects exhibit /j/ (realized as [j] after a homorganic nasal prefix, but as [y] elsewhere; see Chapter III). In other words, it is precisely those dialects that retain class 2, 5, 7 and 8 prefixes that also retain PEke *z; those dialects which have lost these prefixes have also changed *z to /j/, as can be seen from the forms for *zam 'axe' given in (5):

(5)  

<table>
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<tr>
<th>WEST BAMILEKE</th>
<th>EAST BAMILEKE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batcham nză</td>
<td>Feʔfeʔ nỹw</td>
</tr>
<tr>
<td>(Mbouda)</td>
<td>Bgnté nỹam</td>
</tr>
<tr>
<td>Mankon ndzam</td>
<td>Bangwa nỹop</td>
</tr>
<tr>
<td>(Ngemba)</td>
<td>Batcha nỹo</td>
</tr>
<tr>
<td>Mbuły ndzoo</td>
<td>Fondanti nja</td>
</tr>
<tr>
<td>(Ngemba)</td>
<td>Bamoun nỹam</td>
</tr>
<tr>
<td>Dschang nza</td>
<td>Bandjoun nỹom</td>
</tr>
</tbody>
</table>

(same form found in Batie, Fotuni, and Fondjomekwet)

This correlation is strong evidence for classifying the Bamileke dialects into one of two groups: West Bamileke (characterized by class 2, 5, 7 and 8 noun prefixes and by /z/ as a reflex of *z), and East Bamileke (characterized by the loss of class 2, 5, 7 and 8 noun prefixes and by /j/ as a reflex of *z).

The classification of Bamileke dialects is not solely a theoretical or linguistic question. Whatever one's position is regarding the 'relevance' of one's research, studies such as this one do have immediate consequences. At the present time there is a great deal of debate concerning which dialect of Bamileke should be selected as the "standard" dialect to be used, for example, as the written language taught in the school system. The most prominent candidates are Feʔfeʔ, Bandjoun and Dschang, which are spoken by the greatest number of speakers.

Feʔfeʔ has the advantage of being the southernmost dialect, and since the typical migration of Bamilekes seeking work is from North to
South (they eventually descend to the Moungo or to Douala), many non-
Fe'fe' Bamilekes speak and/or understand Fe'fe'. It has the additional
advantage of having been investigated by Nufi (an indigenous program
concerned with literacy in Fe'fe') as well as other projects for more
than a decade, and also of being spoken in the whole of the Haut-Nkam
department. On the other hand, Bandjoun is not spoken throughout the
Mifi department, nor is Dschang spoken throughout the Menoua department.
Bandjoun has the advantage of being the most influential village outside
of the Bandjoun area. This is largely due to the fact that many Bandjouns
are prominent in trade and commerce. The Dschang dialect, however, was
the first Bamileke dialect used in any official function. The Germans
adopted Dschang and, as a result, many place names outside of Dschang
territory are known by their name in Dschang (e.g. Bandja, a Fe'fe'
village, which in Fe'fe' would be pronounced [pan'jy] 'the people of Njy').
The debate has of late narrowed down to one between Bandjoun and Fe'fe'.

According to my classification, given above, both dialects belong
to East Bamileke. In addition, each is related to West Bamileke through
the intermediary of Bamendjou dialect. In other words, neither Bandjoun
nor Fe'fe' can be selected as "the central dialect". That is, if either
is chosen as a standard dialect, then the decision must be made on some
non-linguistic basis (e.g. influence, geographic spread, etc.). The dia-
gram under (4), however, suggests that Bamendjou is the central dialect,
since it belongs to neither West Bamileke nor East Bamileke, but rather
is the link between the two. Villages in the Bamendjou cluster are found
in the Bamboutos department (e.g. Bansoa) and in the Mifi department (e.g.
Bamendjou itself). Thus, it is spoken in both West and East Bamileke
territory. Linguistically it is intermediate. It therefore retains some
noun class prefixes (e.g. ny- is the class 5 prefix and the schwa in class
6 mw- is also retained—it is lost in East Bamileke as seen in the forms
for 'teeth' in (3)) and loses others (e.g. class 2, 7 and 8 prefixes drop).
With respect to *z, it undergoes the change to /j/, like East Bamileke:
[nj'a] 'axe'. Bamendjou's pivotal position is responsible for the fact
that Fe'fe' and Bandjoun are related to Dschang and Mbouda through Bamen-
djou. From a linguistic point of view, it would be the easiest for all
Bamilekes, since speakers from Fe'fe' country, Bandjoun, Dschang and
Mbouda readily understand the Bamendjou dialect. The more distant dialects to the East (Nda'nda', Bangangte and Bamoun) and West (e.g. Ngemba) would of course find it more difficult than would speakers of closer dialects, but Ngembas from West Cameroon could more readily learn Bamendjou than they could Bandjoun or Fôfe'.

It is clear that while these linguistic considerations should be considered in the selection of the "standard" dialect, any specific proposal is outside the scope or competence of this thesis.

3.0. Fôfe'.

While it is clear that all Bamileke dialects need to be investigated, such a task will require many researchers and much more time than was available for this study. As a starting point I have chosen to deal with the phonology of Fôfe'. The name, pronounced [fôfôfôfô], literally means 'thus, thus'.

According to the criteria set forth below, Fôfe' is spoken in all villages of the Haut-Nkam department except four: Fondanti, Fondjomewet and Fotouni (which are closely related and progressively different from Fôfe'), and Batcha (which is the most Fôfe'-like of the Nda'nda' villages). The non-Bamileke settlements of the Mbo people in the southern part of the department are of course excluded.

A village will be designated as Fôfe' if it meets both of the following two criteria:

(6) a. PBke *am becomes [yy].

b. PBke *ob and *ab become, respectively, [oo] and [aa].

By these criteria, all Bamileke villages in the Haut-Nkam are Fôfe' except for the four mentioned above. This correlates with the judgments of Haut-Nkam residents. Fôfe' speakers in the 60-odd Haut-Nkam villages all claim they speak [fôfôfôfô'] and differences are minimized, if not ignored, by them. The same people refer to Fondanti (and perhaps to Fondjomewet and even to Fotouni) as "almost Fôfe'" or as a "nuanced Fôfe'", while everyone agrees that Batcha is Nda'nda'.

These criteria have been selected for a number of reasons. In many, if not most, Bamileke dialects, Proto-Bamileke *am is modified. Examples
can be seen for *zam 'axe' in (5) above. However, while quite diverse realizations of this syllable-final sequence can be found, only certain villages, which I shall classify as Fe*fe*, exhibit a long mid back unrounded vowel (written as a schwa by some scholars). (7) illustrates the common Bamileke root 'animal', which I have reconstructed in Proto-Bamileke as *nam:

<table>
<thead>
<tr>
<th>WEST BAMILEKE</th>
<th>EAST BAMILEKE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batcham nà</td>
<td>Fe<em>fe</em> nàv</td>
</tr>
<tr>
<td>(Mbouda)</td>
<td>Bgnte. nàm</td>
</tr>
<tr>
<td>Mankon ṭnàmè</td>
<td>Bangva ṭnòp</td>
</tr>
<tr>
<td>(Ngemba)</td>
<td>Batcha nò</td>
</tr>
<tr>
<td>Mbuï ṭnòo</td>
<td>Fondanti nà</td>
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<tr>
<td>(Ngemba)</td>
<td>Bamoum nàm</td>
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<tr>
<td>Dschang nà</td>
<td>Bandjoun nòm</td>
</tr>
</tbody>
</table>

(same pronunciation in Batie, Fotouni and Fondjomewet)

As for the second criterion, I know of only one non-Fe*fe* village that has modified PBke *ob or *ab in any way (Bangwa village of Nda?nda?, which has modified *ab to [ɛ], e.g. PBke *Nkab 'money' is realized as [ŋkɛ]). Notice, however, that while other dialects maintain final /b/, this /b/ is usually devoiced to [p]. In Fe*fe* the sound changes are as illustrated below in (8):

(8)  

<table>
<thead>
<tr>
<th></th>
<th>a.</th>
<th></th>
<th>b.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*ob &gt; ɔɔ</td>
<td></td>
<td>*ab &gt; ɔɔ</td>
</tr>
<tr>
<td>*kob &gt; kɔɔ 'belt'</td>
<td></td>
<td>*Nkab &gt; ŋkɔɔ 'money'</td>
<td></td>
</tr>
<tr>
<td>*zob &gt; yɔɔ 'to sing'</td>
<td></td>
<td>*Nzab &gt; ŋjɔɔ 'vegetable'</td>
<td></td>
</tr>
</tbody>
</table>

Other dialects typically pronounce these words as [kɔp] 'belt', [yɔp] 'to sing', [ŋkɔp] 'money' and [ŋjɔp] 'vegetable'. (The proto form *Nzab refers to a spinach-like vegetable.) The complex sound changes operating on *am, *ob and *ab are discussed in Chapter VIII.

These criteria unambiguously establish those villages which I shall
regard as Fe'fe', thus placing clear cut limitations on the phonological system I shall be describing. This should not be interpreted as implying that one simple phonology can be constructed for all Fe'fe' villages. Even with these boundaries set, the situation is a highly complex one.

The whole of Bamileke country has been undergoing rapid linguistic change for a long period of time and the pace seems to have accelerated in recent years, resulting in considerable variation. People in the village do not speak the same as people in the city; children do not speak the same as their parents; and, in addition, there is the ordinary dialect variation corresponding with geographic location. These dialectal variations occurring within Fe'fe' will be discussed in the appropriate sections.

4.0. **Scope of the Study.**

The first section of this study will deal with the synchronic phonology of Fe'fe'. Chapter II provides the phonetic framework, i.e. the distinctive features used to classify and describe the sounds of Fe'fe'. Chapter III deals with the consonant alternations found in the language. Chapter IV treats vowel length and epenthetic consonants. Chapter V deals with reduplication.

The second section of this study deals with the diachronic aspects of Fe'fe' phonology. Chapter VI discusses both the synchronic and diachronic aspects of Fe'fe' tone. Chapter VII presents the noun classes of Fe'fe' and traces the history of Bamileke noun classes. Chapter VIII traces the history of syllable final *VC sequences in Bamileke.

5.0. **Field Work.**

Field work for this study was conducted from January to June 1971 under a Fulbright-Hays Dissertation Fellowship. During this period I was affiliated as a Post-Graduate Occasional Student at the University of Ibadan. I am extremely grateful to the various members of Nufi who received me with great hospitality wherever I went in Cameroon. Their encouragement and helpfulness made it possible for me to investigate virtually all of the Fe'fe' villages, as well as many non-Fe'fe' dialects. I am particularly grateful to Monsieur l'Abbé François-Marie Tchamda, Director of Nufi, as well as the many native Fe'fe' speakers who helped...
me at various stages in my study. In particular, I should like to thank Mssrs. John Kando, Louis-Marie Ongoum, Alphonse-Marie Tchamdjou, Jacques Miaffo Wendji, Pierre Djipoué, Père Pierre Tchouampa and Pierre Mangoua. I should also like to thank Mr. Felix Ndjangang, whose native Mbuï dialect I was able to study during my stay in Bafang. Finally, I should like to thank Père Fernand Le Page for his hospitality in Company (Bandja), where I was able to gather materials from the Fe³fe³ villages of Bandja and Babouantou, and from the non-Fe³fe³ dialects of Fondanti, Fondjomewet and Fotouni. To all those who made this study possible, my deepest thanks. It is my sincere hope that this study will be of some value to Nufi.
CHAPTER TWO

Outline of Segmentals

This phonological study assumes roughly the model of generative phonology developed by Chomsky and Halle (Halle [1962], Chomsky and Halle [1965, 1968]). That is, I recognize a systematic phonemic level whose redundant properties are stated by means of Morpheme Structure Conditions (Stanley [1967]), and a systematic phonetic level, which is derived from the systematic phonemic level by means of phonological rules which change feature specifications and delete and add segments. It will be seen that in order to account for the phonological facts of Fe'fe'-Bamileke, it will be necessary to propose certain refinements of this model of generative phonology.

1.0. Canonical Forms of Morphemes.

In Fe'fe', most lexical morphemes are monosyllabic. The different canonical forms are represented by means of the following formula, which characterizes both the phonemic and phonetic structure of morphemes:

\[(1) \ C_1 (w) V_1 (V_2) (C_2)\]

That is, lexical morphemes always begin with a consonant \(C_1\) and can be followed by one vowel \(V_1\), two vowels \(V_1 V_2\), one vowel \(V_1\) followed by a consonant \(C_2\), or two vowels \(V_1 V_2\) followed by a consonant \(C_2\). An optional \(/w/\) can also occur after \(C_1\). In other words, the eight possible morpheme structures are \(CV, CVV, CVC, CVVC, CwV, CwVV, CwVC\) and \(CwVVC\), as illustrated in (2):

\[(2) \ \begin{align*}
CV & : /to/ \rightarrow [to] \ 'to\ punch' \\
CVV & : /mle/ \rightarrow [mle] \ 'to\ finish' \\
CVC & : /cad/ \rightarrow [cat] \ 'to\ break' \\
CVVC & : /vlad/ \rightarrow [vlat] \ 'to\ burst' \\
CwV & : /cwi/ \rightarrow [ցwi] \ 'to\ grow' \\
CwVV & : /jwle/ \rightarrow [ցwle] \ 'to\ laugh'
\end{align*}\]
CwVC : /kwad/  →  [kwat]  'to attach'
CwVVC : /cwiad/  →  [swiat]  'to beat'

Notice that a sequence of two vowels (VV) stands for two different vowels and not for a long vowel (e.g. /ee/) which is also written double, but is considered as a single segment with the feature specification [+long].

The examples given in (2) are listed in their underlying systematic phonemic form on the left (except for tone, which will be treated in Chapter VI), and in their systematic phonetic form on the right. It should be noted that some nouns always occur with a homorganic nasal prefix /n/ which may appear to be part of the noun stem. However, this prefix is analyzed as a separate morpheme which is automatically introduced onto class 3, 4, 6a, 9 and 10 nouns, e.g. class 6a /N+gwə/ 'salt' (pronounced [ŋgwə]). Such prefixes are syllabic and carry low tone. Tone is left unmarked on these prefixes because of this predictability.

Morphemes not covered by the formula $C_1(w) V_1 V_2(C_2)$ are of two types. First, some lexical morphemes are bisyllabic, e.g. /Ngɔfad/ 'maize', /swənə/ 'tomato'. While many polysyllabic words can be analyzed as compounds (e.g. /NdI/ 'clothing' + /moh/ 'fire' yield [ndhə moh] 'smoke', lit. clothing of fire), some are single morphemes. Still others are nominalized reduplications from verbs (e.g. /tutwa/ 'pepper' from /twa/ 'to sting'). However, the vast majority of Fe'fe' lexical morphemes do fall within the general formula. However, many grammatical morphemes are not included in the formula—many pronouns, tense/aspect markers, noun prefixes, etc. These can be, for example, a single segment, either a consonant (e.g. /m/, class 6 plural prefix on nouns) or a vowel (e.g. /ə/, subjunctive marker). Since most of these grammatical morphemes are introduced transformationally, they will not fall within the first lexicon and do not have to satisfy the morpheme structure conditions (MSC's) of the language. Rather, they will be spelled out in a second lexicon which will not be constrained by the lexical MSC's (cf. Givón [1972] for further discussion of such a second lexicon). Similarly, in English, grammatical morphemes such as the plural morpheme /s/ are not considered as exceptions to the MSC's, but rather are in a completely different category, i.e. in a second (grammatical) lexicon. Grammatical morphemes in Fe'fe' violate both the formula of canonical morpheme shapes, and, in
addition, several other MSC's. For example, there is a constraint on underlying forms such that a short /a/ never occurs in open syllables (with one possible exception [na] 'body' which has the variant [nsa]). The vowel /a/ can occur only before /d/, as in /cad/ 'to break', before /h/, as in /nah/ 'to swim' and before /?/, as in /ta?/ 'to bargain'. The pronoun /a/ 'me, my' therefore breaks the general formula since it does not begin with a consonant, and it also breaks the MSC that disallows short /a/ when not followed by /d/, /h/ or /?/. Such examples are numerous.

2.0. The Distinctive Features of Consonants.

Before further discussing the morpheme structure conditions of Fe?fe?, it is necessary to introduce the set of distinctive features to be used in this study. It is on the basis of this set of phonetic features that the systematic phonetic level (i.e. the level just preceding the application of detail or n-ary rules) will be represented. The following symmetric system of phonetic consonants is found in Fe?fe?:

(3)  [+grave]  [-grave]  [-grave]  [+grave]
p  t  c  k
b  d  j  g
f  s  ŝ  h
v  z  ž  γ
m  n  (n)  η
w  l  y  ?

[+ant]  [+ant]  [-ant]  [-ant]

All of these consonants appear in all Fe?fe? villages except for [n], the palatal nasal consonant (given in parentheses), which is more restricted. In several villages /n/ is pronounced [pat], though in most villages it is pronounced [niat]. Thus, [n] arises only when followed by the diphthong /ia/ and can be derived from /n/ by a phonetic rule in those dialects where palatalization occurs.

In the consonant chart in (3) four places of articulation are distinguished by means of two distinctive features. The old Jakobsonian
feature Grave (cf. Jakobson, Fant and Halle [1952], Jakobson and Halle [1956]) is reinstated, though it is rejected by Chomsky and Halle [1968]. According to this acoustic feature, labials and velars (i.e. peripheral) consonants are [+grave] (since they are characterized by a concentration of energy in the lower frequencies of the spectrum), while alveolar and palatal (i.e. medial) consonants are [-grave] (since they are characterized by a concentration of energy in the upper frequencies of the spectrum). Perhaps the clearest argument for the use of the feature Grave in Fe′fe′ phonology is shown in the process of high vowel reduplication (cf. Chapter V), which derives complex verbs as well as adjectives from verbs. The vowel in the reduplicated syllable is always a high vowel (except in a few villages, where complete reduplication is found). The unassimilated high vowel in such reduplications is /u/, a high back unrounded vowel, as seen in (4):

(4) /za/  'to eat'  → [zwa]
    /to/  'to punch'  → [tɔto]

But if the stem vowel of the verb is a front vowel (here claimed to be [-grave]), and if the stem initial consonant is alveolar or palatal (also [-grave]), then /u/ becomes [i], as seen in the following examples with the low front unrounded stem vowel /a/:

(5) /paʔ/  'to commit suicide'  → [pwaʔ]
    /taʔ/  'to bargain'  → [tlaʔ]
    /caʔ/  'to trample'  → [cicaʔ]
    /kaʔ/  'to fry'  → [kwaʔ]

The only explanation for what has occurred here is that the [+grave] vowel /u/ has become [-grave] (i.e. [i]) when the stem consonant is [-grave] and the root vowel is [-grave]. Thus, a clear case of (acoustic) assimilation is revealed. Additional motivation for using this feature will be given below.

The use of the feature Anterior is perhaps less certain. What is clearly needed is a second feature which like Anterior will group together the first two columns (i.e. labials and alveolars) as opposed to the second two columns (i.e. palatals and velars). The feature Anterior...
accomplishes this and is favored over the Jakobsonian feature Diffuse, since this latter feature makes claims about the similarity of labial and alveolar consonants with high vowels, and, as far as I know, such a similarity has never been demonstrated in any real language. One might alternatively propose the Chomsky and Halle [1968] feature High. While Chomsky and Halle include both the feature Anterior and the feature High in their characterization of consonants, there is used for only one in the Fe?fe? consonant system. In Fe?fe?, whatever is [+ant] is also [-high]. But it is not true that whatever is [-ant] is also [+high], since both /h/ and /ʔ/ are, according to Chomsky and Halle, not only [-ant] and [-high], but also [+low], and for some reason, [-back]. Thus, if we accept Chomsky and Halle's specification of these two consonants, we must use the feature Anterior to distinguish between labials and alveolars as opposed to the palatals, velars and glottalic consonants produced further back in the mouth. Notice that the feature Anterior captures the fact that the distinction between the first two columns of (3) and the second two columns is one of place of articulation. Chomsky and Halle define this feature as follows: "Anterior sounds are produced with an obstruction that is located in front of the palato-alveolar region of the mouth; nonanterior sounds are produced without such an obstruction." [1968:304]. The feature High would claim that the difference is one of tongue height. It has the one advantage that it can be used not only to distinguish consonants, but also to distinguish vowels. All vowels are universally [-ant]. However, while we can perhaps reanalyze /h/ as the [+high] velar fricative /x/ (from which it derived, historically), there is no way getting around the fact that /ʔ/ is [-high]. Thus, the features Grave and Anterior will be used to characterize the phonological contrasts in the consonant system, as illustrated in (6):

\[
(6) \quad \text{p, b, f, v, m, w} : \quad [+\text{grave}, +\text{ant}]
\]

\[
\text{t, d, s, z, n, l} : \quad [-\text{grave}, +\text{ant}]
\]

\[
\text{c, j, š, ž, n, ŋ} : \quad [-\text{grave}, -\text{ant}]
\]

\[
\text{k, g, h, ř, n, ř} : \quad [+\text{grave}, -\text{ant}]
\]

Needless to say, other feature specifications will be needed on the systematic phonetic level.
Looking again at the consonant chart in (3), it is noted that the horizontal rows capture the similarities in manner of articulation. The first two rows contain non-nasal non-continuants, i.e. either oral stops or affricates. (The affricates [ç] and [ʃ] are written as [c] and [ʃ] in all instances.) The non-continuants in the first row are [-voice] and the non-continuants in the second row are [+voice]. Both rows are [-continuant]. In the third and fourth rows are the obstruent continuants, i.e. the fricatives. These are [+continuant], the third row being [-voice], the fourth row being [+voice]. The fifth row contains the nasal stops, which are [+nasal, -continuant]. The sixth row consists of a heterogeneous group of consonants which can best be labelled as non-nasal sonorants. The glides [w], [y] and [z] are, according to Chomsky and Halle, [-cons, -voc]. The one liquid [l] is specified as [+cons, +voc]. All four are considered [+sonorant]. However, in Fe²fe², the chief distinctive feature involved is Strident, as shall be seen in Chapter III. Thus, [w], [l] and [y] differ respectively from [v], [z] and [z] in that the former are [-strident], while the latter are [+strident]. Of course, the glottal stop does not differ by this feature from [k]. I shall follow the tradition of specifying glides as [-cons]. However, the feature Vocalic will be discarded, since it is totally redundant (as well as very difficult to define). Instead, the feature Syllabic will be used. The specification of [+cons] for /h/ will differ from Chomsky and Halle [1968].

2.1. Initial Consonant Phonemes.

A fully specified matrix for the 24 consonants listed in (3) is given in (7). While this matrix mentions only the phonologically classificatory features (remembering that distinctive features have both a classificatory and a phonetic function), some of the segments listed are not phonological segments (i.e. phonemes), but rather are derived by rules, some of which will be discussed at great length in Chapter III. This applies in particular to [p], [l], [y], [y] and morpheme initial [w], which are derived respectively from /b/, /a/, /l/, /g/ and /gw/. While this issue will be discussed in detail in the next chapter, initial evidence for the non-phonemic status of [p], [l], [y], [y] and morpheme initial [v] is seen from the examples in (8), where the consonant alternations of verbs are dependent on the presence or absence of a homorganic
(7) FULLY SPECIFIED CLASSIFICATORY MATRIX OF PHONETIC CONSONANTS

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Note: Non-vowels are specified as [-syllabic]. All syllabic nasals are introduced in the second lexicon (since they are grammatical morphemes) and are [+cons, +syl].

nasal prefix, which signals a change in the tense/aspect of the verb. As seen below in (8), [b], [d], [ʝ], [g] and [w] are found only when preceded by a homorganic nasal prefix; otherwise they undergo a spirantization rule that converts them respectively to [p], [l], [y], [ɣ] and [w], as in the examples:
(8)  
[pen] : [mben] 'to accept'
[luu] : [nduu] 'to ask for'
[yiI] : [njii] 'to see'
[yas?] : [ngas?] 'to refuse'
[wah] : [ngwah] 'to scorn'

The continuants in the left hand column form a natural class in that they are all [-strident]. (In non-Bamileke Bantu languages we find [p] instead of [p].) This suggests that the other features that are necessary to specify [l] and [y], for instance, are redundant in Fe?fe?. Thus, it would be very difficult to show how Fe?fe? [l] differs from [y] or [y] except in place of articulation. Chomsky and Halle's feature set differentiates [l] from [d] or [z] by specifying it as [+cons, +voc, +son], while the latter two sounds are [+cons, -voc, -son]. In a language such as English, it makes sense to say that the feature specifications [+voc] and [+son] are used phonologically for /l/, because both /l/ and /r/ form a natural class and function together in the MSC's of English differently from other consonants (e.g. initial CCC clusters are permitted only if the third C is a liquid, e.g. street, spleen). But in Fe?fe?, [l] is derived from /d/. The fact that it is [+voc] and [+son] is of secondary importance. (Actually, the feature Vocalic can be dispensed with, since the features Syllabic and Sonorant distinguish all of the natural classes.) Phonologically, the feature that distinguishes [l] from [z] (both of which are [+cont]) is Strident. This is very clear in Central Bantu languages, where one often finds a rule such as (9):

(9)  

\[
\begin{bmatrix}
  b \\
  d \\
  j \\
  g \\
\end{bmatrix} \rightarrow \begin{bmatrix}
  \beta \\
  l \\
  y \\
  y \\
\end{bmatrix} / V \hspace{1cm} V
\]

We do not obtain in the structural change of this rule [v], [z] and [z] because a natural intervocalic spirantization rule changes non-continuants to non-strident continuants (cf. the dialects of Spanish, where /b/, /d/ and /g/ become [β], [δ] and [γ], respectively). It should be clear from
this example, then, that Bantu does not use the feature specifications [+cons, +voc, +son] phonologically. In these languages, these features have more to do with phonetic detail (cf. Chapter III). We conclude that in a language a feature may be used phonologically, phonetically, or not at all (e.g. the feature Grave is not relevant in most phonologies). One task of the phonologist is to determine which of the universal phonetic features are part of the linguistic system, and whether these are used phonologically or phonetically, i.e. contrastively or not contrastively.

The consonants [ʂ] and [ʐ] also do not occur as underlying (systematic) phonemes. But to understand the phonological process working here, it is necessary to consider an additional series of consonants not included in the phonetic chart in (3). These are the tense (so-called aspirated) consonants which are derived by rule. The phonetic consonants [p], [t], [k], [b], [d], [g], [f], [h], [v] and [ɣ] are in certain environments characterized by heavy friction at the place of articulation (Mona Lindau, personal communication), often giving the impression of extremely heavy aspiration or even affrication (some investigators have even transcribed [kx], etc.). The heavy friction (noise) can be accounted for by the feature specifications [+tense, +strident]. (The additional [+tense] specification is required, since the [+strident] consonants [f] and [v] also have tense counterparts.) These [+tense, +strident] consonants occur only before short high vowels, as illustrated in (10):

\[(10) \quad [\text{th}l] \quad '\text{to forge}' \quad [\text{th}u] \quad '\text{head}' \quad [\text{th}u] \quad '\text{tree}'
   \quad [t\tilde{l}] \quad '\text{to simmer}' \quad [t\tilde{u}] \quad '\text{drum}' \quad [t\tilde{u}] \quad '\text{palm-tree}'\]

Although I am writing these consonants as Ch, it should be kept in mind that this transcription represents a single segment. The first word in each pair shows a tense consonant before a short high vowel, while the second word shows a non-tense (unaspirated) [t] before a long high vowel. [th], in addition, does not occur before non-high vowels such as [e], [o] and [a]. Since this tenseness is predictable, it can be derived by means of the rule in (11):

\[(11) \quad C \rightarrow [+\text{tense}, +\text{strident}] / [+\text{high}] / [+\text{long}] / [\text{#}]\]
Thus we can recognize the following tentative underlying forms:

(12) /tɬ/ 'to forge' /tu/ 'head' /tɔ/ 'tree'
     /tɬi/ 'to simmer' /tuu/ 'drum' /tuu/ 'palm-tree'

(Actually, I shall reanalyze the underlying forms of 'to simmer', 'drum' and 'palm-tree' in Chapter IV as /tɬim/, /tuun/ and /tuum/, respectively.) The rule given in (11) will apply to all underlying consonants except /s/, /z/, the nasals /m/, /n/ and /ŋ/ -- and /c/ and /ʃ/. (It is recalled that [w], [l], [y] and [ŋ] are not underlying segments; these consonants are discussed more fully in Chapter III.) In most Fe`fe` villages (e.g. Baponen), although there has been recent confusion due to contact with other villages, [c] and [ʃ] occur only before long high vowels and before non-high vowels:

(13) [cɪl] 'to feed' [cuu] 'to contaminate' [cuu] 'to be late'

Returning to [ʃ] and [ʒ], we note that both of these consonants occur only before final short high vowels. (This is the case with [ʒ] in all Fe`fe` villages, though there is some variation with respect to [ʃ]; see below.) Compare the following words to those just given in (13):

(14) [nʃi] 'water' [nʃu] 'mouth' [nʃuʔ] 'one'

(The nasal prefix can be ignored. I cite the above examples only because it is difficult to find minimal pairs.) Thus, [ʃ] and [ʒ] are derived from /c/ and /ʃ/ in the same way that [θ] is derived from /t/. They are realizations of /c/ and /ʃ/ before short high vowels in final position (or followed by glottal stop). An intermediate stage with /c/ and /ʃ/ having undergone the tensing rule to yield [ch] and [jʃ] should be posited. Thus, /c/ and /ʃ/ cease to be exceptional and village variation is accounted for:

(15)

\[
\begin{align*}
/c/ & + \left\{ \begin{array}{c} l \\ u \\ u \end{array} \right\} \rightarrow ch \rightarrow ʃ \\
/j/ & + \left\{ \begin{array}{c} l \\ u \\ u \end{array} \right\} \rightarrow jh \rightarrow ʒ
\end{align*}
\]

Thus, the following underlying forms are posited with their phonetic realizations:
(16) \[Nc\] / 'water' \rightarrow nch\[l\] \rightarrow [n\[\ddot{s}\]l]
\[Nc\[u\] / 'mouth' \rightarrow nch\[u\] \rightarrow [n\[\ddot{s}\]u]
\[Nc\[e\]? / 'one' \rightarrow nch\[e\]? \rightarrow [n\[\ddot{s}\]?]

cf. \[Nj\] / 'road' \rightarrow njh\[l\] \rightarrow [n\[\ddot{z}\]l]

In terms of distinctive features, the rule that derives \[\ddot{s}\] and \[\ddot{z}\] would look like the following:

(17) \[\begin{array}{c}
-\text{grave} \\
-\text{ant} \\
+\text{tense} \\
\text{C}
\end{array}\] \rightarrow [+cont]

Notice that the verbs 'to kill' and 'to see' are now near minimal pairs on the phonological level (the final /n/ of 'to see' will be justified in Chapter IV):

(18) /j[l]/ 'to kill' \rightarrow jhl \rightarrow [\ddot{z}l]

/j[l]n/ 'to see' \rightarrow jll \rightarrow [\ddot{y}l]

All Fe\[e\]fe\[e\] villages pronounce [n\[\ddot{z}\]l] 'road' and [\ddot{z}l] 'to kill', but I have already alluded to the confusion surrounding \[\ddot{s}\]. In Banka, Banja, and Babouantou (the prominent Northern Fe\[e\]fe\[e\] (NF) villages), /c/ is never pronounced \[\ddot{s}\]:

(19) \[Nc\] / \rightarrow [nch\[l\]] (cf. [n\[\ddot{s}\]l]) 'water'
\[c\[l\] / \rightarrow [c\[l\]] (cf. [c\[l\]]) 'to feed'

In other words, the intermediate form [ch] (i.e. aspirated [\ddot{z}]) is found in these villages. (Notice, however, that the voiced counterpart is still modified to [\ddot{z}] as in [n\[\ddot{z}\]l] 'road'.) In some Petit Diboum villages, on the other hand, \underline{all} instances of /c/ are pronounced \[\ddot{s}\] in all positions:

(20) \[Nc\] / 'water' \rightarrow [n\[\ddot{s}\]l] (cf. [n\[\ddot{s}\]l])
\[c\[l\] / 'to feed' \rightarrow [\ddot{s}l] (cf. [c\[l\]])

The village differences are summarized in the following table:
(21) Proposed Underlying Form | Baponen | Banka | Petit Diboum  
---|---|---|---
/Nc/ | 'water' | [nʃ] | [nʃ]  
/cl/ | 'to feed' | [cl] | [cl]  
/cd/ | 'to break' | [kt] | [kt]  

(In Chapter IV, 'to feed' will be reanalyzed as /clim/.) It is possible to transcribe 'water' in Baponen and Petit Diboum as [nʃ]. This is particularly clear in Petit Diboum, where the [ʃ] in 'water' is pronounced with greater friction than the [ʃ] in either 'to feed' or 'to break'.

In Petit Diboum, one may want to posit an underlying /ʃ/, since there are no occurrences of [c] on the surface. (There are, however, occurrences of [j], e.g. [njil] 'to see'.) The confusion arises, however, from frequent occurrences of dialect borrowing from village to village. A Banka speaker should pronounce [nchú] 'mouth', but may inconsistently prefer [nʃu], though retaining [nch] (and not preferring [nʃ]) for 'water'. Since Nufi favors Petit Diboum villages, these have received considerable recent prestige value in the area.

Notice, in passing, that /h/ also has a [+tense] variant, pronounced with greater friction. Thus in (22), the word 'leaf' begins with a uvular fricative /χ/:

(22) /hú/ | 'leaf' | → [χu]  
/hūu/ | 'to stumble upon' | → [hūu]  

('To stumble upon' is reanalyzed in Chapter IV as /huun/.)

In the preceding discussion it was shown that consonants become tense before short high vowels in final position. Different villages treat these consonants differently when they are followed by vowel sequences (diphthongs) in which the first vowel is by morpheme structure condition, always short and high. Thus, there are villages such as Banka where 'small' (which is analyzed as /tʃaad/) is pronounced [tʃa] and villages where [tʃa] is pronounced. This presence or absence of aspiration can sometimes make a crucial difference. We noted the consonant alternation between [j] and [y] in (3) above. I said that [j] occurs after a homorganic nasal prefix and [y] occurs elsewhere, as in the alternation [yliwo:njl] 'to see'. However, the verb /ji/ 'to kill' is pronounced
[ŋ] when there is no nasal, and [n̩ŋ] when there is a nasal. Thus, when there is no aspiration, there is an alternation between [j] and [y], i.e. /j/ becomes [y] when not preceded by a nasal consonant. But, when there is aspiration, there is no alternation: [ŋ] is observed both in the presence and in the absence of the preceding nasal. Returning to vowel sequences, I noted that while Central FeⁿFeⁿ (CF) villages aspirate consonants before such sequences and pronounce [θ̣a] 'small', NF villages do not aspirate, but pronounce [ṭa]. Compare, then, the forms in the following table:

(23) Proposed Underlying Form Central FeⁿFeⁿ Northern FeⁿFeⁿ

/ṭaad/ 'small' [θ̣a] [ṭa]
/cụ/ 'to leave' [ʂ̣uː:n̩ŋə] [c̣uː:n̩ŋə]
/jle/ 'to become' [ŋleː:n̩ŋle] [yḷeː:n̩ŋle]

In the CF forms consonants are aspirated before /laad/, /wa/ and /le/. Consequently, ch becomes [ŋ] in 'to leave' and jh becomes [ŋ] in 'to become'. In NF villages there is no aspiration before diphthongs. Thus, /c/ remains [c] in 'to leave' and /j/ shows the same y:j alternation seen in the verb 'to see' in (8). The significance of this variation will be seen in Chapter III.

2.2. /w/ in FeⁿFeⁿ.

The one remaining consonant that requires further discussion at this point is /w/. As the initial consonant C₁ it usually alternates with [g] or [gw]. In some cases the conditioning factor is clear:

(24) [w̱u] : [ŋgw̱u] 'to be sick'

One expects to find the form [ŋwu] instead of [w̱u], and in fact, some speakers do pronounce a weak fricative instead of the glide [w]. What is happening is that [y] is assimilating to [w] before the high rounded vowel [u]. (The alternation [wɔʔ:ŋguʔ] 'to grind' is also occasionally heard instead of the more common alternation [ŋuʔ:ŋguʔ].) A slightly different situation is observed in the following alternation:

(25) [waʔ] : [ŋgw̱ah] 'to scorn'

Since from alternations such as [ŋaʔ:ŋgaʔ] 'to refuse' [ŋ] is shown
to alternate with [g], the form [ywah] is expected rather than [wah]. Thus it is necessary to posit a rule of the form in (26), which will delete [y] before [w]:

(26)  \[ y \rightarrow \emptyset / \_ \_ \ w \]

It would of course be possible to view the gamma as first assimilating to the glide to produce an intermediate [wwah], but in this case we would require a glide-simplification rule to produce [wah]. Since there does not appear to be any independent evidence for such a glide-simplification rule, the rule in (26) is adopted. Thus it is seen that /w/ need not be recognized as a phoneme in \( C_1 \) position, since it always derives from /g/ through an intermediate [y] stage. Of course, there will be some morphemes that do not alternate, e.g. [wèn] 'man, person', which is underlyingly /gwèn/.

It is however necessary to recognize post-consonantal /w/ as a phoneme. The following constraints on its distribution have been noted:

(27) a. [w] is never found after alveolars
b. [w] is found after labials only if followed in turn by /en/
c. [w] is followed only by the vowels [i], [e], [e] and [a], i.e. by front unrounded vowels

(Sequences of \( C_1 + w \) should not be confused with sequences of \( C_1 \) followed by diphthongs such as /ou/, /ua/, etc.) There are three possible approaches to \( C_w \) sequences: 1) they are analyzed as /Cw/; 2) they are analyzed as /C^w/; and 3) they are analyzed as /CuV/ — e.g. /kwên/ or /k^e'en/ or /kwen/ 'to enter'. The last approach can be eliminated on a number of grounds. First, it violates the MSc's on vowel sequences (see below). Second, such sequences of /u/ + /v/ would be unlike other vowel sequences in that they would be subject to the three constraints listed above. Finally, there is a phonetic and phonological difference between /CuV/ and /CwV/. Evidence for this is found in the NF village of Babouantou. In this village what will be analyzed as /kwad/ 'to attach' is pronounced [k\( \text{pwa\dagger} \)] (i.e. with a co-articulated stop with a labial offglide), while what will be analyzed as /kuα/ 'to die' is pronounced [kuo]. This means that Babouantou speakers were aware of a difference, since they converted /kW/ to [k\( \text{pw} \)] but did not convert /kuU/ to [k\( \text{pu} \)].
there is a contrast between [kwat] 'to attach' and [kùst] (an ideophone describing the sound of food going down the throat).

The major historical source of post-consonantal [w] is from previous sequences of CVC, where the vowel was [+round], but later became unrounded. Proto-Bamileke *oŋ is realized as [ɛ?] in CF villages (cf. [ɔ?] in NF villages), as illustrated with respect to PBke *soŋ 'tooth' in Chapter I. After palatals and velars, i.e. [-ant] consonants, the [w] is left behind as the trace of PBke *o:

(28)  
\[\begin{align*}
  &/bɛʔ/ \quad \text{'to be good'} \quad \rightarrow \quad [pɛʔ] \quad (\text{PBke *boŋ}) \\
  &/sɛʔ/ \quad \text{'tooth'} \quad \rightarrow \quad [sɛʔ] \quad (\text{PBke *soŋ}) \\
  &/c\w_{ɛʔ}/ \quad \text{'news'} \quad \rightarrow \quad [c\w_{ɛʔ}] \quad (\text{PBke *coŋ}) \\
  &/k\w_{ɛʔ}/ \quad \text{'spear'} \quad \rightarrow \quad [k\w_{ɛʔ}] \quad (\text{PBke *koŋ})
\end{align*}\]

Proto-Bamileke *un is realized as /Cwen/ in Fe?fe? (except when the consonant is alveolar):

(29)  
\[\begin{align*}
  &/b\w_{ɛn}/ \quad \text{'to shout'} \quad \rightarrow \quad [p\w_{ɛn}] \quad (\text{PBke *bun}) \\
  &/s\w_{ɛn}/ \quad \text{'friend'} \quad \rightarrow \quad [s\w_{ɛn}] \quad (\text{PBke *sun}) \\
  &/j\w_{ɛn}/ \quad \text{'to buy'} \quad \rightarrow \quad [y\w_{ɛn}] \quad (\text{PBke *jun}) \\
  &/k\w_{ɛn}/ \quad \text{'to enter'} \quad \rightarrow \quad [k\w_{ɛn}] \quad (\text{PBke *kun})
\end{align*}\]

Other instances of Cw must be reconstructed for the proto language (e.g. *gwəŋ 'salt', Fe?fe? [ŋgwəʔ]), although they possibly have a similar more distant source (cf. *kwəŋ 'to join', Fe?fe? [kwəʔ]). There do not seem to be any solid arguments as to whether these should all be analyzed as /Cw/ or /Cw/. By recognizing /Cw/ we can do entirely without a /w/ phoneme, but at the expense of distinguishing labialized labials, palatals and velars in the lexicon. It seems to me, however, that the language is now in the process of developing a true /w/ phoneme which will be considerably freer to move around than the post-consonantal /w/. For example, some speakers give [ŋwəRevenue] as the plural of [wəRevenue] 'generation', though no one says *[ŋgwəRevenue]. This points to the ultimate rephonemization of initial [w], which will no longer be derived from /gw/ at some point in time (see Chapter III). Therefore, a phoneme /w/ will be posited, which can occur only in post-consonantal position, and only in conjunction with the three
constraints given in (27).

2.3. Final Consonant Phonemes.

Turning to C₂ position in the formula given in (1), it is noted that only the phonetic consonants [p], [t], [k], [m], [n], [h] and [?] are found. It is clear that the last four consonants are to be analyzed as /m/, /n/, /h/ and /?/. The voiceless stops [p], [t] and [k], however, are recognized as realizations of /b/, /d/ and /g/, respectively, for reasons that will be given in Chapter III. A rule of final devoicing will be presented and justified, which is responsible for the sample derivations in (30):

(30) /vab/ 'to whip' → [vab]  
     /fad/ 'to eat' → [fat]  
     /cag/ 'to seek' → [căk]

The restrictions on vowels which can precede these C₂ consonants are given in Section 4.0 below.

2.4. Summary of Underlying Consonant System.

We can summarize the discussion of Fe?fe? consonants by means of the following table of underlying consonantal phonemes (compare with the phonetic consonants given in the table in (3)):

(31)

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<th>c</th>
<th>k</th>
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<td>b</td>
<td>d</td>
<td>j</td>
<td>g</td>
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<tr>
<td>f</td>
<td>s</td>
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<tr>
<td>v</td>
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<tr>
<td>m</td>
<td>n</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>(w)</td>
<td>-</td>
<td>-</td>
<td>?</td>
</tr>
</tbody>
</table>

The following phonemes can occur in C₁ position:

(32) /t/ : /tǔ/ → [thǔ] 'head'  
     /c/ : /căg/ → [căk] 'pot'  
     /k/ : /kǔ/ → [khǔ] 'foot'
The following consonant phonemes can occur as $C_2$:

\[(33)\]

- /b/ : /bə/ $\rightarrow$ [pə] 'hand'
- /d/ : /dəŋ/ $\rightarrow$ [ləŋ] 'stone'
- /j/ : /jɪ/ $\rightarrow$ [zɪ] 'to kill'
- /g/ : /ɡə/ $\rightarrow$ [ɣə] 'to have'
- /f/ : /fɛn/ $\rightarrow$ [fɛn] 'to sell'
- /s/ : /sɪ/ $\rightarrow$ [si] 'face'
- /v/ : /və/ $\rightarrow$ [və] 'ashes'
- /z/ : /zɬʔ/ $\rightarrow$ [zɬʔ] 'sweat'
- /h/ : /hʊ/ $\rightarrow$ [χʊ] 'leaf'
- /m/ : /məʔ/ $\rightarrow$ [məʔ] 'to throw'
- /n/ : /nəʔ/ $\rightarrow$ [nəʔ] 'field'
- /ŋ/ : /ŋũ/ $\rightarrow$ [ŋũ] 'moon'

The glide /w/ can occur in post-consonantal position:

\[(34)\]

- /w/ : /cwɨ/ $\rightarrow$ [ʃwɨ] 'to grow'

3.0. The Distinctive Features of Vowels.

Feⁿfeⁿ permits a wide variety of phonetic vowel sounds, which are given in the following table in (34):
The underlying system is however nowhere near as complex. The following system of underlying vowels will be argued for:

(36)  

\[
\begin{array}{ccc}
(-\text{grave}) & (+\text{grave}) & (+\text{grave}) \\
\hat{\imath} & \hat{\imath} & \imath \\
\hat{e} & (\hat{\imath}) & o \\
(\varepsilon) & (\partial) & \\
a & a & a \\
\end{array}
\]

The symbol \(/\hat{u}/ is used for I.P.A. [\(\hat{u}\)]. The vowels \(/\varepsilon/ and \(/\partial/ are of questionable phonemic status, while \(/\hat{\imath}/ occurs as a phonemic short vowel only in certain villages where */um/* has become */\hat{ym}/*.

In addition to these underlying short vowels, the following long vowels must be recognized:

(37)  

\[
\begin{array}{ccc}
\hat{\imath}\hat{\imath} & \hat{\imath}u & uu \\
\hat{e}\hat{e} & \hat{\imath}v & \hat{\imath}v \\
\hat{a}\hat{a} & \hat{\imath}\hat{\imath} & \hat{\imath}\hat{\imath} \\
\end{array}
\]

The mid back unrounded vowel \(/\hat{\imath}\hat{\imath}/ only occurs long in most Fe?fe? villages, and, as noted as one of the two criteria for Fe?fe? in Chapter I, is the reflex of Proto-Bamileke \(*am:\n
(38)  

\begin{align*}
\text{PBke} & \text{'nam} 'animal' & > & \text{Fe?fe?} & [\hat{\imath}\hat{\imath}\hat{\imath}] \\
\text{PBke} & \text{'kam} 'crab' & > & \text{Fe?fe?} & [\hat{\imath}\hat{\imath}\hat{\imath}] \\
\text{PBke} & \text{'gam} 'to speak' & > & \text{Fe?fe?} & [\hat{\imath}\hat{\imath}\hat{\imath}] \\
\end{align*}

(In a few villages, what most Fe?fe? speakers pronounce as [\(um\)] or [\(om\)] is pronounced [\(\hat{ym}\)], e.g. [\(tum\)] or [\(tom\)] or [\(t\hat{ym}\)] 'to leave'.) The vowels
/ə/ and /a/ do not occur short in open syllables, though they appear short in closed syllables. (The question of long and short vowels is taken up in Chapter IV.)

The vowels /ɛ/, /u/ and /e/ are realized as [t], [o] and [i] whenever they are short and in open syllables. Although I shall not include such fine phonetic detail in my transcriptions, this laxing process can be captured by a low-level rule of the form in (39):

(39)  
\[
\begin{array}{c}
\text{[+high]} \\
\text{[-long]} \\
\text{V}
\end{array}
\rightarrow \text{[-tense]} / \ldots \#
\]

Since most consonants become [+tense] before short high vowels in open syllables (cf. (11) above), the laxing of these vowels in (39) can be viewed as a compensation for the tensing of the initial consonant. The two rules cannot be collapsed, however, since rule (11) must precede the reduplication rule discussed in Chapter V, while rule (39) must follow it, as seen in (40):

(40)  
/to/ 'to punch' → tɔto → [tɨto]

If the tensing rule had followed the reduplication rule in (40), the phonetic output would have been *[thɨto], which is incorrect. Thus, while the two processes represented in rules (11) and (39) are unquestionably related, they cannot be collapsed. The words 'to forge', 'head' and 'tree' given in (10) above must then first undergo rule (11) and then rule (39):

(41)  
/tʃ/ 'to forge' → [tʃ] → [tʃ]
/tʃ/ 'head' → [tʃ] → [tʃ]
/tʃ/ 'tree' → [tʃ] → [tʃ]

What this means is that syllables with high vowels will usually have one [+tense] segment and one [-tense] segment. Thus, the word [thɨ] 'head' has a [+tense] consonant [θ] and a [-tense] vowel [ɨ], while the word [tʃu] 'drum' has a [-tense] consonant [t] and a [+tense] vowel [uu].

(Phonetically, [ɨ] differs from [u] (= [w]) in that the latter is a back vowel, whereas the former is a central vowel. Both are high and unrounded.) Notice that in the village of Banks, where *ug has remained /ug/ rather
than becoming /och/, as shown in Chapter I, the vowel sound is also [o], as in [mok] 'fire' (cf. CF [moh]). The vowel [t] is also sometimes heard instead of [ε] in the sequence /en/, e.g. [ŋɛn] or [ŋɛn] 'stranger'. In such cases, the epsilon is much more frequently encountered.

The front rounded vowels [UI] and [æ] also have a limited distribution. The vowel [æ] is found only before glottal stop and is the reflex of PBke *onj in NF villages, including Bana. CF villages further changed [æ?] to [ε?], as seen in (42):

(42) PBke *soŋ 'tooth' > NF [sɛ?] (cf. CF [sɛ?])
PBke *konŋ 'spear' > NF [kɛ?] (cf. CF [kɛ?])

The vowel [UI] occurs as the surface realization of short /l/ preceded by /w/ (which is fronted to [W] if [U] is not created):

(43) /Ncwi/ 'firewood' → [nʃWI] or [nʃU]
/jwi/ 'to laugh' → [ʃWI] or [ʃU]

Actually, this derived [UI] is pronounced like the [-tense] I.P.A. [γ], i.e. more like German Hütte 'hut' than like German Hütte 'hats'. (Recall that 'firewood' would be pronounced [nʃWI] or [nʃU] and 'to laugh' [ʃWI] or [ʃU] in NF villages.) The vowel [UI] will be found only after palatals, since the sequence /CWI/ is obtained only when the consonant is palatal (historically, *k and *g were palatalized before *l and thereby merged with /c/ and /j/, respectively).

The vowel [æ] is a frequent realization of short /a/ (which is otherwise pronounced as in French patte 'paw') in open syllable, i.e. in grammatical morphemes (see above). Also, /ah/ is sometimes pronounced [a] (with or without the [h], which is tending to disappear): [lɐh] or [lɐh] or [lɐ] 'to take'. (Compare [lat] 'to jump', which sometimes loses its final [t] and is pronounced [la], though never [la].)

The vowel [æ] is a frequent realization of the second vowel in the vowel sequence (diphthong) /ie/: [sIɛ] or [sIɛ] 'ground'. Also, in the NF villages of Babouantou and Banja, some instances of high short vowels in syllable final position have changed to schwa, as seen in (44):

(44) /bI/ 'kola' → phl → [phl] (CF)
cf. Babouantou [tsɔ]
/tʊ/ 'head' → thʊ → [θʊ] (CF)
cf. Banja [tsʊ]

The change from an aspirated consonant to an affricate is not surprising, given the affricate-like quality of these heavily fricitionized [+tense] consonants. The complete historical development for 'kola' is as follows, where most of the intermediate stages are attested dialectically:

(45) *bl > pl > phl > phl > pf > pš > pš > tš

(Similar phonetic changes are found in Jukunoid (Shimizu [1971]) and in Niger-Kaduna (Hyman and Magaji [1970]).) (Cf. Nupe [eb] 'kola'.)

The vowel /a/ (a low back unrounded vowel) has several realizations. First of all, it contrasts with /a/ (a low front unrounded vowel) in two positions in lexical morphemes: before /h/ and before /ʔ/, as seen in the minimal pairs in (46):

(46) [ɪ̥ːh] 'to take' [s̥ːʔ] 'to spill'

[ɪ̥ːh] 'to forget' [s̥ːʔ] 'to come'

If grammatical morphemes are also considered, then [a] 'my/me' contrasts with [á] (subjunctive marker). In other positions, either [a] or [o] is found (either as free variants or in complementary distribution). While it may appear that [aa] contrasts with [aɔ] in pairs of words such as the following,

(47) [pəa] 'to flatter' [pəa] 'wing'

the following underlying forms are proposed in Chapter IV: /baad/ 'to flatter' and /bôd/ 'wing'. Thus, the two do not contrast in this case:

/a/ is found before /d/, and /a/ before /b/. The realization of /a/ when short is somewhat between [a] and [ʌ], i.e. open to half-open. When long, it is realized as [ɔ], i.e. rounded:

(48) /za/ 'to eat' → [za] or [zʌ]

/câɡ/ 'pot' → [câk] or [câk]

/Nkôd/ 'money' → [ŋkɔd]

The final /b/ that follows every instance of /a/ is responsible for the rounding of the vowel, though I shall continue to transcribe this vowel as
[əə]. The fact that the final /b/ is responsible for the rounding of /əə/
shows the need for a feature Labial in phonological theory (cf. Anderson
[1971], Campbell [1969]).

3.1. The Vowel [ɛ].

The only vowels that remain to be analyzed are [ɛ] and [ɔ], both of
which appear to be phonemic in Feʔfeʔ. The vowel [ɛ] appears in \( V_1 \)
position (i.e. directly following the initial consonant \( C_1 \)) only if fol-
lowed by /n/, /h/ or /ʔ/, as illustrated in (49):

(49) [pɛn] 'breast'  [cɛh] 'to read'  [sɛʔ] 'tooth'
    [fɛn] 'to sell'  [γɛh] 'breath'  [tɛʔ] 'navel'

In the case of [ɛn] there is no need to recognize a separate vowel phoneme
/ɛ/ (as distinct from /e/), since [ɛ] is the only vowel found before /n/
(though in free variation with the less frequent vowel [ɛ]). Thus, we
can recognize the phonological forms /bɛn/ 'breast' and /fɛn/ 'to sell',
and a low-level phonetic rule that laxes /e/ to [ɛ]. Similarly, [ɛh] can
be analyzed as /eh/, since there is no contrast between [ɛ] and [ɛ] be-
fore /h/. Before /ʔ/, however, there is a potential contrast, as seen in
the only minimal pair I have found:

(50) [pɛʔ] 'house'  [pɛʔ] 'to be good'

This contrast has a very low functional yield, which is explained by the
historical origin of [ɛʔ] from PBke *ŋoŋ, and by the extremely low number
of lexical morphemes with [ɛʔ]. (The language name [fɛʔɛfɛʔɛ] derives
from a grammatical morpheme, and literally means 'thus, thus'.) It may be
recalled that *Coŋ is realized in Feʔfeʔ as [Cweʔ] if the consonant is
palatal or velar (e.g. *koŋ 'spear' becomes [kwɛʔ]; cf. (28) above). Thus,
a word like [γɛʔ:ŋɛʔ] 'to cry' could not be a minimal pair with something
like [γɛʔ:ŋɛʔ] because PBke *goŋ would be pronounced [wɛʔ:ŋgwɛʔ] in
Feʔfeʔ. Thus, there will be no minimal pairs when \( C_1 \) is palatal or velar.
Since minimal pairs are virtually non-existent, perhaps /ɛ/ can be dis-
pensed with. In fact, younger people, as well as some others, have already
begun to merge [ɛʔ] and [ɛʔ]. For these speakers 'house' will be pro-
nounced [pɛʔ] and will not contrast with the verb 'to be good' (cf. also
[fɛʔɛfɛʔɛ']). I shall therefore recognize only /e/ and provide a rule that
changes /ə/ to [ɛ] in closed syllables, as seen in (51):

(51) / bèʔ/ 'house' → [pɛʔ]
     / bèʔ/ 'to be good' → [pɛʔ]
     /cəh/ 'to read' → [cɛh]
     /jəh/ 'breath' → [yɛh]
     /bən/ 'breast' → [pɛn]
     /fèn/ 'to sell' → [fɛn]
     /səʔ/ 'tooth' → [sɛʔ]
     /təʔ/ 'navel' → [tɛʔ]

Notice that this laxing of the vowel /ə/ to [ɛ] will figure as part of the general process of vowel laxing in closed syllables by which /vəb/ 'dust', for example, becomes [vʊp], etc. (There are exceptional environments, however, since laxing does not normally take place before glottal stop, e.g. /təʔ/ 'box' is realized as [tɔʔ] and not as *[tɔʔ].) Speakers who pronounce [pɛʔ] 'house' and not [pɛʔ] simply fail to lax the vowel of those few morphemes that contain the sequence [əʔ]. These morphemes will therefore have to be specially marked. Notice, however, that NF villages which maintain the older sound [ɔʔ] instead of [ɛʔ] do not have this problem. Instead, /ɔ/ must be posited.

