SOME ASPECTS OF ASSIMILATION IN SOUTHERN SOTHO WITH SPECIAL REFERENCE TO VOWEL RAISING

by

ESAU MOHLÔPHEHI RRAMATSA MAHLASELA
BA., Hons. BA (Afr. Ndl), Hons. BA (Afr. Langs) UED (UZ)

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SUPERVISOR   :   Prof.   S D Ngcongwane

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D E C L A R A T I O N

I, ESAU MOHLÔPHEHI RRAMATSA MAHLASELA, declare that
this dissertation represents my own work in conception
and execution. I also accept full responsibility for
all the statements made. The sources I have used or
quoted have been indicated and acknowledged by means of
complete references.

Signed ....

       E. M. R. MAHLASELA

at KWA-DLANGEZWA on this .... day of .... 1989.

ACKNOWLEDGEMENTS

C O N T E N T S

SOME ASPECTS OF ASSIMILATION IN SOUTHERN SOTHO WITH SPECIAL
REFERENCE TO VOWEL RAISING

CHAPTER 1

CHAPTER 2

CHAPTER 5

5. INTRODUCTION

CHAPTER 6

6. INTRODUCTION

CHAPTER 7

CHAPTER 8

S U M M A R Y

This dissertation treats Vowel Raising as a part of Assimilation in Southern Sotho. Assimilation as a concept in any language is a broad concept that includes consonantal and vowel influences that have been juxtaposed. The influence may be between two vowels in juxtaposition i.e. [i] next to [ε] produces [ẹ] . [u] next to [ɔ] or [ε] also produce the allophones of two vowel phonemes i.e. [ọ] and [ẹ] respectively. In short, when close vowels are juxtaposed to open or semi-open vowels, raising will take place. Exceptions may occur sporadically.

This study has been treated in eight chapters.

(a)   CHAPTER ONE

Theoretical background and motivation to the study are given. An hypothesis that [ẹ] and [ọ] as allophones are non-semantic, is given.

(b)   CHAPTER TWO

Common Bantu and Ur-Bantu are discussed. The aim is to trace how far they had influenced the development of the present Southern Sotho. Different types of Sotho v/charts are treated.

(c) CHAPTER THREE

The origin of the Vowel Charts in respect of the IPA is discussed. All what pertains to IPA alphabet and its usage is treated.

(d) CHAPTER FOUR

The Vowel treatment of D P Kunene and D T Cole are critically discussed. The two are the great contributors to the study of Vowels in Sotho.

(e) CHAPTER FIVE

Southern Sotho Vowel chart is made from the research findings.

(f) CHAPTER SIX

The Concept Assimilation is treated in full.

(g) CHAPTER SEVEN

Vowel raising as a concept is fully treated.

(h)   CHAPTER EIGHT

i)   In order to grasp Vowel Raising correctly an
attempt at its codification has been done. This
approach has contributed greatly to the. study of
Vowel Raising.

ii)   In conclusion it has been discovered that [e] and [o]
are phonemes identical with Cardinal vowels numbers 2
and 7. They are not the allophones of [ɛ] and [ɔ] as
Kunene argues.

KGUTSUFATSO

Mongolophuputso ona o qoqa ka Phahamiso ya Ditumannotshi e le karolo ya tshwaetsano Sesothong. Tshwaetsano ha e nkuwa e le karolo ka boyona puong efe kapa efe eba tabakgolo e amang kamano ya ditumammoho le ditumannotshi tse bapileng. Kamano e ka ba ditumannotshing tse pedi tse bapileng k.h.r. [i] pela [ɛ] e bopa [ɛ̝]. [u] pela [ɔ] kapa [ɛ] le yona e bopa ditumannotshiphapohi (dialofone : allophones) k.h.r. [ɔ̝] le [ɛ̝] ka ho latelana. Ka bokgutshwanyane ditumannotshipatisane (close vowels) ha di bapile le ditumannotshipulehi (open vowels) kapa tumannotshisekapulehi (semi- open vowels) phahamiso e tla ba teng. Mekgelo e ka nna ya wela mona le mane.

Thuto ena e arotswe dikgaolo tse robedi.

(a) KGAOLO YA PELE:

Tshehetso ka tse sa ngolwang le tshusumetso ya phuputso di a hlaloswa. Nahanello ya hore [ɛ̝] le [ɔ̝] jwalo ka ha e le ditumannotshiphapohi (allophones) ha e na moelelo e a hlaloswa.

(b) KGAOLO YA BOBEDI

Common Bantu le Ur-Bantu di a hlaloswa. Boikemisetso ke ho fofonela hore di tshwaeditse tswelopele ya Sesotho ho le ho kae. Mefutafuta ya dipapetla tsa ditumannotshi tsa Sesotho e a hlaloswa.

(c)   KGAOLO YO BARARO

        Setso sa Papetla ya Ditumannotshi ho ya ka IPA le
        tshebediso ya tsona ho a qoqwa.

(d)   KGAOLO YA BONE

        Ho fanwa ka moqoqotlhophollo wa Ditumannotshi tsa DP
        Kunene le D T Cole. Bobedi ba bona ba se ba entse
        diphehiso tse kgolo haholo Sesothong mabapi le
        thuto ya Ditumannotshi.

(e)   KGAOLO YA BOHLANO

        Papetla ya Ditumannotshi tsa Sesotho e entswe ka ho
        thehwa hodima dintlha tse fumanehileng ka phuputso.

(f)   KGAOLO YA BOTSHELELA

        Seo Tshwaetsano e leng sona se buuwa ka botlalo.

(g)   KGAOLO YA BOSUPA

        Phahamiso ya ditumannotshi e qoqwa ka botlalo.

(h)   KGAOLO YA BOROBEDI

i)   Hore Phahamiso ya Ditumannotshi e utlwahale hantle,
        matshwao a nang le moelelo o itseng (codes) mabapi le
        thuto ena, a ile a sebediswa.

ii)   Qetellong ho ile ha fumaneha hore [e] le [o] ke
        medumomabopi (difoneme k.h.r. phonemes) e tshwanang le
        Ditumannotshikakaretso (Cardinal Vowels) Pedi le Supa,
        k.h.r. 2 le 7. Hase ditumannotshiphapohi (allophones)
        tsa [ɛ] le [ɔ] jwalo ka ha Kunene a phea kgang.

CHAPTER 1

1. INTRODUCTION

   1.1 Aim of Study

   1.2 Theoretical background

   1.3 Research Methodology

   1.4 Identification of a problem

   1.5 Explanation of symbols and Key terms used

1. INTRODUCTION

Vowel raising as a concept in Southern Sotho is one of the subdivisions of Assimilation. Assimilation as a linguistic or a morpho – phonological phenomenon, is divided into consonantal and non-consonantal influences. These are further subdivided into numerous ramifications which may either be complete or partial. Each of these has its own ramifications, such as progressive, reversive and reciprocal that distinguish it from the aforementioned subdivisions.

Assimilation plays an important role in the tonal regulation of Southern Sotho. This, should, however, not to be confused with Southern Sotho intonation. Southern Sotho phonemes are, as a rule, always affected by their situatedness in the morphemes or lexical items in which they occur. Their situatedness exerts a linguistic or phonic influence on them. They therefore react to their environmental influences in five different ways:

a) Complete submission to the environmental influence that results in Complete Assimilation.

b) Partial submission to the environmental influence that results in Incomplete Assimilation.

c) Reciprocal reaction: This results in the formation of a new sound or phoneme from two phonemes which cannot succeed to assimilate each other.

. As a result, a reactionary process results. The two unidentical phonemes in juxtaposition then partially influence each other whilst still retaining some of their own characteristics. A new phoneme of a different nature results. It may look different or sometimes identical with its constituents put together,

e.g. [t] + [s] > [ts'].

In [ts'], one can still identify the phonemes /t/ and /s/. In certain cases, the process is not as easy as that.

Note the following:

[n] + [b] > [mp']

What can be realised in [mp'], is that some of the phonetic characteristics found in [*nb] are still found in [mp']: The phonemes /n/ and /m/ are both nasal continuants. /b/ and /p'/ are both bilabial explosives. The striking phonological phenomenon in the phoneme /mp'/ is that the phone [n] takes on the bilabial characteristics from [b] and becomes [m], but that [b] is in turn strengthened by the nasal [m] which developed from [n] by the influence of the juxtaposed [b]. The phoneme /b/ on the other hand becomes a fortis /p'/. This is brought about by the

strengthening or plosivating influence of the nasal phoneme /n/. This process can schematically be represented thus:

$$[n] + [b] > * \widehat{nb} > [mp']$$

d) Direction determination, i.e. to be either progressive or reversive.

e) Complete resistance to environmental influence; e.g "maikemisetso", with the phonemes /a/ + /i/ in juxtaposition bringing about no vowel assimilation. There are many examples of this nature, but seeing that they do not contribute anything to vowel raising, this aspect will not be discussed in detail since it falls outside our scope. Some of the examples are the following:

<u>mailakgaka</u> (inconsistent person)

<u>mailaditahang</u> (one who abstains from alcoholic drinks)

<u>maimane</u> (liar, deceiver)

<u>maime</u> (difficulty, a medicine used for causing a chief to be lenient in his judgement, or for causing difficulties).

<u>mainodi</u> (plural of <u>leinodi</u> i.e. the bird Chelicutona albiventris, i.e. a brown hooded kingfisher)

<u>maina</u> (honorific substitute for <u>lebitso</u>,name)

N.B. maino is seldom used thus, the correct

form of the plural of leino (tooth) is meno

[mɛnɔ].

The phonemic and morphemic vowels in Southern Sotho are always found in either a consonantal or non-consonantal locus. The phonic environment, then, determines the type of vowel raising that results.

1.1 AIM OF THE STUDY

Generally speaking, vowel raising is regarded as a valueless linguistic phenomenon because the raised vowels are regarded as the allophones i.e the variants of their non-raised counterparts. They therefore effect no change of meaning in the words in which they occur. This implies that it should not take place because its occurrence is semantically not valid. According to this assertion, then, the following lexical items should have the same meanings:

i)   bona [bɔna] (pronoun) X bona [bɔna] (Demonstrative)

ii) hona [ɦɔna] (pronoun) X hona [ɦɔna] (Demonstrative)

iii) ona [ɔna] (pronoun) X ona [ɔna] (Demonstrative)

iv) tsena [ts´ɛ na]   X tsena [ts´ɛ na] (Tsw. enter,v.) (Tsw. Demonstrative)

A thorough analysis of the above examples shows that the assertion that "allophones" are not semantically valid, is rather sweeping. There are, according to the examples above, meaningful or "semantically valid allophones". Some of the lexical items may consist of the so-called raised vowels, apparently without any linguistic cause:

kokobele [k´ɔ k´ɔ bɛ lɛ]

(termite in the flying stage)

momololo [mɔ̃mɔlɔlɔ]

(Ideophone: to be quiet, to wonder)

tlekelele [tl´ɛ̃k´ɛlɛlɛ]

(Ideophone: to stand astonished)

tlemelele [tl´ɛ̃mɛlɛlɛ]

(Ideophone: to be bewildered)

In certain instances vowel raising occurs where it is least expected, e.g.

jwale   [ʒwalɛ] (now)

kwena   [kwɛna], (crocodile) etc.

Let it be borne in mind that the term allophone, is at present not used in its full meaning. Its usage is still restricted to the examples that are being discussed at present. The phonetic orthography used here has a general application.

This study is therefore an attempt to find all causes of vowel raising, dormant or active. The phenomenon of vowel contraction will also be discussed, since many people confuse it with vowel raising.   In this study we are also going to find out whether there are no certain basic vowels in Sotho that are being mistakenly taken for raised vowels.   If there are such vowels, where can they possibly be placed on a Southern Sotho Vowel Chart?   The IPA approach will be resorted to, and modifications

One of the main reasons that motivated the researcher to undertake this study, is the negative attitude held by the linguists regarding vowel raising as a worthless study. Because of such an attitude, no thorough or exhaustive study has been done on it, especially on the so-called allophones and their "semantic" valences.

Kunene (1961), treated the behaviour of Southern Sotho vowels, by so doing he also treated certain incidences of vowel raising, as vowels are a part of sound system of Southern Sotho. So far, Kunene (op. cit) is the only scholar who has done a detailed study on the Sound system of Southern Sotho.

It must be mentioned, however, that Kunene's objective was not vowel raising as a concept; because of this,certain factors leading to vowel raising are not treated despite his exhaustive study of the Sound System of Southern Sotho (1961). His study covers a wide field of Southern Sotho Sounds; viz., vowels, consonants, prosodics, morphonology, and even orthography. It is therefore too broad a field of study which includes different aspects that can be treated individually for detailed analysis. Due to this factor, some aspects of his study warrant further research and elucidation for better contribution. This is no way an attempt to pooh-pooh the contributions from the works of Tucker, (1960), Cole, (1948 and 1952), Ziervogel, (1973 to 1974), etc., i.e linguists who had written on the behaviour of vowels and their relationships in Sotho. In all these works, the emphasis is on the tonal relationships of vowels such as [e] and

[ɛ] or [ɛ̞] and [o] and [ɔ] or [ɔ̞], etc., including their positioning on the vowel charts. There is very little attention paid to the semantc value of [ɛ] and [ɛ̞] and [ɔ] and [ɔ̞].

Whenever the allophone [ɛ̞] alternates with the phoneme /e/, this is regarded as a substitution of sounds without finding the cause for such averlapping! This is a common occurence in Southern Sotho, when the perfect suffix "-ile" < UB * -ⁱle < * -ⁱlŷe <*-ⁱlie is used.

The behaviour of vowels in concords will also be treated. There is a queer phenomenon of vowel raising that takes place in concordial morphemes.

Kunene's (1961), raised /ɔ/ and /ɛ/ phonemes i.e. [o] and [e] respectively, are not in line with his cardinal vowels, numbers 2 and 7 despite the fact that his /ɛ/ and /ɔ/ phonemes are identical with cardinal vowels numbers 3 and 6. According to his sketch, when his /ɛ/ and /ɔ/ phonemes are raised to [e] and [o], they ought to be in line with cardinal vowels numbers 2 and 7. What we see happening regarding the behaviour of Kunene's raised [e] and [o], is a discrepancy which Kunene (op.cit) does not explain in clear terms.

There is no reason that his raised [e] and [o] should not occupy the spaces of cardinal vowels, numbers 2 and 7 because these spaces remain unoccupied. Such loop-holes will not pass unattended and will thoroughly be scrutinized in this work.

Ziervogel, et al, (1967:136-137), have the same phenomenon too. When they qualify [ɛ], they say:

> is a raised semi-open front vowel which is a variant of [ɛ], slightly lower than Cardinal Vowel number 2, e.g. seledu [selɛdu].

In page 137, they define ô [ɔ] in the same way:

> is a raised semi-open back vowel which is a variant of [ɔ], slightly lower than Cardinal Vowel number 7, e.g. molori [molɔri] (dreamer).

When Kunene (op.cit) defines his [ɛ] and [ɔ] he never gives a clear definition of their nature as far as their openness is concerned. When he defines [ɛ] he says:

> A front lower mid-vowel. Its tongue position is about the same as that of Cardinal Vowel number 3 (1961 : 13).

When he defines [ɔ] he says:

> A back lower mid vowel. Its tongue position is about the same as that of Cardinal Vowel number 6 (loc. cit).

The sentence "Its tongue position is about the same as that of cardical vowel number 3 and 7", must be defined clearly. What does "about the same" mean? Does it mean, slightly more open or about as open as Cardinal Vowels numbers 3 and 7? That is why his raised vowels are put at unspecified localities. Ziervogel, et al (1967), on the other hand, give a clear description of the localities of their vowels:

> the e of Southern Sotho is a semi-open front vowel
> and is about the same as Cardinal Vowel number 3,
> perhaps slightly more open, e.g. rêma [-rɛ ma]
> (chop), p.135.

The same definition of "perhaps slightly more open" of Southern

Sotho ô [ɔ] is also given. Their raised counterparts could not

be identical with Cardinal Vowels numbers 2 and 7. This is

clear!

1.2 THEORETICAL BACKGROUND

Relevant sources pertaining to this study have been consulted. They include articles written on Southern Sotho vowels. Kunene's (1961) doctoral thesis forms a good base of the theoretical background. Sources pertaining to other African languages outside the South Eastern Zone, especially Central and Western or Eastern and Central Africa have been consulted. The Vowel distribution and behaviour of Swahili vowels by Tucker and Ashton (1942) have been used.

Different sources dealing with phonetics and phonology and other linguistic aspects regarding vowel behaviour, i.e. raising, assimilation, etc., had been perused with great interest in order to build a clear picture of vowel behaviour in general, rather than concentrating only on Southern Sotho vowels. From this, different approaches on the studies of vowel raising and charting of vowels in different languages had been discerned. These have been of great value to this study because they led to sound conclusions based on empirical findings, rather than mere speculations.

1.3   RESEARCH METHODOLOGY

The research methodology resorted to in this study is based on
the collectión of data on the written behaviour of vowels in
Sotho languages with special emphasis on Southern Sotho. Some
languages found outside the South Eastern Zone have also been
consulted to discover certain vowel behavioural phenomena which
had become obsolete in Sotho in general or even to some African
languages belonging to South Eastern Zone.

Studies on black languages of Central Africa have cast some
remarkable light on certain areas where vowel raising appears to
have occurred without cause! Swahili, for instance, has been of
great help in as far as the distribution of the Sotho vowels is
concerned.

Gaps pertaining to vowel raising, i.e. incidences where the cause
of vowel raising appears non-detectable, had been discovered via
Ur-Bantu and Common Bantu based on the comparison of Central
African languages. In this regard, Bourquin´s, (1955) article on
"Close Vowels" in Bantu (African Studies, Vol. 14, : 49) played
an important role.   Ziervogel´s article (1973 to 1974), helped
substantially in the behaviour of the vowels in the concordial
morphemes.   Many articles which had been of great value to this
study had been perused and assimilated in this work. References
to relevant sources would be made whenever extracts or quotations
based on them are made.

Apart from sources relating to African languages about vowel raising, some sources relating to European languages about the positioning of the semi-close front and semi-close back vowels have been consulted. When different informations that had been gathered from the different sources, i.e. articles, textbooks, dictionaries, etc., are synthesised, it has become easy to correct the wrongly positioned Sotho vowels, especially vowels numbers 2 and 7.

For decades, Sotho vowels have posed problems on linguists and phoneticians studying their behaviour. This could be caused by the fact that Sotho vowels are "more" than the peripheral primary Cardinal Vowels. Yes, more, because some are midway between recognised Cardinal Vowels, whilst others are identical with some Cardinal Vowels. This idea will become clear as we proceed with our study and when the mid-way positioning of Sotho vowels is briefly explained.

Van Eeden, (1943 : 1) is one of the grammarians or linguists who had long realised that the Sotho vowel system is not as simple as those of most Bantu languages. He puts it this way:

> Die vokaalsisteem van Sotho is geensins so
> eenvoudig soos die van die meeste Bantoetale nie;
> daarom verdien dit spesiale aandag.
> Die sewe vokale wat gewoonlik in geskrewe Sotho
> onderskei word, word i, a, u, ē, è, ō, en ò
> geskryf in die standaard woordeboek (Sesuto-
> English Dictionary, deur A. Mabille en
> Dieterlin).

From here he gives examples to support what he says:

e.g. <u>titima</u>   (hardloop)

   <u>rata</u>   (bemin)

   <u>bula</u>   (oopmaak)

   <u>lēlēmē</u>   (tong)

   <u>fēpa</u>   (voed)

   <u>mōthō</u>   (mens)

   <u>pòhò</u>   (bul)

N.B.   His examples   are correct   except <u>fēpa</u>   which ought   to be

<u>fèpa</u>.   There is no word which is <u>fēpa</u> in Southern Sotho.   He goes

further and explains that:

> Soos aangedui in paragraaf 4, is   daar naas die
> geslote en ope e´s en o´s, egter ook nog ´n <u>half-</u>
> <u>geslote</u> e en o, maar hierdie twee vokale kom nie
> so baie voor nie.   Jacottet skryf hulle in sy <u>A</u>
> <u>Grammar of the Sesuto Language</u> bloot e en o,
> terwyl hy _onderskeidelik die geslote e´s en o´s
> met ē en ō en die ope e´s en o´s met è en ò
> voorstel;   <u>m.a.w. vir beide die geslote e en o</u>
> <u>gebruik hy die diaktriese teken ¨ , vir beide die</u>
> <u>ope e en o die teken ` en vir beide die half</u>
> <u>geslote e en o geen bykomende teken nie. (loc.</u>
> <u>cit).</u>

Van Eeden (op.cit) speaks about [ɛ̣] and [ɔ̣] as semi-close vowels.

He says they occur in some locatives and perfect forms.

The examples he gives are the following:

   <u>laetsa</u> (kous van <u>laèla</u>, beveel) and

   <u>tlosa</u> - (kous van <u>tlòla</u>, die liggaam, of iets ander smeer),

as in words such as <u>khoeli</u> (maan, maand), <u>khomō</u> (bees), <u>menō</u>

(tand), <u>metsi</u> (water), <u>kajenō</u> (vandag).

The vowels he speaks about do occur in the examples he has given, but they are not semi-close vowels! They are the raised [ɛ] and [ɔ] respectively. If he calls [ɛ̣] and [ɔ̣] semi-close, what will he call his ē and ō? These are the Sotho vowels, numbers 2 and 7.

Listen to what he says about Sotho vowels numbers 2 and 7.

> Hoewel dit duidelik is dat 'n ope e (e) of o (o)
> deur 'n volgelende geslote vokaal vernou word tot
> 'n half-geslote e of o, is aan die ander kant ook
> opmerklik dat daar heelwat gevalle voorkom waar 'n
> half-geslote of ope e of o vernou word (tot 'n
> geslote e of o wanneer dit voorafgegaan word deur
> 'n half-geslote e of o, bv. lēino (tand) -plural
> menō (vgl. LES X); emē en bonē (perf. van ema)
> (opstaan) en bona (sien); vgl. LES XXLL; kajeno
> (vandag); en die reel geld blykbaar ook vir die
> demonstratiewe waarin 'n half-geslote e of o
> gevolg word deur 'n geslote ē of ō (LES XX11)
> (loc. cit.)

This statement makes one believe that è and ò can be raised twice, i.e. è [ɛ] > e [ɛ̣] > ē [ɪ], and ò [ɔ] > o [ɔ̣] o [ʋ].

This is what the whole exposition means! This phenomenon of "double raising" will be dealt with in detail when the behaviour of the phonemes /e/ and /o/ is being treated. These phonemes should not be confused with the raised [ɛ] and [ɔ]. They are not identical. Should one regard them as identical without any scientific proof, i.e. being misled by their acoustic similitude, the concept of "double raising" sets in immediately. One will find oneself in a maze with numerous cul-de-sacs. Van Eeden (op. cit) apparently has fallen into this trap with the examples he gave above, i.e.

bona (see)   > bonē (have seen)

leinò (tooth) > menō (teeth)

èma (stand)   > emē (to be standing)

and kajenō (today)

The researcher would like to explain briefly how the phoneme /e/,
(to use van Eeden's orthography) occurred in the above examples.

i)   bone [bɔnɪ] < bɔna   + * ⁀le < * ⁀lŷe < * -⁀lie

              [bɔna] + * -⁀le

         >   [*bɔna⁀le]

         >   [*bɔnⱥ⁀le]

         >   [*bɔ̝n⁀le]

         >   [*bɔ̝n⁀ (l)e]

         >   [*bɔ̝n⁀e]

         >   [*bɔ̝n (⁀+e)ɪ]

N.B (⁀+e) in juxtaposition will produce a glide [j] i.e. *ŷ
i.e [bɔ̝n⁀e]   will be [bɔ̝n⁀e]. The terminative /e/ will be
raised to [ẹ] by the close *ŷ glide from ⁀+e.
[bɔ̝n⁀ẹ] > [bɔ̝n (⁀+e) > I]
i.e [bɔ̝nɪ].   The terminative /ɪ/, is a   fusion   between
*⁀+e i.e. the /e/ phoneme raised by the glide *ŷ. This glide
is also found in the older form of *⁀le i.e. *⁀lŷe.

ii) meno [mɛnʋ] < * ma⁀nɔ   < *ma -ɣ⁀no

                           < *li-ɣ⁀no

                              (Meinhof. 1968 : 191)

How can we account for [ʊ] or the phoneme /ʊ/ in [mɛnʊ]? This can be traced in the same way as in the example treated above:

/↑/ + /o/ > /o̰/ in *li-ɣîno̰

/î/ + /o̰/ fuse and produce /ʊ/ in the process of vowel contraction. Meinhof (op. cit. : 25) warns that sometimes it happens that UB i, u is Sotho ḛ, o̰ ....

> Note . Of course there are exceptions to this rule .... Nor must the rule be understood to imply that every e and o in Sotho is derived from B. i or u, but in general the above rules will be found to apply (loc. cit.)

iii) -emē [-ɛmɪ] < èma [- ɛma]

-èma [- ɛ m a] + *-île <*-îlŷe < *îlie

> [-ɛma + * île]

> [*-ɛmaîle]

> [*-ɛm̸île]

> [*-ɛmîle]

> [*-ɛmîle]

> [*-ɛmî(l) e]

> [*-ɛmî ʲe]

> [*-ɛmîe < * ŷ (glide < * - îa)

> [* -ɛm (î+ e) > I]

> [* -ɛm I]

The three examples treated above show how the phoneme /I/ is formed by the usage of the perfect suffix -ile which is identical with the Ur-Bantu suffix *-île. When the Ur-Bantu suffix *-île is slightly lowered in Sotho to be [- ɪlɛ], there will be no formation of /I/ phoneme terminally! Note the following monosyllabic verbal stems:

-n a + *île   >   [-nɪlɛ]   (-has rained)

-shwa + *île   >   [-ʃwɪlɛ] (-has died)

-sa + *île   >   [- sɪlɛ] (-has dawned)

-wa + * île   >   [-wɪlɛ]   (-has fallen)

-psha + *île   >   [-pʃɪlɛ]   (-has dried up)

-lwa + *île   >   [-lwɪlɛ] (-has fought)

-tjha + *île   >   [-tʃhɪlɛ] (/has burned)

There is a third form of *île suffix in Southern Sotho, pronounced as [-îlɛ̞]. This form cannot lead to the formation of /I/ phoneme that occurs terminally in the second form of the perfect in Southern Sotho e.g.:

a)   tsamaya (go) +*île i.e.   [-ilɛ̞]

> [tsˊamaja + ilɛ̞]

> [*tsˈamajailɛ̞]

> [*tsˊamajʲilɛ̞]

> [*tsˊamaʲílɛ̞]

> [*tsˊamailɛ̞] (has gone)

b)   bitsa (call) + *île i.e.   [- ¡lɛ̗]

>   [bits´a + * î le]

>   [bits´a +   ilɛ̗]

>   [bits´ʎilɛ]

>   [bits´ilɛ̗]

>   [bits ˀ its ˀɛ] (has called)

N.B.   The second [-ts] occurred because of the primitive original *y glide that exists between [-l ...ɛ] of the perfect suffix derived from the discontinued or omitted [-i-] sound that existed in the original perfect suffix, i.e. [*îlie].

The word -bitsa [-bits´a], is in itself in a derivative form, it has been derived from   *[-yila], (Meinhof, 1968 : 244, Index 6 Eng- Ur-Bantu). In pages 66-67, Meinhof (op.cit) explains in Northern Sotho or Pedi, how the word -vitž´a "call" has been formed from *- yila. He demonstrates that the causative suffix *lv̂a gives rise to tža.

> The causative *-v̂a produces the change la + -ŷa > -tža, e.g vitž´a "call" from the stem * - yila, p. 67.

The Northern Sotho bitsa (call) is identical with the Southern Sotho bitsa. The manner the Northern Sotho /-tsa/ phoneme has been formed, is the same as in Southern Sotho; [bits´its´ɛ̗] has therefore been formed from:

* [-v̭ila + ŷa (<i+a) + -lŷe (<t̂lie)]

i.e. * [-viḽáŷa + ilŷe]

>* [viḽŷa + ilŷe]

>* [viḽŷailŷe]

>* [-vi̭(lŷ)ailŷe]

>* [-bitsailŷe]

>* [-bitsái(lŷ)e]

>* [-bits´its´e]

i.e.   [bits´its´ɛ̭]   (-has/have called)

From the given examples it has become clear that the Southern Sotho "-ile", can exist in three different forms i.e. [ile], which is identical with Ur-Bantu *-t̂le, and [-ɪlɛ], which is found mostly in the monosyllabic verbal stems, and [-ilɛ̭] which is found mostly in polysyllabic verbal stems, and as a rule, cannot generate the phoneme /I/ in the perfect form of the polysyllabic verbs concerned.

Van Eeden´s suggestion for the students to master the different e´s and o´s is that,

> is dit wenslik geag om hulle van hier af aan
> deurgaans op dieselfde wyse te skryf en te
> onderskei as Jacottet. Samevattend sal die nege
> vokale dus as volg voorgestel word: i, a, u, ē, e,
> è, ō, o, en ò (op. cit. : p 2).

Van Eeden (1943) could recognise nine vowels in Sotho.   He omitted the raised counterparts of Sotho e and o (if one were to use his orthography).   The omission may mean that he doesn´t regard them as existing or he fails to understand their existence

acoustically. This confirms what he has mentioned in his first page that the vowel system of Sotho is not in any way simpler than that of the most Bantu languages. Because of this, it needs special attention. Despite the attention he gave to it, some were not detected.

Data regarding homographs that differ semantically because of their so-called "raised vowels" has also been collected. This has been fully elucidated regarding the differences in meanings about the vowels that are regarded as allophones.

The tendency so far discovered, is that some vowels existing as different phonemes, have not been given this status because they are acoustically identical with certain allophones. Many linguists faultered on this score, because many lexical items that are structurally identical have been compared on the basis of their minimal pairs and in many incidences these lexies (lexical items) differ in meaning because of the differences in their allophones, i.e. [ɛ] v/s [ɛ̣]. Such differences in meanings will be fully treated in this treatise. This will further make us know the behaviour of allophones in Southern Sotho. Much data collected for this comparison on minimal pairs of the lexical items, has been taken from Paroz (1961) and from some words derived from onomatopoeic stems.

Onomatopoeic words are of great relevance in this study because they are suggestive of their action. Included in this group are ideophones and interjectives. Vocatives have also been included in some instances where their usage brings about a change of

meaning in words that are graphically identical and would not have a semantic change, unless they feature in vocative syntactic constructions.

Emotionally charged words tend to be produced in high tones, and not necessarily in raised vowel phonemes. Some lexies can be produced or used syntatically in high tones accompanied by raised vowels and others not, i.e. they may be produced with force but still retaining their unraised vowel phonemes.

    e.g. mo lokolle! (untie him/her)

        [mʋ lʋk´ʋllɛ]

        mo shape! (beat him/her)

        [mʋ ʃap´ɛ] (beat him/her)

        e tlame! (tie it i.e. dog)

        [ɪ tl´amɛ]

The terminative "-e" sounds, are all the Sotho [ɛ], which is almost identical with Cardinal Vowel number 3, but slightly open. When the above vocative sentences are pluralised, the [-ɛ] terminative vowels are raised to [ɛ̣] by the suffix [-ŋ] <*-(i)nî:

ba   lokolleng   (you (plural) (untie them)

[ba̱ lʊkʉllɛŋ]

ba   shapeng   (you) plural)   (beat them)

[ba ʃapɛ̱ŋ]

di tlameng (you) plural) (tie them, i.e. dogs)

[di tlámɛ̱ŋ]

The greatest collection of the onomatopoeic words has been taken from Guma (1951 and 1975), Kunene, (1961, on "Ideophones", 1965, "The Ideophone in Southern Sotho" part 1, and 1963, on Southern Sotho Words of English and Afrikaans origin), etc.   Swanepoel, (1975 to 1976) with his "Sekgolokwe", shows that certain vowel phonemes of Sotho got tainted by Nguni influence . Bill, (1974-1979) explains   "The influence of the Hottentot Languages on the Bantu Languages" (Limi, Vol. 1 and 2; Vol. 2, No. 2.)