3.2. The Vowel [ɔ].

The vowel [ɔ] is found before [p], [k] and [h]. The first two are always pronounced with [ɔ]. A few speakers claim to make a distinction between [ɔh] and [ɔh], where [ɔh] is the reflex of PBke *ug and [ɔh] the reflex of *og. However, these speakers (from parts of Petit Diboum) are clearly in the minority. Notice also that some speakers in the Petit Diboum area have changed *og to [ɔh] and then to [wh]. These variations are displayed in the table in (52):

(52) Proto-Bamileke CF  PD₁  PD₂

*ug 'to wash' [sɔh]  [sɔh]  [sɔh]
*kog 'to be small' [koh]  [koh]  [kʌh]
There must then be a rule that converts /o/ to [ɔ] before a consonant, part of the general process represented in the following rule:

\[(53) \quad V \rightarrow [-\text{tense}] / \_ \_ \_ C \#\]

Examples are given in (54):

\[(54) \quad /\text{vɔb}/ \quad \rightarrow \quad [\text{vɔp}]\]
\[(54) \quad /\text{to}g/ \quad \rightarrow \quad [\text{tɔk}]\]
\[(54) \quad /\text{sɔh}/ \quad \rightarrow \quad [\text{sɔh}]\]

Glottal stop does not satisfy the structural description of this rule: /gɔʔ/ 'to grind' is pronounced [gɔʔ] and not *[γɔʔ]. Notice, however, that [ɔ] is a possible realization before /m/, e.g. [tom] 'to leave'. It is possible, however, that this should be analyzed as /tum/, which then (optionally) lowers to [tom], and in some villages becomes rounded to [twm]. I have also heard the pronunciation [tom], which means that the speakers have at that point analyzed it as /tom/, instead of /tum/, and allowed it to undergo the laxing rule in (53). Thus, [ɔ] is clearly not an underlying phoneme of Feʔfeʔ. The only remaining problem has to do with long [ɔː], e.g. [kɔːb] 'belt' and [sɔːb] 'to stab'. In Chapter IV I shall argue that the correct underlying forms of these words are /kɔˈɒb/ and /sɔˈɒb/, respectively. The final /b/ drops if not followed by a vowel. For the time being, however, note that [ɔː] does not contrast with [oo], unless [oo] is the realization of /uu/. /uu/ is realized as [uu] or [oo], depending on the village, and /oo/ is generally realized as [ɔː]. Thus, [ɔː] can be recognized phonologically as /oo/.

3.3. Summary of Underlying Vowel System.

The distinctive feature matrix characterizing the underlying vowel phonemes /i/, /e/, /a/, /u/, /ʊ/, /o/ and /ɑ/ is given in (55) below. All underlying vowels are redundantly specified as [+tense]. In (56), the distinctive feature matrix of the derived phonetic vowels [i], [ɛ], [ɛ], [o], [ɔ], [u] and [ɑ] is also given. These vowels are all considered to be [-tense].
(55) \[ \text{UNDERLYING VOWEL MATRIX} \]

<table>
<thead>
<tr>
<th></th>
<th>i</th>
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<th>a</th>
<th>u</th>
<th>u</th>
<th>o</th>
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</table>

(56) \[ \text{PHONETIC VOWEL MATRIX} \]

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<th>i</th>
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4.0. Constraints on Final Vowel-Consonant Sequences.

Morphemes whose phonological and phonetic shape are CVC exhibit the following \( V_C^1 C_2 \) sequences, which although limited, are not accidental:

\[(57) \begin{align*} 
/b/ & : /ob/ \rightarrow [ap] \quad \text{e.g.} \quad [\text{gop}] \text{ 'skin'} \\
/ab/ & \rightarrow [ap] \quad [\text{gåp}] \text{ 'hen'} \\
/m/ & : /um/ \rightarrow [um], [om] \quad [\text{tum}], [\text{tom}], [\text{tım}], [\text{vım}], [\text{vom}] \text{ 'to leave'} \\
/am/ & \rightarrow [am], [äm] \quad [\text{väm}], [\text{väm}] \text{ 'belly'} \\
/d/ & : /ad/ \rightarrow [at] \quad [\text{mvåt}] \text{ 'oil'} \\
/n/ & : /en/ \rightarrow [en], [ın] \quad [\text{sın}], [\text{sın}] \text{ 'friend'} 
\end{align*} \]
/g/ : /og/ → [ɔk] e.g. [tɔk] 'ear'
    /ag/ → [ɔk]        [sək] 'bird'
/h/: /eh/ → [ɛh]       [nɛh] 'in vain'
    /ah/ → [ɑh]        [ŋɑh] 'to try'
    /oh/ → [ɔh], [ɒh] [tɔh], [tɔh] 'to pass'
    /ah/ → [ɑh]        [kɑh] 'to economize'
/ʔ/: /ɪʔ/ → [ɪʔ]       [fɪʔ] 'to descend'
    /eʔ/ → [eʔ], [ɛʔ] [pɛʔ] 'house'
    [pɛʔ] 'to be good'
    /aʔ/ → [aʔ]        [taʔ] 'to bargain'
    /uʔ/ → [uʔ]        [yuʔ] 'to hear'
    /oʔ/ → [oʔ]        [tɔʔ] 'to begin'
    /uʔ/ → [uʔ]        [lɔʔ] 'to vomit'
    /aʔ/ → [aʔ]        [fɔʔ] 'to work'

All underlying vowels occur before glottal stop except /ɪʔ/, which only occurs long. Before other consonants, however, there are severe limitations. While these limitations may seem to be due to chance, they are in fact the product of a number of sound changes which will be discussed in Chapter VIII. The consonant /h/ permits only mid and low vowels in front of it, i.e. /e/, /a/, /o/ and /a/, but not /ɪ/, /u/ and /u/. Thus, a morpheme structure condition as in (58) is needed:

(58) If: [+syllabic] h #
       ↓
Then:  [-high]

Before the [+grave] non-nasal stops /b/ and /g/ only /o/ and /a/ are found. A morpheme structure of the following form captures this redundancy:
(59) If:  
\[ [+\text{syl} ] \quad \begin{array}{c}
+\text{consonantal} \\
\quad +\text{grave} \\
\quad -\text{continuant} \\
\quad -\text{nasal}
\end{array} \]  
\#  
\[ \downarrow \]  
Then:  
\[ \begin{array}{c}
-\text{high} \\
\quad +\text{low} \\
\quad +\text{grave} \\
\quad -\text{a round}
\end{array} \]  
The two vowels permitted before /b/ and /g/ are /o/ ([-high, -low, +grave, +round]) and /a/ ([-high, +low, +grave, -round]). The two vowels /u/ and /a/ occur before /m/, as captured by the morpheme structure condition in (60):  
(60) If:  
\[ [+\text{syl} ] \quad \begin{array}{c}
+\text{consonantal} \\
\quad +\text{grave} \\
\quad +\text{nasal}
\end{array} \]  
\#  
\[ \downarrow \]  
Then:  
\[ \begin{array}{c}
\quad \text{a high} \\
\quad -\text{a low} \\
\quad \text{a grave} \\
\quad \text{a round}
\end{array} \]  
The vowel /u/ is [+high, -low, +grave, +round] and the vowel /a/ is [-high, +low, -grave, -round]. Notice, however, that /um/ is tending toward /om/ and /am/ toward /om/, this making /m/ more like its non-nasal [+grave] counterparts /b/ and /g/ (cf. (59) above). Thus, one can pronounce /tum/ 'to leave' as [tum] or [tom] or even [tɔm] (also [tɔm]), thereby making it share the constraint on long /vv/, which only occurs before /m/ -- see Chapter IV). Also, /vam/ 'belly' can be pronounced [vam] or [vɔm]. Once it becomes obligatory to pronounce [vam], just as one must now pronounce [vap] 'to whip' (and not *[vap]) and [sək] 'bird' (and not *[sək]), 'belly' will have to be reanalyzed as /vam/. The only vowel that can occur before /d/ is /a/. The only vowel that occurs before /n/ is /e/. These two constraints are captured by the following morpheme structure condition in (61):  
(61) If:  
\[ [+\text{syl} ] \quad \begin{array}{c}
+\text{consonantal} \\
\quad -\text{grave}
\end{array} \]  
\[ \quad <-\text{nasal}> \]  
\[ \downarrow \]  
Then:  
\[ \begin{array}{c}
-\text{high} \\
\quad -\text{grave} \\
\quad <-\text{low}> 
\end{array} \]  
The vowel /a/ is [-high, -grave, +low] and the vowel /e/ is [-high, -grave,
-low]. Both are redundantly [-round], since there is a further MSC
which states that underlying vowels that are [-grave] are also [-round]:

(62) If: \[
\begin{array}{c}
{\text{+syllabic}} \\
{-\text{grave}} \\
\end{array}
\]

Then: [-round]

Notice that in all of the above MSC's the assimilatory nature of the
V₁C₂ combinations with respect to the feature Grave is obvious. Except
for final /m/ (which is in the process of changing, as noted), V₁ and
C₂ agree in graveness. Recall that except before /h/ and /ʔ/ there is
no contrast between /a/, which is [-grave], and /a/, which is [+grave].
The MSC's predict which vowel phoneme occurs before /b/, /d/, /g/, /m/ and
/n/, as shown above. It would, then, theoretically be possible to recog-
nize an archiphoneme /A/ (if blanks are permitted in the lexicon), or to
recognize /a/ in all of these cases (with phonological rules changing /a/
to [a] in the appropriate environments; cf. /vəm/ 'belly', which becomes
optionally [vəm]). Since the rule that would change /a/ to [a] would
have to apply early in the derivation (it must, for example, precede the
reduplication rule discussed in Chapter V), I have assumed that the
phonetic vowel is the underlying vowel and that the MSC's state the re-
dundancies.

5.0. Diphthongs.

Fe?fe? is also characterized by a number of diphthongs (vowel sequences
of two dissimilar vowels), which are not to be confused with long vowels
(which are one segment but are written double, e.g. /uu/, /aa/, etc.). In
all diphthongs, the first element is [+high] and the second element [-high].
That is, each consists of a high vowel followed by a mid or low vowel, as
captured in the following MSC:

(63) If: \[
\begin{array}{c}
{\text{+syllabic}} \\
{\text{+syllabic}} \\
\end{array}
\]

Then: \[
\begin{array}{c}
{\text{+high}} \\
{-\text{high}} \\
\end{array}
\]

The complete list of possible diphthongs are listed below and exemplified
both phonologically and phonetically:
(64)  /le/  :  /s¥e/  →  [s¥e]  'ground'
/laa/  :  /t¥aad/  →  [th¥a]  'small'
/uo/  :  /b¥o/  →  [p¥o]  'hand'
/uaa/  :  /k¥aad/  →  [k¥a]  'to carry away'
/ua/  :  /kua/  →  [kua]  'to die'
/uoa/  :  /kuaab/  →  [kuaa]  'to grasp in the air'
/oa/  :  /m¥o/  →  [m¥o]  'dog'
/iaa/  :  /b¥oab/  →  [p¥o]  'to wait for'

The diphthong /le/ is pronounced either [iə] or [iæ]. The diphthong /uo/ is now almost extinct. In all Fe°fe° villages except Babouantou, it has been simplified to /o/, e.g. /b¥o/ 'hand'. The length of the second vowel in /laa/ and /uaa/ is not particularly noticeable. Phonologically, however, diphthongs ending in long vowels must be set up. There are two reasons. First, short /a/ in open syllables can at least optionally be realized as [æ], e.g. [si a] or [si æ] 'my face'. However, 'small' and 'to carry away' are never pronounced *[th¥a] and *[k¥a]. Second, a long vowel is required on the phonological level because of the following underlying /d/, which has a surface reflex when followed by a vowel (see Chapter IV). The diphthong /iaa/, on the other hand, definitely ends in a long vowel identical to that in [ŋkwa] 'money'. More will be said about these diphthongs in later chapters.

6.0. Tone.

Only a few remarks are necessary here, since tone is quite complex in Fe°fe° and is treated in detail in Chapter VI. Voorhoeve [1971b] presents some very interesting solutions for Bangangte dialect, though previous work on Bamileke tone, except possibly for Dunstan [1966], is largely chaotic. The tone marking used throughout this study is given below in (65):
(65) ă : high tone  [pəa]  'two'
a : mid tone  [pəa]  'to go crazy'
ǎ : raised-low tone  [pɔa]  'to bend over'
à : low tone  [pɔa]  'bag'

The only other symbols used are ź which marks a rising tone from raised-low to mid tone, and ḍ which marks a falling tone from mid to low tone. All other contour tones are written as composites of the four discrete level tones. Each tone mark is taken to characterize the whole syllable, unless there are two tones on one syllable, e.g. [pədə] 'a madman'. That is, where only the first of two vowels is marked for tone, the second (and possibly third) vowel carries the same tone, e.g. [pəa] = [pədə] 'two'. Unmarked second vowels should not be confused with mid tones, which are unmarked, e.g. [muu] 'child'. Where necessary, a macron ź is used to mark mid tone, e.g. [nʒiː] 'and see'. For further discussion, see Chapter VI.
CHAPTER III

Consonant Alternations

1.0. **Initial Consonant Alternation.**

In Chapter II the following system of the phonetic consonants in Fe?fe? was presented:

<table>
<thead>
<tr>
<th>(1)</th>
<th>LABIAL</th>
<th>ALVEOLAR</th>
<th>PALATAL</th>
<th>VELAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>t</td>
<td>c</td>
<td>k</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>d</td>
<td>j</td>
<td>g</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>s</td>
<td>ɸ</td>
<td>h</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>z</td>
<td>ɣ</td>
<td>γ</td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>n</td>
<td>(ɲ)</td>
<td>ɲ</td>
<td></td>
</tr>
<tr>
<td>w</td>
<td>l</td>
<td>y</td>
<td>?</td>
<td></td>
</tr>
</tbody>
</table>

A number of constraints on the distribution of these phonetic consonants were mentioned. For example, it was said that the sounds [b], [d], [j] (which stands for [j]) and [g] are not normally found as \( C_1 \), recalling that lexical morphemes in Fe?fe? (and in Bami-leke in general) are of the structure \( C_1 V_1(V_2)(C_2) \). It was noted that the verb in Fe?fe? has two forms: a **zero form** generally characterizing the imperative and completed aspects, and a **prenasalized form** generally characterizing the non-completed and consecutive aspects. The prenasalized form is marked by a homorganic nasal prefix /N/, which is considered to be a separate (grammatical) morpheme. It normally takes the same tone as the preceding syllable and is therefore left unmarked for tone in the transcription. The zero form, on the other hand, lacks a grammatical prefix. For this reason, we can refer to the zero form as morphologically **unmarked**, while the prenasalized form is morphologically **marked**. Both are illustrated in the verb forms in (2).

(2) | Unmarked | Marked |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[fat]</td>
<td>[mfat]</td>
<td>'to eat (chewing)'</td>
</tr>
<tr>
<td>[tɔh]</td>
<td>[ntɔh]</td>
<td>'to pass'</td>
</tr>
</tbody>
</table>

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In (2) it is observed that when $C_1$ is voiceless (I have purposely avoided \([p]\) for reasons that will become apparent), the marked form is derived from the unmarked form simply by prefixing a homorganic nasal before $C_1$. When $C_1$ is voiced, however, or when $C_1$ is \([p]\), the marked form of the verb contains not only a homorganic nasal prefix, but also $C_1$ undergoes certain modifications, as seen in (3):

(3) \[
\begin{array}{ll}
\text{Unmarked} & \text{Marked} \\
[\text{pen}] & [\text{me} \text{en}] \quad \text{to accept} \\
[\text{len}] & [\text{nden}] \quad \text{to say} \\
[\text{yen}] & [\text{niej} \text{en}] \quad \text{to cork} \\
[\text{yen}] & [\text{ngen}] \quad \text{to go} \\
[\text{wen}] & [\text{ngwen}] \quad \text{to request aid} \\
\end{array}
\]

Thus, while $C_1$ cannot be one of the voiced non-continuants \([b], [d], [j]\) or \([g]\), we observe in (3) that these very consonants can appear as $C_1$, provided that they are preceded by the homorganic nasal prefixing characterizing the marked form of the verb. In other words, $C_1$ cannot be a voiced non-continuant if it is word-initial. This follows from the fact that all lexical morphemes in Fe*fe' begin either with $C_1$ or $N+C_1$.

The remainder of this chapter will be devoted to cases of such alternation between \([p], [l], [y], [w]\) in unmarked verbal forms (and elsewhere), and \([b], [d], [j], [g], [gw]\) in marked verbal forms (and elsewhere). I shall present arguments in favor of recognizing a series of underlying voiced non-continuants which in certain environments become voiced continuants (or \([p]\), in the one exceptional case). In other words, I shall argue that the underlying forms of the verbs presented in (3) and their phonetic realizations in the unmarked form of the verb are as indicated in (4):

(4) \[
\begin{array}{ll}
\text{Proposed Underlying Form} & \text{Surface Form} \\
/\text{ben}/ & '\text{to accept}' \quad \rightarrow \quad [\text{pen}] \\
/\text{den}/ & '\text{to say}' \quad \rightarrow \quad [\text{len}] \\
\end{array}
\]
The rule that is required to derive the surface forms in (4) may, at first, seem counter-intuitive. This rule converts underlying /b, d, j, g, gw/ to surface [p, l, y, y, w] in word initial position and is formalized as in (5):

(5) \[
\begin{array}{c}
+\text{cons} \\
-\text{cont} \\
+\text{voice} \\
-\text{nasal} \\
\langle \text{grave} \rangle
\end{array}
\rightarrow
\begin{array}{c}
+\text{cont} \\
\langle +\text{son} \rangle
\end{array} / \# 
\]

Rule (5) collapses the following two subrules in (6):

(6) a. \[
\begin{array}{c}
+\text{cons} \\
-\text{cont} \\
+\text{voice} \\
-\text{nasal} \\
\langle \text{grave} \rangle
\end{array}
\rightarrow
\begin{array}{c}
+\text{cont} \\
+\text{son}
\end{array} / \# 
\]
\[
/d, j/ \rightarrow [l, y]
\]

b. \[
\begin{array}{c}
+\text{cons} \\
-\text{cont} \\
+\text{voice} \\
-\text{nasal}
\end{array}
\rightarrow
\begin{array}{c}
+\text{cont}
\end{array} / \# 
\]
\[
/b, g/ \rightarrow [\beta, \gamma]
\]

Subrule (6a) derives [l] and [y] from /d/ and /j/, respectively. Notice that (6a) introduces the feature Sonorant for the first time, since Sonorant is not one of the classificatory features of Fe*fe? (see Chapter II). Similarly, it will be necessary to add certain redundant feature specifications to the output of (6a). For instance, [l] shall also have to be specified as [+lateral], which is redundant, since the language has no [r]. Also, [y] will have to be specified as [-consonantal], and as [-strident], since underlying /j/ is [+strident]. This follows from the apparent impossibility of obtaining a voiced strident sonorant. Subrule (6b) derives (incorrectly) [\beta] from /b/ and (correctly) [\gamma] from /g/.
The exceptional cases of [p:b] alternation is discussed below.

The reason why rule (5) may appear counter-intuitive is twofold. First, although a zero or unmarked verbal form is postulated on morphological grounds, the initial consonants in the unmarked forms are not taken as "basic", but as derived. Second, it is not clear in (5) just what phonetic process accounts for the spirantization rule. That is, why should voiced stops and affricates become continuants in word initial position? If, on the other hand, /p, l, y, w/ are considered as underlying, these two objections do not arise. First, the morphologically unmarked forms would also be phonologically unmarked ("unmarked" here is taken to mean "basic" or "underived"). Second, the underlying forms and their phonetic reflexes would be as illustrated in (7):

(7) (Alternative Proposal)

<table>
<thead>
<tr>
<th>Proposed Underlying Form</th>
<th>Surface Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>/N/ + /pen/ 'to accept'</td>
<td>[mbe:n]</td>
</tr>
<tr>
<td>/N/ + /len/ 'to say'</td>
<td>[nå:en]</td>
</tr>
<tr>
<td>/N/ + /yen/ 'to cork'</td>
<td>[njé:n]</td>
</tr>
<tr>
<td>/N/ + /yen/ 'to go'</td>
<td>[ŋɡé:n]</td>
</tr>
<tr>
<td>/N/ + /wen/ 'to request aid'</td>
<td>[ŋgwé:n]</td>
</tr>
</tbody>
</table>

In this alternative proposal an assimilatory process is proposed: /p, l, y, w/ become [b, d, j, g, gw] because /N/ is a voiced non-continuant. The required rule in this approach is formalized in (8):

(8) \[
\begin{array}{c}
\text{[-syll}} \\
\text{+cont} \\
\text{+voice} \\
\text{-strident}
\end{array}
\] \rightarrow \begin{array}{c}
\text{[-cont]} \\
\text{[-son]} \\
\text{[# [+nasal]} \\
\text{C}
\end{array}

The [+nasal] consonant in the structural description of (8) is of course [-cont], and this explains the assimilation. Rule (8), as written, derives [b, d, j, g, gw] from /β, l, y, w/. The palatal stop [%] must further be modified as [+strident, +delayed release] in order to obtain the correct output [%], an affricate. The redundant [+lateral] specification of the posited /l/ will have to be changed to [-lateral] as well. While both rules require further adjustments, the supposed superiority of
(8) over (5) is, then, that in (8) one can say that /p, l, y, y, yw/ assimilate to the [+voice, -cont] specification of the preceding nasal, while in (5) underlying /b, d, j, g, gw/ do not assimilate to anything when they become [p, l, y, y, w] at the beginning of a word. (The [w:gw] alternation will be discussed at greater length below.)

Despite the intuitive appeal of (8), however, I shall now argue that the structure of the Fe'afe'a language demands that we posit underlying /b, d, j, g, gw/. Before turning to these arguments, note that rule (8) must in its structural description make reference to the [-strident] specification of the hypothetical underlying segments /p, l, y, y, yw/. If not, then underlying /v/ and /z/ will undergo this rule and presumably become [b^v] and [d^z] (which I briefly note having heard in some distant Samileke dialects). However, /v/ and /z/ do not undergo this rule, as seen in the forms of (9):

(9) Unmarked Marked
[vlat] [mvlat] 'to burst'
[zen] [nzzen] 'to dance'

This is no problem for rule (5), since /b, d, j, g, gw/ are [-strident] to begin with (except /j/, which has to be converted into a sonorant anyway, as in (6a)). Since /v/ and /z/ are [+strident] (see the table of consonants in (7) in Chapter II), they cannot undergo rule (8). Similarly, rule (8) will not apply to [z], the realization of /j/ before short high vowels in open syllables (see discussion in Section 2.1 of Chapter II; also see below). Of course, the question of why rule (8) should be restricted only to [-strident] voiced continuants is left unanswered.

2.0. Final Consonant Alternation.

Evidence for a series of underlying voiced stops is obtained from a different set of related consonant alternations, this time concerning C2. The only stop consonants (i.e. excluding /h/ and /ŋ/) that can occur in final position are, phonetically, [p, t, k, m, n]. The nasals /m/ and /n/ do not present any difficulties and can be analyzed as such (see below, however). In (10), on the other hand, observe that [p], [t] and [k] alternate, respectively, with [b], [t] and [y]:
(10)  

<table>
<thead>
<tr>
<th>Isolation Form</th>
<th>With /l/ 'him/her'</th>
</tr>
</thead>
<tbody>
<tr>
<td>[vap] 'to whip'</td>
<td>[vah l] 'whip him'</td>
</tr>
<tr>
<td>[kwat] 'to attach'</td>
<td>[kwah l] 'attach him'</td>
</tr>
<tr>
<td>[cak] 'to seek'</td>
<td>[cah l] 'seek him'</td>
</tr>
</tbody>
</table>

Whenever a vowel follows [p, t, k], they are realized as [b, t, y]. Since lexical morphemes are of the structure $C_1V_1V_2V_3(C_2)$, it follows that only grammatical morphemes will be involved. These include singular person direct object pronouns and the singular person possessive pronouns which follow the noun without an intervening consonantal noun class concord marker, i.e. the singular person possessive pronouns of classes 1, 3, 7 and 9 (see Chapter VII). The plural person pronouns always begin with a consonant and therefore do not directly interest us here:

(11)  

<table>
<thead>
<tr>
<th>Singular Person Pronouns</th>
<th>Plural Person Pronouns</th>
</tr>
</thead>
<tbody>
<tr>
<td>[a] 'me, my'</td>
<td>[yoh] 'us, our'</td>
</tr>
<tr>
<td>[o] 'you, your'</td>
<td>[yil] 'you, your (pl.)'</td>
</tr>
<tr>
<td>[I] 'him/his, her'</td>
<td>[yaa] 'them, their'</td>
</tr>
</tbody>
</table>

Furthermore, the [p:b] and [k:y] alternations also occur before a consonant:

(12)  

<table>
<thead>
<tr>
<th>Isolation Form</th>
<th>With /l/ 'him/her'</th>
</tr>
</thead>
<tbody>
<tr>
<td>[vap] 'to whip'</td>
<td>[vah muu] 'whip the child'</td>
</tr>
<tr>
<td>[cak] 'to seek'</td>
<td>[cah muu] 'seek the child'</td>
</tr>
</tbody>
</table>

Before a consonant, however, final [t] drops; since $C_2$ can be [t] only if directly preceded by /a/ (e.g. [fat] 'to eat', [tat] 'to meet', etc.) when final [t] drops, it leaves a short [a] behind. An intermediate stage can be hypothesized with the form [al] (cf. 'attach him' in (10)):

(13)  

\[ \text{fat mbo}$\rightarrow$ fah mba$\rightarrow$ [fa mba] 'eat the meat' \]

The forms in (12) are particularly revealing, since the presence of voiced [b] and [y] does not depend upon the nature of the following consonant, as seen in (14), where the following consonant is voiceless:

(14)  

<table>
<thead>
<tr>
<th>Isolation Form</th>
<th>With /l/ 'him/her'</th>
</tr>
</thead>
<tbody>
<tr>
<td>[vap] 'to whip'</td>
<td>[vah thu] 'whip the tree'</td>
</tr>
<tr>
<td>[cak] 'to seek'</td>
<td>[cah thu] 'seek the tree'</td>
</tr>
</tbody>
</table>
But why should [p] and [k] alternate with [b] and [v], respectively, whenever they are found before another segment? ([t] and [l] can be said to do the same, though we must add that [l] is deleted before a consonant). Why should both become [+voice]? If /p/, /t/ and /k/ are assumed to be underlying in C₂ position, then we need a rule such as (15):

(15) \[
\begin{pmatrix}
  \text{p} \\
  \text{t} \\
  \text{k}
\end{pmatrix} \rightarrow \begin{pmatrix}
  \text{b} \\
  \text{l} \\
  \text{v}
\end{pmatrix} / \quad \# \quad \{C_v\}
\]

Or, in distinctive features:

(16) \[
\begin{pmatrix}
  +\text{cons} \\
  -\text{cont} \\
  -\text{nasal} \\
\langle \text{grave} \rangle
\end{pmatrix} \rightarrow \begin{pmatrix}
  +\text{voice} \\
  +\text{cont} \\
\langle +\text{son} \rangle
\end{pmatrix} / \quad \# \quad [+\text{seg}]
\]

Rule (16) abbreviates the two subrules in (17):

(17) a. \[
\begin{pmatrix}
  +\text{cons} \\
  -\text{cont} \\
  -\text{nasal} \\
\langle \text{grave} \rangle
\end{pmatrix} \rightarrow \begin{pmatrix}
  +\text{voice} \\
  +\text{cont} \\
  +\text{son}
\end{pmatrix} / \quad \# \quad [+\text{seg}]
\]

/t/ /l/

b. \[
\begin{pmatrix}
  +\text{cons} \\
  -\text{cont} \\
  -\text{nasal}
\end{pmatrix} \rightarrow \begin{pmatrix}
  +\text{voice} \\
  +\text{cont}
\end{pmatrix} / \quad \# \quad [+\text{seg}]
\]

/p/, /k/ /β, v/

The redundant feature specification [+lateral] will have to be added to [l]. Also, the correct output of (17b) should be [b] and not [β]. Notice, however, that a minority of Feñafeñ speakers use [β] intervocally, i.e. [voβ ] 'whip him', instead of [voβ ]]. The most serious difficulty with this analysis is, however, that there is no explanation for the strange behavior of morpheme final stops which become voiced (and sometimes continuant) before any segment.

A more general means of capturing what is going on in these alternations is to assume that final [p], [t] and [k] are, respectively, underlying /b/, /d/ and /g/, and that they become devoiced by rule. Thus, the following derivations in (18) would be found:
(18) /vab/ 'to whip' → [vap]
/kwad/ 'to attach' → [kwat]
/cak/ 'to seek' → [cak]

The phonetic forms in (18) are derived by means of the natural rule in (19):

(19)  

\[ +\text{cons} \]
\[ -\text{nasal} \]
\[ \rightarrow \]
\[ [-\text{voice}] / \_ \_ \_ \# \_ \_ \# \]

In (19), the symbols # # are used to indicate a pause or a phrase boundary. The first # is the same word boundary as in (16). The second # is included to indicate that the following unit must be [-seg]. Whether rule (19) takes place and derives [p, t, k], or whether we actually hear [b, l, y], especially before a consonant, will often depend on whether or not the speaker pauses. Thus, the word /cak/ 'pot' in (20),

(20) /ə kə lāh cəɡ ñsā? / 'he brought the pot'

he PAST take pot &come

can be pronounced [cək] (with a pause after it) or [cəɣ] (with no pause).

If (19) does not apply to devoice /b, d, g/, then (21) must apply to spirantize them:

(21)  

\[ +\text{cons} \]
\[ -\text{nasal} \]
\[ <-\text{grave}> \]
\[ \rightarrow \]
\[ +\text{cont} \]
\[ <+\text{son}> \]
\[ / \_ \_ \_ \# [+\text{seg}] \]

This rule does not operate on glottal stops. /h/ represents no problem, since it is already [+cont]. Rule (21) has two subparts:

(22) a.  

\[ +\text{cons} \]
\[ -\text{nasal} \]
\[ <-\text{grave}> \]
\[ \rightarrow \]
\[ +\text{cont} \]
\[ <+\text{son}> \]
\[ / \_ \_ \_ \# [+\text{seg}] \]

/d/
[ l]

b.  

\[ +\text{cons} \]
\[ -\text{nasal} \]
\[ \rightarrow \]
\[ [+\text{cont}] \]
\[ / \_ \_ \_ \# [+\text{seg}] \]

/b, g/ [β, y]

Rule (22b) must be constrained so that /b/ spirantizes to [β] only in those few villages where [β] is found intervocalically, as noted.

Now the relationship of this alternation to the alternations in C₁

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position captured by rule (5) is shown. Since I have argued that the $C_2$
consonants in question should be analyzed as /b/, /d/ and /g/ (in order
to explain why they are phonetically voiced before any segment), it would
seem unreasonable to set up a different set of voiced obstruents in $C_1$
position, namely /l/, /y/ and /w/, for instance. One rule can apply to
both $C_1$ and $C_2$ alternations, e.g. the change from /d/ to [l] in the fol-
lowing examples:

(23)  /den/  'to say'  $\rightarrow$ [l$\check{e}$n]
  /kwad + l/  'attach him'  $\rightarrow$ [kw$\ddot{a}$l l]

But what is the evidence for /b/, /d/ and /g/ in $C_2$ position? In the case
of /d/ and /g/, we never hear these segments in the surface phonetics.
Instead, they are realized always as either [t] and [k] or [l] and [y].
Since [t] and [k] differ from [l] and [y] by the two classificatory fea-
tures Voice and Continuant, the argument must be given in two parts.

First, what evidence is there that these consonants in $C_2$ position
are phonologically [+voice]? We already saw in (14) that the [p] and [k]
of the isolated form are realized as [b] and [y], respectively, before any
segment, voiced or unvoiced. This fact can only be explained by setting
up underlying /b/ and /g/. These, along with /d/, would then become
devoiced before a pause, as in (19). Actually, there is considerably
more evidence available from the behavior of final /m/ and /n/. These
also tend to be realized (at least optionally) as [−voice], though they
are always [+voice] when followed by a vowel:

(24)  [k$\ddot{a}$m]  'to attack'  [k$\ddot{a}$m l]  'attack him'
  [p$\ddot{e}$l]  'to accept'  [p$\ddot{e}$n l]  'accept him'

In fact, in the Fe?fe? village of Babouantou this devoicing of final
nasals has led to a denasalization of [g] and [q] to [p] and [t], respec-
tively. Thus, instead of the forms in (24), those in (25) are heard in
Babouantou:

(25)  [k$\ddot{a}$p]  'to attack'  [k$\ddot{a}$b l]  'attack him'
  [p$\ddot{e}$t]  'to accept'  [p$\ddot{e}$l l]  'accept him'

Actually, all Fe?fe? villages show some tendency to lose the final [q].
This loss is obligatory before another consonant:

(26)  [k'am muu] 'attack the child'

[pe muu] 'accept the child'

Thus, final alveolars, i.e. both [t] and [g] delete before another consonant. Both losses fill gaps in permissible syllable structures, since without the loss of final [t] there is no short [a] in syllable final position, just as there is no short [e] (in free variation with [e]) without the loss of final [g]. (I shall continue to transcribe voiced [n] in final position, except where the devoicing is crucial to the discussion.) Looking at the forms in (24), there can be no question but that the underlying representations should be /k'am/ 'to attack' and /bed/ 'to accept', i.e. with voiced nasal consonants. These nasal consonants, then, become devoiced by rule (19), which now must be revised to include the nasals, which optionally undergo the revised rule in (27):

(27)  [+cons] \rightarrow [\text{-voice}] / ___ # #

And, in the village of Babouantou, the underlying representations /kab/ 'to attack' and /bed/ 'to accept' are assumed, and no modifications of this rule are necessary. Of course, it is assumed that the historical rule once denasalized final /m/ and /n/, as in (28):

(28)  [+cons] \rightarrow [\text{-nasal}] / ___ # #

But once this happened, the underlying forms were automatically restructured, as /m/ and /n/ were reanalyzed as /b/ and /d/, respectively.

Thus, if /m/ and /n/ become devoiced by rule (27), then this same rule can be said to devoice /b/, /d/ and /g/. Any other analysis would fail to capture these facts in a general fashion. For example, a generalization would be missed if one rule devoiced nasals, but another rule voiced /p/, /t/ and /k/. Similarly, it would be unnatural to assume underlying /m/ and /g/, which together with /p/, /t/ and /k/ became voiced by rule, since it would then be claimed that Fe?fe? had both voiced and voiceless nasal consonants: /m/, /n/ and /g/ in morpheme initial C1 position and /m/ and /g/ in morpheme final C2 position. Thus, it is concluded that all final stops (except /?/) in C2 position must be [+voice].

What evidence is there that these consonants should be underlyingly
(-cont)? First of all, /m/ and /n/ are of course (-cont) and by recognizing /b, d, g/ rather than /b, l, y/ in C₂ position, the following morpheme structure condition can be stated:

(29) If: \[+\text{cons} \]
\[+\text{voice} \]
\[
\downarrow
\]
Then: [-cont]

While maximum generality is obtained, we must be sure that this is not a spurious generalization. A more telling argument, however, is that the devoicing rule would have to be modified, if /b, l, y/ are recognized, so that the feature specification [-cont] occurred in the structural change. Compare (30) with (27):

(30) \[+\text{cons} \rightarrow [-\text{voice} \]
\[-\text{cont} \]
\[
/ \]
\[
\#
\]

Whereas (27) converts /b, d, g, m, n/ to [p, t, k, g, g], rule (30) converts /b, l, y, m, n/ to [p, t, k, g, g]. Of course, /l/ would have to also become [-son], since the correct output of this rule would be [t]. It is now claimed that /b, d, g/ rather than /b, l, y/ must be recognized because both (27) (devoicing) and (21) (spirantization) are very natural rules of assimilation that are predictable on the basis of what we know about assimilation from underlying voiced stops. Rule (30), on the other hand, is questionable from the standpoint of rule naturalness. Why should continuants become non-continuants in final position? While it might be argued that [p, t, k] are more expected (or "less marked" in the sense of Chomsky and Halle [1968]) segments than [b, l, y], why should there be a change of the two features Voice and Continuant in final position? In other words, why doesn't hypothetical /y/ simply become devoiced to [h], as did some instances of Proto-Bamileke *g in Fe°fe?:

(31) PBkê *mug > muk > mok > moh > [moh] 'fire'

The last historical change in Fe°fe was the lowering of /u/ to /o/ (see Chapter VIII) to yield /moh/ 'fire' which is pronounced [moh]. Thus, recalling the alternation in (10) above between [cak] 'to seek' and [coy l] 'seek him', why would a hypothetical underlying form /coy/ become [cak] in prepausal position, rather than [coh]? If instead the underlying
form is /cag/ 'to seek', then this problem does not arise. Notice, finally, that no MSC comparable to (29) could be stated with the positing of underlying /b, l, y/, since /b/ is [−cont] and the other two are [+cont].

It should be clear from the brief discussion concerning the example in (31) that the reason why a hypothetical /γ/ does not become simply devoiced to [h] is that setting up such an underlying segment runs counter to the historical development in Bamileke. Historically, Bamileke had only *b, *d, *g, *m, *n and *ŋ (and probably *h) in C₂ position (though not *h), and the non-nasals became devoiced before pause or continuants before vowels (see Section 3.0 below). There are dialects of Bamileke where the devoicing rule has not applied, mostly because Proto-Bamileke morphemes were of the structure CVCV and in conservative dialects such as Mankon (Ngemba), the final vowel remains (see below). It is significant to note that Crabb [1965] reports that in the closely related (though not Bamileke) Ekoid Bantu languages of Nigeria, final consonants are always phonetically [+voice]. This constraint may seem strange, but it is likely that this unnatural situation of only voiced consonants in final position arose out of an intervocalic merger of C₂ voiced and voiceless consonants, followed by the loss of final vowels. For example, Proto-Bamileke (actually, it extends beyond that, in which case it might be preferable to speak of Proto-Mbam-Nkam, the term introduced by Voorhoeve [1971a] to cover the larger linguistic unit including Ekoid Bantu and other languages) *CVkV and *CVgV first merged as /CVgV/, pronounced [CVγV], and then the final vowel dropped, leaving /CVg/, pronounced [CVg], intervocalic spirantization no longer being appropriate. Later a rule of final devoicing applies and derives [CVk]. Evidence for such a merger of *CVpV and *CVbV is clear. Thus, Crabb gives the common root [kub] 'bone' which corresponds to Meinhold’s Proto-Bantu reconstruction *kúpa. As to *k and *g, more comparative investigations may be needed to support this hypothesis. (Two alternative hypotheses that should be considered are, first, that *k simply drops, and, second, that *k becomes glottal stop.)

I assume, then, that underlying /b, d, g/ will be posited in C₂ position. This bears directly upon the alternations illustrated in C₁ position in (3) above, to which I now return. If C₂ /d/ and /g/ become [t] and [k] before segments, we can generalize to C₁ position, where /d/ and /g/ become
[l] and [ɣ], except when preceded by a homorganic nasal /N/. The same arguments will apply to the [ɣ:j] alternation. In other words, it makes no sense to have \(C_2\) /d, g/ become [l, ɣ] and \(C_1\) /l, ɣ/ become [d, g]. The most general solution will include only the voiced non-continuants /b, d, j, g/ as underlying, whether in \(C_1\) or \(C_2\) position. (Note, however, that /j/ does not occur in \(C_2\) position in any form.) Two rules will be needed, then, to derive voiced continuants from voiced non-continuants. These were presented as (5) and as (21), which are reproduced here as (32) and (33):

\[
\begin{align*}
(32) & \quad \begin{bmatrix}
+\text{cons} \\
-\text{cont} \\
+\text{voice} \\
-\text{nasal} \\
\langle -\text{grave} \rangle
\end{bmatrix} \rightarrow \begin{bmatrix}
+\text{cont} \\
\langle +\text{son} \rangle
\end{bmatrix} & & \rightarrow \begin{bmatrix}
+\text{cont} \\
\langle +\text{son} \rangle
\end{bmatrix} \\
(33) & \quad \begin{bmatrix}
+\text{cons} \\
-\text{nasal} \\
\langle -\text{grave} \rangle
\end{bmatrix} \rightarrow \begin{bmatrix}
+\text{cont} \\
\langle +\text{son} \rangle
\end{bmatrix} & & \rightarrow \begin{bmatrix}
+\text{cont} \\
\langle +\text{son} \rangle
\end{bmatrix}
\end{align*}
\]

It is clear that these two rules have a similar effect, though the exact relationship between is somewhat obscured by historical factors. In fact, (32) and (33) were historically one rule. Though they can be synchronically collapsed as rule (34),

\[
\begin{align*}
(34) & \quad \begin{bmatrix}
+\text{cons} \\
-\text{cont} \\
+\text{voice} \\
-\text{nasal} \\
\langle -\text{grave} \rangle
\end{bmatrix} \rightarrow \begin{bmatrix}
+\text{cont} \\
\langle +\text{son} \rangle
\end{bmatrix} & & \rightarrow \begin{bmatrix}
+\text{cont} \\
\langle +\text{son} \rangle
\end{bmatrix}
\end{align*}
\]

the assimilatory nature of (34) is not revealed without considering the historical facts.

3.0. The Historical Explanation.

First, why should voiced non-continuants become continuants in word-initial position, as in (32)? This question takes us back at least as far as Proto-Bantu, of which Bamileke is best seen as a descendent. Although Narrow Bantu (i.e. excluding Bamileke and other languages) languages more or less exhibit the following alternations in (35),
\[(35)\]

\[
\begin{array}{c}
\beta : b \\
\ell : d \\
\gamma : j \\
\gamma : g
\end{array}
\]

The series on the left is sometimes modified (e.g. [γ] may become [γ] or [w] or may even fall completely) or restricted in distribution. It is assumed that in Proto-Bantu the voiced continuants occurred intervocally, and the voiced non-continuants occurred everywhere else (cf. spirantization in Castilian Spanish). Thus, the following synchronic rule for Proto-Bantu can be reconstructed:

\[(36)\]

\[
\left[ \begin{array}{c}
+\text{cons} \\
-\text{cont} \\
+\text{voice} \\
-\text{nasal} \\
\langle-\text{grave}\rangle
\end{array} \right] \rightarrow \left[ \begin{array}{c}
+\text{cont} \\
\langle+\text{son}\rangle \\
\end{array} \right] / v_1 \_ v_2
\]

That is, underlying /b, d, j, g/ become [β, l, γ, γ] intervocally.

The fact that Proto-Bantu had such a rule is evidenced in the different reconstructions of Proto-Bantu roots containing voiced segments. For example, Meinhof [1932] reconstructs *βoyo for 'bull', while Guthrie [1967] reconstructs *bogo. The correct reconstruction is */bogo/, which was pronounced *[βoyo]. (Some historical linguists forget that synchronic rules and hence both phonemic and phonetic forms must be reconstructed in proto languages.) The *b was pronounced [β] in 'bull' because it was always preceded by a noun class prefix of the structure *CV. It therefore always occurred intervocally in the proto form of this word.

Most Bantu languages have, however, modified the original distributional constraints. In Luganda, for example, the following two underlying forms with their surface realizations are found:

\[(37)\]

\[
/\text{oðù-gàndà}/ \rightarrow \text{[ðùgàndà]} 'the Luganda language' \\
\text{or} \\
[ùgàndà]
\]

\[
/\text{àbà-nítú}/ \rightarrow \text{[àgàntú]} 'people' \\
\text{or} \\
[ùntú]
\]

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Several modifications of the proto situation are seen in these forms:
1) /g/ does not become [γ] in any position; 2) /b/ is realized as [β]
intervocally; 3) /d/ is realized as [l] either intervocally or
word-initially. Thus, the parallel situation in Proto-Bantu whereby
/b, d, g/ becomes [β, l, γ] intervocally, has been replaced by a
more complex one: the spirantization of */g/ has been lost, while the
change of */d/ to *[l] has become generalized to new environments. In
Luganda the voiced stops always occur after homorganic nasals.

Bamileke—and Fe‘fe‘ in particular—has modified the proto situation,
such that the proto rule (36) has been restructured as something like
(34). In addition, Bamileke has independently of Narrow Bantu lost the
distinction between *p and *b, since it has /b/ but no /p/. Notice that
the spirantization of /b/ to [β] in Bamileke is the exception, rather than
the rule. How, then, has (36) developed into (34) in Fe‘fe‘?

The reason why Fe‘fe‘ lexical morphemes begin with [l, y, γ] is that
historically they were always preceded by a vowel. (This does not apply
to morphemes preceded by the homorganic nasal prefix /N/. This is par-
ticularly visible in nouns, where the preceding vowel can be attributed to
a noun class prefix of the form *v or *CV (classes 9/10 and possibly 3/4
may have to be reconstructed with a homorganic nasal /N/ prefix; see
Chapter VII). Verbs, on the other hand, most likely were preceded by a
similar prefix marking either tense/aspect or perhaps subject concord.
(The /N/ of the marked form of the verb is probably characteristic of Proto-
Bamileke, though it is possible that it derives from the class 6 *mv noun
prefix.) The presence of a preceding vowel is felt so strongly in Fe‘fe‘
nouns that it is entirely possible that we may want to consider them under-
lying. First of all, there is considerable tonal evidence (cf. Chapter VI).
While there are four discrete level phonetic tones in Fe‘fe‘ (they are:
[‘] high, [ i] mid, [ i] raised-low and [ i] low), no noun in its citation
form ever carries high tone. Historically this can be explained by positing
a preceding low tone (characterizing in general Bantu noun class prefixes)
that automatically lowered high tone to mid tone. And, if there was a low
tone historically, this means that there was also a vowel. In fact, nouns
lacking a nasal prefix in Fe‘fe‘ can always be preceded by an optional
schwa-like voiceless vowel which I write [ə] (which it was, historically),
deriving from Proto-Bamileke *à. In nouns that have rising tone (from raised-low to mid tone), such as [thû] 'head' and [thû] 'tree', one often has the impression that there is a "low tone breath" that precedes the noun. (The low part of the rise of course derives from the reconstructed preceding low tone on the noun class prefix *à --cf. Mbouda (Batcham) dialect [ə̟tʰwó] 'head' and [ə̟tʰó] 'tree'.) Thus, we can see why [i], [y] and [y] appear in word-initial position: a word like [ǐtə] 'spoon' comes from the proto form *àdɔ?, and the *d spirantizes intervocalically. While the merger of *p and *b traces back to Proto-Bantu (which, unlike Proto-Bantu, did not have a contrast between the two), the change of [b] to [p] in pronunciation must have been much more recent. Thus, while Fe?fe? speakers pronounce [põ] 'hand' (the one village of Babouantou pronounces [pũo]), speakers of Mбуi, a Bamileke dialect of West Cameroon, pronounce [ãbũo].

The reason why C₂ consonants should be modified from stops to continuants should be clear from the statement that some Bamileke dialects exhibit a frequently occurring schwa-like vowel following C₂ consonants, which I shall transcribe [a]. Thus, while Fe?fe? has [nɡõp] 'skin', Mankan (an Ngemba village of West Cameroon) has [nɡoba], with both a final vowel and a [b]. This vowel has of course prevented the /b/ from devoicing, since the latter is not in word-final (i.e. pre-pausal) position. Tonal evidence alone suggests that both nouns and verbs were bisyllabic in the proto language. (This was first pointed out by Voorhoeve [1971b] with evidence from Bangangte dialect.) The Ngemba form just given exemplifies the fact that many Bamileke dialects have CVCV morphemes, where the second vowel is usually /a/, reconstructed as Proto-Bamileke *a. There is even a small restricted set of words in Fe?fe? that in some villages can be optionally pronounced with such a vowel suffix: /tεn/ or /tənə/ 'iron', /võb/ or /võba/ 'dust', /gẽn/ or /gẽnə/ 'to go', etc. But even without this evidence, various tone phenomena (cf. Voorhoeve [1971b]) suggest a vowel in this position. For example, one general rule of Fe?fe? tonology is that a low tone (') is automatically raised to a raised-low tone (') whenever it is followed by a non-low tone, e.g. [s] põa] 'without a bag', but [s] mõh] 'without a fire'. Whenever this process takes place across a morpheme boundary there is no problem. Thus, the low tone of /s]/ 'without' rises
to a raised-low tone, because it is followed by the mid tone of /moh/ 'fire'. However, there are words in Fe?fe? that have a raised-low tone even in isolation, e.g. [càk] 'pot', [yèn] 'to go', etc. These forms suggest a tonal structure such as the following: /'càk'/ 'pot' and /'gèn'/ 'to go'. Historically, lexical morphemes had not only a preceding low tone (as suggested above), but also a following tone, which could be either high or low, but which fell, leaving various traces behind (see Chapter VI for more discussion). Thus, 'pot' and 'to go' exhibit raised-low tones, because of the presence of a following non-low tone which raised the preceding low tone. If there is a reconstructed tone in this position, then there must have been a syllable in this position, and if morphemes with final C₂ are to have an additional syllable, then there must be a following vowel. Notice that a post-C₂ vowel, which is a repetition of the pre-C₂ vowel, is found after [γ] and [ʔ], at least in rapid speech:

(38) /còg/ 'to seek' → [caya muu] 'seek the child'
    /juʔ/ 'to hear' → [yuʔu muu] 'hear the child'

Notice, however, that there is a difference in the effect of the suffix vowel as opposed to the prefix vowel, both of which were historically /a/ (coming from Proto-Bamileke *a). When the prefixed vowel fell, the voiced continuants remained, as in (39):

(39) Pbke */dòd?/ 'spoon' → *[àlìʔ] > [lʔʔ] (/dòd?)

That is, the *[l] in 'spoon' did not revert back to [d] after the loss of the prefix vowel. This would have made sense, given that the [l] is no longer in intervocalic position, where spirantization originally took place. In (40), on the other hand,

(40) Pf? */fada/ 'to eat' → *[fada] > [fat] (/fad/)

it is observed that when the final vowel dropped, Fe?fe? was not left with [fal], but rather, [fat]. Thus, the final vowel did not leave behind the same kind of trace as the prefix vowel. Both, however, left behind numerous tonal effects.

4.0. Exceptions and Further Modifications.

The distribution of [p] and [b] is somewhat different from the distri-
bution of the other consonants under consideration. After homorganic /N/ (i.e. [m] in this case), [b] occurs on a par with [d, j, g], but in word-
initial position [p] occurs (and not the expected [β]). Before pause, [p] is
found on a par with [t, k], but in final position before another seg-
ment, [b] is found (instead of the expected [β], which only rarely occurs).
In addition, there are exactly four words that I have found beginning with
phonetic [b]. These are the demonstratives illustrated phonetically in (41),

(41) [muv bê] 'this child' (near speaker)
     [muv bêa] 'that child' (near hearer)
     [mu bêf] 'that child' (far from speaker and hearer)

and the verb 'to be', which is pronounced [ba], though I have in this case
heard [pə] as well. The forms in (41) cannot be attributed to the inter-
vocalic position of the labial consonant, for we find forms (the normal
case) such as [puv pêo] 'two children', where the [p] of 'two' remains [p].
One possible explanation for the presence of [b] in the forms in (41) is
that the demonstratives are grammatical morphemes and not lexical ones.
As such, there is perhaps a morpheme boundary (+) between them and the noun
they modify, but not a word boundary. In other words, they are enclitics.
Clearly intervocalic voicing must not apply across a word boundary, or incor-
correctly derived forms such as *[puv bêa] 'two children' will result. Thus,
/b/ is devoiced at the beginning of a word, not at the beginning of a mor-
pheme. That this solution is correct is seen from the limited cases of
class 2 possessive pronouns (cf. (11) for the basic pronouns), which take
a /b/ concord marker (cf. Proto-Bantu *ba):

(42) [nzm b-ê] 'my wives'
     [ngem b-ê] 'my guests' (from /Ngên/)

I account for these forms by saying that /b/ devoices in word-initial
position, and that the entirety of 'my wives' and 'my guests' constitute
one word. Note that the fact that the final /n/ of /Ngên/ 'guest' does
not delete as in (26), here repeated as (43),

(43) [pêg] 'to accept' [pê muu] 'accept the child'

suggests that the n-deletion rule should also be stated in terms of word
boundaries, rather than morpheme boundaries. Other such examples will be noted in regard to 'epenthetic' consonants in Chapter IV. Compare with (42) the phrase [ŋgɛ # pɛa] 'two guests', where both the final /n/ of 'guests' has been deleted, and the initial /b/ of /bɛa/ 'two' has become devoiced. A similar explanation might be attempted for [ba] 'to be', which combines with other morphemes, e.g. tense/aspect markers, to form a word, but is not a word itself. But, then, as the first element in a sentence, as in the imperative, it should be, but is not always, pronounced [p]. This verb might, of course, be viewed also as a grammatical morpheme.

Another exception to initial consonant alternation is that intermediate dh and jh fail to become [lh] and [yh], respectively, as in the following marked and unmarked verb forms:

(44) Unmarked Marked
[ðhɛː] [ndhɛː] 'to sleep'
[ɔl] [nɔl] 'to kill'

It is recalled that when /j/ becomes tensed, i.e. jh, it is pronounced [ɔ]. The following rule from Chapter II tenses consonants:

(45) \[ c \rightarrow [+\text{tense} [+\text{strident}]/[-\text{long}]_{V}^{+\text{high}}] \]  

That is, consonants become tense (and strident) before a short high vowel (/i, u, ə/) in open syllable (i.e. where there is no syllable final consonant). The underlying forms for 'to sleep' and 'to kill' are therefore /dɪɛ/ and /jɪl/, respectively. It is clear that the [+tense] specification of [dh] and [jh] blocks the application of the spirantization rule in (32). For this reason, (45) must be ordered before (32), and the latter must be modified to (46):

(46) \[ [+\text{cons} -\text{cont} [+\text{voice} -\text{nasal} [+\text{tense} b] ] ] \rightarrow [+\text{cont} [+\text{son} c]/[-\text{tense} b] ] \]  

Condition: if a, then b, then c

The [-tense] specification that must be present if [-grave] is present can
be incorporated into the original rule (32) in the above fashion. Notice that if [-tense] had been included in the same angled bracket as [-grave], then the rule would falsely claim that [-grave, -tense] consonants become [+cont, +son] and that [-grave, +tense] consonants become [+cont], but not [+son]. What we want the rule to say is that [-grave, -tense] consonants become [+cont, +son], but that [-grave, +tense] consonants do not undergo the rule at all. This is what (46) says, although there is no way to avoid having the above condition on the rule. On the other hand, no restriction is placed on [+grave, +tense] consonants, since they do undergo the rule:

(47)  
\[\begin{array}{ll}
\text{Unmarked} & \text{Marked} \\
[\text{ph}] & [\text{mbh}] & \text{'to plant'} \\
[\text{yh}] & [\text{ngh}] & \text{'to have'} \\
\end{array}\]

Notice, returning to dh and jh, that in some rare villages [\text{dh}] is heard, whereas [\text{yh}] is never heard. In these villages, rule (46) would have to be somewhat revised. Recall from Chapter II that jh becomes [\text{zh}] by rule; also, in some villages, ch (i.e. aspirated /\text{c}/) is pronounced [\text{z}]. In those villages where both changes occur, the following rule may be proposed:

(48)  
\[\text{[} -\text{grave} \quad -\text{ant} \quad +\text{tense} \text{]} \rightarrow \text{[} +\text{cont} \text{]} \]

The consonants [\text{z}] and [\text{zh}] are still considered to be [+tense], as well as [+delayed release]. Since they are [+tense], the ordering of (48) with respect to (46) is not crucial. (48) is of course intrinsically ordered with respect to (45), which it follows.

Another aspect of initial consonant alternation that must be dealt with is initial [\text{w}]. Initial [\text{w}] has two sources in Fe'fe'. First, [\text{y}] assimilates to [\text{w}] before a high back rounded vowel. This accounts for the following alternations, where [\text{w}] is observed where we expect [\text{y}]:

(49)  
\[\begin{array}{ll}
\text{Unmarked} & \text{Marked} \\
[\text{wuu}] & [\text{nguu}] & \text{'to catch'} \\
[\text{wu?}] & [\text{ngu?}] & \text{'to be fat'} \\
\end{array}\]

Notice, however, that this assimilation is blocked if [\text{y}] is [+tense]:

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Thus, the rule will have to be written as in (51):

\[
\begin{array}{c}
+\text{cons} \\
+\text{grave} \\
-\text{ant} \\
+\text{voice} \\
+\text{cont} \\
-\text{tense}
\end{array}
\rightarrow
\begin{array}{c}
-\text{cons} \\
+\text{son} \\
+\text{round}
\end{array}
/ \begin{array}{c}
+\text{high} \\
+\text{round}
\end{array}
\]

\[
[\gamma] \quad [w] \quad [u]
\]

Thus, the unmarked forms in (49) and (50) will have the following derivations:

(52) Underlying Form     Rule (45)     Rule (46)     Rule (51)

/gùw/ 'to catch'      [gùu]     [\gammau]     [wùu]
/gùʔ/ 'to be fat'      [gùʔ]     [\gammaʔ]     [wùʔ]
/gù/ 'to endow'        [ghù]     [\gammah]     [\gammah]

(Actually, on the basis of arguments presented in Chapter IV, I shall represent the underlying form of 'to catch' as /gùum/. It should be noted that some speakers apply rule (51) before the vowel /o/ as well, though this is less often the case, e.g. [\gammaʔʔ] or [wùʔʔ] vs. [\gammagόʔ] 'to grind'. Very frequently /uu/ is lowered to [oo] and we also hear both [\gammao] and [wøo] 'to catch' (compare with above).

The second source of initial [w] is from cases where a preceding [\gamma] has been lost. The relevant alternations are seen in (53):

(53) Unmarked     Marked

/[wɛn]     [\etagwɛn] 'to request aid'
/[wah]     [\etagwa] 'to scorn'

It was pointed out in Chapter II that all but alveolar (i.e. [-grave, +ant]) consonants can occur with /w/ after them: /bwen/ 'to shout', /jwen/ 'to buy', /kwɛn/ 'to enter'. We find [gw] after the homorganic nasal [ŋ], though in the unmarked form of the verb (and in nouns lacking a prefix), we find [w] where we expect [\gammaw]. A rule is therefore needed to delete [\gamma] before [w], as in (54):
Alternatively, we could conceive of [γ] assimilating to [w] before another [w], but then a further rule simplifying [ww] to [w] would be needed. One argument against this is that [wu] + [a] 'my thing' is realized as [wwa], which is not simplified. While this could be attributed to the morpheme boundary between /gü/ 'thing' and /a/ 'my', the alternative approach is adopted, at least provisionally. Namely, as in (54), [γ] is subject to obligatory deletion before [w]. The word boundary is necessary so that the [γ] in [cay wu] (or [caγa wu]) 'seek something' is not deleted. The derivations for the two unmarked forms in (53) are given in (55):

(55) Underlying Form Rule (46) Rule (54)
/gwen/ 'to request aid' [γwcn] [wcn] [waw]
/gawah/ 'to scorn' [γawah] [wah]

5.0. Consonant Alternations in Nouns.

All of the 'exceptions' thus far considered characterize the unmarked form of verbs. I have said that whenever a homorganic nasal prefix /n/ is present, the phonetic forms of non-strident voiced obstruents will be [mb], [nd], [nà] and [ng]. Until now the discussion has been restricted to consonantal alternations in verbs. There are, however, several noun class pairs (or genders) in Fe?fe? (namely, 1/6, 5/6 and 7/6) in which the singular lacks a prefix, but the plural takes a nasal prefix. These three genders are illustrated in (56):

(56) Singular Plural
[sak] [nsak] 1/6 'bird'
[sê?] [nsê?] 5/6 'tooth'
[khù] [qkhù] 7/6 'root'

(Although on the basis of this table it may seem that all three nouns belong to one gender, the three are differentiated on the basis of possessive pro-
noun concord agreement; see Chapter VII.) However, looking now at voiced obstruents, the alternations characterizing Fe?fe' verbs are not found in nouns:

<table>
<thead>
<tr>
<th>(57)</th>
<th>Singular</th>
<th>Plural</th>
<th>7/6</th>
</tr>
</thead>
<tbody>
<tr>
<td>[pəo]</td>
<td>[mbəo]</td>
<td>'bag'</td>
<td></td>
</tr>
<tr>
<td>[lək]</td>
<td>[nələk]</td>
<td>'stool'</td>
<td></td>
</tr>
<tr>
<td>[yət]</td>
<td>[nəyət]</td>
<td>'maggot'</td>
<td></td>
</tr>
<tr>
<td>[yəo?]</td>
<td>[nəyəo?]</td>
<td>'cheek'</td>
<td></td>
</tr>
<tr>
<td>[wəe]</td>
<td>[nəwəe]</td>
<td>'generation'</td>
<td></td>
</tr>
</tbody>
</table>

In (57) only the [p:b] alternation occurs. In the four other cases, the same consonant occurs as in the (unmarked) singular, preceded by a homorganic nasal (which is marked for tone in cases where it might be misconstrued as non-syllabic). It should be pointed out, however, that there is some variation, though (57) represents, except for [ŋgunakan], the most common situation. First of all, some speakers do permit [ŋ] to become modified, so to speak, to [nd]. Thus, the form [ndək] 'stools' is sometimes heard, though less frequently than [nələk]. Similarly, the plural of [ləy?] 'spoon' is most frequently [nələy?], though occasionally [ndələy?], and the plural of [ləh] 'stone' is [nələh] or [ndəh]. This sometimes creates confusion, such as between [ndək] 'stools' (pl. of [lək]) and the related word [ndək] 'bamboo', which to such speakers would be homonyms. In fact, in some cases a would-be plural with [nd] is impossible, since it would be too closely associated with another word in the language. Thus, the plural of [lək] 'horse' (with mid tone) can only be [nələk] (usually with [ŋəy] 'animal' preposed to it), and never *[ndək], because [ndək] is the Fe?fe' word for 'white man'. A frequent modification is for [ŋəy] to be pronounced [ŋə], as in [ŋəyə] 'cheeks'. I have heard one person pronounce [ŋəyə?], and other Fe?fe' speakers reject the form outright. The word [nəyət] 'maggots' (pronounced with two syllables) and [nəwəe] 'generations' (also with two syllables) have no other pronunciation. In all cases, it must be said, there is a tendency to avoid putting any nasal prefix at all. Thus, especially among younger speakers, there is a tendency to say [ŋəuə? zə] 'my cheek' and [ŋəuə? mə] 'my cheeks' (instead of [ŋəyəuə? mə] or [ŋəŋəuə? mə]). In such forms
we can see the imminent loss of the singular/plural distinction in Fe'fe'
(cf. Hyman, Voeltz and Tchokokam [1970]; also, Chapter VII).

The question is how to handle such forms as those in (57). It might
seem at first that there are underlying /l, y, y/ in addition to the /d, j,
g/ series set up earlier, since the two series of consonants now appear to
contrast after homorganic nasals. However, the fact that the [p:b] alter-
nation still holds up, and that at least a minority of speakers can allow
[nd] in plural nouns as well as in the marked form of verbs, suggests that
a generalization would be missed if one accepted such a solution with two
series of underlying non-strident voiced obstruents. There are several
other possible solutions.

First, a morphological feature indicating the category of the lexical
morpheme can be incorporated into rule (46), such as [+verb]. If the rule
were restricted in such a way, underlying /p, l, y, y/ must be assumed in
all cases, nouns and verbs, with the condition that these can become [b, d,
j, g] only if the morpheme is marked [+verb]. There are several difficulties
associated with this solution, not the least of which is the set of argu-
ments given against recognizing such underlying forms. In fact, any
morphological feature such as [+verb], [-noun], etc. is doomed to failure,
since the relationship between homorganic nasals and voiced non-continuants
in verbs would be obscured. This is because such a solution would imply
that in all instances /d, j, g/ become [l, y, y] in nouns, even after homor-
ganic nasals. Such a claim is too strong, for there are nouns such as the
following:

\[
(58) \begin{array}{lll}
        & \text{Singular} & \text{Plural} \\
[mbòk] & [mbòk] & 3/4 \text{'hole'} \\
[ndhî] & [ndhî] & 9/10 \text{'cloth'} \\
[njëlë] & [njëlë] & 9/10 \text{'leopard'} \\
[nëgn] & [nëgn] & 1/2 \text{'guest'} \\
[ngwà?] & & 6a \text{'salt'}
\end{array}
\]

In these forms [b, d, j, g] occur after homorganic nasals in nouns as well.
In fact, the only time the voiced non-continuants do not occur after /N/
is when there is a corresponding singular form lacking this prefix. In

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noun genders 3/4, 9/10, mass class 6a, and occasionally 1/2, there will be plural forms with no unmarked singular counterparts. Instead, both singular and plural carry an /N/ prefix. In such cases, then, the series [b, d, j, g] will be found. Thus, the same root /dâg/ is involved in the forms [lâk:nâk] 'stool/stools' 5/6 and in the forms [ndâk:ndâk] 'bamboo/bamboos' 3/4. Since 'stools' has a zero prefix singular counterpart, it too appears with [l].

Thus, what makes the nouns in (57) different from the nouns in (58) is that the plural forms in (57) can occur without their nasal prefix. How can this be incorporated into the solution? Can one propose, for example, that the morpheme boundaries of [ndâk] 'bamboo' and [nâk] 'stools' are different? We can recognize an ad hoc boundary (=) for this purpose. If the form for 'bamboo' is recognized as /N=dâg/ and the form for 'stools' as /N+dâg/, the spirantization rule (46) can then be restricted so that it applies only after a word (#) or (+) morpheme boundary, but not after a homorganic nasal prefix with a (=) morpheme boundary. In a crucial sense the prefixes are different. When an invariant form such as [mbôk] 'hole' is heard, the [m] prefix does not divulge any information about the number of the noun. In a form such as [mbô] 'hands' (sg. [pô]) it does. However, the separability of the nasal prefix in (57) would not be a sufficient criterion for establishing different morpheme boundaries, since the nasal prefix on verbs is also separable. Despite this fact, non-continuants are found in the marked form of verbs, unlike the plural (marked) form of nouns. These would then have to be marked presumably with the (=) morpheme boundary, and this solution is obviously ad hoc. While one might argue that the plural /N/ is semantically more transparent than the /N/ that marks different tense/aspect distinctions, it seems unwise to set up an ad hoc boundary that would explain only one thing. In addition, an explanation is required for why the plural of [pô] 'hand' is [mbô] and not *[mpô].

Historically, a better explanation is provided for these facts. The plural forms in (57) all concern noun class 6, which reconstructs as Proto-Bamileke *mâ (a form still found in West Bamileke; see Chapters I and VII; cf. also Proto-Bantu *mâ). A form like [ŋkhû] 'feet' has roughly the following derivational history:

(59) PBke *mâ-kû > mîkhū > mkhû > ŋkhû 'feet'
First, the vowel of the noun class prefix fell, leaving a syllabic prefix [m]. Second, this [m] assimilated to the place of articulation of the following consonant. In the case of the nasal prefix in the marked form of the verb, on the other hand, as well as all other noun classes characterized by a nasal prefix, a homorganic nasal must be reconstructed for the proto language. Not so with class 6. Well after the alternations between [b, d, j, g] and [p, l, y, y] were firmly established in Bamileke, as captured by the rule in (46), new instances of homorganic nasals followed by [p, l, y, y] were created. If the plural form with a newly created homorganic nasal prefix had a non-prefixed singular counterpart (the retarding factor), the voiced continuants failed to be reanalyzed as [d, j, g] (/b/ is accounted for directly). If, on the other hand, there was no singular form (retarding factor), as in the case of mass class 6a, [l, y, y] were modified to [d, j, g]. This is seen in the derivations in (60):

(60)  

<table>
<thead>
<tr>
<th>PBke</th>
<th>'spoon'</th>
<th>'spoons'</th>
<th>'wine'</th>
</tr>
</thead>
<tbody>
<tr>
<td>[l-μ?]</td>
<td>[m-μ?]</td>
<td>[m-μ?]</td>
<td></td>
</tr>
<tr>
<td>V-drop</td>
<td>lμ?</td>
<td>mlμ?</td>
<td>mlμ?</td>
</tr>
<tr>
<td>Assim.</td>
<td>---</td>
<td>n1μ?</td>
<td>n1μ?</td>
</tr>
<tr>
<td>l &gt; d</td>
<td>---</td>
<td>---</td>
<td>nd1μ?</td>
</tr>
</tbody>
</table>

Proto-Bamileke [m-μ?] 'spoons' (from */m-μ/du?) is pronounced [n1μ?] by most speakers of Fe’fe’, because there is a corresponding singular form [lμ?]. Proto-Bamileke [m-μ?] 'wine' (from */m-μ-du?/), on the other hand, is pronounced [nd1μ?] by all Fe’fe’ speakers, because there is no corresponding singular. In such cases we see that Fe’fe’ speakers were aware of the "integrity" of the word 'spoon' in the plural form [n1μ?] in a way that they were not aware in verb alternations such as [l-nden] 'to say'. Perhaps such information should be captured by positing different morpheme boundaries (cf. English stress: if I say kilometer instead of the more established kilómetro, then it could be argued that I am more aware of the "word status" of meter in the compound; cf. also agéntive and agéntive). However, I shall not propose a different boundary, but rather shall argue that the plural marker in the noun genders 1/6, 5/6 and 7/6 is /m/ rather than /N/.

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Notice what this accomplishes. Suppose that the underlying forms of the plural nouns in (57) are the following:

(61) | Underlying Form | Surface Form |
-----|-----------------|--------------|
/mb̪əa/ 'bags'    | [mb̪əa]       |
/md̪əɡ/ 'stools'   | [nd̪əɡ]       |
/mj̪əd/ 'maggots'  | [ŋ̪əd]        |
/mg̪əʔaʔ/ 'cheeks' | [ŋ̪əʔaʔ]      |
/mgw̪e/ 'generations' | [ŋ̪w̪e]   |

(In Chapter IV the underlying form /mgw̪eən/ 'generations' will be proposed.) In applying the spirantization rule (46), /b, d, j, g, gw/ will become [p, l, y, y, w] unless preceded by a homorganic nasal. There are at least two advantages to this proposal. First, I can now explain why 'bags' is pronounced with [b] (from the voiced non-continuant series) rather than with [p] (which would be parallel with the [l, y, y] in (61)). 'Bags' is pronounced with [b] because at the point in the derivation where spirantization occurs, it alone stands after a homorganic nasal, the /m/ of class 6. An additional rule that assimilates /m/ to the place of articulation of the following consonant will be needed, ordered after [l, y, y] have been derived from /d, j, g/. Thus, the synchronic derivations of the surface forms in (61) are given in (62):

(62) | Underlying Form | Spirantization | N-Assimilation |
-----|-----------------|-----------------|----------------|
/mb̪əa/ 'bags'    | ----           | ----            |
/md̪əɡ/ 'stools'   | [ml̪əɡ]        | [nl̪əɡ]         |
/mj̪əd/ 'maggots'  | [ŋ̪əd]         | [ŋ̪əd]          |
/mg̪əʔaʔ/ 'cheeks' | [ŋ̪əʔaʔ]       | [ŋ̪əʔaʔ]        |
/mgw̪e/ 'generations' | [ŋ̪w̪e] | [ŋ̪w̪e] |

(Rule (54) must further apply to 'generations' to produce [ŋ̪w̪e] by [ŋ̪] deletion.) It is assumed that other nasal prefixes are fully specified as homorganic with the following consonant before the spirantization rule in (46) has applied. This pertains to the homorganic nasal prefix of the marked form of verbs, as well as the nasal prefix of noun classes other than
class 6. Since these *nasals* are homorganic prior to the application of the spirantization rule, this latter rule will not be able to derive the segments [p, l, y, y, w] in such cases. Additional support for setting up the class 6 prefix as /m/ is obtained from the observation that some Fe'fe' speakers do pronounce [m] without assimilating it to the following consonant: [mlɔk], [mhɔt], etc. The main difficulty with this analysis is that it forces one to disassociate this class 6 prefix /m/ from the class 6a prefix /N/ of mass nouns such as [ŋgwa?] 'salt' and [ŋdɔ?] 'wine', although the two have identical possessive concord with /m/ (and an identical source): [mlɔy mɔ] or [nlɔy mɔ] 'my stools' and [ŋgwa? mɔ] 'my salt'. But as seen in the historical derivations of 'spoons' and 'wine' in (60), this is exactly what Fe'fe' speakers have done.
CHAPTER IV

Vowel Length and Epenthetic Consonants

1.0. **Vowel Length.**

In Chapter II it was stated that Fe'fe? manifests a surface contrast between long vowels (abbreviated VW, not to be confused with diphthongs) and short vowels (V) in open syllables. All vowels are short in phonetic closed syllables. Starting from the tentative underlying vowel system presented in Chapter II and reproduced here as (1),

(1)

<table>
<thead>
<tr>
<th>i</th>
<th>u</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>o</td>
</tr>
<tr>
<td>a</td>
<td>a</td>
</tr>
</tbody>
</table>

where /u/, /o/ and /a/ represent back unrounded vowels (/u/ = I.P.A. [u]), note that while any vowel can occur long, /e/, /a/ and /o/ are never short in open syllables. The five remaining vowels can occur either long or short in open syllables, as seen in the following (near)-minimal pairs:

(2)

<table>
<thead>
<tr>
<th>[sɪ] 'to sit (down)'</th>
<th>[kʊ] 'field'</th>
</tr>
</thead>
<tbody>
<tr>
<td>[sɬɪ] 'to spoil'</td>
<td>[kʊˀ] 'belt'</td>
</tr>
<tr>
<td>[θʊ] 'tree'</td>
<td>[pə] 'inhabitants of'</td>
</tr>
<tr>
<td>[tɭʊ] 'palm-tree'</td>
<td>[pəʊ] 'wing'</td>
</tr>
</tbody>
</table>

The aspirated [θ] of 'tree' and 'head' has been accounted for in Chapter II. As stated above, a low-level phonetic rule aspirates or tenses all consonants except /s, z, m, n, ŋ/ in C₁ position when they are followed by a short high vowel (i.e. /i, u, u/ in open syllable position. The underlying forms of these two words are /tɭ/ and /tʊ/, respectively. It should also be noted in the forms for 'field' and 'belt' that short [o] is paired with long [ʊʊ], not with long [ɔʊ]. In the analysis that follows, the [-tense] specification of [ʊʊ] is a result of that vowel's being [+long]. (Actually, the final /b/ in the proposed underlying form /kʊʊb/ for 'belt' will be
crucial; see Sections 2.0 and 4.0 below.) In other words, morphemes such as 'belt' will have the underlying vowel /oo/, which is however converted to [oo] by a phonetic rule. This rule can be written to include /uu/, which in some villages is realized as [oo]. Such a rule can be written as in (3):

\[
(3) \begin{align*}
\begin{bmatrix}
+\text{round} \\
+\text{long} \\
\text{<-high}> \\
\text{V}
\end{bmatrix} & \rightarrow \begin{bmatrix}
-\text{high} \\
\text{<-tense>}
\end{bmatrix}
\end{align*}
\]

though I shall significantly modify the structural description of rule (3) later in this chapter. Rule (3) abbreviates the following two subrules:

\[
(4) \begin{align*}
a. \begin{bmatrix}
+\text{round} \\
+\text{long} \\
-\text{high} \\
\text{V}
\end{bmatrix} & \rightarrow \begin{bmatrix}
-\text{high} \\
-\text{tense}
\end{bmatrix} \\
\text{/oo/} & \rightarrow [\text{oo}]
\end{align*}
\]

\[
b. \begin{bmatrix}
+\text{round} \\
+\text{long} \\
\text{V}
\end{bmatrix} & \rightarrow [-\text{high}] \\
\text{/uu/} & \rightarrow [\text{oo}]
\end{align*}
\]

Thus, [koo] 'belt' has the underlying long vowel /oo/ and the underlying long vowel /uu/ of 'drum' is realized either as [uu] or as [oo], i.e. [tūu] or [tōo] 'drum'. Rule (3) can also be formalized as in (5),

\[
(5) \begin{align*}
\begin{bmatrix}
+\text{round} \\
+\text{long} \\
\text{a high} \\
\text{V}
\end{bmatrix} & \rightarrow \begin{bmatrix}
-\text{high} \\
\text{a tense}
\end{bmatrix}
\end{align*}
\]

which abbreviates the two subrules in (6):

\[
(6) \begin{align*}
a. \begin{bmatrix}
+\text{round} \\
+\text{long} \\
+\text{high} \\
\text{V}
\end{bmatrix} & \rightarrow \begin{bmatrix}
-\text{high} \\
+\text{tense}
\end{bmatrix} \\
\text{/uu/} & \rightarrow [\text{oo}]
\end{align*}
\]
b. \[
\begin{array}{c}
+\text{round} \\
+\text{long} \\
-\text{high} \\
V
\end{array}
\rightarrow
\begin{array}{c}
-\text{high} \\
-\text{tense}
\end{array}
\]

/oo/  \[\text{[oo]}\]

While the question of using such alpha rules as (5) to describe such phenomena is discussed in connection with these and other Bamileke vowel shifts in Chapter VIII, notice for the purpose of the present discussion that rule (5) requires two redundant feature specifications (or vacuous applications). In (6a), the [+high] vowel /uu/ is redundantly [+tense] and this part of the structural change applies vacuously. In (6b), the [-high] vowel /oo/ is of course already [-high] and this part of the structural change applies vacuously. In rule (3) there is only one vacuous rule application, namely that in (4a), identical with the redundancy in (6b). For this reason alone, I suggest that rule (3) is superior to rule (6). A few speakers, however, have been heard to say [kòo] 'belt', in which case /oo/ is not modified to [oo]. Appropriately, these same speakers fail to modify /uu/ to [oo], since this would create a merger. The three possibilities are given as A, B and C in (7):

(7)  

\[
\begin{array}{ccc}
\text{/uu/} & \text{A} & \text{B} & \text{C} \\
& [koo] & [kuu] & [kuu] 'to carve' \\
\end{array}
\]

In A, both (4a) and (4b) have applied; in B, only (4a) has applied, and in C, neither has applied. No Fe'fe' speakers allow (4b) to apply without (4a), since both /uu/ and /oo/ would merge as [oo].

The forms presented in (2) suggest that the surface distinction between long and short vowels is to be attributed to a corresponding opposition on the systematic phonemic level, i.e. that long and short vowels are both underlying. This may seem the obvious solution, given such minimal pairs as [sI] 'to sit (down)' and [sII] 'to spoil'. In fact, I shall argue for such a position in this chapter. However, various factors point to the possibility that only short vowels are present in underlying forms, which must be considered before any decision is made.
2.0. The Underlying Final Consonant Hypothesis.

One bit of suggestive information against an underlying vowel length distinction is the observation that long vowel syllables (i.e. CVV) in Fe*fe* usually correspond to CVC syllables in other dialects. The nearby villages of Fondanti, Fondjomekwe and Potuni are examples of closely related dialects lacking a vowel length distinction (many Fe*fe* speakers would consider at least the first two to be simply "nuanced" variants of Fe*fe*), though by the criteria established in Chapter I, they are not Fe*fe*). That is, where Fe*fe* has a long vowel, a proto form with a final consonant can be reconstructed. Compare the following forms in (8):

\((8)\)  
\[\text{Fondanti} \quad \text{Fe*fe*}\]
\[\quad [kɔp] \quad [kɔɔ] \quad \text{'belt'}\]
\[\quad [ŋkɔp] \quad [ŋkɔn] \quad \text{'money'}\]

In (8) it is observed that where Fe*fe* has [ɔɔ], Fondanti has [ɔp], and where Fe*fe* has [ɔn], Fondanti has [ap]. In fact, almost all non-Fe*fe* dialects of Bamileke exhibit the identical forms found in Fondanti (cf. the definition of Fe*fe* in Chapter I). If all non-Fe*fe* dialects have a final [p] (i.e. /b/), one might consider positing an underlying consonant whose loss conditions the lengthening of the preceding etymological short vowel.

Internal evidence for positing such underlying final consonants is in fact available independent of dialect comparisons. There is a very general process in Fe*fe* phonology whereby an "epenthetic" consonant surfaces whenever a vowel follows a long vowel, i.e. \(VW + V\) becomes \(VVCV\). This phenomenon does not occur between lexical morphemes, since these always begin with a consonant, but rather is restricted to two situations. First, it occurs in singular noun classes characterized by Ø- possessive concord (i.e. classes 1, 3, 7 and 9), when a singular person possessive pronoun follows. Fe*fe* [kɔɔ] 'belt' belongs to class 3, and [ŋkɔn] 'money' to class 9 (cf. Chapter VII). Two sets of forms are presented in (9). In the left hand column nouns ending in a short vowel are given with singular person possessive pronouns. These are contrasted with the corresponding forms of nouns ending with a long vowel, given in the right hand column:
(9) a.  

Class 3  

[kò] 'field'  
[kò a] 'my field'  
[kò o] 'your field'  
[kò i] 'his field'  

[kò o] 'belt'  
[kò ba] 'my belt'  
[kò bo] 'your belt'  
[kò bi] 'his belt'  

b.  

Class 9  

[nzà] 'title'  
[nza à] 'my title'  
[nza b] 'your title'  
[nza i] 'his title'  

[ŋkà] 'money'  
[ŋkà ba] 'my money'  
[ŋkà bo] 'your money'  
[ŋkà bi] 'his money'  

(The word [nzà] is a title of respect. Unfortunately, very few words end in short [a], the reason being that Proto-Bamileke *a became [a] in all open syllables at a time in the past when few vowels were in word final position—almost all morphemes were of the structure CVC; cf. however PBke *dia 'to eat' > lya > lyya > Fe?fe? [za].) The words 'belt' and 'money' take an epenthetic [b] because they contain the long vowels [ò] and [ã]. The words 'field' and 'title' are not characterized by an epenthetic consonant when followed by a vowel, since they contain short vowels.  

The other situation where epenthetic consonants are found is in the case of long vowel transitive verbs when they take singular person direct object pronouns, as in (10). Again, the forms on the left contain short vowels, the forms on the right, long vowels:  

(10) a.  

[ko] 'to take'  
[ko a] 'take me'  
[ko o] 'take you'  
[ko i] 'take him'  

[sò] 'to stab'  
[sò ba] 'stab me'  
[sò bo] 'stab you'  
[sò bi] 'stab him'  

b.  

[ha] 'to give'  
[ha a] 'give me'  
[ha o] 'give you'  
[ha i] 'give him'  

[ca] 'to insult'  
[ca ba] 'insult me'  
[ca bo] 'insult you'  
[ca bi] 'insult him'
As seen in the phrases involving the verbs 'to take' and 'to give', when the stem vowel is short, no epenthetic consonant appears before the voca-
ic personal pronouns [a] 'me', [o] 'you' and [i] 'he/she/it(animate)'.
As expected, in Fondanti the forms for 'to stab' and 'to insult' are [sɔp]
and [cɔp], respectively, the final [p] corresponding with the epenthetic
[b] in Fe°fe°. (For a discussion of the [p:b] alternation, see Chapter
III.) The forms for 'to take' and 'to give' are however identical to
those in Fe°fe°, namely [kɔ] and [hə], though [kɔt] also occurs for 'to take'.

Evidence such as the above, where the lost final consonant is recover-
able synchronically would seem to suggest 1) that these consonants (of
which we have thus far seen only the labial stop [b]) are present in the
underlying forms and are lost by a deletion rule yet to be specified; and
2) that long vowels result from vowel lengthening before consonants that
can potentially fall (whether they fall or not, as it turns out). If the
second suggestion turns out to be a true characterization of synchronic
Fe°fe° phonology, then no long vowels would be necessary in underlying
forms. In this solution, an underlying short vowel would become long by
rule before certain consonants, which would then fall, as in (11):

(11) /sɔb/ 'to stab' → sɔb → sɔb → [sɔb]
  /cɔb/ 'to insult' → cɔb → cɔb → [cɔb]

In the first step of the derivation /ɔ/ becomes [ɔ] in closed syllables.
(I am assuming underlying /cɔb/ 'to insult' rather than /cəb/, which would
be more correct, historically, since once /ə/ is modified to [ə] in closed
syllables, it merges with /ə/; cf. Chapter II.) In the second step, [ɔ]
and [a] are lengthened to [ɔɔ] and [aə]. As the final step, /b/ falls.
The derivations in (11) are without question valid diachronically; there
are, however, serious problems in an attempt to include such rules in the
synchronic phonology.

3.0. The Epenthetic Consonant Hypothesis.

The first question concerns the suggested final consonant deletion
rule. I shall later argue for such a rule in Fe°fe° phonology, but shall
first consider the possible alternative of a consonant insertion (epenthesis)
rule, which would function as a hiatus breaker. This is normally what is
meant by "epenthetic consonant". This approach is plausible, and can be
claimed to parallel in a direct way the intuition of native speakers, who
describe the process in terms of a "consonne euphonique" that keeps vowels
apart. The question is whether these consonants are in the lexicon, or
whether they are inserted by rule. If the choice of the appropriate con-
sonant after a given long vowel is idiosyncratic, then the correct place
in the grammar where this should be captured is in the lexicon. The
final consonant would constitute a part of the lexical entry and would
be deleted by rule in the appropriate environments (as in (11)). This
is precisely the solution proposed for French by Schane [1968a] If, on
the other hand, certain generalizations can be captured with respect to
which consonants appear after which long vowels, it might be preferable
to extract such regularities from the lexicon and state them by rule.
(This seems to be the correct approach, for example, to the data presented
from Maxakali by McCawley [1967], where the correct inserted vowel depends
entirely on the preceding consonant.) In Fe'?fe', as shown in (12), the
following six long vowels always "take" one predictable "epenthetic" con-
sonant:

(12)  /ee/  takes [n] :  [k'ee ni] 'refuse him'
      /aa/  takes [l] :  [paal li] 'flatter him'
      /oo/  takes [b] :  [soo bi] 'stab him'
      /uu/  takes [m] :  [sweem mi] 'miss him'
      /uu/  takes [m] :  [cweem mi] 'pity him'
      /aa/  takes [b] :  [caal bi] 'insult him'

In fact, a number of generalizations can be made from this distribution
of epenthetic consonants:

(13)  a.  all epenthetic consonants are [+voice, +ant]
     b.  front vowels (/ee/ and /aa/) take alveolar consonants
     c.  back vowels take labial consonants

Since /aa/ is pronounced [a], i.e. since it is [+round], (13c) could per-
haps be subdivided into two parts whereby rounded back vowels take [b]
and unrounded back vowels take [m]. However, as shown below, when the
properties of /uu/ are taken into consideration, this subdivision of (13c)
is revealed to be a false generalization. Notice, however, that if [oo]
is to be interpreted as [+low] (the realization of /oo/), rather than
[-low, -tense], then a fourth generalization can be stated:

(13) d. [+low] vowels take oral consonants; [-low] vowels take
nasal consonants

The consonant insertion rule in (14) can then be given to cover the data
in (12):

(14)

\[
\emptyset \rightarrow \begin{cases}
\text{a grave} \\
\text{+voice} \\
\text{+ant} \\
\text{<-nasal>}
\end{cases}

/ \begin{cases}
\text{a grave} \\
\text{+long} \\
\text{<-low>}
\end{cases}

V
\]

(For the same reason as with rules (3) and (5), rule (14), which makes use
of angled brackets as preferred over a rule that uses variables, in this
case [-a nasal] and [+low].) In (14) the feature Grave, which is indis-
penensible in Fe?fe? phonology (see in particular Chapter V), is used to
group labial consonants and back vowels, on the one hand, and alveolar
consonants and front vowels on the other hand. The specification [+ant]
rules out the possibility of inserting palatal and velar consonants. (In
this rule I have left the feature Continuant unspecified, since I am
assuming that the consonant found after /aa/ is /d/, though it is converted
to [l] in all instances by rule (46) in Chapter III.)

Unfortunately, the generality of this rule is not upheld by the two
remaining long vowels, /ii/ and /uu/, both of which permit epenthetic [m]
and [n], depending on the individual morpheme, as seen in (15):

(15) /ii/ takes [m] or [n]:

\[\text{[ci\text{\text{n}\text{i}}} \text{][feed him]}\]
\[\text{[yi\text{\text{i}}} \text{][see him]}\]

/uu/ takes [m] or [n]:

\[\text{[\text{wu\text{\text{u}}} \text{mi}][catch him]}\]
\[\text{[lu\text{\text{u}}} \text{mi}][beg him]}\]

If the direct object pronouns are switched, the results are unacceptable:

\[\text{[cii \text{\text{n}}}, \text{[yi\text{\text{i}}} \text{\text{\text{n}}}, \text{[\text{wu\text{\text{u}}} \text{\text{n}}}, \text{[lu\text{\text{u}}} \text{\text{mi}}. \text{Thus, generalizations (13b) and (13c)}
do not hold, though (13a) and (13d) still stand. According to rule (14),
/ii/ should take only [n], while /uu/ should take only [m]. The problem is

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accounting for [i1(m)] and [u1(n)]. Perhaps such sequences can be marked as exceptions to rule (14) and then a minor rule would be added to apply subsequently, as in (16):

\[
\emptyset \rightarrow \begin{cases} +\text{nasal} \\ -\text{ant} \end{cases} \quad / \quad \begin{cases} +\text{long} \\ -\text{a grave} \end{cases} \rightarrow \text{V}
\]

If words such as [cii(m)] 'to feed' and [l1uu(n)] 'to beg' were marked [-rule 14], then (16) would apply to all remaining long vowels, since rule (16) follows rule (14).

Rule (14) may however not represent a true generalization about Feññafeññ, especially given the anomalous nature of /ii/ and /uu/. Can the so-called generalizations represented in (14) be due to chance? Evidence from the phonetic constraints on surface [CVC] sequences suggests that there is more to rule (14) than can be attributed solely to chance. These phonetic constraints were presented in Chapter II, but are restated here for convenience in (17):

\[
\begin{align*}
/b/ & : /ob/ \rightarrow [\mathring{\text{op}}] & \text{e.g.} & [\mathring{\text{ng}}\mathring{\text{op}}] '\text{skin}' \\
/\mathring{\text{ab}}/ & \rightarrow [\mathring{\text{ap}}] & & [\mathring{\text{ng}}\mathring{\text{ap}}] '\text{hen}' \\
/m/ & : /\mathring{\text{um}}/ \rightarrow [\mathring{\text{um}}], [\mathring{\text{om}}] & & [\mathring{\text{tum}}], [\mathring{\text{tom}}], [\mathring{\text{tum}}], \\
& & & [\mathring{\text{tom}}] '\text{to leave}' \\
/\mathring{\text{am}}/ & \rightarrow [\mathring{\text{am}}], [\mathring{\text{om}}] & & [\mathring{\text{vam}}], [\mathring{\text{vam}}] '\text{belly}' \\
/d/ & : /\mathring{\text{ad}}/ \rightarrow [\mathring{\text{at}}] & & [\mathring{\text{mv}}\mathring{\text{at}}] '\text{oil}' \\
/n/ & : /\mathring{\text{en}}/ \rightarrow [\mathring{\text{en}}], [\mathring{\text{in}}] & & [\mathring{\text{s}}\mathring{\text{en}}], [\mathring{\text{s}}\mathring{\text{in}}] '\text{friend}' \\
/g/ & : /\mathring{\text{og}}/ \rightarrow [\mathring{\text{ok}}] & & [\mathring{\text{tok}}] '\text{ear}' \\
/\mathring{\text{ag}}/ & \rightarrow [\mathring{\text{ak}}] & & [\mathring{\text{sak}}] '\text{bird}' \\
/h/ & : /\mathring{\text{eh}}/ \rightarrow [\mathring{\text{eh}}] & & [\mathring{\text{n}}\mathring{\text{eh}}] '\text{in vain}' \\
/\mathring{\text{ah}}/ & \rightarrow [\mathring{\text{ah}}] & & [\mathring{\text{n}}\mathring{\text{ah}}] '\text{to try}' \\
/\mathring{\text{oh}}/ & \rightarrow [\mathring{\text{oh}}], [\mathring{\text{ah}}] & & [\mathring{\text{toh}}], [\mathring{\text{toh}}] '\text{to pass}' \\
/\mathring{\text{ah}}/ & \rightarrow [\mathring{\text{ah}}] & & [\mathring{\text{koh}}] '\text{to economize}'
\end{align*}
\]
\[ /i/? : \rightarrow \{ l/? \} \quad \text{e.g.} \quad [l/?] \text{ 'to descend'} \]

\[ /\varepsilon/? : \rightarrow \{ e/? \}, [e/] \quad [p\varepsilon/?] \text{ 'house'} \]

\[ /a/? : \rightarrow \{ a/? \} \quad [t\varepsilon/?] \text{ 'to bargain'} \]

\[ /u/? : \rightarrow \{ u/? \} \quad [y\varepsilon/?] \text{ 'to hear'} \]

\[ /o/? : \rightarrow \{ o/? \} \quad [t\varepsilon/?] \text{ 'to begin'} \]

\[ /\varepsilon/? : \rightarrow \{ u/? \} \quad [l\varepsilon/?] \text{ 'to vomit'} \]

\[ /\varepsilon/? : \rightarrow \{ o/? \} \quad [f\varepsilon/?] \text{ 'to work'} \]

In (17) it is observed that roughly the same constraints hold for \( C_2 \) consonants after short vowels and epenthetic consonants after long vowels. For example, /b/ occurs only after /o/ and /a/ as \( C_2 \); it also occurs only after /\varepsilon o/ and /\varepsilon a/ as an epenthetic consonant. Similarly, /d/ occurs only after /a/ as \( C_2 \) and only after /\varepsilon a/ as an epenthetic consonant (pronounced [\( l \)]), and /n/ occurs only after /e/ as \( C_2 \) and also after /\varepsilon e/ as an epenthetic consonant (though after /\varepsilon i/ and /\varepsilon u/ as well). If such "coincidences" are to be accounted for in a general way, some statement must apply not only to long vowels that "take" certain epenthetic consonants, but also to short vowels that occur in closed syllables only before certain final consonants (e.g. morpheme structure conditions are needed that collapse the two sets of constraints). However, a problem arises.

4.0. Arguments for Underlying Consonants.

In the preceding discussion it was said that the [+low] specification of [\( \varepsilon o \)] accounts for the choice of an oral epenthetic consonant (let us speak of [\( \varepsilon o \)] rather as [-tense], as in Chapter II). In the corresponding phonetic sequence [\( \varepsilon p \)], however, we see that the [-tense] specification of [\( \varepsilon \)] is due entirely to the presence of a final consonant. Underlyingly we represent such sequences as /\varepsilon o b/; similarly, underlying /\varepsilon o g/ is realized as [\( \varepsilon o k \)]. In fact, returning now to [\( \varepsilon o \)], this suggests that /\varepsilon o/ is lowered to [\( \varepsilon o \)] precisely because the syllable is closed by an underlying consonant. That is, by recognizing an underlying /b/ in /\varepsilon o b/ 'to stab' (realized phonetically as [\( s\varepsilon o (b) \)], one can generalize on what is already known to characterize the language, namely that /\varepsilon o/ becomes [\( \varepsilon \)] in closed
syllables (the infeasability of recognizing /sɔb/ is discussed below). Historically, just as /a/ is backed to [ə] in [ŋəp] 'hen', so is /aa/ backed in closed syllables to [aa], as in [caa] 'to insult' (from *cab). Therefore, the consonant insertion approach does not provide the most general solution. Instead, the deletable consonants should be part of the underlying form. Morpheme structure conditions such as (18) are therefore needed to cover both long and short vowel distributions (cf. (59) in Chapter II):

(18) If: 

\[
\begin{array}{c}
\text{[+syllabic]} \\
\downarrow \\
\text{Then:} \\
\text{[+consonantal]} \\
\text{[+grave]}
\end{array}
\]

\[
\begin{array}{c}
\text{-continuant} \\
\text{-nasal}
\end{array}
\]

\[
\begin{array}{c}
\text{[-high]}
\end{array}
\]

\[
\begin{array}{c}
\text{[a low]}
\end{array}
\]

\[
\begin{array}{c}
\text{[+grave]}
\end{array}
\]

\[
\begin{array}{c}
\text{[-a round]}
\end{array}
\]

The MSC in (18) states that only /o/, /oo/, /a/ and /aa/ occur before /b/ and /g/. The argument against the consonant insertion solution is that no such MSC would be stateable, since there would be no underlying /b/ in morphemes such as 'to stab' and 'to insult'. Similarly, there is no phonetic [b] when these verbs are followed by a consonant, as in (19):

(19) 

[ʃɔncwe?] 'stab the thief'

[caa ncwe?] 'insult the thief'

And yet the phonetic vowel of 'stab' is [ɔɔ]. In the consonant insertion proposal, to capture the parallel between long and short vowels before /b/, as well as the cause of the lowering of /oo/ to [ɔɔ] in (19), [b] would first have to be inserted in (19), then /oo/ changed to [ɔɔ], and finally, /b/ would have to be deleted. That this /b/ would have to be inserted relatively early in the derivations strongly suggests that it should be taken as underlying.

The change of /o/ and /oo/ to [ɔ] and [ɔɔ] is best described in terms of closed syllables. For this reason, a consonant insertion rule would have to precede rules dealing with syllable adjustment (or "resyllabification"). It is clear from even a cursory view of Fe*fe* phonology that phonological syllables do not correspond directly to phonetic syllables. Thus, the underlying phrase /$^{2}$ sog $^{2}$ / 'tell him' (where I borrow the symbol $^{2}$ for syllable boundaries from Hooper [1972] and Vennemann [1972])

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is realized as [ɔ soy ɯi ɔ]. The syllable boundary has shifted to maximize CV syllables. Compare, for example, the underlying phrase 
/ɔ sog ɯ muu ɔ/ 'tell the child', where the phonetic vowel [ɔ] is
optionally copied to create a syllable for [ɯ] to shift to [ɔ soy ɯ muu ɔ]
or [ɔ ɔy ɯ muu ɔ]. Now, if epenthetic consonants are to be consi-
dered as suffixed onto the preceding noun or verb by an insertion rule,
then this rule will have to apply before syllable adjustment:

(20) /ɔ sɗo ɔ i ɔ/ 'stab him' → sɗob ɔ ɔ →

sɗob ɔ i → [sɔ ɔ bi ]

In the last rule of (20), the syllable boundary has been shifted to the
left of the inserted [b]. This is assumed to be the same rule as the one
that shifted the syllable boundary in the case of 'tell him' above. The
inserted [b] must belong to the preceding syllable because of forms such
as [kɔ bês] 'this field', where /ɔ/ does not become [ɔ] before a [b] that
rightfully belongs to the next syllable (and morpheme). For reasons given
in Chapter III, phrases such as 'this field' are considered to have an
internal morpheme boundary, but not an internal word boundary, and so it
cannot be claimed that the [ɔ] of [kɔ] fails to become [ɔ] because of a
different grammatical boundary. Thus, in order to achieve the correct
results, we must have [b] inserted before the application of the syllabi-
fication rule, which can be formalized roughly as in (21):

(21) V C ɔ V

1 2 3 4 → 1 3 2 4

Such a rule is necessary, if we are to accurately specify where the phonetic
boundaries are.

It might be suggested that we prefix the epenthetic consonant to the
following vocalic segment, in the above cases, to the pronoun /i/ 'him/
her'. One might derive initial support from native speaker intuition,
according to which the orthographic break in phrases such as 'stab him'
in (20) is between the final long vowel and the epenthetic vowel. Thus,
Nuñi writes something like sɗo bi and never sɗob i. Again, the problem
would be in explaining when and why /oo/ is realized as [ɔɔ] in a general
way. This explanation is best stated in terms of syllable boundaries:
/o/ and /oo/ are realized as [ɔ] and [ɔɔ], respectively, in closed syllables. This is seen from a restricted list of nouns and verbs referred to in Chapter III, which carry a final vowel (suffix) which cannot be considered as a morpheme, since it carries no meaning and has no grammatical function. Some such words are [ten] or [tena] 'iron', [pwên] or [pwênɔ] 'spirit', [vɔp] or [vɔba] 'dust' and [mvên] or [mvênɔ] 'grass'. The two forms given for each word are attested in different villages, although in all cases the forms lacking the [a] suffix are more frequent. These however must be analyzed as part of the root. Thus, 'iron' and 'dust' are underlyingly /tena/ and /vɔba/, respectively. The syllable analysis on the phonological level will have to be /ten $a/ and /vɔb $a/, since /e/ must become [e] and /o/ must become [ɔ] in closed syllables. After this has been effected, then the resyllabification stated in (21) takes place and the phonetic output is [te $na] and [vo $ba], respectively. Significantly, in cases where the non-suffixed form ends in a long vowel, the missing "epenthetic" consonant is always found in the suffixed counterpart (most frequently encountered in Bana and some Petit Diboum villages): [ŋkə] or [ŋkənɔ] 'monkey', [mbu^n] or [mbu^mɔ] 'God', [pʰn] or [pʰna] 'courtyard', etc.

5.0. Arguments for Underlying Long Vowels.

Thus I posit underlying final consonants in words with phonetic long vowels. This still doesn't solve the problem of whether the underlying forms with such final consonants include long vowels. If they do, the deletion of the final consonant would be effected by the following rule in (22) below:

(22) \[C \rightarrow \emptyset / [+long] \] $\rightarrow$ $U$

Rule (22) states that a consonant falls after a long vowel, if it is syllable final. As shown above, such consonants drop either word finally or before a consonant. However, a consonant drop rule with such an environment as (23),

(23) \[C \rightarrow \emptyset / [+long] \] $\rightarrow$ $\{C\}$ $\#$

would create difficulties, because of the behavior of the multiplicative

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suffix /sl/. The normal form of this suffix is [s|], e.g. the verb
[ko+s|] 'to help' is etymologically related to the verb [ko] 'to take'.
However, the form of this suffix is [ns|] when it occurs after verbs
analyzed with dropable underlying /m/ or /n/. Thus, compare the following
forms with those in (12) and (15):

(24) /këen/ 'to refuse' + /sl/ → [këens\|]
/baad/ 'to flatter' + /sl/ → [paasi]\|
/soob/ 'to stab' + /sl/ → [söös\|]
/swum/ 'to miss' + /sl/ → [swuns\|]
/cvym/ 'to pity' + /sl/ → [cvyns\|]
/coob/ 'to insult' + /sl/ → [caasi]\|
/clim/ 'to feed' + /sl/ → [clins\|]
/jlin/ 'to see' + /sl/ → [yins\|]
/güm/ 'to catch' + /sl/ → [wuns\|]
/duun/ 'to beg' + /sl/ → [wuns\|]

Although the multiplicative form of the verb is not in all cases frequently
used, all of the above forms are obtainable from informants. Note, however,
that many Feßfe\* speakers (especially younger ones) drop the [n] in all
cases, so that one can hear either [këens\|] or [këes\|] from /këen/ 'to
refuse'. The important fact about the phonetic forms with [ns|] is that
they are syllabified as [këe ꞉ ꞉ ꞉ ꞉ ꞉ ꞉ s\|] or, for those speakers who lose the
syllabicity (and hence the tone) of preconsonantal nasals, as [këe ꞉ ꞉ ns\|].
In other words, because syllables consisting of a homorganic nasal before
C₁ are permitted in preconsonantal position, the final /m/ or /n/ of the
appropriate verbs in (24) does not necessarily drop. All of the other
final consonants in (24) do however fall. This is because the syllable
structure [paa ꞉ ds|] (from /baad/ 'to flatter') is not permitted in Feßfe\*.
The consonant deletion rule must then apply whenever the deletable conson-
ants are in syllable final position. In words such as /këen+s|/ (where
the underlying syllable boundary coincides with the morpheme boundary), the
syllable structure must be adjusted before the consonant deletion rule
applies. It is not exactly clear what the structural description of the syllable adjustment rule should be. It is clear that the /n/ of 'to refuse' must fall at a word boundary, e.g. [k’e tuu] 'refuse the drum'. Since we do not obtain *[k’e ə nuu] as we obtain [k’e ə nsl] 'to refuse', the syllable adjustment rule cannot reassign [n] to the following syllable if there is an intervening word boundary. This is not surprising, since a preconsonantal nasal on lexical morphemes (i.e. nouns and verbs) has a grammatical function. On nouns it is a marker of noun class membership and often of plurality; on verbs it marks various tense/aspect distinctions. Thus, [k’e nuu] means 'refuse the drums', where the [n] prefix is the plural marker (class 6) of 'drums'. The same syllable reassignment rule seems to account for the preconsonantal nasal of /buun/ 'children' in [puu ə mbɔ] 'my children' (cf. [nɔwic bɔ] 'my wives', with no nasal). One might conclude that the nasal can be reassigned to the following syllable if there is only a morpheme boundary, but not a word boundary, e.g. /k’e+n+sl/, /buun+bɔ/, etc. But this does not always work, since /Nk’e+n+ zɔ/ 'my monkeys' is realized as [ŋk’ee ə zɔ] and not as *[ŋk’ee ə nzɔ]. In any case, while it appears to be difficult to state a general rule governing the assigning of a nasal to the following syllable, it is clear that all of the consonants of (24) must fall when syllable final. Thus the formulation of the consonant deletion rule given in (22) is preferable to that given in (23).

The reason why long vowels must be taken as underlying is shown by the four words in (25):

(25)  /Nk’ob/  'bark (of tree)'  →  [ŋk’ɔp]  
      /Nk’ab/  'fingernail'  →  [ŋk’ɔp]  
      /k’ob/  'belt'  →  [kɔɔ(b)]  
      /Nk’ɔb/  'money'  →  [ŋkɔɔ(b)]

The [b] in parentheses in 'belt' and 'money' means that it occurs if followed by a vowel. Since 'bark' and 'fingernail' must be recognized with /ob/ and /ab/, respectively, it is impossible to represent 'belt' and 'money' with these same underlying sequences. We find similar examples in (26):
(26) /bad/ 'to answer' → [påt]
/baad/ 'to flatter' → [paa(1)]
/cwén/ 'to dress up' → [cwän]
/cween/ 'to cut' → [cwee(n)]

As a final example, consider morpheme final /m/. The word 'to meet' is pronounced [pum] or [pom] from underlying /bum/, or it is pronounced [pVm] in some villages, derived from /bVm/. Recall, in (27), that /uu/ can be pronounced [uu] or [oo], just as /u/ before /m/ can be pronounced [u] or [o]:

(27) /bum/ 'to meet' → [pum] or [pom]
/buum/ 'to mold' → [puum(m)] or [poo(m)]
/bVm/ 'to meet' → [pVm]
/bVym/ 'to greet' → [pVvm(m)]

Thus in (25), (26) and (27) there is an underlying contrast between long and short vowels in closed syllables. Given the arguments for underlying final consonants in cases where we find phonetic long vowels, and the examples above, long vowels cannot be derived from final consonants with the final consonants later falling as in (11) above. If long vowels were so derived, we would not be able to explain why the short vowel in /bum/ 'to meet' is not lengthened, as is the vowel in 'to mold'. In other words, if I chose not to have underlying vowels, I would have to devise some other means of differentiating minimal pairs such as the above. One such means would be to mark those morpheme final consonants that lengthen vowels (and potentially drop) with a diacritic feature such as [+DROP], as in (28):

(28) /bum/ 'to meet' → [pum] or [pom]

[+DROP]

/bum/ 'to mold' → [puum(m)] or [poo(m)]

While such a solution would be workable, there appears to be no independent justification for the ad hoc feature [+DROP] which serves as a trigger for vowel lengthening (which in turn provides the structural description for a final consonant deletion rule such as (22)). Instead, long vowels must be phonemic.
6.0. **The Historical Explanation.**

It remains to be seen why the same long and short vowels occur before the same morpheme final consonants. For instance, why is it that only /o/ and /a/ occur before final /b/, and only /oo/ and /aa/ before deletable final /b/? This "coincidence" was captured by the morpheme structure condition in (18). The reason for this can be inferred from the following comparison of the pronunciation of the forms in (25) in the closely related, but non-Fe°fe°, villages of Fondanti, Fondjomekwet an Fotouni:

\[
\begin{array}{ll}
\text{Fondanti} & \text{Fe°fe°} \\
[ŋkw'] & [ŋkɔp] 'bark' \\
[ŋkɔp] & [ŋkɔp] 'fingernail' \\
[kɔp] & [kɔo] 'belt' \\
[ŋkɔp] & [ŋkɔɔ] 'money'
\end{array}
\]

Fondanti reflects an earlier form of Fe°fe°. (The only difference between Fondanti and Proto-Bamileke is the vowel of 'fingernail', which most likely reconstructs as PBke */i*; cf. the form in Mbouda (Batcham) dialect, [ŋkɔl]. The final consonant reconstructs of course as PBke */b/.) What has happened historically in Fe°fe° is that a "push chain" was created (cf. Martinet [1955]; King [1969]). In Chapter VIII I shall argue that these sound shifts are best explained as push chains, although King [1969] claims that push chains do not occur. But for the present discussion, these changes can be described in the following way. First, /ob/ and /ab/ from Proto-Fe°fe° are pronounced [ɔb] and [ɔb]; second, these vowels are lengthened so that we obtain [ɔɔb] and [ɔɔb]. At this point, /ub/ and /wb/ are free to move down and fill in the old /ob/ and /ab/ slots, pronounced [ɔp] and [ɔp], respectively. This "drag chain" explanation is represented in (30):

\[
\begin{align*}
\text{PP?} & \quad *\text{ub} \quad > \quad ɔb \quad > \quad [ɔp] \\
\text{PP?} & \quad *\text{ub} \quad > \quad ɔb \quad > \quad [ɔp] \\
\text{PP?} & \quad *\text{ob} \quad > \quad ɔb \quad > \quad ɔɔb \quad > \quad [ɔɔ(b)] \\
\text{PP?} & \quad *\text{ab} \quad > \quad ɔb \quad > \quad ɔɔb \quad > \quad [ɔɔ(b)]
\end{align*}
\]

The same can be said of other final consonants (see Chapter VIII).
7.0. **Cases of Non-Alternation.**

It was shown that the consonant insertion solution failed to reveal the constraints on consonant occurrences after short vowels. Another weakness in this solution that was pointed out was the necessity of a minor rule (16) that would insert [m] after some instances of /1l/ and [n] after some instances of /uu/. These instances would have to be marked with the appropriate rule feature, of course, since it is impossible in this approach to tell which morphemes will undergo the general rule (14) and assign [n] to /1l/ and [m] to /uu/, or the minor rule (16), which assigns [m] to /1l/ and [n] to /uu/. In my solution which recognizes underlying long vowels followed by deletable consonants, we can take care of the distribution of consonants after /1l/ and /uu/ by setting up the underlying forms /1ln/ vs. /lim/ and /uun/ vs. /uum/. Thus there is no problem with rule exception features and minor rules.