This is just a compendium of the methodology used in this study. From here we will explain all the symbols used in this study. The aim being to obviate any confusion that may arise due to the usage of the unexplained phonetic, phenological and phonemic symbols.   It must be noted however that any specific symbol used has been chosen with specific intention to avoid a possible confusion of double interpretation that could arise if a different phonetic grapheme had been used without been explained.

1.4   IDENTIFICATION OF A PROBLEM

The problem faced with here is that the allophones are generally regarded as ′ the variants of their non-raised counterparts, this being the case then, they do not change the meanings of the lexical items in which they occur. In Southern Sotho the idea of allophones is far reaching than the given explanation. In certain cases the raised vowels [ɛ̣] and [ɔ̣] feature as allophones of [ɛ] and [ɔ] respectively without any change of meaning. In certain cases however, the difference of meaning becomes a reality. The aim of this study is to find this allophonic discrepancy between [ɛ̣] and [ɔ̣] which sometimes is allophonic and in certain cases becomes phonemic.

1.5   EXPLANATION OF SYMBOLS AND KEY TERMS USED

In this study specific symbols and key terms will be used to obviate the possible confusion that may arise.

1.5.1   The phonetic symbols [ɪ] and [ʋ] will be used for Southern Sotho vowels, numbers two and seven respectively. The Southern Sotho [ɪ] · lies between Cardinal Vowels numbers one and two. The Southern Sotho [ʋ] lies between Cardinal Vowels, numbers seven and eight. [ɩ] and [ʋ] will represent their allophones respectively.

1.5.2   The phonetic symbols [e] and [o] will indicate the Southern Sotho Vowels that are identical with Cardinal Vowels numbers, two and seven, which are not raised. Their raising becomes an intellectual exercise rather than a practical phenomenon. Their raised forms i.e. allophones would be [e̤] and [o̤] which would lie midway to [I] and [ʋ] respectively. Acoustically, [e] and [e̤] would be the same. The same acoustic similitude would also take place between [o] and [o̤].

1.5.3   The phonetic symbol [ɛ] will be used for Southern Sotho Vowel that is almost identical with Cardinal Vowel number three, but slightly open. [ɔ] will represent the Southern Sotho Vowel that is almost identical with Cardinal Vowel number six, but slightly open. Their allophones will be represented by [ɛ̤] and [ɔ̤] respectively. They will lie slightly below cardinal vowels numbers two and seven,

respectively. Acoustically they will be the same with the vowels near which they lie! This is not surprising because they would be sharing the same environments anteriorly or posteriorly of the vowel chart.

1.5.4 The TI represents the Triangle of Inertia i.e. the triange in which vowel raising takes place. In this triangle the base is prepared for raising to take place.

1.5.5 TE is the Triangle of Effect which is generated by the TI. In the TE the actual process of raising is effected from the phonological reaction in the TI.

1.5.6 TRV is the triangle generated by TE. It is the last triangle in the process of vowel raising. It is known as the Triangle of Raised Vowel. It represents the allophonic valence between the phoneme and the allophone that were involved in phonological reaction for this raising.

1.5.7 DR means the Direction of Reading engaged in every word before raising takes place.

1.5.8 DA means the Direction of Articulation during the process of vowel raising.

1.5.9 LLR means the Lowest Level of Reading involved in before vowel raising takes place. It actually involves the Triangle of Inertia.

1.5.10 RLR stands for the Raised Level of Reading involved in during the vowel raising process. It helps during the formation of the Triangles of Effect and that of Raised Vowel (i.e. TRV)

1.5.11 (f) represents the front vowel, and

(F+) represents the front vowel that effects raising.

1.5.12 (b) represents the back vowel, and

(B+) represents the back vowel that effects raising.

Some codes or signs of linguistic reference not given above, will be explained immediately (whenever) they are encountered for the first time.

CHAPTER 2

2. INTRODUCTION

2.1 Common Bantu

2.2 Ur-Bantu (Proto-Bantu)

2.3 General discussion of Vowel charts

2. INTRODUCTION

In this chapter we are going to briefly treat the vowel structure
of Common Bantu and Ur-Bantu as provided by Guthrie and Meinhof
respectively. The prefix "Ur-", means "original" in German, and
"Proto-" comes from Greek, i.e. protos, meaning, first, original,
primitive. Consequently, Ur-Bantu and Proto-Bantu may be used
synonymously. Common Bantu on the other hand refers to some
protoforms of "ba-Ntu" languages that exhibited some forms of
mutual comprehension amongst themselves. These forms somehow
developed into related modern "baNtu" or African languages.

We are not going to delve into this theory, because what concerns
us presently are the vowel systems of Ur-Bantu and Common Bantu.
What will be noticed in this comparison is that each language
from its protoform developed in its own way and thereby dropping
or losing certain vowel phonemes that it initially contained in
its original form. Certain languages grew parallel together and
shared common characteristics that eventually separated them
from the other sub-groups of the main prototype. In the long
run, new dialects that originated from the subgroups of the
original prototypes, had fewer vowel systems. Some of their
original vowels fused and produced new composite vowels. By so
doing, vowel phonemes decreased numerically.

According to Guthrie, (1967 : 11) whose study comprised of more
than three hundred languages, the following is reported about the
vowel sounds of Common Bantu.

In all there are fifteen different peripheral
vowel sounds that need to be distinguished,
although it is uncommon for items from a given
language to contain more than seven distinct vowel
sounds. By using the appropriate selection of the
fifteen characters it is possible to provide an
adequate transcription for each language, and at
the same time to indicate the similarities or
differences in their vowel sounds. In the
following plan of the vowel characters used in
this work, the figures for the eight cardinal
vowels are given to enable these particular
qualities to be identified.

Guthrie's vowel sketch (or plan, as he calls it) is opened on top
and tapers at the bottom.

It looks like this:
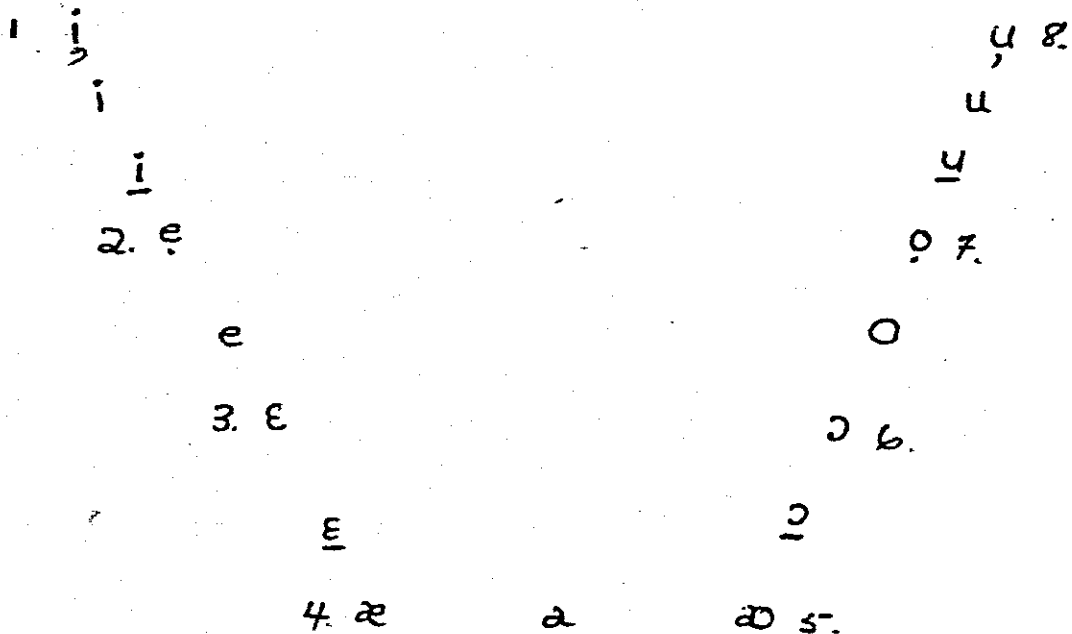
The vowels can be fitted in the diagram of Cardinal Vowels in the following way:
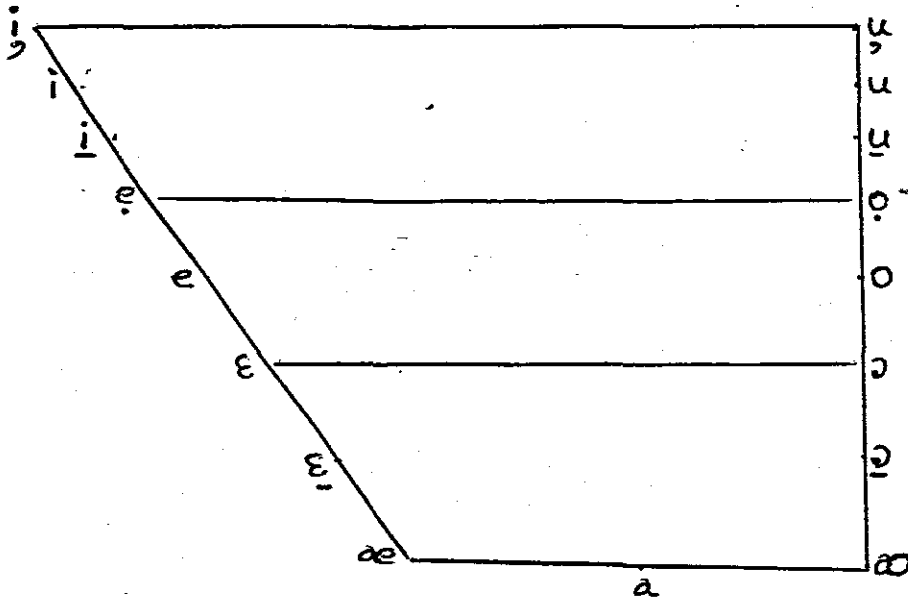
N.B   Central Vowels have been omitted.

Guthrie's work has been arranged in parts for systematization and elucidation.   On page 23 he explains that:

> Any Bantu language has in principle a certain exact number of items that can be used as entries in Common Bantu.   This total collection of items provides a starting point for further investigation, but it would be unmanageable to present this total collection for a large number of languages.   In the common language in Part 11 therefore the full range of data is confined to the twenty-eight Test languages listed in 38.12. All the operations to be described under this head have in consequence been carried out on these selected languages only.

Guthrie's (op.cit.) sample has been selectively compiled for reliable results.   Not all words in his sample language were compared with those of other sample languages, only words that showed semantic and morphological relationships were compared.

2.1 COMMON BANTU

Guthrie's study has shown that sound shifts occurred in Common Bantu. In this study we will concentrate on the behaviour of vowels during this period. He discusses them under the following headings:

a)   Fewer qualities

b)   Fewer quantities

c)   Umlaut and Coalescence

d)   Changes in tonal distinctiveness

2.1.1 Fewer Qualities

Under this heading Guthrie puts it in certain terms that,

> One of the commonest types of sound-shift under this heading involves the disappearance of the distinctions * i̧ / * i and * u̧ / * u, which results in the reduction of seven vowel qualities to five in position V1. This will be referred to as the * 7>5 vowel shift (op, cit. : 56).

Another common reduction in vowel-shift is the one of the disappearance of the distinctions * i / * u and / e / * o in position V2 in stems. (See Index C (i) b, e).

The reduction of vowels happens in a symmetrical manner i.e. if *i̧ / * i are reduced, * u̧ / * u are also reduced. In certain instances the reduction had been non-

symmetrical e.g. in Mbundu. In this language, the distinction between * i̦ / * i has been lost, but no parallel development in the case of * u̦ / * u has taken place, instead * u̦ / * e disappeared. They have been substituted or represented by e.

2.1.2 Fewer Quantities

This is a reduction system of the number of vowels contained in the CS i.e. common stem. It is irregular in shape i.e. * VV / * V^2 *VV, * V > V^3 shift. An example for this may be taken from Bali, e.g. * ee > ie and * oo > u.

2.1.3 Umlaut and Coalescence

There are two types of umlaut that occur. Briefly one may say, the first does not affect the number of vowel qualities.

> Thus in Nzebi̦, B.52 there are seven vowels, but these do not correspond directly to the seven starred vowels. The nature of the shifts in position V1 can be shown in the following way, where the starred vowel in second position that is responsible for the umlaut is placed in parenthesis...
>
> *a>a: ɛ(*i̦*i) *e>ɛ; e̦(*i̦*i) *i>i̦; e̦(*a) *i̦>i̦
>
>   *o> ɔ ; o̦(*i̦*i) *u>u; o̦(*a) *u̦>u̦

(loc. cit.)

The other type of umlaut produces an increase in number of vowels to nine in V1 position. The umlaut is caused equally by $*\underset{,}{\overset{.}{i}}$ 2 and $\underset{,}{u}^{2}$. The second vowel is the result of the umlaut.

$$*a>a \quad *e>\text{ɛ ; e} \quad *i>\underset{.}{e} \quad *\underset{,}{\overset{.}{i}}>\underset{,}{\overset{.}{i}}$$
$$*o>\text{ɔ ; o} \quad *u>\underset{.}{o} \quad *\underset{,}{u}>\underset{,}{u}$$

In certain cases the shared forms of some CSs contain, each a composite vowewl which means that two starred vowels occur in juxtaposition. In some languages such a shift is called coalescence, since a single vowel occurs as the reflex of the starred vowels. This occurs frequently with *ia and * u a, e.g. in Tɛtɛla, * i a >ɛ and * u a >ɔ in all positions.

2.1.4 Changes in Tonal Distinctiveness

There are many factors that are operative in the loss of tone. Some factors are associated with the loss of tone in the first syllables of starred forms, which results in the tonal reduction in the CS radicals.

Some languages use tone as a grammatical feature, e.g. Jita and Rugudu, but in Swahili there is a complete absence of tone as a distinguishing feature of any kind. The lack of tonal indication brings about certain problems. Guthrie says:

Loss of tonal distinctiveness gives rise to
uncertainty in entries from certain languages, and
not a few instances of multivalence occur. In two
cases, C S 674 *-dòótò and -dóótó "dream" and C S
1203 *-kúkù and *-kúkú "chicken", there are so
many multivalent entries that interlocking C S
have to be constructed (op cit. : p. 57).

So far, we have been trying to depict behavioural patterns

of the Common Bantu Vowels. What we have to do now is to

depict their qualities.

Guthrie, (op.cit.), through the analysis of his sample,

came to the conclusion that his source-patterns contained

seven distinct vowel qualities. His vast area of this

study has been differentiated into Zones i.e. A, C and F,

and Groups E.50, M.30, N.10 and 5.30. All the languages

belonging to these different categories contained seven

vowel systems.

This could not be coincidental but that:

this must be regarded as a vestige of the vowel
system of the source patterns (p. 61.)

The possible pronunciation of the vowels of the source

patterns can be traced from two series:

(1) a/ɛ/e̩/i̩/ɔ/o̩/u̩/
                              and
(2) a/e/i̱/i̩/o/u̱/u̩/

These are the two principal forms in which the seven vowel system appears in different languages. In trying to assess which of the two series that represents most vowels of the source pattern, two factors must be considered. Which series is the most widespread? That is series number one. In consequence it is likely to be closer to the original. Series (2) is much nearer to five-vowel systems that are due to the * 7> 5 vowel shift. In fact some languages like Lega and Tonga the difference between i̧ and i̱ , and u̧ and u̱ respectively is so slight that it is often difficult to detect.

> It would therefore appear to be reasonable to regard the vowel system of these languages as in the last stages of the 7>5 vowel shift (loc. cit.)

The occurrences of series (2) can be regarded to represent earlier stages in the development that produced the 7 > 5 vowel-shift. The seven qualities of the vowel system in the *source* patterns were as in series (1) i.e. *A/*E̱/*ɛ̱ /*I̧/*O̱/*Ɔ/*U̧/

From the brief discussion of Guthriean vowels, it is clear that the sound systems of Proto-Bantu have somehow been altered in modern African languages. Some "primitive" vowels such as /i̧/ and /u̧/ have been retained whilst others have compounded with other vowels to produce new ones e.g. /ɛ/ and /ɔ/ which could have originated from ɪ̱+ɛ̱ > / ɛ / and ɔ̱+ɔ> /ɔ/ . /e/ and /o/ could have originated from e̱ + e > / e / and / o / < o̱ + o. Any combination

could take place depending on the phonological structure of the language concerned. At present, Sotho languages have a seven-vowel system basically, whilst Nguni languages have a five-vowel system.

The distributions of the two series of seven-vowel systems postulated by Guthrie can be represented like this:

Shift 1   Shift 2
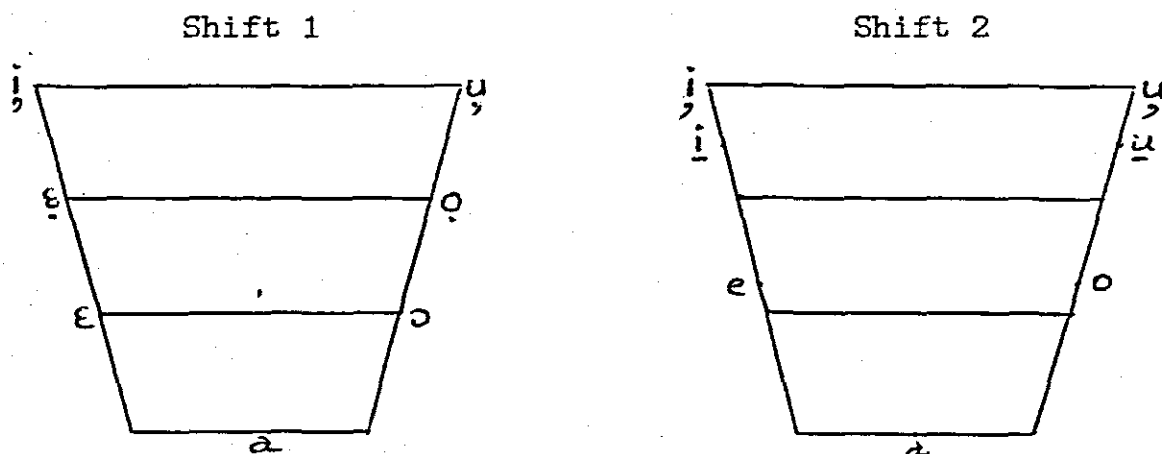
It must be noted here that when these charts are superimposed the following Vowel Chart is formed.
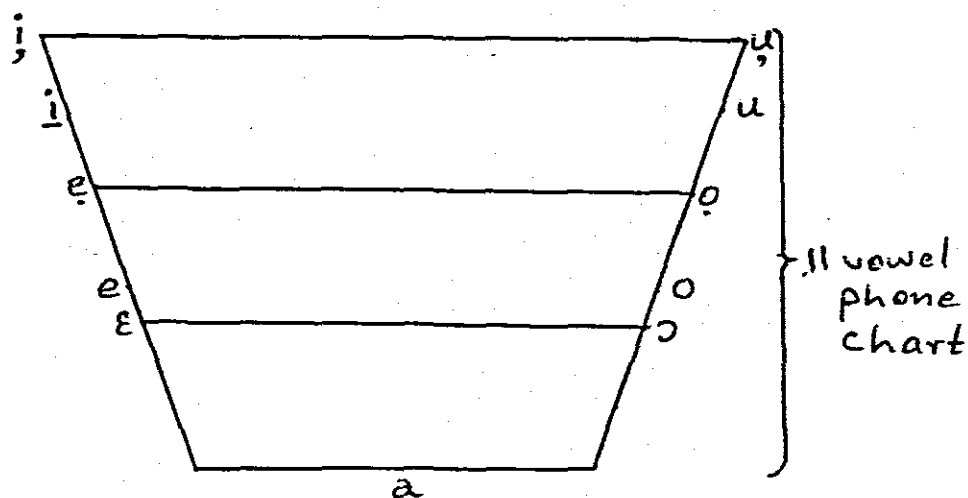
It has eleven vowel phones, Southern Sotho has eleven vowel phones too when the raised vowels are considered. This structure may suggest the Ur-Sotho Vowel Chart.

2.2 UR-BANTU (PROTO BANTU)

Meinhof came with his own postulation of the protoform of the African languages. His Ur-Bantu vowel system is not identical with Guthrie's postulation. It however consists of seven vowels that look as follows:

<p style="text-align:center">a</p>

<p style="text-align:center">e̱   o̱</p>

<p style="text-align:center">i   û û u</p>

According to him only e̱ and o̱ exist in Ur-Bantu. The forms ẹ and ọ occur through vowel assimilation or some other causes. He therefore prefers to use the forms e and o to represent e̱ and o̱, since they are the only forms that occur under normal situations. The "close" vowels may have occurred through vowel contraction. Meinhof and Guthrie do not use the same phonetic orthography.

Their phonetic symbols may not always represent the same sounds in different situations. (It is very important to note this).

The following are some Ur-Bantu examples to show the nature of the Ur-Bantu vowels.

```
*-yîla      (call)       (-bitsa)        }
                                         }  * ↑
*-pîka      (arrive)     (-fihla)        }


*-ɟiya      (know)       (-tseba)        }
                                         }  * ị
*-ɟila      (path)       (-tsela)        }


*-yele      (front)          (pele)      }
                                         }
*-leta      (bring) (Zulu)    (letha)    }  * e (ẹ)
                                         }
*-pepo      (cold)   (Sotho) : phefo     }


*-lûmela    (allow)          -dumela     }
                                         }
            formerly         -lumela     }  * û
                                         }
*-vûla      (n) (rain)       -pula       }
*-ɟuluye    (pig)            -kolobe     }  * u


*-lota      (dream)          -lora       }
                                         }
*-koka      (drag)           -goga?  (Tsw)}
                                         }
*-kono      (umkhono - Zulu)             }  * ɔ (ọ)
                                         }
*-voko      (lebogo  - Tswana )          }
                                         }
            (letsoho - S. Sotho)         }
                                         }
*-xala      (reckon)         -bala       }  * a
```

Meinhof´s Vowel Chart
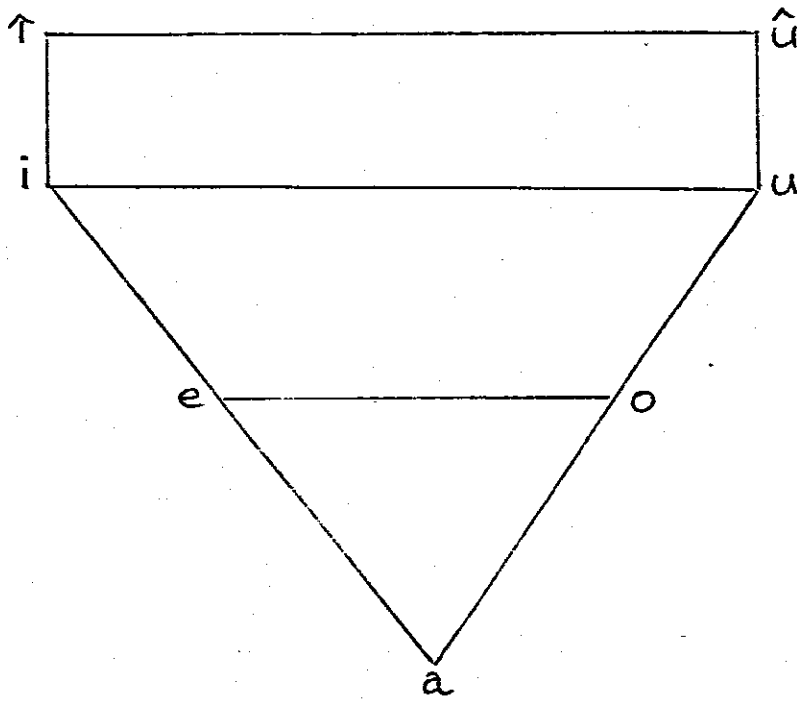
<u>CHAPTER 3</u>

3.   INTRODUCTION

3.1   Discussion of the Sotho Vowel Chart
      (Various approaches)

3.2   Standard Vowel Chart

3.3   Science With Cardinal Vowels

3.4   International Phonetic Association
      3.4.1   I P A   Alphabet
      3.4.2   Cardinal Sounds
      3.4.3   Secondary Cardinal Vowels
      3.4.4   Vowel Representation

3.   INTRODUCTION

A brief outline of the "original vowels" in Common Bantu and Ur-Bantu have been discussed. We are now to discuss different approaches to the postulation of the Southern Sotho Vowel Chart, having in mind the Original Vowels of "baNtu" languages as postulated by Guthrie and Meinhof. The aim is to correct the wrongly positioned vowels in different Southern Sotho Vowel Charts.

3.1 DISCUSSION OF THE SOTHO VOWEL CHART
      (VARIOUS APPROACHES)

For one to comprehend the true form of the Southern Sotho Vowel Chart, it is not an easy task. It appears that every linguist or grammarian that deals with Southern Sotho, postulated his or her own form of the Vowel Chart. Southern Sotho vowel charts are so different that one may dare say, there is no Standard Vowel Chart in Southern Sotho.

The lag of a Standard Vowel Chart in Southern Sotho could have been brought about by inextensive studies so far made on Southern Sotho Vowels and their positioning on the vowel chart. Sothos in general have not shown a true comprehension of the nature and behaviour of the Sotho vowels in general.

In this treatise a comprehensive treatment of the Southern Sotho Vowel Chart will be made i.e. wrongly positioned vowels will be corrected. Phonetic symbols to be used would be to improve the

Southern Sotho Vowel phonetic script that is currently used. In the past, every phonetician used the phonetic script he liked without considering the semantic implication of the symbols he uses. Southern Sotho Vowel phonetic script is full of confusion. Note the following:

3.1.1   Guma, (1975 : 11) writes [ɩ] or [ɪ] as [e], and [ɷ] or [ʋ] or [ʋ] as [o]. His raised [e] is [ɪ], and his raised [o] is [u]. He explains that [o] and [u] constitute a single phoneme, and that [e] and [ɪ] also constitute a single phoneme. His argument or explanation is correct, but his chart of Southern Sotho vowels is not phonemically correct. (See 2.10 : p. 11).

According to his chart, the vowels [i], [ɪ] and [e] form one phoneme represented by ê in normal orthography. (N.B. ê, is used in Lesotho orthography). His [u], [u] and [o] form one phoneme represented by ô in normal orthography. (N.B This ô is also used in Lesotho orthography). Such a phonetic representation is not correct. It can be proved in several ways that [i] and his [e] are different phonemes. The same applies for [u] and [o].

> The vowels / i, u, a/ do not have other forms or variants. Each is a phoneme by itself, a single member phoneme. All the others are two member phonemes. Where the phoneme has two or more members, one of them is selected as the main member. The selection is based on frequency or occurrence, i.e. the most commonly used member. The other members which take its place under certain conditions are called its variants or allophones (pp 11 -12).

This definition can be regarded as brief in relation to Sotho languages, but on close scrutiny, one realises that it is a bit "open". Its openness will be comprehended when a comprehensive Sotho Vowel Chart is made.

3.1.2 Kunene (1963), writes his [ɪ] slightly above Cardinal Vowel number 2 and his [ɷ] just above Cardinal Vowel number 7. He uses [e] and [o] as raised or the allophones of [ɛ] and [ɔ]. For the raised [ɪ] and [ɒ], he uses [ɪ] and [ʋ] respectively.

3.1.3 Cole, (1952 : 5) for his raised [ɪ], uses [ɪ] and for his raised [ʋ], uses [ɯ] and yet Kunene, as quoted above, at 3.1.2, uses[ɪ] for his raised [ɪ] and [ʋ] for his raised [ɷ].

3.1.4 Doke and Mofokeng (1974), seem to have placed all their vowels outside the Cardinal Vowels. For the Southern Sotho Vowel number 2 they use [ɪ] and for Southern Sotho Vowel number 7, they use [ʉ].

Guma (1975 : 11) uses [ʉ] as an allophone of [o] i.e. his Southern Sotho Vowel number 7, and uses [ɪ] as an allophone of Southern Sotho Vowels number 2, whilst Doke and Mofokeng (1974 : 1) use [ɪ] as a basic vowel, i.e. Southern Sotho Vowel number 2. What a confusion!

3.1.5 Ziervogel, et al (1967), use [e] and [o] as Southern
Sotho Vowels numbers 2 and 7 and [ę] and [ǫ] as their
allophones. For the raised [ɛ] and [ɔ], they use [ɛ̣]
and [ɔ̣] respectively. As mentioned earlier, (op.cit.,
p.55:3.1). Sotho phoneticians are not sure of the
phonetic symbol to be used for certain vowels. The vowels
that give them a lot of problems are [e] and [o] and also
the Southern Sotho vowel number 2 and its allophone and
lastly the Southern Sotho vowel number 7 and its
allophone. Out of all the different Southern Sotho vowel
charts mentioned above, only two will be discussed in
detail under their exponents in order to determine their
values and shortcomings. When they have been assessed
accordingly, a suitable Sotho Vowel Chart has to be
plotted in order to eradicate the uncertainty surrounding
the choice of suitable symbols to be used for specific
vowel phonemes and their variants. Wise, (1975 : 5) in
his discussion of "The need for a phonetic alphabet", has
also been struck by the bewildering inconsistency of
spelling found in certain languages.

He divides this inconsistency in two opposing forms.

1. the representation of the same sound by a
   variety of spellings, and

2. the use of the same spelling for a variety of
   sounds. For illustration of (1), observe the
   following list, where each line shows the same
   sound spelled in a different way.

   English [eI]: name, nay, break, braid,
   eight, they.

(N.B. Non-English languages have been omitted).

For illustration of (2), observe in the following,
that each line shows the same letter representing
a different sound.

(N.B Only English words would be taken).
English: cold [oʋ], cot [æ 𝒱]
          corn [ɔ],   prove [u], love [^],
          woman [ʋ],   women [I]. (p. 15).

Conditions such as these examples establish the
need for alphabet constructed on the plan of one
sound per symbol and one symbol per sound. Such
an alphabet is the IPA, or International phonetic,
.......(p. 06)

When people speak about a speech sound,they speak about

something unique, i.e. something which is an entity in

itself.

A speech sound is entirely separate from any letter or

letters representing it.   It is phylogenetically and

ontogenetically based.

The symbol is an after thought, growing out of the
need (before telegraph, telephone or radio) to
communicate at a distance, either in time or
space, (p.9).

Since the speech sound is separate from the letters

representing it,

Speech sounds can only be heard and not seen ...
What you   see in front of you is nothing but
symbols to represent the sounds that you would
pronounce if you said those words.   Ziervogel,
(1967 : 32).

Wise, (1967 : 6) takes this explanation further and say that a written word or printed word becomes a unit configuration which is recognised as a unit. No thought of its components are taken into consideration. In a word like <u>knight</u> only three letters are pronounced, i.e. <u>n, i, t.</u> Some are silent like <u>k, g, h.</u>

3.2   STANDARD VOWEL CHART

Heffner, (1975 : 69), gives a brief account of the phonetic activities that took place in the nineteenth century with an attempt to provide phonetic transcription:

> A convenient collection of those which have found notable acceptance in the practice of linguists was published by the German Government Printing Office in 1928.

The basic cause of the conflict of the opinion amongst the linguists or phoneticians of this period, was an idea of proving a system of symbols to represent individual sounds, or

> the desire to create a universal phonetic alphabet, or a system of symbols adequate to represent in considerable detail the forms of any language in which linguists might be interested, (loc. cit).

The most widely used phonetic alphabet at present is that of the International Phonetic Association. The practice since the early studies of the vowels, has been to represent their relationship by means of a diagram.