There is, however, another issue that must be dealt with. It was shown above that only nouns of certain singular noun classes take Ø—possessive concord. In nouns that take z—concord in singular class 5, or that only appear in mass class 6a, taking m—concord, the final consonant will not occur on the surface, because it is followed by a consonant, not by a vowel. What should the underlying form of such nouns be? In the case of class 5 [t̪y̑] 'fruit' there is no problem, since although the possessive concord is [t̪yw zå] 'my fruit' (where there is no final consonant because of the following z—), it is known from the distributions in (12) that /y̑w/ always "takes" [m]. Thus, although it will never occur on the surface, the underlying form for 'fruit' will be /t̪y̑w/. By recognizing /t̪y̑w/ rather than /t̪yw/ it is possible to maintain the MSC in Fe̽fe̽ that says underlying long vowels are always in closed syllables, as in (31):

\[(31) \quad \text{If:} \quad \begin{array}{c}
[+\text{long}] \\
\downarrow \\
V \\
\end{array} \quad \begin{array}{c}
[\quad] \\
\end{array} \quad \# \\
\text{Then:} \quad \begin{array}{c}
[+\text{segment}] \\
[+\text{consonantal}] \\
\end{array}\]

Notice also that by setting up such underlying forms as /t̪y̑w/ 'fruit', the claim is being made that on the basis of numerous words such as /k̪y̑w/ 'crab' (class 9/10), whose possessive concord is Ø—, as in [k̪y̑m å] 'my crab' (cf. [k̪y̑] 'crab'), Fe̽fe̽ speakers will internalize the underlying
form for 'fruit'. Thus, the prediction can be made that if the z- in
class 5 concord is dropped (thereby leaving the bare pronominal vowel),
the [m] will come to the surface, i.e. as in the hypothetical form
[tvym a] 'my fruit'.

A greater problem arises, however, with respect to /ii/ and /uu/,
both of which are capable of appearing before /m/ and /n/. What should
one do in the case of such class 5 nouns as [cwi] 'bone' and [tűu]
'drum', for which the possessive concord is [cwi ză] 'my bone' and
[tuu ză] 'my drum'? Once again the final consonant never occurs phonetically because of the following [z]. By the proposed analysis the long
vowel of each noun implies an underlying final consonant, but is it /m/
or /n/? Empirical support would have to be provided for either choice.
For example, one cannot simply assign the historically valid forms /cwi in/
and /tűum/., since native speakers do not in any regular way have access to
such forms. (It is true that they may hear the final consonants in neighbor-
boring dialects, but this is not sufficient.) Similarly, I do not want
to follow the practice of Schane [1968b] to invoke the concept of "marked-
ness", since there is no guarantee that such cases of nonuniqueness are
settled by native speakers in such a fashion. Instead, a language-specific
solution is required. First note, however, that the same problem arises
in verbs with phonetic long vowels. I said that the consonants of these
verbs occur only before the direct object pronouns /a/ 'me', /o/ 'you' and
/a/ 'he/she/it(animate)'. What about those verbs that are always intrans-
sitive? It is known once again from the distributions in (12) that the
verb [yyv] 'to be numerous' has to be underlyingly /jyvm/, since /yy/ only
occurs before /m/. This solution predicts that if /jyvm/ were created into
a transitive verb (e.g. 'to make numerous') the form with the direct object
pronoun would be [yyvm i] rather than anything else. But what about the
intransitive verbs [fii] 'to boil' and [wūu] 'to be sick'? (It is true
that one can propose /gũum/ for 'to be sick' since there is a related noun
'sickness' for which the possessive concord is [wũum a] 'my sickness'
(class 3/i).) Once again, empirical evidence is needed for treating
indeterminate cases.

One would like to know, for instance, which consonant is preferred
in cases where a verb is rarely used with a singular person direct object,
or in cases where an informant is forced to choose a direct object pronoun for nonsense syllables of the form [C11] and [Cuu]. However, there is a serious problem that enters into the picture when such inquiries are made. The Fe?fe9 language is and has been in a state of rapid linguistic change for quite some time. This change is responsible for the fact that the distributions given in (12) and (15) are not always obeyed by younger speakers. For example, younger speakers have a tendency to use [m] where we expect [b]. Thus they will say:

(32)  [s'bo mi] 'stab him' (rather than [s'bo bi])
[caʊ mɪ] 'insult him' (rather than [caʊ bi])

They also have a tendency to replace [l] with [n]:

(33)  [paa ni] 'flatter him' (rather than [paa li])

In other words, there is a tendency to eliminate final non-nasal consonants after long vowels and replace them with their nasal counterparts—i.e. /oob/ and /oob/ are reanalyzed as /oom/ and /oom/, and /aad/ is reanalyzed as /aad/. Notice that no mergers take place with etymological final /m/ and /n/, recalling that /oob/, now reanalyzed as /oom/, is pronounced with [oo]. Thus, for some young speakers, the following forms are found:

(34)  /m/ : [c11 mi] 'feed him'
       [wu u mi] 'catch him'
       [s'bo mi] 'stab him'
       [swu mi] 'miss him'
       [caw mi] 'pity him'
       [caʊ mɪ] 'insult him'

/n/ : [y11 ni] 'see him'
       [ke u ni] 'refuse him'
       [paa ni] 'flatter him'
       [lu u ni] 'beg him'

Thus, except for /11/ and /uu/, [m] tends to be used with back (i.e. [+grave]) vowels and [n] with front ([−grave]) vowels.
There is, however, a tendency to regularize /li/ and /uu/, as well, though a few frequent words are not significantly affected. This was particularly the case with /uu/. I asked 28 schoolgirls in their teens to provide me with the direct object pronoun 'me' after each of 20 verbs. (They had been studying Nufi and were therefore merely asked to write down the correct forms.) The results for /duun/ 'to beg', /t'uun/ 'to burn' and /g'um/ 'to catch' are given in (35):

(35) a. 
[luu na] 'beg me' - 8
[luu ma] 8
[luu a] 9
[luusla] 3

b. 
[t'uuu na] 'burn me' - 18
[t'uua] 9
[t'uul] 1

c. 
[wuu ma] 'catch me' - 25
[wuua] 2
[wuu la] 1

In the forms for 'beg me' and 'burn me' it is observed that although [n] is the etymological consonant that should appear, many speakers chose [m]. In 'beg me' a plurality of those interrogated actually preferred no consonant. (I have no explanation for this, since other evidence suggests that consonants are spreading to new environments, rather than being deleted. Thus, although one should say [kwa? a] 'touch me', many speakers say [kwa? na] or [kwa? la].) These two forms suggest that [m] is replacing [n] after /uu/. Notice that the [m] in 'catch me' is stable. I have not, however, observed a parallel replacement of [m] by [n] after /li/, as seen in (36):

(36) a. 
[yii na] 'see me' - 27
[yii la] 1

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b. [cɪl ma] 'feed me' - 25
[cɪl na] 2
[cɪl a] 1

Both the [n] in /ji1n/ 'to see' and the [m] in /cɪlm/ 'to feed' are maintained, though these are two very common verbs. Unfortunately, I didn't try other verbs with /ii/. There appear to be two possible solutions to the indeterminate cases mentioned earlier. Those nouns and verbs ending in phonetic [i1] or [uu] that never take a consonant before a vowel can be set up as /i1in/ and /uum/ in all cases, or as /i1N/ and /uuN/, i.e. with an archiphoneme "nasal consonant". The first solution draws its support from the direction in which the language is evolving (namely, by spreading [grave] agreement of V₁ and C₂ to /i1/ and /uu/; cf. the pseudo-rule presented in (14)). The archiphoneme approach says that the consonant is nasal but unspecified in graveness (it will be [+ant], since it is the archiphoneme sharing all of the features in common between /m/ and /n/). The archiphoneme solution predicts that in cases where a Fe®fe? speaker has not heard the nasal consonant in a particular morpheme, he will be unsure as to whether it is [m] or [n]. The /i1in/ and /uum/ solution tries to predict that the Fe®fe? speaker will choose [n] after /i1/ and [m] after /uu/. However, it seems to me that the archiphoneme solution better captures the present situation. When the speaker is unsure, he must make his decision on the basis of the MSC's that apply to vowels other than /i1/ and /uu/. These MSC's state that long vowels other than /i1/ and /uu/ appear before final consonants that agree in graveness. That is, labials are generally chosen after back vowels, and alveolars after front vowels. Thus, 'bone' will be /cwi1N/ and 'drum' will be /tʊuN/. Notice that I am recognizing these underlying forms despite the constraint proposed by Stanley [1967] that all underlying segments are fully specified. For to recognize these as having final /m/ and /n/, respectively, would only confuse these morphemes with those that are known to exhibit [m] and [n] on the surface.
CHAPTER V

Reduplication

0.0. Introduction.

In Chapter I it was stated that the Fe'fe' language is currently undergoing rapid change. This can be seen from a simple comparison of the speech of the elders with the speech of youngsters. Or it can be seen from a comparison of villages, or more dramatically, from a comparison of urban Fe'fe' with village Fe'fe'. This rapid change characterizes all levels of grammar: syntax, morphology, phonology, lexicon. New syntactic constructions (often as the result of contact with French) are being used more and more. The once productive Bantu noun class system is coming to a rapid halt. Borrowings occur with increasing frequency. And phonologically, it is easy to distinguish the new Fe'fe' from the old. It is particularly in the sound system that Bamileke dialects have been diversifying. We caught a partial glimpse of this in the treatment of Fe'fe' consonants and vowels in Chapters II, III and IV. While part of this process may be due to the political turmoil of the 50's and 60's and to the French influence, this diversification has been underway for centuries. And it continues.

In this chapter I shall be concerned with the greatest diversity of all: that characterizing what I shall term "high vowel reduplication", whereby a verb stem is incompletely reduplicated with a high vowel. Africanists may be surprised to learn that high vowel reduplication should exist in Fe'fe' at all. High vowel reduplication is not an uncommon feature in West Africa, but to my knowledge, Fe'fe' is the first language outside of Kwa that has been shown to have this truly Kwa-like nature. Westermann and Bryan (1952), for instance, mention reduplication as one of the typological features of Kwa. It should be noted that while several Kwa languages do not always use a high vowel in such reduplication (e.g. Ewe, Gwari Kuta), many Kwa languages do (e.g. Igbo, Yoruba, Nupe and Akan). While I shall be focussing attention on the vast majority of Fe'fe' villages that require a high vowel in the reduplicated syllable, there are a few villages of Northern Fe'fe' (e.g. Banka) where a more complete reduplication is found, as seen in (1):
(1)  [za] 'to eat'  →  [za:za]
[to] 'to punch'  →  [toto]

As in Kwa languages, these reduplicated forms have a number of functions. Reduplicated verb forms are used as attributives: [wu nzaza] 'something to eat' ('something edible'), [wu ntoto] 'something to punch' ('something punchable') (cf. Igbo [ifó] 'thing' + [f] 'to eat'  →  [ifó òfrífrí] 'something to eat'). As a verb, the reduplicated form acquires the meaning of 'only' or 'to do nothing but':

(2)  [á' nzaza wúza]  'he eats (food)'
    he eat food

(3)  [á' nzaza wúza]
    he eat-eat food

Sentence (3) is translated 'he (only) eats food' (i.e. he doesn't buy it or cook it) and also 'he does nothing but eat' (i.e. he eats and eats). Typically in Kwa languages (e.g. Yoruba, Nupe) the first interpretation is obtained by either preposing or postposing the reduplicated form to the sentence, sometimes requiring a topicalization marker (TM). Sentence (4) from Gwari Kuta corresponds to (3) from Fe?fe?:

(4)  [wo gyf nyagyf gyfgyf nú]
    he eat food eat-eat TM

We shall not be concerned here with the use of such reduplicated forms. Nor shall I be concerned with such villages as Banka, where the reduplication of the stem vowel is complete, as in (1). The purpose of this chapter is to account for the tremendous diversity in those Fe?fe? villages where reduplication is effected by means of a high vowel. In the first section, high vowel reduplication is introduced and illustrated as it occurs in the Bafang group of villages. In the second section, the Petit Diboum group of villages is discussed. In both sections explicit rules are proposed to account for the choice of high vowel in all instances. Finally, the synchronic and diachronic implications of this complex situation are discussed, as further variation is presented.
1.0. Reduplication in Bafang.

In Central Fe*eFe' villages (as opposed to Northern Fe*eFe', where reduplication is complete), it can easily be shown that the general unmarked (i.e. unassimilated, unaffected or unmodified by context) reduplicated vowel is /u/, whose feature specifications are [+high, +grave, -round]. Thus, in many villages the reduplicated forms corresponding to (1) are those given in (5):

(5)  [za] 'to eat'  →  [zuza] (cf. Banka [zaza])
     [to] 'to punch'  →  [tuto] (cf. Banka [toto])

(It is recalled from Chapter II that a short /u/ in open syllables is realized as [-tense], i.e. as [i] instead of the [+tense] vowel [u]. Thus, the forms in (5) are, except when very slowly articulated, pronounced [zi:za] and [ti:to], respectively. These forms must not, however, undergo the tensing rule (11) in Chapter II, since the correct pronunciation is [ti:to] and not *[ti:to].) The reason why this process is referred to as high vowel reduplication is that in these villages the vowel that appears in the reduplicated syllable is [+high]. The vowel /u/ was said to be the general "unmarked" reduplicated vowel. This implies certain exceptions. The most widespread exception occurs if the stem vowel of the verb is [i] or [u] (long or short). In such cases the reduplicated vowel is a copy of this stem vowel, though always short:

(6)  [sii] 'to spoil'  →  [si:sii]
     [kuu] 'to carve'  →  [kuku:u]

Thus, the reduplication rule must have at least the following two subparts:

(7)  a.  
     RED  →  C₁  
     \[ +\text{high} \]
     \[-\text{long} \]
     \[-\text{tense} \]
     \[-\text{round} \]
     \[-\text{grave} \]
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(7a) states that when the vowel of the verb stem is [i], i.e. [+high, -grave, -round], the reduplicated vowel is a short [i], and when the stem vowel is [u], i.e. [+high, +grave, +round], the reduplicated vowel is a short [u]. (7b) assigns [u] as the reduplicated vowel in all other cases. Notice that there are three logical relationships that can hold between (7a) and (7b). First, one may collapse the two into one general reduplication rule, as in (8):

$$
\text{RED} \rightarrow C_1 \left[ \begin{array}{c}
+\text{high} \\
-\text{long} \\
\{a\ \text{grave}\} \\
\{a\ \text{round}\} \\
\{+\text{grave}\} \\
\{-\text{round}\} \\
V
\end{array} \right] / \quad C_1 \left[ \begin{array}{c}
+\text{high} \\
\{a\ \text{grave}\} \\
\{a\ \text{round}\} \\
V_1
\end{array} \right]
$$

Rule (8) collapses (7a) and (7b) which then apply disjunctively in that order. (7a) is represented by means of angled bracket notation, while (7b) is the subrule remaining when the content of the angled brackets does not apply. A second possibility would be to refrain from collapsing (7a) and (7b) at all. Since the use of curly brackets with angled brackets (with the necessary repetition of the features Grave and Round in the structural change of (8)) appears complex and inelegant, this possibility should not be dismissed too abruptly. A third and slightly different approach would be first to allow (7b) to apply to all verb stems and then add a corrective rule (7a) that would change [u] to [i] or [u] in the appropriate environments, as illustrated in (9):

<table>
<thead>
<tr>
<th>Underlying Form</th>
<th>Redup Rule</th>
<th>Corrective Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>/slim/ 'to spoil'</td>
<td>susili</td>
<td>[sisili]</td>
</tr>
<tr>
<td>/kuum/ 'to carve'</td>
<td>kukuu</td>
<td>[kukuu]</td>
</tr>
</tbody>
</table>

This approach, basically that of Schachter and Fromkin [1968] proposed for Akan, will be assumed in this study. It has at least three advantages. First, it allows us to capture the notion "unmarked reduplicated vowel", which I have used in reference to [u]. At some stage in the derivation of reduplicated forms, all verbs occur with [u]. Second, it explains why at least one speaker gave me forms such as [kukuu] before correcting him-
self—he had simply failed to apply the corrective rule. And third, this approach best provides a means of relating dialect differences: instead of saying that villages differ in the form of the general reduplication rule (as would be necessary with such rules as (8)), we simply say that villages have added different corrective rules. This will become clearer in section 2.0. Finally, I might add as an aside that this approach will save us from postulating some extremely complex inelegant rules. Thus, high vowel reduplication will be viewed as consisting first of the general reduplication rule in (7b) which introduces [u], and second, of one or more corrective rules such as (7a), that apply subsequently. These corrective rules will be written with [+RED, V] to the left of the arrow, in order to avoid confusion between general reduplication rules that introduce abstract segments, and corrective rules that modify these segments. Thus, (7a) will be written as in (10):

\[
(10) \quad [+\text{RED}] \rightarrow \begin{array}{l}
\text{a round} \ \ / \ \ C_1 \rightarrow \ C_1 \\
\text{a grave}
\end{array}
\]

Once this approach is adopted, we can go back one step further (as suggested to me by Theo Vennemann, personal communication). We can say that the general reduplication rule is as in (11),

\[
(11) \quad \text{RED} \rightarrow \begin{array}{l}
C_1 \ \ V_1 \\
C_1 \ \ V_1
\end{array}
\]

where \(C_1 = C_1\) and \(V_1 = V_1\)

and that (7b) is also a corrective rule, as in (12):

\[
(12) \quad [+\text{RED}] \rightarrow \begin{array}{l}
\text{+high} \\
\text{-long} \\
\text{+grave} \\
\text{-round}
\end{array}
\]

\[
\rightarrow \begin{array}{ll}
\rightarrow \begin{array}{l}
C_1 \\
C_1 \\
V_1
\end{array}
\end{array}
\]

Thus, for the four verbs considered so far, we have the following derivations in Central Fe?fe' villages:

\[
(13) \quad \text{Underlying Form} \quad \text{Rule 11} \quad \text{Rule 12} \quad \text{Rule 10}
\]

<table>
<thead>
<tr>
<th></th>
<th>/za/ 'to eat'</th>
<th>/to/ 'to punch'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underlying Form</td>
<td>'to eat'</td>
<td>'to punch'</td>
</tr>
<tr>
<td>Rule 11</td>
<td>zoza</td>
<td>toto</td>
</tr>
<tr>
<td>Rule 12</td>
<td>zwza</td>
<td>teto</td>
</tr>
<tr>
<td>Rule 10</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
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<th>Rule 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>/slim/ 'to spoil'</td>
<td>siisi</td>
<td>sisii</td>
<td>sisii</td>
</tr>
<tr>
<td>/kuum/ 'to carve'</td>
<td>kuukuu</td>
<td>kukuu</td>
<td>kukuu</td>
</tr>
</tbody>
</table>

With such a rule as (11) we are able to say that all of Fe?fe? is characterized by a general reduplication rule, and that NF villages differ from CF villages in that they add no corrective rules. Rule (11) also more directly captures the fact that this is a reduplication process, syntactically. One may ultimately want to have a rule such as (14):

(14)  Verb $\rightarrow$ Verb + Verb

For the purpose of this discussion, however, I shall take rule (7b) as the point of departure.

Note at this point that nearly all Fe?fe? speakers follow the corrective rule (10). It should be recalled from Chapter IV, however, that in some villages /uu/ is pronounced [oo] (just as /oo/ is pronounced [oo]). In some of these villages, since /uu/ is converted early to [oo] and is therefore specified [-high] at the stage in the derivation where reduplication applies, the appropriate reduplicated form will be [kwkoo] rather than [kukoo], from /kuum/ 'to carve', as seen in (15):

(15)  Underlying Form  Vowel-Lowering  Rule (7b) (=12))

| /kuum/ 'to carve' | koo | kuku |

However, some of the villages that pronounce [koo] 'to carve' also pronounce [kukoo] in the reduplicated form. This is accounted for in section 2.0.

The only remaining difficulty concerning high vowel reduplication in Bafang concerns the treatment of /Cw/ clusters (appropriate measures could be taken to account for the following facts in an analysis recognizing single labialized segments /Cw/). I shall first restate from Chapter II the distributional constraints on /Cw/ clusters: 1) there are no occurrences of /w/ after alveolar consonants (e.g. /tw/ does not exist); 2) /w/ occurs after labial consonants only when followed in turn by /en/ (e.g. /bwén/ 'spirit'). We otherwise find palatal and velar consonants followed by /w/, noting only that /kwl/ and /gwl/ neutralize with /cwI/ and /jwl/, which are realized as [çwI:šwI] and [jwI:ywI:žwI], respectively. (Since there are no alternations between /k/ and /c/ or /g/ and /j/, all morphemes
with palatals followed by long or short /i/ are analyzed with /c/ and /j/, not with /k/ and /g/. Finally, the vowel following /cw/ is always [-grave], i.e. /i/, /e/ or /a/ (apparent cases of [Cwa] are analyzed as /Cwaw/). Looking now at high vowel reduplication, one might conclude from the example in (16),

(16) [cw\i] 'to nail' → [cw\cw\i]

that /w/ is always reduplicated with the stem consonant C\._\_\_. However, using /ten/ 'to stand up' as a model (remembering that there is no *twen in the language), as in (17),

(17) [ten] 'to stand up' → [tw\ten]

compare the forms in (18):

(18) [pwen] 'to howl' → [pup\wen]

* [tw\en] 

[y\wen] 'to buy' → [ywy\wen]

[kwen] 'to enter' → [ku\wen]

From the forms in (16) and (18) it is observed that a phonetic [w] occurs in the reduplicated syllable only when the verb stem is of the form /Cw\i/. When the initial consonant is labial or velar [u] is found in the reduplicated syllable, whereas when the consonant is palatal (it is never alveolar) [u] is found. Thus, the initial consonant can exert an influence over the choice of the reduplicated vowel. In addition, note that labial and velar consonants act together, as opposed to palatals (and alveolars, as will be shown below). This provides the motivation for the use of the Jakobsonian feature Grave in the reduplication rules. In terms of this acoustic feature, peripheral consonants (i.e. labials and velars) are [+grave], while medial consonants (i.e. alveolars and palatals) are [-grave]. Also, back vowels are [+grave], while front vowels are [-grave]. While the feature Grave exactly parallels the feature Back when applied to vowels, it permits us to make consonantal distinctions that would be unstateable in other feature systems, or at best inelegant and unexplanatory.

Further examples are seen below.

What I propose to handle these reduplications is that /w/ is always
reduplicated along with \( C_1 \). It is therefore necessary to modify rule (7b) to the rule presented in (19):

\[
\text{RED} \rightarrow C_1 \langle w \rangle \begin{bmatrix} +\text{high} \\ -\text{long} \\ +\text{grave} \\ -\text{round} \end{bmatrix} / C_1 \langle w \rangle V_1
\]

where \( C_1 = C_1 \)

The angled bracket notation says that when \(/w/\) is present in the verb stem, it is reduplicated. With this modification, we now turn to the data of (18). Rule (19) yields the intermediate forms [pwpw\( \text{\=e}n \)], [yw\( \tilde{y} \)w\( \text{\=e}n \)] and [kwkw\( \text{\=e}n \)]. In order to convert these to the correct phonetic forms in (18), an additional corrective rule is needed that states that if \( C_1 \) is palatal, the \([w]\) in the reduplicated syllable is deleted, and if \( C_1 \) is labial or velar, the \([w]\) in the reduplicated syllable will cause the unmarked reduplicated vowel \([u]\) to become modified to \([u]\). The best way to capture these facts is by a transformational process such as (20):

\[
C_1 \begin{bmatrix} +\text{grave} \end{bmatrix} \quad w \quad u \\
\downarrow \quad \downarrow \\
\emptyset \begin{bmatrix} +\text{round} \end{bmatrix}
\]

Rule (20) says that whenever \([w]\) precedes the reduplicated vowel \([u]\) it is deleted, but when it follows a labial or a velar consonant \( C_1 \), the reduplicated vowel \([u]\) becomes \([u]\). (Nothing need be said about the stem vowel \( V_1 \), since its identity is irrelevant to this rule.) This approach seems somewhat more explanatory than any attempt to bypass intermediate forms with \([Cw]\). It is more explanatory both because some speakers do pronounce \([Cw]\) and also because a more general situation results from it, namely a situation in which \(/w/\) is always copied. Otherwise it would have to be said that in some instances \(/w/\) is copied (e.g. [cw\( \text{\tilde{c}} \)w\( \text{\=i} \)]), in some instances it is not copied and has no effect (e.g. [yw\( \tilde{y} \)w\( \text{\=e}n \)]), and in some instances it causes \([w]\) to become \([u]\) (e.g. [kukw\( \text{\=e}n \)]). Notice that corrective rule (10), which modifies \([u]\) to \([i]\) or \([u]\), must precede corrective rule (20) or else /cw\( \text{\=i} \)n/ 'to nail' incorrectly reduplicates as \(*[c\text{\=i}cw\text{\=i}]*\), as shown in (21):
(21)  

\[
\begin{array}{llll}
\text{Underlying Form} & \text{Rule 19} & \text{Rule 20} & \text{Rule 20} \\
/c\text{w}i/ & 'to nail' & c\text{w}c\text{w}i/ & c\text{w}c\text{w}i/ & *[c\text{w}c\text{w}i/]
\end{array}
\]

(The correct derivation is given in (23) below.) Since it is desirable to treat all instances of /\text{w}/ reduplication as one process, this solution has certain advantages, particularly with respect to capturing in a general way the processes characterizing other *Fe*fe* villages (see section 2.0 in particular).

The proposed rules for reduplication in Bafang are summarized in (22) in the order in which they apply. Sample derivations are given in (23).

(22) a.  

\[
\text{RED} \rightarrow C_1 <v> \begin{bmatrix} +\text{high} \\ -\text{long} \\ +\text{grave} \\ -\text{round} \end{bmatrix} / C_1 <v> V_1 \quad (=19)
\]

where \( C_1 = C_1 \)

b.  

\[
[+\text{RED}] \rightarrow \begin{bmatrix} \text{a grave} \\ \text{a round} \end{bmatrix} / C_1 \begin{bmatrix} \text{a grave} \\ \text{a round} \end{bmatrix} V_1 \quad (=10)
\]

c.  

\[
C_1 \\
\langle +\text{grave} \rangle \\
\downarrow \\
\emptyset \\
\langle +\text{round} \rangle \quad (=20)
\]

(23)  

\[
\begin{array}{llll}
\text{Underlying Form} & \text{Rule 22a} & \text{Rule 22b} & \text{Rule 22c} \\
/z\text{a}/ & 'to eat' & z\text{u}z\text{a} & --- & --- \\
/to/ & 'to punch' & t\text{u}t\text{o} & --- & --- \\
/s\text{i}m/ & 'to spoil' & s\text{u}\text{s}\text{i}l & s\text{i}\text{s}\text{i}l & --- \\
/k\text{u}\text{u}m/ & 'to carve' & k\text{k}\text{u}\text{u} & k\text{k}\text{u}\text{u} & --- \\
/c\text{w}i/ & 'to nail' & c\text{w}\text{c}\text{w}i/ & c\text{w}\text{i}\text{c}\text{w}i/ & --- \\
/t\text{e}n/ & 'to stand' & t\text{u}\text{t}\text{e}n & --- & --- \\
/b\text{w}en/ & 'to howl' & p\text{w}\text{p}\text{w}e\text{n} & --- & p\text{w}\text{p}\text{w}e\text{n}
\end{array}
\]
2.0. Reduplication in Petit Diboum.

In recognizing (22a) not only as the general rule that introduces [u], but also the rule that reduplicates /w/, we are able to account for the variation found in reduplication in other villages. The general Petit Diboum forms in (24) should be compared with the Bafang forms in (18):

(24)  [pwen] 'to howl' → [pupwen] (Bf. [pupwên])
   [ywen] 'to buy' → [ywîywen] (Bf. [ywîywen])
   [kwên] 'to enter' → [kukwên] (Bf. [kukwên])

Recall that the reduplicated syllable [Cu] comes from an intermediate [Cw]. But why should the reduplicated form of 'to buy' be [ywîywen] and not [ywywên]? (The fact that [ywîywen] is pronounced [yûywen] with [û] in rapid speech, just as /Ncwil/ 'firewood' is pronounced [nšû], is not of concern here, except to the extent that the apparent rule in (25),

(25)  \[ \begin{array}{c}
C_{\perp} \\
\underline{\text{<grave>}} \\
\text{w} \\
\downarrow \\
\emptyset \\
\text{<+round>}
\end{array} \]

lends support to rule (22c), with which it can be collapsed by means of alpha notation.) If we were to remove the [+grave, C_{\perp}] restriction in (22c), then we would still expect the following (unattested) derivation:

(26)  /jwen/ → ywywên → *[yuywên]

(by 22a)  (by 22c)

But somehow the [w] is reduplicated and the reduplicated vowel is [i]. This is, however, easily explained, once other aspects of high vowel reduplication in these villages are viewed.

While villages such as Bafang adhere rather strictly to [u] as the reduplicated vowel, reserving [i] and [u] for verbs whose stem vowel is [i] and [u], respectively, as predicted from (22b), a number of villages make
more extensive use out of these latter vowels. Consider first the forms in (27). The corresponding Bafang forms appear in parentheses:

(27)  

\[
\begin{align*}
\text{[p'ee]} & \quad \text{'to hate'} \quad \rightarrow \quad \text{[p'up'ee]} \quad (\text{Br. [p'up'ee]}) \\
\text{[tee]} & \quad \text{'to remove'} \quad \rightarrow \quad \text{[t'tee]} \quad (\text{Br. [t'tee]}) \\
\text{[yee]} & \quad \text{'to see'} \quad \rightarrow \quad \text{[y'yee]} \quad (\text{Br. [y'yee]}) \\
\text{[k'ee]} & \quad \text{'to refuse'} \quad \rightarrow \quad \text{[kw'ke'e]} \quad (\text{Br. [kw'ke'e]})
\end{align*}
\]

In (27) it is seen that when the stem vowel /ee/ is held constant, the vowel in the reduplicated syllable is [u] in the case of labial and velar C1 consonants, and [i] in the case of alveolar and palatal consonants (the form [yee] 'to see' is in apparent free variation with [y'i]). In other words, the importance of the feature Grave is observed. Thus, we conclude that this feature is indispensable in a proper account of Pe?fe? reduplication. The feature Coronal proposed by Chomsky and Halle [1968] not only fails to group the right consonants together (e.g. [Č] is [+coronal], but [y] is [−coronal], although we need to classify them both together as [−grave]), but also fails to show what peripheral consonants, which are [+grave], have in common with back vowels, and medial consonants, which are [−grave], have in common with front vowels. For in the forms in (27), what is clearly happening is that the [+grave] vowel [u] becomes the [−grave] vowel [i] whenever the stem consonant is [−grave]. Thus we are dealing with a type of acoustic assimilation that cannot be adequately accounted for in terms of any feature but Grave, especially since the Chomsky and Halle substitute Coronal is automatically specified as [−coronal] for all non-retroflex vowels.

The distribution of [u] and [i], depending upon the graveness of the stem consonant, is limited to verb stems whose vowel is also [−grave], i.e. a phonetic front vowel. In the forms in (28) the same distribution of [u] and [i] is seen when the verb stems contain the vowels [e] and [a]. Bafang forms are enclosed in parentheses:

(28)  

\[
\begin{align*}
\text{[p'en]} & \quad \text{'to accept'} \quad \rightarrow \quad \text{[p'up'en]} \quad (\text{Br. [p'up'en]}) \\
\text{[t'en]} & \quad \text{'to stand up'} \quad \rightarrow \quad \text{[t'ten]} \quad (\text{Br. [t'ten]}) \\
\text{[c'en]} & \quad \text{'to moan'} \quad \rightarrow \quad \text{[c'ic'en]} \quad (\text{Br. [c'ic'en]}) \\
\text{[q'en]} & \quad \text{'to go'} \quad \rightarrow \quad \text{[q'y'en]} \quad (\text{Br. [q'y'en]})
\end{align*}
\]
[pa?] 'to commit suicide' → [pupa?] (Br. [pupa?])
[ta?] 'to bargain' → [tita?] (Br. [tita?])
[ca?] 'to trample' → [cica?] (Br. [cicca?])
[ka?] 'to fry' → [kuka?] (Br. [kuka?])

Now we are in a position to explain the form [yiyen] in (24). Looking
back at the forms of (24), we recall that when the consonant preceding
/w/ is labial or velar, the reduplicated vowel is [u], whereas it is [i]
with the [w] reduplicated when C₁ is palatal (alveolar consonants do not
appear before /w/). Compare the additional forms in (29) with the Bafang
forms given in parentheses:

(29) [cwee] 'to cut' → [cwichwee] (Br. [cwichwee])
[kwee] 'to join' → [kukwee] (Br. [kukwee])
[cwc?] 'to cut' → [cwichc?] (Br. [cwichc?])
[kwc?] 'to want' → [kukwc?] (Br. [kukwc?])

(Only palatal and velar C₁ are given because of the constraints mentioned
earlier. It should be noted, in addition, that C₁ in the formula /C₁waC₂/
is always velars: [kwat] 'to attach' reduplicates as [kukwat], etc.) The
difference between the forms of (27) and (28) on the one hand, and those
of (24) and (29) on the other should be seen as the presence or absence of
/w/ and nothing more. Just as the expected reduplicated form of [yën]
'to cork' is [yiyén] in Petit Diboum ([yuyén] in Bafang), so is the cor-
The corrective rule in (30) accounts for all of these data:

(30) [+RED] → \[
\begin{bmatrix}
+high \\
-long \\
-g{}rave \\
-round
\end{bmatrix}
\] / C₁ (w) ___ [−grave] (w) [−grave] \\
\text{\textit{V}}₁

Corrective rule (30), which applies after the general reduplication rule
(22a), modifies the reduplicated vowel [u] to [i] whenever the root vowel
is front and the root consonant is alveolar or palatal. /w/ is enclosed in
parentheses in (30), since it is the general reduplication rule that always
reduplicates /w/. Rule (30) can in fact be collapsed with other corrective
rules, as we shall see below.

Further processes in Petit Diboum predict [u] where we find [u] in Bafang. Consider the following data, where once again the Bafang forms are included in parentheses:

\[(31)\]  
\[
\begin{array}{ll}
[mo] & 'to kill time' \rightarrow [mumo] \quad (Bf. [mumo]) \\
[to] & 'to punch' \rightarrow [teto] \quad (Bf. [teto]) \\
[co] & 'to fall' \rightarrow [cwco] \quad (Bf. [cwco]) \\
[ko] & 'to take' \rightarrow [kuko] \quad (Bf. [kuko]) \\
poh & 'to be afraid' \rightarrow [pwpoh] \quad (Bf. [pwpoh]) \\
toh & 'to pass' \rightarrow [twtoh] \quad (Bf. [twtoh]) \\
coh & 'to be severe' \rightarrow [cwcoh] \quad (Bf. [cwcoh]) \\
koh & 'to be small' \rightarrow [kwkoh] \quad (Bf. [kwkoh]) \\
\end{array}
\]

From these data we conclude that when the stem vowel is [+round], the re-duplicated vowel is [u], if \(C_1\) is [+grave], but [u] if \(C_1\) is [-grave]. We account for these facts by positing the corrective rule in (32):

\[(32)\]  
\[
[+RED] \rightarrow \begin{bmatrix} +\text{high} \\ -\text{long} \\ +\text{grave} \\ +\text{round} \end{bmatrix} / \quad C_1 (w) \quad [+\text{grave}] (w) \quad [+\text{grave}] \quad C_1 \quad V_1
\]

Rule (32) clearly resembles rule (30). In fact, consider the redundant feature specifications of \(V_1\) in each case. In (30), \(V_1\) will be not only [-grave], but also [-round], since there are no front rounded vowels in the underlying vowel system. In (32), \(V_1\) will for the same reason be not only [+round], but also [+grave]. This suggests, if not requires, the collapsing of (30) and (32) by means of alpha notation. The resulting rule is seen in (33):

\[(33)\]  
\[
[+RED] \rightarrow \begin{bmatrix} +\text{high} \\ -\text{long} \\ a \text{ grave} \\ a \text{ round} \end{bmatrix} / \quad C_1 (w) \quad [a \text{ grave}] (w) \quad [a \text{ grave}] \quad C_1 \quad V_1
\]

By use of the feature specifications \([a \text{ grave}, a \text{ round}]\) in \(C_1\), we automatically rule out the possibility that /u/, /v/ or /a/, which are [+grave,
-round], may satisfy the structural description of this rule. (Notice that alpha = minus whenever /w/ is present.)

Let me now summarize the set of reduplication rules thus far proposed for PD villages. First, the general rule first presented in (19) which reduplicates the initial consonant (and /w/) and assigns the unmarked vowel [u] to all reduplicated syllables will apply. I repeat this rule as (34):

\[
\text{RED} \rightarrow C_1 <w> \begin{bmatrix}
\text{+high} \\
\text{-long} \\
\text{+grave} \\
\text{-round}
\end{bmatrix} / C_1 <w> V_1
\]

where \( C_1 = C_1 \)

Second, the corrective rule in (10) converts intermediate \([\text{s}s\text{i}l]\) and \([\text{k}\text{k}\text{wu}]\) to \([\text{s}s\text{i}l]\) and \([\text{k}\text{ku}u]\), respectively. This rule is repeated as (35):

\[
[\text{+RED}] \rightarrow \begin{bmatrix}
\text{a grave} \\
\text{a round}
\end{bmatrix} / C_1 \begin{bmatrix}
\text{+high} \\
\text{a grave} \\
\text{a round}
\end{bmatrix} V_1
\]

These two rules were presented as (22a) and (22b) in the summary of rules for Bafang villages above. Petit Diboum differs in that it has a further corrective rule just formulated in (33). Since (33) was presumably to apply subsequent to (35) in Petit Diboum, no mention was made of the specification of the feature High in \( V_1 \) in (33). The result of this is that (33) not only appropriately derives \([\text{i}]\) for the correct instances of stem vowels \([\text{a}]\), \([\text{e}]\) and \([\text{a}]\), on the one hand, and \([\text{u}]\) for the correct instances of the stem vowels \([\text{o}]\) and \([\text{o}]\) on the other, all of which are \([-\text{high}],\) but also it reapplies vacuously to stem vowels \([\text{i}]\) and \([\text{u}]\) to derive the reduplicated vowels \([\text{i}]\) and \([\text{u}]\), respectively, when the appropriate specification of Grave is met on \( C_1 \). Since this part of (33) is needlessly redundant, the feature specification \([-\text{high}],\) is added to \( V_1 \). However, in so doing, it immediately becomes evident that (33) and (35) can be collapsed as in (36):

\[
[\text{+RED}] \rightarrow \begin{bmatrix}
\text{+high} \\
\text{-long} \\
\text{a grave} \\
\text{a round}
\end{bmatrix} / C_1 (w) \begin{bmatrix}
\text{a grave} \\
\text{a round}
\end{bmatrix} \begin{bmatrix}
\text{<high>}
\end{bmatrix} V_1
\]

Condition: if \([-\text{high}, V_1]\) is present,
then so must \([\text{a grave}, C_1]\)
To the general reduplication rule (34) which assigns [w] to all reduplicated forms, and to rule (36), it is necessary only to add the corrective rule (22c), which converts intermediate instances of [Cw] to [Cu]. The angled bracket notation required in rule (22c) in Bafang is not necessary in Petit Diboum, since forms such as [ywywen] (pronounced [ywlywen] in PD) are not heard in these villages. Thus, this rule can be written as in (37):

\[
\begin{array}{c}
\text{C} \\
\downarrow & \downarrow \\
\emptyset & \text{[+round]}
\end{array}
\]

Note now the importance of the condition in (36), which states that if \( V_1 \) is a non-high vowel, then the graveness of \( C_1 \) must agree with the graveness and roundness of \( V_1 \). If this if...then relationship between [−high, \( V_1 \)] and [a grave, \( C_1 \)] were not stated, then the second expansion of (36) (where the features enclosed within angled brackets are ignored) would apply to all instances where the stem vowel is [a grave, a round], deriving always [\( i \)] and [u] in such cases. This problem arises whenever both angled brackets are in the structural description of a rule (cf. the use of subscripted angled brackets by Becker, as report in Harms [1968:74]). Thus, given a rule of the form,

\[
A \rightarrow B / \langle C \rangle \langle D \rangle E
\]

the first expansion will be as in (39a) and the second as in (39b):

\[
\begin{align*}
(39) \text{a.} & \quad A \rightarrow B / C \quad D \quad E \\
(39) \text{b.} & \quad A \rightarrow B / \quad D
\end{align*}
\]

As written, there is nothing to prevent (39b) from applying to a string such as CADF or GADE, where one of the elements within angled brackets occurs, but not the other. In other words, the expansion (39b) destroys the restriction placed in (39a). The angled bracket notation says take both angled brackets or take neither. But in (39) what has to be said is that if one angled bracket is taken, one must also take the other. Thus it is often necessary to assign a directionality to angled brackets occurring only in the structural description of a rule. Thus, there are two possibilities in rule (36), i.e. either if [−high, \( V_1 \)] then [a grave, \( C_1 \)]
(which is correct) or if [a grave, C₁] then [-high, V₁] (which is incorrect). When one angled bracket occurs in the structural change of a rule, this problem does not arise:

(40) \[ A \rightarrow \left[ \begin{array}{c} +B \\ <+C> \end{array} \right] / \_ \_ \_ <D> E \]

Rule (40) expands unambiguously into (41a) and (41b):

(41) a. \[ A \rightarrow \left[ \begin{array}{c} +B \\ +C \end{array} \right] / \_ \_ \_ D E \]

b. \[ A \rightarrow [+B] / \_ \_ E \]

No if-then condition is necessary, because the "if" part is always the angled bracket in the structural description and the "then" part is unambiguously the angled bracket in the structural change of the rule. The condition is required whenever more than one angled bracket appears in the structural description. Victoria Fromkin has suggested to me (personal communication) that angled brackets requiring a condition be subscripted with lower case letters, e.g. a, b, and that these subscripts be automatically interpreted in alphabetical order, e.g. if a, then b, etc. I shall follow this convention in this chapter. Thus, rule (36) is restated as (42), where the conditional nature of the subscripts is automatically interpreted by the above convention in the metatheory:

(42) \[ [+RED] \rightarrow \left[ \begin{array}{c} +\text{high} \\ -\text{long} \\ a \text{ grave} \\ a \text{ round} \end{array} \right] / C₁ (w) \_ \_ \_ <a \text{ grave}> b (w) \left[ \begin{array}{c} a \text{ grave} \\ a \text{ round} \\ <-\text{high}> a \end{array} \right] C₁ \_ \_ \_ V₁ \]

A summary is now given of the conclusions in the following sample derivations of high vowel reduplication in Petit Diboum:

(43) | Underlying Form | Rule 34 | Rule 42 | Rule 37 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>/za/ 'to eat'</td>
<td>zuza</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/to/ 'to punch'</td>
<td>tuto</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/sili/ 'to spoil'</td>
<td>susili</td>
<td>sisiil</td>
<td>---</td>
</tr>
<tr>
<td>/kumi/ 'to carve'</td>
<td>kukuu</td>
<td>kukuu</td>
<td>---</td>
</tr>
<tr>
<td>Underlying Form</td>
<td>Rule 34</td>
<td>Rule 42</td>
<td>Rule 37</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>/cwin/ 'to nail'</td>
<td>cWucW1</td>
<td>cWicW1</td>
<td>---</td>
</tr>
<tr>
<td>/ten/ 'to stand'</td>
<td>tten</td>
<td>tten</td>
<td>---</td>
</tr>
<tr>
<td>/wen/ 'to howl'</td>
<td>pwepwen</td>
<td>---</td>
<td>pupwen</td>
</tr>
<tr>
<td>/jwen/ 'to buy'</td>
<td>ywywen</td>
<td>ywywen</td>
<td>---</td>
</tr>
<tr>
<td>/ken/ 'to enter'</td>
<td>kwakwen</td>
<td>---</td>
<td>kukwen</td>
</tr>
<tr>
<td>/been/ 'to hate'</td>
<td>pupee</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/teen/ 'to remove'</td>
<td>tutee</td>
<td>titee</td>
<td>---</td>
</tr>
<tr>
<td>/jeen/ 'to see'</td>
<td>ywyee</td>
<td>ywyee</td>
<td>---</td>
</tr>
<tr>
<td>/keen/ 'to refuse'</td>
<td>kukee</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/ben/ 'to accept'</td>
<td>pupee</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/cen/ 'to moan'</td>
<td>cuceen</td>
<td>ciceen</td>
<td>---</td>
</tr>
<tr>
<td>/gen/ 'to go'</td>
<td>yuyeu</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/be?/ 'to c. suicide'</td>
<td>pupe?</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/ta?/ 'to bargain'</td>
<td>tita?</td>
<td>tita?</td>
<td>---</td>
</tr>
<tr>
<td>/ca?/ 'to trample'</td>
<td>cuca?</td>
<td>cica?</td>
<td>---</td>
</tr>
<tr>
<td>/ka?/ 'to fry'</td>
<td>kuake</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/cween/ 'to cut'</td>
<td>cWucW3e</td>
<td>cWicWe</td>
<td>---</td>
</tr>
<tr>
<td>/kwéen/ 'to join'</td>
<td>kwakwee</td>
<td>---</td>
<td>kukwee</td>
</tr>
<tr>
<td>/cwe?/ 'to fuck'</td>
<td>cWucWe</td>
<td>cWicWe</td>
<td>---</td>
</tr>
<tr>
<td>/kwé?/ 'to want'</td>
<td>kwakwe</td>
<td>---</td>
<td>kukwe?</td>
</tr>
<tr>
<td>/mo/ 'to kill time'</td>
<td>mumo</td>
<td>mumo</td>
<td>---</td>
</tr>
<tr>
<td>/co/ 'to fall'</td>
<td>cuco</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/ko/ 'to take'</td>
<td>kuko</td>
<td>kuko</td>
<td>---</td>
</tr>
<tr>
<td>/boh/ 'to be afraid'</td>
<td>pupoh</td>
<td>pupoh</td>
<td>---</td>
</tr>
<tr>
<td>/toh/ 'to pass'</td>
<td>tutoh</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Underlying Form</td>
<td>Rule 34</td>
<td>Rule 42</td>
<td>Rule 37</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>/coh/ 'to be severe'</td>
<td>cωcoh</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>/koh/ 'to be small'</td>
<td>kωcoh</td>
<td>kωcoh</td>
<td>---</td>
</tr>
</tbody>
</table>

Thus, comparing Bafang and Petit Diboum reduplication, it is noted that rule (34) is identical to rule (22a) in Bafang, rule (42) is a substantial extension of rule (22b) in Bafang, and rule (37) differs from Bafang rule (22c) only in that the angled brackets have been eliminated.

3.0. Further Variation in Petit Diboum.

In the first section I discussed high vowel reduplication in Bafang, showing that [i] and [u] have a severely restricted distribution in reduplicated syllables. In the second section it was seen that in Petit Diboum villages, these two vowels (characterized as [+high, a grave, a round]) have a much wider distribution in reduplication. While the so-called Petit Diboum villages have been treated as homogeneous, what is found upon closer examination is that there is considerable variation among different speakers, often even among speakers from the same village or from the same family. Furthermore, there appears to be no way of capturing this diversity in general terms (see below, however). What can be said is that while [u] is the non-assimilated reduplicated vowel, there is a greater or lesser tendency to use the vowels [i] and [u], where the stem vowel agrees in graveness and roundness, i.e. is either front unrounded or back rounded. Where the stem vowel is [i], [e], [ɛ] or [a], there is a tendency to use [i] instead of [u] in the reduplicated syllable; where the stem vowel is [u], [ɔ] or [o], the tendency is to use [u] rather than [u]. In both cases the extent of the realization of this tendency can vary. In all villages, however, there is a need to distinguish grave consonants from non-grave consonants.

To illustrate, consider the following data. Some speakers use the forms in (44), which should be compared to the forms in (27), which are repeated in the second column. As before, the corresponding Bafang forms are enclosed in parentheses:

(44) [pėe] 'to hate' → [p\d\pėe] [p\p\pėe] ([p\p\pėe])
    [tėe] 'to remove' → [t\t\tėe] [t\t\tėe] ([t\t\tėe])
In (44) [l] is used in all cases where the vowel in the verb stem is [e]. When the phonetic vowel is [e] or [a], the same forms are obtained as in the Petit Diboum villages represented in (28):

(45)  
\[
\begin{align*}
[\text{pen}] & \quad \text{'to accept'} \quad \rightarrow \quad [\text{pupen}] \quad (\text{Bf. } [\text{pupen}]) \\
[\text{ten}] & \quad \text{'to stand up'} \quad \rightarrow \quad [\text{titen}] \quad (\text{Bf. } [\text{tuten}]) \\
[\text{cen}] & \quad \text{'to moan'} \quad \rightarrow \quad [\text{cicen}] \quad (\text{Bf. } [\text{cucen}]) \\
[\text{yen}] & \quad \text{'to go'} \quad \rightarrow \quad [\text{ywen}] \quad (\text{Bf. } [\text{ywen}]) \\
[\text{pa?}] & \quad \text{'to c. suicide'} \quad \rightarrow \quad [\text{pupa?}] \quad (\text{Bf. } [\text{pupa?}]) \\
[\text{ta?}] & \quad \text{'to bargain'} \quad \rightarrow \quad [\text{tita?}] \quad (\text{Bf. } [\text{tita?}]) \\
[\text{ca?}] & \quad \text{'to trample'} \quad \rightarrow \quad [\text{cica?}] \quad (\text{Bf. } [\text{cica?}]) \\
[\text{ka?}] & \quad \text{'to fry'} \quad \rightarrow \quad [\text{kuka?}] \quad (\text{Bf. } [\text{kuka?}])
\end{align*}
\]

That is, when the stem vowel is [e] or [a], the reduplicated vowel is [u] if \(C_1\) is [+grave], but [l] if it is [-grave]. (Since [en] derives from underlying /en/, it should be clear that the choice of the reduplicated vowel depends more on the phonetic vowel, than on the underlying vowel.) Thus, for these speakers, a subpart of the corrective rule in (42) has been generalized, so that [u] becomes [l] not only when the stem vowel of the verb is [l], but also when it is [e]. If [e] and [a] are considered both as [+low] for the moment, then the part of (42) that applies to front unrounded vowels can be modified in these villages to (46):

(46)  
\[
+\text{RED} \quad \rightarrow \quad \begin{bmatrix}
+\text{high} \\
-\text{long} \\
-\text{grave} \\
-\text{round}
\end{bmatrix} \quad / \quad C_1 \quad (w) \quad \langle-\text{grave}\rangle_b \quad (w) \quad C_1 \quad \begin{bmatrix}
-\text{grave} \\
-\text{round} \\
\langle+\text{low}\rangle_a
\end{bmatrix} \\
V_1
\]

Rule (46) says that when \(V_1\) is front and [-low], the reduplicated vowel will be [l], and when \(V_1\) is [+low] and \(C_1\) [-grave], the reduplicated vowel will also be [l]. Thus, the [+high] specification implicit in (42) has been generalized to [-low] and the number of cases where the graveness of \(C_1\) will come into play has been reduced in number.

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It would be nice to see that the same type of generalization should occur with respect to back rounded vowels, i.e. where alpha = plus, rather than minus in (42). But in the case under consideration, instead of finding the forms [pupol], [tuto], [cuco] and [kuko] to correspond to (44), the forms in (47) are found:

(47)  
[mo] 'to kill time' → [mumo] [mumo] ([mumo])
[to] 'to punch' → [tuto] [tuto] ([tuto])
[co] 'to fall' → [cuco] [cuco] ([cuco])
[ko] 'to take' → [kuko] [kuko] ([kuko])

That is, just as in Bafang (in parentheses), [u] is used when \( V_1 \) is [o], even when \( C_1 \) is [+grave]. In fact, one speaker of the village Bassap hesitated between [kukuu] and [kuku] 'to carve' in contradiction to corrective rule (22b) which otherwise seems to characterize all Fe?fe? villages. Thus, while such speakers allow considerable assimilation of [u] to [i] in the front series, there is next to no assimilation of [u] to [u] in the back rounded series. The asymmetry of this system and the lack of generality is revealed by the messiness of any attempt to collapse rule (46) with rule (48), which assimilates [u] to [u] if \( V_1 \) is [u]:

(48)  
\[
\begin{array}{c}
\text{[+RED]} \quad \rightarrow \\
\text{V} \\
\begin{bmatrix}
\text{[+high]} \\
\text{[+long]} \\
\text{[+grave]} \\
\text{[+round]} \\
\end{bmatrix}
\end{array}
\quad / \quad C_1 \quad \quad C_1
\begin{bmatrix}
\text{[+grave]} \\
\text{[+round]} \\
\text{[+high]} \\
\end{bmatrix}
\quad V_1
\]

There are in fact a number of speakers who exhibit asymmetric systems from villages in the vicinity of Petit Diboum. Another example comes from the village of Bakou.

In Bakou, speakers were found who had the same forms for front vowels as predicted by (42), namely [i] where the stem vowel is [i], or where it is [a], [ɛ] or [a], but preceded by a [−grave] consonant; and [u] elsewhere with front vowels. But in this case the back rounded series is different: [u] is used whenever the stem vowel is [u] or [o], and when the verb stem has the vowel [ɔ] (as in /oh/, which is realized as [oh]), if the preceding consonant is [+grave]. Thus, compare the forms of Bakou, general Petit Diboum and Bafang in (49):

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(49)  

<table>
<thead>
<tr>
<th></th>
<th>Bakou</th>
<th>P.Diboum</th>
<th>Bafang</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mo] 'to kill time'</td>
<td>mumo</td>
<td>mumo</td>
<td>mumo</td>
</tr>
<tr>
<td>[to] 'to punch'</td>
<td>tuto</td>
<td>tuto</td>
<td>tuto</td>
</tr>
<tr>
<td>[co] 'to fall'</td>
<td>cuco</td>
<td>cuco</td>
<td>cuco</td>
</tr>
<tr>
<td>[ko] 'to take'</td>
<td>kuko</td>
<td>kuko</td>
<td>kuko</td>
</tr>
<tr>
<td>[poh] 'to be afraid'</td>
<td>pupoh</td>
<td>pupoh</td>
<td>pupoh</td>
</tr>
<tr>
<td>[toh] 'to pass'</td>
<td>tutoh</td>
<td>tutoh</td>
<td>tutoh</td>
</tr>
<tr>
<td>[coh] 'to be severe'</td>
<td>cucoh</td>
<td>cucoh</td>
<td>cucoh</td>
</tr>
<tr>
<td>[koh] 'to be small'</td>
<td>kukoh</td>
<td>kukoh</td>
<td>kukoh</td>
</tr>
</tbody>
</table>

The forms of 'to pass' and 'to be severe' occur with [u] because /t/ and /c/ are [-grave] and the stem vowel is pronounced [o] (which I am considering as [+low] for the moment). The data of (49) are then covered by the corrective rule in (50):

(50)  

\[
\text{[+RED]} \rightarrow \begin{bmatrix} [+\text{high}] \\ -\text{long} \\ [+\text{grave}] \\ [+\text{round}] \end{bmatrix} / C_1 \quad \langle[+\text{grave}\rangle_b \\
C_1 \\
\langle[+\text{low}\rangle_a \rangle \\
V_1
\]

According to this rule, [u] becomes [u] when the stem vowel is [u] or [o], or when \( C_1 \) is a grave consonant and \( V_1 \) is [o]. In other cases, [u] remains unmodified.