This diagram originated as a vowel
triangle and gradually evolved in
various publications in phonetics as a
four-sided figure, geometrically
described as a trapezium. Its
approximate present form has been widely
popularized by Daniel Jones of
University College, London, and by his
pupils, colleagues and critics, in the
form known as cardinal vowel diagram.
(Wise, 1957 : 82)

3.3   SCIENCE WITH CARDINAL VOWELS

To make the whole concept of Cardinal Vowels scientific and
reliable, X-ray photographs had to be taken by linguists such as
Jones and his students, in view of noting graphically the tongue
positions in the mouth cavity in relation to its height, backward
and forward movements, whenever a specific vowel is made.   The
vowels in question are:

[i, e, ɛ , a, ɑ, ɔ , o, u]

the arch of the tongue being outlined by a very
small chain draped from front to back along its
centre line. (loc. cit.).

When these eight photographs were superimposed upon each other,
they gave a composite picture that looked like this:
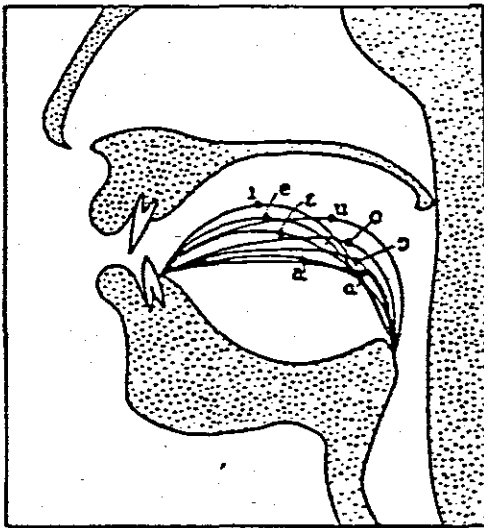
Composite diagram showing height of the tongue for each of eight
vowels.

When the pattern of symbols is lifted and enlarged, we have roughly an oval figure as shown:
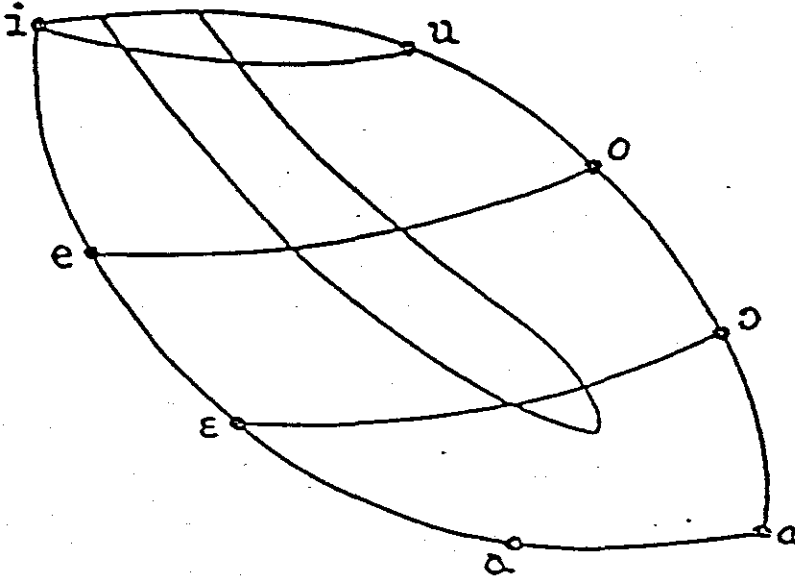
Enlargement of pattern of vowel distributiion shown in the previous picture.

Since this diagram is a bit awkward in shape, it is not easy to reproduce, a modification or simplification of the figure based on the X-rays into a trapezoidal structure had to be made. This structure was also irregular to be easily reproduced as none of its angles are right angles. It is however, still used by many.

A trapezoid is a "quadrilateral with no two sides parallel" (loc. cit). It looks as shown:
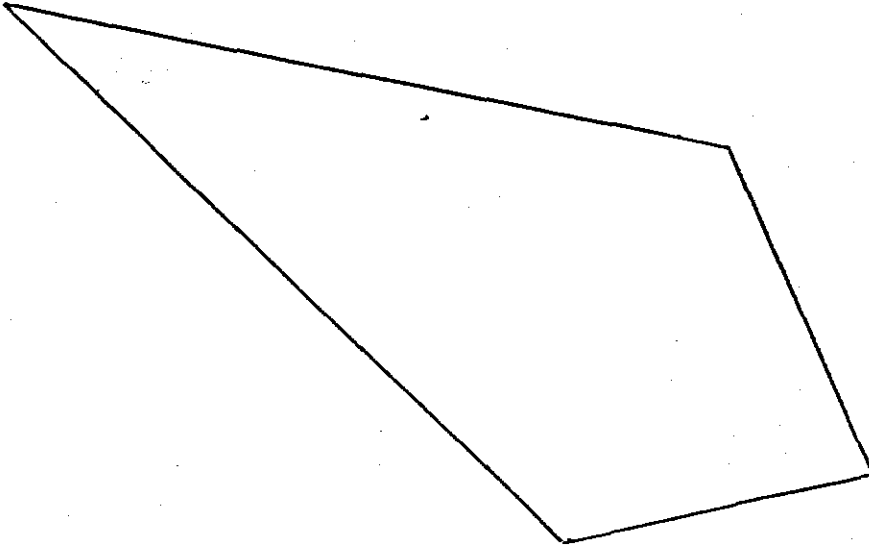
This figure was eventually changed into a trapezium which is conventionally used as a standard shape for any vowel chart. According to the Oxford Dictionary (p. 138), a trapezium is a quadrilateral with two sides parallel

The trapezium as explained above looks as shown:
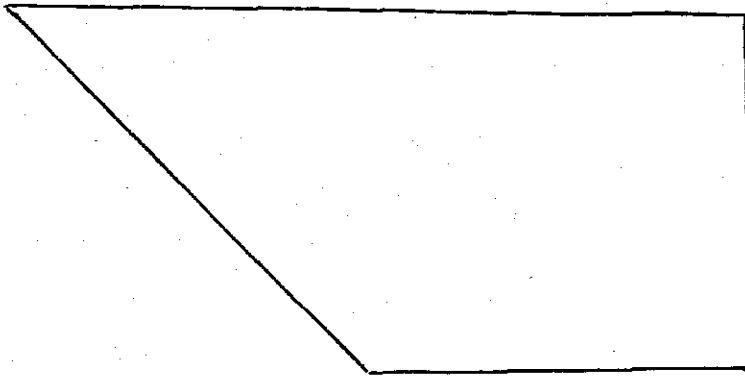
In actual fact the modification or simplification of the figure based on the X-ray into a trapeziium, has been done by Daniel Jones. According to the definition of the Concise Oxford Dictionary (p. 138) about the trapezium, Lyons, (1982 : 80) has a figure that looks as shown:
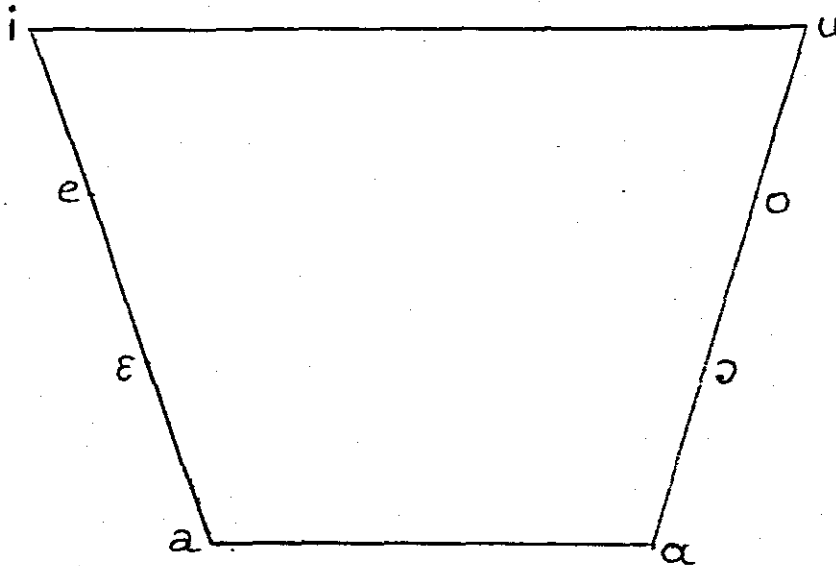
This appears to be an over simplification of the first vowel chart constructed from the X-ray pictures. It can, however, not be thrown away as a distortion of reality. When one looks at the structure that was formed by the superimposition of the X-ray vowel's photographs, one will realise that the distance from i-u is longer than the one from a - ɒ. Funny enough, in the sketch of the super imposed eight vowel photographs, the longest distance is between e - o, followed by one from ɛ - ɔ. The shortest is the one from a - ɒ.

On the other hand, when one looks at the longest distances between vowels in the trapezoid and trapezium vowel charts, one realises that the longest distances are between i - u in both cases. The shortest distances are between a - ɑ. The same pattern of vowel relation is found in Lyon's vowel chart. The longest distance is between i -u and the shortest is between a - ɑ. So, it is fairly correct.

Lyon's sketch can be regarded as a stretching or expansion of the vowel triangle that was firstly used. Heffner, (1975 : 84) has Viëtor's Vowel Triangular (Plate 21. Fig.2). It looks like this:
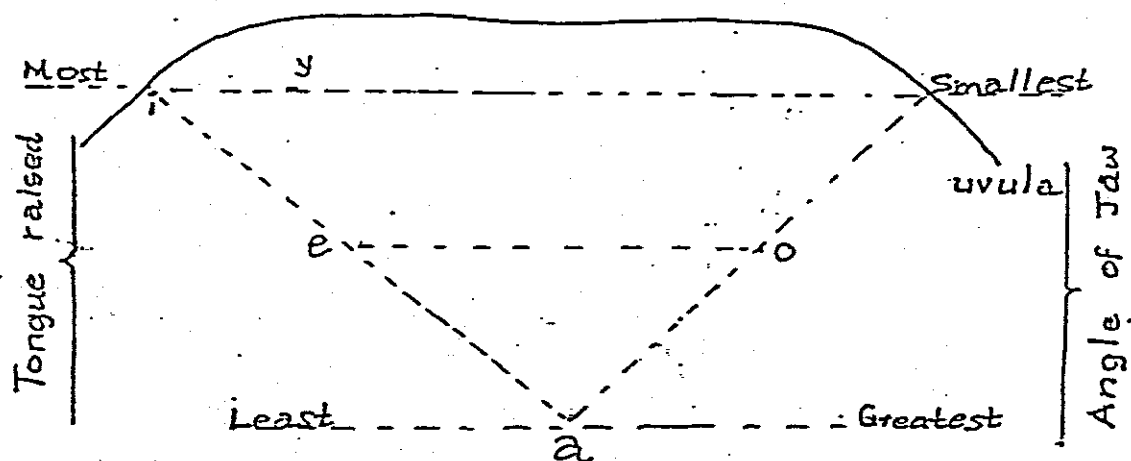
As it appears in this sketch there is only one [a] vowel, instead of the two generally accepted. The structure would look almost like Lyon's (1982:80), although it would still be without [ɛ] and [ɔ]. The most important thing to be borne in mind about the Cardinal Vowels is that they are

Theoretic Vowels. Both the concept and the diagram have long proved valuable as a teaching device (loc. cit. : 5).
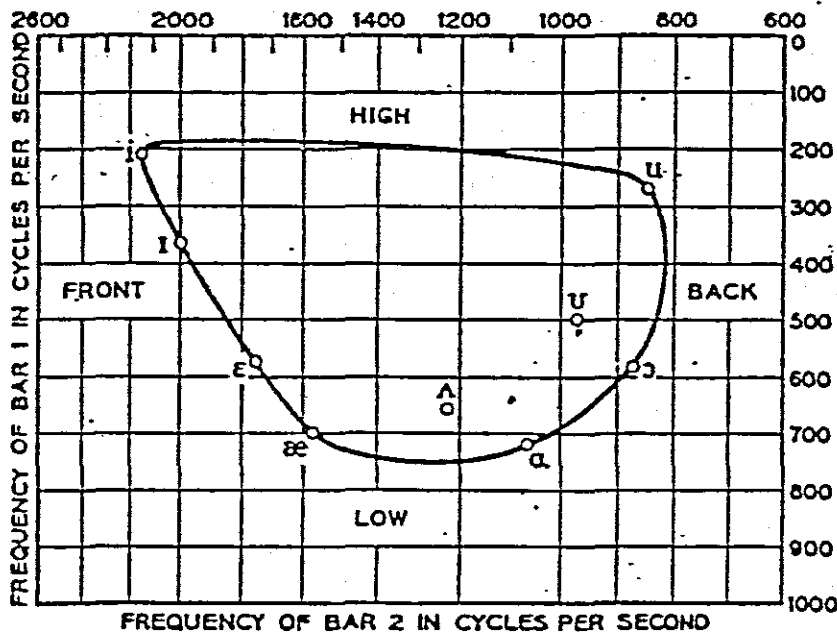
Figure 38. Diagram resembling cardinal vowel diagram, derived by plotting formant No. 1 against formant No. 2 of the Spectrograms of [ɪ], [ɛ], [æ], etc.

Cardinal vowels are mostly resorted to because they serve as a guide in placing vowels of different languages in Vowel Charts in relation to a standardised Vowel Chart which serves as a norm. There is no language that uses all its vowels in the same way thay are distributed in the Standard Vowel Chart. Some vowels may be the same with cardinal vowels and others may be different, in some cases there may be no vowels in certain languages that may be identical with any of the Cardinal Vowels.

A Cardinal Vowel may be defined as a theoretic vowel made with a tongue-position that is invariable, easily described in writing or printing so as to be communicable at a distance. By referring to this tongue-position of the theoretic vowel as a point of reference, other vowels can be described as higher, lower, further front, or further back.

Actually, only the vowels at the corners of the diagram viz., [i, a, ɛ, u] can properly be called cardinal vowels, for they alone can produce invariably with the same tongue positions.

[i] is made with the tongue as high and as far front as possible.

[a] with the tongue as low and far front as possible.

[ɛ] with the tongue as low and as far back as possible

[u] with the tongue as high and as far back as possible (Wise, 1957 : 85-86)

It has become clear from the above definition that Cardinal Vowels are called Cardinal because they are situated at the corners of the Standard Vowel Chart. They are so called because they reminded their namers of the Cardinal points of the compass, i.e. N, S, E, W. The collateral points are NW, NE, SW, SE.

Wise, (op. cit.), explains that the placing of e, and o, at 1/3 intervals from i and u respectively, is done at arbitrary basis, resulting in visual advantage. Because of this, further subdivision can be made into sixths, permitting the placing on it of the complete list of English vowels. This he did in his sketch.

Two forms of Standard Vowel Charts

(a)
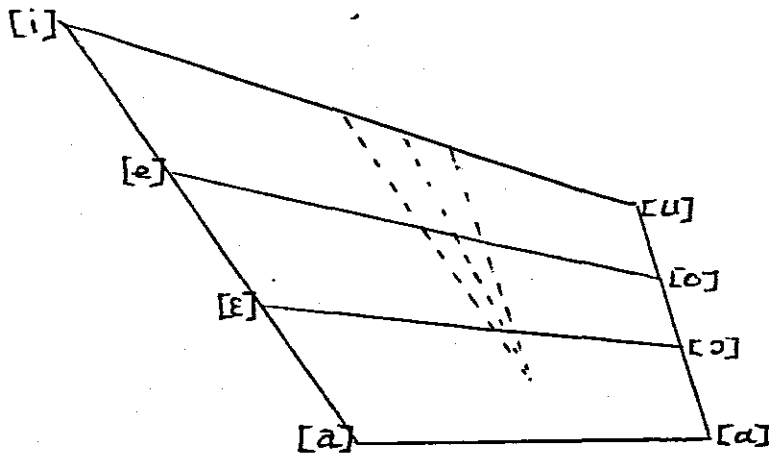
(b)
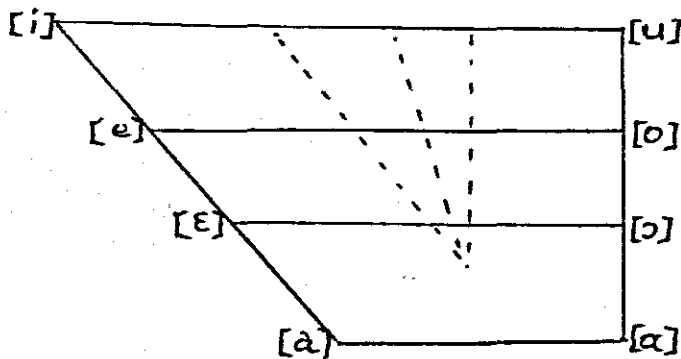
These two forms of Standard Vowel Charts can safely be used as acceptable forms. The most famous is figure (b), because it is easy to draw. Figure (a) is a step further from the figure made by the superimposed X-ray vowel photographs. It is, however, slightly nearer reality than figure (b).

What must be borne in mind is that figure (a) in page 57, it has also been simplified from the original figure regarded difficult to draw. Watch the following sketch to see how the trapezoid had been formed.
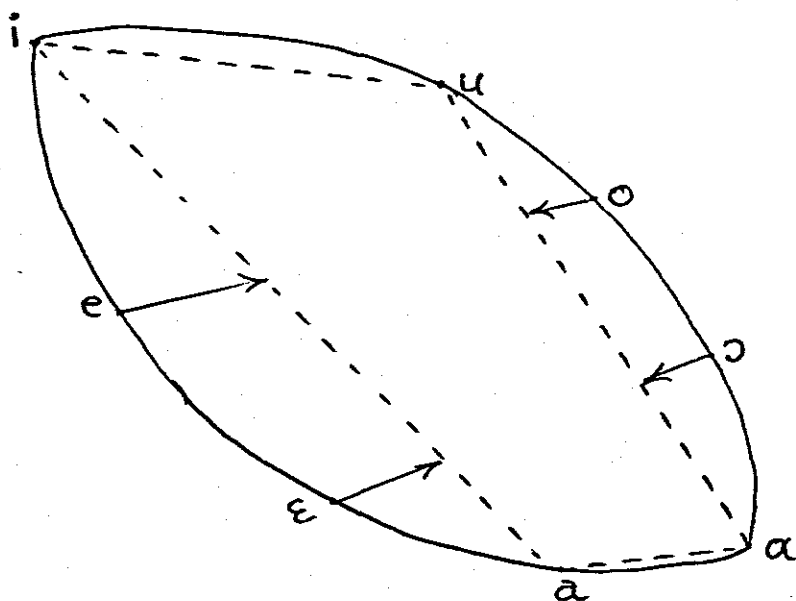
From the drawn sketch the distortion of the positions of the middle vowels can easily be seen. [e] and [ɛ] will be pushed or placed more towards the inside or back of the mouth cavity, whilst [o] and [ɔ] would be placed more towards the front or middle of the mouth cavity in order to be accommodated along the walls of the trapezoid. It is only the Cardinal Vowels that are not affected thus far. They are also tempered with when the trapezoidal structure is further simplified into a trapezium: [i] and [u] become parallel to [a] and [ɑ].

3.4   INTERNATIONAL PHONETIC ASSOCIATION

The Association Phonetique Internationale was inaugurated in 1886 by a small group of language teachers in France. They found phonetic theory valuable in connection with their work so they wanted to popularise the methods that they found useful. The first journal to be written in phonetics was published in May 1886 under the title Dhi Fonetik Titcer. Its editor was Paul Passy. (See the Principles of the I.P.A., 1949 : Reprinted in 1981 : 1).

Initially this Association was concerned with phonetics as applied in the teaching of English, but as time went on, its influence spread even to the teaching of phonetics in the other languages. The good thing is that its membership has been international.

Administratively, the Association had formerly been in the hands of the members resident in Paris. Because of its growth and spread of teaching of phonetics in neighbouring countries, such as Germany, it became necessary to look after the Association's affairs, this happened in 1888.

3.4.1   The International Phonetic Alphabet

i) The alphabet of the IPA is based on Roman alphabet, to meet the practical needs i.e. putting on record the phonetic and phonemic structure of languages, that foreign speakers should be able to pronounce foreign languages correctly.

ii) The phonetic alphabet should be so designed that it is psychologically and pedagogically appropriate in its usage, as far as the phonetic point is concerned.

iii) IPA alphabet system should be such that when two sounds are used to differentiate two words that would otherwise be the same, two different symbols should be used, without using diacritics.

iv) When two sounds are so acoustically near each other that they cannot be used in any language to distinguish words, they should be represented by the same letter.

> Separate letters or diacritical marks may, however, be used to distinguish them in "narrow" transcriptions or scientific investigations. (p.1)

v) There are non-roman letters designed by the IPA to harmonise well with the roman letters, for specific sounds.

Thus since the ordinary shape of the Greek letter β does not harmonise with the roman type, in the International Phonetic Alphabet it is given the form β p.1.

The Greek theta θ has been made to harmonise with roman letters. It has been made vertical, thus θ.

vi) Diacritical marks could not entirely be dispensed with:

a) For denoting length, stress, intonation

b) Denoting particular members of phonemes

c) Introduction of a single diacritic to denote nasality in a particular sound to obviate the usage of a different symbol.

d) For representing minute shades of sound in scientific investigation.

In such cases and some other related cases, diacritics may be used. The aim is that diacritics must be avoided as far as possible.

3.4.2 Cardinal Sounds

As it has been stated previously, Cardinal sounds are Cardinal vowels, their main function is to serve as a standard of acoustic measurement, and by reference to which other vowels can be described.

> The selection of these eight cardinal vowels is
> based upon the principle that no two of them are
> so near to each other as to be incapable of
> distinguishing words. (op. cit. : p 4 (10)

3.4.3 Secondary Cardinal Vowels

The articulations of the eight cardinal vowels are

accompanied by certain degrees of lip involvements.

> Thus, i, e, ε, a, and ɑ have "spread" or
> "neutral" lip articulations, while ɔ, o and u
> are formed with different degrees of "lip-
> rounding" (Op. cit. : 6).

What has to be noticed about the Secondary Cardinal Vowels

is that they have the same tongue positions but different

lip positions. They are arranged on the Vowel Chart in

the same way as the primary Cardinal Vowels. Unlike the

primary cardinal vowels, the secondary cardinals, are not

all peripheral vowels. They are also more in number than

the primary cardinals. The total number of secondary

cardinals is fourteen, ten are peripheral and four are

not.

> The first eight of the secondary cardinals are
> directly derived from the primary ones .....
> where the primary cardinals are rounded, the
> corresponding secondary cardinals are not
> rounded, and vice versa. Thus the first five
> secondary cardinals are rounded vowels, and the
> next three are unrounded vowels. (Abercombie,
> 1978 : 160).

The secondary cardinal vowels have been given numbers from Nine to Sixteen. This is a continuation of numbering from the eight primary vowels. The Secondary Vowels are the following:

9 y   13. ɒ

10. ø   14. ʌ

11. æ   15. ɣ

12. Œ   16. ɯ

As it will be realised that these numbers are not easily remembered, very few reference to secondary cardinal vowels is made. To avoid the confusion of numbers, phoneticians in general would refer to Cardinal Vowel one rounded, rather than to Cardinal Vowel Nine; and to C V Eight unrounded instead of C V Sixteen , etc. There is another group of central Vowels.

They are six in number.

> They consist of three pairs of vowels, the
> vowels in each pair having the same tongue
> posture but one being unrounded and the other
> rounded. All are central vowels, and two pairs
> are not peripheral. (loc. cit.)

To avoid a lengthy verbal discription of the locations of
all the Secondary Cardinal Vowels on the Vowel Chart, a
detailed Cardinal vowel.figure is drawn.

(a)

Front   Central   Back

(b)

Front   Back
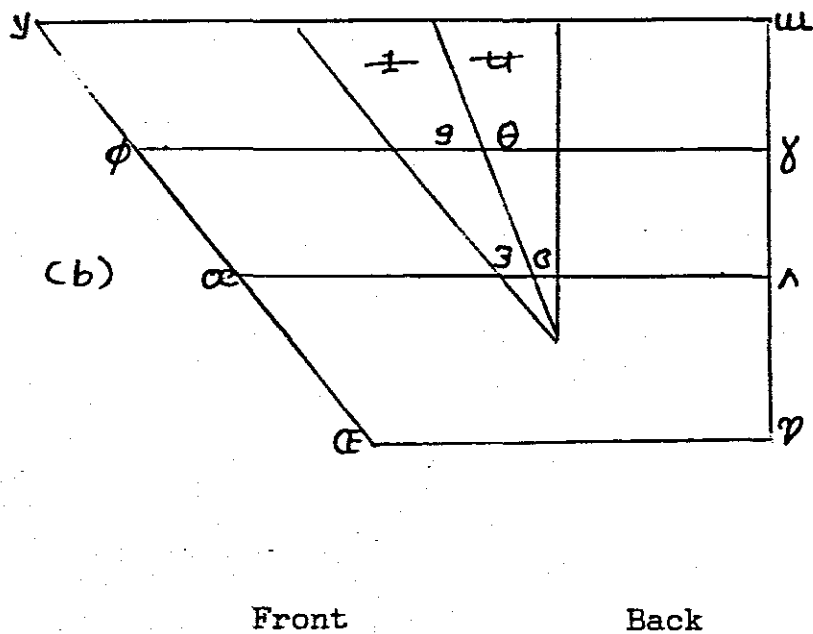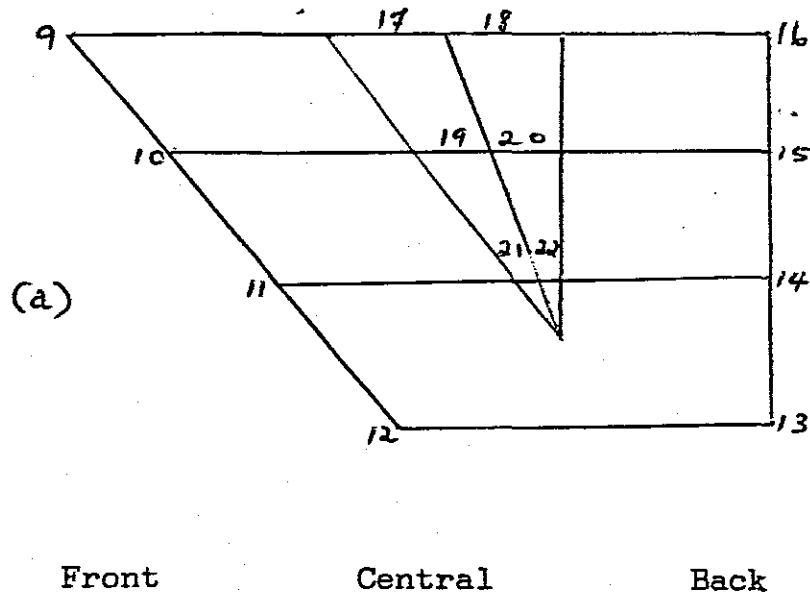
The following vowels are regarded as "spare"
vowels which have no cardinal definitions but which are
often useful in transcribing languages with large vowel
systems:

Front : ɩ, ʏ, œ

                                        Back: ɷ

Central : ə, ɞ,

N.B. Southern Sotho can benefit from such symbols.

Sketch (b) has given all the secondary cardinal vowels in
their respective places.

N. B. A great caution has to be taken in defining the
Central Vowels.

i) CV Seventeen ɨ and CV Eighteen ʉ, lie on the
   periphery half-way between CV One and CV Eight.
   They are numbered CV Seventeen (unrounded) and CV
   Eighteen (rounded).

ii) The next pair lies between CV Two and CV Seven.
    They are numbered CV Nineteen (unrounded) and CV
    Twenty (rounded).

iii) The last pair lies half-way between CV Three and CV Six, and are numbered CV Twenty one and CV Twenty two. There is no mention of roundness and unroundness in this pair.

iv) It is imperative to note that the front vowels of the first two pairs of the Secondary Central Vowels i.e. CV 17 and 19, are unrounded just like the primary Cardinal Vowels, i.e. the Front Vowels are unrounded.

The Secondary Central Cardinal Vowels numbers 18 and 20, are rounded. They also characteristically tally with back primary Cardinal Vowels. On the other hand, the Secondary Cardinal Vowels 9, 10, 11, 12 and 13, are regarded as round, and 14, 15 and 16 as unrounded! (see Abercombie : p. 160). It has become important to treat all the primary Cardinal Vowels and their secondary counterparts because there are some Sotho phoneticians or linguists that have used some of the Secondary Cardinal Vowel phonetic symbols to refer to some Southern Sotho vowels. The symbols they chose are not correct! In this regard I refer to subsections 3.1.1 - 3.1.5 which were treated under the General discussions of the Sotho Vowel Charts.

3.4.4   Vowel Representation

The International Phonetic Association has recommended
that the IPA phonetic vowels be used where it is
practically possible.   No phonetic symbol should be used
in a particular language in more than one incidence to
represent different phonemes.

> In broad   transcriptions the different members
> of vowel phoneme should all be represented by
> the same letter, notwithstanding that the sounds
> may be situated in different cardinal areas.
> For instance, although the Russian e-phoneme
> includes sounds in the cardinal areas marked e
> and ɛ...., nevertheless the single letter e is
> adequate for representing the sounds in broad
> transcription.   (The Principles of the   IPA,
> 1981 : 7 (19)).

Broad transcription as such, omits somehow certain minor
characteristics, which, even if excluded may not affect
the meaning of the grapheme used.   To illustrate this, one
may say the Southern Sotho [i] is a close front vowel.
This definition is not inclusive.   It is however not
stated or explained how close is Southern Sotho [i].   One
should add that it is identical with Cardinal Vowel number
one.

> Sometimes it is necessary to use special letters
> to represent vowel sounds situated on or near
> the limits of the cardinal areas.   The letter ι
> is used, when needful, to denote a vowel
> situated near the meeting point of the areas
> i-e- ɪ , and ɷ for a lip-rounded vowel near the
> meeting – point of the areas u-o-ʉ.   Y may be
> used to denote a liprounded ɨ may be used when
> it is desired to represent by a separate letter
> a vowel intermediate between cardinal ɛ and a .
> (op cit.:7-8).

IPA states categorically that ɩ and ɷ can only be used if they represent phonemes. I and ʊ may also be used as alternatives to ɩ and ɷ which are the favoured forms. I and ʊ do not fare well in italics. This implies that I and ʊ can fairly be used in the place of ɩ and ɷ .

It is imperative to mention here that the raised forms of ɩ or ɪ and ɷ or ʊ are not provided by the IPA. In Southern Sotho, these phonemes are raised when found in the neighbourhood of [i] and [u].

In such a situation one may be free to use some of the extra phonemic symbols provided by the I P A, e.g.

Front: ɩ , Y , œ
Central: ə , ɐ
Back: ɷ

It will be realised that ɩ and ɷ are already used in Southern Sotho phonetics, e.g. Kunene, 1963 (Word: Vol. 19).

If no suitable symbols can be found for this purpose, suitable modifications or adaptations based on the forms of the phonemes that are being raised would be devised.

For instance a full stop diacritic used under a specific

phonetic symbol implies a raised form or an allophone of

its non-raised counterpart. Such a method may be resorted

to because it is acceptable to IPA requirements for vowel

raising.

> ╻(below a letter) denotes a close variety: ẹ = a
> specially close variety of e. This may also be
> indicated by the mark ╵ placed after or under
> the letter, thus e╵or ẹ ." (op. cit, :16).

<u>CHAPTER 4</u>

DETAILED ACCOUNT OF KUNENE AND COLE'S VOWELS

4.1 Kunene D.P.

    4.1.1 Present Southern Sotho

             Standard Vowel Chart

    4.1.2 Mid-Vowel Relationship.

    4.1.3 Words Acoustically identical

    4.1.4 Raising with diminutive suffix -ana

    4.1.5 Technical slip.

4.2 Cole D.T.

    4.2.1 Contribution

    4.2.2 Cole's Vowel System

             4.2.2.1 The Open Vowel

             4.2.2.2 The Close Mid-Vowels

             4.2.2.3 The Open Mid-Vowels

    4.2.3 Schematic Representation

4.3 GVS with CB and UB Vowels

4.   DETAILED ACCOUNT OF KUNENE (1961) AND COLE´S (1949) VOWELS

4.1   Kunene, D.P. (1961)

In order that one should understand and comprehend the treatment
of Southern Sotho vowels in detail, one should peruse Kunene´s
doctoral thesis, entitled, The Sound System of Southern Sotho,
dated 1961, at the University of Cape Town.   Herein, Kunene
treats almost everything one could think of in the sound system
of Southern Sotho.   At present we will concentrate on how he
treats his vowels, i.e. their locations i.e. positions on the
Vowel Chart in his work referred to above.