Now note the similarity of this rule (50) and rule (46), which I now repeat for convenience as (51):

(51)  

\[
\text{[+RED]} \rightarrow \begin{bmatrix} [+\text{high}] \\ -\text{long} \\ -\text{grave} \\ -\text{round} \end{bmatrix} / C_1 \quad (w) \quad \langle[-\text{grave}\rangle_b \quad (w) \\
C_1 \quad (w) \\
\langle[+\text{low}\rangle_a \rangle \\
V_1
\]

Although (50) characterizes some speakers of Bakou and (51) characterizes some speakers of Bassap (both of which fall within the cluster I loosely refer to as Petit Diboum), the two can be neatly collapsed by means of alpha notation, as in (52):
(52) \[ [+\text{RED}] \rightarrow \begin{bmatrix} +\text{high} \\ -\text{long} \\ \text{a grave} \\ \text{a round} \end{bmatrix} / C_1 (w) \quad <\text{a grave}>_b (w) \quad \begin{bmatrix} \text{a grave} \\ \text{a round} \end{bmatrix} \quad \begin{bmatrix} <+\text{low}>_a \\ V \end{bmatrix} \]

It is now observed that the only difference between this rule and the general corrective rule (42) proposed for general Petit Diboum, which I repeat as (53),

(53) \[ [+\text{RED}] \rightarrow \begin{bmatrix} +\text{high} \\ -\text{long} \\ \text{a grave} \\ \text{a round} \end{bmatrix} / C_1 (w) \quad <\text{a grave}>_b (w) \quad \begin{bmatrix} \text{a grave} \\ \text{a round} \end{bmatrix} \quad \begin{bmatrix} <-\text{high}>_a \\ V \end{bmatrix} \]

is that in (52) <+low> has been substituted for <-high>. In other words, (52) is more general than (53) in that [i] and [u] will be assigned in more cases and the graveness of C₁ has less of an influence on the choice of these vowels. However, (52) is unattested among the approximately twenty informants I interrogated. It has only been shown that in independent villages automatic assimilation of [u] to [i] and [u] has become extended to encompass mid vowels: in Bassap [u] is assimilated to [i] without affecting the back rounded series when V₁ is [o]; in Bakou [u] is assimilated to [u] without affecting the front series when V₁ is [o]. But no cases have been found where the complete collapsed rule in (52) is in effect (though it is entirely possible that some speakers do use such a rule).

4.0. A Unified Approach to High Vowel Reduplication.

At this point, I shall summarize what has been seen to characterize this process of reduplication in the various Fe⁠e⁠f villages. It was first said that in Banka and allied villages the full stem vowel is reduplicated (e.g. [za:za]). Some speakers from these villages expressed surprise when I demonstrated to them that other villages do not fully reduplicate the stem vowel. This would seem to suggest that Banka people consider the reduplication as a full repetition of the verb (as suggested earlier in (14)). Further evidence for this "psychological awareness" that the verb is at least at some stage in the derivation fully repeated was noted when one informant claimed that [zwza] (from /za/ 'to eat'), as he pronounced it, is what you get if you pronounce [za:za] very quickly! In
non-Banka villages, older generations use [u] widely, and rarely use [I] and [u] (as was seen in Befang reduplication). It is among the youth (and in certain select villages in Petit Diboum) that [I] and [u] occur with great frequency. When people who say [pupée] (from /bêen/ 'to hate') are asked about the form [pipée], they normally reply: "That's the way children speak". One informant actually uttered [pipée] and then corrected himself to [pupée] saying, apologetically, "I'm talking like a child". When explicitly asked for a decision between [u], [I] and [u], some speakers hesitate. While most of my older informants were firm in their choice of a vowel, a number of younger speakers (especially in their teens and early twenties) tried to tell me that either [pupée] or [pipée] is correct, sometimes adding however such things as "my father says [pupée], but I say [pipée]," very much aware of the generation gap.

How then should the process of high vowel reduplication be represented? Three approaches present themselves. First, the view might be taken that there is no general reduplication rule in Fe\textsuperscript{f}fe\textsuperscript{g}. That is, while one can set up rules for individuals, there is no such thing as a rule characterizing all speakers. Given the state of flux of the language, there is no one internalized rule, but actually scores of them, depending on how the individual reacts to the linguistic crisis into which he is born. To illustrate this last point, consider the following two sets of data concerning the stem vowel [o]. In (54),

\[(54)\quad [\text{mo}] \, '\text{to kill time}' \rightarrow [\text{mumo}] \quad (\text{PD} \, [\text{mumo}])
\]
\[ [\text{to}] \, '\text{to punch}' \rightarrow [\text{tuto}] \quad (\text{PD} \, [\text{tuto}]) \]
\[ [\text{co}] \, '\text{to fall}' \rightarrow [\text{cuco}] \quad (\text{PD} \, [\text{cuco}]) \]
\[ [\text{ko}] \, '\text{to take}' \rightarrow [\text{kuko}] \quad (\text{PD} \, [\text{kuko}]) \]

this Fe\textsuperscript{f}fe\textsuperscript{g} speaker uses [u] only when $C_1$ is [-ant], i.e. either palatal or velar, but maintains the unmarked [u] when $C_1$ is [+ant], either labial or palatal. In another case, illustrated in (55),

\[(55)\quad [\text{mo}] \, '\text{to kill time}' \rightarrow [\text{mumo}] \quad (\text{PD} \, [\text{mumo}])
\]
\[ [\text{to}] \, '\text{to punch}' \rightarrow [\text{tuto}] \quad (\text{PD} \, [\text{tuto}]) \]
\[ [\text{co}] \, '\text{to fall}' \rightarrow [\text{cuco}] \quad (\text{PD} \, [\text{cuco}]) \]
\[ [\text{ko}] \, '\text{to take}' \rightarrow [\text{kuko}] \quad (\text{PD} \, [\text{kuko}]) \]
[u] is assimilated to [u] when the stem vowel is [o] and C₁ is [-strident] (cf. [swso] and [huhô] from /so/ 'to hoe' and /hô/ 'to borrow', respectively). In both (54) and (55) the forms in parentheses refer back to the general Petit Diboum forms seen in (31). These last two sets of forms may appear to be idiosyncratic, but they can be formalized and related to the more general assimilatory rules. They are just part of the general confusion that characterizes this aspect of Feŋfeŋ phonology at the present time and might seem to support the claim that there exists no general reduplication rule in the language.

A second approach is pan-dialectic in nature, similar to the approach taken by Bailey in much of his work (cf. Bailey [1972]). Such a solution would require common underlying forms for all dialects of Feŋfeŋ and then individual rules or even subrules capturing the linguistic diversity of the various villages. Rather than saying that there is a general corrective rule such as (42) or (52) that applies only in certain villages, but are absent in others, one could propose a series of subrules which would be conceived as "drifting" across Feŋfeŋ country. It might be proposed that a general reduplication rule assigns [u] in all cases and that a corrective rule assigns [i] and [u] when the stem vowel is [i] and [u], respectively. But beyond that a body of subrules would be required from which individual villages (or persons) could choose. Some of these rules might be those in (56):

(56) a.  \( u \rightarrow i / \_{C_1} [-\text{grave}] e \)

b.  \( u \rightarrow u / \_{C_1} [+\text{grave}] o \)

c.  \( u \rightarrow i / \_{C_1} e \)

d.  \( u \rightarrow u / \_{C_1} o \)

e.  \( u \rightarrow i / \_{C_1} [-\varepsilon] \_{a} \)

f.  \( u \rightarrow u / \_{C_1} [+\text{grave}] o \)
Subrules dealing with cases where the stem vowel is [o] and the initial consonant is either [-ant] or [-strident] might also have to be added, as was seen in the data in (54) and (55). Bafang might then be characterized as having none of these subrules, Petit Diboum as having (56a), (56b), (56e) and (56f), Bassap as having (56c) and (56a) and Bakou as having (56a), (56d), (56e) and (56f). Such an approach would try to explain all of the gradual diachronic changes from a system with universal [u] to one with widespread [i] and [u]. Notice that (56a) and (56b), (56c) and (56d), and (56e) and (56f) must be viewed as distinct, rather than as conflated rules, since examples such as Bassap and Bakou have been seen, where only part of a conflated corrective rule is operative.

The third approach would say instead that there is a general corrective rule (or rules) that characterizes Fe?fe? as a whole, and that there is a target structure that the language aims for. In this case, instead of postulating varying subrules which are present or absent in a given village, we say that one village more closely approximates the target structure than another. Thus, deviations from this structure are to be explained as the result of an imperfect incorporation of this target rule into the phonology. There seem to be two possibilities that must be considered. Both have to do with assimilation of [u] depending upon the C₁ or V₁ of the verb stem. The first possibility is that Fe?fe? speakers try to enforce Grave agreement, so that [u] assimilates to [i] when both C₁ and V₁ are [-grave], for instance. This, I claim, is not a "target" of the language, but rather an intermediate step. The real target structure has to do with the assimilation to [i] or [u] to agree with the backness and roundness of the stem vowel. That is, the language may be heading towards a situation where the following corrective rule will be uniformly accepted in all villages:

(57)  
\[
[+\text{RED}] \rightarrow \begin{bmatrix} \text{high} \\ \text{-long} \\ \text{a grave} \\ \text{a round} \end{bmatrix} / C₁ (w) \quad C₁ (w) \begin{bmatrix} \text{a grave} \\ \text{a round} \end{bmatrix} \quad V₁
\]

That is, whenever the stem vowel is [i], [e], [æ] or [ə], the reduplicated vowel will be [i], and whenever the stem vowel is [u], [o] or [œ], the reduplicated vowel will be [u]. (Notice the similarity of this rule to
the reduplication rules proposed for Akan (Schachter and Fromkin [1968]) and Nupe (Hyman [1970]).) When the stem vowel is [u], [v] or [a], the reduplicated vowel will remain [u]. Right now the graveness of C₁ is of considerable importance, for it is the acoustic similarity of grave consonants and vowels or nongrave consonants and vowels that reinforces the direction of assimilation. At some point we can imagine Fe?fe? giving up the requirement that C₁ agree with V₁ in graveness, as in (57). The data of (44) and (49) can be taken as being intermediate between the general situation in Petit Diboum (as formalized in the corrective rule (42)) and the situation projected by (57). Given this target structure, the most satisfactory approach would be to include (57) in the description of all Fe?fe? villages (except the Banka group, where complete reduplication of the stem vowel is still in effect), and then add conditions on the rule, e.g. if V₁ is [-high], then C₁ must be [+grave]; if V₁ is [+grave, +round, +low] (i.e. [ɔ]), then C₁ must be [+grave], etc. As time passes, these conditions are generally weakened, and then drop out completely.

5.0. Implications of High Vowel Reduplication.

It is clear from the above discussion that much remains to be said about Fe?fe? high vowel reduplication. It is also clear, however, that reduplication reveals certain weaknesses in the theory of generative phonology and distinctive features presented by Chomsky and Halle [1968]. The most obvious weakness is, of course, that Chomsky and Halle reject the feature Grave in favor of the feature Coronal. We have seen the need for the feature Grave in the description of Fe?fe? reduplication. Perhaps more important though, it reveals a basic misconception about the nature of phonetic (or phonological) features. The general assumption of generative phonologists is that there is a limited set of binary "distinctive features" that are used in describing phonological systems, and that certain phonetic distinctions can be ignored on the phonological level. Thus, although [ɛ] is a central vowel it is classified as [+back]; also, [ɛ] is a mid-low vowel which is said to differ from [e] not in vowel height, but in tenseness. Generative phonologists have also attempted to restate certain phonetic features in terms of other features, so as to severely limit the number of distinctive features. Thus, [b] is phonetically [+labial], but to Chomsky and Halle it can only be [+ant, -cor]. This practice derives
from Jakobson's original position that all of the phonological oppositions in the world's languages could be captured by 12-15 distinctive features. McCawley [1967] has correctly pointed out that with the generative phonologist's concern with writing phonological rules in terms of these features, the "distinctive features" are no longer distinctive. They now have a classificatory and a phonetic function (cf. Chomsky and Halle [1968]). However, the search for a highly restricted set of phonological primes has, I feel, led the phonologist astray. As newer, presumably more explanatory, features were proposed, the old ones were abandoned. Jakobson was instrumental in the abandonment of the traditional features Labial and Palatal. Labial consonants in his system were [+grave, +diffuse]; palatal consonants were [-grave, -diffuse]. Later, Chomsky and Halle substituted the feature specifications [+ant, -cor] for labials and [+high, -back] for palatals. As has already been pointed out by a number of phonologists (Campbell [1969], Anderson [1971], Vennemann and Ladefoged [1971]), neither the Jakobsonian nor the Chomsky and Halle feature system provides a means of capturing the similarity between labial consonants and rounded vowels. A return to such features such as Labial and Palatal is advocated by Wang [1968]. A return to the feature Grave has been argued for in this chapter. What I do not wish to say, however, is that we must give up other features in reinstating this acoustic feature. This practice of dropping features from the inventory seems to be the basis of many of the difficulties encountered in phonological descriptions. (Compare, for example, Halle's recent [1971] suggestion that the feature Voice be replaced by the features Stiff Vocal Cords and Slack Vocal Cords is a case in point. While I am not at all convinced that these are the right features to capture the facts presented by Halle (cf. Fromkin [1972]; also Hyman and Schuh [forthcoming]), it does not follow that by accepting them, we must also abandon the feature Voice. All three may be needed in expressing natural assimilation processes, as pointed out by Fromkin [1972].) Consider the feature Grave in Fe\textsuperscript{e}fe\textsuperscript{e}. It has been pointed out that the features Grave and Coronal are not substitutable for one another (because while [a grave] consonants are generally [-a coronal], palatais such as [y] are [-grave] and [-coronal]). In fact, while Fe\textsuperscript{e}fe\textsuperscript{e} requires the feature Grave, Sanskrit (Theo Vennemann, personal communication) requires the feature Coronal to delimit the class
of dentals and alveo-palatais in retroflex assimilation. The only
other possibility would be to have a disjunction (cf. Vennemann and Lade-
fozed [1971]) so that the class of [+grave] consonants (i.e. labials and
velars) would be as in (58):

\[
\begin{align*}
\{ & [+\text{ant}] \\
\quad & \quad \ },
\end{align*}
\]

Neither disjunction in (58) would be explanatory in the Fe'fe' case.
Thus the feature Grave must be included within the phonological inventory.
In fact, it seems reasonable to claim that any phonetic feature, acoustic
or articulatory (cf. Ladefoged [1971]), can be used phonologically by a
language; or, in my terminology, any phonetic feature can be "phonologized".
By "phonologize" I do not mean "phonemicize". Rather, for a phonetic
feature to be phonologized, a given language must make reference to it
in a phonological rule. Just as some languages treat certain features
distinctively (e.g. aspiration, vowel nasalization, etc.) and some do not,
some languages make reference to phonetic features in their P-rules that
are not required in other languages. Thus, many phonological systems can
be described without using the feature Grave. The goal of phonology
should be to determine what the motivation for a given P-rule is, and
this will lead to the phonological use of certain phonetic features in
a given language rather than others.

Let us reconsider in this light the data presented from general
Petit Diboum and from Bassap, which are found in (27), (28), (44) and
(45) above. In general Petit Diboum, if the stem vowel is [e], [ɛ] or
[a], the reduplicated vowel [u] becomes [i], if C₁ is [-grave]. In Bassap,
the reduplicated vowel is [i] when the stem vowel is [e] regardless of
the graveness of C₁, but the same condition holds when the vowel of the
verb stem is [ɛ] or [a]. Recall the similar situation with respect to
the back rounded vowels in Petit Diboum and Bakou, given above in (31)
and (49). In Petit Diboum, if the stem vowel is [o] or [ɔ] and C₁ is
[+grave], the reduplicated vowel [u] becomes [u]. In Bakou, if the stem
vowel is [o], then the reduplicated vowel is in all cases [u], but if the
stem vowel is [ɔ], then the reduplicated vowel will be [u] only if C₁ is
[+grave]. Thus, in both cases it is seen that villages can impose dif-
ferent conditions on the assimilation of the reduplicated vowel [w] to [i] or [u].

First of all, it must be concluded that this is an acoustic assimilation in all cases, and not an articulatory one. There are two basic arguments. First, the feature Grave, which alone can explain the assimilation, is an acoustic feature. A [+grave] segment is defined by Jakobson and Halle [1956] as having a "concentration of energy in the lower... frequencies of the spectrum" (p.31). The change of [u] to [i] in the influence of [-grave] vowels and consonants is therefore straightforward. But what about the change of [u] to [u]? In Petit Diboum, for instance, [u] can become [u] if the stem vowel is [o] or [ɔ], but only if C₁ is also [+grave]. In the Jakobsonian system the change from [u] to [u] is a change from [-flat] to [+flat]. Segments which are [+flat] are defined by Jakobson, Fant and Halle [1952] as having a "downward shift of a set of formants or even all the formants in the spectrum" (p.31). Thus, acoustically, a [+grave] consonant with a concentration of energy in the lower frequencies will have the same lowering effect as a [+flat] segment. Thus, the functioning of [+grave] in the change of [u] to [u] can only be understood by the acoustic properties of the segments in question.

A second argument supporting the position that this is acoustic rather than articulatory assimilation is the different behavior of [ɛ] and [ɛ] in Bassap and [o] and [ɔ] in Bakou. It is recalled from Chapter II that [CeN] is analyzed as underlying /Cen/ and [Coh] is analyzed as /Coh/. [ɛ] and [ɔ] are not underlying segments in Fe'fe'. But in Bassap the phonetic difference between [ɛ] and [ɛ], and in Bakou the phonetic difference between [o] and [ɔ] play a role in determining the reduplicated vowel. It is significant that it is the phonetic properties of [ɛ] and [ɛ], both deriving from /e/, which function in reduplication. A morphological rule such as reduplication should presumably apply relatively early. But in order to get the correct vowel in the reduplicated syllable, in the case of [ɛ] in Bassap, reduplication will have to follow the rule that laxes /e/ to [ɛ] and /o/ to [ɔ] in closed syllables. Acoustically, this makes great sense. While one might expect acoustic assimilation on the basis of the surface phonetic forms, one would not expect an acoustic assimilation on the basis of underlying forms. The reduplicated vowel [u]
changes to [l] or [u] because it sounds like surrounding consonants and vowels. This makes even greater sense when it is pointed out that the vowel in the reduplicated syllable is short and unaccented. It seems understandable that a short vowel would be more likely to assimilate to C₁ (which in most cases stands on each side of the reduplicated vowel), whose feature specifications are transferred to it. This is probably one of the reasons why high vowel reduplication is so widespread in West Africa; namely, there are two tendencies, one phonetic and one conceptual. The phonetic tendency is for the vowel in the reduplicated syllable to become short and reduced (cf. Yoruba, where the only vowel in reduplicated syllables is [i]). It is perhaps worth noting that high vowels are intrinsically the shortest vowels in duration (Lehiste [1970]). The conceptual tendency is for these vowels to remain as identical as possible to the stem vowel, since reduplication is conceptually a process of repeating the verb. The unmarked vowel [u] in reduplication (remember that it is actually pronounced more like [+]]) represents a reduced vowel. The secondary assimilations are at least in part conceptually motivated, though also phonetically motivated in terms of acoustic assimilation.

The different forms from general Petit Diboum, Bassap and Bakou raise another theoretical question concerning the impossibility of more than three vowel heights in the proposed binary feature system. The vowel [כ] differs from [e] in this study in that it is [-tense], but still a mid vowel, i.e. [-high, -low]. This seems motivated given that [כ] derives from underlying /e/ by a laxing process in closed syllables. But the [-tense] specification hardly explains the forms from Bassap in (44) and (45) above. Why should [l] and [e] always take the reduplicated vowel [l], but [כ] and [a] take [l] only if C₁ is [-grave]? The answer, of course, has to do with vowel height, rather than with tenseness. The higher a vowel is the further front (or more palatal, or less grave in acoustic terms) it is articulated. Thus, in Petit Diboum, [l] can assimilate [u] to [l] in all cases, but [e], [כ] and [a] require an intervening C₁ consonant which is [-grave]. In Bassap, both [l] and [e] can assimilate [u] to [l] in all cases, but [כ] and [a] require a [-grave] consonant. In Bassap, both [l] and [e] are front enough (acoustically, [-grave] enough) to suffice in themselves for the assimilation of [u] to [l], but
[ε] and [a] are not front or [-grave] enough to effect the assimilation by themselves. The latter two vowels require the reinforcement of the intervening [-grave] consonant. This notion of being more or less [-grave] can only be directly accounted for by recognizing four vowel heights, each with its inherent degree of frontness (cf. the I.P.A. triangle with [1] further forward than [ε], etc.). Thus, in order to capture this inherent degree of non-graveness, it is necessary to recognize [ε] as being a vowel height distinctly lower than that of [ε]. Since the vowel [a] (which is [-grave] because there is a [+grave] vowel [a] in the language) is of a still lower vowel height, there are necessarily four vowel heights in Fe?fe?. If four vowel heights are not recognized, then [1] and [ε] can be distinguished from [ε] and [a] only by calling them [-low, +tense], while [ε] and [a] can be specified as a class only by labeling them "either [-tense] or [+low]". This is hardly explanatory of what is going on. The same problem arises in the back rounded series. In Petit Diboum, the stem vowels [o] and [ɔ] can round [u] to [u] only if the C₁ consonant is [+grave], while in Bakou, [o] can round [u] to [u] without a [+grave] consonant, but [ɔ] requires a [+grave] C₁. Thus, given the universal that the greater the vowel height, the more rounded (acoustically, the more [+flat]) a rounded vowel is, we can say that in Petit Diboum only [u] is rounded enough to assimilate [u] to [u], while in Bakou both [u] and [o] (but not [ɔ]) are rounded enough. Again [o] differs from [ɔ] in that it is [-tense]. The fact that it has a lower vowel height is disguised by the features. We could in this case try to relabel [ɔ] as [+low] (as suggested earlier in this chapter), but a problem arises. The low back unrounded vowel /oa/ is actually realized as [+round] and is pronounced [ɔʊ]. But it is so low that it never rounds [u] to [u], no matter what the intervening consonant is, e.g. [pʊʊ] 'to put leaves on a fire' reduplicates as [pɛɛɛ] in all villages and never as *[pʊʊʊ]. (The underlying form of this verb is /baaib/.) Thus, if [ʊʊ] is a low back rounded vowel, [ɔ] cannot be the lowest back rounded vowel.

Notice, in conclusion, that this notion of "degree of fronting" and "degree of rounding" works in nicely with the interpretation of reduplication given in (57). The assimilation of [u] to [1] will take place if there is "enough" fronting (or non-graveness); the assimilation of [u] to [u] will
take place if there is "enough" graveness and roundness (i.e. "enough" frequency lowering). The content of the term "enough" will vary from village to village and from speaker to speaker, and will be captured by conditions on the application of rule (57).
CHAPTER VI

Tone

0.0. Previous Studies on Tone.

One of the most perplexing aspects of Bamileke is its complex tone system. The pioneering work in this area is Stoll [1955]. In his *Tonétique des Langues Bantu et Semi-Bantu du Cameroun*, Stoll addressed himself not only to the Bantu languages spoken in Douala and Yaounde (Ewondo), but also for the first time to the dialect of Bamileke known as Fe?fe?. He has nothing to say about other Bamileke dialects except that his description of the tonal properties of Cameroonian languages is supposed to apply to them universally. Stoll's work is insightful, and his analysis of Fe?fe? is very reliable. However, because of its mystic aura, Père Stoll's book is not taken seriously by many scholars. For example, at the beginning of the book, the author asks his readers why the study of tone has progressed so minimally. To which he replies: "Du manque d'une bonne définition du ton haut" (because of the lack of a good definition of high tone). He then continues:

"Jusqu'à présent on s'est contenté d'appeler ton haut tout simplement le ton le plus élevé, définition purement mécano-tonique, vide de toute idée transcendentale." (p.5)

(Until now one has been content with calling high tone simply the most elevated tone, a purely mechano-tonal definition void of any transcendental idea.) He presents his general position in the following paragraph:

"Dans une langue à tonalité, le ton n'est pas un élément purement harmonique ou musical, il est l'expression d'une pensée, d'une idée; il appartient au domaine intellectuel; si bien que nous pouvons formuler l'axiome suivant: cherche l'idée et tu auras le ton." (his emphasis, p.5)

(In a tone language, tone is not a purely harmonic or musical element, it is the expression of a thought, of an idea; it belongs to the intellectual domaine; such that we can formulate the following axiom: seek the idea and you will have the tone.) Thus, Stoll is arguing for the non-arbitrariness of tone, and gives examples of what can be termed "tone
symbolism". An illustration of his approach is found in the minimal pairs in (1):

(1)  [fɔh] 'two-headed snake'  [nɔwɛ] 'leopard'
     [fɔh] 'widow'         [nɔwɛ] 'woman'

With 'high tone' meaning anything that is not low (or raised-low) tone, Stoll hypothesizes:

"Les deux derniers exemples suggèrent l'idée que le ton haut indique tout ce qui signifie femme, femelle, féminin et le ton bas tout ce qui est masculin, mâle, homme." (p.156)

(The last two examples suggest the idea that high tone indicates everything that signifies woman, female, feminine and low tone everything that is masculine, male, man.) He then goes on to show that most words designating feminine totems carry high tone (i.e. non-low tone): [sĩɛ] 'earth', [ndɔɑ] 'house', [kɔv] 'crab', [cɬ] 'tortoise', [tɔ̃ɑ] 'night', [pɛn] 'breast', etc. Such speculations permeate the whole of his book.

Although Stoll's object of study is tone systems, he devotes considerable attention to the noun class systems of the three languages, Bamileke, Douala and Ewondo. Here he is well aware of the fact that the noun class identity of a given noun may well determine in part the tonal structure of a noun phrase. Dunstan's doctoral dissertation [1966] deals with the segmental and tonal noun class concords in Ngwe, a West Bamileke dialect spoken in West Cameroon (and very closely related to Mbui, which I shall refer to below). Many of the features of Ngwe are typical of Bamileke as a whole, e.g. the low tone concord associated with classes 1 and 9 (see below; also cf. Chapter VII). Other classes are characterized by high tone.

The most recent treatment of Bamileke tone is Voorhoeve [1971b], whose work on Bangangte goes well beyond anything done previously. Unlike Stoll and Dunstan, Voorhoeve's work attempts to explain some of the complex tonal features of Bamileke nouns. For the first time we are able to see that Bamileke derives from a typically Bantu two-tone system. The whole of this chapter on tone is strongly influenced by Voorhoeve's article and by numerous personal communications. Like Voorhoeve, I shall devote most of the discussion to Fe?Fe? nouns (as opposed to verbs), though I shall have something to say about verbs towards the end of the chapter.
I shall first present the phonetic tones of Fe³fe⁷. Having done this, the remainder of the discussion will be focussed on the various historical tone changes that are responsible for the development of four phonetic tone levels in Fe³fe⁷. A complex reconstruction using "floating tones" (cf. Voorhoeve) will be presented and comparisons with Ngwe, Mbugo and Bangangte will be given. It is hoped that this historical treatment will add to our understanding of what constitutes a "natural tone rule" and how tone languages change through time. A summary and brief conclusion will consider the synchronic implications of the proposed tone rules.

1.0. The Phonetic Tones of Fe³fe⁷.

Surface forms in Fe³fe⁷ can carry any one of four discrete level tones, or a contour tone (either rising or falling). The following four forms, contrasting only in tone, were given in Chapter II:

(2)  
Low (') : [pəa] 'bag'  
Raised-Low (') : [pəo] 'to bend over'  
Mid ( ) : [pøo] 'to go crazy'  
High (') : [pøa] 'two'

Other examples are given in (3):

(3)  
Low : [zòk] 'knee'  [pɪ] 'profit'  
[pəo] 'wing'  [khù] 'foot'  
Raised-Low : [càk] 'pot'  [phɪ] 'kolanut'  
[sèʔ] 'tooth'  [mbða] 'meat'  
Mid : [sak] 'bird'  [kɪ] 'crab'  
[muu] 'child'  [moh] 'fire'  
High : [bàs] 'that'  [lə] 'the'

The symbols used are the grave accent (') for low tone, an apostrophe ('') for raised-low tone, a macron (""") or usually no mark for mid tone, and an acute accent ('') for high tone. These four simple tones are the same as
those recognized by Stoll [1955] and Ngangoum [1970], although the terminology differs. Stoll’s book is designed as an attack on the concept "mid tone", which he claims does not exist. Instead, he introduces the concept of a "système de la double symétrie". For Stoll, there is a low tone (e.g. [zɔk] 'knee') and a high tone (which is the same as my mid tone, e.g. [sɔk] 'bird'). In addition, there is a process of raising: a low tone which is raised is called the sub-dominant (which is the same as my raised-low tone, e.g. [cɔk] 'pot') and a high tone (=mid tone) which is raised is called a dominant (which is the same as my high tone, e.g. [pɔa] 'two'). Father Stoll, a musician, introduces these terms for reasons that will become evident later. Father Ngangoum, on the other hand, basically agrees with the analysis given in (2) and (3), except that he terms the second tone "mi-moyen" (i.e. lower-mid; cf. Hyman, Voeltz and Tchokokam [1970]). I prefer "raised-low" for two reasons. First, the interval between the mid tone and the raised-low tone is considerably greater than the major second that characterizes the difference between a mid and a lower-mid tone in other languages (cf. Gwari and Yoruba, both Kwa languages of Nigeria). This would suggest that the raised-low tone is closer phonetically to low than to mid tone. Second, we shall see below that there is an intimate relationship between low and raised-low tones and that historically, raised-low tones derive from low tones.

It is noted in (3) that only two examples with high tone are given, [bɔa] 'that' (near hearer) and [lɔ] 'the' ('the one in question'). Neither of these words are nouns, as are all of the other cases. For reasons yet to be discussed, very few monosyllabic morphemes carry high tone in isolation. Some grammatical morphemes such as the above, however, do have high tone in their citation form.

In addition to the four tones exemplified in (3), there are four contour tones which characterize some morphemes in their citation form. The first is a rising tone from raised-low to mid. This tone frequently characterizes nouns and is symbolized as ('}). A rising tone from raised-low to high tone, symbolized as ("'), sometimes is found on adjectives and a few grammatical morphemes. Two falling tones also exist. A falling tone from mid to low, written (‘) characterizes a few lexical morphemes
derived from verbs, e.g. [mbûu] 'God' (from /buum/ 'to create', literally 'the creator'), [mvên] 'grass' (from /ven/ 'to design', literally 'that which designs'). Finally, a few grammatical morphemes have a falling tone from high to low, which is symbolized as ("'). All of these contour tones are illustrated in (4):

(4) Raised-Low to Mid : [thû] 'head' [mvên] 'dog'
[pô] 'hand' [ŋkôe] 'monkey'

Raised-Low to High : [fû'] 'new' [fô?] 'thus'

Mid to Low : [mbûu] 'God' [mvên] 'grass'

High to Low : [bêe] 'this' [sêe] 'here'

Certain contour tones do not occur in Fe?fe? (e.g. low to high, low to mid), while others are extremely rare. A few instances of contour tones with three components have been noted, e.g. [phâ'] 'a madman'. Notice that a tone mark carries over all orthographic vowels in a given syllable. That is, [phâ] 'two' is pronounced [phâ] and [phàn] 'wing' is pronounced [phàn]. Note, finally, that [ŋkôe] 'monkey' is pronounced [ŋkôe].

2.0. The Raised-Low Tone.

Relatively little research has been done on tone universals. While much of recent work on tone has centered around the question of the underlying representation of tone (see, for instance, Fromkin [1972] for a discussion of these topics), almost no attention has been paid to how phonological rules of tone operate, that is, in the ways underlying tone is realized on the surface. The phenomenon of "downdrift" has, however, received considerable attention (Schachter and Fromkin [1968], Williamson [1971b]). A high tone after a preceding low tone is realized as slightly lower in pitch than any preceding high tone. Thus, a sequence of HIGH-LOW-HIGH is realized as [ " _ _ ], rather than as [ " _ _ ]. A related phenomenon which has received very little attention is the common raising of a low tone before a high tone. Thus, in some languages, a LOW-HIGH-Low sequence may be realized as [ _ _ _ ] instead of [ _ _ _ ]. Both of these processes may be universal phonetic tendencies that may or may not become "phonologized" in a given language. We know, for example, that
Twi has phonologized downdrift, because the downdrift rule must precede the elision rule that optionally deletes vowel prefixes on nouns (Schachter and Fromkin [1968]). Thus, the downdrift rule must specify the second high tone in [mē bō] 'my stone' as slightly lower than the first high tone, and then the vowel [ə] deletes: [mē 'bō], pronounced as a high tone followed by a "downstep", [ - - ]. The process of "low-raising" whereby a low tone is raised before a high tone has been shown to characterize the phonology of Ewe (Ansrè [1961], Smith [1968], Stahlke [1971a,b]). It also characterizes all of Bamileke.

The raised-low tone in Fe'fe' differs only slightly in pitch from a non-raised-low tone. There is a rule in Fe'fe' which raises a low tone to a raised-low tone whenever it is followed by any non-low tone. This rule, which corresponds to Stoll's "loi de la sous-dominante" (p.49), can be informally schematized as in (5):

(5) \( \hat{V} \rightarrow \hat{V} / \_ \_ \_ C [-Lo] \hat{V} \)

That is, a vowel carrying low tone is raised to a raised-low tone whenever the following syllable carries anything but low tone. Rule (5) is illustrated in the forms in (6):

(6) s\(l\) 'without' + p\(\acute{u}\)a 'bag' \(\rightarrow\) [s\(l\) p\(\acute{u}\)a] 'without a bag'

s\(l\) 'without' + c\(\acute{a}\)k 'pot' \(\rightarrow\) [s\(l\) c\(\acute{a}\)k] 'without a pot'

s\(l\) 'without' + s\(\acute{a}\)k 'bird' \(\rightarrow\) [s\(l\) s\(\acute{a}\)k] 'without a bird'

s\(l\) 'without' + m\(\acute{a}\)d\(\acute{a}\) 'dog' \(\rightarrow\) [s\(l\) m\(\acute{a}\)d\(\acute{a}\)] 'without a dog'

The morpheme /s\(l\)/ 'without' bears low tone in its citation form and if followed by low tone(s) only. In all other cases, it automatically rises to a raised-low tone. Notice that (5) must apply as a right to left linear rule, i.e. it must apply iteratively to all low tones that precede a non-low in a given utterance: [s\(l\) m\(\acute{a}\)b\(\acute{a}\) k\(\acute{u}\)a] 'without four bags', but [s\(l\) m\(\acute{a}\)b\(\acute{a}\) n\(\acute{a}\)a\(\acute{a}\)] 'without three bags'. In the first example, no change has occurred, since both 'bag' and 'four' bear independent low tone. In the second example, however, both the low tone of [s\(l\)] and that of [m\(\acute{a}\)b\(\acute{a}\)] 'bags' (plural of [p\(\acute{u}\)a]) have been raised, because of the mid tone in the following word [n\(\acute{a}\)a\(\acute{a}\)] 'three'. Thus we see that there is a relationship
between low and raised-low tone.

Because of this rule of low-raising, there will actually be relatively few instances of low tones in a given sentence. The frequency of the raised-low tone caused Stoll to remark as follows:

"Dans le langage courant de toutes les langues camerounaises, la sous-dominante [i.e. raised-low tone] est le ton le plus employé, le fluxatif par excellence, représentant le niveau moyen de la voix humaine." (p.14)

(In everyday speech of all these Cameroonian languages, the sub-dominant [i.e. raised-low tone] is the most frequently used tone, the fluxative par excellence, representing the average level of the human voice.) While we can attribute phonetic raised-low tones to such a process of low-raising in most cases, there are several instances of nouns (and verbs) which bear raised-low tone even in isolation, as seen in (3), e.g. [cûk] 'pot'. Since we know that raised-low tones derive from low tones in many cases, we can propose that nouns such as 'pot' derive historically (and, I claim, synchronically) from a low tone followed by a non-low (here written as a high tone, for reasons yet to be discussed), i.e. /cûg'/.

This would mean that at some earlier stage these nouns were bisyllabic. This is precisely the position taken by Voorhoeve [1971b]. Voorhoeve seems however to take the raised-low as basic and have a lowering rule in final position (cf. Smith [1968] and Stahlke [1971a,b] for a similar approach to Ewe tone). While Bangangte dialect (the subject of Voorhoeve's study) has certain properties not shared by Fe?fe?, I strongly feel that the rule should be stated as a raising of low tone, as in rule (5), rather than as a lowering of tone whenever there is no non-low that follows.

This position is based on the claim that it is a universal phonetic tendency for a high tone to raise a preceding low tone. It is of course also an expected phenomenon for the voice pitch level to fall at the end of an utterance. While Bangangte is characterized by a particularly noticeable utterance final fall to the lowest pitch level (Voorhoeve [1971b]), the same cannot be said for Fe?fe?. Rather, all final low tones remain low.

In Bangangte dialect, some low tone nouns are characterized by a final glide down to the lowest pitch level at the end of an utterance.
The following Bangangte examples in (7) are taken from an unpublished 1971 manuscript of Voorhoeve, entitled "Some Problems in Generative Phonology (with special reference to tone)":

\[(7) \quad [m\text{n}\text{èn} \ m\text{èn}] \ 'the chief's son' \quad [\_\_\_]\]
\[ [m\text{èn} \ n\text{à?}] \ 'the chief's cow' \quad [\_\_\_]\]
\[ [m\text{èn} \ m\text{èn}] \ 'the chief's chief' \quad [\_\_\_]\]

As he states, the tone of 'son' can easily be marked as high, while the tone of 'chief' can be marked as low. The tone of 'cow' is not clear. It is realized as a low tone in the second example, but is not characterized by the final glide usually found on low tones in this position (cf. the word 'chief' in the third example). He therefore proposes the analysis /nà?/ for 'cow'. The final high tone is never realized, but rather blocks the application of a rule that will create a low downglide in sentence final position, since the preceding low will never be sentence final. It is not clear to me, however, whether Bangangte has a low-raising rule as is proposed for Fe\?fe\? in (5). If it doesn't, then it would probably be exceptional for Bamileke, since Mbu (West Bamileke) has a similar process and is a dialect distantly related to Fe\?fe\?. In Mbu, the raising is even more pronounced, since the low tone in question is raised to the level of what would be a mid tone in Fe\?fe\?. (I did find a few instances of phonetic tones between mid and low, although my limited investigation of Mbu does not permit any statement as to where these derive from.) Since Mbu has noun class prefixes that etymologically carried low tone, this rule is responsible for the raising of such low tone prefixes to mid tone, whenever followed by a high tone. This is illustrated in the Mbu forms in (8):

\[(8) \quad /n\text{l}-\text{bù/} \ 'breast' \ (cl. 5) \rightarrow [nibù]\]
\[ /a\text{-tù/} \ 'head' \rightarrow [atù]\]
\[ /N\text{-vù/} \ 'dog' \rightarrow [mùvù]\]

\[\text{cf. } /a\text{-kò/} \ 'foot' \rightarrow [akò]\]

Thus the noun class prefixes /n/ (cl. 5), /a/ (cl. 7) and /N/ (cl. 3, 9, 10), as well as others (see Chapter VII), are underlyingly marked with low
tone in all cases, as in (8). However, there are nouns in Mbui which are of the structure MID-MID. These nouns are parallel to the raised-low tone nouns in Fe'fe'. They are analyzed as having a low tone prefix and a stem which consists of a low tone syllable followed by a floating high tone, as now seen in (9):

(9) /nɪ-sɔŋ/ 'tooth' (cl. 5) → [nɪsɔŋ]
    /ə-kɔ/ 'mortar' (cl. 7) → [akɔ]
    /N-kɔɔ/ 'monkey' (cl. 9) → [ŋkɔɔ]

This solution will be defended below. Thus, a similar situation is observed in Mbui.

Since I have followed Voorhoeve's solution in reconstructing a second syllable consisting solely of a floating high tone, the following reconstructed tones for the raised-low tone nouns presented from Fe'fe' in (3) above may be given as in (10):

(10) cɔk' > cɔk 'pot'
    sɛ? > sɛ? 'tooth'
    phl > phl 'kolanut'
    ɔmbɔ > ɔmbɔ 'meat'

Although I have not been writing tones on nasal prefixes, they carry underlying low tone, which like other low tones is raised to a raised-low tone before non-low tones; cf. the word 'meat' in (10).

It is perhaps worth noting that Dunstan's approach [1966] is completely different. She notes that in Ngwe there are low tones that are sometimes realized as high tones, and these correspond to our raised-low tones. She marks these with the symbol (') and then states whether in a given environment the tone is realized as low or high. One word which is so marked is /dɪ-sɔŋ/ 'tooth' (cf. the Mbui word in (9) and the Fe'fe' word in (10)). I assume that this is realized as in closely related Mbui, i.e. as MID-MID [lɪsɔŋ], which Dunstan identifies as HIGH-HIGH. Her solution introduces an unnecessary complication, namely the positing of high tone noun class prefixes such as /dɪ-/ whenever the stem carries the anomalous (') tone. I suggest that the correct analysis of 'tooth' is /dɪ-sɔŋ'/.
While the derivations in (10) have been presented in their historical context, I shall now propose that raised-low tone morphemes are underlyingly LOW-(flouting)HIGH synchronically as well. That is, the underlying forms of the morphemes in (10) will be, respectively, /'câg'/, /'sè?'/, /'b'l'/ and /'Nbaob'/. (The preceding floating low tone will be discussed below.) While this may seem unjustified on the basis of what has been seen thus far, the strongest argument in its favor is that raised-low tone "alters" with a rising tone, whenever the morpheme analyzed with floating high tone is followed by a low tone. This is illustrated by means of the short forms of the three demonstratives in (11):

(11) a. /b'l'/ + /dè/ → [ph ́l] 'this kolanut' (n.s.)
   b. /b'l'/ + /dá/ → [ph ́lá] 'that kolanut' (n.h.)
   c. /b'l'/ + /dl/ → [ph ́ll] 'that kolanut' (far)

The historical explanation is that the floating high tone in (11b) has been absorbed (a term I owe to Russell Schuh [personal communication]) onto the high tone of the following syllable [lá] 'that', while it has been preserved in (11a) and (11c) since the following syllable begins in each case with a low tone. In these latter cases a rising tone ('') from raised-low to mid is created from the underlying low tone followed by the floating high tone. (When a low and a high come together on the same syllable, the result is except for certain grammatical morphemes and grammatical constructions a rising tone only to the level of mid (and not high) tone. See the discussion of verb tones in section 5.0.) In Chapter III it was pointed out that some final consonants optionally allow the repetition of the preceding vowel when the morpheme is followed by a consonant initial morpheme. The relevant consonants are /g/, /h/ and /ʔ/. In (12) it is noticed that the different tone realizations of raised-low tone nouns are particularly clear. In such cases where the vowel is repeated, it carries raised-low tone before high tone, but mid tone before low tone:

(12) a. /sèʔ'/ + /dè/ → [sèʔ ́l] 'this tooth' (n.s.)
   b. /sèʔ'/ + /dá/ → [sèʔ ́lá] 'that tooth' (n.h.)
   c. /sèʔ'/ + /dl/ → [sèʔ ́ll] 'that tooth' (far)
d. \( /càg'/ + /dè/ \rightarrow [càyà lè] \) 'this pot' (n.s.)  
\( /càg'/ + /dá/ \rightarrow [càyà lá] \) 'that pot' (n.h.)  
\( /càg'/ + /dl/ \rightarrow [càyà ll] \) 'that pot' (far)

In both (11) and (12), then, we have a reflex of this etymological high tone (realized as mid tone because of the effect of the preceding low tone) when followed by low tone. Before high tone, the floating tone is lost (absorbed), and in phrase-final position (i.e. before pause), it is also lost. Since only the absorption of this floating tone onto a subsequent high tone syllable is phonetically motivated, it is assumed that the loss of the floating high tone before pause (as, for instance, in the citation form of such nouns) was a later analogical change. The historical changes pertinent to the forms in (11) are shown in (13):

(13)  
(a)  
(b)  
(c)  

a. \( \text{phí' lè} > \text{phí' lè} > \text{phí lè} \) 'this kolanut' (n.s.)

b. \( \text{phí' lá} > \text{phí' lá} > \text{phí lá} \) 'that kolanut' (n.h.)

c. \( \text{phí' ll} > \text{phí' ll} > \text{phí ll} \) 'that kolanut' (far)

In stage (b), a low tone becomes raised-low before high tone. In stage (c), raised-low followed by high tone on the same syllable becomes either a rising tone (') from raised-low to mid tone (if followed by a low tone), or else the floating high tone is lost (if followed by high tone onto which it is absorbed). Notice in (14) that the rule that was historically introduced to permit the repetition of the vowel as in the forms in (12) must follow (i.e. be a more recent change than) the rules illustrated above in (13):

(14)  
(a)  
(b)  
(c)  
(d)  

a. \( \text{sèʔ' lè} > \text{sèʔ' lè} > \text{sèʔ lè} > \text{sèʔè lè} \) 'this tooth' (n.s.)

b. \( \text{sèʔ' lá} > \text{sèʔ' lá} > \text{sèʔ lá} > \text{sèʔè lá} \) 'that tooth' (n.h.)

c. \( \text{sèʔ' ll} > \text{sèʔ' ll} > \text{sèʔ ll} > \text{sèʔè ll} \) 'that tooth' (far)

Vowel repetition must follow the other rules for two reasons. First, the forms in (c) are acceptable and result if the vowel is not repeated (an
optional choice depending on various factors such as speed and style of
speech). In the vowel copy rule (which is assumed to characterize the
synchronic phonology), it will have to be stated that the copied vowel
takes the mid part of the raised-low to mid tone rising tone ("r") off of
the preceding vowel. (In other cases there is simply a straightforward
copying of the tone, e.g. [pè?] 'house' + [lå] 'this' is pronounced
[pè? lå] or [pè?e lå].) Second, if (c) and (d) were reversed in the case
of (14b), the following results would be obtained:

(15) sèʔ' lâ > sèʔ' lâ > sèʔe lâ > sèʔe lâ

In (15) the vowel has been repeated before the absorption of the floating
high tone. But notice that if there is an intermediate step [sèʔe lâ],
then the absorption rule will not be able to apply, since only floating
high tones are absorbed. Instead of a tone absorption rule, we would need
a tone "spreading" rule, since the raised-low tone would then have to
spread and "cover" the etymological high tone on the second syllable of
'tooth'. This could probably not be stated without affecting other se-
quences of raised-low followed by two high tones. Thus, [nliʔ péa lâ]
'those two axes' does not become *[nliʔ p êa lâ]. Instead, the tone absorp-
tion rule must make reference to the syllable, as in (16):

(16) [+Hi] → ∅ / $ [+Lo] ___ $ [+Hi]

(This formalism was suggested to me in another regard by Russell Schuh
[personal communication].) Rule (16) says that a high tone is deleted
when it is preceded in the same syllable by a low tone and followed in
the next syllable by a high tone. (The feature specifications [+Hi] and
[+Lo] are to be taken only as first approximations, [+Hi] representing
both high and mid tones, [+Lo] representing both low and raised-low tones.
See section 6.0.)

The presence of a floating high tone is particularly characteristic
of associative constructions (section 4.0.) and of one tone class of Feʔfeʔ
verbs (section 4.0). In the forms in (17),

(17) a. phî' + ' + z-á > phî zâ 'my kolanut'
   b. sèʔ' + ' + z-á > sèʔe zâ 'my tooth'

a low tone occurs between the head noun and a possessive pronoun. This
low tone is associated with the segmental concord marker z- (class 5), which historically was pronounced [l], as in Proto-Bantu. It became [l'] before vowels and then [z'] (see below). This low tone is responsible for both the rising tone (') of [ph'] 'kolanut' and the mid tone on the copied vowel of [sète] 'tooth'. In addition, it has caused the rising tone (') of [zè] 'my' in both forms. Recall that in Mbuia a low tone becomes a mid tone before a high tone (e.g. /ài/ 'head' is pronounced [atì]). In (18),

(18) a. nl-sòŋ' + ' + z-à > nìsòŋ' zà 'my tooth'
    b. nl-bēw + ' + z-à > nìbēw' zà 'my breast'

It is noticed that in possessive constructions involving pronouns, nouns analyzed with a floating high tone merge with high tone nouns, /nl-/ being the class 5 noun class prefix. (Actually, the phonetic realizations of 'my tooth' and 'my breast' will require the raising of the floating low tone to mid tone, because of the following high: [nìsòŋ] zà] and [nìbēw zà], respectively.) In Mbuia, the floating high tone of a noun such as /nl-sòŋ'/ 'tooth' (ordinarily pronounced [nìsòŋ], i.e. MID-MID in isolation) actually replaces the preceding tone, whenever it is followed by a low tone, as in (18a). The historical development of 'my tooth' is as follows:

(19) nl-sòŋ' > nìsòŋ' zà > nìsòŋ' zà > nìsòŋ zà

This merger of the two tone structures is what led Dunstan [1966] to her /dísòŋ/ solution.

3.0. Final Floating Tones.

The recognition of floating high tones in Bamileke adds considerable support to the hypothesis (cf. Voorhoeve [1971b]) that Bamileke nouns once consisted of bisyllabic roots. Thus far only bisyllabic nouns whose tonal structure is LOW-HIGH have been discussed, e.g. /sèʔ/ 'tooth'. Surely these were historically not the only bisyllabic nouns. In fact, since raised-low tones have been reconstructed as low tones followed by floating high tones, low tone nouns in Fe?fe? can be reconstructed as low tones followed by floating low tones. Unlike the floating high tone, the floating low tones have no synchronic effect, and hence no synchronic
reality. We can, however, provide the following tonal reconstructions:

(20)  
zòk' > zòk  'knee'
 pàn' > pàn  'wing'
 plî' > plî  'profit'
 khû' > khû  'foot'

Given that there are historical low tone nouns followed by floating high tones, it follows that we should reconstruct the nouns in (20) as being low tone with a floating low tone. These two tone classes (LOW-LOW and LOW-HIGH) of nouns seem clear.

There are two theoretically possible tone classes that have not yet been mentioned: HIGH-LOW and HIGH-HIGH. (This is assuming a two tone system in the proto language.) There are, in fact, two major tone classes of Fe?fe? nouns that have not been accounted for. These include on the one hand rising tone nouns, and on the other hand mid tone nouns. I shall now argue that rising tone nouns derive from HIGH-LOW and that mid tone nouns derive historically from HIGH-HIGH, but in order to understand the historical developments it is necessary to postulate an initial floating low tone on all nouns, as in (21):

(21) a. 'thû' > thû  'head'
 'pô' > pô  'hand'
 ūnvòa' > ūnvòa  'dog'
 ūkèe' > ūkèe  'monkey'

b. 'sôk' > sak  'bird'
 'mûu' > muu  'child'
 'kîv' > kîv  'crab'
 'môh' > môh  'fire'

There is considerable comparative evidence for such a reconstruction, especially from Voorhoeve's Bangangte dialect. While there is some evidence from Fe?fe? itself, it is not possible to discuss this evidence until an additional question is answered, namely: why are there no nouns
bearing high tone in present day Fe?fe?.

The reason for this is that historically all Fe?fe? nouns (and verbs, as we shall see) were preceded by a low tone. This low tone is characteristic of Bantu noun class prefixes in general and a comparison of Fe?fe? with Mboi (see in particular Chapter VII) reveals that Fe?fe? once had such prefixes. Substantial evidence that a low tone once accompanied the prefix of Fe?fe? nouns is available from those noun classes marked by a nasal prefix (cf. 'dog' and 'monkey' in (21a)). Although I have not marked this nasal prefix with any tone in preceding chapters, it carries low tone which is raised to a raised-low before all tones except low (as in rule (5) above):

(22)  ḥkhù 'feet' → ḥkhù (cf. khù)
     ǹcåk 'pots' → ǹcåk (cf. cåk)
     ǹbō 'hands' → ǹbō (cf. pō)
     ǹsåk 'birds' → ǹsåk (cf. sak)

The plural noun class prefix recognized as /m-/ (class 6) in Chapter III is illustrated with the four tone classes in (22). What happened historically is that this preceding low tone had a lowering effect on the following syllable, lowering high tone to mid or to rising tone. In the case of nouns beginning with low tone (e.g. [khù] 'foot' and [cåk] 'pot') the preceding low tone has no effect. In the case of nouns beginning with high tone (e.g. [pō] 'hand' and [såk] 'bird'), the low tone affected the tone in the manner shown in the historical derivations in (23):

(23)  
   a. 'pō' > 'pō' > 'pō' > pō 'hand'
   b. 'såk' > 'såk' > 'såk' > såk 'bird'

In stage (a) morphemes are recognized with preceding floating low tones, a high tone syllable and either a following low or a following high floating tone. In stage (b) the high tone of 'hand' becomes a rising tone and the high tone of 'bird' becomes a mid, both changes conditioned by the preceding floating low tone. In stage (c) the final floating tones are lost, and in stage (d) the initial floating low tones are lost.
It is important to note that it is the initial floating low tone of HIGH-LOW nouns that is responsible for the rising tone. Since all nouns are characterized by this floating low tone prefix, I shall continue to refer to the tonal structure of a given noun by the two subsequent tones. Note, while HIGH-HIGH nouns are almost always realized as mid tone (except in the associative construction; see section 4.0), HIGH-LOW nouns are regularly realized not as rising tone, but as mid tone whenever they are followed by an additional low tone. This fact, which is partly responsible for a widespread confusion over which nouns are inherently mid tone and which are rising tone, is illustrated in the familiar frames in (24):

\[(24)\]
\[
\begin{align*}
\text{a.} & \quad p\bar{o} + \text{lè} & \rightarrow & \, p\bar{o} \, \text{lè} & \quad \text{'this hand'} \quad (\text{n.s.}) \\
\text{b.} & \quad p\bar{o} + \text{lā} & \rightarrow & \, p\bar{o} \, \text{lā} & \quad \text{'that hand'} \quad (\text{n.h.}) \\
\text{c.} & \quad p\bar{o} + \text{lī} & \rightarrow & \, p\bar{o} \, \text{lī} & \quad \text{'that hand'} \quad (\text{far})
\end{align*}
\]

There doesn't seem to be any phonetic motivation for this apparent synchronic rule that changes a rising tone to a mid tone when followed by a (second) low tone. In fact, this is because in (24) we have incorrectly stated the process. What happened historically is that a HIGH-LOW noun was permitted to become a rising tone (as in (23a) above) unless there was a following low tone. The motivation for this restriction is not a phonetic one. Instead, it is necessary to recall the behavior of LOW-HIGH nouns given in (13) above and repeated in (25):

\[(25)\]
\[
\begin{align*}
\text{a.} & \quad ph\bar{i} + \text{lè} & \rightarrow & \, ph\bar{i} \, \text{lè} & \quad \text{'this kolanut'} \quad (\text{n.s.}) \\
\text{b.} & \quad ph\bar{i} + \text{lā} & \rightarrow & \, ph\bar{i} \, \text{lā} & \quad \text{'that kolanut'} \quad (\text{n.h.}) \\
\text{c.} & \quad ph\bar{i} + \text{lī} & \rightarrow & \, ph\bar{i} \, \text{lī} & \quad \text{'that kolanut'} \quad (\text{far})
\end{align*}
\]

Recalling that the underlying forms (at least from a diachronic perspective) of 'hand' and 'kolanut' are '/bō'/ and '/bī'/, respectively, it is noticed in (24) and (25) that both HIGH-LOW and LOW-HIGH nouns are sometimes realized with rising tone, but that they are never both realized as such in the same environment. HIGH-LOW nouns bear rising tone before a high tone or a pause, while LOW-HIGH nouns bear rising tone only before a low tone. LOW-HIGH nouns bear raised-low tone both before a high tone and before a pause (as in their isolation forms). Thus, there is never any confusion as to whether we are dealing with a HIGH-LOW or a LOW-HIGH noun in any given
frame. We have explained the raised-low tone of LOW-HIGH nouns by saying that subsequent to the low-raising rule, the floating high tone is absorbed onto a following high tone syllable, or dropped before pause. This process is clearly older than the one relating to HIGH-LOW nouns, since it appears to characterize all of Bamileke in one form or another. Not all Bamileke dialects have, however, created rising tones from HIGH-LOW nouns (cf. Fe?fe? [thǔ] 'head' with Mbui [atú], where Mbui is seen to simply drop the floating low tone of *'tú' and no rising tone is created—the low tone prefix is, however, raised to a mid tone because of the following high tone). We can therefore explain the alternations in (24) in the following way: wherever LOW-HIGH nouns have not been realized as rising tone, HIGH-LOW nouns are realized as rising tone. Wherever LOW-HIGH nouns are realized as rising tone, the pressure of the system trying to maintain the opposition between the Proto-Bamileke tone classes LOW-HIGH and HIGH-LOW is great enough to prevent the creation of a rising tone, as for example in the forms for 'this hand' (n.s.) and 'that hand' (far) in (24). Thus, instead of providing a phonetic explanation, a type of "drag chain" is created. The rise of a rising tone deriving from LOW-HIGH is lost before a high tone and before a pause. Therefore, HIGH-LOW nouns can "fill the gap" and become rising tones in these environments. In other words, rising tones from the two sources are in complementary distribution. This is seen over and over again, as in the possessive concord of the nouns [m̀b̀d̀a] 'meat' (from *m̀b̀da`) and [ŋk̀a] 'money' (from *ŋk̀a`), both ending in /a/ (see Chapter IV) and belonging to class 9:

(26) a. m̀b̀d̀a`b` + ` + â > m̀b̀a ` bà `my meat'
   b. ŋk̀a`b` + ` + â > ŋk̀a ` bà `my monkey'

In these examples, the vowel [a] is lengthened so as to accomodate the phonetic low tone associated with possessive concord. Thus, since [m̀b̀da] 'meat' has become a rising tone in 'my meat', [ŋk̀a] 'money' becomes a mid tone and fills in the gap. This is what is normally meant by "drag chain" (cf. Chapter VIII).

Notice, however, that while LOW-HIGH and HIGH-LOW never merge, HIGH-LOW certainly merges with HIGH-HIGH, namely before a low tone (cf. [po l`a] 'this hand' from [pɔ] + [l`) with [muu l`) 'this child' from [muu] + [l`]).
On the other hand, LOW-LOW and LOW-HIGH merge before a high tone (cf. [pʰa lá] 'that bag' (n.h.) from [pʰa] + [lá] with [pʰl lá] 'that kolanut' (n.h.) from [pʰl] + [lá]). These two mergers are permitted, because in Fe?fe? the basic contrast is between the two low tones (low and raised-low) and the two high tones (mid and rising, and occasionally high). Thus, I have not found any minimal pairs between nouns, where one carries mid tone and the other carries rising tone, or where one carries low tone and the other raised-low tone, though there is clearly no conditioning factor. (One speaker claimed to have a distinction between [pʰe] 'loss' and [pʰe] 'knife', where the former derives from the verb /biə/ 'to lose'.) On the other hand, I have found numerous minimal pairs where one noun carries one of the low tones and the other carries one of the high tones, as in (27):

(27)  [nźwłe] 'leopard'  [lðk] 'stool'
[ŋkwën] 'tail'  [f̥w] 'chief'
[ŋkwën] 'bean(s)'  [f̥w] 'tibia'
[ŋkwën] 'woman'  [lðk] 'horse'

One of the difficulties in studying Fe?fe? tone is in correctly distinguishing between mid tone nouns and rising tone nouns, since some speakers seem to be unaware (or at least confused) of which nouns are mid tone and which are rising tone. Younger speakers appear to be preferring mid tone to rising tone. (In Hyman, Voeltz and Tchokokam [1970] we completely missed the distinction.)

A possible problem for the above historical analysis is the existence of a few words that are at least optionally pronounced with the final vowel /a/, but which do not always place the expected tone on this vowel:

(28)  [yāt] or [yāla] 'odor' 7/6
[ⁿbũu] or [ⁿbuuũa] 'God' 9/10
[ŋk̥p] or [ŋk̥b̥a] 'fingernail' 9/10
[ŋk̥se] or [ŋk̥sena] 'monkey' 9/10
[pwēn] or [pwēna] 'spirit' 7/6
[tɛn] or [tɛna] 'iron' 5/6
[vɔp] or [vɔba] 'dust' 7/8
[p⁽¹⁾] or [p⁽¹⁾na] 'courtyard' 7/6
[mvën] or [mvëna] 'grass' 9/10

If my analysis is correct, then there is no explanation for why some of these nouns (e.g. 'odor', 'monkey') have optional mid tone suffixes, when a rising tone derives from a high tone syllable followed by a low tone floating suffix. The falling tones of 'God' and 'grass' also require an explanation, but in this case there is one. Such nouns are derived from verbs by prefixing the nasal prefix of class 9/10 and suffixing (so to speak) a low tone. The result is an agentive noun, e.g. [nzə] 'eater' from /za/ 'to eat', [mbû'] 'God, creator' from /buum/ 'to create, mold', [mvën] 'grass' from /ven/ 'to design', hence 'that which designs'. Such nouns as those in (28) are quite rare and will have to be marked as lexical exceptions, since they do not conform to the canonical form of morphemes given in Chapter II as \( C_{1} V_{1}(V_{2})(C_{2}) \).

4.0. Associative Tone.

In this section I shall turn to the tonal properties of associative constructions, both of the noun-noun type and of the noun-possessive pronoun type. We shall see that the historical account just proposed for Fe?fe? fits in well with the tone alternations that characterize associative constructions.

In all associative constructions involving possessive pronouns, there is a low tone effect between the noun and the possessive pronoun. In addition, possessive pronouns bear inherent low tone with classes 1 and 9, but high tone with all other classes (cf. Chapter VII). Thus, consider the derivations in the class 5 noun [thë] 'tree' and the class 9 noun [mvëa] 'dog' in (29):

(29) a. 'thë' + ' + z⁻ > thë ' z⁻ 'my tree' [ ]

b. mvëa' + ' + φ⁻ > mvëa ' à 'my dog' [ ]

These derivations provide further support for the contention that nouns that bear rising tone in their citation form (e.g. [thë] 'tree' and [mvëa] 'dog') become mid tone whenever followed by a (second) low tone. This low tone is often heard phonetically, as in (29), and can be identified with
the typical Bantu low tone prefix copied onto the possessive pronoun.
For example, 'my tree' must have been historically #d[]-t'ā d]-ā. (The
noun 'tree' actually was probably in 7/8 in the proto language.)
The rising tones of class 5 [zā], class 2 [bā], class 4 and 6 [mā]
and class 8 and 10 [zā], all of which mean 'my' (see Chapter VII), are
readily analyzed as /'zā/, /'bā/, /'mā/ and /'zā/, respectively. In fact,
in Mboi we find pronouns such as [zā] 'my' preceded by a low tone:
(30) a.  ātē' + ' + z-ā > ātē' zā [ - ]
       b.  ākōo' + ' + z-ā > ākōo' zā [ - ]
The citation forms are [ātē] 'tree' (cl. 7) and [ākōo] 'monkey' (cl. 9)
and in the form 'my tree' in (30) we note that Mboi has ['zā] where Fe'fe'
has [zā]. (The actual phonetic realization of 'my tree' is [ātē h zā],
since low tones rise to the level of mid when followed by high tone. The
vowel [u] is somewhat lengthened to accomodate the floating tone.) Notice
that both Mboi nouns are of the underlying structure LOW-LOW-HIGH,
realized in the citation form as MID-MID, but as MID-HIGH when followed
by low tone (cf. (19) above). Tonally, /ātē'/ 'tree' and /ātū'/ 'head'
merge in Mboi, when followed by low tone. Thus, 'my tree' is pronounced
[ātē h zā] and 'my head' is pronounced [ātū h zā]. Such a merger between
LOW-HIGH and HIGH nouns is not permitted in Fe'fe'.

Notice that the rising tone in Fe'fe' possessive concord does not
occur when there is no consonantal concord, as in classes 3 and 7. In
this case, a mid tone is observed:
(31) 'wū' + ' + ā > wū a 'my thing'
We do not obtain *[wu ā] because there is no consonant between the noun
and pronoun. We do not obtain *[wū a] (cf. [wū] 'thing'), because there
is a following low tone which converts a rising tone to a mid (cf. (24)
above). A similar constraint must also be noted. Raised-low tone nouns
followed by possessive pronouns not preceded by a consonant are realized
as raised-low, not as rising tone. Thus, one says [hū a] 'my leaf' and
not *[hū a], from /'hū'/ 'leaf', pronounced [hū] in isolation. It makes
sense to say that the mid part of the rise is absorbed onto the mid tone
of the following syllable. Where the possessive pronoun carries mid tone,
there is no phonetic low tone. Thus, one says [moh a] 'my fire' and not
*[məh 'a]. Thus, the low tone cannot convert [cāk] 'pot' to [cāk] in [cāy a] 'my pot' (not *[cāy a]). (The noun 'pot' is put into 7/6 by some, into 5/6 by others.)

Turning to noun-noun associative concord, we note that class 1 and 9 nouns take an intervening low tone, while the remaining classes take an intervening high tone:

(32) a. 'thē' + 'mūu' > thēmūu 'the child's tree'
    b. ĕkēe' + 'mūu' > ĕkēemūu 'the child's monkey'

('The child's tree' is alternatively realized as [thē mūu], i.e. with a simplification of the rising tone.) In (32) it is seen that a low tone follows 'monkey', but that a high tone follows 'tree', converting the former to [ēkēe'] and the latter to [thē'] (or [thē]). This tone can be identified with the tone of the possessive pronoun, which is underlyingly low for classes 1 and 9, but high for other classes. The noun class prefix that historically must have been prefixed onto an associative morpheme /a/ (bearing either low or high tone), is as far as I know unattested in Bamileke. In Mbu, this /a/ marker is found without a prefix on it:

(33) a. [atw a moo] 'the child's tree'
    b. [ēkoo a moo] 'the child's monkey'

The fact that no low tone prefix is associated with /a/ is borne out by the failure of [atw] 'tree' to become [atē], as it did preceding a low tone in (30). There is no such conditioning low tone in (33). In Fe'fe' we know there was no concord agreement on this particle, since this concord would have carried low tone and would have lowered /â/ to mid tone. In the form for 'the child's tree' in (32a), however, the rise on 'tree' goes all the way up to high tone.

These few examples show how the historical analysis of tone presented in this chapter accounts for associative constructions in a straightforward way. (For more discussion, see sections 1.1 and 2.1 of Chapter VII.) It also accounts for the tonal behavior of verbs.

5.0. **Verb Tones.**

Until now we have been speaking exclusively of nouns and their tonal properties. In many ways the tone properties of nouns are more
transparent than those of verbs, and this accounts in part for the
fact that Stoll [1955], Dunstan [1966] and Voorhoeve [1971b] devote
themselves almost entirely to nouns. Although there remain serious pro-
blems in the analysis of verb tones, I would like to suggest at least a
first approximation. Again, I am indebted to numerous personal communi-
cations from Jan Voorhoeve.

In Fe'fe', as in other Bamileke languages, there are two tone classes
of verbs. In the imperative, one tone class is realized as a raised-low
tone, while the other is realized as a mid tone, as seen in (34):

(34) a. [sə?] 'to come' [fən] 'to sell'
       [γɛn] 'to go' [läh] 'to take'

b. [yILL] 'to see' [zə] 'to eat'
       [cək] 'to seek' [kə] 'to take'

If verbs are to be analyzed as the nouns were analyzed, then the raised-low
tone class of verbs will be analyzed as LOW-HIGH and the mid tone class of
verbs as HIGH-HIGH, both tone classes being preceded by a floating low tone,
as in the historical reconstructions in (35):

(35) a. 'sə?' 'to come' > 'fən' 'to sell'
       'γɛn' 'to go' > 'läh' 'to take'

b. 'yILL' 'to see' > 'zə' 'to eat'
       'cək' 'to seek' > 'kə' 'to take'

Thus, historically the two verb classes are LOW-LOW-HIGH and LOW-HIGH-HIGH.
(It is interesting to note that these are precisely the tone classes of
verbs reconstructed by Kähler-Meyer [1968] for Proto-Bantu.) The initial
floating low tone is probably attributable to an earlier subject concord
marker or possibly tense/aspect marker.

There is some evidence for a tone class of LOW-LOW-HIGH verbs, since
whenever transitive verbs of this class are followed by a direct object,
they are characterized by a rising tone. Since nouns are all analyzed
with a preceding floating low tone (see section 6.0 below), this is the
expected realization of LOW-LOW-HIGH:
(36) a. 'fèn' + 'sák' > fën sák 'sell the bird'
    b. 'làh' + 'múu' > lăh muu 'take the child'

When there is a high tone after a LOW-LOW-HIGH verb, no rising tone is created:

(37) a. 'làm' + lè > lĕm lè 'smell!' (near speaker)
    b. 'làm' + lá > lĕm lá 'smell!' (near hearer)
    c. 'làm' + lî > lĕm lî 'smell!' (far from speaker and hearer)

The forms in (37) should be compared with those given earlier in (13). In (37) it is observed that a rising tone is produced whenever there is a following low tone; otherwise there is a raised-low tone. Thus, *[lĕm lá]* is unacceptable. While the presence of a rising tone in (36) and (37a,c) is due, historically, to a following low tone, we may have to say that there has been a reanalysis, such that synchronically a rising tone is found whenever there is a direct object complement. This would account for the forms in (38), where *[pĕa]* 'two', which is analyzed as not having a preceding floating tone, is found nevertheless after a rising tone:

(38) a. 'fèn' + pĕa > fën pĕa 'sell two'
    b. 'làh' + pĕa > lăh pĕa 'take two'

'Two' is analyzed without the preceding floating tone, because it is pronounced with high tone, rather than with mid (or rising) tone. Historically, we would have found *[fën pĕa]* and *[lăh pĕa]*.

It is not as easy to show the historical source of the other tone class of verbs, since there are no alternations. However, we are able to explain the tone of direct object pronouns, if we assume that they have no independent tone, but instead take the "floating" suffixal tone of the verb, which in both tone classes is high tone (realized as mid because of the preceding low). Thus, direct object pronouns always bear mid tone:

(39)

\[
\begin{align*}
    \text{lăh} & \quad \text{a 'me'} & \quad \text{yoh 'us'} \\
    \text{ko} & \quad \text{'take...!' + o 'you'} & \quad \text{yii 'you (pl.)'} \\
    & \quad \text{i 'him/her'} & \quad \text{yoa 'them'}
\end{align*}
\]
Notice that this can explain why most Fe?fe' speakers say [lɔ̀h yɔɔ] 'take them', rather than [lɔ high yɔɔ]. The mid part of the rising tone is transferred (spread) onto the direct object pronoun.

Further evidence for this analysis is found in Mbui. In Mbui, verbs in the imperative are characterized either by a LOW-HIGH sequence (which by rules referred to becomes MID-HIGH), or by high tone throughout:

(40) a. dzǝ' 'come!' > 1ɔɔ 'seek!'
giŋ 'go!' > 1uɔ 'leave!'

b. tɔɔ 'refuse!' > ʃiɔ 'blow!'
zɔm 'sing!' > ʃiɔ 'see!'

Thus, we find the expected tones. In addition, the direct object pronouns always carry the second tone of the verb:

(41) a. 1ɔɔ wǝ 'seek me!' (cf. 1ɔɔ 'seek!')

b. ʃiɔ wǝ 'see me!' (cf. ʃiɔ 'see!')

Notice that we do not obtain for 'seek me!' the form *[1ɔɔ wǝ]. This is because the tone has been transferred off of the verb onto the direct object pronoun. In addition, noun class prefixes of direct object nouns in Mbui always take a high tone:

(42) a. 1ɔɔ + bǝ-siŋ > 1ɔɔ bɔsiŋ 'seek the birds!'

b. ʃiɔ + bǝ-siŋ > ʃiɔ bɔsiŋ 'see the birds!'

Thus we can argue for the historical presence of final high tones on verbs which spread to direct object pronouns and the noun class prefixes of direct object nouns, as illustrated in (41) and (42) above.

The prefixal floating low tone on verbs may seem somewhat less easily explained. We know that many Bamileke dialects have low tone class prefixes on nouns, but to my knowledge, none has anything comparable on verbs. This is undoubtedly due to the fact that no Bamileke language exhibits the Bantu-type subject-verb concord whereby the low tone noun class prefix is copied (more or less) onto the verb, e.g. bǝ-ntu bǝ-ganda 'the people come' in Luganda. But such a concord system must have existed at one time, and it has left its trace in the form of a floating low tone before verbs, whose sole synchronic reflex is to lower the high tone of the second class
of verbs to a mid. Note, of course, that mid tone nouns were also analyzed as LOW-HIGH-HIGH.

The reconstructions of the two tone classes of verbs can then be taken as just given. The more difficult problems center around tone alternations in verbs. Mid tone verbs almost never change their tone, but are instead realized on almost all occasions as mid. Raised-low tone verbs, on the other hand, sometimes are realized as high tone, the most frequent constructions being those requiring a prenasalized verb form. The forms in (43) should be compared to the raised-low tones of the imperative seen in (34a):

(43)  [nsá?] 'to come'    [mfén] 'to sell'
       [ŋéén] 'to go'      [ndáh] 'to take'

These prenasalized forms are used primarily in the non-completed and consecutive aspects of the verb. I have been unable to determine why (or even how) such an alternation should take place. For example, when a high tone associative marker follows a raised-low noun, the result is only a rising tone from raised-low to mid:

(44)  [ph!] + ' + műw > phƚ műw 'the child's kolanut'

We simply must include a rule in the synchronic phonology that changes a verb of the tone structure LOW-LOW-HIGH to a high tone when prenasalized. LOW-HIGH-HIGH verbs do not change their tone when prenasalized:

(45)  [ŋjii] 'to see'    [nzo] 'to eat'
       [ncak] 'to seek'    [ŋko] 'to take'

The nasal prefix seems to have inherent mid tone, at least in the consecutive, though this does not appear to explain anything.

Another construction where raised-low tone verbs exhibit high tone (though they are not prenasalized) is in the subjunctive:

(46)  [á půh sá?] 'let us come!'

In (46), /á/ is the subjunctive marker. But now notice the tone shifting that applies in (47):

(47)  á h sá? → h sá? 'I should come'
In (47), /â/ and /ñ/ 'I' have merged as [ã]. What seems to have happened is that the tones have shifted to the right. The high tone of /â/ is now on the pronoun 'I' and the low tone (raised to a raised-low) of /ñ/ 'I' is now on the verb.

Another case of tone shifting to the right appears to be in effect in the following example:

(48) sí + à + [kãe] → sí a kẽe 'without him refusing'
    sí + ' + [kãe] → sí kẽe 'without refusing'

In the first example we see that pronouns carry low tone and that when the pronoun is present, the raised-low tone of [kãe] 'to refuse' is realized as a fall from mid to low. But when there is an indefinite subject deletion of presumably a low tone pronoun, the verb 'to refuse' is realized with low tone. This probably means that the low tone of the deleted subject has shifted to the right. Consequently, the tone of the verb is low, as its inherent tone has been, so to speak, knocked off at the end.

6.0. Summary and Conclusion.

In the above discussion we have seen how Feŋfeŋ developed four phonetic tone levels from a two level proto language. Both nouns and verbs were seen to belong to tone classes which in the proto language were stated in terms of two tones HIGH and LOW. The above reconstructions of Feŋfeŋ nouns and verbs with floating initial and final tones explain a number of facts about Feŋfeŋ tonology. While the exact reconstruction given is doubtless too abstract as a synchronic representation of underlying tone, some of it may in fact find its place in a descriptive account of present day Feŋfeŋ. The initial floating low tone of nouns, for instance, accounts for the fact that Feŋfeŋ nouns are often preceded by a low (or raised-low) tone voiceless schwa-like vowel, which I write /ã/, often giving the impression of a "low-tone breath" preceding the noun, as in [ãthũ] 'head', [ãphũ] 'kolanut', [ãkhũ] 'foot', etc. This vowel was present historically in these forms, and its voiceless reflex today can precede any noun that does not have a nasal prefix. We are therefore on solid ground when we set up a preceding low tone, even synchronically. Of course, the low tone nasal prefix adds additional support, since we now can provide the generalization that all nouns are preceded by a low tone prefix, either a nasal or
a floating tone.

The positing of synchronic final floating tones is not always as well motivated as the initial floating low tone. The most convincing argument would be for the floating high tone of LOW-LOW-HIGH nouns. This high tone is responsible for the mid part of the rising tone that is found whenever a so-called raised-low tone noun is followed by a low tone, e.g. [phl ˦˥] 'this kolanut'. However, there is no reason to believe that low tone nouns should be recognized synchronically as LOW-LOW-LOW, that rising tone nouns should be recognized as LOW-HIGH-LOW, and that mid tone nouns should be recognized as LOW-HIGH-HIGH. Instead, the synchronic tones can be represented either as in (49a) or (49b):

\[
\begin{align*}
(49) & \quad a. \quad /'bəæ/ \quad b. \quad /'bəæ/ \quad c. \quad \rightarrow [pəæ] \quad 'bag' \\
& \quad /'búmer/ \quad /'búmer/ \quad \rightarrow [phl] \quad 'kolanut' \\
& \quad /'tǔ/ \quad /'tˤ/ \quad \rightarrow [thʊ] \quad 'head' \\
& \quad /'mʊu/ \quad /'mʊu/ \quad \rightarrow [muu] \quad 'child'
\end{align*}
\]

The solution in (49a) distinguishes only two underlying tone levels, though at the expense of positing an underlying rising tone. The solution in (49b) posits an underlying third level tone, i.e. mid tone. I shall assume the correctness of (49a) for the remainder of this chapter, though some of the theoretical issues raised by this decision will be taken up in Hyman and Schuh [forthcoming]. The rising tone of 'head' is underlingly a rise from low tone to high tone. Two phonetic rules will be needed to yield the correct forms in (49c). First, there must be a rule that raises a low tone to a raised-low tone, when it is followed by a high tone. Second, there must be a rule that lowers a high tone to a mid whenever it is preceded by a low tone within the same word. The four phonetic tone levels and the raised-low to mid rising tone can be distinguished by means of the features Hi(gh) and Extreme (cf. Maddieson [1970]), as in (50):

\[
\begin{array}{cccccc}
\text{Hi(gh)} & \text{HIGH} & \text{MID} & \text{R-LOW} & \text{LOW} & \text{RISING} \\
+ & + & - & - & - & + \\
\text{Extreme} & + & - & - & + & - \\
\text{Rise} & - & - & - & - & + \\
\end{array}
\]

The two required rules are formalized in (51) and (52):
(51)  [-Hi]  \rightarrow  [-Extreme] / ___ [+Hi]  \\
       v  \\
(52)  [+Hi]  \rightarrow  [-Extreme] / [-Hi] ___ #  \\
       v  \\

Rule (51) says that an underlying low tone becomes a raised-low tone when followed by a high tone. Rule (52) says that a high tone becomes a mid tone when preceded by a low tone in the same word. The motivation for the feature Extreme is seen from these rules, which modify extreme tones to non-extreme tones. We are tempted to collapse rules (51) and (52) as in (53) below:

(53)  [-Hi]  [+Hi]  #  \\
      \downarrow  \downarrow  \\
      [-Extreme]  [-Extreme]

Rule (53) says that when there is a succession of a low tone followed by a high tone within the same word, both tones become non-extreme; that is, the low tone becomes a raised-low tone, and the high tone becomes a mid tone. However, there are two reasons why (51) and (52) cannot be collapsed. First, rule (52), but not rule (51), must make reference to the word boundary. Thus, /ɓwa/ + /da/ becomes [ɓwa ɗa] and not *[ɓwa la] 'that bag' (n.h.). The high tone of [ɗa] does not become mid tone, because the preceding low tone does not occur in the same word. Second, rule (51), but not rule (52), applies iteratively as a right to left linear rule (Johnson [1970]). That is, all low tones followed by a high tone become raised-low tones, as in /ɓwa/ + /ɗa/ + /da/, which becomes [ɓwa ɗa ɗa] 'those four bags' (n.h.). However, /ɓúm/ + /ɓwa/ + /da/ becomes [ɓu ɗa ɗa] and not *[puu puu la] 'those two children' (n.h.). That is, the initial floating low tone of /ɓúm/ 'children' only lowers the high tone that immediately follows in the same word to a mid tone, and does not lower subsequent high tones. While formalisms and conditions can be worked out to permit the collapsing of the two rules, the rules in (51) and (52) are best viewed as not collapsed in view of these differences.

Many of the tone processes of the language have not been discussed. A number of these seem to be restricted to particular constructions (e.g. the grammatical high tone found in the present tenses which behaves in a

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different fashion from the high tone found in associative constructions). One area that requires further research and which may prove to be quite interesting is the tone on nasal prefixes, e.g. /mɒːd/ 'meat', pronounced [mɔːd]. We have already seen (as in the word 'meat') that this low tone raises to a raised-low when there is a following high tone in the phrase (which, in fact, raises all preceding low tones, as we have seen). In addition, a nasal prefix normally takes the same tone of the preceding syllable, this rule taking precedence over, or possibly applying after, the rule that raises the low to a raised-low:

(54)  [yìl]  +  [mɒːd]  \rightarrow  [yìl mɔːd]  'see the meat'

[ŋkə]  +  [mɒːd]  \rightarrow  [ŋkə mɔːd]  'to refuse the meat'

Recalling that raised-low tone, e.g. [kə] 'refuse!', is realized as rising tone (') before a low tone, it is seen in (55) that this rule must be stated before the tone of a nasal prefix has been raised to the level of the preceding syllable:

(55)  [kə]  +  [mɒːd]  \rightarrow  [kə mɔːd]  'refuse the meat'

In (55) it is observed that [kə] 'to refuse' is pronounced [kə] because of the following underlying low tone of the word /mɒːd/ 'meat', but that after this has been determined, the nasal prefix of 'meat' takes the same mid level of the preceding rising tone ('). (Notice that it is the mid tone created by rule (52) that is copied in this case, and not the underlying high tone.) The raising of the nasal prefix also changes an underlying rising tone to a mid tone, as seen in the examples in (56):

(56)  [yìl]  +  [ŋkə]  \rightarrow  [yìl ŋkə]  'see the money'

[ŋkə]  +  [ŋkə]  \rightarrow  [ŋkə ŋkə]  'to refuse the money'

[kə]  +  [ŋkə]  \rightarrow  [kə ŋkə]  'refuse the money'

Such processes as those seen in (54), (55) and (56) will be the subject of further investigation which I hope to report on shortly. As a final remark, notice that LOW-LOW-HIGH nouns (with final floating high tone) must be distinguished from LOW-RISING nouns. The floating high tone of the former group does not belong to the low tone syllable; both the low and the high component of the rising tone in the second group belong to one syllable. Otherwise, the two tone classes are identical.
CHAPTER VII

Noun Classes

0.0. Introduction.

In preceding discussions the need has often been seen to refer to Fe?fe? noun classes in order to understand Fe?fe? phonology. In Chapter III, for instance, I referred to the plural nasal prefix of class 6 in the noun class pairings (genders) 1/6, 7/6 and 9/6 and opposed this prefix to the nasal prefix found in singular classes 3 and 9, plural classes 4 and 10, and the mass class 6a. In Chapter IV, I referred to singular classes 1, 3, 7 and 9, which were said to take Ø- possessive concord agreement. Finally, in Chapter VI, it was seen how the identity of different noun classes determines to a great extent the tonal structure of noun phrases. In the first section of this chapter, I shall outline the noun classes of Fe?fe?. In the second section, I shall present the noun classes of the more conservative dialect of Mboi (West Bamileke). In the third section, I shall discuss the history of Bamileke noun classes and speculate as to the future of noun classes in the various dialects.

There has been considerable recent interest in Bamileke noun classes. This is partly due to the fact that Bantuists (e.g. Guthrie [1967]) generally consider noun classes as one of two criteria for determining the Bantu or non-Bantu status of a language, the other one being regular sound correspondences relating to Proto-Bantu reconstructions (cf. Chapter I). Of course, noun classes are a very widespread phenomenon in all of Niger-Kordofanian, but Bantuists look for noun class prefixes and agreement morphemes that also correspond regularly to Proto-Bantu reconstructions.

Bamileke has always intrigued Bantuists (insofar as the Bamileke dialects are known to them), because in Bamileke there are undeniable Bantu-like elements, and yet, until recently, no one had established correspondences of either noun class prefixes or vocabulary items with Proto-Bantu reconstructions. As was pointed out in Chapter I, Richardson [1957] included Bamileke within a group of languages he termed "Bantoid". Subsequent studies to Richardson's survey of the Northern Bantu Borderland have however provided correspondences for at least the first ten noun classes of Bantu. Among these should be mentioned the work of
Voorhoeve [1968] on Bangangte (spoken East of Fe?fe? country), Dunstan [1966] on Ngwe (closely related to Mbi in West Cameroon) and also the work of Crabb [1965] on the closely related but non-Bamileke Ekoid Bantu languages of Ogoja province in Nigeria. All of these findings are reported in Voorhoeve and de Wolf [1969]. In Hyman, Voeltz and Tchokokam [1970] an initial attempt was made to relate the noun classes of Fe?fe? to both Bantu as well as other Bamileke dialects. There were, however, several inaccuracies in that paper which will be corrected in this chapter.

1.0. The Noun Classes of Fe?fe?.

The noun classes of a Bantu language are usually determined by the noun class prefix and by the morphemes used in different types of concord (e.g. possessive concord, demonstrative concord, etc.). We have seen in earlier discussions that nouns in Fe?fe? (as well as all other East Bamileke dialects) are characterized either by a nasal prefix or by a zero ə- prefix. In addition, the only type of concord that exists in the language is possessive concord, which is distinguished either segmentally (by b-, z- or m-) or tonally. Despite this severe limitation both on noun prefixes and on concord, we are able to determine five singular noun classes, five plural noun classes, and the one mass class 6a. These are given along side their traditional Bantu number in (1). Only classes 4 and 6a are identical. They are given separately, since the former is a plural class, while the latter is a mass class in which there is no singular/plural distinction. It was argued in Chapter III that class 6 (but not classes 4 or 6a) is marked by an underlying /m-/ prefix, which, however, is often realized as a homorganic nasal. This homorganic nasal occurs before voiced continuants, as seen in Chapter III.

For reasons given in Chapter VI, nouns with zero prefixes are analyzed as having a preceding floating low tone. This floating low tone is responsible for the "low tone breath" phenomenon that is often perceived (see Chapter III). Thus, [thǔ] 'head' can be analyzed as /'tǔ/. Similarly, the segmental concord markers [b'v], [m'v] and [z'v] can be recognized, respectively, as /'b'v/', /'m'v/' and /'z'v/'. The mid tone zero concord of classes 3 and 7 can be analyzed as /'ŋv/', though no rising tone is created.
<table>
<thead>
<tr>
<th>Class</th>
<th>Class Prefix</th>
<th>Possessive Concord</th>
</tr>
</thead>
<tbody>
<tr>
<td>sg.</td>
<td>1</td>
<td>varies</td>
</tr>
<tr>
<td>pl.</td>
<td>2</td>
<td>varies</td>
</tr>
<tr>
<td>sg.</td>
<td>3</td>
<td>N-</td>
</tr>
<tr>
<td>pl.</td>
<td>4</td>
<td>N-</td>
</tr>
<tr>
<td>sg.</td>
<td>5</td>
<td>A</td>
</tr>
<tr>
<td>pl.</td>
<td>6</td>
<td>m-</td>
</tr>
<tr>
<td>mass</td>
<td>6a</td>
<td>N-</td>
</tr>
<tr>
<td>sg.</td>
<td>7</td>
<td>A</td>
</tr>
<tr>
<td>pl.</td>
<td>8</td>
<td>A</td>
</tr>
<tr>
<td>sg.</td>
<td>9</td>
<td>N-</td>
</tr>
<tr>
<td>pl.</td>
<td>10</td>
<td>N-</td>
</tr>
</tbody>
</table>

It is noted in (1) that classes 1 and 9 are characterized by low tone concord. In fact, this is a common Bantu trait. The other classes are characterized by rising tone if there is a consonant, or by mid tone if there is no consonant. Both are historical high tones preceded by low tone, as just analyzed. I return to this below.

When the class pairings (genders) are given, it is seen that singular concord is marked by φ', φ- or z', and plural concord by b', m' or z'. The different class pairings (henceforth "genders") are seen in (2). The following semantic correlates are found. Gender 1/2 is reserved for human nouns, 6a for masses and liquids, 9/10 contains a large number of animals and 7/6 a large number of body parts. Genders 1/2 and 7/8 contain only a handful of nouns. 1/2 is generally being replaced by 9/10 or 1/6, while 7/8 is being replaced by 5/6 or 7/6. (I am distinguishing classes 1 and 9 in the following way: if a noun has a nasal prefix with low tone concord, it belongs to class 9; otherwise, if it lacks a nasal prefix but still takes low tone concord, I assign the noun to class 1.) Thus, 11 noun classes and 8 genders are set up in Fe'fe'?

Many Bantu languages have considerably more noun classes than Fe'fe'?.

Later in this chapter I shall discuss the merging of noun classes in
<table>
<thead>
<tr>
<th>Gender</th>
<th>Possessive Concord</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>ṇ婉e  ꞏ-à 'my wife'</td>
</tr>
<tr>
<td></td>
<td>ṇ婉e  b-à 'my wives'</td>
</tr>
<tr>
<td>1/6</td>
<td>sak  ꞏ-à 'my bird'</td>
</tr>
<tr>
<td></td>
<td>nsak  m-à 'my birds'</td>
</tr>
<tr>
<td>3/4</td>
<td>ṅkà?  ꞏ-à 'my reed'</td>
</tr>
<tr>
<td></td>
<td>ṅkà?  m-à 'my reeds'</td>
</tr>
<tr>
<td>5/6</td>
<td>sē?  z-à 'my tooth'</td>
</tr>
<tr>
<td></td>
<td>nsē?  m-à 'my teeth'</td>
</tr>
<tr>
<td>6a</td>
<td>ṅgwa?  m-à 'my salt'</td>
</tr>
<tr>
<td>7/8</td>
<td>wu  ꞏ-à 'my thing'</td>
</tr>
<tr>
<td></td>
<td>zw  z-à 'my things'</td>
</tr>
<tr>
<td>7/6</td>
<td>khù  ꞏ-à 'my foot'</td>
</tr>
<tr>
<td></td>
<td>ṅkhù  m-à 'my feet'</td>
</tr>
<tr>
<td>9/10</td>
<td>mvua  ꞏ-à 'my dog'</td>
</tr>
<tr>
<td></td>
<td>mvua  z-à 'my dogs'</td>
</tr>
</tbody>
</table>

Bamileke. But Fe⁷fe⁷ has done more than lose certain noun class distinctions and noun class prefixes. The environments for noun class concord have been seriously whittled down, such that the only construction in which full noun class concord is still observed is in possessive pronoun agreement, as seen in (2). In fact, when possessing singular nouns, only the singular person pronouns 'my', 'your' and 'his/her' carry the consonantal concord ꞏ' (classes 1 and 9), ꞏ- (classes 3 and 7) or z' (class 5). The plural pronouns 'our', 'your (pl.)' and 'their' all begin with y-, though the tonal distinctions are maintained. Thus, compare the singular and plural possessive pronouns in (3):
(3) Cl. 1 :  sēn  ṣ-̀a  'my friend'
sēn  ṣ-̀ò  'your friend'
sēn  ṣ-̀ l  'his/her friend'
sēn  ṣ-ò̀h  'our friend'
sēn  ṣ-̀l l  'your (pl.) friend'
sēn  ṣ-ò̀a  'their friend'

Cl. 3 :  ƣkā?  ṣ-̀e  'my reed'
ƣkā?  ṣ-ò  'your reed'
ƣkā?  ṣ-̀ l  'his/her reed'
ƣkā?  ṣ-ò̀h  'our reed'
ƣkā?  ṣ-̀l l  'your (pl.) reed'
ƣkā?  ṣ-ò̀a  'their reed'

Cl. 5 :  ṭhw  z-̀e  'my tree'
ṭhw  z-̀ò  'your tree'
ṭhw  z-̀ l  'his/her tree'
ṭhw  z-ò̀h  'our tree'
ṭhw  z-̀l l  'your (pl.) tree'
ṭhw  z-ò̀a  'their tree'

Class 7 concord is identical with that of class 3 and class 9 concord is identical with that of class 1. Notice, then, that all singular classes are characterized by plural person possessive pronouns beginning with ṣ-. Classes 1 and 9 mark such pronouns with raised-low tone, while classes 3, 5 and 7 mark these pronouns with mid tone. Thus, not only is full noun class concord in Pe'fe' limited to possessive pronouns, but only to singular person possessive pronouns, at least as concerns the possession of singular nouns.

In the case of the possession of plural nouns, the concord markers
are found in both singular and plural person possessive pronouns. However, here too there is a great tendency to replace the plural concord markers b-, m- and z- with y-. Thus, for the different plural classes, the following possibilities are heard:

(4) Cl. 2 :  nsen  b-δ 'my friends'
           nsen  b-ŋ 'your friends'
           nsen  b-ή 'his/her friends'
           nsen  b-οh  or  'our friends'
           nsen  y-οh

           nsen  b-ιι  or  'your (pl.) friends'
           nsen  y-ιι

           nsen  b-αα  or  'their friends'
           nsen  y-αα

Cl. 4 :  ƞkά?  m-δ 'my reeds'
        ƞkά?  m-ŋ 'your reeds'
        ƞkά?  m-ή 'his/her reeds'
        ƞkά?  m-οh  or  'our reeds'
        ƞkά?  y-οh

        ƞkά?  m-ιι  or  'your (pl.) reeds'
        ƞkά?  y-ιι

        ƞkά?  m-αα  or  'their reeds'
        ƞkά?  y-αα
Cl. 10: mwea z-ŋ 'my dogs'
mwea z-ŋ 'your dogs'
mwea z-ŋ 'his/her dogs'
mwea z-ŋ 'our dogs'
mwea y-ŋ

mwea z-lly
or 'your (pl.) dogs'
mwea y-ll

mwea z-ll
or 'their dogs'
mwea y-ll

(The singular concord for 'dog' (cl. 9) is identical to that given in (3) for class 1 'friend'.) Classes 6 and 6a are identical to class 4 concord. Notice that here in all cases plural person possessive pronouns are characterized by mid tone. While there are in each case two possibilities for the pronouns 'our', 'your (pl.)' and 'their', the y- forms are unquestionably more favored by younger speakers.


In all other constructions normally characterized by full concord in Bantu languages, there is only a two-way distinction possible. This distinction is by and large tonal in nature, and is so pervasive in the language that Ngangoum [1970] was led to conclude that there are really only two noun classes in Fe?fe". (This overlooks the other possible distinctions, as just illustrated, but it is interesting to note that this bipartite tonal classification is the only part of the noun class system that does not appear to be levelling out.) The two tonal noun classes apply only to singular nouns. One class is characterized by low tone, the other by non-low tone. All plural classes belong to the non-low tone class. (Historically, we would posit a low tone class and a high tone class, though various factors have created mid and rising tones in present
day Fe°fe°; cf. Chapter VI.) Looking at possessive pronoun concord in (1), it is observed that classes 1 and 9 are characterized by low tone possessive pronouns and that the remaining singular classes are characterized by either mid tone (classes 3 and 7) or by rising tone (class 5). The plural classes are all characterized by rising tone (i.e. classes 2, 4, 6, 6a, 8 and 10) and are therefore classified with singular classes 3, 5 and 7, i.e. in the non-low tone class.

The tonal differences of these two "classes" are most obvious in noun-noun associative constructions. It is assumed, as diagrammed in (5),

(5)

\[
\text{NP} \quad \text{AM} \quad \text{NP}
\]

that there is an associative marker AM that is defined by the phrase structure rules as occurring between two nouns in an associative (or "genitive") relationship. That is, the associative marker will have roughly the meaning 'of', as will be seen in the examples to be given. Now, depending on the noun class of the head noun of the first NP in (5), the associative marker AM will be assigned by an agreement transformation either high or low tone. Thus, if the first noun belongs to either class 1 or class 9, a low tone will be found on the surface between the two nouns, as illustrated in (6):

(6) Cl. 1 : sën 'muu 'the child's friend'

sak 'muu 'the child's bird'

Cl. 9 : mvea 'muu 'the child's dog'

ŋke 'muu 'the child's monkey'

As was claimed in Chapter VI, this low tone is the same etymological tone found on the possessive pronouns of these singular classes, e.g. [sën ̀] 'my friend', [mvea ̀] 'my dog', etc.

In the noun classes characterized by non-low possessive concord, the associative marker is assigned a high tone by an agreement transformation. While the low tone AM is always realized as a low tone (which is raised to a raised-low before a non-low tone), the high tone AM is
modified depending on the independent tone of the first noun. Thus, a
low or raised-low tone noun will become a rising tone ('), i.e. from
raised-low to mid, a mid tone noun will become a high tone, and a rising
tone noun (which in its citation form rises only to the level of a mid
tone) becomes a rise from raised-low to high tone. This is illustrated
with four class 5 nouns in (7), where all tones are phonetic:

(7) zɔk 'knee' : zɔk muu 'the child's knee'
cɔk 'pot' : cɔk muu 'the child's pot'
dhu 'ant' : dhu̯ muu 'the child's ant'
thè 'tree' : thè muu 'the child's tree'

The generalization is that these nouns rise in tone whenever they are in
a noun-noun associative construction. We can predict the extent of the
rise by saying that the rise is up to mid when the noun carries independent
low or raised-low tone, but up to high when the noun carries independent
mid or rising tone. Thus, the effect of the underlying high tone associa-
tive marker is felt on the first noun of the construction. The modifi-
cations in (7) should not be confused with the changes in (8), which are
occasioned by the low tone associative marker:

(8) mbɔn 'meat' : mbɔn̥ muu 'the child's meat'
qɔkɔ 'money' : qɔkɔ̯ muu 'the child's money'

It is recalled from Chapter VI that a raised-low tone noun (or verb) is
pronounced with rising tone whenever it is followed by a low tone; simi-
larly, a rising tone noun is pronounced with mid tone whenever it is fol-
lowed by a low tone. Both 'meat' and 'money' belong to class 9 and are
therefore characterized by a low tone associative marker, which conditions
the tone changes in (8). The tones in (8) are phonetic.

With regard to the underlying representation of the associative
marker, one of my consultants (Mr. Alphonse Tchamdjou, who worked closely
with Père Stoll) claims to have heard the vowel [ə] in this position,
which would reconstruct as Proto-Bamileke *a, a perfect correspondence
with Proto-Niger-Kordofanian associative *a (cf. Welmers [1963]). I
propose recognizing, however, simply a floating high or low tone as the
associative marker. Given the treatment of tone as stated in Chapter VI, the phonetic forms of (7) can be reinterpreted as the historical tone reconstructions in (9):

(9) 'zòk' + ' + 'múu' 'the child's knee'
    'còk' + ' + 'múu' 'the child's pot'
    'dhsé' + ' + 'múu' 'the child's ant'
    'thé' + ' + 'múu' 'the child's tree'

(In this chapter, segments are transcribed in the phonetic shape of their citation form.) Singular classes 3 and 7 work exactly as illustrated for class 5 in (7) and (9). Additional illustrations are now given in (10):

(10) ṣkò? 'reed' : ṣkò? muu 'the child's reed' (cl. 3)
    khù 'foot' : khù muu 'the child's foot' (cl. 7)
    hù 'leaf' : hù muu 'the child's leaf' (cl. 7)
    vhù 'ash' : vhù muu 'the child's ash' (cl. 7)
    pò 'hand' : pò muu 'the child's hand' (cl. 7)

All plural noun classes take a high tone associative marker. Thus, compare the following plural nouns in associative construction in (11) with their singular counterparts in (6), (7) and (10):

(11) nsèn : nsèn' muu 'the child's friends' (cl. 2)
    nsák : nsák muu 'the child's birds' (cl. 6)
    mvèa : mvèa muu 'the child's dogs' (cl. 10)
    ṣkèe : ṣkèe muu 'the child's monkeys' (cl. 10)
    nžòk : nžòk muu 'the child's knees' (cl. 6)
    ncák : ncák muu 'the child's pots' (cl. 6)
    ndhù : ndhù muu 'the child's ants' (cl. 6)
    nthù : nthù' muu 'the child's trees' (cl. 6)
    ṣkò? : ṣkò? muu 'the child's reeds' (cl. 4)
    ṣkhù : ṣkhù muu 'the child's feet' (cl. 6)
nhú : nhǔ muu 'the child's leaves' (cl. 6)
vhú : vhó muu 'the child's ashes' (cl. 8)
mbó : mbó' muu 'the child's hands' (cl. 6)
ŋgwa? : ŋgwá? muu 'the child's salt' (cl. 6a)
ndu? : ndu? muu 'the child's wine' (cl. 6a)

One thing worth noting is that for some speakers, nouns in associative construction that have a raised-low to high rising tone are sometimes simplified to a high tone. Thus, one hears both [mbó' muu] and [mbó muu] 'the child's hands'. This simplification seems to parallel the general simplification of rising tone to mid tones (cf. [mbó] or [mbo] 'hands').

1.2. Demonstrative Concord.

In addition to possessive concord, this tonal division of the noun classes applies to demonstrative concord. The three demonstrative pronouns have the tonal variants shown now in (12):

(12) bè̆' bè̆ 'near speaker' (n.s.)
bè̆' bè̆a 'near hearer' (n.h.)
bf' bff 'far from speaker and hearer' (far)

The forms in the first column (given phonetically) are used with low tone classes, and the forms in the second column are used with non-low tone classes, as illustrated with low tone class 9 and high tone class 5 in (13):

(13) Cl. 9 : mwa bè̆' 'this dog' (n.s.)
mwa bè̆ 'that dog' (n.h.)
mwa bf' 'that dog' (far)

Cl. 5 : thu' bè̆ 'this tree' (n.s.)
thur bè̆a 'that tree' (n.h.)
thur bf' 'that tree' (far)

I therefore reconstruct a historical associative marker that came between the noun and the demonstrative pronoun and which bore low tone with classes
1 and 9 or high tone with other classes. This reconstruction is illustrated in (14), where the historical tones are marked:

(14) Cl. 9 : mvék 'bèe 'this dog' (n.s.)
         mvék 'bás 'that dog' (n.h.)
         mvék 'bfì 'that dog' (far)

Cl. 5 : 'thè 'bèe 'this tree' (n.s.)
        'thè 'bás 'that tree' (n.h.)
        'thè 'bfì 'that tree' (far)

(For a reconstruction of noun tone in Proto-Bamileke, see Chapter VI.)

From the reconstructions in (14) it is seen that historically the demonstrative pronouns carried the same tone for both low tone noun classes and high tone noun classes. However, the tone of the associative marker was historically shifted to the right. The low tone associative marker becomes a raised-low tone in accordance with the rule discussed in Chapter VI, whereby a low becomes raised-low before a high tone. The high tone associative marker is absorbed into the high tone of the demonstrative pronouns. As expected, the plural classes all show high tone concord, i.e. they use the forms in the right hand column of (12):

(15) Cl. 10 : mvëa bèe 'these dogs' (n.s.)
         mvëa bás 'those dogs' (n.h.)
         mvëa bfi 'those dogs' (far)

Cl. 6 : nthš bèe 'these trees' (n.s.)
       nthš bás 'those trees' (n.h.)
       nthš bfi 'those trees' (far)

Notice that there is no consonantal concord marker, since all noun classes use forms beginning with b-. Since Bantu languages (and other Bamileke dialects—see section 2.3) have a complete noun class concord on demonstratives, we can conclude that Fe*Fe* has levelled out all distinctions except tone. Of course, we are at a great loss to explain why there is no low tone effect on the initial high tone of demonstratives. Histori-
cally all concord markers carried low tone, and we should have expected this low tone to lower the high tone of the demonstrative pronouns to a mid (or rising) tone. Note that it is possible that the b- of the demonstrative pronouns is related to the b- of class 2 concord. Another possibility is that there was a morpheme *obV* which required one of the demonstratives [lè] 'near speaker', [lô] (FRke *dâ*) 'near hearer' or [lîl] 'far from speaker and hearer'. The forms [bèb], [bâs] and [bîl] are sometimes heard as [bèb lè], [bâs lô] and [bîl lîl], respectively. This morpheme would in all likelihood be identical to the [bâ] found at the end of relative clauses in Fe?fe', which in turn resembles the verb [bo] 'to be'.

1.3. Adjective Concord.

In addition to the associative and demonstrative tone concords, there are a few other isolated cases where tonal concord is in effect. These are generally termed adjectives, although they bear direct resemblance to nouns in that they sometimes have nasal prefixes and they take either high or low associative tone. The associative tone depends however on the noun class of the noun they modify. One such adjectival noun (as I shall refer to them) is [yà?] 'great', which is sometimes pronounced with a nasal prefix, which will be discussed later. In (16),

(16) Cl. 9 : yà? mwa 'a great dog'
    Cl. 5 : yà? thu 'a great tree'

it is observed that this adjectival noun carries low tone (which is sometimes raised to raised-low) with the low tone noun classes and rising tone with the non-low tone noun classes. The expected plural forms with high tone associative concord are observed in (17):

(17) Cl. 10 : yà? mwa 'great dogs'
    Cl. 6 : yà? thu 'great trees'

The historical reconstructions are given now in (18):

(18) Cl. 9 : ḥyà? 'hàvàd 'a great dog'
    Cl. 5 : 'yà? 'thà 'a great tree'
Cl. 10 : 'γαρ' 'γαρ 'great dogs'
Cl. 6 : 'ηγάρ' 'ηθάρ 'great trees'

It should be recalled (see Chapter VI) that low tones are automatically raised to raised-low before high tones. There are two other such adjectival nouns worthy of mention, both of which are exceptional. The adjectival noun [mmô?] 'other, another', which bears raised-low tone in isolation, is exceptional in that it rises all the way to high tone in high tone concord instead of rising only to mid tone:

(19) Cl. 9 : mmô? 'mvēa 'another dog'
Cl. 5 : mmô? 'θω 'another tree'

In 'another dog', [mmô?] is pronounced with a rising tone because of the following low tone, which is attributed to the associative morpheme. This is probably responsible for the exceptional behavior of [mmô?]. Recall that the nasal prefix of [mvēa] 'dog' is an underlying low tone, raised by rule to a raised-low tone. Since this is the case, and since a raised-low such as [mmô?] automatically becomes a rising tone to mid, when followed by a low tone, if the [mmô?] in 'another tree' did not rise all the way up to high, it would be indistinguishable in tone from the low tone concord. (Remember also that 'tree' had a historical low tone before it as well.) Thus we can explain the exceptional behavior of [mmô?] by saying that this was the way the language chose to avoid a merger of high and low tone concord. The other exceptional adjectival noun is [mmēa] 'big', which is exceptional in that all singular nouns take low tone concord with it, but all plural nouns take high tone concord, as seen in (20):

(20) Cl. 9 : mmēa 'mvēa 'a big dog'
Cl. 5 : mmēa 'θω 'a big tree' (sg.)
Cl. 10 : mmēa mvea 'big dogs' (pl.)
Cl. 6 : mmēa nthē 'big trees'

The plural forms in (20) are analyzed historically as in (21):

(21) Cl. 10 : mmmēa + ' + mmvēa 'big dogs'
Cl. 6 : mmmēa + ' + nthē 'big trees'
Thus we conclude from this discussion of tonal concord that although the marking of 11 noun classes is extremely limited (namely, to singular person possessive pronoun concord), the distinction between low tone and high tone concord is a very basic one.

1.4. Numeral Concord.

Remnants of past noun class agreement can be found in other parts of the grammar, however. For example, the numerals [šé?] 'one', [pēa] 'two', [tac] 'three' and [tîl] 'five', although not taking associative tone concord, are capable of taking a nasal prefix, depending upon the noun class of the noun they modify. Thus, (22) represents the present day speech of more conservative Fe'fe' speakers.

(22) Cl. 1 : ọgën nšō? 'one guest'
   Cl. 2 : ọgën pēa 'two guests'
   Cl. 1 : sak nšō? 'one bird'
   Cl. 6 : nsak mbāa 'two birds'
   Cl. 3 : ọká? sō? 'one reed'
   Cl. 4 : ọká? mbāa 'two reeds'
   Cl. 5 : thw sē? 'one tree'
   Cl. 6 : nthw mbāa 'two trees'
   Cl. 7 : wu sē? 'one thing'
   Cl. 8 : zu pēa 'two things'
   Cl. 7 : kîh sō? 'one foot'
   Cl. 6 : ọkîh mbāa 'two feet'
   Cl. 9 : mvwa nšō? 'one dog'
   Cl. 10 : mvōa pēa 'two dogs'

Class 6a is not represented, since mass and liquid nouns cannot be counted. From (22) it is seen that singular classes 1 and 9 and plural
classes 4 and 6 take a nasal prefix on following numerals. Although some people (notably those from the Petit Diboum area) strongly insist that they make the above distinctions between [šé?] and [nšé?] 'one' and [p̥ə] and [mb̥ə] 'two', many Fere's speakers have generalized the non-nasalized forms to all positions: [nthu mb̥ə] or [nthə p̥ə] 'two trees'. The loss of the nasal prefix is particularly noticeable with certain adjectives such as [tə] 'small', which used to have the variant [ntə] with classes 1 and 9 in the singular and 4 and 6 in the plural. However, very few speakers maintain this system of nasal concord. Even some who respect the difference between [p̥ə] and [mb̥ə] do not do as much for [tə] and [ntə]. Needless to say, this nasal concord is rapidly dropping from the language.