(a)   Kunene´s (op.cit., p.12) [i] is practically identical with
      the Cardinal Vowel number one, e.g. [bits'a] (call).

(b)   Kunene´s (loc.cit.) [I] is a front higher mid-vowel.

            Its tongue position is between Cardinal Vowel 1 &
            2, being much closer to 1 than to 2. Kunene (1961
            : 12)

      He gives the following examples:

            [lɪbits'ɔ]   (name)

            [tshɪdisa] (comfort, console)

            [sɪmumu] (dumb person)

      Kunene as shown above   uses [I] for the raised Southern
      Sotho Vowel Number 2.

(c)   Kunene's (loc. cit.) [ɪ] is a front higher mid-vowel. Its
      tongue position is between Cardinal Vowels 1 & 2, being
      about twice as far from 1 as it from 2.

      Examples:

            [lɪfatshʋ] (country, land, earth, world)

            [sɪf ν fɘ] (storm)

            [lɪbɪsʟ] (milk)

      It is important to note that Kunene uses /ʋ/ for Southern
      Sotho Vowel number 2.

(d)   Kunene's (loc. cit.) [e] is lower than Cardinal Vowel No. 2.
      He calls it "a front lower mid-vowel" (p.12). He gives the
      following examples:

            /sɪledu/ (clim)

            /phelets'o] (an end)

            /mɘsebets'i/ (work)

(e)   Kunene's (op.cit, p.13) [ɛ] is being qualified as about the
      same as that of Cardinal Vowel No. 3.   Any way, in his
      sketch, this vowel has been placed in the same position as
      Cardinal Vowel No. 3.   This implies that his definition of
      [ɛ] does not tally with his sketch where [ɛ] has been
      positioned.

He gives the following examples:

[tsˀɛbɛ] (ear)

[mɛma] (invite)

[ikxhɛthɛlɛ] (choose for yourself)

(f) Kunene's [a] is positioned between Cardinal Vowels 4 and 5, being about twice as far from 5 as it is from 4.

Examples:

[ratˀa] (love)

[nama] (meat)

[bapˀala] (play) (loc.cit.)

(g) Kunene's (loc.cit.) [ɔ] is defined as about the same as that of Cardinal Vowel No. 6.

Examples:

[bɔla] (rot)

[ŋɔla] (write)

[didʒɔ] (food)

In his sketch, of the Southern Sotho vowels Kunene, (1961:11) has placed /ɔ/ in the same place as Cardinal Vowel No. 6. His definition of this vowel does not correspond with his vowel chart.

(h) Kunene's [o] is defined as

> a back lower mid vowel. Its tongue position is
> slightly lower than that of Cardinal Vowel No. 7.
> (p.13)

He gives the following examples:

[loris ɑ.] (cause to dream)

[bodile] (rotten)

[ikʼokʼobetsʼa] (humble oneself)

According to his sketch, (op. cit., p.11) [ɔ] is "identical" or shares the same position with Cardinal Vowel No. 6, therefore [o] by being an allophone of [ɔ] ought to be in line with Cardinal Vowel No. 7. This is not the case! He doesn't explain why the raised variant of his [ɔ] does not become identical with Cardinal Vowel No. 7. The same phenomenon has also been noticed with /ɛ/ and its allophone [e]. According to the diagram referred to above his [ɛ] is identical with Cardinal Vowel No. 3, but [e] is never raised to be identical with Cardinal Vowel No. 2. This descrepancy is never explained. Why do the allophones of [ɛ] and [ɔ] not occupy the vacant spaces of Cardinal Vowels numbers 2 and 7 respectively? One ought to ask such a question because in the current Sotho Vowel Chart used, positions for Cardinal Vowels numbers 2 and 7 are not occupied by the allophones of [ɛ] and [ɔ].

4.1.1 Present Southern Sotho Standard Vowel Chart

The Southern Sotho Standard Vowel Chart is presently drawn like this:
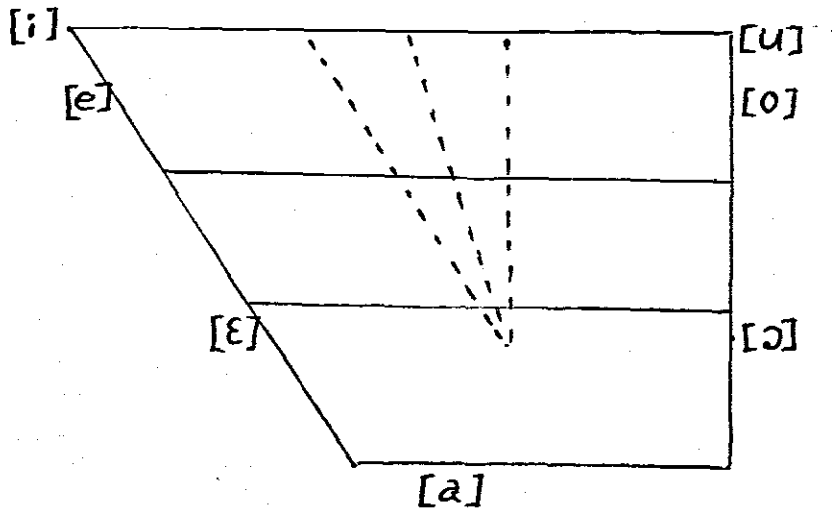
From the sketch drawn it becomes unthinkable that the raised [ɛ] and [ɔ] can fall short of reaching the positions of Cardinal Vowel 2 and 7. We would understand if his raised [e] and [o] lie just below Vowel positions 2 and 7, not a 3/4 mark between 2 and 3 and also 6 and 7.

Watch the following Sketches:
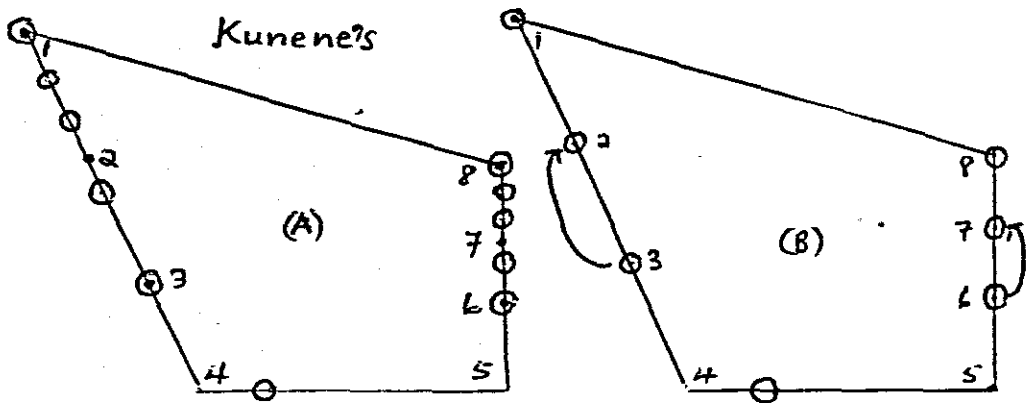
. = cardinal Vowel position

o = vowel position

Sketch A, shows the distribution of Kunene's Southern Sotho Vowels in relation to Cardinal Vowels. [(Read : Kunene 1961 : 11) and (Kunene : 1963 : 348)] The sketch shows clearly that his [ɛ] and [ɔ] are identical with CVs numbers 2 and 7. Any way, this is not the case. Watch sketch A, the allophone of "3" is between 2 and 3, and also of 6, is between 6 and 7.

(i) Kunene's (1961:13) [ɔ] is defined as

a back higher mid vowel. Its tongue position is between Cardinal Vowels 7 and 8, being about twice as far from 8 as it is from 7.

He gives the following examples:

[mɔthɷ]   (person)

[bɔɬɷkʼɔ]   (pain, sickness)

[ɲɔlɔɦa] (ascend).

(j) Kunene´s (op.cit., p.14) [ʊ] is defined as a back higher mid-vowel

> Its tongue position is between Cardinal
> Vowels 7 and 8, being much closer to 8 than
> to 7. Examples
>
> [mʊrutʼi]   (teacher, minister)
> [kxhʊpʼisa] (hurt someone´s feelings, annoy).
> [bʊsula] (tastelessness; tasteless.

(k) Kunene´s (op.cit., p.14) [u] is defined as the high back vowel.

> Its tongue position is practically the same
> as that of Cardinal Vowel No. 8.
>
> Examples: -
>
> [ruruɦa]   (swell)
> [lɪfufa]   (jealousy, envy)
> [mʊkxhubu] (navel)

It is important to note that according to Kunene (1961:11), only [i] and [u] are identical with their respective Cardinal Vowels. All the other Southern Sotho Vowels, even those that are shown to be identical with Cardinal Vowels Nos. 3 and 6 on the sketch are not identical.

4.1.2 Mid-Vowel Relationship:

Relationship of [ɪ] and [ʊ] to [ʟ] and [ɷ] respectively.

Kunene (1961:15) has fully discussed the relationship of the above vowels. It is for instance stated that when [ʟ] and [ɷ] are followed by /i/ and /u/ in the syllable, they are replaced by [ɪ] and [ʊ] respectively. This is a normal phenomenon in Southern Sotho.

It is surprising to note that Kunene (loc.cit.) cannot comprehend how the locative suffix [ŋ] can cause the raising of [ʟ] and [ɷ] to [ɪ] and [ʊ] respectively. He quotes an example of such raising found in Tswana, e.g. Cole (1955 : par. 1. 12), .

> except as possibly illustrated by the word
>
> [tɬ'uŋ], locative of [ntɬ'ɷ] (house), <u>I have not</u> <u>found that the locative suffix exerts any</u> <u>influence on preceeding [ʟ] -s and [ɷ] -s in</u> <u>Southern Sotho.</u> (My underlining) Again, it must be observed that raising is often more pronounced, and therefore more easily observable, where [ʟ] is followed in the next syllable by [i] and [ɷ] by [u], than in cases where [ʟ] is followed by [u] and [ɷ] by [i]. The reason for this is most probably that between the members of each of the pairs [ʟ ‐ i] and [ɷ -u] there is a common characteristic, [ʟ] and [i] both having lip-spreading, while [ɷ] and [u] both have lip-rounding. (p.15)

He gives the following examples:

[tshɪdisa] (comfort, console)

cf. [tshɪla] (cross)

[mɪʉtɬwʔa] (thorns)

[mʋsi] (smoke)

[bʋdutʔu] (loneliness)

Note, Kunene (1961:15) has written "tlung" as [t ɬʔuŋ] instead of [tlʔʋŋ] or [tlʔu ŋ] or [t͡lʔu ŋ]. The Southern Sotho "tl" is t + l and not t + hl as the case is in Nguni, especially Zulu, eg.,

inhloko, (head)

inhlanzi, (fish)

inhlekelele, (serious affair, scandal) etc

The words [tl´un] should be spelled [tlʔʋ ŋ] i.e. the "o" of "ntlo" is raised by the initial "ʄ" of the UB locative suffix *-ʄni.

e.g. ntlo + *ʄni

*ntloʄni

*ntloʄni

*ʄtlɔ(ĩ)n(ʲ)

[tl´o ŋ]

or [tl´ʊ ŋ] and not

[tl´u ŋ]

Kunene´s (op.cit.) problem regarding vowel raising is whether the locative suffix [-ŋ] does exert any influence on preceeding [ι] -s and [ɔ] -s in Southern sotho.

To answer such a question one has to know the initial sounds forming the Southern Sotho locative suffix [-ŋ]. If the sounds are *-înî or *(-î) nî or *-îni, they should raise the / ι / -s and [ɔ] -s in Southern Sotho. Let us take the following words to testify the above assertion. We will use Kunene´s (1961) phonetic script.

> setsetse (species of wild cat) [s ι ts²ιts´ι] + *-înî/ *-(î)nî
>
> motse (village) [mʊts²ι] + *-înî
>
> lebese (milk) [lιbιsι] + *înî
>
> bobe (wickedness) [bʊbι] + *-înî
>
> serobe (hen´s nest) [sιrʊbι] + *-înî
>
> sebata (carnivorous, wild animal) [sιbat²a] + *-înî

Note what happens when [ι] is juxtaposed to * - ʔnî

[sιts²ιtsι] + *înî > [sιts²ιts´(ι+î) > ɪ (-nî)

[sιts²ιts² ɪ(-nî> ŋ)]

[sιts²ι ts² ɪŋ]

N.B. [ɪ] in the penultimate syllable will raise the [ι] of the adjacent /ts²/, that one in turn raises the [ʊ] of the class prefix, thus:

[sιts²ιts²ɪ n]

>[sιts²ɪts²ɪ ŋ]

The same process occurs in the same way in the other words given.

The following words contain [ɷ] in their terminative syllables:

motho (person) [mɑthɷ] + *ɨnɨ

>*[mɑthɷ + *(ɨ)nɨ]

>*[mɑthɤ̂nɨ]

>*[muthʊŋ]

molomo (mouth) [mɔlomɷ] + *ɨnɨ

[mɔlomʊŋ]

seboko (worm) [sɩbɷkʔɷ] + *ɨnɨ

[sɩbʊkʔʊŋ] (-ŋ < (ɨ)nɨ)

If vowel raising cannot take place as hypothesized, it may imply that the Southern Sotho [ŋ] is not derived from *-ɨnɨ or * -(ɨ)nɨ or *-ɨni/ or -inɨ but *-ini which is in the same level as [ɪ] and [ɷ], and therefore cannot effect any raising of [ɪ] and [ɔ]. The last statement, is however unlikely. Ziervogel, et al. (1967 : 346) say in (v),

as hypothetical ↑, or i or e of the locative suffix -ng
[-ŋ] <*-nɨ, *-ni or *-ne
setlhareng [setlharɛŋ] (at the shrub)
bathong [bathoŋ] (at the people)

Another example supporting the examples found in (v), is bohlokong, showing all the close vowels raised by the locative suffix -ng, thus: [bo ɬ ok'ǫŋ] (according to Ziervogel, et. al.´s (1967)) phonetic script).

Kunene (1961:15) further remarks about the raising of [ɩ] and [ɷ] that these vowels are raised to such a degree that they are acoustically almost indistinguishable from [i] and [u] respectively. Because of this, some people misspell words in which these raised vowels occur. They employ [i] where [ɪ] should be employed, or according to the present orthography where /e/ should be employed, e.g.

tshediso (consolation) and not *tshidiso

sesiu, (large basket in which grain is kept) and not *sisiu

In this case of [ɷ], they employ [u] instead of [ʊ].

Examples: *phuthulla instead of phutholla (unfold)

*busiu instead of bosio (night)

*masumu instead of masumo (the snake Hemachatus haemachates, cobra, rinkhals)

An interesting example in this section of the mistaken identity of sounds, is the word [mʊlɪfi] (payer), often heard as [mulifi], is that [-l-] is not changed to /d/!

This is enough proof that the raised vowel cannot fully take the characteristics of the vowel higher than it. In molefi, the.raised "e" can never be identical with /i/ phoneme, no matter how high it can be raised!

4.1.3 Words Acoustically identical

In Southern Sotho there are many words that are being mistakenly identically pronounced.   This may lead to umbiguity of some sentences in which they occur.   Kunene (1961:17), has also given three words from Paroz´s (1961), work.   These words have alternative spellings in Paroz´s (1961) Southern Sotho – English dictionary.   (It must be remembered that Paroz´s dictionary is the best so far in Southern Sotho language). These words are :

[k'ubʊlɔ ɦa] (rise) alternative [k'ubulɔɦa]

[sirumʊla] (burning amber) Alt. [sɪrumula]

[sirʊɦa] (stand aside) alt. [siruɦa]

The third alternative to the last example is [suruha], in which complete assimilation of preceding /i/ by the following [ʊ] (pronounced [u]) has taken place .

Conversely, in the alternative [phubʊla – phubula – phɒbɔla] (slap) p.17.

Let us try to trace the cause of confusion in kuboloha and kubuloha. Basically, these lexical items are almost homographic and homophonic, and worse still, they are synonymous! It doesn't matter which form one uses, the meaning never changes, The difference between these terms is /o/ or /u/ behind /b/. In kuboloha, the /o/ phoneme of - -bo- morphene, is raised by the /u/ of ku- morpheme, to [o], according to the presently accepted grapheme used to designate the allophone of [o].

In kubuloha, the /o/ is not raised, since it precedes the terminative syllable containing an open vowel. The -lo- is, however, stressed because it occurs in a penultimate syllable. To solve this problem, one has to know how did they originate.

(a) (i) Kuboloha has been derived from kuba[2] +-oloha.

- kuba has been derived from the ideophone, kuu!

e.g. Ho re kuu! means to rise (dust or smoke).

Kuboloha, means to rise , to get up, to raise oneself as under burden; to move as an army, in numbers.

(ii) Kubuloha derives from kubuha which becomes kubusela. -kubuha, means to rise (dust). It derives from kubukubu, which means dust or dust cloud! In speech it becomes easy to confuse these terms:

(a)   kuba + (oloha) * kubaoloha > kuboloha

(b)   kubu + (oloha) * kubuoloha > kubuloha

N.B.   Kubuloha is only used in relation to causing
dust, but not in moving as an army or
raising oneself under burden.   They are
therefore not true synonyms.

(b)   (i)   Sirumola v/s Sirumula

Sirumola is a burning ember taken from a hut to
light a fire in another; torch.   It is derived
from rumola, i.e. to take away much of the embers
on the hearth.   Note, the perfect tense of rumola
is rumotse.

(ii)   Sirumula could have developed from the raising of
/o/ by /u/ of /-ru-/ in progressive assimilation
which does occur in Southern Sotho in certain
instances e.g. the adjectival concords.
[sirumola] > [sirumola].   Another cause could
have been due to the analogy of the verb stem
rumutsa i.e. to tear with the teeth.   The perfect
tense of rumutsa is rumuditse.   One can therefore
easily confuse rumola > romotse and sirumola with
rumutsa and rumuditse.   "Sirumula" can be generated
from rumutsa on the ground that [-l-] easily
generates [-ts-] in Southern Sotho in the process
of alveolarization.   Such a phenomenon is,
however, common in the perfect tense.

Note:

rumola², means to be aggressive, to attack; to drive cattle. The idea of aggressiveness may be contained in rumutsa, i.e. to tear with the teeth.

(c) (i) siroha (stand aside) v/s siruha

siroha comes from sira + -oha > *siraoha

> * sirooha

> * sir (o+o) ha

> * siroha

>   siroha

i.e. [siroha]

(ii) The form siruha cannot be accepted as graphically correct, because the reversive suffix is -oha or -oloha and not -uha. The "o-" of -oha may however be raised by the [-i-] of the initial syllable. This could occur after the -a of sira had been labialized by the initial vowel of -oha which is a back vowel having a labializing power.

(d) Some minimal pairs are not easily confused in Southern Sotho. Note, -runa i.e. to kill lice with one's nails, and -rona i.e. not to suit, or not to match one well.

4.1.4 Raising With Diminutive -ana:

Kunene (1961:122), explains that raising sometimes occurs in the diminutive of nouns formed by means of diminutive suffix [-ana], where the non-diminutive noun contains [ɛ] or [ɔ] in its prefixal syllable. He further maintains that this raising occurs only where the consonant of the final syllable is changed to an alveolar or a prepalatal consonant after [-ana-] has been suffixed. He gives seven words to support his standpoint.

"Examples:

[sɪletsw'ana]	<	[sɪlɛp'ɛ](axe)
[stɟ otswhana]	<	[stɟɔpha] (group)
[thedʒana]	<	[thɛbɛ] (shield)
[dits'edʒana]	<	[dits'ɛbɛ] (ears)
[kxhodʒana]	<	[kxhɔlɛ] (string, thong)
[lɪrodʒana]	<	[lɪrɔlɛ] (calf)
[k'otʃ'anɪ]	<	[k'ɔt'ɔ] (club)" p.23

There is no doubt that he used Paroz's Southern Sotho English dictionary to come to this conclusion. Probably he didn't understand the manner this dictionary ought to be used; for instance, the diminutive of [selɛp'ɛ], (according to the phonetic script of Ziervogel et al, 1967) should be [selɛtsw'ana] and not [selɛtsw'ana] as the case is in the Kunene's example. His example of [selɪtsw'ana] is the diminutive of [selɛdu] i.e. chin and not axe. In short,

all the examples he has given as having raised vowels because of alveolarization or prepalatalization due to the usage of the suffix -ana, are not correct. He was misled by the dictionary.

It would be better to explain how he had been misled by the dictionary in order to understand his falce conclusions. We will use Paroz's orthography in order to pinpoint the mistakes in the following examples:

(i)   se.lépê (di) n., axe, hatchet. The diminutive is given as seletswana. If the "e" of -le- is raised, it would be written thus: selẽtswana. Note: Once a word had been treated previously as a lexical reference having the diacritics as guides of pronunciation, when it is used as an example in the sentence, no diacritic signs are used. Note how seletswana had been written. One might think that the "e" - sounds of se and le are the same, and yet not.

ii)   se.hlôpha (di) n., troop, group, bundle, class, form, standard, noun class [gr]. There is a proverbial expression given to show one of the usages of "Sehlopha", i.e. ho etsa matla a dihlopha,: to do one's very best. Note, the "o" of "dihlopha" is not shown that it is an open "o" i.e. [ɔ]. The diminutive is sehlotshwana. The "o" is not shown as [ɔ]. If it were a raised "o", it would be [ọ]. According to Paroz it would be, ö.

iii) thêbê (di.) n., shield. The boys, or males are referred to as, ba dithebe. The /e/ phonemes are not having any diacritics, as the word thebe which the main lexical reference has. The diminutive is thejana, and not thëjana as Kunene concluded.

iv) tsêbê (di) n., ear, large leaf of a plant; leaf of a book. The diminutive is tsejana and plural ditsejana. The /e/ phonemes are not shown whether they are semi-open or raised. If they were raised they would be shown.

v) kgôlê (di). n., string; dim. kgojana. The alternative form is kgwele. In the diminutive, the /o/ is not shown to be semi-open. If it were to be raised, it woould be shown as /ö/ because this would show that it is different from the one given in kgôlê;

vi) lerôlê (ma.) n., second year calf or foal. The diminutive is lerojana and not leröjana as Kunene has concluded.

vii) kôtô (di) n., knobbed stick, knobkerrie; barrel of a gun. The diminutive is kotjane and kotwana. The /o/ phonemes are not marked because they are the same as in kôtô. Kunene gives the diminutive as [kʔotwʔana], i.e. the "o" is raised.

The following are some words taken from Paroz's (1961) dictionary to further illustrate the point that when the words are used as examples based on the words that had been used as main references in the lexicon, they are used without diacritics.

(a) tlöu (di) n., Loxodonta africanus, elephant; doctor. The faminine is tlouhadi or tlou(h)atsana. The diminutive is tlowana. We are quite aware that no diacritics used in other forms of tlöu except only in the main reference.

(b) kötömpi (ma) n., medicine used against swelling of the throat, or tumours of the neck; plural is makotompi, lots of things, tricks. It must be noted that makotompi is not written, thus: makötömpi. This does not imply that in the plural the /o/s are not raised.

(c) mo.hlömphëhi (ba.) n., revered person, one worthy of respect. What is interesting here is that Mohlompehi i.e. His Honour, is not written with /ö/ and /ë/. This does not suggest in any way that in the second example the "o" and "e" are not raised, but what it suggests is that they are of the same quality as those appearing in the first example.

(d) Halehalë, n., persevering effort; lehalehale, n.,
persevering effort; work led to a success despite
obstacles or opposition; effort, odour, zeal,
undaunted person. The example of the usage given
is of a proverb: halehale le a ja i.e.
perseverence is rewarded. Note that the /e/
phonemes are not written with any diaeresis i.e.
/ẽ/.

(e) le.phêlê (ma.) n., cockroach. (any insect of the
Blattidae family). The plural is maphele or a
disease of sheep, believed to be due to swallowing
an insect; intestinal parasites of some kind.
Note that the e-s in the plural are not shown that
they are opened or semi open i.e. [ɛ]-s.

(f) se.hoho² (di.) n., generic name of toads. The
diminutive is sehohwana. The /o/ is not shown as
[ɔ]. This does not mean that it is ŏ i.e. [ɔ̥].

(g) lëkëtla (ile) v.i. to hang down. [<lëkë]. Note
the usage of leketlisa, especially the reflexive
is given as ho iteketlisa, i.e. to suspend oneself
by the feet. "Ho iteketlisa" doesn't have diaeresis
in the dictionary.

4.1.5 Technical Slip

When we consider the above examples we are however forced to conclude that Kunene (1961) had a technical slip in the usage of Paroz´s (1961) dictionary. Such technicalities can however in any way not discredit his scholastic work. This is only to show that a lot of research is still needed in the field of vowel raising to provide us with sound results not having technical slips.

Kunene (op.cit.) continued at great lengths showing how [ɛ] and [ɔ] are raised to [e] and [o]. We may not be able to pinpoint and analyse all the incidences in which he had done this. (cf Op. cit. pages 24 - 27). One may just remark a bit about what he says in page 27 (1.54) about the divisions of the occurrences of [e] and [o]. He says there are cases where [ɛ] and [ɔ] demonstratably change places with [e] and [o] respectively according to the demands of the phonetic context. He gives the following examples to support what he says:

[ɛma] (stand up, come to a stop) [emɩ], [emisa] etc.

[thɛbɛ] (shield) > [thebeŋ]

[k'ɛna] (enter) > [k'eni], [k'eɲa]

[ɔma] (dry up) > [omile], [omɩ]

[kxhɔts'ɔ] (peace) > [kxhots'oŋ]

What has happened in the above examples is that the [ɛ] and [ɔ] had been raised by the locative suffix [-ŋ].

    e.g. [thɛbɛ] > [thebeŋ]

        [kxhɔts'ɔ] > [kxhots'oŋ]

the perfect suffix [*-île],

e.g. [k'ɛna] > [k'enɩ] < [*k'entle]

and the causative suffix [*-ŷa]

e.g. [k'eɲa] < [k'enŷa < *k'enîa]

[ɔma]> [omile] > [omɩ]

N.B. [omi] < [omi (l)e]

[om (i + e > ɩ)]

[om ɩ]

There is no changing of places involved here, but raising of the semi-open front [ɛ] and back [ɔ] vowels. Changing of places implies that the speaker may decide to use [thɛbɛŋ] instead of [thebeŋ]. This is not the case! Vowel raising comes about unintentionally. It is governed by the structure of the language in which it occurs.

In page 28 (b), he says there are cases where the phonetic context is fixed about what it requires i.e. either [e] or [o]. In such cases there is no [ɛ-e] and [ɔ-o] substitution which takes place.

Some of the examples he gives are the following:

[metsʔi] (water). According to Doke and Mofokeng (1974, C, (iii)) metsi has been derived from *maiɣɨ.

*ma + iɣɨ

>*m (a+i) ɣɨ

>*mɛ(ɣ)ɨ

-ɣ- gets alveolarized to [ts´]

>*mɛtsɨ

>*m ɛ̯tsɨ

> mɛts´i

or [mets´i] according to Kunene´s phonetic script.

The occurrence of [e] from [ɛ] can be traced from the word itself.

[bedi] (two). The presence of [i] as the terminative vowel of the succeeding syllable on the first containing, probaly [ɛ], provides an ample opportunity for vowel raising to take place, i.e. [ɛ] to be raised to [e] by [-i].

[ɦesɔ] (our). Even here, the first syllable should have initially consisted of [ɦɛ-] and the second syllable because of the terminative [ɔ], which is a semi - close back vowel, would raise [ɛ] > [e] i.e. [ɦɛsɔ] > [ɦesɔ] <ɣaɣɛso (Kgolokwe).

[k²ots²i] (accident, danger) should have been [k²ɔ ts²i].

The [ɔ] had been raised by the terminative [i]. In Lehetla

[lɪhetɬ²a] (shoulder), [N.B. Kunene (1961:15) writes his

[tl⁼] as [t ɬ²]. This, is, however, not correct). In this

word, [ɛ] of /ɦɛ/ morpheme has been raised by /tɬ/. Cole,

(1949 : 118, (iii)) explains that the Tswana ejected lateral

explosive tl, has been derived from UB palatal consonant .

> Meinhof suggests that UB *ʝ* is derived from a still
> earlier *ʝ*+ i (cf paragraph 12, p. 32), which would
> provide us with the close vowel influence responsible
> for all of these changes of the open mid-vowels.

This explanation helps us understand why in certain

instances [tl²] brings about vowel raising. When it doesn't

bring about vowel raising it means that it has been derived

only from *ʝ*,

> e.g. [-ɔtl²a] (to strike, to beat, to punish)
>
> [-tl²ɔla] (to annoint oneself)
>
> [-tl²ɔp²ɔ] (di.) n., tuft of hair left on the top
>
> of a shaved head.
>
> [motl²ɔp²ɔ] or [motl²ɔp²ɔtl²ɔ] n., (Ziervogel's,
>
> (1967), phonetic script) diarrhoea;   distress,
>
> panic.

In page 31, Kunene (1961) shows that [ɛ] and [ɔ] occur in

simpler forms of words, while the closer varieties occur in

the derived forms of words, e.g. in suffixal derivation.

So we cannot but speak in terms of the "raising " of a
vowel to a higher (secondary) position. If [ɛ] and [ɔ]
can be raised to [e] and [o], and [ɩ] and [ѡ] to [I]
and [ʊ], then , _if the argument that the series [ɛ-e-ɩ_
-I] on the one hand, and the series [ɔ-o-ѡ-u] on the
other, each constitute one phoneme, is valid. it must
be reasonable to expect [e] and [o] to be subject to
the same, or similar influences, and to b'e raised to
higher positions by them.   In point of fact, however.
[e] and [o] are never raised to higher positions (op.
cit. pp. 31-32).

To support his argument, he gives the following examples:

[ets'a]   do > [ets'isa], [mѻets'i], [ets'ɩ], [ents'e]
no raising of [e] to higher position by the influencing
element in the immediately following syllable
(loc.cit).

The word [-ets'a] is already in the causative form i.e. the

[e] has already been raised.   It derives from UB * l̂ya

<*-ela +* -ĝa = -etsa (See Meinhof, 1932 : 77,6.). This

being the case, [e] of [-etsa] can never be raised twice.

It has been raised by *-ŷa < * îa.

We wonder how Kunene (1961) would explain the formation of

the perfect tense of hohlola , bona, fela, and ngola.

e.g. hohlola (cough) +-ile >*hohlodile (coughed) >

[ɦɔɬɔla] + *[île] >*[ɦoɬodɬle] >

hohlotse

[ɦoɬots´ι]

bona (see) +-ile >*bonile (seen)>bone (has seen)

[bɔna] + * [ɬle]>*[bonɬle] > [bonι]

fela (finish) + *[ɬle] >*fedile (has finished)

[fɛla] + *[ɬ/ɛ] > [fedile]

fetse (has finished)

[fets´ι]

ngola (write) + ile >*ngodile (have written)

[-ŋɔla +*ɬle] >*[ŋodɬle]

ngotse (wrote)

[ŋots´ι]

What must be borne in mind regarding the last four words
given, is that the terminative [e] in forms such as:

hohlodile [- ɦoɬodile] (has coughed)

bonile [- bonile] (has seen)

fedile [- fedile] (has not finished)

and ngodile [-ŋodile] (has written), end up as the semi-close

front vowel [ι] (according to Kunene´s (1961) phonetic

script) in forms such as:

hohlotse → [-ɦoɬo ts´ι]

bone → [-bon ι]

fetse → [-fets´ι]

and ngotse → [-ŋɔts´ι]

How can [e] change to [ʊ]? Kunene (1961) "denies" such a
phenomenon.

The second example he gives is [fosa].

    [fosa] (err) > [fósisa], [fosits⁷e], [fosʊ], etc.

    [fosa] is in the causative. It derives from UB
*pọk̂ya.   < *-pọk̂ia < * k̂ia < *eka + *ŷa)

This being the case then, the /o/ of [fosa] is [ọ] according
to Meinhof's (1932) phonetic script. Meinhof's (1932) [ọ]
is equivalent to the raised [ɔ] i.e. [ɔ̣] according to
Ziervogel's (1967) phonetic script. Note Meinhof (1932)
never uses [ɔ] and [ɛ] in his phonetic script.

    According to the rules of the vowel raising
    *-pọk̂ya < *-pọk̂ia it became   *pọk̂ya
    i.e. *-pọk̂ya > fosa

    [fosa] with its /o/, raised by the causative suffix
    *-ŷa, cannot be raised twice.

The two examples Kunene (1961) gave, do not succeed to
support his argument. He did not worry himself to trace the
cause why the [e] of [ets⁷a] and [o] of [fosa] are not
raised. He took them for granted to be basic vowels and yet
not, they are the allophones of [ɛ] and [ɔ] respectively.
He says;

> While explanations have been given for the majority of
> the occurrences of [e] and [o], yet there remain the
> cases in group (d) in paragraph 1.54 (detailed in
> paragraph 1.50) above, for whose occurrence I do not
> pretend to be able to account. It may be that the
> explanation of these occurrences is to be found in the
> history of the words and formatives in which they are
> found. Whatever the cause or causes of these varieties
> in these cases may be, however, the fact remains that
> if we subject them to the influences which cause
> raising, the results are negative – they do not go
> beyond the upper limit of the group to which they
> belong (pp. 32-33).

The words that are referred to in the quotation are found in

Kunene's (1961) on pages 23, to 25 paragraph 1.5. It is

very easy to show why in concordial elements of

demonstratives the mid vowels are raised. Let us analyse

his words.

i) [leʋ] (this one) class 5

The /le/ of [leʋ] is raised by the class prefix le-

[Iʋ]

i.e. * lɪɛ̃ʋ > [lĩeʋ] > [l(ʋ)eʋ] > [leʋ]

ii) [leɷ] (that one near you) class 5. The /le/ of [leɷ]

has been raised by the class prefix le- [lʋ]

i.e. *lɪɛ̃ɷ> [lieɷ] > [l(ʋ)eɷ] > [leɷ]

iii) [íela] (that one over there) class 5 . The /le/ of

[lela] has been raised by the class prefix le- [ʃɪ-]

i.e. *lɪɛ̃la > [lɪela] > [l(ʋ)ela] > [lela]

v) [bo ʊ] (this one)   class 14. The /o/ of   [boʊ]

has been raised by the class prefix bo- (class 14),

i.e *buɔʊ > [buɔ̃ʊ] > [b(ʋ)õʊ] > [bou]

v) [bonʊ]   (that one near you) class 14.   The /o/ of

[bo   ] has been raised by the class prefix bo- (class

14)

i.e. *buɔnʊ > [buɔ̃nʊ] > [b(ʋ)õnʊ] > [bonʊ]

vi) [bola]   (that one over there) class 14.   The /o/ of

[bola] has been raised by the class prefix bo- (class

14)

i.e. *buɔla > [buɔ̃la] > [b(ʋ)õla] > [bola]

The words found in Kunene's (1961) paragraph 150 (b) exhibit
the same phenomena as those already explained above.   We
will therefore omit them. We can only tackle those found in
page 24.

(a) [*ʃʔɛι,   ≠ʃʔena] (thus)

The Southern Sotho [ʒ] has been derived from UB *lya

< *lia

and *β(y̧) and *β(w). (Doke and Mofokeng, 1974 : 474

; D (i). The word [tʃʔena] in Nguni is njena. For [ʒ]

to change to [tʃʔ] in Sotho, [n-] of class 9 and [i-]

of the reflexive prefix are used.

(b) [d̂ʒwalo] (like that)

The Southern Sotho jw i.e. [d̂ʒw-] according to Kunene,
(op.cit.) has been derived from UB *ywa or *vya.
Jwalo in Northern Sotho is written bjalo but pronounced
byalo i.e. [βjalǫ]. The "y" sound following [β] is
responsible for raising the terminal [ɔ] to [ǫ] or [o]
(according to Kunene).

(c) [d̂ʒwale] (now)

It has probably been derived from UB *ywale or * vyale,
because in Northern Sotho it is "bjale", i.e. *viale >
*vyale > *vyale. The last [e] has been raised by *y <
*-ia.

(d) The final vowels of the perfect suffixes [ile], [its'e]
and [omme] are from UB *île < *îlŷe, < *-îlie. The
presence of *î raises the terminal *e:
disa (watch, herd) + ile > *disile > disitse
disitse < *disîlŷe
i.e. *disî (lŷ) e
*lŷ is palatalized and cannot be pronounced in Southern
Sotho. Alveolarization takes place as the solution.
The alveolar affricate is formed, i.e. [ts'] *disîlŷe
becomes [disits'e]

(e) [omme] (to become dry) < *omↆle < *omile < *-îlŷe <

*-îlie

The form [omme] < *om(ↆ)le

> *om(ↆ)le

> omme´

Here we have a complete progressive consonantal
assimilation.

This phenomenon will be discussed in detail in this treatise
when the causes of vowel raising are treated. Suffice it to
say that Kunene (1961) did not delve deep into the causes of
vowel raising in these examples.

From this treatment of vowel raising, he had concluded that
the Southern Sotho vowels may be divided into seven phonemes
as shown in the following chart (see p. 33.)
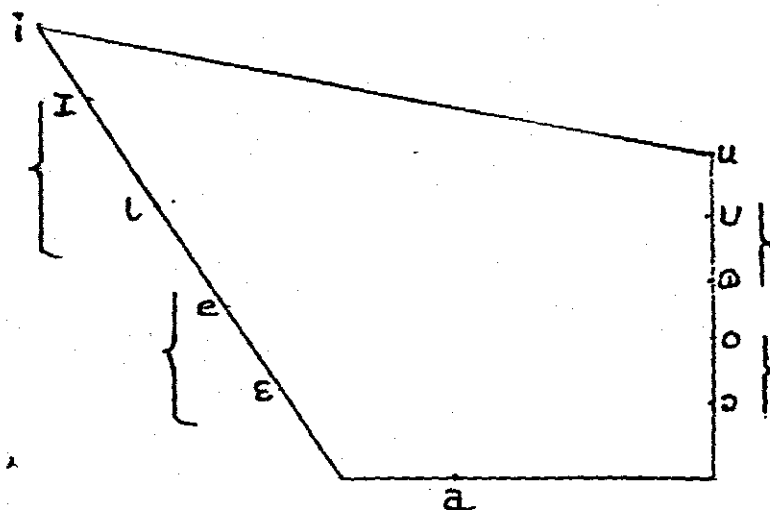
He gave examples of minimal pairs.

He explains that there are eleven vowel sounds in Southern Sotho grouped into seven phonemes.

These phonemes are:

[i]

[ɩ-I]

[ɛ- e]

[a]

[ɔ- o]

[ɷ -ʋ]

[u]

The two semi-vowel [w] and [j] constitute two separate phoneme classes.

1.2   Cole D.T (1949)

4.2.1   Contribution

Cole's contribution in Sotho languages is mostly in Tswana.
His findings on the phonological relationships of· Tswana
vowels, written as early as in 1948, is of great benefit in
studying the behaviour of Southern Sotho Vowels, though
there might be small differences in certain areas. His
contribution is however, of great relevance to this study.
In his compilation of "Notes on the phonological
relationships of Tswana Vowels", (1949 : African Studies,
Vol. 8 No. 3), many sources dealing on the behaviour of
vowels in Tswana had been consulted : Tucker, A N (1929) ;
Lestrade G P (1937); Jones D and Plaatje, S T (1916),
Wookey A J (revised by Brown T Tom – no date); Crisp W,
(3rd Ed. 1900). In addition to these, some relevant sources
in Southern Sotho and Northern Sotho had also been
consulted.

In his introduction, Cole (1949) mentions that he feels
uneasy about the nature of the mid vowels and their
relationships because they are differently represented in
different orthographies, especially in Northern Sotho and
Tswana. This remark makes us pay more attention to the mid-
vowels which are the core of this study. He uses the IPA
script in this study with some slight modifications, to
accommodate all the Tswana Vowels. His Tswana Vowel Chart
looks as shown:
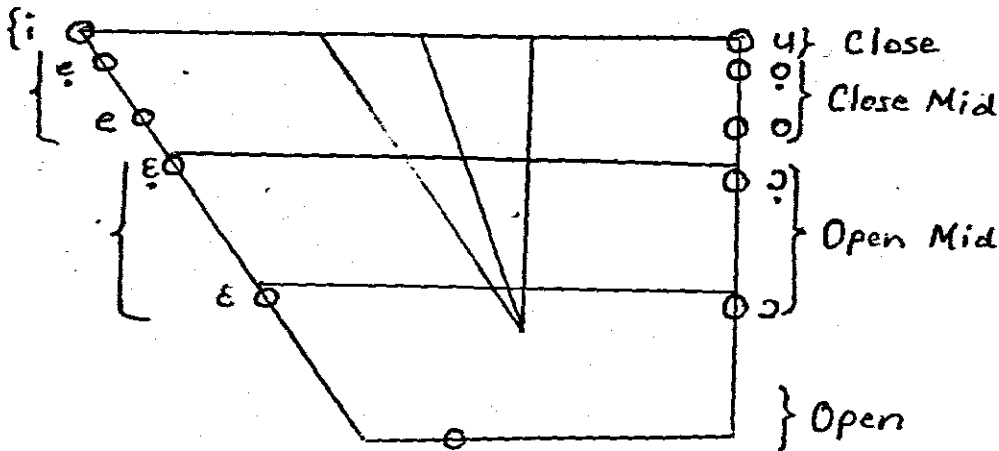
4.2.2 Vowel system

Cole´s (1949) vowel system consists of four groups i.e. each of the three groups has both front and back vowel representations.

The four groups are:

(a) The close vowels i.e. front and back,

(b) The semi-close vowels with their allophones i.e. front and back,

(c) The semi-open vowels with their allophones i.e. front and back, and

(d) The open front vowel [a] without any functional back vowel.

According to Cole (1949), all these vowels are pure without having any diphthongal quality as found in some vowels of English and other languages. Cole (op.cit.), had criticised Jones (1916), Tucker, (1929), Crisp (1900) and others about

their shortcomings in their treatment of Tswana vowels. We
will treat this criticism with special emphasis to the mid-
vowels, because this is a "problem area" in Sotho Vowels.

1. (i) The Tswana i can be regarded as being identical
         with Cardinal Vowel No. 1.   It derives from Ur-
         Bantu close vowel i as postulated by Meinhof.
         e.g. phiri (hyena) cf UB   *- pɪtɪ
               moriri (hair) cf UB   *- tɪtɪ
               bosixo (night) cf UB   *-tɪku

    (ii) This i is not only limited to stems and roots
          but found in other parts of language, e.g. noun
          classes 8 (di-), causative suffix -isa < *eka
          *-isa or ya etc.

    (iii) Perfect stem suffix -ilɛ and -tsɛ
           < *-ɪle < * ɪlv̂e < *-ɪlie, etc.

2. The Close back Vowel u: It is regarded as identical
    with Cardinal Vowel number 8.

    In the vast majority it is derived from the Ur-Bantu u.

              sehuba (chest) cf UB *-kuʊa
              pula   (rain) cf UB *-ʊûla
              khudu (tortoise) cf UB *-r̂ûlû
              -dutla (leak) cf UB *-lûya
                  (op. cit. : 12)

The Tswana u is the least frequently used close vowel. It is not found in any noun-prefixes nor in any other formative elements. It does however, occur as terminative vowel in a number of nouns and adjactival stems:

batho babasweu (white people)

podi etshweu (a white goat)

mmala ommududu (a blue colour)

pitse êkhunôu (a bay horse) (Cole, 1955 : 143)

4.2.2.1 The Open Vowel

The Tswana a is an intermediate vowel lying between Cardinal Vowels numbers 4 and 5. It is more towards Cardinal Vowel number 4, e.g.

thaba (mountain) cf UB *-taʋa

kxhaka(guinea-fowl) cf UB *-kaŋga

-bala (read, count) cf UB *-ɡala

-axa (build) cf UB *-yaka

Cole, (1949 : 113.)

This is the most frequently used Tswana vowel, occurring in stems and roots of words; vowels of noun -prefixes, concords, qualificatives etc.

N.B.   Cole mentions that there is a forward variety of
a_ when followed by i or u , as in _madi_ (blood) and
tau (lion).   Since this variety has no independent
functional value,   its behaviour or occurrence won't be
considered.

4.2.2.2 The Close Mid-Vowels

1.   The close front-mid vowel e is intermediate in
     quality between CV nos.   1 and 2.   It is derived
     from UB i. e.g.

          loleme (tongue) cf UB * -limi
          mmele (body) cf UB * -ʋili
          tsela (road) cf UB * -ɣila

     It occurs in various types of stems, e.g. noun
     prefixes e.g. se-, me-;.   Qualificative elements,
     terminative vowel of the negative, etc.

     When e   occurs next to close vowels it is raised to
     ẹ.

2.   The close-mid back vowel o corresponds to e, it
     lies between CVs nos. 7 and 8.   It is derived from
     UB u:

     Examples: motho (person) cf UB * -ntu
               botɬhoko   (pain, bitterness)
               cf. UB *-kuŋgu

The o occurs in different parts of speech, noun
prefixes, qualificative, negative forms, etc. The
Tswana o has o as its allophone when it occurs
in juxtaposition´ to close vowels. It is important
to note that Cole (1949) does not use square
brackets in this article when he uses phonetic
script.

Now that we have briefly mapped out Cole´s Tswana
Vowel structure, we have to look closer into his
treatment of the relationships of [e] to [ę], and
[o] and [ǫ]. He explains that the vowels [e] and
[o] cannot be followed in the next syllable by the
close vowels [i] and [u]. By this he means that
they are raised to [ę] and [ǫ] respectively. (N.B:
Cole´s (1949) phonetic script is not the same with
Kunene′s (1961). they differ greatly regarding the
Southern Sotho vowels, numbers 2 and 7 and their
variants of Southern Sotho vowels 3 and 5).

This, is however, a well known phenomenon in Sotho
vowels e.g [sędiba] (well, waterhole)

        [barǫki] (tailors)

        [bǫbi] (spider-web)

A similar effect i.e. raising, is obtained on
terminative [-e] and [-o] when the locative suffix
*[-i] is used with nouns.

setlhare (tree)   locative   [setlhareŋ]

motse   (village)   locative   [motseŋ]

batho   (people)   locative   [bathoŋ]

ntlo   (house)   locative   [ntloŋ]

"Thus −e + * −iŋ > − eŋ , and −o + * −iŋ > − oŋ , by

a process of coalescence" (loc. cit., par. 17,ii).

Cole has postulated the Tswana located suffix as

being *−iŋ   because Meinhof's postulation of *−inî

for Ur−Bantu would give Tswana *−eŋ.

> Where the suffix *−eŋ, the result −e+ * −eŋ
> −eŋ could not be accounted for, as the
> suffix −ŋ alone does not appear to have any
> "closing" effect on preceding e. For
> example, the terminative vowel e of the
> negative stem does not change when the
> relative suffix −ŋ is used with it, as in
> /motho jo −o−sa −rekeŋ/ (a person who does
> not buy) The suffix −ŋ alone, does
> however, affect the ɛ and ɔ vowels, as will
> be seen later. (loc.cit)

The raising of [e] to [ẹ] and [o] to [ọ] in Tswana,

can be so high that [ẹ] and [ọ] become identical

with [i] and [u] respectively, e.g.

mmele (body) > locative <u>mmeleng</u> or <u>mmeding</u>

pelo (heart) > locative <u>pelong</u> or <u>pedung</u>

<u>louʃɔ</u> or <u>loʃɔ</u> or <u>duʃɔ</u> (spoon) (class 11)

<u>-lelodi</u> or <u>-dilodi</u> (adjective : white)

spotted on black) (p.15)

ntlo (house) > <u>ntlong</u> or <u>tluŋ</u> . In Southern

Sotho for instance, the form <u>ntlong,</u> does not

exist. Tlung is the one that is currently being

used.

The closing influence of i, u or *-iŋ on

preceding vowels of the e, o type, works

retrogressively until a break of that type occurs,

e.g.

<u>mosepeleŋ</u> , locative of <u>mosepele</u> (journey)

<u>botɬhokoŋ</u> , locative of <u>botɬhoko</u> (pain)

<u>xa-ke-mo-itse</u> (I do not know him) (Cole,

1949:15)

Read p. 115 (v) where Cole (op.cit.) shows beyond

doubt that [e] and [ẹ] do not belong to the same

phoneme as [i] nor [o] and [ọ] to the same phoneme

as [u] despite phonetic coincidences mentioned above

in locative formations.

e.g.   [mmelẹŋ] or [mmẹdiŋ] (on the body)

[pẹloŋ]   or [pẹduŋ] (in the heart)

[loʃɔŋ] or [duʃɔŋ] (spoon cl. 11)

[-lẹlọdi] or   [-dilọdi] (adj.)

[ntloŋ]   or   [tluŋ] (in the house)

4.2.2.3   The Open Mid-Vowels

The Tswana   is approxiamately the same as Cardinal
Vowel number 3, or perhaps very slightly open.   It is
nearly always derived from the UB e:

selɛpɛ (axe)   cf UB * -lembe

mabɛlɛ (breasts) cf UB * -ʋele

-rema   (chop)   cf UB *-tema

-ɛta   (travel) cf UB *-ɣenda

When ɛ is followed by a , it becomes more open, but
this does not make it to be phonemic from ɛ.   This
vowel occurs in different parts of speech in Tswana
i.e. Verbal stems, imperatives, subjective moods, etc.
ɛ gets raised to ẹ when in the neighbouring of close
vowels.

he Tswana ɔ has been derived from UB o. It is equivalent to

ardinal Vowel Number 6 or slightly open, e.g.`

      maboxo (arms) cf UB * - ʊoko

      pɔɔ   (bull) cf UB * -ʊoɣo

      -nɔna (become fat)   cf UB *- nona

This vowel occurs frequently in Tswana, i.e. stem vowel

terminative vowels of impersonal nouns from verbs etc.

e.g. modumɔ (noise, thunder) <-duma (roar)

      loratɔ (love)   <-rata (love)

      tirɔ   (work)   <-dira (do, work)

An allophone of ɔ i.e. ɔ̧ is slightly more open than

Cardinal Vowel number 7.

4.2.3 Schematic Relationship of the Tswana ε and ɔ to UB e
and o:

(a) UB   Tswana

e ———————————————— ε ⎤
                                        ⎬ Lowering
o ———————————————— ɔ ⎦ phenomenon
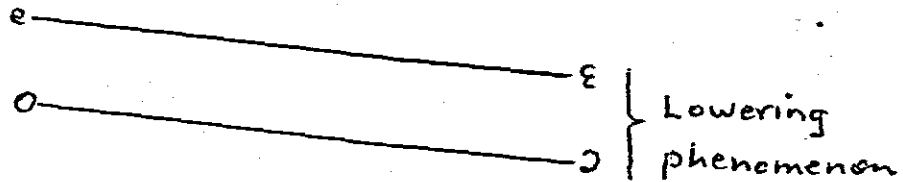
(b) Ur-Bantu   Tswana
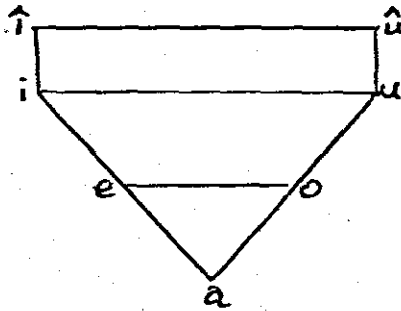
î ———————— û   i ———————— u
i ————————— u   e ————————— o
    e ——— o   ———————
                              ε ——— ɔ
         a   a
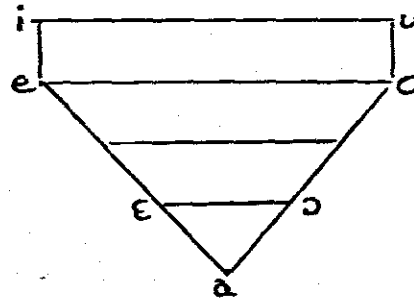
Basic Vowels   Basic Vowels

[(N.B. Meinhof, (1968 : 25) says that UB i, u = ẹ, ọ, and
UB î, û = i̧, u̧ in Sotho and Gikuyu. (see Sotho paragraph 7,
10)

.3 GVS with CB and UB vowels

So far the different vowel charts have been discussed. Some belong to European languages while others belong to African languages. The origin of the Standard Vowel Chart and its development to the present accepted form, places us in a better situation where we can comprehend the concept of vowel charting in different languages. Common Bantu Vowel Chart and Ur-Bantu Charts had been compared. It has been discovered that there are more basic Vowels in CB because it is a conglomeration of different proto-forms of "baNtu" languages than there are in UB which represents an Ur- or protoform of the present African languages. Although the whole concept is theoretical, UB does not accommodate any possibility of its dialectical form or sub-form.

As time went on, vowel shift in European and African languages took place. Certain vowels were dropped and others fused with their neighbouring vowels to produce compound vowels. Vowel shifts in European languages would not be discussed in detail here as they are not directly related to our study. Having in mind are such shifts as the Great Vowel Shift including such phenomena as the Push Chain Mechanism and Drag Chain Mechanism leading to diphthongization in Germanic languages.
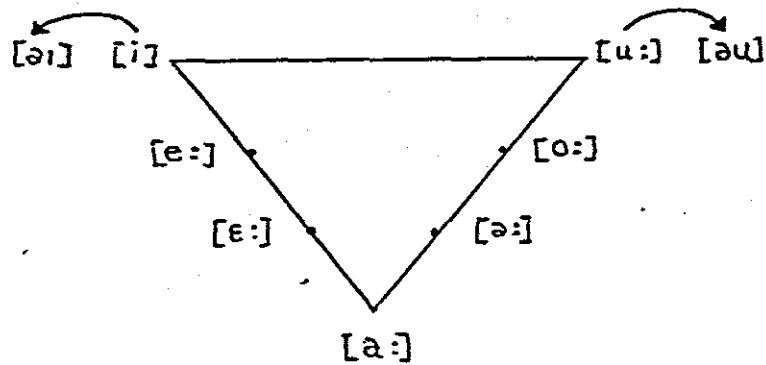
	GREAT VOWEL SHIFT						
	Middle English		became	Early Modern English		became	Modern English	
a:]	[na:ma]	´name´	->	[ɛ:]	[nɛ:m]	->	[ei]	[neim]
ɛ:]	[mɛ:t]	´meat´	->	[e:]	[me:t]	->	[i:]	[mi:t]
e:]	[me:t]	´meet´	->	[i:]	[mi:t]	->	[i:]	[mi:t]
i:]	[ri:d]	´ride´	->	[əi]	[rəid]	->	[ai:]	[rai:d]
ə]	[bə:t]	´baat´	->	[o:]	[bo:t]	->	[ᵒ⁄əʋ]	[bout/ baut]
o]	[bɔ:t]	´boot´	->	[u:]	[bu:t]	->	[u]	[bu:t]

Fig 10.2

See Aitchison, 1984 : 159

The cause of this GVS was to therapeutize the phonetic structure of the Germanic languages that got disturbed and imbalanced by the diphthongization of the [i:] and [u:] phonemes. Grimm´s consonantal shift also set in. It is easy to trace these sound shifts in European languages

because they had long been put in writing. In African languages, such a phenomenon becomes hypothetical with a lot of gaps that remain unfilled.

The information collected from the Common Bantu and Ur-Bantu mixed somehow with the phenomenon of the Great Vowel Shift among the Germanic languages, can help us greatly in plotting the Southern Sotho Vowel Chart that can be used as a base for the African languages having more than five basic vowels. Bennette, Patrick R, in his article, "An Eight Vowel in Thagicũ", says

> The vowel system of Proto-Bantu is generally considered to have included seven contrasting units. Synchronially, the most common types of Bantu vowel-system are a seven-vowel system and a five-vowel system. The latter may be shown to be derived from the former by various types of mergers. Other types of vowel-system, some much more complex, may be found, especially in the northern-western area. In the eastern portion of the Bantu field, however, five-vowel and seven-vowel types predominate. Most, if not all, vowel systems found in Bantu languages can most easily be explained as being derived ultimately from a seven-vowel type. (Journal of African Languages, 1980 : 140, Vol. 7, Part 2).

Thagicũ is a language spoken in central Kenya and has the following dialectes, Kikuyu, Embu and mwimbi.

The existence of the eight vowel in Thagicũ posed a problem to Bennette, because he did not know where to place it on the vowel chart. He has the following to say about this additional vowel:

Recognition of eight phonologic units in discussions of Thagicu as a whole is not unreasonable, though it is unnecessary within a single dialect. Historically, one might assume that the additional vowel had a quality intermediate between *i* and *ī*, or perhaps was centralized. After division of Thagicu into the main dialect groupings, but probably before the split between Northern and Southern Kikuyu, such a unit would presumably have merged with one or the other of the similar vowels .... this hypothetical unit will be written *ɨ and assumed to be a central vowel at approxiamately the level of i and u (op. cit. : 143)

This quotation shows us that there can be some African Languages that have more than eight-vowel system. According to the normal distribution of the vowel-systems of African Languages, each language has a balanced type of vowel distribution i.e. the number of front vowels equals that of the back vowels. Once this balanced system is being disturbed by one vowel that moves away from its position the one that is paired with moves too. That is how the GVS started in the Germanic languages.

Note the following sketch: (Aitchison, 1984 : 150)
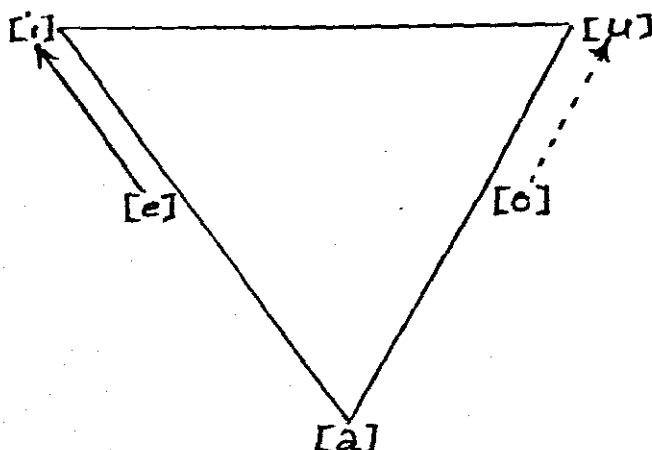
The movement of vowels may be upwards or downwards. This occurs in a particular language after many centuries. This phenomenon is called the Great Vowel Shift. Luick, (in Lass Roger : 1976 : 65) discusses GVS as "Vowel raising". He calls it raising when the vowel moves up. GVS can also imply vowel lowering that still results in diphthongization. Luick's point of departure was the raising of the long mid vowels /ē/ō/ to /ī/ū/.

> This set up a push chain "forcing" the high vowels to diphthongize ..... (loc. cit.).

On the other hand Jersperson and Lass in Lass (1976) hold other view about the cause of GVS, i.e. the initial "impulse" was not the raising of the mid-vowels, but the diphthongization of the high ones. This could not lead to collapse chain, i.e. the mid-vowels pushing the high vowels towards the palate. If they don't diphthongize, they are cramped together with the mid vowels that had moved up. The reverse is the possibibilty. It is reported that Jerspersen (op.cit.) felt that the evidence suggested that diphthongization came first.

> After /i:/ and /u:/ had been diphthongized there was nothing to hinder /e./ and /o./ from moving upwards and becoming /i./ and /u./ where /u./ substituted /o./ was not allowed to move upwards (op.cit. p.232)

The concept of Vowel raising in African languages is not a permanent thing i.e. if one vowel moves up allophonically, it can also be reversed phonemically i.e. it is lowered when

it becomes a phoneme. This is the type of vowel raising we are concerned with in this study. Something temporary and not permanent as in the case of the Germanic languages during the GVS.

CHAPTER 5

5. INTRODUCTION

5.1 Charting of Southern Sotho Vowels according to research findings:

5.2 The Southern Sotho Vowel Chart.

5.3 Schematic Representation.

5.   INTRODUCTION

Sotho languages in general have confusing vowel systems. During

the reduction of vowel phones and phonemes from the possible

fifteen postulated by Guthrie in his Common Bantu to 7 > 5, some

vowels remained unnoticed. They are acoustically identical with

some vowels that are allophonic and yet they are phonemic. This

confusion is found in Tswana and Southern Sotho.

5.1 CHARTING OF SOUTHERN SOTHO VOWELS ACCORDING TO RESEARCH
FINDINGS

Cole, (1949 : 114), has the following to remark about the vowels

[ẹ] and [ọ], that their placing on the vowel chart is somewhat

arbitrary. They occupy the positions between [i] and [e], and

[u] and [o], respectively,

> and even the trained ear has great difficulty in
> distinguishing them from either member of these
> pairs. The quality of ẹ and ọ furthermore varies
> to some extent with different speakers (perhaps
> dialectically), and apparently also in different
> words. With some speakers ẹ and ọ show little
> variation from e and o, but with most, they are
> very close to and often almost indistinguishable
> from i and u respectively. In some cases it seems .
> in fact that these vowels are identical with i and
> u, as is evidenced by the tendency, in a very
> limited number of words, to change the lateral
> continuant 1 to its phonemic variant d when
> preceding them.

This quotation shows beyond doubt that Tswana ẹ and ọ are not

always identical with Southern Sotho ẹ and ọ. Some are identical

and others not. Note the following examples:

Tswana	Southern Sotho

mmele(body) → loc. mmeleng   : (always) mmeleng

         or mmeding

pelo (heart) → loc. pelong   : (always) pelong

         or pedung

-lelodi or -dilodi (adj.   : (always)-tolodi, meaning

i.e. white spotted on black.)   same as in Tswana

It must however be remembered and noted that Tswanas use e and i
as different phonemes, the same applies in Southern Sotho, e.g.

       -bitsa (call) → perf. -biditsɛ (Tsw. + S. Sotho)

       -betsa (beat) → perf. -beditsɛ (Tsw. + S.Sotho)

       N.B. Southern Sotho uses also the second form betsitse

           [bets'itsɛ]

       -duma (roar) → perf. -dumilɛ (Tsw. + S. Sotho)

       N.B. Southern Sotho uses also the second form dumme

           [dummɛ]

       -loma (bite) → perf. -lomilɛ (Tsw. + S.Sotho)

       N.B. Southern Sotho uses also -lommɛ

Cole, (op.cit, p.115) on the basis of the above examples says:

> From this evidence we must conclude therefore that phonetically the vowels e and o are acoustically and positionally very close to i and u respectively, and may in fact with some speakers be identical with them. Phonologically however, e and o are variants of the e and o phonemes and bear no relationship to i and u.

What must be borne in mind in this regard is that the spoken language came first with these double locatives before writing and standardization came into existence. This is just a proof of some vowels that could not fuse and produce certain phonemes during the reduction period of Common Bantu vowels from 15 > 7 and 5.

In Southern Sotho the confusion is around cardinal vowel No 2 and No 7, i.e. [e] and [o] according to the normal phonetic script with the allophones [ɛ] and [ɔ] respectively. Note the following examples:

Kwẽna (di.) n., Crocodilus niloticus, i.e. crocodile.The diminutive is Kwenananyane and not Kwênana or Kwênananyane.The high ẽ as used by Paroz in Southern Sotho English Dictionary (1961), has still been kept in the diminutive. This is a proof that this ë or [e], is not [ɛ] which could have been lowered in the diminutive.

Cole (1952 : 15 (e) explains that kwёna has been derived from *kwênya, i.e. UB *-ɣwenya.

Note: When kwёna is compared with kwêna. It is realised that
they are two different lexemes. Their difference is due to the
phonemes /ё/ and /ɛ/.