1.5. Further Noun Class Remnants.

Thus, to summarize, we have seen that there is full noun class concord in singular person possessive pronouns, tonal concord in noun-noun associative constructions and in demonstrative and certain adjectival concords, and finally, nasal concord with certain numerals and adjectives. Other parts of the grammar are, however, suggestive of past noun class distinctions. For example, subject pronouns bear resemblance to classes 1 and 9 in the singular persons, and class 2 in the plural persons:

(23)  
N (mə)  'I'  
ð (wə)  'you'  
 ø̂ (yəə)  'he/she'  
yəə  'it'  

(The forms in parentheses are the independent forms of the singular pronouns.) The plural forms are analyzed phonologically as /bənj/ 'we', /bən/ 'you (pl.)' and /bo/ 'they'. Thus it is clearly seen that there is a relationship to class 2 b-concord. The singular pronouns, like classes 1 and 9, have no prefix in common. However, the [w] of [wə] 'you' and the [y] of [yəə] 'him/her/it(animate)' and [yəə] 'it' are extremely suggestive. Historically, class 1 was marked with w' concord (cf. the treatment of Mbuia noun classes in section 2.0) and class 9 with
y' concord. In Fe'fe' (but not in Mbu) w' and y' merged as y' concord and then the y- was dropped in singular person pronouns (but not in the plural person pronouns--see the forms in (3) above). Similarly, the high tone w' of class 3 became y' and then dropped in singular person pronouns. Bayangam (in the Bandjoun cluster of dialects) has y- in all of these cases (Foutchanse and Boubou [1970]). We can hypothesize that the [w] of [wò] 'you' represents the old class 1 concord before w' became y', while the [y] of [ywa] 'him/her/it(animate)' and [yaa] 'it' represents class 1 concord, after w' became y'. It makes sense to use 1/2 concord for these pronouns, for with the exclusion of [yaa], they are all animate (only personal nouns belong to 1/2). The pronoun [â] as subject can stand for 'he', 'she' or 'it' (an animal). It is probable then that the [y] of [yaa] 'it' is a reflex of class 9. The pronoun [yaa] is generally used for inanimates.

The y- concord was seen in the plural person pronouns of all modified singular nouns, e.g. [mwa yôh] 'our dog', [thw yôh] 'our tree', etc. It is also seen in the preposed possessive pronouns, which have for all classes been generalized to y- concord, low tone in the singular persons and mid tone in the plural persons:

(24)  

<table>
<thead>
<tr>
<th>Pronoun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>yá wúza</td>
<td>'my food' (=my portion of food)</td>
</tr>
<tr>
<td>yó wúza</td>
<td>'your food'</td>
</tr>
<tr>
<td>yì wúza</td>
<td>'his/her food'</td>
</tr>
<tr>
<td>yoh wúza</td>
<td>'our food'</td>
</tr>
<tr>
<td>yli wúza</td>
<td>'your (pl.) food'</td>
</tr>
<tr>
<td>yaa wúza</td>
<td>'their food'</td>
</tr>
</tbody>
</table>

(The singular pronouns appear with raised-low tone because of the following high tone of [wúza].) The noun [wúza] 'food' belongs to class 7. Compare the ordinary postposed possessive pronouns in (25):

(25)  

<table>
<thead>
<tr>
<th>Pronoun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>wúza a</td>
<td>'my food'</td>
</tr>
<tr>
<td>wúza yoh</td>
<td>'our food'</td>
</tr>
<tr>
<td>wúza o</td>
<td>'your food'</td>
</tr>
<tr>
<td>wúza yli</td>
<td>'your (pl.) food'</td>
</tr>
<tr>
<td>wúza l</td>
<td>'his/her food'</td>
</tr>
<tr>
<td>wúza ya</td>
<td>'their food'</td>
</tr>
</tbody>
</table>

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Historically, forms such as *mə ηgwə? 'my salt' and *zə thə 'my tree'
occurred (classes 6a and 5, respectively), but if preposed possessive
pronouns are possible with a given noun (there are semantic restric-
tions), one will hear only y- concord (singular or plural).

Class 9/10 y-/z- concord has replaced other classes in construc-
tions with the replacive pronoun /l/ 'the one', which is pronounced
[y] in the singular and [zl] in the plural, regardless of noun class
identity, as illustrated in (26):

(26)  m³m³o? 'the other tree' → y³m³m³o? 'the other one'
m³³o? 'the other trees' → z³m³m³o? 'the other ones'

Since 'tree' takes 5/6 z-/m- concord (see (1) above), we would expect
the non-occurring forms *z³m³m³o? 'the other one' (cl. 5) and *m³m³o?
'the other ones' (cl. 6). (Some people have told me that m³ is some-
times possible as the plural pronoun, as with mass class 6a: m³m³o ηgwə?
'the other salt' becomes m³m³o? 'the other one'.) Notice, however,
that the tonal distinctions of [m³m³o?] (see (19)) are still maintained
with y³:

(27) a.  y³m³m³o? 'the other one' (classes 1 and 9)
        (cf. y³m³m³o? mwea 'the other dog')

b.  y³m³m³o? 'the other one' (classes 3, 5 and 7)
        (cf. y³m³m³o? thə 'the other tree')

Similarly, the tonal contrasts in the demonstratives are preserved, as
in (28):

(28)  Classes 1, 9       Classes 3, 5, 7

   y³ b̪ə'  y³ b̪ə  'this one' (n.s.)
   y³ b̪ə  y³ b̪ə  'that one' (n.h.)
   y³ b̪i'  y³ b̪i  'that one' (far)

With the plural form z³, we only find the high tone demonstratives, as
expected. Thus, note the forms in (29):
(29) zI mmô? 'the other ones'
    (cf. zI mmô? mwa 'the other dogs',
      zI mmô? ntu 'the other trees')
    zI bêô 'these ones' (n.s.)
    zI bôa 'those ones' (n.h.)
    zI bôl 'those ones' (far)

This process of levelling of noun classes has gone one step further in relative clauses. The relative clause marker used when the relativized noun is other than subject of the relative clause is yI, definitely related to the yI just examined. Though, in this case, there is no plural form zI. In (30) the invariant form yI is seen with both singular and plural nouns:

(30) a. thu yI ô lâ yôf lô 'the tree that you saw'
    tree REL you PAST see REL

b. ntuw yI ô lâ yôf lô 'the trees that you saw'
    trees REL you PAST see REL

As a final illustration of the levelling of noun classes in Fe'fe', consider anaphoric pronouns, as illustrated in (31):

(31) ô lâ lâm' sak 'bird' nsâ? md yaa
    he PAST take nsâk 'birds' &come with it
    ȵkâ? 'reed'
    thô 'tree'
    mvôa 'dog'

'he took the _ and came with it/them'

(i.e. he brought the _.)

In all cases, singular and plural, and for all noun classes, [yaa] is the anaphoric pronoun. Since other Bamilkeletal dialects require the anaphoric pronoun to agree in noun class with the antecedent noun, it is clear that Fe'fe' had this type of noun class concord.
2.0. The Noun Classes of Mбуl.

The noun classes of West Bamileke dialects by their conservatism shed light on the more evolved systems in East Bamileke, such as the Fe'fe' system just outlined in the first section. Therefore, before addressing ourselves to the history of Bamileke noun classes, let us consider the noun classes of Mбуl dialect, spoken in the Mezam division of Bamenda department, West Cameroon. The noun classes of Mбуl, as defined by their noun class prefixes and concords, are presented in (32). These classes should be compared with the Fe'fe' noun classes presented in (1).

(32) Class | Class Prefix | Concord Prefix
---|---|---
sg. 1 | varies | w'
pl. 2 | b'y- | b'
sg. 3 | 'N- | w'
pl. 4 | mɪ- N- | m'
sg. 5 | nɪ- | z' / y'
pl. 6 | mɪ- | m'
mass 6a | mɪ- | m'
sg. 7 | ɑ- | z' / y'
pl. 8 | l- | jw'
sg. 9 | 'N- | z' / y'
pl. 10 | ŋ- | jw'
sg. 19 | f'y- | f'

It should be noted that all classes are distinct from one another except for classes 6 and 6a, which are separated according to whether or not a singular form exists. If not, the noun is assigned to mass/liquid class 6a, e.g. [mɪ-lù?] 'wine'. All noun class prefixes bear underlying low, which is, however, sometimes raised to a mid (see Chapter VI). Concord markers, on the other hand, sometimes carry low tone (classes 1 and 9), sometimes high tone (all other classes). This is exactly what we saw in the Fe'fe' noun class system. Mбуl nouns such as [f'y-nu] 'knife' are
identified with Bentu class 19 (as suggested to me by Jan Voorhoeve \textit{[personal communication]}), which Meinhof reconstructs as #p\textsuperscript{} (Meinhof [1932]); that is, with a superclosed high vowel. The noun class pairings (genders) are illustrated in (33):

<table>
<thead>
<tr>
<th>Gender</th>
<th>Possessive Concord</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>1-fɔ́  'w-á  'my chief'</td>
</tr>
<tr>
<td></td>
<td>bɔ́-fɔ́  'b-á  'my chiefs'</td>
</tr>
<tr>
<td>1a/2</td>
<td>ɔ́-sɔ́  'w-á  'my bird'</td>
</tr>
<tr>
<td></td>
<td>bɔ́-sɔ́  'b-á  'my birds'</td>
</tr>
<tr>
<td>3/4</td>
<td>ɔ́-tɔ́  'w-á  'my leg'</td>
</tr>
<tr>
<td></td>
<td>mɔ́-ɔ́-tɔ́  'm-á  'my legs'</td>
</tr>
<tr>
<td>5/6</td>
<td>nɔ́-sɔ́  'z-á  'my tooth'</td>
</tr>
<tr>
<td></td>
<td>mɔ́-ɔ́-sɔ́  'm-á  'my teeth'</td>
</tr>
<tr>
<td>6a</td>
<td>mɔ́-lɔ́-tɔ́  'm-á  'my wine'</td>
</tr>
<tr>
<td>7/8</td>
<td>ɔ́-tɛ́  'z-á  'my tree'</td>
</tr>
<tr>
<td></td>
<td>ɔ́-tɛ́  'jw-á  'my trees'</td>
</tr>
<tr>
<td>7/6</td>
<td>ɔ́-kɔ́  'z-á  'my foot'</td>
</tr>
<tr>
<td></td>
<td>mɔ́-kɔ́  'm-á  'my feet'</td>
</tr>
<tr>
<td>9/10</td>
<td>ɔ́-vá  'z-á  'my dog'</td>
</tr>
<tr>
<td></td>
<td>ɔ́-vá  'jw-á  'my dogs'</td>
</tr>
<tr>
<td>9/6</td>
<td>ɔ́-dzɔ́  'z-á  'my thorn'</td>
</tr>
<tr>
<td></td>
<td>mɔ́-ɔ́-dzɔ́  'm-á  'my thorns'</td>
</tr>
<tr>
<td>19/6</td>
<td>ɔ́-tɛ́  'f-á  'my peg'</td>
</tr>
<tr>
<td></td>
<td>mɔ́-tɛ́  'm-á  'my pegs'</td>
</tr>
</tbody>
</table>

The tones in (33) are phonetic, except that all low tones that are followed
by a high tone are raised to the level of a mid tone, e.g. /bì-sìŋ/ 'birds' is pronounced [bï-sìŋ]. It is observed that the possessive concord marker is always preceded by a low tone. This low tone is the typical low tone found on concord markers in Bantu. It is particularly perceptible when preceded by a high tone; otherwise it tends to be absorbed by the preceding low tone which is identical to it.

Several remarks can be made concerning these noun class pairings or genders. First, to a certain extent there is semantic content associated with genders 1/2, 6a, 9/10 and 19/6. First, gender 1/2 is reserved for human nouns, e.g. ṃbó 'child' (pl. bìgkhâv), ḥêwâ 'man' (pl. bû), mìŋgliye 'woman' (pl. bìŋgliye). As seen in these examples, there is no regularity as to the choice of the noun class prefix in the singular. However, in order to appreciate the semantic unity of this gender, it is necessary to weed out a considerable number of nouns which have no prefix in the singular, e.g. tle 'pot' (pl. bìtâle), sìŋ 'bird' (pl. bìsìŋ), nûm 'sun' (pl. bûnûm). As is frequently the practice in Bantu studies, nouns taking 1/2 concord, but lacking a prefix in the singular are recognized as a separate gender 1a/2a, though I shall simply call this gender 1a/2. In Mbui, gender 1/2 is strictly a human gender, while 1a/2 is general, and, in fact, is the productive gender, as we shall see. Gender 6a is inherently plural and contains a group of mass and liquid nouns, e.g. mìtûs 'saliva', mìdzê 'urine', mìwîv 'oil'. While there is a semantic unity in this class, one cannot always predict if a given semantically mass or liquid noun will fall into class 6a. For example, the word mìtsa 'water' (pl. mîntsâ, meaning 'rivers') is in gender 3/4. In gender 9/10 a wide assortment of animal nouns is found: ṃbwâ 'fowl', mìko 'monkey', etc. Notice, however, that a lot of 9/10 nouns are being shifted to 9/6 gender (which is a recent creation resulting from the replacement of plural class 10 by class 6). Compare the two possibilities for the word 'monkey' in (34):

(34)  

<table>
<thead>
<tr>
<th>Gender</th>
<th>Sample Noun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/10</td>
<td>ĕkâ 'zà</td>
<td>'my monkey'</td>
</tr>
<tr>
<td>9/6</td>
<td>ĕkâ 'izà</td>
<td>mìkîko 'mâ' 'my monkeys'</td>
</tr>
</tbody>
</table>

Finally, gender 19/6 is a derived diminutive gender. For example, fãtu 'peg' (pl. mîtsu) is derived from the 7/8 noun atu 'tree' (pl. itu) and
therefore literally means 'little tree'. Similarly, the noun ṣôkô 'arrow' (pl. ọsôkô) is derived from the 5/6 noun ọsôko 'spear' (pl. ọsôko) and therefore literally means 'little spear'. Mbu is the only Bamileke dialect I know that has 19/6. While none of the remaining genders has the semantic consistency of 1/2, 6a, 9/10 or 19/6, 5/6 can be viewed as the general "thing" class and 7/6 (and to a lesser extent, 7/8) is characterized by a number of body parts.

In (32) above it is noted that class concord for classes 5, 7 and 9 was given with either y- or z-. This needs further clarification. In some class concords, y- is used; in others z- is found. In the examples given in (33) with possessive concord on 'my', only z- was observed. The full table of possessive pronouns is seen in (35). Since class 5 is identical to class 7, and since class 9 differs only in tone, only class 7 atu 'tree' is illustrated:

(35) ẹtẹ 'z-à 'my tree'
     ẹtẹ 'y-ò 'your tree'
     ẹtẹ 'y-f 'his/her tree'
     ẹtẹ 'y-fì 'our tree'
     ẹtẹ 'z-f 'your (pl.) tree'
     ẹtẹ 'y-à 'their tree'

Here it is observed that z- is used in the first person singular and the second person plural, but y- is used elsewhere. The historical situation will be discussed in section 3.7. For the moment, suffice it to say that class 5 was marked with z' concord, class 7 with y' concord and class 9 with y' concord. Somehow these class concords merged with the odd distribution in (35). I have been told that people in Bafut say [mô 'yà] 'my dog', while Mbu ispeakers say [mô 'zà], though I have not been able to check this. The possessive pronouns of other noun classes are regular, as in class 2 in (36):

(36) bôñkhô 'b-à 'my children'
     bôñkhô 'b-ò 'your children'
     bôñkhô 'b-f 'his/her children'
bəŋkhəv 'b-f' 'our children'
bəŋkhəv 'b-¯' 'your (pl.) children'
bəŋkhəv 'b-á' 'their children'

The second person singular possessive pronoun is however slightly irregular in classes 1 and 3, where it appears with [ɣ] rather than the expected [w]. Also, the same pronoun is irregular in classes 8 and 10, where it appears as [jùo] instead of the expected [jwúo]. Finally, the third person plural possessive pronoun in classes 4 and 6 appears as [mʊá], rather than the expected [má]. Illustrations are given in (37) for class pairing 3/4:

(37)  hɪtɔ 'w-á' 'my leg'  pl. mɪtɔ 'm-á
       hɪtɔ 'y-á' 'your leg'  pl. mɪtɔ 'm-yùo
       hɪtɔ 'w-ɪ' 'his/her leg'  pl. mɪtɔ 'm-ɪ
       hɪtɔ 'w-ß' 'our leg'  pl. mɪtɔ 'm-ß
       hɪtɔ 'w-í' 'your (pl.) leg'  pl. mɪtɔ 'm-í
       hɪtɔ 'w-á' 'their leg'  pl. mɪtɔ 'mʊ-á

(The form [ɣá] might have been pronounced [ɣùo], though I did not have the chance to check this.)


There is also possessive concord in noun-noun associative constructions. Basically, the same concord markers are found. Just as we get f-/m- concord of 19/6 in [fɪnul 'f-á] 'my knife' and [mɪnul 'm-á] 'my knives', we find the forms in (38):

(38)  19 : fɪnul f-í  ñ 'the chief's knife'
       6 : mɪnul m-ɪ  ñ 'the chief's knives'

Very often, however, there is no consonantal concord marker, but rather the mid back unrounded vowel [v], which derives from Proto-Bamileke *a, cognate with Proto-Niger-Kordofanian associative *a (see Welmers [1963]). (For similar correspondences, compare the [v] of class 2 [bɔ] and class 6 [mɔ], which are cognate with Proto-Bantu *bɔ and *mɔ, respectively.) Thus the forms in (39) are found:
(39) 7 : atw ʃ fɔ 'the chief's tree'
     8 : Ɩtw ʃ fɔ 'the chief's trees'

Even the consonants in (38) can optionally be left out:

(40) 19 : fnuʃ i fɔ 'the chief's knife'
     6 : mnuf i fɔ 'the chief's knives'

And sometimes there is no possessive marker at all:

(41) 9 : ʰʣɔŋ ʃ fɔ 'the chief's thorn'
     7 : atw ｂfɔ 'the chief's tree'

In the last example, there is a high tone on the otherwise low tone ｂ-
prefix of 'chiefs', which is undoubtedly due to a high tone associative
marker. Unfortunately, I didn't systematically work out noun-noun pos-
sessive concord.

2.2. Numeral Concord.

Unlike Fe'fe", noun class concord is found in various other parts of
Mbui grammar. For example, the numerals '4' through '10' take an agreement
particle /é/ which is preceded by the consonantal concord marker of the
preceding noun:

(42) 2 : bʃfɔ ｂ-é nʃkɔő 'four chiefs'
     4 : mŋtɔŋ m-é nʃkɔő 'four legs'
     6 : mʃɔŋ m-é nʃkɔő 'four teeth'
     8 : Ɩts jw-é nʃkɔő 'four trees'
     10 : ʰnv ｊw-é nʃkɔő 'four dogs'

Of course, only plural noun classes can occur in such constructions.

2.3. Demonstrative Concord.

Of the other numerous areas of the grammar where noun class concord
is observed in Mbui, I shall only discuss demonstrative pronouns and ana-
phoric pronouns. There are doubtless other constructions that exhibit
complete concord that I did not reach in my very limited investigation of
this language. The three demonstrative pronouns are /èé/ 'near speaker'
(n.s.), /śē/ 'near hearer' (n.h.) and /lē/ 'far from speaker and hearer' (far). These are illustrated with la/2 concord in (43):

(43) la:  śē  w-ē  'this bird' (n.s.)
      śē  w-śē  'that bird' (n.h.)
      śē  w-lē  'that bird' (far)

2:  bīśē  b-ē  'these birds' (n.s.)
    bīśē  b-śē  'those birds' (n.h.)
    bīśē  b-lē  'those birds' (far)

We saw in (35) that classes 5, 7 and 9 used z- concord for the first person singular possessive pronoun. Since the 'near speaker' demonstrative /ē/ (pronounced with MID-HIGH) is associated with the first person, it too takes z- concord with classes 5, 7 and 9. The other two demonstrative pronouns take y- concord (cf. (35)):

(44) 7:  ētē  z-ē  'this tree' (n.s.)
      ētē  y-śē  'that tree' (n.h.)
      ētē  y-lē  'that tree' (far)

2.4. Anaphoric Pronoun Concord.

There is also full noun class concord with anaphoric pronouns referring back to antecedents within the same sentence. Class 9 concord is illustrated in the sentence in (45):

(45) à լոն ուկու ուճկ ուկ զ-ը  'he brought the monkey'
     he took monkey & came with it

As we can conclude from (45), classes 5, 7 and 9 take z- concord. The stem of the anaphoric pronoun is /v/. The other anaphoric pronouns are:

(46) 1:  y-v  5:  z-v  8:  jw-v
    2:  b-v  6:  m-v  9:  z-v
    3:  w-v  6a:  m-v  10: jw-v
    4:  m-v  7:  z-v  19: f-v
The vowel of [yː] is probably best analyzed as /i/ having been raised by the preceding [y].

The only direct object pronouns that exist in the language are given in (47). They are identical to class 1 possessive pronouns:

\[(47)\]

\[\begin{array}{ll}
\text{w-a} & \text{'me'} \\
\text{w-ı} & \text{'us'} \\
\text{w-o} & \text{'you'} \\
\text{w-ı} & \text{'you (pl.)'} \\
\text{w-ı} & \text{'him/her'} \\
\text{w-ı} & \text{'them'} \\
\end{array}\]

These pronouns can be used only with human referents (cf. Fe?fe?, where they can be used only with animate referents). For non-humans, no direct object pronoun is overtly possible:

\[(48)\]

\[\begin{array}{ll}
\text{à zı'} & \text{'he has seen him/her'} \\
\text{à zı'} & \text{'he has seen (it)'} \\
\end{array}\]

The subject pronouns are, however, as follows:

\[(49)\]

\[\begin{array}{llllll}
1 & : & \text{à} & 5 & : & \text{视听} & 8 & : & \text{é} \\
2 & : & \text{bı} & 6 & : & \text{视听} & 9 & : & \text{l} \\
3 & : & \text{f} & 6a & : & \text{视听} & 10 & : & \text{é} \\
4 & : & \text{视听} & 7 & : & \text{é} & 19 & : & \text{if} \\
\end{array}\]

Notice that these bear a much closer resemblance to the noun class prefixes than the possessive and demonstrative concords. For example, class 5 and 7 are distinct. Note the low tone of classes 1 and 9.

Thus we conclude that Mbuı has preserved much more of the Proto-Bantu noun class system than Fe?fe?. As already stated, Mbuı is typical of West Bamileke dialects, which are more conservative in this regard than East Bamileke dialects. We began this chapter with a mention of the two criteria established by Guthrie for determining whether a language is Bantu or not. It should be clear from the above description that Mbuı, a Bamileke dialect, satisfies the first criterion for Bantu, namely a set of corresponding noun class prefixes (and concord markers). This topic will now be taken up in section 3.0.
3.0. The History of Bamileke Noun Classes.

In this section, I should like to trace the history of the noun class system in Bamileke. It should be borne in mind, however, that my resources are at times scanty with numerous gaps. Also, it is not clear to me to what extent the following characterizes some non-Bamileke languages, for example, Ekoid Bantu (Crabb [1965]). However, the preceding sections suggest a number of conclusions about the evolution of noun classes which will be stated here. It will be instructive to compare Mbug, Ngwe and Fe'fe' noun classes with Luganda, a conservative Bantu language of East Africa. The various forms are given in (50):

(50) | MBUI | NGWE | FE'FE' | LUGANDA
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N.C. Prefix</td>
<td>Concord</td>
<td>Concord</td>
<td>Concord</td>
</tr>
<tr>
<td>1. varies</td>
<td>w'</td>
<td>g'</td>
<td>ø'</td>
</tr>
<tr>
<td>2. bë-</td>
<td>b'</td>
<td>b'</td>
<td>b'</td>
</tr>
<tr>
<td>3. N-</td>
<td>w'</td>
<td>g'</td>
<td>ø-</td>
</tr>
<tr>
<td>4. mi- N-</td>
<td>m'</td>
<td>m'</td>
<td>m'</td>
</tr>
<tr>
<td>5. n-</td>
<td>z'/y'</td>
<td>d'</td>
<td>z'</td>
</tr>
<tr>
<td>6. më-</td>
<td>m'</td>
<td>m'</td>
<td>m'</td>
</tr>
<tr>
<td>6a. më-</td>
<td>m'</td>
<td>m'</td>
<td>m'</td>
</tr>
<tr>
<td>7. à-</td>
<td>z'/y'</td>
<td>z'</td>
<td>ø-</td>
</tr>
<tr>
<td>8. l-</td>
<td>jw'</td>
<td>b'</td>
<td>z'</td>
</tr>
<tr>
<td>9. N-</td>
<td>z'/y'</td>
<td>z'</td>
<td>ø'</td>
</tr>
<tr>
<td>10. N-</td>
<td>jw'</td>
<td>z'</td>
<td>z'</td>
</tr>
<tr>
<td>19. fë-</td>
<td>f'</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

The Luganda forms are given as representative of Bantu. The correspondences are in most cases fairly regular. Thus, on the basis of this information we can reconstruct the following classes, their noun class prefixes and class concords for Proto-Bamileke, as given in (51):
<table>
<thead>
<tr>
<th>Noun Class</th>
<th>N.C. Prefix</th>
<th>N.C. Concord</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>varies</td>
<td>*g’[γ]</td>
</tr>
<tr>
<td>2</td>
<td>*bì-</td>
<td>*b’</td>
</tr>
<tr>
<td>3</td>
<td>*N-</td>
<td>*g’[γ]</td>
</tr>
<tr>
<td>4</td>
<td>*mì-</td>
<td>*m’</td>
</tr>
<tr>
<td>5</td>
<td>*dI- [I]</td>
<td>*dy’[Iγ]</td>
</tr>
<tr>
<td>6</td>
<td>*mì-</td>
<td>*m’</td>
</tr>
<tr>
<td>6a</td>
<td>*mì-</td>
<td>*m’</td>
</tr>
<tr>
<td>7</td>
<td>*ò-</td>
<td>*γ’</td>
</tr>
<tr>
<td>8</td>
<td>*l-</td>
<td>*by’</td>
</tr>
<tr>
<td>9</td>
<td>*N-</td>
<td>*γ’</td>
</tr>
<tr>
<td>10</td>
<td>*N-</td>
<td>*z’</td>
</tr>
<tr>
<td>19</td>
<td>*</td>
<td>*f’</td>
</tr>
</tbody>
</table>

In addition, it is possible to divide class 1 into classes 1 (with a *N- prefix) and 1a (with a Ø- prefix). These reconstructions will now be supported with historical arguments.

3.1. Classes 1 and 3.

Let us first look at the two classes that take concord with *g, i.e. classes 1 and 3. Since these classes take g- concord in Ngwe (Dunstan [1966]), this reconstruction is well founded. In Mbuli, what must have been pronounced [γ] (since these concord markers are always in inter-vocalic position; cf. Chapter III) became [w], although [γ] is maintained in the second person singular pronoun [γo] 'you/your'; see (37) and (47) above. This reconstructed *g corresponds with Luganda secondary concord gu- (classes 1 and 3).

3.2. Classes 4 and 6.

Classes 4 and 6 are also characterized by a g in Luganda secondary concord (the markers are gi- and ga-, respectively). Class 6 takes primary concord m’ in all of Bamileke (cf. Luganda ma-). Class 4 is particularly interesting in Bamileke. At one point, both class 3 and class 4
were characterized by a homorganic nasal prefix ʰ̃-. Then, for some reason, class 6 m̃- was added onto class 4. All Bamileke dialects underwent this modification, which is particularly transparent in Ngwe and Mbuī, where two prefixes occur on class 4:

(52) ʰ̃-tɔ̀ 'leg' (cl. 3)  
m̃-ʰ̃-tɔ̀ 'legs' (cl. 4)

Historically, both were pronounced [n̥tɔ̀] 'leg/legs'. Since this m̃- prefix of class 6 was added onto class 4 in Pre-Proto-Bamileke (I am assuming this, because the change is attested in all dialects), or alternatively, in the early days of Proto-Bamileke, it is impossible to determine whether the m' concord of this class in present day dialects is a reflex of the original concord of class 4 or the m' concord of class 6. This same process is repeated more recently in Mbuī (and some other dialects), since the same class 6 prefix m̃- is being added to class 10, as we saw in (34), repeated here as (53) for convenience:

(53) 9/10 9/6

ʰ̃-kɔ̀ 'z-à ʰ̃-kɔ̀ 'z-à 'my monkey'

ʰ̃-kɔ̀ 'j̃-à  
m̃-ʰ̃-kɔ̀ 'm̃-à 'my monkeys'

Again, when class 6 m̃- is added to another plural class (in this case, class 10), the resultant class takes class 6 concord. Thus, it is quite possible that class 4 did not take m' concord in Pre-Proto-Bamileke. We might ask why all of Bamileke added the class 6 prefix to class 4.

If we assume that just prior to Proto-Bamileke classes 3 and 4 had the class prefixes m̃- and m̃-, respectively, as in Proto-Bantu and in Luganda, and that these lost their vowels, then the result would be a plural indistinguishable from the singular: [n̥tɔ̀] would mean either 'leg' (from *m̃u-) or 'legs' (from *m̃-). We can probably go one step further and say that class 4 also was characterized by g' concord, as in secondary concord gl- in Luganda. Thus, when the prefixes merged, it was no longer possible to distinguish class 3 from class 4—not by noun class prefix, nor by class concord. The result was that class 6 m̃- was added to class 4. Consequently, we can hypothesize that class 4 concord changed from g' to m' (that of class 6). Therefore, this happened in all of Bamileke,
since it became necessary to distinguish plural class 4 from singular class 3 by some other means. The same explanation cannot, however, be given for 9/10, which in some dialects is becoming 9/6.

First of all, classes 9 and 10 have different concords (though identical homorganic ȵ- prefixes). Thus, class 9 concord is y' and class 10 concord is z' in the proto language. Second, as has been seen both in Fe?fe? and Mboi, there are important tonal distinctions between class 9 (which is characterized by low tone concord) and class 10 (which is characterized by high tone concord). Thus, in the following Fe?fe? phrases, it is possible to distinguish between singular and plural on the basis of tone alone:

(54)  mvw̱ muu 'the child's dog' (cl. 9)
      mvw̱ muu 'the child's dogs' (cl. 10)

However, whenever there is no concordial element, it is impossible to distinguish between class 9 and class 10, i.e. between singular and plural. Thus, the citation form [m vow̱] in Fe?fe? can mean either 'dog' or 'dogs'.

In Chapter III it was said that PBke *mə- lost its vowel in East Bamileke dialects, leaving an ʰ- prefix, e.g. Fondanti [ʰ-khù] 'feet' (cl. 6). In Fe?fe? most villages have further assimilated this ʰ- prefix to the place of articulation of the following consonant, e.g. [ʰ-khù] 'feet'. Thus, the derivation of class 4 'reed' in Fe?fe? is roughly as follows:


The intermediate stages [mìkà?] and [mìkà?] are both attested, dialectically. Thus, in Fe?fe? we are once again faced with the problem of not being able to distinguish singular and plural in the isolated forms of 3/4, or even in noun-noun associative constructions, since both classes are characterized by high tone:

(56)  ñkà? muu 'the child's reed/reeds'

The only remnant of the class 6 addition is in the possessive concord of class 4: [ŋkà? m-ã] 'my reeds'.

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3.3. Class 1 Prefix.

The prefix of class 1 is worthy of note. In all Bamileke dialects it is characterized by great variation. On the one hand, there are nouns that carry a nasal prefix (nouns lacking a prefix have been automatically assigned the status of class 1a). Some examples of class 1 nouns are ñ gén 'guest, stranger', nêmít 'woman, wife' and ndhu 'husband'. While the membership of class 1 is extremely limited, there are at least two nouns, sën 'friend' and wèn 'person', which lack a nasal prefix, but which take class 2 in the plural. The expected singulars are #nsën (which is found in the plural) and #nwèn (which is never found). However, a more serious complication is the presence of pre-prefixes such as mën- for class 1 and pvw- or pw- for class 2. Some examples are given in (57):

(57) mën-nêmít 'woman' mên-ngkhô 'boy'
pw-va-nêmít 'women' pvw-ngkhô 'boys'
mên-ngwù 'girl' muu-mba? 'male'
pw-va-nggù 'girls' pvw-amba? 'males'

It is clear that these pairs of Fe?fe? words carry prefixes related to the words 'person' and 'child', as seen in (58):

(58) wèn 'person' muu 'child'
pw 'persons' puu 'children'

(Often the form [pvw-ngkhô] 'boys' is substituted for [puu] with the meaning 'children'.) Since 'person' is [mên] in other dialects (e.g. Bangangte) and since the prefix has a raised low tone in 'woman' and 'boy', it might be that the word for 'person' is being added to the old forms. This apparent compounding of either the word 'person' or the word 'child' in 1/2 must be postulated for Proto-Bamileke, since it characterizes all Bamileke dialects (cf. the compounding of the word [nûv] 'animal', as in [nûv-lak] 'horse', [nûv-nêmí] 'leopard', etc.).

3.4. The Merger of Class 3 and 7 Concord.

Class 7 appears as the singular in two genders: 7/8 and 7/6. Since 7/6 is not a general Bantu class pairing, and since Bamileke 7-6 is charac-
terized by a number of body parts, it is probable that present day 7/6
was historically 15/6 and that classes 7 and 15 merged in a Pre-Proto-
Bamileke period. How either of these classes relates to the Proto-Bamileke
noun class prefix *k- is unclear, since classes 7 and 15 reconstruct as
*kI- and *kù-, respectively, in Proto-Bantu. The y- that is reconstructed
for concord can be attributed to the 1 of kI-, and it later becomes a
glide before a vowel. Thus we have to say that 7 and 15 merged as 7.
In fact, the merger has been complete, since in all Bamileke dialects,
classes 7 and 15 show the same prefix and the same concord. (Cf. classes
1 (PBke *w' concord) and 9 (PBke *y' concord), which also merged as
in East Bamileke dialects.) In Fe*fe' and other East Bamileke dialects,
class 7 has in addition merged with class 3, as far as concord. The two
classes can still be distinguished, since class 3 nouns have a nasal pre-
fix, while class 7 nouns do not. They both take ∅- concord in Fe*fe?.

(59) Class 3 :  qkâ?  ∅-a  'my reed'
Class 7 :  qkhû  ∅-a  'my foot'

It is recalled that class 3 concord was w' in Proto-Fe*fe?, as it is in
Mbuti today; it was y' for class 7 (the merger of 7 and 15). But it has
been said that Fe*fe? dropped the y' and w' so that all affected classes
now have ∅- concord.

3.5. The Merger of Class 1 and 9 Concord.

This causes not only the merger of 3 and 7, but also the merger of 1
and 9, as already illustrated. Just before the glides fell, class 1 was
marked with w' concord, and class 9 with y' concord. Now they are both
∅'. Actually, evidence from Bandjoun, where all of the above classes take
y- concord, suggests that w' concord first changed to y' concord and then
dropped. Notice that in Fe*fe? we are able to tell the difference between
classes 1 and 9 by plural class pairing (and, to a certain extent, by
semantic content, remembering that 1/2 is restricted to human nouns).
Class 1 takes class 2 plural, and class 9 takes class 10 plural. The
other noun class taking ∅' concord is analyzed as class 1a, since unlike
classes 1 and 9, these nouns lack a prefix in the singular. In Fe*fe?,
such nouns take a class 6 plural, as seen in the example in (60), which
will be analyzed as 1a/6, rather than 1/6 as was done in section 1.0:
(60) Class 1a :  ꙰-sak ꙰-ӑ 'my bird'

Class 6 :  ꙰-sak ꙰-ӑ 'my birds'

In Mbuyi, we recognize a gender 1a/2 as illustrated in (61):

(61) Class 1a :  ꙰-sǹ ꙰-ӑ 'my bird'

Class 2 :  b˦-sǹ ꙰-ӑ 'my birds'

(This one example alone shows how original 1a/2 became 1a/6 in Fe廨fe'.
Class 2 has been replaced by class 6--see also below.) As for 3 and 7,
since 4 and 6 have merged in Fe廨fe', old 3/卡拉 may actually be readily
interpreted as 3/6, or possibly 3/6a. (Recall from Chapter III that
class 6 ꙰- permits voiced continuants in C1 position, while class 6a does
not.) Class 3 is still distinguished from class 7 by the presence of a
nasal prefix, as seen above in (59). Notice that the class 7 noun ꙰-wů
'thing' in most Bamileke dialects begins with the class 7 concord consonant
(Fe廨fe' is the exception, but compare Bangangte ꙰-yu). The plural usually
begins with class 8 concord: ꙰-zǭ 'things'.

3.6. The Merger of Class 8 and 10 Concord.

Another class merger tracing far back in Bamileke history is that
between class 8 and class 10. Class 8 reconstructs as an ꙰- noun prefix,
but by- class concord. Both are clearly related to Proto-Bantu ꙰-b]-,
the noun prefix by loss of the consonant ꙰, the class concord by glide-
creation before a vowel. Dunstan [1966] reports that class 8 concord in
Ngw is marked by ꙰'. This seems to be the exceptional case, since most
Bamileke dialects, instead of dropping the following glide ꙰, developed
an alveolar or palato-alveolar out of ꙰-by-. Proto-Bamileke ꙰-by- (pronounced
[by] intervocalically) becomes ꙰-z] in Fe廨fe', as illustrated in the fol-
lowing derivation in (62):

(62) PB ꙰-bina > FE廨ke ꙰-bina > b̀n > bǹ

byen > ꙰-zǹ] 'to dance'

Thus, if Proto-Bamileke ꙰-by- becomes Fe廨fe' ꙰-, it merges with class 10,
which in Proto-Bamileke had ꙰-z- concord, and remains so in Fe廨fe'. Thus,
in this case, we have a phonetic merger, rather than a morphological one.
3.7. \( y'/z' \) Concord in Mbuì.

We are now in a position to review the \( y'/z' \) confusion in Mbuì (recall the examples in (35) and (44) above). Notice first that Ngwe is once again exceptional, this time in its treatment of class 5 (see (50)). Class 5 concord is reconstructed as \(*dy-\) (pronounced \[ly\] intervocalically), and Ngwe dropped the \( y \) and retained the \( d- \) as its concord. Other dialects developed \( z- \) (or \( ts- \) in Bandjoun and Bangangte) from \[ly\]. This can be seen in the following derivation in (63):

\[(63) \quad FB \ast d\, la \rightarrow FBke \ast d\, la \rightarrow l\, la \rightarrow l\, ya \]

\[l\, ya \rightarrow [za] \quad 'to eat'\]

Thus, in Fe?fe\*, classes 5, 8 and 10 are all marked by \( z- \) concord. The relevant class concords are given in (64):

\[
\begin{array}{|c|c|c|c|}
\hline
\text{Class} & \text{Ngwe} & \text{Mbuì} & \text{Fe?fe\*} \\
\hline
5 & d' & y'/z' & z' \\
7 & z' & y'/z' & y \rightarrow \emptyset \\
8 & b' & jw' & z' \\
9 & z' & y'/z' & y \rightarrow \emptyset \\
10 & z' & jw' & z' \\
\hline
\end{array}
\]

The complex situation represented by the three dialects in (64) suggests the following complex analysis.

First, Ngwe and Mbuì class 9 concord \(*y'\) is replaced with \( z' \) (in Ngwe the replacement is complete; in Mbuì it is not), presumably on analogy with class 10 \( z' \). (I am assuming that there will be two kinds of motivation for changes in the noun class system: phonetic and morphological. Thus, the change from \(*y'\) to \( z' \) is a morphological change.) Then, class 7, which differs from class 9 only in tone, starts to replace \(*y'\) with \( z' \), on analogy with class 9, which had just replaced \(*y'\) with \( z' \). Again, in Ngwe the replacement is complete, whereas in Mbuì, it is only partial (cf. (35) and (44) above). The remaining changes are the following: Mbuì develops the same \( y'/z' \) concord out of \(*d'\) in class 5, and \(*by'\) of class 8 becomes \( jw' \) (e.g. by-â 'my' becomes \( jw-\# \)). This then is followed by
the change of class 10 z' in Mbui to merge with the jw' of class 8. The reason why this explanation is so strange and non-general is the anomalous nature of Ngwe with its class 5 d', and class 8 b'. I am, of course, assuming the correctness of Dunstan's analysis.

3.8. Class 1a.

A few words should be said about class 1a and the problems associated with it. In Mbui, 1a is distinguished from class 1 by the fact that it has no class prefix; both take class 2 b-v- in the plural:

(65) Class 1: l-fɔ 'chief'
Class 2: bɔ-fɔ 'chiefs'
Class 1a: ɔ-sɔŋ 'bird'
Class 2: bɔ-sɔŋ 'birds'

In fact, class pairing 1a/2 is the productive class in Mbui (and in Ngwe, according to Dunstan), since borrowed words and neologisms are put into it, as illustrated in (66):

(66) Class 1a: ɔ-mɛtɔ 'mat' (borrowed from pidgin)
Class 2: bɔ-mɛtɔ 'mats'
Class 1a: ɔ-tɛtɛv 'pepper' (from the verb /tɛv/ 'to sting')
Class 2: bɔ-tɛtɛv 'peppers'

It seems to have been so productive in Ngwe that the b-v- prefix replaced the m- of class 6 (except for labial-initial stems, which are characterized by a homorganic nasal prefix, i.e. [m]), although concord remains with m':

(67) mɔ-sɔŋ 'm-ɔ bɔ-sɔŋ 'm-ɔ 'my teeth'
mɔ-bɛv 'm-ɔ m- bɛv 'm-ɔ 'my breasts'
cf. bɔ-sɔŋ 'b-ɔ 'my birds' (cl. 2)

Notice, however, that the m- prefix of class 6 historically added onto class 4 and class 10 does not change to b-, i.e. [mɔ-h-tɔŋ] 'legs' does not become *[bɔ-h-tɔŋ].

There were, returning to the discussion of class 1a, a number of class 9 nouns that in Proto-Bamileke were not characterized by a nasal prefix,
but rather by a l- prefix, e.g. Mbu i class 9 [l-sùa] 'fish', [l-sùa?à] 'needle', [l-sùw] 'elephant'. These have all lost their l- prefix in Fe?fe' (cf. [sùw] 'elephant'), and were classified as la. However, some of the la class nouns in Fe?fe' now come from class 9 (e.g. 'elephant') and some (e.g. [sùk] 'bird') from class la. Those which were historically la are now in Fe?fe' gender la/6, while those that were l- prefix class 9 nouns are now in, it might be argued, la/10. This latter gender is, as we shall see, quite unstable, and is tending toward a reanalysis as la/6:

(68)  la/10  la/6

sùw(m)  ø-à  sùw(m)  ø-à  'my elephant'

nsùw  m-à  nsùw  m-à  'my elephants'

Recall that class 1 differs from class 9 in that class 9 requires a nasal prefix, which is lacking on [sùw] 'elephant'.

3.9. Class 6a.

Finally, the difference between class 6 and class 6a, which was introduced in Chapter III, should be illustrated. Class 6 is a plural class (the plural class of singular classes la, 5 and 7) and class 6a is a mass/liquid class with no corresponding singular. In Chapter III it was shown that the plural class 6 prefix must be underlying /m/, because underlying /d/, /j/ and /g/ undergo the spirantization rule to become respectively [l], [y] and [j]. The underlying voiced non-continuants cannot spirantize when preceded by a homorganic nasal. However, a subsequent nasal assimilation rule is needed (or else the first one must reapply) which is independent of the nasal assimilation rule operative on the archiphoneme /N/ of other class prefixes:

(69)  Underlying Form:  /m+dû/  /m+jàk/  /m+gàk/  'spoons'  'maggots'  'cheeks'

Spirantization:

m lû?  måt  må?à?

Nasal Assimil.:

m lû?  måt  må?à?

The nasal prefix of mass class 6a must be distinguished from the /m/ of
plural class 6, since it does not allow spirantization, presumably because
the homorganicity of the prefix blocks it:

(70) Underlying
Form:     /Ndù?/     /Ngwå?/
'wine'    'salt'

Nasal As-
simil.:    ndù?      ngwå?

Spiranti-
zation:    ---        ---

Both the 6 and 6a prefixes were historically *mî-, but see Chapter III
for an explanation and further examples.

4.0. Conclusion.

We have seen in this chapter how the noun classes of Bamileke relate
to Bantu. We have also seen numerous instances of noun class levelling
(cf. Hyman, Voeltz and Tchokokam [1970]). In this brief section, evidence
will be presented that this process of levelling is on-going and that there
is no stopping it short of losing all noun classes. Although a definite
trend can be seen from all of the preceding discussion, further evidence
comes from an inquiry of 100 school children in Bafang, all native Fe?fe?
speakers, of which 80 were boys and 20 were girls. They aged from approxi-
mately 12 to 15 (an age at which we would expect mastery of the noun class
system). I asked the students to write after each of twenty Fe?fe? nouns
'first 'my (sg.) ___' and second 'my (pl.) ___', e.g. 'my dog' and 'my
dogs'. All had been studying Nufi in Collège St. Paul or Collège Ste.Marie
in Bafang. Two tendencies were noted. First, 1/2 and 9/10 tend to become
1a/6 and 9/6, respectively—i.e. plural class 6 replaces b^ and z^ plural
concord. Second, all other genders tend to become 5/6. This is illus-
trated with the relevant figures in (71):

(71) a. few 'chief'  1/2 :  1/2 :  6 (Ø'/b'^)
      1a/10:  39 (Ø'/z'^)
      1a/6 :  36 (Ø'/m'^)
     - :  5
b. sën 'friend' 1/2 : 1/2 : 65 (∅'/b'"
1a/6 : 25 (∅'/m"
1a/10 : 2 (∅'/z"
- : 8

c. mv̑n 'dog' 9/10 : 9/10 : 58 (∅'/z"
9/6 : 30 (∅'/m"
5/6 : 7 (z"/m"
9/10 or
9/6 : 2 (∅'/z" or m"
- : 3

d. hè? 'cow' 1a/10 : 1a/10: 37 (∅'/z"
1a/6 : 26 (∅'/m"
5/6 : 30 (z"/m"
1a/10 or
1a/6 : 3 (∅'/z" or m"
- : 4

A trend can be spotted in these statistics. First, next to each gloss
I have given the etymological noun class (except for 'cow' which was one
of the class 9 !- prefix nouns). In the noun 'chief' this may be a
little misleading, since very few Fe?fe? speakers maintain the etymological
1/2, but rather seem to have made it first 1a/10 and then 1a/6. The last
figure for each noun introduced by '- ' stands for the number of cases
where an incomplete or undecipherable answer was given.

We see from the forms for 'friend' 1/2 and 'dog' 9/10 and 'cow' 1a/10
that although the etymological classes show some resistance, plural class
6 is definitely replacing the other plural classes. This is particularly
revealed in the case of [mv̑n m̑] 'my dogs' (class 6), which many adults
refused to believe was possible. (They often say, however, that children
say anything and everything, but this combination seemed unreasonable to
some of my older informants, although 30 school children wrote it down. Similarly, 26 students chose the non-etymological plural class 6 in [nhê? mə] 'my cows' (class 6).

Another general tendency seen particularly in the forms for 'my cow(s)' in (71d) is the preference for class pairing 5/6. Historically, this is a "thing" gender, an inanimate noun class pairing. And yet, 30 students put 'cow' into it, 14 put 'chief' and 7 put 'dog'. In the case of 'dog', they did so ignoring the information that the homorganic nasal prefix provides, namely that class 5 nouns do not have a prefix (see (1) above). This is even clearer in the invariant word [ŋgas] 'gun' as seen in (72):

(72) ŋgas 'gun' $3/4 : 5/6 : 48 \{z^*/m^*\}$
    $3/4 : 20 \{\emptyset^*/m^*\}$
    $9/10 : 11 \{\emptyset^*/z^*\}$
    $- : 21$

(Since the students did not mark tone, I was unable to tell if they meant $3/4$ or $9/6$.) Despite the "clue" of the nasal prefix, which should tell the native speaker that 'gun' cannot be in singular class 5, nearly half of those interrogated chose 5/6. They favored 5/6 for other inanimates:

(73) vhw 'ash' $7/8 : 5/6 : 68 \{z^*/m^*\}$
    $7/8 : 10 \{\emptyset^*/z^*\}$
    $- : 22$

In other cases, although body parts remained in 7/6, some put them into 5/6:

(74) khù 'foot' $7/6 : 5/6 : 74 \{\emptyset^*/m^*\}$
    $5/6 : 14 \{z^*/m^*\}$
    $- : 12$

We can assume that a few generations ago nearly all Fe?fe' speakers put 'foot' into 7/6, as one does all over Bamileke country. But now younger speakers are realigning the noun class system.

Younger speakers seem to be favoring the low tone class with $\emptyset^*$ concord (which is 1, 1a or 9) for the singular of animates, and the high tone class with $z^*$ concord (which is class 5) for inanimates. For both
there is a definite trend toward class 6 in the plural. Thus we can hypothesize the day when there will be basically what Ngangoum [1970] postulated: two classes differentiated in part by tone, perhaps in part by the presence or absence of $z^v$ in singular possessive pronoun concord. One will be a semantically animate (human and animal) class, the other a thing class.

Of course, they may fool us and go all the way to a single noun class marked by $z^v$ in the singular and $m^v$ in the plural (i.e. 5/6). We have seen some school children place the animates 'chief' and 'dog' into this thing class. Perhaps others will follow suit.
CHAPTER VIII

Vowel and Consonant Shifts

In Chapter I, two criteria were established to determine whether or not a given Bamileke village belongs to Fe?fe? dialect. These two criteria are repeated in (1):

(1) a. PBke *am becomes [ vr ].

b. PBke *ob and *ab become, respectively, [ɔɔ] and [ɑɑ].

As can be seen from these criteria, Fe?fe? is characterized by certain sound changes that modify final VC sequences. Thus, final *am becomes [ vr ] in Fe?fe?, and final *ob and *ab become [ɔɔ] and [ɑɑ], respectively. These modifications are actually representative of a much wider phenomenon that characterizes not only Fe?fe?, but all Bamileke dialects (though the precise details vary). Namely, for quite some time, Bamileke dialects have been modifying final vowels and consonants in VC sequences, often with the loss of the final consonant. The modifications in (1) are, then, proper to Fe?fe?. But others are characteristic of the remaining dialects. Thus, *am is modified in the following ways in various dialects (PBke *n’am ‘animal’):

(2) WEST BAMILEKE EAST BAMILEKE
Batcham [nɔ] Fe?fe? [nvr]
(Mbouda) Bgnte. [ŋɔm]
Mankon [ŋɔ̃mɔ̃] Bangwa [ŋɔp]
(Ngemba) Batcha [nɔ̃]
Mbui [ŋɔpɔ̃] Fondanti [nɔ̃]
(Ngemba) Bamoun [ŋɔm]
Dschang [ŋa] Bandjoun [ŋɔm]
(same pronunciation in Batie, Fotouni and Fondjomekewet)

It is the purpose of this chapter to describe the various modifications that have taken place between the Proto-Bamileke period and present day
Fe"fe". It will be shown that these historical changes explain both the odd morpheme structure conditions characterizing $V_2C_2$ sequences presented in Chapters II and IV, and also the so-called "epenthetic" consonants, which were recognized as part of the underlying morpheme in Chapter IV.

1.0. The Nature of Proto-Bamileke.

While there are serious limitations to this study, a partial glimpse of what Proto-Bamileke must have been like is provided in this chapter. Rather than quantifying the number of cognates as evidence for inter-relationship between the dialects, I collected information on a number of Bamileke roots which were chosen because of the final VC sequence. Fe"fe" is marked by severe restrictions both on what consonants can occur in final position, and also on what vowels can precede these consonants. My comparative study of Bamileke dialects shows that it is necessary to reconstruct a Proto-Bamileke six vowel system, as in (3):

(3)  *i  *u  *u
     *e  *o  *a

These vowels are among those reconstructed for Proto-Bantu (cf. Meinhof [1932]), though the vowel *u must have been a Bamileke innovation (its origin is not understood). Second, it is necessary to reconstruct the following consonants which can occur in final position in Proto-Bamileke:

(4)  *b  *d  *g  *?  
     *m  *n  *ŋ

That is, final consonants ($C_2$) in Proto-Bamileke were either voiced (oral or nasal) stops or else glottal stop (apparently also a Bamileke innovation).

It is assumed that in Proto-Bamileke, prior to the initiation of the various vowel and consonant shifts, any of the proto vowels in (3) could appear before any of the final consonants in (4). It is, however, difficult to demonstrate this in many cases. In particular, the vowel *u is of marginal significance in this position, as we shall see, though it must be recognized as contrastive with the other vowels in open syllables (e.g. 'tree' is reconstructed as *tŭ).
In Proto-Bamileke, then, most morphemes were of the structure CVC, and most also carried a vowel suffix of some type, usually *a. Several remnants of this [CVCV] structure were pointed out in earlier chapters in Fe?fe?, e.g. [təna] 'iron', [plina] 'courtyard', etc. Somehow PBke *CVCV developed into the characteristic patterns CVC, CVV and CV of Fe?fe?. However, before looking into the individual sound shifts more in detail, it is necessary to consider the notions "push chain" and "drag chain".

2.0. The Nature of Push and Drag Chains.

Consider the following two changes that occurred between Proto-Bamileke and Fe?fe?:

(5)    PBke *nəm > n̂iy  'animal'
       PBke *n̂um > n̂am  'sun'

Ignoring the problem of why the palatal nasal [n] became alveolar in Fe?fe? (and several other dialects), which is something I cannot explain, there are two possible explanations for what has happened, depending on which sound change one takes as occurring first.

If we say that PBke *nəm 'animal' first changes to Fe?fe? [n̂iy], then at least the following three historical stages in (6) are recognized (for a more complete statement, see below):

(6)    (a)      (b)      (c)
       PBke *nəm > n̂iy > n̂iy  'animal'
       PBke *n̂um > n̂um > n̂am  'sun'

Stage (a) represents Proto-Bamileke. In stage (b), *am has changed to [iy] in Fe?fe?, but *n̂um remains [n̂um]. In stage (c) *um has now changed to [am], filling in the "gap" created by the change of *am to [iy]. The result is that we now have a long vowel [iy] and the vowel [a] before final /m/. This explanation is what Martinet [1955] terms a "drag chain" ("chaîne de traction"). A sound A changes to sound B, and then a third sound C changes to sound A, filling in the gap created by the first change. Given that proto *am is vacated, so to speak, and that vowels tend to lower in closed syllables (see below), it seems reasonable that *um lowered to [am]
in Fe?fe? as a natural tendency. (The unrounding is explained by the
fact that *um first became [um] and then lowered; see below.)

However, there is a second possible explanation. It is possible to
conceive of the change from *num to [nám] as occurring prior to the
change from *nám to [née]. In this case, the following derivation is
postulated:

(7)   (a)   (b)
Pbke *num > nám 'sun'
Pbke *nám > néé 'animal'

In stage (a) the Proto-Bamileke roots are given. In stage (b), *um
lowers to [am], thereby forcing *am to shift in order to avoid merger.
If *um first lowers to [am] and if *am does not change in some way, then
the result is merger. However, if as *um is lowering and "encroaching
upon the allophonic range of /am/" (Martinet's terminology), *am starts
to gradually change to [ív], then the process is not a drag chain, but
rather what Martinet terms a "push chain" ("chaîne de propulsion"). In
this analysis, a sound A starts to change to a sound B, and this forces
the original sound B to change to a third sound C. Otherwise, the two
sounds will merge. Thus, there are two possible explanations as to why
these two related sound shifts occurred.

2.1. Evidence for Push and Drag Chains.

Martinet [1955] presents interesting data and works under the assump-
tion that both push and drag chains exist. However, it is not clear from
his examples why both are needed, and no evidence is given that any of
his sets of data must be analyzed in one, rather than in the other inter-
pretation. Thus, it is conceivable that only one type of coupled sound
change is needed, and in fact, King [1969] argues (from a theoretical
point of view) that only drag chains exist and that push chains are "a
spurious artifact" (p.8). However, I should like to support Martinet's
contention that both push and drag chains exist, and I shall present data
that firmly establish push chains as a real phenomenon.