Kwena² means to hold tightly, to hide or to cover.

Kwena² is a verb stem, meaning to bend, to incline.   The word
mokwênasegha, means an illegitimate child.

These two verb stems, -kwêna, use the form -kwênnë for perfect
tense, just like -kwёna which becomes kwёnilē or kwёnnё.

Phonetically these forms should be represented as follows:

kwêna /kwˊɛna/ —→ kwênnё [kwˊɛnnɛ] but,

kwena /kwˊena/ —→ kwênnё [kwˊẹnnɛ̣]

The [e] of kwёna should be raised by [i-] of the perfect suffix
-ile to [ẹ].   The [e] of kwёna is an original [e] that is
identical with C V No 2.   The diminutive form kwênana is not used
for Crocodilus niloticus, but for the diminutive of the plants of
the Mentha genus, i.e. mint.

Note: Kwena e nyenyane is M. aquatica. the diminutive kwenana is
Diclis reptans.

Kwёlёhane (di.) n., the plant Aster muricatus.

Kwekwe (di.) n., the bird Coturnix coturnix,

i.e. African quail or quail.

Note the following two words:

mokwèlëbana (me.) n., something worn out; old, weak assegai.

makwēlëbane, n. plural

lerumo le makwelebane, means a short assegai.

In the preceeding word, one may be inclined to conclude that the sounds in -kwèlë- could have been raised by mo- [mʊ-] of the class prefix. When one looks at the succeding word having the structure that is almost similar with mokwēlëbana, i.e. makwēlëbane, still with the sounds of -kwēlë- high, one is bound to change his conclusion. What about the word kwelehane? Kwelehane (di.) is a plant called Aster muricatus.

The Cardinal Vowel no 7. can be represented by kököbélē [kˈokˈobele], (di.), termite in the flying stage, or flying ant. kötjëllëkötjë [kˈotʃˈellekˈotʃˈe], (di.) n., toy wheel made of clay; spinning top.

These examples are indicative of the fact that there are certain vowels that had not been recorded in Southern Sotho and Tswana.

5.2   THE SOUTHERN SOTHO VOWEL CHART

In order to make a convincing Southern Sotho Standard Vowel
Chart, one has to consider the following aspects:

(i)   Guthrie's postulation of Common Bantu Vowel Chart.

(ii)   The Vowel Reduction Theory in Common Bantu i.e.
       17>7>5.

(iii) Meinhof's postulation of Ur-Bantu Vowel Chart.

(iv)   The present Sotho Vowel Charts.

(v)   The acoustic effect of the Southern Sotho Vowels.

(vi)   The phonemic structure of Southern Sotho Vowels, and
       lastly

(vii) The Phonetic Symbols to be used.

5.2.1 The Common Bantu Vowel Chart has seventeen Vowels
       which were reduced in two streams of V^1 and V^2

The original vowels are as follows:

1. /ị̧/, /i/, /ị̱/, 2. /ẹ/, /e/,

3. /ɛ/, /ɛ̱/   4. /æ/, /a/,

5. / æɔ/, /ɔ̱/,   6. /ɔ/, /o/

7. /ọ/, /u̱/,/u/ 8. /u̧/

Acoustically V^1 looks as follows:

/a/, /ɛ/, /ẹ/, /ị̧/, /ɔ/, /ọ/, /u̧/

V^2 looks as follows:

/a/, /e/, /ị̱/, /ị̧/, /o/, /u̱/, /u̧/

5.2.2 When these two streams are superimposed on the Vowel Chart to get the result and merging in pronunciation, we could get something like this:
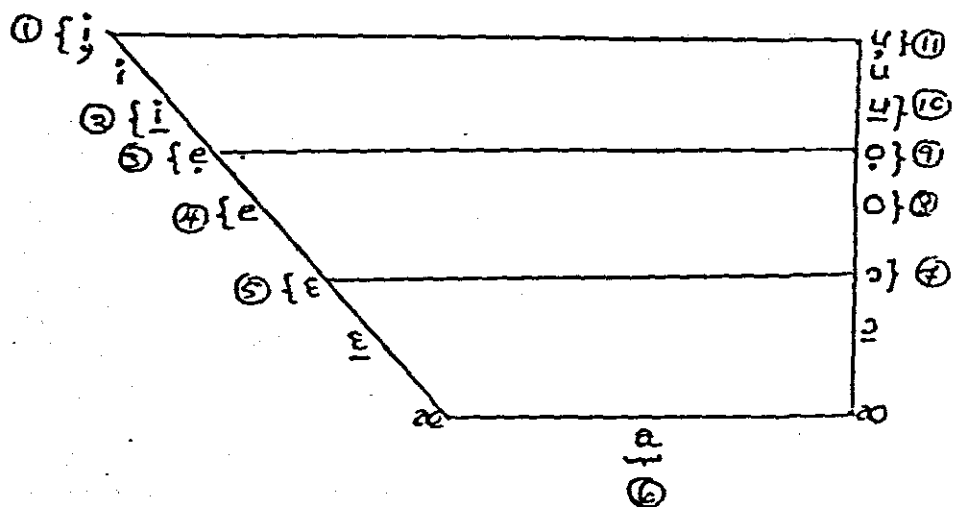
From this comparison, eleven vowel phones can beworked out. What remain are /i/, /u/, /ɛ̱/ and /ɔ̱/.

5.2.3 Possible reduction of the number of the vowels of the above Vowel chart phonemically in Southern Sotho, could have happened as shown:
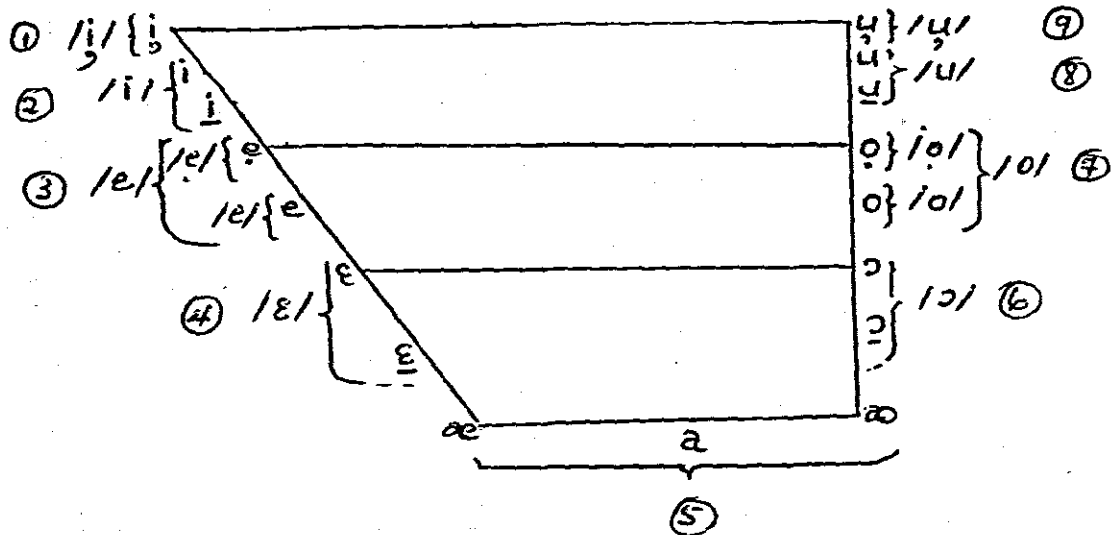
5.2.4 Possible phonological structure that could emerge from the above phonemic structure may look as shown:
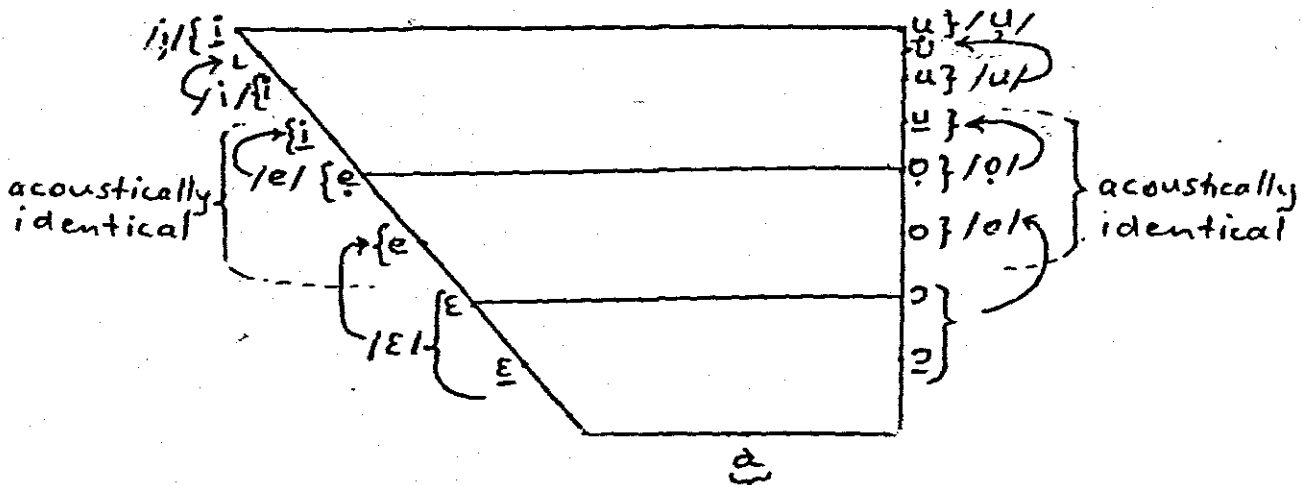
The vowels are as follows:

/i̜/, /ι/, /i/, /i̱/, /e̜/,

/e/, /ɛ/, /a/, /ɔ/, /o/,

/o̜/, /u̱/, /u/, /ʊ/, /u̜/

5.2.5 From the vowel charts discussed it is possible that a Southern Sotho vowel chart could have developed from one of them when we consider how unusual some Sotho vowels behave i.e. Southern Sotho and Tswana.

This is due to the large number of vowels that existed in Common Bantu. These vowels could have rearranged themselves differently in Southern Sotho, because Southern Sotho is not one of the proto-languages that formed Common Bantu, but a modern language that developed from one or some languages that formed Guthrie's proto-languages. Because of its behaviour phonetically and phonologically, Southern Sotho vowel Chart should look like this:
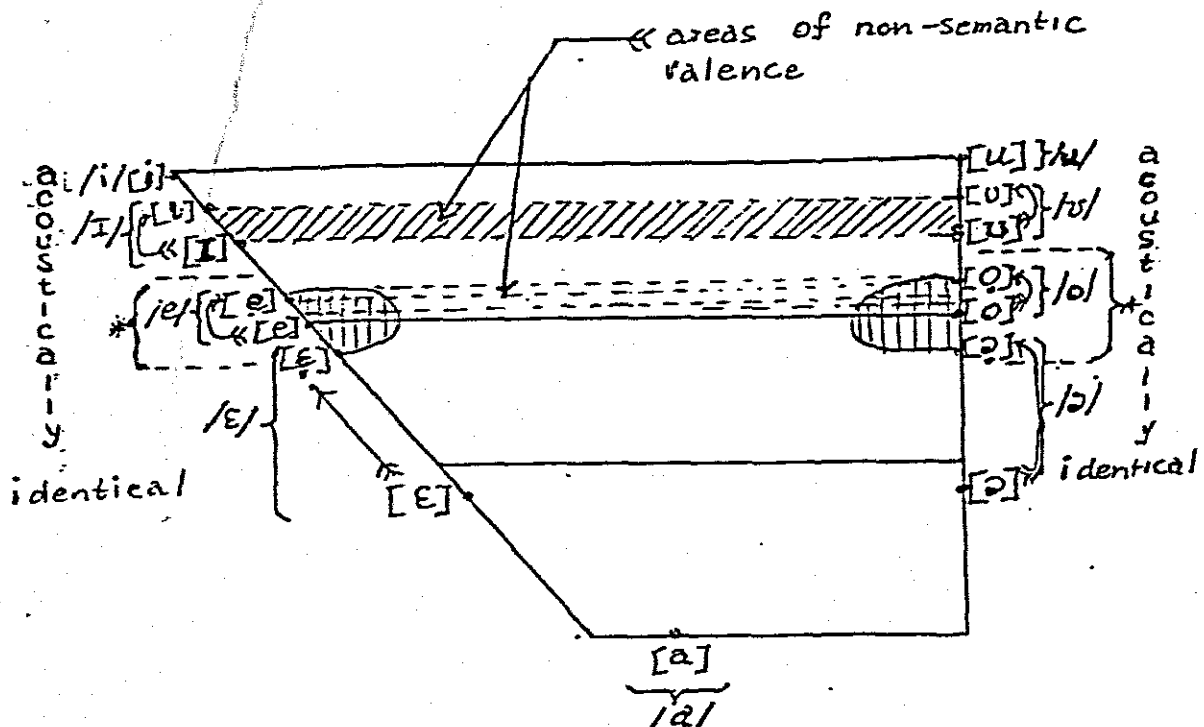
When we watch the above sketch we realise fifteen different vowels. Amongst these vowels are the basic and secondary vowels.

The only problem with these vowels is that some of them are acoustically identical though not similar- i.e. [e], [ẹ] and /ɛ/, they are pronounced the same. Their similitude in pronunciation has caused a lot of confusion in this area, and unusual phonological vowel behaviour with overlapping phonemic characteristics. The same behaviour is also encountered with [o], [ọ] and [ɔ]. The sketch above shows beyond doubt why these vowels bring about phonemic and phonological confusion.

5.2.6 From now hence forth, the phonetic designation to be used, is the one reflected or shown on the Southern Sotho Vowel Chart treated above which can be taken as ideal.

The value of these vowels can be seen and comprehended from the following examples:

1. /i/   e.g. [p'inᴀ] (song)

2. /I/   e.g. [ts'Ila] (road)

3. /ι/   e.g. [sιbini] (singer)

4. /e/   e.g. [k'ok'obele] (flying ant)

5. /ẹ/   e.g. [k'ok'ọbẹleŋ](on,at the flying ant).

6. /ɛ/   e.g. [ts'ɛbɛ] (ear)

7. /ɛ̣/   e.g. [ts'ɛ̣bɛ̣ŋ] (on the ear)

8. /a/ e.g. [bana] (children)

9. /ɔ/ e.g. [ɫɔɔʕɔ] (head)

10. /ʔ/ e.g. [ɫɔɔʕɔ̰ŋ] (on the head)

11. /o/ e.g [k´ok´obelē] (flying termite)

12. /o̞/ e.g. [k´o̞k̠ɛbele̞ŋ] (on the flying termite)

13. /ʋ/ e.g. [bʋɨʋk´ʋ] (pain)

14. /ʊ/ e.g. [bʋɨʋk´ʋŋ] (in pain)

15. /u/ e.g. [p´ula] (rain)

3   SCHEMATIC REPRESENTATION

```
   /i/                  9.   /u/

   /I/ ──────→[ɪ]   8.   /ʊ/──────→[ʋ]
        ⟍ ↗[I]                  ⟍ ↗[ʋ]

   /e/ ──────→[e]   7.   /o/ ──────→[ọ]
        ⟍ ↗[e] }Homophonic    ⟍ ↗[o] }Homophonic

4. /ɛ/ ──────→[ɛ]   6.   /ɔ/──────→[ʔ]
        ⟍ ↗[ɛ]                  ⟍ ↗[ɔ]


              5.   /ə/
```
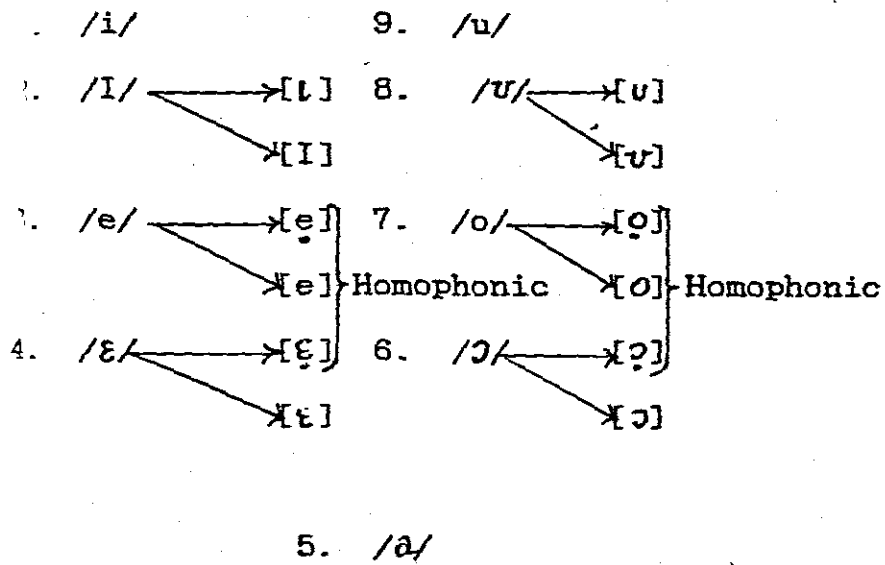
CHAPTER 6

6.   INTRODUCTION

6.1   Definition of Assimilation

      (morphophonological phenomenon)

6.2   Divisions of Assimilation

      6.2.1   Complete

              6.2.1.1   Progressive

              6.2.1.2   Retrogressive/Reversive/Regressive

      6.2.2   Incomplete (Partial)

              6.2.2.1   Reciprocal (Prog-Regr. -Ass.)

              6.2.2.2   Retrogressive

              6.2.2.3   Vowel

CHAPTER 6

6.   INTRODUCTION

In this chapter we are going to treat the subdivisions of the phenomenon called Assimilation. We will concentrate on vowel assimilation and consonantal assimilation may be sighted only if it has somehow a bearing on vowel raising.

6.1 DEFINITION

Assimilation is a morphophonological phenomenon according to which dissimilar speech sounds in juxtaposition tend to become similar. The influenced speech sound may change completely or partially during this process. In Complete Assimilation the influenced speech sound takes all the phonetic characteristics of the speech sound that influenced it. In Partial Assimilation however, the influenced speech sound takes certain attributes of the influencing agent. The direction of influence, is also of great importance i.e. if the preceeding speech sound influences the succeeding one, it is called progressive, but reversive or retrogressive when the succeeding speech sound influences the preceding one and reciprocal when juxtaposed sounds evenly influence each other.

6.2 DIVISIONS OF ASSIMILATION

From the definition of assimilation as given above, the phenomenon assimilation has many subdivisions that need to be discussed in detail.

6.2.1 Complete:

Complete assimilation occurs when a speech sound completely influences the one adjacent to it in such a manner that the latter becomes phonetically identical with the former.   This phenomenon may occur immediately after the process of elision has taken place.

Ziervogel (1967:65) as quoted by Landsberg, (1974:18) says:

> Elisie is n verskynsel wat voorkom wanneer
> een of meer klanke weggelaat word.

Kruger (1972:21-24) in Landsberg (1974:22) provides a detailed definition of elision. He says:

> Elisie is die wegval van ´n foneem (of foneemreeks)
> of n morfeem uit n woord of van n woord uit n
> konstruksie.

He further differentiates among "foneemelisie, morfeemelisie en woordelisie." (loc. cit.)

Examples of Complete Assimilation

mobuso   > *mǿbuso   > *m̬b̬>mmuso (government)

mobitsa > *mǿbitsa > *m̬b̬>mmitsa (nice food,

pleasant thing)

mobatli > *mǿbatli > *m̬b̬>mmatli (one who searches)

mobolai > *mǿbolai > *m̬b̬>mmolai (killer)

moboledi > *mǿboledi > *m̬b̬>mmoledi (speaker, orator)

mobetli > *mǿbetli > m̬b̬>mmetli (carpenter)

In the above examples [b] has been juxtaposed to [m],
after the phoneme /-o-/ has been elided. [m-] influenced
[-b-] easily because they are both voiced bilabial sounds,

/m-/ + /-b-/ > /mm-/

When the objectival concord of the third person singular
i.e. /mo-/ is prefixed to stems containing a bilabial
sound in their initial syllables, complete assimilation
still occurs:

e.g. /mo-/ + /-bala/ > *mǿ-bala

> *mbala > mmala

/mo-/ + /-bitsa/> *mǿ-bitsa > *mbitsa

> m̬b̬ > mmitsa

/mo-/ + /-betsa/> *mǿ-betsa>*mbetsa

> m̬b̬ > mmetsa

Landsberg (1974 : 25) discusses another form of complete assimilation that comes after the elision of /i/ of /-ile/ when used in perfect forms of verb stems ending in ~na and ~ma. In this regard, Landsberg uses Khaketla's (1951, p.10) examples. It seems he doesn't agree with Khaketla's standpoint in this regard, he says:

> Khaketla verstrek baie voorbeelde van elisie in hierdie omgewing. Sy weergawe van die historiese verloop van die fonologiese aanpassing is egter nie aanvaarbaar nie bv.
>
> shema > shemile > shemle > shemme

According to Landsberg, Kruger's (1972, p.21) theory in this regard is the correct one.

> Volgens Kruger, en dit is ook die algemeen aanvaarde teorie oor die historiese verloop van fonologiese aanpassing in hierdie omgeving, het die proses soos volg verloop.
>
> alamile > alamime > alamme
>
> Hier volg nog n aantal voorbeelde uit die twee werke.
>
> ganile > ganne
> lemile > lemme
> lomile > lomme
> ~romile > romme (loc. cit.)

(I suspect "ganile" should have been hanile, in order to become hanne).

Ziervogel, et al (1967 : 324 (vii)) discuss this
phenomenon but do not bother to show how the double
consonants have been formed, e.g.

-loma (bite) > *-lomile > `-lomme
-pona (fade) > *-ponile > -ponne

In the case of Khaketla and Kruger as used by Landsberg as
examples, it is unfortunate that Landsberg rejects
Khaketla´s steps of development from "shema" > "shemme".
Khaketla´s steps are more systematic than those of Kruger,
who does not account of the introduction of the new form
"*alamime" from "alamile". In the latter case there is no
elision before the formation of assimilation.

To support Khaketla´s theory, let us watch the following
example:

/nona/ (become fat) + /ile/ > *nonaile > *nonile >
*non(i)le > *nonle.

N.B. For the sounds to assimilate there must be common
features amongst themselves. In *nonle < * non(i)le,
/*-nl-/ have common characteristics.

(i) /-n-/ is a voiced alveolar nasal continuant.

(ii) /-l-/ is a voiced alveolateral

continuant.

(iii) In the above characteristics, we have

(a) voice on both occasions.

(b) alveolus as an organ of formation; and

(c) both sounds are continuants. In such a
situation it is easy for such sounds to
assimilate each other when juxtaposed. They
can only be easily juxtaposed after the
elision of

/-i-/ of /-ile/, i.e.

*nonle > *nonle > nonne

The above phenomenon can also be supported by a word
unrelated to the above examples.   The verb stem
-bona + -isa (causative suffix)
> -bontsha. (to show, to help to examine)
Here we have to trace the formation of the causative form
"-bontsha":
-bona + -isa < *(e)kŷa < *-eka + *-ŷa < *-îa

i.e. -bona + *-kŷa

> * -bonakŷa

> * -bona (-sia<kya)

> * -bonasŷa< -sia

> * -bonásŷa

N.B. The /-i-/ of the suffix -sia penetrates the stem -bona to be *boni, and the -s(ŷ)a remains. The /s/ is strengthened by the causative suffix /-ŷ-/ to /-tsh/. The verb stem changes from bonisa to *bon(i) sa > bontsha. What must be noted in these suffixes is that the /-i-/ of -ile had been elided from its stem i.e. only the prefix of -ile has been elided. In the causative suffix *-eka + *-ŷa < *-ła, only the prefix too is elided. The stem remains.

Kunene, (1961 : 125 (ii)) discusses the same issue in relation to the assimilation of /1/ to /m/ and /n/.

> The 1 of the perfect suffix ile is assimilated to a preceding m or n. In other words the sequences mil and nil become mm and nn respectively being accompanied by the elision of vowel i.

> Examples :

> mm < mil: hammê (has/have milked) <*hamilê
>   lommê (has/have bitten) <*lomilê
> nn < nil: hannê (has/have refused)< *hanilê
>   kgônnê(has/have been able)<*kgonilê

> As the above examples show, where the nasal assimilating the 1 of the perfect suffix is m, the forms without assimilation are also still used. But where the assimilating nasal is n, the forms without assimilation are, except for a few exceptional cases, no longer found.

These examples support Khaketla's steps as discussed above, rather than those of Kruger, though supported by Landsberg, (1974).

6.2.1.1 Progressive

Progressive assimilation implies that a preceding sound influences the succeeding sound in its juxtaposition, hence the term "progressive" implying, moving on along the direction of reading:

mobusi   > *møbusi   > *mb̰ > mmusi (governor)

mobolayi > *møbolayi > *mb̰ > mmolai (killer)

mobuelli > *møbuelli > *mb̰ > mmuelli

(intercessor)

mobila   > *møbila   > *mb̰ > mmila (road)

mobutla > *møbutla > *mb̰ > mmutla (hare)

mobitsa > *møbitsa > *mb̰ > mmitsa (nice

food)

Sound change [m] + [b] >*mb̰> /mm/

6.2.1.2 Retrogressive/Reversive/Regressive

Retrogressive assimilation is also known as reversive or regressive assimilation. In this phenomenon the succeeding speech sound in a lexical item influences the preceding sound or phoneme.

According to Kunene, (1961 : 86). Retrogressive assimilation takes place,

> ... when a vowel assimilates another vowel occuring in a preceding syllable; in other words, when a vowel throws its influence back to a vowel that comes before it.

Kunene's definition concerns vowel raising, but it is also of relevance to consonantal influence, e.g. malatsi became matsatsi. The terminative /ts´/ of "malatsi" has influenced retrogressively the /-l-/ phoneme of "malatsi" to become /ts´/ as in matsatsi (days). It has been an easy phenomenon for the /-ts´/ phoneme of malatsi to influence /-l-/ phoneme because both phonemes change easily into either form i.e. /-l-/ changes easily to /-ts´-/ in perfect tense,

> i.e. -robala (sleep) + *-tle <*-tlie
>
> > * -robadile
>
> > * -robetse (S/ch : l>ts).

In this example /-ts´-/ is an allomorph of /-l-/ There are not many lexical items belonging to this class.

6.2.2 Incomplete (Partial)

Partial or Incomplete assimilation takes place when the influencing agent does not succeed to influence the sound next to it wholly so that it should take all its phonetic attributes. What happens is that the influenced speech sound takes only certain attributes of the influencing agent.

This phenomenon can be split into three different subdivisions:

6.2.2.1 Reciprocal (Progressive - Regressive):

In Reciprocal assimilation, two speech sounds in juxtaposition evenly influence each other. None of the two sounds takes all the attributes of the sound adjacent to it without influencing it too, accordingly.

New sounds are eventually produced due to the phonological forces evenly operating from the opposing sides.

(a) Personal Obj. C + stems with bilabials

n(i) - + -besa (make fire) > *nbesa > n͡b >mp

> mpesa

n(i) - + -bona (see) >*nbona > n͡b >mp

> mpona

n(i) - + -botsa (ask) >*nbotsa > n͡b > mp

> mpotsa

n(i) - + - betsa (throw) > n͡b > mp > mpetsa

What has happened in these examples is that the Objectival Concord of the first person n(i)- has exerted its nasal attributes on the labial /b/ after the elision of /-l-/, i.e. /n/ and /b/ were juxtaposed. /b/ has also exerted its labial attributes on the nasal /n-/. The nasal /n-/ changed into /m-/ because of the bilabial characteristics of /b-/ and in turn /b-/ became ejective because of the influence of the nasal /m-/ which is an allomorph of the O C of the first person /n-/.

(b) Obj. C. of the 1st Pers + Stems with dentilabials

n(i) + faḥla (hurt the eye) > *nfahla > n̂f > mph > mphahla

n(i) + fehla (churn) > *nfehla > n̂f > mph > mphehla

n(i) + fa > *nfa (give) > n̂f > mph>mpho

n(i) + fumana (find, receive) > *nfumana > n̂f > mph > mphumana

n(i) + felehetsa (accompany) > *nfelehetsa > n̂f > mph>mphelehetsa

n(i) + fudua (stir, agitate) > *nfudua > n̂f > mph>mphudua

n(i) + ferekanya (disturb) > *nferekanya > n̂f > mph>mpherekanya

n(i) + fadimehisa (to cause or to help to be watchful)
> *nfadimehisa> n̂f >mph > mphadimehisa

What has happened here is that the Obj. C. of the first person n(i)- has exerted its nasal characteristics on the dentilabial /f-/ phonemes of the given words. The nasal /n-/ strenthened the /f-/ phonemes into the aspirated /ph-/

phonemes. The dentilabial /f-/ phonemes in turn influenced the nasal phoneme of the Objectival concord of the first person into its allomorph /m-/. The influence or assimilation, is however, still partial because neither /n-/ phoneme has changed to /f-/ phoneme nor /f-/ to /n̄-/.

6.2.2.2 Retrogressive

This is a reversal of the progressive assimilation. Retrogressive assimilation is mostly characteristic of the nouns of the animal class i.e. Meinhof classes 9 + 10 (Dokean N-, diN-class)

(a) The Alveolar Nasal /n(i)/ changes to Velar Nasal /ŋ-/ e.g.

n(i) + kwe > *n̂kwe (leopard) > [ŋkw'ɛ]

n(i) + ketu> *n̂ketu (frog) > [ŋk'ɛt'u]

n(i) + kga > *n̂kgo (water pot) > [ŋkxhɔ]

n(i) + ku > *n̂ku (sheep) > [ŋk'ɔ]

n(i) + ko > *n̂ko (nose) > [ŋk'ɔ]

What has happened here is that the velar /-k-/ phoneme has influenced the alveolar nasal /n-/ phoneme in its juxtaposition after the elision of /-i-/ phoneme. The alveolar /n-/ phoneme became

the velar nasal phoneme /ŋ/. Note that the phoneme /k/ has taken nothing from /n-/.

(b) The Alveolar nasal /n(i)/ changes to a prepalatal nasal /ɲ/.e.g.

n(i) + ja (eat) > *nja [ɲtʃʹa] (v.t.)

n(i) + sheba (look at) > *nsheba [ɲtʃhɛba] (v.t.)

n(i) + shoba (seize) > *nshoba [ɲtʃhʊba] (v.t.)

n(i) + jesa (give to eat) > *njesa [ɲtʃʹɪsa] (v.t.)

n(i) + tjhesa (hurt, destroy through fire) > *ntjhesa [ntʃhɪsa] (v.t.)

n(i) + shapa (thrash, smack > *ntjhapa [ɲtʃhapʹa](v.t.)

What has happened here is that the nasal phoneme /n(i)/ has taken the prepalatal attributes of the consonantal phonemes juxtaposed to it after the elision of the Objectival Concord of the first person. Fortisation of these prepalatal phonemes has also taken place due to the /n(i)-/ phoneme.

6.2.2.3   Vowel raising

It is also regarded as vowel assimilation because the low or open vowels are phonologically forced to take some characteristics of the close vowels that are juxtaposed to them.   This phenomenon will be discussed in detail in Chapter Seven.

In Southern Sotho Vowel raising exhibits Incomplete assimilation.

CHAPTER 7

7. INTRODUCTION

7.1 VOWEL RAISING (DEFINITION)

7.2 CAUSES (FACTORS)

    7.2.1 Vowel Factors

        7.2.1.1 Close Vowels

            7.2.1.1.1 Front

            7.2.1.1.2 Back

        7.2.1.2 Allophonic Chain Raising

        7.2.1.3 Coalescence

        7.2.1.4 Vowel Constriction

    7.2.2 Consonantal Factors

        7.2.2.1 [-tl -]

        7.2.2.2 [-ts -]

        7.2.2.3 [- l -]

        7.2.2.4 [-ɲ -]

7.3 QUALIFICATIVE CONCORDS

7.3.1 Adjectival Concords

7.3.2 Relative Concords

7.3.3 Enumerative Concords

7.3.4 Possessive Concords

7.3.5 Quantitative Concords

7.3.6 Demonstrative (Pronouns)

7. INTRODUCTION

In this chapter we will treat the phenomenon Vowel raising in detail. All possible aspects of its occurrence i.e. active and latent will be discussed. Schematic representations involving the triangular valencic shifts will be discussed. Consonantal influences that bring about vowel raising will be scrutinized and thoroughly elucidated. Syntactic factors will also be treated to show the spreading of this phenomenon in the language.