Perhaps the most obvious type of evidence one might wish to find is
a language that is in the midst of a coupled sound change which has not
been completed. Of course, if we are dealing with a drag chain, then
this would mean that the first change has occurred without "dragging"
the other into its former slot. The term "drag chain" is unsatisfactory
in some respects, however, for it is not the converse of a "push chain".
A push chain occurs when one sound change pushes another sound to a
different position, so that this latter sound can avoid merger. A drag
chain is not a sound change that drags another sound with it to its
former slot. Rather, this is a later adjustment. There can be no real
intermediate stage where one subpart of a push chain has taken place, but
the other has not, for a merger would presumably have occurred (see,
however, Labov [1971] for some interesting discussion of how vowels can
approximate and even pass by one another without merging). Thus, if we
look at sound change in progress, we find only evidence for drag chains.
Consider, for example, the following forms from Mboi:

(8) Mboi [num] 'sun'
    Mboi [hnɔ] 'animal'

As can be seen, *pɔm 'animal' has changed to [hnɔ], but *num has not
changed. This would seem to indicate that we are dealing with a "drag
chain", since there are dialects that have changed *Am without changing
*um. (There are also, however, dialects that have changed *um to inter-
mediate [um] without changing *am, but I know of no dialect that has
merged *um with *am.) However, this does not necessarily mean that this
is a drag chain, since we do not know where each of the sound changes in
question started and how they were diffused. In Chapter I I spoke of the
difficulty in delimiting the genetic relationships between dialects by
means of isoglosses, since the nature of sound changes is not amenable to
neat subgrouping. Rather, a wave effect is usually obtained. Consider
for example the push change illustrated in (9):

(9) (a) (b)
    A > B
    B > C

The change of A to B pushes the sound B to become C. Now, what if the
first sound change occurred within a certain area and then the resulting
push of B to C occurred within the same area, but also extended into other areas that the first change had not affected. The result would be that in the original area the sounds B and C would be obtained, but in the second area, the sounds A and C would be obtained. But it would not be correct to conclude, then, that the Mbu examples prove beyond a doubt that we have a drag chain, for we also leave open the possibility that such a wave effect worked in the above way. I bring up this example only to illustrate that unless more is known about the geographic direction of the sound change, the use of evidence of intermediate stages is not foolproof.

Thus, it is clear that certain dialect comparisons must consider a number of factors before this can be used with any certainty as evidence. Purely internal linguistic arguments, on the other hand, can be offered in support of one or the other analysis. Again, the evidence is not entirely foolproof, but certain trends can be noted. Consider again the two historical changes presented originally in (5). We note that the change from *um to intermediate [um] to Fe?fe? [am] is fairly straightforward, since vowels in closed syllables are often laxer, and these lax vowels tend to lower. But the change from *am to [vv] (with intermediate stages) is not a natural one, and it is hard to understand why Fe?fe? speakers would initiate such a change without some motivation from elsewhere. It is the lowering of intermediate [um] to [am] that provides the necessary motivation. *am would not ever change to anything like [vv] unless it were pushed, and in this case it was pushed by *um (and *lm, as we shall see below). In other words, the unnaturalness of the change is seen as a consequence of the naturalness of a prior change that has exerted a pushing effect. Thus, from internal arguments alone, we see that the changes in question are better explained by means of a push chain than by means of a drag chain. The drag chain explanation fails to provide a reason why *am should change to [vv]. The push chain explanation provides an answer as to why an unnatural sound change has occurred. And so it is in many cases in historical Bamileke phonology. In the next section, I shall present another instance of a push chain that is justified in just this fashion.
2.2. **Proto-Bamileke *Ve*. 

It is recalled from Chapter IV that the following correspondences are found between Fondanti dialect and Fe\(^{e}\)Fe\(^{e}\):

\[(10)\]

<table>
<thead>
<tr>
<th>Fondanti</th>
<th>Fe(^{e})Fe(^{e})</th>
<th>*ŋk(\dot{a})p</th>
<th>'bark (of tree)'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fondanti</td>
<td>Fe(^{e})Fe(^{e})</td>
<td>*ŋk(\dot{a})p</td>
<td>'fingernail'</td>
</tr>
<tr>
<td>Fondanti</td>
<td>Fe(^{e})Fe(^{e})</td>
<td>*k(\dot{o})</td>
<td>'belt'</td>
</tr>
<tr>
<td>Fondanti</td>
<td>Fe(^{e})Fe(^{e})</td>
<td>*ŋk(\dot{a})</td>
<td>'money'</td>
</tr>
</tbody>
</table>

(Tone marks are generally omitted from non-Fe\(^{e}\)Fe\(^{e}\) examples.) The proto sequences *ub, *ib, *ob and *ab are set up, although PBke *ib (cf. Mbouda [ŋk\(\dot{y}\)p] 'fingernail') readily becomes [\(\dot{u}\)p] in many dialects (which in turn lowers to [\(\dot{a}\)p] in Fe\(^{e}\)Fe\(^{e}\)). Proto-Bamileke *ab is probably the source of Fondanti [\(\dot{a}\)p], which corresponds to Fe\(^{e}\)Fe\(^{e}\) [\(\dot{a}\)\(\dot{a}\)] (pronounced [\(\dot{u}\\dot{a}\)] in some villages). That is, *e diphthongized to intermediate [\(\dot{a}\)a] which later developed into [\(\dot{a}\)\(\dot{a}\)] and [\(\dot{u}\\dot{a}\)] in Fe\(^{e}\)Fe\(^{e}\) villages (cf. Fondanti [n\(\dot{a}\)p], Fe\(^{e}\)Fe\(^{e}\) [n\(\dot{a}\)\(\dot{a}\)] or [n\(\dot{u}\\dot{a}\)] 'to prepare'). The question of immediate concern is: how and why did *ob and *ab become [\(\dot{a}\)a] and [\(\dot{u}\)\(\dot{a}\)] in Fe\(^{e}\)Fe\(^{e}\)? 

Again, there are two possible explanations. First, in the "drag chain" analysis, we have the following stages in (11):

\[(11)\]

<table>
<thead>
<tr>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
<th>(d)</th>
<th>(e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ub &gt; ob</td>
<td>&gt; ob</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*ub &gt; vb</td>
<td>&gt; ab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*ob &gt; ob &gt; c(\dot{o})b</td>
<td>&gt; c(\dot{o})(b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*ab &gt; ob &gt; a(\dot{a})b</td>
<td>&gt; a(\dot{a})(b)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In (11) I have recognized Proto-Fe\(^{e}\)Fe\(^{e}\) forms in (a). These forms differ from the Proto-Bamileke forms only in that PF? *ub reconstructs as PBke *ib. In stage (b) there is a general process of laxing in closed syllables. For the high vowels /u/ and /a/, this means a lowering to the mid vowels [o] and [v], respectively. For the non-high vowels /o/ and /a/, this means a laxing of these vowels to [\\udd80] and [\\udd84]. In stage (c) the low vowels [o] and [a] lengthen to [c\(\dot{o}\)] and [a\(\dot{a}\)], respectively. In stage (d) the mid vowels [o] and [v] (coming from *u and *a) are laxued once more.
and become [ɔ] and [a], thereby filling in the gaps created by the change from [ɔb] and [ab] to [ɔɔb] and [aɔb] in stage (c). Finally, in stage (e), the parentheses indicate that final /b/ falls after long vowels, if it is not followed by a vowel (cf. [sɔb] 'to stab', but [sɔɔb l] 'stab him').

In the drag chain analysis of (11), the modifications in (b) and (d) can be explained simply by referring to a process of vowel laxing (with concomitant vowel lowering) in closed syllables. But there is no explanation for why the lengthening of [ɔ] and [a] to [ɔɔ] and [aɔ] takes place in stage (c). In the push chain analysis in (12), however, the creation of a vowel length distinction is explained:

(12)  (a)    (b)    (c)    (d)
    *ub > ob > ɔb
    *ub > ub > ab
    *ob > ɔb > ɔɔb > ɔɔ(b)
    *ɔb > ɔb > ɔab > aɔ(b)

Stages (a) and (b) are identical to those in (11). The Proto-Fe′fe′ forms are in stage (a) and in stage (b) all vowels have become laxed. In stage (c), however, it is seen that the trigger of all further modifications is the second laxing of intermediate [ob] and [ub] (from *ub and *ub, respectively), which by a reapplication of vowel laxing tend to become [ɔb] and [ab], respectively. But they cannot undergo this change without merging with *ob and *ab, unless the intermediate realizations of these latter sequences, i.e. [ob] and [ab], do something. [ɔb] and [ab] consequently lengthen to avoid merger. They cannot lower any more, so because of the pressure exerted from the intermediate realizations of *ub and *ab, the realizations of *ob and *ab lengthen. Later, the final /b/ falls (in stage (d)) when not followed by a vowel. Let us take a closer look at these processes, limiting ourselves to *ub and *ob. In (13),

(13) a.  *ub > ob
     b  *ob > ɔb

*ub and *ob are lax to [ob] and [ɔb], respectively. This means that a
word such as *Nkub 'bark' is now pronounced [ŋkəp] and a word such as *kob 'belt' is now pronounced [kəp]. At this stage one might say that the underlying form of 'bark' is /Nkub/ and that the underlying form of 'belt' is /kəb/. (Final devoicing is discussed in Chapter III.) But after this laxing has occurred, the /u/ of 'bark' will never be heard phonetically, but rather is always realized as [o]. Consequently, the tendency of the speaker is to reinterpret the phonetic [o] of 'bark' as an underlying /o/. He then reapplies the productive laxing rule which changes /o/ to [ɔ]. In other words, since the speaker tends to identify the [o] of /u/ with the underlying /o/ of [ɔ], the result will be that this reanalysis leads him to lax the vowel a second time. That is, the output of (13a) is identified with the input of (13b). But if *ub and *ob are not to merge, the [ɔb] coming from *ob must do something. It must change, and it can choose any number of possibilities. In this case, the vowel becomes long and later the final /b/ falls. A similar situation is found with respect to underlying /um/ in Fe?fe?. A word such as /tum/ 'to send' has the three possible realizations [tum], [tom] and [tɔm] (it can also be realized as [təm]). The form [tum] is obtained from underlying /tum/ with no laxing rule. The form [tom] is obtained from /tum/ with a laxing rule that lowers /u/ to [ɔ] in closed syllable. The form [tɔm] is explained only by saying that some speakers who heard [tom] reanalyzed this as /tom/ and applied the laxing rule to /o/ to obtain [ɔ]. Thus, once again the proto vowel *u has lowered to [ɔ].

It is important to note that this vowel lengthening of non-high vowels in closed syllables is not a natural phonetic change in itself. Since it is not a natural change, then it must be explained in some way. The drag chain analysis in (11), which claims that the lengthening of [ɔ] and [a] paved the way for the lowering of *ub and *ob to [ɔb] and [ob], does not provide an explanation for why this unnatural process occurred. The push chain analysis in (12), on the other hand, provides an explanation. [ɔb] and [ob] lengthen to [ɔɔb] and [ɔɔb], because they are pushed, and they are pushed by the natural tendency for lax vowels to lower in vowel height. Recent discussions with Theo Vennemann have led me to conclude that in cases where there is a series of changes such as in (14),

(14) A > B > C
which can be interpreted as either drag chains or push chains, an internal argument (or rule of thumb) is that if the change from B to C is unnatural, and the change from A to B is natural, then this sequence of events should be interpreted as a push chain: the natural change from A to B caused the unnatural change from B to C. This seems plausible, since it is hard to explain why any unnatural change should occur unless it were pushed.

If, on the other hand, all of the changes are natural, then there is every reason to believe that this could have been a push chain or a drag chain (cf. for example the discussion of "allophonic range" in Moulton [1962]). Thus, the push chain reported by Martinet [1955:51] for Hauteville 1 is explained as a push chain, as in (15):

\[(15) \quad û > ĕ > Ė > a > ɔ \]

Nasalized vowels tend to lower and the change from [û] to [Ē] pushes the nasalized vowel [Ē] to lose its nasalization (also possibly a natural sound change), which in turn pushes the vowel [Ě] to lower to [a], which finally pushes the vowel [a] to round to [ɔ]. Thus, all of the changes in this dialect are explained by the initial push deriving from the lowering of [û] to [Ē].

2.3. Proto-Bamileke *an, *en, *id and *ad.

Another simple push chain relates the changes that occur on PBke *an, *en, *id and *ad. Accept for the moment that *an and *en lengthen to intermediate [aan] and [een] in Fe°Fe?, as in (16):

\[(16) \quad *an > aan \]
\[ *en > een \]

Sometime later, PBke *id lowers to /ad/ (pronounced [at]) in Fe°Fe?, thereby pushing *ad to lengthen to /aad/ (probably pronounced [aat]). At this point we have the following derivations:

\[(17) \quad *an > aan \]
\[ *en > een \]
\[ *id > ad \]
\[ *ad > aad \]

A problem arises, however, when the final consonants [n] and [d] are
lost after long vowels, for this means that *an and *ad, which become
intermediate [aan] and [aad], would both merge as [aa]. Thus, what happens
to prevent this is that when the [d] of [aad] falls, the resulting [aa]
pushes the [aa] coming from [aan] up to [ee], and this in turn pushes the
[ee] resulting from the loss of the [n] of [een] up to [ii], as in (18):

(18)  *an > aan > ee(n)
*en > een > ii(n)
*ld > ad
*ad > aad > aa(d)

Thus, this push of *ad causes [aa] to become [ee] and [ee] to become [ii].
Thus PBke *an corresponds with Fe°fe° [ee], *en corresponds with [ii], *ld
corresponds with [at] and *ad corresponds with [aa], as seen in the corres-
pondences between Fotouni and Fe°fe° in (19):

(19)  PBke  Fotouni  Fe°fe°
*jen(?) [ye] [yii] (/jiin/) 'to see'
*kan [ka] [kẹẹ] (/kẹẹn/) 'to refuse'
*tid [tit] [tẹt] (/tad/) 'to meet'
*bad [pẹt] [pẹẹ] (/baad/) 'to flatter'

The reconstruction given for 'to see' is actually the form I would posit
in the parent dialect of Fotouni and Fe°fe°. It is not clear to me what
the correct reconstruction should be in Proto-Bamileke (probably more
satisfactory, *gen). Some Fe°fe° speakers do say [yee], though this is
the only instance I know where there is free variation between [ii] and
[ee].

Thus, two instances of push chains have been seen. We must therefore
differ with King's statement [1969:8], "I do not believe that push chains
exist".

3.0. Further Sound Shifts in Fe°fe°.

The purpose of this section is to present the Proto-Bamileke recon-
structions I have arrived at thus far and to exemplify the various vowel
and consonant shifts that have taken place in the evolution of Fe°fe°.
dialect. Needless to say, much revision will probably be required, since I have not done in depth analyses of other Bamileke dialects. I shall only briefly discuss sound shifts characterizing other Bamileke dialects, though I hope to report on these findings at a later date.

3.1. Proto-Bamileke *V in Open Syllable.

The Proto-Bamileke vowel system was presented in (3) above. This vowel inventory has of course been expanded in Fe’ve’, since in Fe’ve’ there is a contrast between long and short vowels (Chapter IV) and also, since the sounds [i] and [a] did not occur in the proto language. The modification of *a to /a/ in open syllable has already been mentioned (Chapter IV). Thus, Proto-Bamileke *fa ‘to give’ is realized as [hɔ] in Fe’ve’. (Actually, many speakers produce this morpheme with marked vowel nasalization, i.e. [hɔ].) It was stated in Chapter IV that the vowel /a/ does not occur in open syllables (except for a few grammatical morphemes). This is due to the fact that *Ca becomes /Ca/ in Fe’ve’, as just stated. It was also said in Chapter IV that short /e/ does not occur in open syllables. This has a different explanation. In fact, in Babouantou village, short /o/ also does not occur in open syllables. Proto-Bamileke *e and *o became the diphthongs /ie/ and /uo/, respectively, in Fe’ve’. Thus, we have the following forms (the /uo/ forms are from Babouantou Fe’ve’):

(20)  PBke       Fe’ve’
      *se > /sǐe/   'God, ground'
      *gwe > /ɲwǐe/ 'woman'
      *ke > /ncǐe/  'basket'
      *bo > /bǔo/  'hand'
      *so > /sǔo/  'hoe'
      *to > /tuo/  'to punch'

The diphthongization of *e to /ie/ and *o to /uo/ characterizes most, if not all, Bamileke dialects (cf. Mbui [ŋkλe] 'basket' and [abytes] 'hand'). In all Fe’ve’ villages but Babouantou, /uo/ later became simplified back to /o/. Thus, in general Fe’ve’, the forms [pɔ] 'hand', [sɔ] 'hoe' and
[to] 'to punch' are heard. In other dialects, /uo/ has apparently been monophthongized as /u/ (e.g. Batcha and Bangangte [pu] 'hand', [su] 'hoe'; cf. also Dschang [apú] and [aśú]). Notice, finally, that some dialects appear to have simplified /ie/ as /i/ (e.g. Bangwa, Bangangte and Dschang [si] 'ground'). A third diphthong /wa/ appears in all dialects (though it is sometimes pronounced [uv]) and is not as easily explained. In some cases it is clear that an earlier *a is the source, e.g. *ba 'two' is pronounced [pəa] in Fe*fe* and [bú] in Mbui. Bafou (Dschang) has the form [p/a] for 'two' and it therefore appears that an [i] was inserted somehow. Compare also the history of the word for 'bag', apparently from PBke *bam, but pronounced [pəa] in Fe*fe* and [plə] in Batcha (cf. though [pəm] in Bangangte). Other instances of /wa/ in Fe*fe* correspond with /w/ in other dialects, e.g. [məwa] in Fe*fe* corresponds with Mbui [məv] 'dog'. Thus, /wa/ may have had several sources.

3.2. Proto-Bamileke *Vb and *Vd.

The discussion of *Vb in section 2.2. is relatively complete. Vowels are lowered in closed syllables and this pushes the low vowels to become long. The final step is when /b/ is deleted before pause and before a consonant, i.e. when it is not followed by a vowel. This last step is a natural change for two reasons. First, after [ə] and [a] have become long, the final /b/ is no longer needed to mark the contrast between *ub and *ob, *wb and *ab. The opposition between long and short [ə] and [a] is sufficient and the final /b/ is redundant. Second, the loss of final consonants before a pause or a consonant is natural in that it maximizes open syllables (the unmarked syllable type being CV). When a vowel follows the final consonant, this means that there will be a syllable break before this consonant, e.g. /səob + i/ 'stab him' is pronounced [səob b]. By maintaining a phonetic [b] in 'stab him', the two syllables, which are underlyingly /CVVC/ and /V/ come to the surface as [CVV] and [CV], i.e. both beginning with a consonant and both ending in a vowel.

Since *eb was not discussed in detail in section 2.2, it is necessary here to exemplify the hypothesized change from PBke *eb to Fe*fe* /iəab/, via the following stages:

(21) PBke *eb > ieb > iab > iab > iəab > iəab(b) > wəa(b)
The diphthongization of *eb to ieb is identical to the diphthongization of *e to /le/ in open syllable. The resulting /ieb/ is later reanalyzed as /lab/ (vowels tend to lower in closed syllable) and then later as /lab/ (cf. the change from *ab to [ab] in (12) above). Then, as in (12), the vowel [a] lengthens, apparently on analogy with the [a] that comes from *ab. Finally, the /b/ drops if not followed by a vowel. (Notice in the last, optional, stage that some Fe?fe? speakers assimilate the /i/ to the back [a] and pronounce [waa] instead of [iga].) Thus we have the following comparison between Fondanti and Fe?fe? in (22):

(22)    PBke       Fondanti       Fe?fe?
        *neb       [niap]       [níaː:nəəː] 'to prepare'
        *seb       [siap]       [síaː:səəː] 'to repair'

Compare also Bayangam [niabq] and Bafou [niap] 'to prepare'. The intermediate stage with /ie/ is justified on the basis of the forms [nie-te] (Mbouda), [ne-ca] (Bamendjou) and [nie-te] (Mankon), all of which carry a -tV suffix.

The discussion of *Vd in section 2.3 requires further justification. There is much uncertainty concerning the reconstruction of *Vd sequences in Proto-Bamileke. Presumably, four different Proto-Bamileke sequences must be reconstructed to correspond with the four way contrast exemplified in the following Fe?fe? words:

(23)    [tat] 'to meet'       [flat] 'to be proud'
        [taa] 'three'       [lía] 'to stick' (/diaad/)

In addition, there appear to be two sources for Fe?fe? [at], as seen in the following forms:

(24)    'to meet'           'to be heavy'
        Fotouni  [tít]      Fotouni  [zít]
        Bayangam  [te]      Bayangam  [ze]
        Fondanti  [cit]    Mbouda    [ze]
        Batie    [tía]       Batie    [zwí]
It was stated in section 2.3 that PBke *i:d is realized as [at] in Fe°fe° and PBke *ad is realized as [aa]. There does not seem to be any reason why morphemes such as 'to be heavy' in (24) should be reconstructed with *i. Rather, it looks as though it is necessary to reconstruct PBke *zad. Fe°fe° [ia] in open syllable appears to derive from PBke *ad by means of the following stages:

(25) PBke *ad > iad > iaad > iaa > ia

Thus PBke *ded 'to stick' (i.e. paste, glue) has the following reflexes in the various dialects:

(26)

Fe°fe° [lia]
Fotouni [liet]
Bandjoun [let]
Mankon [lie]
Mbouda [lie]

Bangangte [laiə]
Bangwa [le]
Fondanti [liet]
Dachang [liet:yet]
Fondjome- [liɛln]
kwet

It is clear that PBke *ud and *od must also be reconstructed, but it is less clear what these proto sequences correspond to in Fe°fe°. There is some evidence that *Cud corresponds with Fe°fe° [C(w)at] and *Cod corresponds with Fe°fe° [C(w)iat]. Thus, hypothetical PBke *kud 'to attach' is realized as [kwat] in Fe°fe° and PBke *god 'to burst' is realized as [viat]. The following stages are hypothesized in the evolution of Fe°fe°:

(27) (a) (b) (c)

*kud > kwid > kwad 'to attach'
*god > gwed > gwiad 'to burst'

In stage (a) Proto-Bamileke forms are set up. In stage (b) *u and *o become [wi] and [we], respectively, before *d. This change is apparently motivated by the acoustic assimilation of the [+grave] vowels *u and *o to the [-grave] specification of *d. In stage (c) the resulting intermediate *i and *e undergo the vowel shifts illustrated in (18) and (25). The forms in stage (c) are still intermediate. In particular, we have to explain how an intermediate *gwiad becomes [viat] in Fe°fe°. But first consider the different reflexes of this morpheme in the following dialects:
(28)  Fe'fe'  [mviat]    Bangwa  [njwit]
      Fotouni  [ogwit]    Mbouda  [njwe]
      Batie  [ogwia]    Bangangte  [njwciә]
      Batcha  [ogwit]    Dschang  [njwet]
      Bayangam  [ogwic]    Bamendjou  [nzit]

(I have given these forms with a nasal prefix because of the consonant
alternations that characterize Bamileke; see Chapter III.) From these
forms it is seen that there is evidence for a *gwed stage and for a
diphthongization of *e to ie or ia in various dialects. It is not quite
clear how intermediate *gw gives rise to Fe'fe' [v]. If the nasal prefix
is not present, then *gw should be pronounced [γw]. But as was seen in
Chapter III, [γ] is deleted before [w]. Thus it is conceivable that at
some stage something like [wiat] was heard, and this of course can develop
into [viat], especially since [w] is not found before [l] in Fe'fe'.
Compare now the various reflexes of hypothetical *kud 'to attach':

(29)  Fe'fe'  [kwat]    Bangwa  [kwit]
      Fotouni  [kwit]    Mbouda  [kwe:kwa]
      Batie  [kwo]    Bangangte  [kwelә]
      Batcha  [kwit]    Dschang  [kwet]
      Bayangam  [kwe]    Bamendjou  [kwet]
      Fondanti  [kwit]    Fondjome- [kwit]

The clearest evidence that *ud and *od should be reconstructed comes from
the Mankon forms [kɔɾә] 'to attach' and [dɔʐɾu] 'to burst'. In these
forms the vowels are reversed (and this requires an explanation), but at
least we see that rounded vowels did occur before *d in Proto-Bamileke.

3.3.  Proto-Bamileke *Vɡ and *Vŋ.

The sound shifts that pertain to PBke *Vɡ and *Vŋ are closely tied to
one another and account for the development of final /h/ in Fe'fe' as well
as the loss of final /ŋ/. The correspondences between Proto-Bamileke and
Central Fe'fe' are given in (30):
(30) PBke | Fe?fe?
---|---
*ug > [ɔh] | *ʊŋ > [ɔk]  
*ig > [ɑh] | *iŋ > [ɔk]  
*og > [ɔh] | *oŋ > [ɛʔ]  
*ag > [aŋ] | *aŋ > [aʔ]

An example illustrating each change is given in (31):

(31)  
<table>
<thead>
<tr>
<th>Historical Change</th>
<th>Dschang</th>
<th>Central Fe?fe?</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ug &gt; ɔh</td>
<td>[muk]</td>
<td>[moh] 'fire'</td>
</tr>
<tr>
<td>*ig &gt; ɔh</td>
<td>[lè-zf]</td>
<td>[zoh] 'eye'</td>
</tr>
<tr>
<td>*og &gt; ɔh</td>
<td>[cok]</td>
<td>[coh] 'to be severe'</td>
</tr>
<tr>
<td>*ag &gt; ah</td>
<td>[sak]</td>
<td>[säh] 'to be long'</td>
</tr>
<tr>
<td>*ʊŋ &gt; ɔk</td>
<td>[lè-tʊŋ]</td>
<td>[tɔk] 'ear'</td>
</tr>
<tr>
<td>*iŋ &gt; ɔk</td>
<td>[sɪŋ]</td>
<td>[sak] 'bird'</td>
</tr>
<tr>
<td>*oŋ &gt; ɛʔ</td>
<td>[le-son]</td>
<td>[sɛʔ] 'tooth'</td>
</tr>
<tr>
<td>*aŋ &gt; aʔ</td>
<td>[ŋgwán]</td>
<td>[ŋgwåʔ] 'salt'</td>
</tr>
</tbody>
</table>

These shifts cause a great deal of confusion throughout Bamileke country, since examples such as the following are found:

(32) PBke | Dschang | Fe?fe?
---|---------|---
*bog | [pɔk] | [poh] 'to be afraid'
*buŋ | [pʊŋ] | [pɔk] 'to be poor'

The pronunciation of *bog 'to be afraid' in Dschang is identical to the pronunciation of *buŋ 'to be poor' in Fe?fe*. Both are pronounced [pɔk], but by different speakers. Notice that most Bamileke dialects exhibit a more central vowel [ɪ] for PBke *ig and *iŋ, as can be seen in the Dschang forms for 'eye' and 'bird' in (31). The reconstructions *dɪŋ 'eye' and *sɪŋ 'bird' with the proto vowel *ɪ are justified because of such forms as Bamoun [ɪf] 'eye' and Mbouda [mɛsɪŋ] 'bird'.

What is clear from these examples is that *ŋ cannot become [k] in Fe?fe* unless *g (which is pronounced [k] in final position) becomes [h].
While a push chain analysis may seem possible, whereby the change of \([V\eta]\) to \([Vk]\) pushed \([Vk]\) (i.e. \(\#Vg\)) to become \([Vh]\), the following forms from Fondanti suggest that it is probably best to consider these changes as a drag chain (but see below):

\[
\begin{array}{ll}
\text{PBke} & \text{Fondanti} \\
*\text{mug} > [\text{mo}] & 'fire' \\
*\text{dig} > [\text{zi}] & 'eye' \\
*\text{cog} > [\text{co}] & 'to be severe' \\
*\text{sag} > [\text{sa}] & 'to be long' \\
*\text{tuŋ} > [\text{tuŋ}] & 'ear' \\
*\text{siŋ} > [\text{siŋ}] & 'bird' \\
*\text{sɔŋ} > [\text{sɔŋ}] & 'tooth' \\
*\text{gwaŋ} > [\text{ŋwaŋ}] & 'salt'
\end{array}
\]

Fondanti, like Fe′fe′, modified \(\#g\) to \([h]\), but later lost this \([h]\) (as some Fe′fe′ speakers are now doing). However, while \(\#g\) is changed historically, final \(\#ŋ\) has remained unchanged. Thus, since the change of \(\#g\) to \([h]\) is not dependent on a "push" from the change of \(\#ŋ\) to \([k]\), this is tentatively best viewed as a drag chain. The push chain analysis is not ruled out, but there is no evidence for it. It should be noted, however, that the dialects that modify \(\#Vg\) and those that modify \(\#Vŋ\) almost totally overlap. This is particularly clear in Batcha (an Ndavnda village), where all instances of \(\#Vg\) have become /Vh/ and all instances of \(\#Vŋ\) have become /Vŋ/ (pronounced \([Vk]\)):

\[
\begin{array}{ll}
\text{PBke} & \text{Batcha} \\
*\text{mug} > [\text{muh}] & 'fire' \\
*\text{dig} > [\text{zi+h}] & 'eye' \\
*\text{cog} > [\text{soh}] & 'to be severe' \\
*\text{sag} > [\text{sah}] & 'to be long' \\
*\text{tuŋ} > [\text{tugu}] & 'ear' \\
*\text{siŋ} > [\text{s+k}] & 'bird'
\end{array}
\]
*on > [sɔk]  'tooth'
*aŋ > [mgwak]  'salt'

The following table in (35) summarizes the modifications of *Vg and *Vŋ in three Fe°fe° villages (Bafang, Banka and Bandja) and in three dialects closely related to Fe°fe° (Batcha, Fondanti, Bayangam). Bafang is taken to be representative of Central Fe°fe°, while Banka and Bandja (=Company) are two Northern Fe°fe° villages.

<table>
<thead>
<tr>
<th>(35)</th>
<th>PBke</th>
<th>Bafang</th>
<th>Banka</th>
<th>Bandja</th>
<th>Batcha</th>
<th>Fondanti</th>
<th>Bayangam</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ug</td>
<td>ɔh</td>
<td>uk</td>
<td>ɔk</td>
<td>uh</td>
<td>ɔ</td>
<td>ɔk</td>
<td></td>
</tr>
<tr>
<td>*ig</td>
<td>ɔh</td>
<td>ɔk</td>
<td>ɔk</td>
<td>ɔh</td>
<td>ɔ</td>
<td>ɔk</td>
<td></td>
</tr>
<tr>
<td>*og</td>
<td>ɔh</td>
<td>ɔh</td>
<td>ɔh</td>
<td>ɔh</td>
<td>ɔ</td>
<td>ɔk</td>
<td></td>
</tr>
<tr>
<td>*ag</td>
<td>ɔh</td>
<td>ah</td>
<td>ah</td>
<td>ah</td>
<td>a</td>
<td>ak</td>
<td></td>
</tr>
<tr>
<td>*ʊŋ</td>
<td>ɔk</td>
<td>ɔk</td>
<td>ɔk</td>
<td>ɔk</td>
<td>ʊŋ</td>
<td>ʊŋ</td>
<td></td>
</tr>
<tr>
<td>*iŋ</td>
<td>ɔk</td>
<td>ɔk</td>
<td>ɔk</td>
<td>ɔk</td>
<td>iŋ</td>
<td>iŋ</td>
<td></td>
</tr>
</tbody>
</table>

The forms in (35) are phonetic. As pointed out in Chapter I, a wave explanation accounts for the various reflexes of these proto forms. For example, the change of *ug and *ig to [ɔh] and [ɔh] in Central Fe°fe° completely misses Banka and only partially hits Bandja, where the vowel of *ug is lowered to [ɔ], but the vowel of *ig is not lowered to [ɔ]. On the other hand, the wave that changes *g to [h] must cover not only Central Fe°fe° (but not Northern Fe°fe°), but also some non-Fe°fe° dialects, e.g. Batcha, Fondanti and (in part) Bayangam. I have attempted to account for these historical developments in the following way.

The various modifications of *Vg can be described in terms of three waves. (Since *Vg is pronounced [vɔk] in all dialects, I shall start with [k]; also, *ig is assumed to have become [iŋ] at the point where the sound shifts occur.) First, a wave spreading across the whole of the Haut-Nkam department (i.e. all Fe°fe° villages, Fondanti, Fondjomekwet, Fotouni and Batcha) as well as the Nda?nda? villages of the Nde department (e.g. Bangwa)
is responsible for the changes in (36):

(36)  \( \text{ok} \rightarrow \text{oh} \)
      \( \text{ak} \rightarrow \text{ah} \)

This is clearly the oldest of all of the sound changes relating to *Vg and *V0, and consequently cognates that regularly correspond from dialect to dialect are somewhat more difficult to isolate. Second, a wave apparently starting from Bamendjou accounts for the change in (37):

(37)  \( \text{uk} \rightarrow \text{ok} \)

Bamendjou is cited as the origin of this sound change, since from there it could easily spread to Bandjoun and Bayangam to the East, as well as to Fotouni, Fondjomekwet, Fondanti and Central Fe'fe' to the South. This change also hits Bandja (NF) and is generalized to include the parallel sound change

(38)  \( \text{ik} \rightarrow \text{ak} \)

in Central Fe'fe'. Neither (37) nor (38) affect Banka and Babouantou, which are representative of Northern Fe'fe'. Finally, another wave changing remaining [k] to [h] hits Central Fe'fe', Fondanti, Fondjomekwet, Fotouni and Nda'nda' villages. Thus, intermediate Central Fe'fe' [ok] and [ak] become [oh] and [ah], while Batcha [uk] and [i+k] (which were immune to the vowel lowering in (37) and (38)) become [uh] and [i+h]. In Fondanti, Fondjomekwet and Fotouni, final [h] falls.

As stated above, all of these changes can be viewed as a drag chain, especially in Central Fe'fe', where the sound changes of (37) and (38) fill in the gaps created by the sound changes in (36). Since (36) is the oldest sound change, this can only be a drag chain. There are other reasons as well, and these have to do with the explanation of why final [k] becomes [h]. First note that the change of final [k] to [h] is a natural development due to the phenomenon of "weakening". It can be observed in language after language that final consonants are much less stable than initial consonants. Final consonants are much more likely to become weakened (e.g. devoiced, reduced to glottal stop, etc.) and lost. The above changes constitute a good case in point. But there is a second reason why *g should become [h] in Fe'fe'. Recall from Chapter III that
final /g/ can undergo two different rules, which are represented informally in (39):

(39) a. /g/ → [k] / ___ # #

b. /g/ → [γ] / ___ [+seg]

Rule (39a) says that /g/ is devoiced to [k] before a pause, while rule (39b) says that /g/ becomes [γ] before any segment. Thus, the derivations in (40) are found in the language:

(40) a. /câg/ → [câk] 'pot' (citation form)

b. /câg # ūá/ → [câγ ūá] 'that pot' (n.h.)

Thus, the morpheme /câg/ 'pot' has the two allomorphs [câk] (before pause) and [câγ] (before a segment, i.e. not before pause). As stated in (39), final /g/ can undergo either devoicing or spirantization, but not both.

If, however, the structural description of (39a) is generalized so that devoicing takes place word-finally, regardless of whether there is a pause or not, and if spirantization still takes place before any segment, the derivation in (41) would (though not in the case of 'pot') be obtained:

(41) /câg # ūá/ → câγ ūá → [cûh ūá] 'that pot' (n.h.)

That is, in (41) final /g/ is both spirantized and devoiced (in that order).

The final step is when the form with [h], which occurs before any segment, is generalized and replaces the [k] found before pause. Thus, the two processes of devoicing and spirantization known to characterize all of Bamileke account for the development of final [h]. We only lack an explanation as to why this change should start with the non-high vowels in (36). This explanation probably has to do with the phonetic properties of [h].

Since the change from final [k] to [h] has been shown to be the result of weakening, a natural tendency in languages, and also the result of pre-existent rules in the language, there is no need to postulate a "push" to account for this change. A push chain is, however, required to explain the changes operating on PRke *wâ in the various dialects. These changes, which were given in the table in (35), are explained in the following way. First, all of Pe˘ fe˘ undergoes the two sound changes in (42):
(42) \( \text{[i\text{\reflectbox{\textgreek{g}}}} > \text{\textgreek{g}} \)

\( i\text{\reflectbox{\textgreek{g}}} > a\text{\reflectbox{\textgreek{g}}} \) (and later > \text{\textgreek{g}})

(The sequence [i\text{\reflectbox{\textgreek{g}}}] is of course an intermediate development from PBke *i\text{\reflectbox{\textgreek{g}}}, which is attested in several dialects.) The only non-Fe\textsuperscript{e}fe\textsuperscript{e} dialect I know of that was affected by these changes is Bangangte, which is characterized by the following modifications:

\begin{tabular}{|c|c|c|c|}
\hline
 & PBke & Bangangte & PBke & Bangangte \\
\hline
*ug & > & c\text{\reflectbox{\textgreek{k}}} & *u\text{\reflectbox{\textgreek{g}}} & > & \text{\textgreek{c}} \\
*ig & > & c\text{\reflectbox{\textgreek{k}}} & *i\text{\reflectbox{\textgreek{g}}} & > & a\text{\reflectbox{\textgreek{g}}} \\
*og & > & c\text{\reflectbox{\textgreek{k}}} & *o\text{\reflectbox{\textgreek{g}}} & > & c \\
*ag & > & c\text{\reflectbox{\textgreek{k}}} & *a\text{\reflectbox{\textgreek{g}}} & > & a \\
\hline
\end{tabular}

Second, the changes of *u\text{\reflectbox{\textgreek{g}}} and *i\text{\reflectbox{\textgreek{g}}} in (42) cause *o\text{\reflectbox{\textgreek{g}}} and *a\text{\reflectbox{\textgreek{g}}} to become modified, and this "push" results in the following changes:

\begin{enumerate}
\item (44) a. *o\text{\reflectbox{\textgreek{g}}} > c\text{\reflectbox{\textgreek{g}}} (all of Fe\textsuperscript{e}fe\textsuperscript{e})
\item b. *a\text{\reflectbox{\textgreek{g}}} > c\text{\reflectbox{\textgreek{g}}} (only Bandja Fe\textsuperscript{e}fe\textsuperscript{e})
\end{enumerate}

Bangangte of course simply drops the final [\textgreek{n}], leaving such forms as [s\textgreek{c}] 'tooth' (*s\text{\reflectbox{\textgreek{g}}}\text{\reflectbox{\textgreek{n}}}) and [\textgreek{n}\text{\reflectbox{\textgreek{w}\textgreek{a}}}] 'salt' (*\text{\reflectbox{\textgreek{g}}}\text{\reflectbox{w\textgreek{n}}}\text{\reflectbox{\textgreek{a}}}). Finally, in all Fe\textsuperscript{e}fe\textsuperscript{e} villages except Bandja, a wave starting from Batcha denasalizes final [\textgreek{n}] to [\textgreek{k}], which is further modified to glottal stop in the case of *o\text{\reflectbox{\textgreek{g}}} and *a\text{\reflectbox{\textgreek{g}}} :

\begin{align*}
\text{\textgreek{n}} & > \text{\textgreek{n}} > \text{\textgreek{k}} \\
\text{i\text{\reflectbox{\textgreek{g}}} > \text{\textgreek{n}} > \text{\textgreek{k}} \\
\text{\textgreek{o\text{\reflectbox{\textgreek{g}}} > \text{\textgreek{n}} > \text{\textgreek{k}} > a\text{\reflectbox{\textgreek{p}}} \\
\text{\textgreek{a\text{\reflectbox{\textgreek{g}}} > \text{\textgreek{n}} > \text{\textgreek{k}} > a\text{\reflectbox{\textgreek{p}}} \\
\end{align*}

We know that the denasalization originates in Batcha, for in Batcha all final nasals are affected in such a way, i.e. final *m becomes [p], final *n becomes [t] and final *n becomes [k]. Recall from Chapter III that Babouantou (a Fe\textsuperscript{e}fe\textsuperscript{e} village close to Batcha) has also denasalized all final nasals. Thus, the influence of N\text{\reflectbox{\textgreek{d}}}a\text{\reflectbox{\textgreek{n}}}nda\text{\reflectbox{\textgreek{n}}} villages has been greater in Babouantou. In Central Fe\textsuperscript{e}fe\textsuperscript{e} villages (excluding Bama), [a\textgreek{p}] is further modified to [e\textgreek{p}] Bandja Fe\textsuperscript{e}fe\textsuperscript{e} realizes *o\text{\reflectbox{\textgreek{g}}} and *a\text{\reflectbox{\textgreek{g}}} as [e\textgreek{p}] and
[ε], respectively. Thus, since the creation of [œ] is an unnatural change, it is necessary to view these changes as a push chain. Unlike the changes pertaining to *Vŋ, there are no intermediate dialects where the changes in (42) have taken place without causing a modification of *oŋ and *aŋ. There are, however, dialects where the parallel changes in (37) and (38) have occurred without the changes in (36). Such a situation exists in Bangangte, as can be seen from the synchronic reflexes of the proto sequences in (43) above. Finally, a word should be said about PBke *ceg and *ẹŋ. The former apparently corresponds to Fe°fe° [εh] and the latter to Fe°fe° [iaʔ]. Thus, PBke *ceg 'to call' is pronounced [cch] in Fe°fe° and PBke *ẹŋ 'small' is pronounced [náʔ].

3.4. Proto-Bamileke *Vm.

The remaining sequences to be discussed are *Vm, *Vn and *Vʔ. Both *Vm and *Vn cast doubts on the reconstructed Proto-Lamileke vowel system given in (3) above. The change from *am to Fe°fe° [a] has already been discussed at length. PBke *im and *um merged historically as [a] and subsequently lowered to [a], as seen in the examples in (46):

(46) a. Proto-Bamileke *dim 'tongue'

Fe°fe° [ləm] Bamendjou [ləm]
Mbui [ləm] Mbouda [ləm]
Fotouni [ləm] Bayangam [ləm]
Batie [ləm] Bangangte [ləm]
Bamouna [ləm] Bangwa [dəp]
Mankon [ləm] Batcha [ləp]
Dschang [aləm]

b. Proto-Bamileke *bum 'belly'

Fe°fe° [vəm] Bamendjou [nə-bəm]
Fotouni [ɛvəm] Mbouda [lə-pəm]
Batie [vəm] Bayangam [vəm]
Bamouna [vəm] Bangangte [əpəm]
Mankon [nì-bùm] Bangwa [vèp]
Dschang [î-l-vùm] Batcha [vàp]

The various reflexes of PBke *em and *om are given now in (47):

(47) a. Proto-Bamileke *kom 'to feed'

Fe³fe³ [cil] Bayangam [kìm]
Fotouni [këm] Fondanti [cil]
Batie [kom] Fondjomewet [teem]
Bamendjou [ko] Batcha [sëp]

b. Proto-Bamileke *kom 'to carve'

Fe³fe³ [kùu:kòo] Mbouda [kwó]
Fotouni [kwoom] Bayangam [kem]
Batie [kum] Fondanti [kùu]
Mankon [kômà] Fondjomewet [koom]
Bamendjou [kub] Batcha [kwàp]
Dschang [koo:kòo]

Thus, to summarize the reconstructions discussed thus far, we have the following proto sequences and realizations in Fe³fe³:

(48) PBke *im > Fe³fe³ [am]
PBke *um > Fe³fe³ [am]
PBke *em > Fe³fe³ [il]
PBke *om > Fe³fe³ [uu]
PBke *am > Fe³fe³ [vù]

There are, however, two additional vowels that must be reconstructed before *m. One of these is apparently the vowel *u, and PBke *um is realized as [uu] in Fe³fe³ (cf. Bayangam [kìm], Fe³fe³ [kùw] 'valley'). A seventh vowel, which I shall represent as *o, must also be reconstructed to account for the reflexes in (49), which should be compared to those in (46b) and (47b):
(49) **Proto-Bamileke *tom 'to send'**

\[
\begin{array}{ll}
\text{Fe?fe'} & [\text{tum}] \\
\text{Fotouni} & [\text{tîm}] \\
\text{Batie} & [\text{tîm}] \\
\text{Bamendjou} & [\text{tum}] \\
\text{Mbouda} & [\text{tum}] \\
\text{Bayingam} & [\text{tîm}] \\
\text{Banga} & [\text{tîm}] \\
\text{Bangand} & [\text{tum}] \\
\text{Bangwa} & [\text{tîp}] \\
\text{Fondanti} & [\text{tîm}] \\
\text{Fondjomekew} & [\text{tîm}] \\
\text{Batcha} & [\text{tîp}] \\
\text{Dschang} & [\text{to:tuŋ}]
\end{array}
\]

This hypothetical reconstruction *om actually has several phonetic reflexes in Fe?fe'. Thus, the four pronunciations [tum], [tom], [töm] and [tvm] are all heard for 'to send'. Since we have already seen that PBke *um is realized as [am] in Fe?fe', and PBke *om is realized as [uu], it is necessary to reconstruct an additional vowel. The choice of the vowel *o is not arbitrary. First, note that the dialectal reflexes in (49) are representative and not exceptional. Thus, equivalent correspondences could be given for Fe?fe' [yum] 'to be dry' and [pum] 'to meet'. Second, it is well known among Bantuists that a seven vowel system must be reconstructed (cf. Meinhof [1932]); namely, the vowels *i, *u, *e, *o and *a, where the vowels *i and *u represent "super-closed" high vowels. The vowels *i, *u, *e, *o and *a have been reconstructed for Proto-Bamileke. Now, returning to the problem at hand, compare the following Proto-Bantu reconstructions (Meinhof [1932]) with the accompanying phonetic forms from Fe?fe':

(50) **Proto-Bantu**

\[
\begin{array}{ll}
\text{Fe?fe'} & [\text{tam}] \\
\text{*tûma} & [\text{tum}] \\
\text{*tûma} & [\text{tum}]
\end{array}
\]

'to sew'

'to send'

If the correspondences in (50) are regular, then it appears that Proto-Bantu super-closed *û corresponds to Proto-Bamileke *u (at least in *um sequences) and Proto-Bantu *u corresponds to what I am reconstructing as Proto-Bamileke *o (also in *om sequences). Of course I could change the terminology and reconstruct a super-closed *û in Proto-Bamileke and a non-super-closed *u. The important thing, however, is that there is some evidence for a two-way distinction in the high vowels in Proto-Bamileke. I have thus far not found a need to recognize PBke *i as opposed to PBke *î, except insofar as

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*t (corresponding to Proto-Bantu non-super-closed *!l) may be the deep source for what I have reconstructed as PBke *w. There is at least one striking correspondence that comes to mind, and this is the Proto-Bantu root *t! 'tree' (reconstructed with non-super-closed *!l; Meinhof [1932]), which corresponds to PBke *tw (cf. Mbu [atu], Fe?fe? [thu]). While some instances of PBke *w may be related in such a fashion to Proto-Bantu *!, there are many more questions surrounding the status of *w in Proto-Bamileke that I shall not attempt to address myself to in this chapter. Thus, we can tentatively add the following two correspondences to those given in (48) above (see also section 3.5. for a possible PBke *t):

(51)  
PBke *um > Fe?fe? [wu]  
PBke *om > Fe?fe? [um:om:om:im]

3.5. Proto-Bamileke *Vn.

Part of the history of PBke *Vn was discussed in section 2.3. It was stated that PBke *en becomes [ll] in Fe?fe? and PBke *an becomes [ee]. The different reflexes of these proto sequences are exemplified in (52):

(52) a.  
Proto-Bamileke *ben 'profit'

Fotcuni [pëe]  Banyakam [pë]  
Batie [pl]  Bangangte [pln]  
Mankon [åløå]  Bangwa [plø]  
Bamendjou [pëe]  Dschang [åløp]

b.  
Proto-Bamileke *ban 'tarrot'

Fe?fe? [pee]  Bangangte [pan]  
Fotouni [pæ]  Bangwa [pæ]  
Batie [pee]  Fondanti [pæ]  
Bamendjou [pë]  Fondjomekwet [pæ]  
Mbouda [pwa]  Batcha [pæ]  
Banyakam [pø]  Dschang [pæ]
Just as PBEke *en changes to [11] in Fe'fe', the parallel change of PBEke *on to Fe'fe' [uu] is also found, although some villages maintain [oo]. The different reflexes of PBEke *on are seen in (53):

(53) Proto-Bamileke *on 'to burn'

<table>
<thead>
<tr>
<th>PBEke</th>
<th>PEAke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe'fe'</td>
<td>[tũwːtũo]</td>
</tr>
<tr>
<td>Fotouni</td>
<td>[too]</td>
</tr>
<tr>
<td>Batie</td>
<td>[too]</td>
</tr>
<tr>
<td>Bamoum</td>
<td>[toonã]</td>
</tr>
<tr>
<td>Mankon</td>
<td>[too]</td>
</tr>
<tr>
<td>Bamendjou</td>
<td>[tɔ]</td>
</tr>
<tr>
<td>Mbouda</td>
<td>[too]</td>
</tr>
</tbody>
</table>


If one compares the forms in (52) and (53) with those in (47), it appears that final *n is much more unstable in Bamileke than is *m. Bangangte and Bamoum are among the few dialects exhibiting a surface realization of PBEke *n in such sequences. However, it should be recalled from Chapter IV that long vowels in Fe'fe' arise from the loss of a final consonant, and the etymological final consonant surfaces when followed by a vowel, e.g. the pronoun /a/ 'me, my'. Thus, while the citation forms [p1] 'profit' (from PBEke *ben), [pee] 'tarrot' (from PBEke *ban) and [tũwːtũo] 'to burn' have been given, compare now the forms in (54):

(54) [p1n a] 'my profit'

[peen a] 'my tarrot'

[tũn aːtũn a] 'burn me'

There are three additional contrasts that must be reconstructed before PBEke *n. All three are realized as [ɛn] (in free variation with [ɛn]) in present day Fe'fe'. Two of these vowels are clearly *i and *u, as seen in the reflexes of *in and *un in (55a) and (55b). The third vowel is recognized as *ù, of which the various reflexes are seen in (55c). (Note that the [γ] in the Mbouda form [mbuya] 'jealousy' in (55b) is epenthetic. There undoubtedly was an intermediate form [mbwu]; cf. the Mbouda form for 'tarrot' in (52b).)
(55) a. Proto-Bamileke *bin 'thatching grass'

Fèfè [pɛn] Mbouda [ɛpɛn]
Fotouni [pɨn] Bayangam [pɨn]
Batie [pɨn] Bangangte [pɛnə]
Mankon [bɛn] Bangwa [phu]
Bamendjou [pɨn] Dschang [ɛpɛn:ɛpɛn]

b. Proto-Bamileke *bun 'jealousy'

Fèfè [mbwɛn] Mbouda [mbwɛn]
Fotouni [mbwuu] Bayangam [mbɔ]
Batie [mbw] Fondanti [mbwuu]
Bamendjou [mbu] Fondjomekwe [mbwuu]
Dschang [mbu]

c. Proto-Bamileke *bin 'breast'

Fèfè [pɛn] Mbouda [lɛ-pɛn]
Mbi [n1-bɛn] Bayangam [pɪ]
Fotouni [pɛn] Bangangte [pɛn]
Batie [pɛn] Bangwa [apɛ]
Bamoum [pɛn] Fondanti [pɛn]
Mankon [nɛ-bɛn] Fondjomekwe [pɛn]
Bamendjou [nɛ-pɛn] Batcha [pɛn]
Dschang [lɛ-pɛn]

This three way contrast is easily documented with other examples. PBke *Cun is realized in Fèfè as [Cwɛn] if the initial consonant is labial, palatal or velar, but as [Cɛn] if the consonant is alveolar:

(56) PBke Fèfè PBke Fèfè

*bun > [pɛn] 'to shout' *jun > [yɛn] 'to buy'
*sun > [sɛn] 'friend' *kun > [kɛn] 'to enter'

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The contrast between *in and *un must be postulated, since there are some instances of Feⁿfeⁿ [ɛn] that correspond with [in] in other dialects and some instances of Feⁿfeⁿ [ɛn] that correspond with *[i]. (Both [in] and *[i] undergo various alterations in such dialects, as seen in (55).) Of course, instead of recognizing *in, I could have reconstructed *un. Thus, 'breast' would be reconstructed as *bn in Proto-Bamileke. Since the reconstruction of 'breast' in Proto-Bantu is *bele (i.e. with a front vowel), the Proto-Bamileke vowel *i is not an implausible reconstruction. Once again there is a hint that *u in Bamileke derives from an earlier *i. Thus, the historical changes characterizing Feⁿfeⁿ are summarized in (57):

(57)  
PBke *in  >  Feⁿfeⁿ [ɛn]  
PBke *un  >  Feⁿfeⁿ [(w)ɛn]  
PBke *in  >  Feⁿfeⁿ [ɛn]  
PBke *en  >  Feⁿfeⁿ [ii]  
PBke *on  >  Feⁿfeⁿ [uu:oo]  
PBke *an  >  Feⁿfeⁿ [ee]  

3.6. Proto-Bamileke *V?.  

The glottal stop has two sources in Feⁿfeⁿ. It was seen in section 3.3 that some instances of glottal stop reconstruct as PBke *ŋ. Thus, Feⁿfeⁿ [ɛʔ] and [aʔ] reconstruct, respectively, as *on and *an. However, glottal stops after other vowels must be reconstructed in Proto-Bamileke. The Feⁿfeⁿ sequences [iʔ], [uʔ], [aʔ], [aʔ] and [oʔ] appear to reconstruct as PBke *iʔ, *uʔ, *aʔ, *eʔ and *oʔ. Feⁿfeⁿ [aʔ] reconstructs as Proto-Bamileke *aʔ, as seen in the following dialect comparisons:

(58)  
Proto-Bamileke *faʔ 'to work'  

Feⁿfeⁿ [faʔ]  Mbouda [faʔ]  
Botouni [faʔ]  Bayangam [faʔ]  
Batie [faʔa]  Fondanti [faʔ]  
Bamoum [faʔ]  Fondjomekvet [faʔ]  
Mankon [faʔa]  Batcha [faʔ]  
Bamendjou [faʔ]  Dschang [afəʔ] (*noun)
Since *aŋ becomes Feŋfeŋ [aŋ], it is possible that this change "pushed" *aŋ to become [aŋ]. On the other hand, the change of *aŋ to [aŋ] may be related to the change of *aŋ to [a] in open syllables in Feŋfeŋ (cf. PBke *fa 'to give', Feŋfeŋ [ha]). While it is clear that Proto-Bantu did not have glottal stops, I have been unable to determine the source of PBke *?. Given that glottal stop derives from the reduction of earlier final consonants, the table given in (4) above suggests that glottal stops may derive from final voiceless consonants of some type, since only voiced consonants are reconstructed in final position in Proto-Bamileke. This, of course, requires further investigation.

4.0. Conclusion.

In this chapter a number of sound shifts characterizing Feŋfeŋ were illustrated. Proto-Bamileke reconstructions were in most cases provided. It is clear from the many forms cited from non-Feŋfeŋ dialects that sound shifts differing in detail from those characterizing Feŋfeŋ must also be studied in other dialects. It was seen that these reconstructions suggest that the earliest form of Proto-Bamileke was characterized by the vowel system in (59a) and not the system in (59b):

(59) a. *i  *u  *a  *e  *o  *e
    *i  *u  *e  *o  *e  *a

The vowel system in (59a) is of course identical to that of Proto-Bantu. The deeper our knowledge of Bamileke, the more I suspect that our reconstructions will look like Proto-Bantu. Finally, notice should be made of the theoretical interest of these sound shifts. Specifically, evidence for the interpretation of some of these shifts as "push chains" has been presented. A greater understanding of these shifts will undoubtedly contribute to our understanding of the nature of historical sound change in general.
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