7.1 VOWEL RAISING (DEFINITION)

It is a phonological process that occurs in lexical items that contain vowel phonemes of different height distributional qualities on the vowel chart, whereby highly placed vowels tend to influence the lowly placed vowels in juxtaposed syllables of the same lexical item or the vowel(s) of the first syllable of the succeeding lexie, the tendency being the open vowel phonemes forced to partially assimilate the positional qualities of the close ones either progressively or reversively.

7.2 CAUSES OR FACTORS

7.2.1 Vowel Factors

Different vowels that are located at different places on the vowel chart, when juxtaposed in syllabic environments, influence one another. The close vowels usually draw or "pull" the open vowels towards them, by so doing, the open vowels are raised from their normal plane. This is referred to as vowel raising. Raised vowels are always the allophones of their non-raised counter parts, or the vowel phonemes from which they have been raised. Vowel raising is a temporary action that is effected by phonological rules. When the rules or conditions are removed, the raised vowel reverts to its phonemic state.

7.2.1.1 Close Vowels

Southern Sotho has two close vowels i.e. [i] and [u]. The Southern Sotho /i/ phoneme, is identical with Cardinal Vowel number 1 and is known as The Close Front Vowel.

The Southern Sotho /u/ phoneme is identical with Cardinal Vowel number 8 and is known as The Close Back Vowel. These two vowels are found phonemically in different words or syntactic constructions. Here we should illustrate how do they cause vowel raising.

7.2.1.1.1 Front

a) (i) <u>/i/ raises /I/ to [ɪ]</u>

When the phoneme /i/ is in the neighbourhood of
/I/, it will always raise the latter e.g.

     sesenyi (evil-doer)   > *[sɪ̂sɪɲi]>[sɪsɪɲi]

     mesi (smoke in plural) > *[mɪ̂si]>[mɪsi]

     ledimo (cannibal)   > *[lɪ̂dimʊ]> [lɪdimʊ]

     leino (tooth)   > *[lɪ̂inɔ]>[lɪinɔ]

     seipati (expert in concealing oneself)

                   > *[sɪ̂ip'at´i]

                   > [sɪip'at´i]

     seilatsatsi (mythical flower said to grow
     where the sun never shines)

                   > *[sɪ̂ilats´ats´i]

                   > [sɪilats´ats´i]

     sesiu (large basket in which grain is kept)

                   > *[sɪ̂siu] > [sɪsiu]

(ii)   <u>/i/ raises /e/ to [ẹ]</u>

The phoneme /e/ is no longer productive in
Southern Sotho. In most cases it has fused with
/ɛ/ phoneme.

Because of this, there are few terms where [e]
still exists as a phoneme. To indicate this
phoneme in normal orthography, the diaereses
would be used, e.g.

a) Kwekwelekwele [kwˊekwˊelekwˊele]
    n., i.e. tumult.

b) Kgehlelele [kxheɟelele], (di.), n.,
    toy wheel made of clay.

c) kotjellekotje [kˊotʃellekˊotʃˊe]
    a kind of dance.

d) kokobele [kˊokˊobele], (di.) n.,
    termite in the flying stage.

The locatives of the above words would be
indicated:

    [kwˊe̯kwḙle̯kwˊe̯leŋ]

    [kxheɟe̯le̯leŋ]

    [kˊotʃe̯lle̯kˊotʃˊe̯ŋ]

    [kˊok̯ˊobe̯leŋ]

N.B. It will be realised that the phoneme /e/ is
acoustically identical with its allophone [e̯].

The phoneme /e/ by being identical with Cardinal Vowel number 2, it cannot be practically raised since Cardinal Vowels are never raised. The raising of /e/ to [e̥] graphically, it is an intellectual exercise.

(iii) /i/ raises /ɛ/ to [ɛ̣]

e.g. kgwedi (moon, month) [kxhwɛ̣di] < *[kxhwɛ́di]

ngwedi (moonlight)   [ŋwɛ̣di] < *[ŋwɛ́di]

lesedi (light)   [lɪsɛ̣di] < *[lɪsɛ́di]

metsi   (water)   [m ɛ̣ ts´i] < *[m ɛ́ts´i]

< *maiɣ̆ɛ

-fedile (has ended, finished)<[-fɛ̣dilɛ̣]

< *[-fɛdile]

-rekile (had bought)<[-rɛ̣k´ilɛ̣]

< *[-rɛ́k´ile]

b) Schematic representation of Vowel raisings treated above:

(i) /i/ raises /ɪ/ to [ɩ]

e.g. seipone (mirror) [sɩip´ɔnɪ]

Guide
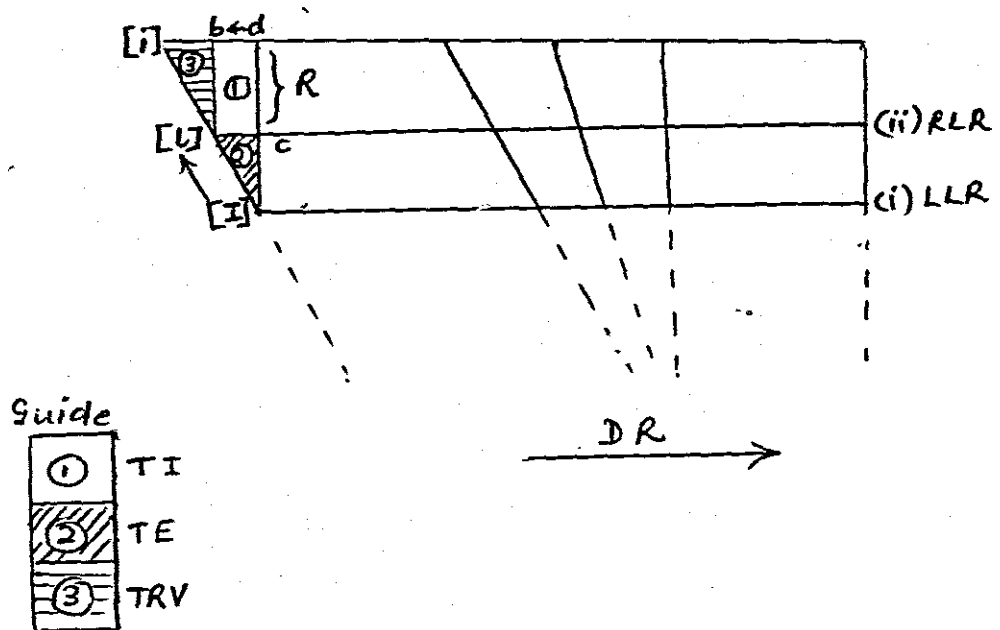
a)   The phonemes   /i/   and   /I/   come   into
      contact in the Triangle of Inertia (TI)
      represented by /i/, a /I/. The phonological
      reaction takes place between /i/ and /I/ and
      the effect of which is felt at "2". The LLR
      represents the Lowest level of reading that
      is initiated for the formation of TI.

b)   Once the TI has been formed, it generates the
      second triangle known as the TE i.e. Triangle
      of effect. TE is represented by [ɩ], c, [ɪ].
      The line of continum between [ɩ] and c,
      represents MLR   i.e. the Middle line of
      reading or   RLR (i.e.   raised level   of
      reading.) which is effected immediately after
      the TI has been formed. MLR represents the
      second   level of reading after Vowel raising
      has been effected.

c) TRV i.e. the Triangle of Raised Vowel is generated by the TE. The last triangle is represented by / i /, b, [ι]. TE and TRV together occupy 50% of the valence area of the TI.

d) It is important to realise that the TRV on its own occupies 25% of the valence area of the TI on the vowel chart. The TI represents the phonemic valence between /i/ and /I/ whilst TRV represents the allophonic valence between /i/ and [ι]. The allophone can only exist as a phone and not as a phoneme. The area of the phonemic valence decreases by 75% during the formation of the allophone.

e) The rectangle, consisting of a, b, [ι], c, represents an area that remains unused after the allophonic formation, R = 50% of the valence area of the TI. (R represents the rectangle which consists of two triangles).

TRV% = (TI – TE + R) %

   i.e. $\underline{100}$ – $\underline{(25 + 50)}$ %

   = $\underline{(100)}$ – $\underline{(75)}$ %

   = 25%

(ii) <u>/i/ raises /e/ to [ẹ] and /ɛ/ to [ɛ̣]</u>:

We are going to concentrate on the latter which will bring distinctive features than /e/ and [ẹ].

e.g. kgwedi [kxhwẹdi]
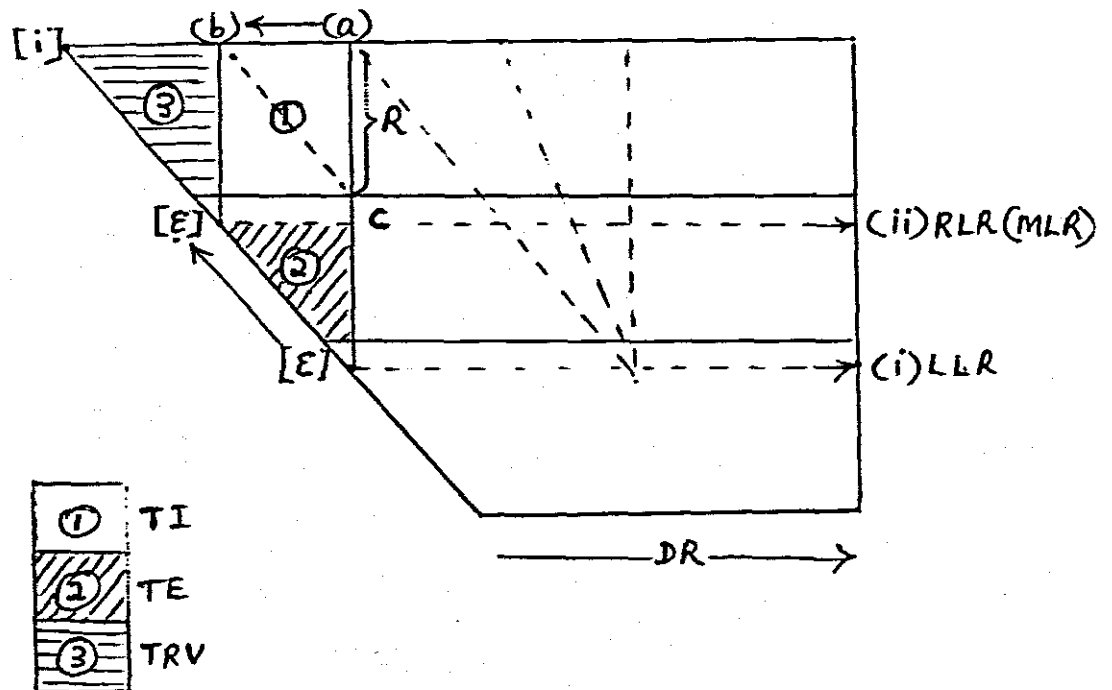
(a) The phonemes / ɛ / and /i/ are brought into juxtaposition in the Triangle of Inertia (TI) represented by the pointers, /i/ (a) [ɛ]. Once they are brought in juxtaposition, a phonological reaction between them takes place. The TI is the first triangle on the Vowel Chart. The LLR stands for the Lowest Level of Reading before raising takes place.

(b) Once the phonological reaction or relationship has been established in the Triangle of Inertia, the effect thereof is felt in the second triangle known as the Triangle of Effect. This triangle is separated from the TI by the line of DR i.e. Direction of Reading known as RLR i.e. Raised Level of Reading. This triangle generates the last triangle of vowel valence, known as TRV (or TAV).

(c) TRV is the Triangle of Raised Vowel or the Allophonic Valence. This is actually the last triangle formed during the process of vowel raising. It leaves R unoccupied i.e. the rectangle represented by a, b, [ε], c. The area of the phonemic valence between / ɛ / and /i/ phonemes, has been reduced by 75%. The allophone, [ɛ̣] occupies only 25% of the area formerly occupied by the Triangle of Inertia. [ɛ̣] is therefore non-phonemic but phonetic.

(iii) /i/ raises /ʋ/ to [ʋ], /o/ [ọ] and /ɔ/ to [ọ]:

The structure of the vowel charts in these phonemes would be the same. We would only concentrate on / ɔ / > [ɔ̣] for the sake of details.

e.g. mokoti [mʋk´ɔ̣t´i] (hole, niche)
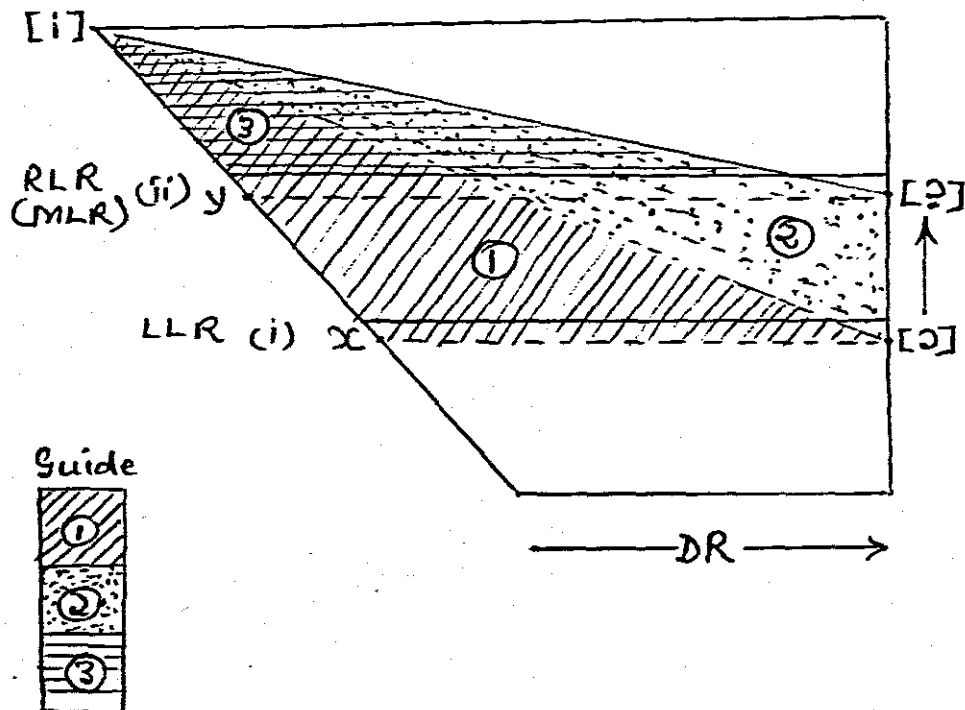
(a) The phonemes /i/ and /ɔ/ are brought into contact in TI, i.e. triangle number 1. The phonological reaction takes place and the effect thereof materialises in the TE.

(b) The Triangle of Effect forces /ɔ/ to be raised to [ɔ̣].

(c) The distance or area reduction between the phonemes / ɔ / and /i/ after the formation of the allophone [ɔ�], can be measured in the TRV i.e. the third triangle on the vowel chart.

(d) The TRV has reduced the area formerly occupied by the TI. LLR was used during the formation of the Triangle of Inertia which has the following pointers, /i/, [ə], x . RLR has been used in the TE which consisted of the pointers, /i/, [ɔ̣], [ɔ]. The area of valence has formerly been reduced in the formation of the TE. When the third triangle was formed, i.e. /i/ [ɔ̣], y, the area of valence has been reduced to the minimum.

(e) There is a rare phenomenon that has occurred here. The TRV has its base i.e. line of continuum RLR at an area that is occupied by the /o/ phoneme, which when raised it becomes [ọ]. In other words [ɔ], [o] and [ọ] are acoustically identical but being different vowel qualities. A lot of phonemic overlappings between certain raised vowels and proper phonemes takes place because of the acoustic similitude.

7.2.1.1.2 Back

(a) <u>/u/ raises /I/ to [ι]:</u>

The phoneme /u/ is brought into a phonological reaction with /I/ in the Triangle of Inertia of a word such as <u>metsu</u> (thorns, arrows). The phoneme /I/ is raised to [ι].

Other examples are:

mesuwe (teachers)	> *[mɪsuwɛ]
	> [mɪsuwɛ]
metsu (arrows)	> *[mɪts´u]
	>[mɪts´u]
medupe (steady rains)	> *[mɪdup´ɪ]
	> [mɪdup´ɪ]
lefufa (conjugal jealousy)	> *[lɪfufa]
	> [lɪfufa]
sesu (dried cattle dung used as fuel)	>*[sɪsu] > [sɪsu]
sebui (speaker)	> *[sɪbui]
	> [sɪbui]
setulo (chair, seat)	> *[sɪt´ulɔ]
	> [sɪt´ulɔ]
sekudi (sickly person)	> *[sɪk´udi]
	> [sɪk´udi]
serurubele (butterfly)	> *[sɪrurubɛlɛ]
	> [sɪrurubɛlɛ]

(b) **/u/ raises /e/ to [ẹ] and /ɛ/ to [ɛ̣]**

For the sake of practicality we will concentrate on the examples of /ɛ/ > [ɛ̣].

N.B. It must be borne in mind that the examples of /e/ > [ẹ] are not in abundance as those of the latter case.

e.g. mahleu (a drink made of maize and wheat meal, cooked with water)   > [maɬɛ̣u]

   -tshweu (adj. white)   > [-tshwɛ̣u]

   tedu (beard)   > [t´ɛ̣du]

   seledu (chin)   > [sɾlɛ̣du]

(c) **/u/ raises /ʋ/ to [ʋ]**

The phoneme /u/ meets in juxtaposition with the phoneme / ʋ / in the potential TI in a word such as bodutu (feeling of solitude). The phonological reaction between /u/ and [ʋ] will immediately take place in the Triangle of Inertia when juxtaposed.

e.g. bodutu (feeling of solitude) > * [bʊ̂dut´u]

> [bʉdut´u]

bosula (tastelessness, insipidity)

> *[bʊ̂sula]

> [bʊsula]

modula (the grasses eragnostis plana)

> *[mʊ̂dula]

> [mʊdula]

mokudi (patient) > *[mʊ̂k´udi] > [mʊk´udi]

mohudi (one who pulls)   >* [mʊ̂ɦudi]

> [mʊɦudi]

N.B. The so called the valences of triangles i.e.
TI, TE, and TRV are only potentially present when
the back vowels are involved among themselves in
allophonic formation.   What becomes measurable
are the distances between the raised vowel and
the raising   agent before raising and after
raising.   These distances occupy the same valence
areas that could be occupied by the triangular
valences.

b)   Schematic representation
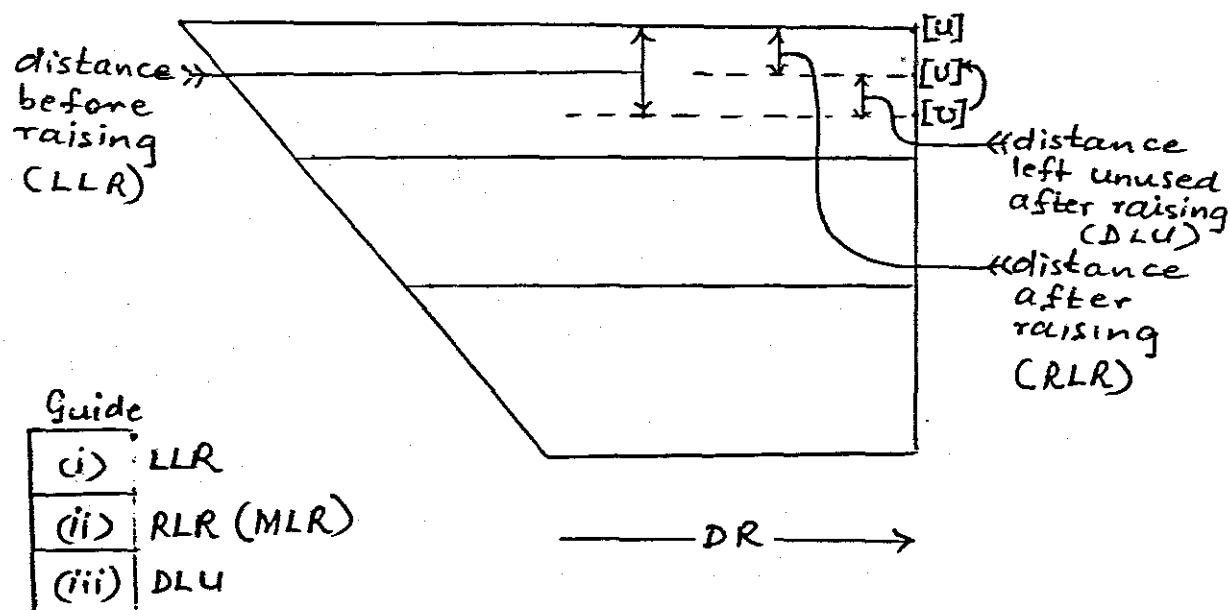
i)   This indicates the valence area that exists
      between the phonemes /u/ and / ʊ / before
      phonological reaction takes place between
      them.

ii)   This indicates the area that has shortened
      between the phonemes /u/ and /ʊ / after the
      phoneme /ʊ / has been raised to [ʊ].

iii) This indicates an area left unused after the
      allophonic formation of [ʊ] by [ʊ] after it
      has been phonologically influenced by the
      close phoneme /u/.

a) LLR indicates the Lowest Level of Reading that was involved in between the phonemes /u/ and / ʊ / before vowel raising took place.

b) RLR indicates the Raised Level of Reading that was involved in between the phoneme /u/ and [ʊ] allophone after the phonological reaction between /u/ and /ʊ/ has taken place.

c) That the area of phonemic valence is reduced during the allophone formation is a measurable reality as the sketch shows.

c) <u>/u/ raises /o/ to [o̞] and /ɔ/ to [ɔ̞]:</u>

We will concentrate on the examples concerning the phonemes /ɔ/ being raised to [ɔ̞] rather than those of /o/ being raised to [o̞]. The reason for this preference is that the examples of the former are in abundance than those of the latter.

e.g. mokopu (pumpkin)   > *[mʊk´ɔ͡p´u]

                              > [mʊk´ɔ̣p´u]

      letsoku (red ochre)   > *[lɪts´ɔ͡k´u]

                              > [lɪts´ɔ̣k´u]

      setofo (stove)   > sɪt´ɔ͡fʊ] } N.B. /ʊ/
                                           } and not
                              > [sɪt´ɔ̣fʊ] } /u/

      kgofu (snail)   > [kxhɔ͡fu]

                              > [kxhɔfu]

      tlou (loxodonta africanus) > *[tl´ɔ͡u]

                                 > [tl´ɔ̣u]

      seboku (the grass Themeda triandra)

                  > *[sɪbɔ͡k´u] > [sɪbɔ̣k´u]

      mohodu (first part of the stomach of a

      ruminant)   > *[mʊɲɔ͡du] > [mʊɲɔ̣du]

Once the phoneme /u/ has been juxtaposed to the

phoneme / ɔ /, the latter is raised to the

allophone [ɔ̣].   This raising can be measured on

the following schematic representation.
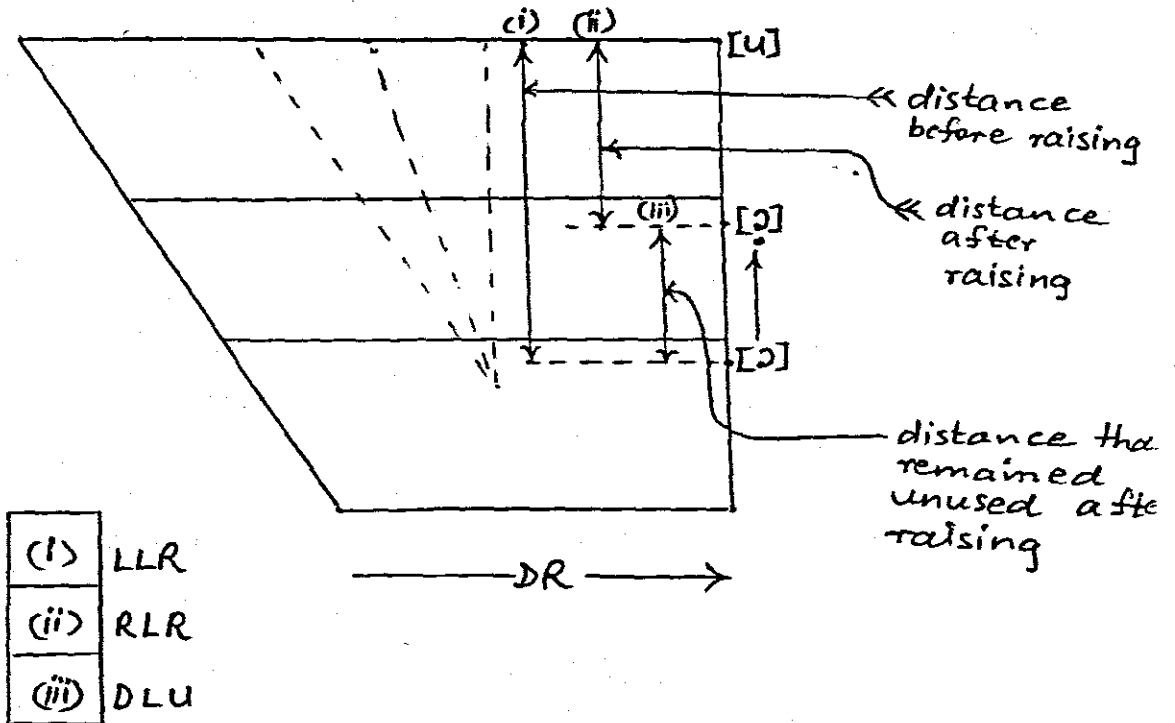
i) The distance marked (i) indicates the relationship between /u/ and /ɔ/ before raising took place.

ii) The distance marked (ii) indicates the shortened distance between /u/ and [ǫ] after raising has taken place.

iii) Indicates the area left unused after raising has taken place.

iv) N.B. As reported earlier, that when all vowel
phonemes involved in vowel raising are back or
round vowels, no TRVs or Triangles of Raised
Vowels are formed. What become pronounced and
measurable are the shortened distances between
the low back vowel phonemes and the close ones
after raising has taken place.

7.2.1.2 Allophonic Chain Raising (ACR)

Allophonic Chain Raising occurs in the situation
where the vowels that are being raised are either
identical or if being unidentical, have the same
or identical plane of distribution on the vowel
chart. The phenomenon mentioned above will take
place easily.

The vowels concerned may be either front or back
vowels or front and back vowels in the same
lexie. Note the following examples:

Identical Semi-open Back Vowels

    hlooho   [ɬɔɔɦɔ]   (head)

    sehlooho [sɪɬɔɔɦɔ] (topic)

    moroho   [mʊrɔɦɔ] (vegetable)

    motoho   [mʊtɔ́ɦɔ] (porridge)

    boroko   [bʊrɔkɔ́] (sleep)

    letsoho [lɪtsɔ́ɦɔ] (hand)

When the locative suffix -ng < UB *-inʈ
(sometimes hypothesized as *-nʈ , *-ni or *-ne)
is used, all the identical vowels will be equally
affected by the raising agent.   The raising
process will start from the vowel adjacent to the
raising agent in a backward motion.

It is imperative to note here that one vowel gets
raised at a time.   The one that has been raised
next to the unraised vowel phoneme raises it too
and so on goes the process of chain raising
depending on the number of the vowels concerned.

This process will only stop when the raising
process encounters a vowel phoneme of a higher
distributional quality.   As a rule, a low vowel
cannot raise a high vowel.

Schematic Representation

i)   hlooho + -ng > hloohong (on, at the head)
      i.e. [ɬɔɔhɔ+ - ŋ] < (*- inʈ)
          > *[ɬɔɔhɔ+ - inʈ]
          > *[ɬɔɔhɔinʈ]
          > *[ɬɔɔhʓinʈ]
          > *[ɬɔʓhʓinʈ]
          > *[ɬʓʓhʓinʈ]

> *[ɬɔɔɦɔin (↑)]

> *[ɬɔɔɦɔ(ɪ́) n (ɤ́)]

> *[ɬɔɔɦɔn]

> [ɬɔɔɦɔŋ]

ii) moroho + -ng > morohong (in the vegetable)

i.e. [mʊrɔɦɔ+ -ŋ] <*ɪnɪ̂, *-nɪ̂, *-ni, *-inɪ̂

> *[mʊrɔɦɔ+ *inɪ]

> *[mʊrɔɦɔ̂inɪ]

> *[mʊrɔɦɔ̂inↃ]

> *[mʊrɔ̂ɦɔ̂inↃ]

> *[mʊrɔɦɔ(i)nↃ]

> *[mʊrɔɦɔ(ɪ́)n(↑)]

> *[mʊrɔɦɔn (ɤ́)]

> [mʊrɔɦɔŋ]

N.B. In this example, the class prefix [mʊ-]
could have caused vowel raising before the
locative suffix [-ŋ] has been used. Such a
phenomenon could not be generated by the Southern
Sotho grammatical rules.

Identical Semi-open Front Vowels

letswele [lɪtswˊɛlɛ] (breast)

mmele [mmɛlɛ] (body)

pere [pˊɛrɛ] (horse)

bere [bɛrɛ] (bear)

lebele [lɪbɛlɛ] (sorghum plant)

bolele [bʊlɛlɛ] (the plant potamogeton

pusillum or the fresh

water algae).

Schematic Representation:

i) letswele [lɪtswˊɛlɛ] + [-ŋ] < *-inɪ

i.e. [lɪtswˊɛlɛ+ *-inɪ]

> *[lɪtswɛˊleinɪ]

> *[lɪtswˊɛlɛinɪ]

> *[lɪtswˊɛlɛinɪ]

> *[lɪtswˊɛlɛ(i)nɪ] (first elision)

> *[lɪtswˊɛlɛnɪ]

> *[lɪtswˊɛlɛn(ɪ)]

> *[lɪtswˊɛlɛn(ɪ)] (second elision)

> *[lɪtswˊɛlɛn]; [-n >-ŋ]

N.B. The alveolar [n] cannot become syllabic terminally in Southern Sotho. As a result it is dissimilarized into a velar nasal which usually features terminally in Southern Sotho words, e.g. jwanng (i.e. in the grass).

A question may arise, why the terminal [-n] not dissimilarized into any labial or frontal i.e. prepalatal nasal because the terminative vowel is *↑?. The answer to this is that in every ↗↑ there is a *u and in every *û there is an í . It is this *u or labial characteristics that changed [n] to [ŋ]. "n" always takes the characteristics of any sound next to it. It only appears in its true alveolar form when it is adjacent to only alveolar sound because they are homorganic (Bourquin, W. 1955 : "Close Vowels" in African Studies, Vol. 14, p.49.)

ii) pere   [p´ɛrɛ] + [-ŋ] < *-int

   i.e. >[p´ɛrɛ + *-int]

         >*[p´ɛrɛint

         >*[p´ɛrɛint

         >*[p´ɛrɛ(i)nt

         >*[p´ɛrɛ(i)nt] (first elision)

         >*[p´ɛrɛnt]

         >*[p´ɛrɛn(t)] (second elision)

         >*[p´ɛrɛn]   (N.B. "n" cannot become
                                 syllabic terminally)

         > [p´ɛrɛŋ] (It is changed to velar
         nasal which occurs terminally.   (See
         the example of letsweleng above).

Semi-open back and front Vowels

mofero   [mʊfɛrɔ] (roof, thicket)

· lebone   [lɪbɔnɛ] (lamp, light, candle)

lekote   [lɪk'ɔt'ɛ] (sod, brick)

lefehlo   [lɪfɛɬɔ] (churning reed)

leshokgwa [lɪʃɔ kxhwa] (the plants

Xysmalobium

undulatum;

watercress)

lehlokwa   [lɪɬɔkxw'a] (bit of dry grass)

Schematic Representation:

i) mofero + -ng < *-inɪ

>*[mʊfɛrɔ+-ŋ] <*-inɪ]

>*[mʊfɛrɔ+ -inɪ]

>*[mʊfɛrɔ͡inɪ]

>*[mʊfɛrɔ͡(i)nɪ] (first elision)

>*[mufɛrɔnɪ]

>*[mufɛrɔn(ɪ)] (second elision)

>*[mʊfɛrɔ n]

ii) lebone + ng > leboneng

i.e. * [lɪbɔnɛ+ ŋ]< * -inɪ]

>* [lɪbɔnɛ͡inɪ]

>* [lɪbɔnɛ(i)nɪ] (first elision)

>* [lɪbɔnɛn(ɪ)] (second elision)

i.e. [lɪbɔnɛŋ]

Note the example of <u>lekoteng</u> or <u>lekweteng</u>

[lɪk'ɔt'ɛ+ *-int] should be

*[lɪk'ɔt'ɛint]

i.e. [lɪk'ɔt'ɛ(ɪ)n(t)] which becomes

[lɪk'ɔt'ɛŋ]

One has to trace the formation of <u>lekweteng</u> which is a form still used by the Basotho. The formation of "-ω-" after "k" has been brought about by the allophone [— ɛ —] after the terminative [- ɛ] of <u>lekote</u> has been raised by the locative suffix [-ŋ] < *-int . When /-ɔ-/ phoneme had been raised to [ɔ], the intermediate sound between the [ɛ] and [ɔ] is the labial glide, [ω].It has been easy for this glide to be formed here because neither "-k-" nor "-t-" is a labial sound, instead the presence of "-ɔ-" between "-k-" and "-t" has labialised the "k" to be [ωk'] or [k'ω]. As one proceeds in pronouncing <u>lekote</u>, this secondary articulation is effected in the form of a labial glide after the ejective [k']. This is a proof that secondary characteristics of speech sounds are external factors that are not innate with a particular speech sound. The same phenomenon

could have happened with <u>lebone</u>. This word can never be *<u>lebwene</u>.

The reason for this is that [b] is a bilabial sound. Its bilabial characteristics are innate and can never be tossed around. To strengthen it further, it is followed by a back vowel which as a rule has lip rounding characteristics. These two phonemes make a very strong labial combination.

7.2.1.3   Coalescence

Doke and Mofokeng (1957:34 (57), explain that coalescence in Southern Sotho is illustrated by the fusion of a+i to form e, and a + u to form o. According to normal orthography.

In Southern Sotho however, this phenomenon is rare. The following examples are some instances of vowel coalescence.

a + i > e

e.g. (i) m<u>ai</u>no > m<u>e</u>no (teeth)

       ✶ m<u>ai</u>tsi > m<u>e</u>tsi (water) nominals

    (ii) thaba > *thab<u>ai</u>nt

            > thab<u>e</u>ng (on the mountain)

                  (locative)

As the examples stand above, there is no correlation with raising in themselves except that after [ɛ] has been formed due to coalescence, it is raised by the terminative high vowel. This may be close or semi-close,

e.g. thaba > *thabɛnî

      > thabɛ̂nî

      i.e [thabɛ̣ŋ]

Let us watch closely the following examples:

bona   + ile > -bonile   > bone
(has/have seen)

hohlola + ile > -hohlodile > hohlotse
(has/have coughed)

ngola + ile > -ngodile   > ngotse
(has/have written)

thola   + ile > -thodile   > thotse
(has/have adopted)

hlola   + ile > -hlodile   > hlotse
(has/have created)

Schematic Representation

bôna (see)   + ile > [-bɔnilɛ] > [-bɔnɪ]

                              s/ch:ɛ̣>ɪ

hôhḷôla (cough) + ile > [-ĥɔ̣ɬɔdilɛ] > [ĥɔ̣ɬɔtsɪ̣]

                              s/ch: ɛ̣>ɪ

ngôla (write)   +   ile > [-ŋɔdilɛ̣] > [-ŋɔtsɪ̣]

                              s/ch: ɛ̣ >ɪ

thôla (adopt)   + ile > [-thɔdilɛ] > [-thɔtsɪ̣]

                              s/ch: ɛ >ɪ

hlôla (create)   +   ile > [-ɬɔdilɛ̣] > [ɬɔtsɪ̣]

                              s/ch: ɛ̣ >ɪ

Such a phenomenon cannot occur without cause. The words shown should terminate in [-ɛ̣] and not [-ɪ]. Can we say vowel raising occurred twice in these examples? Can we speak of "Extra Boundary Vowel Raising? If not why does the perfect tense of a word such as "-tshwara" (to seize, to catch) is -tshwere [tshwɛrɪ̣]] and not [*tshwɛrɛ̣]?

This implies that [ɛ] in its raising process passed through the following steps: [ɛ] > [ɛ̣] > [ɪ]. This process suggests that [ɛ] has passed the region of cardinal vowel number 2 to become [ɪ] which is a different phoneme completely. The researcher is very much scheptical about this.

There is no where in Southern Sotho language where a vowel is raised twice. In short, this phenomenon suggests the presence of a vowel phoneme that is identical with Cardinal Vowel number 2. This vowel, which is [e], is identical with Cardinal Vowel number 2 and it is acoustically identical with the raised [ɛ] i.e. [ɛ̣]. The same applies with [o] and [ɔ] they would be acoustically identical.

[e] is the vowel that would be [ɪ] during raising after it has coalesced with *ɪ of the Ur-Bantu perfect suffix. Note that the Ur-Bantu perfect suffix is *ɪle < *-ɪlẏe < *-ɪlie. The Ur-Bantu *-ɪle is not [-ilɛ̣].

Let us watch the following examples:
-bona (see)+*-ɪle > [*-bɔnɪ́tle]

> [*-bɔ̑nɪle]

> [*-bɔ̣̑nɪle]

> [*-bɔ̣̑nɪ(l)e]

> [*-bɔ̣̑nɪ(ẏ)e]

> [*-bɔ̣ni( )e]

> [*-b n(i+e)>ɪ]

> [-bɔ̣nɪ]

In the above example the phoneme /ɪ/ has been formed by the coalescence of *ɪ +*e. This [e] is

identical with CV number 2. Because it is identical with CV it cannot be raised since Cardinal Vowels are never raised.

All the above words when worked as shown above, will give the same results. This disproves the concept of "double raising" or "Extra-boundary Vowel Raising".

What can be done at present is to show the existence of some lexical items in Southern Sotho that still contain these two "silent vowels". They are silent in the sense that for ages they had never been detected. The following words can prove their existence:

kokobele   [k´ok´obele]   (termite in the flying stage)

serapele   [sɪrap´ele]   (fabulous animal)

pokopoko	[p˙ok˙op˙ok˙o]	(an unidentified bird)
sehahabobona	[sɪɦaɦabobɔna]	(his/her family's tradition)
kgotjhane	[kxhotʃhanɪ]	(muddy water in a marsh)
letswalle	[lɪtsw˙alle]	(a species of mole)
leqweqwe	[lɪ!we!we]	(uninitiated girl)

When these words are converted into locatives, the /o/ and /e/ remain as they are. They are never raised or changed intonationally to suggest the possibility of raising. Phonetically it may be indicated that they should have been raised, but phonologically and acoustically they are the same i.e they are never raised.

kokoble + ng (<-inⱡ) > [k˙ok̥˙ob̥elen̥]

pokopoko + ng (*-inⱡ) > [p˙ok̥˙op̥˙ok̥˙on̥]

leqweqwe + ng (*-inⱡ) > [lɪ!we̥!we̥n̥]

i.e. <u>lethiseng</u> [lɪthisʂn̥]

7.2.1.4 Vowel Contraction

This phenomenon had to do with the origin of "close" vowels in Ur-Bantu. Despite the existence of primary and Composite Vowels there still existed *î and *û . These vowels are still encountered in Sotho languages in their close forms i.e. [ï] and [ʊ]. In some languages like Nguni, they have become "open" i.e. *i and *u,

e.g. rain in Sotho is [pula] <*- vûla
and in Nguni (Zulu) is [imʒvulə]. The
phonetic symbols used for the phoneme
/u/ are the same in Sotho and Nguni but
differ in pronunciation and quality.

According to Meinhof (1968:25) close vowels are composite. He uses Venda as an example where he shows that the Venda _fumi_ has been derived from the well known stem -kumi for ten. It corresponds with * kûmi . He says the i of the li- prefix before -kumi has penetrated into the stem.

This would mean that fumi < * kiumi and that
û<iuᵌ
In like manner, î may have originated through
the influence of an ʊ sound. (loc. cit.)

The Concise Oxford Dictionary (1970:248) explains composite as a thing made up of various parts. So are the close vowels. What makes the close vowels to be a different type of composite vowels is that they are made from the combination of the vowels of the same distribution i.e. *i + *u > *i or *a. The close vowels are placed higher than their component parts and are much closer to the palate than any other vowels. Sometimes they are referred to as "super-close" vowels. They are therefore a kind of raised vowels that are phonemic rather than allophonic. What must be noted with regard to these vowels is that they cannot be raised. Their nature is potentially of a raised status. So, no vowel can be raised twice.

The following words have been taken from Bourguin's article on "Close Vowels" in Bantu appearing in African Studies, Vol. 14, 1955 : 49. They illustrate vividly that $* \hat{u}$ and $* \hat{\imath}$ are contracted vowels from the fusion of *i and *u.

It will be realised also from these words that the close vowels sometimes alternate in various stems of different languages i.e. identical stems which show original $*\hat{\imath}$ in some languages indicate an original *u in other languages and vice versa.

Note, the examples taken from Ur-Bantu will be represented by UB and those from Meinhof, by (M).

Examples

UB *- χu,   *-ŋgû (sheep) (M):

Southern Sotho: [ŋk'u]

Zulu   [iŋɓvu]

Some languages use forms with i:

e.g. kuanyama   :   o -di

     nyaneka   :   o -ngi

UB *- lî   (root, fibre) (M):

Shona   : mu-dzi

Zulu   : u-zi

Xhosa   : ulu-zi

S. Sotho : mo-di   (generic name of plants

(Not provided)   of the Hypoxis genus,

                      some of which are used

                      for making ropes).

Some languages use forms with u:

Nyanja   :   mu - zu

Tswa   :   mu - tsu

S.Sotho : mo – tso (n.root, unit, origin)

(Not provided)

se – tso (n. root, origin)

UB *-tû (cloud) (M):

Sotho : le – ru [*lɪɾu*]

Zulu : i –fu

Xhosa : ili-fu

Gi-Tonga uses a form with i, i.e. li-pfi, and Lenge´s form is di-pri. (There is a remark here about the sound "pr". It is not known what sound it represents but what matters most is that the word di-pri ends in -i).

UB *-tû (trap) (Bɑ) (Bourquin)

Lenge : chi – fu

Wisa : ichi – fu

Venda : tshi – fu

Sotho (Pedi) : se – fu

Forms with i:

Southern Sotho : se – fi

Zulu : isi – fe

isi – fu

UB *-k̂ua (die) (M):

Gikuyu   : -kua

Makua   : -kwa

Pogoro   ⸴ : -fua

Southern Sotho : -shwa (not given in the text)

In the following languages the semi-vowel has been dropped:

Swahili   : -fa

Nyanja   : -fa

Xhosa   : -fa

Forms with i:

Guha   : -kia

Kwanyama   : -fia

Tumba   : -kia as well as

              -kwa

UB *-tîku, *-tûkû (night, day of 24 hrs) (M)

Forms with i:

Swahili   : u - siku

Ila   : bu - shiku

Southern Sotho : *bo - sio but written bosiu

                   (not provided in the text)

Forms with u:

Gikuyu   :   u - tuku

Kaonde   :   bu - fuku

Xhosa   :   ubu - suku

N.B. The only intermediate form given is in kuvale, i.e. u-tuike (Johnson, Sir Harry H. A. Comperative Study of the Bantu and Semi-Bantu Languages, Oxford, 1919, :779).

UB. *-r̂ûvu (hippo) (M):

Zulu   :   im - vubu

Duala   :   ngubu

S.Sotho   :   kubu (not given in the text)

Forms with i:

Silele   :   gibo

Songo   :   gilo

Songomeno :   ngio, giu

An intermediate form is found in Ngangela, viz, ngueve which leads to forms such as:

Nyaneka   i.e. on – geve

Ndombe   i.e. on – geve

Mbundu   i.e. on – geve

UB *-lîva (depth) (M)

Xhosa   :   isi – ziba

S. South   :   se – diba   (not provided)

Forms with u:

Nkusu   :   i   –juwa

Bea   :   ma – jua as well as

               ma – juba

UB *-lûmbi (rainy weather) (Bq)

Bemba   :   mu – fumbi

Zulu   :   um – vumbi

Sotho   :   mo – lupe (Orth. modupe)

Forms with i:

Zulu dialect   : um – vimbi

Xhosa dialect : um – vimbi

Kwanyama   :   omu – dimbi

UB *-nûka (smell) (Bq)

Swahili and Venda   : - nukha

Rundi and Xhosa   : -nuka

Tswa   ,   : -nuha

Southern Sotho   : [-ŋkxha]

                          (probably   from   nɣha>nh>kɡ

                          (It was not given in the

                          text).

UB *-tumo   (spear)   (M)

Swahili : fumo

Shona   : pfumo

Sotho   : le - rumo

Forms with i:

Gikuyu : i - timo

Kuria   : eri-timo

Guha   : simo

     Finally we turn to a stem in which the
     circumstances which have led to the formation
     of close   * û   seem to be more easily
     discernible (Bourquin, 1955 : 56).

Swahili, Nyanja, Song, Xhosa and Ndonga all use

the form -fuphi derived from UB. *-kûpi (short)

(M). Kinga uses -supi and Karanga -pfupi.

Bourquin argues further that ;

> in some languages the first syllable of the
> B. stem does not seem to have contained a
> close vowel, and the original stem seems to
> have been *-kupi. (op. cit.).

It is obvious from these examples that *û and *î

developed from the coalescence of *u and *i.

7.2.2 Consonantal Factors

Factors dealt with here are mostly consonantal and play an

important role in vowel raising. They are the agents of

vowel raising due to syntactical factors. Some of the

consonants involved in vowel raising are the following:

7.2.2.1 [-tl´-].

It can be derived from UB. *y̰ or *y̰ The first

form plays an important role in raising because

it contains an " *î " element whilst the second

one does not have an "*î " element.

e.g. [-ɦe̩tl´a] < *-ɦɛy̰a or *-ɦɛy̰ta

[-be̩tl´a] < *-bay̰a < *v̰ay̰ta

Note that the following examples do not have raised vowels:

    sekotlo [sɪk´ɔtl´ɔ] (occiput)

    senotlolo .[sɪnətl´ɔlɔ] (key)

    letlotlo [lɪtl´ɔtl´ɔ] (riches, treasure)

(For full discussion of *ɣ̱ and ɣ̱ See Cole (1949 : 118, 25 (iii)).

7.2.2.2 [-ts'].

It can be derived from UB. *l . In certain syntactical constructions it brings about vowel raising:

    -tsekolla   [-ts´ɛ̣k´ʋlla] (to divide, to cut

                            or tear to pieces)

    -kweletsa [-kw´ɛlɛ̣ts´a] (to keep, to gather,

                            to collect)

The high vowels in kwël̈etsa (to use Paroz´s orthography) can be attributed to "ts" which has been derived from the causative suffix *ŷ < î + a i.e   *kwelelŷa < *kwelelîa which means to keep, together or to collect.

7.2.2.3 [-l-].

This works in the same way as [ts´] does. On many occassions the latter features as an allomorph of the morphene [l], e.g.

    robala (to sleep) + ile > robe<u>ts</u>e

    ngola (to write) + ile > ngo<u>ts</u>e, etc.

7.2.2.4 [-ɲ].

Sometimes it brings about vowel raising. This may occur in causative stems, e.g.

    [-k'ɛna] + *<u>-kŷa</u> < *<u>eka</u> + <u>îa</u>

i.e. *[k'ɛnŷa] > [k'ɛɲa]

It is important to note that although the consonants appear to be the dominating agents in this section they are actually acted upon by "primitive" or Ur Bantu vowels. [ts´] has been mostly formed via the process of dissimilation. The [ɲ] has been formed by the presence of *<u>ŷ</u> < *<u>îa</u> next to the nasal [n]. So, the close vowel *<u>î</u> is potentially present for raising process.

7.3 QUALIFICATIVE CONCORDS

Qualificative concords exhibit a striking phenomenon of vowel raising. The process of vowel raising as it is known to be a backward movement, here it moves forward according to the direction of reading. Many processes are however involved in progressive vowel raising.

7.3.1 Adjectival Concords

/Sefate se setle se metse/

(A beautiful tree has grown)

The first part of /se se/ has been derived from the demonstrative element and its /- ɛ/ phoneme is raised than the /ɪ/ phoneme of the second /se/. The raising has been caused by the nominal class prefix se- [sɪ-] which is a semi-close front vowel lying between Cardinal Vowels numbers 1 and 2.

Schematic Representation

```
sefate    [sɪ +ɛna] > sɪɛ(na) > (sɛ] (this tree)
lejwe     [lɪ +ɛna] > lɪɛ(na) > [lɛ] (this stone)
bohobe    [bʊ +ɛna] > [bʊna] > [bɔ] (this bread)
motho     [mʊ +ɛna] > [mʊɛ > (m)ʊɔ(na) > [ɔ] (Tswana)
```

                                    (this person)

Note: In Southern Sotho [ɛ] would be used. This would have been derived from the nominal prefixal vowel "o" [ʊ] derived from UB. *ʊ of *muNtu. It should have been derived from *û which consists of *u + *i. That is why it generates [ɔ] in Tswana and [ɛ̣] in Southern Sotho.

All UB. nominal prefixal vowels are close vowels, and are capable of raising the demonstrative elements found in Qualificative Syntactic constructions.

7.3.2 Relative Concords

/Difi tse tjheilweng di tshwere/

(The traps got the targets)

The relative concord is tse, derived from the nominal class prefix di-. The relative concord is actually

di + ɛna > * diɛna

> * di͡ɛna

> * dyɛna'

The *dy has been dissimilarized into [ts']. The [d] is a voiced alveolar stop which could not be pronounced in juxtaposition with a voiced prepalatal glide [j] formed by [i] and [ɛ].

Whenever vowel raising has been effected in relative concords it becomes progressive:

/sefate *sɪɛ(na) > *sɪ̃ɛ̰ > [sɛ̰] weleng .../

(the tree that has fallen ...)

/dintja *diɛ(na) > dȷ̃ɛ̰ > [tsʼɛ̰] mathang .../

(the dogs that are running ...)

/ho ja *ɦʊɔ(na) > *ɦɥ̃ɔ > [ɦɔ̰] bodileng ../

(the food that is rotten ...)

7.3.3 Enumerative Concord

/Kgomo tse pedi di fihlile/

(Two beasts have arrived)

The enumerative concord "tse" can precede any number to be enumerated, except for one which will be "Kgomo e le nngwe e fihlile". (The beast arrived alone) (without being accompanied by anybody).

The concord [tsʼ ɛ̰] has been derived in the same way as the Adjectival and Relative Concords.

7.3.4 Possessive Concords

There are some forms of possessive constructions in Southern Sotho which exhibit vowel raising where otherwise it would not occur, e.g.

"Dikgomo tsa haeso di fihlile"

(The cattle of our village have arrived).

When one says "Dikgomo tseso di fihlile", the vowel raising is transferred from the possessive stem to the possessive concord derived from the class prefix di + a (possessive paticle). Tseso is phonetically written [ts´ɛsʋ < ts´a ɦɛsʋ]. Note that vowel raising is reversive and not progressive. The reason for this is that vowel raising is not innate in possessive concords. Note the following examples:

tseso	[ts´ɛsʋ]	<	tsa haeso	(our family´s ...)
tseno	[ts´ɛnʋ]	<	tsa haeno	(your family´s ...)
heno	[ɦɛnʋ]	<	haeno	(at your home)
haeno	[ɦaɛnʋ]	<	[ɣaɣɛnʋ]	(kgolokwe)

7.3.5 Quantitative Concord

According to Guma (1975 : 124) the structure of the quantitative concord is CV. It has a high toneme. The researcher is interested in the tonemic structure of this concord. Cole (1955 : 155) also confirms the idea that the quantitative concords are always of raised semi-open quality.

> For this reason the vowel in the stem tlhe is also of raised quality (loc. cit.).

The progressive vowel raising in this word has been effected by the ô which occurs in the initial position of the word /-ôtlhê/. The whole process has occurred according to rule 1.24 - Rule 7. (op. cit. : 12).

This rule, however does not provide a reason why the o of the stem is raised. It only explains that when it is raised it will progressively raise the terminative [ɛ] to [ɛ̣].

The word "-ohle" [- ɔ̰ɬɛ̰] meaning all has been derived
from UB form, * -oṅka (See, Meinhof, 1968 : 243, 6-
alĬ). When this UB. form is analysed it looks as follows:

a) *-oṅka = oŋkja

b) *-kja < *-kia

c) *-oŋkia < *-onkia which is the protoform before the
nasal has been influenced by the
velar *K

d) The "i" vowel followed by an open "a", is the one
responsible for the raising of the initial "ô" of
"-ohle".

Note the following examples carefully

motse *mó + ôhlê > ǿohlê > wohle
       *[mʊ + ɔ̰ɬɛ̰] > [ʋ̰ɔ̰ɬɛ̰] > [wɔ̰ɬɛ̰]
       (all or the whole village)

lejwe *le + ôhlê > lǿohle > lohle
       *[lɪ + ɔ̰ɬɛ̰] > [lʋ̰ɔ̰ɬ] > [lɔ̰ɬɛ̰]
       (all or the whole stone)

sefate *se + ôhle > sǿohle > sohle
        *[sɪ + ɔ̰ɬɛ̰] > [sʋ̰ɔ̰ɬɛ̰] > [sɔ̰ɬɛ̰]
        (all or the whole tree)

From the given examples it appears that vowel raising is progressive. Yes. This is a secondary action. It is due to the strong influence of the semi-close vowels of the nominal prefixes. When the nominal profixes are removed or contain an open vowel [a], vowel raising still takes place. Note the following examples:

batho > bohle < * ba + ohle (all people)

matsatsi > ohle < * ma + ohle (all days)

mahobe > ohle < * ma + ohle (all bread
(plural))

matsha > ohle < * ma + ohle, etc. (all
lakes)

The words "bohle" and "ohle" have raised vowels. Where does raising come from? It comes from the protoform of [-ɔɪɛ] i.e. *-onkia. In Southern Sotho the nasal has been omitted leaving the form as *-okja or -*okia. The "*i" component raised the initial "ô" to [ɔ] and i and a coalesced to [ɛ] which was in turn raised by the initial allophone [ɔ̣], to be [ẹ]. (Note the examples treated in 7.2.1.2). That is why the process ended up by being progressive.

7.3.6   Demonstrative (Pronoun)

Some forms of the demonstrative have features of vowel raising whilst others do not have them.   In Southern Sotho the demonstrative or demonstrative pronouns according to some orthorities, usually refer(s) to three positions relative to the speaker.

   i) The first person refers to this /these.   It indicates proximity to the speaker.

   ii)   The Second refers to that/those, indicating relative distance from the speaker.

   iii) The Third distance signifies "that yonder" or "those yonder", indicating distance from both speaker and the person spoken to.   It however, generally refers to something within vision.

Each of the positions of the Demonstrative has two forms. The examples of these forms will be used at random as long as they help clarify a point in question.   Not all forms of the demonstrative (pronouns) contain raised vowels (see Doke and Mofokeng, 1957 : 110, 237).   In Southern Sotho it is sometimes said "motho enwa" or "eo" (this one/person). Enwa [ɛ̞nwa] contains a raised vowel as well as "eo" [ɛ̞ʊ]. In Tswana it is said "motho" "yo" or "o".   How have these vowels been raised?

E n ⱳa   < * mo + ena i.e. the nominal class prefix with the first positional demonstrative formative stem.   The form *mwena could not be acceptable in Southern Sotho lexicon as a result dissimilation set in immediately. "m" and "w" were   separated the "w" has been placed between [n] and [a] to labialize the alveolar nasal [n] to [nʷ]:

i)   * moena

ii)   * mwena

iii) * mwena

iv) * mweña

v)   * (ɱ) enwa

vi) >   enwa (this one)

N.B.   In the plural form the ba- is retained.

       *Ba+ena > bana < *baena (these people)

The "e" particle is retained in other classes:

e.g. lejwe lena   < *lĩɛna;   leno < lĩɛnʊ

       (this stone)   (that one)

       sefate sena < *sĩɛna   seno < sĩɛnʊ

       (this tree)   (that one)

       difate tsena < *diɛna   tseno < diɛnʊ

       (these trees)   (those)

       ho ja hona   < *ĥʊɛna   (this food)

       bohobe bona < *bʊɛna   (this bread)

Note the last two forms. The words "hona" and "bona" have been derived from their nominal class prefixes with the demonstrative stems [-ɛna] and not [-ɔna] as it may appear. In *ho + ena the semi-close "-o" of the class prefix labializes the "e-" of -ena, i.e.

hoena > *ho⁀ᵂena

> *hʷ͡ona

> hôna [-ɦ̥ɔna] (this one)

The same phenomenon occurs with bôna < * bo⁀[ɔ̥na]
< *bo⁀ʷena <*bo + ena (this one).

Back vowels are stronger than front vowels when the influence ability is concerned. When back and front vowels are juxtaposed in syntactic constructions it usually happens that back vowels dominate.

To illustrate these few examples, Zulu will be used.

a) isitsha sonke (the whole dish)
    sonke < i)   si⁀+ onke
            ii) > *si⁀ʷonke
            iii)> *swonke
            iv) > *syonke
            v) > sonke

b)   izitsha <u>zonke</u> (all the dishes)

    zonke < i)   zi $\overleftarrow{+}$ onke

          ii) > *zi$\overset{\omega}{\overleftarrow{}}$onke

          iii)> *zwonke

          iv) > *zw̸onke

          v) > <u>zonke</u>

c)   Abantu <u>bonke</u> (all the people)

    bonke < i)   (a) ba $\overleftarrow{+}$ onke

          ii) > *ba$\overset{\omega}{\overleftarrow{}}$onke

          iii)> *bwonke

          iv) > *bw̸onke

          v) > <u>bonke</u>

d)   otamatisi <u>bonke</u> (all the tomatoes)

    <u>bonke</u> is as shown above.

e)   ubuhlungu <u>bonke</u> (the whole pain)

    <u>bonke</u> < i)   (u) bu $\overleftarrow{+}$ onke

          ii) > bu$\overset{\omega}{\overleftarrow{}}$ + onke

              u + o > w glide

          iii) <u>bonke</u> results.

In Southern Sotho a non-standard Demonstrative for the first position is sometimes used:

/Mantswe "<u>ae</u>" a a ntlhaba/

(These words hurt me)

/Motho "eo" ke mang?/

(Who is this person?)

/Dintja "tsee·" [ts´ɛɪ] ke tsa mang?/

(Whose dogs are these?)

/Ho ja "hoé" ke hwa mang?/

(Whose food is this?)

All these forms contain this "e" element which suggests
its existence in earlier forms of some demonstrative
pronouns. It may happen that this "e" element has been
derived from the [ʊ] element of the demonstrative. See
the examples in 7.2.1.4. This could also explain the "yo"
and "o" – forms in Tswana for the first demonstrative
position in the personal class.

CHAPTER 8

8. CODIFICATION OF VOWEL RAISING

8.1 INTRODUCTION

8.2 REVERSIVE VOWEL RAISING

  8.2.1 f v/s F+

  8.2.2 b v/s F+

  8.2.3 b v/s B+

  8.2.4 f v/s B+

8.3 PROGRESSIVE VOWEL RAISING

  8.3.1 F+ v/s f

  8.3.2 F+ v/s b

  8.3.3 B+ v/s b

  8.3.4 B+ v/s f

8.4 IMAGINARY VOWEL RAISING

  8.4.1 Loan Words

  8.4.2 Emotive Words

8. CODIFICATION OF VOWEL RAISING

8.1 INTRODUCTION

In this chapter we are going to classify vowel raising according to certain codes. This classification will be beneficial to any scholar who likes to study vowel raising in detail. By the mere look at a specific code one can easily tell or comprehend the type of vowel raising one is looking at. These codes work in conjunction with specific lexical items involved in the type of vowel raising in question.

According to the Oxford English Dictionary Vol 11 C (1978 : 582) the term code has many meanings, some of the meanings are that it refers to a system or collection of rules or regulations on any subject, or a system of words arbitrarily used for other words or for other phrases, to secure brevity and secrecy.

In this case the term code will be limited to the specific signs used to refer to specific forms of vowel raising.

8.2 REVERSIVE VOWEL RAISING

It is divided into four subdivisions:

8.2.1 f v/s F+

In this form of vowel raising the front vowel is responsible for raising to take place. The front vowel which acts as an agent of vowel raisig acts on another front vowel which is the part of the lexical item concerned in vowel raising. The front vowel which is an agent of raising is represented by a capital dentilabial fricative symbol with a positive sign. The positive sign represents the ability to evoke raising. The capitality is used to differentiate the vowel that can evoke raising from the one that is latent or at present non-active. The concept of latency implies that it can be raised by any vowel represented by a capital symbol with a positive sign. Once the latent vowel has been activated from the phonemic to allophonic stage, it can continue with the raising process if the vowel adjacent to it has been of lower distribution than the activated vowel. In lexical items like setsebi (expert), mofeti (one who passes), sebeti (expert ravisher, rapist), etc. vowel raising will be represented by the following code:

$$\frac{VR}{1} = \frac{DR \neq DA}{(f) + (F+)}$$

This implies that vowel raising (VR) is reversive i.e. it is against the Direction of Reading (DR) or the DR in not according to the Direction of Articulation (DA). The penultimate syllable that is involved in raising consists of the front vowel i.e. the semi-close front vowel that lies between cardinal vowels numbers 1 and 2.

The code shown above occurs in the TI. The moment the phonological reaction takes place between the f and F+, vowel raising is effected immediately in the TE. The f and F+ will occupy the same line with other symbols, i.e.

$$VR = \frac{(DR \neq DA)}{(f) + (F+)}$$

$$i.e. \quad VR = (\frac{DR \neq DA}{1}) \quad \frac{(f) \quad (F+)}{1}$$

The code provided caters also for the vowel raising taking place between the front vowel (F+) and the semi-open front vowel lying almost on Cardinal Vowel number three but slightly open. Words featuring in this example are: lesedi (light), ngwedi (moonlight), kgwedi (moon), etc.

When vowel raising involves two or more identical vowel phonemes of the lexical item the structure of the code changes accordingly.

Note the following examples:

letswele   [lɪtswˊɛlɛ]   (breast)

lebele   [lɪbɛlɛ]   (grain or plant of sorghum)

mmele   [mmɛlɛ] ·   (teat of an animal)

bolele   [bʊlɛlɛ]   (fresh water algae)

selepe   [sɪlɛpˊɛ]   (axe)

$$VR = \frac{DA \neq DR}{2(f) + (F+)} \quad \text{in TI}$$

Stages of VR from TI to TE will be as indicated.

[lɪtswˊɛlɛˊ] (breast) + *(i)n↥   (loc. suffix)

[lɪtswˊɛ̧lɛ̧ŋ]

< *lɪtswˊɛlɛ + (i)n↥

$$VR = \frac{(DR \neq DA)}{(f + \cdot f)}$$

i.e. $\dfrac{(DR \neq \cdot DA)}{(2f)}$

In /lɪtswˊɛ̧lɛ̧ŋ/ as found in T E the code looks as shown.

i.e. $VR = \dfrac{DR \quad \neq \quad DA}{2(f) + (F+)}$

$= \dfrac{(DR \quad \neq \quad DA) \ 2 \ (f) \ (F+)}{.1}$

$= \dfrac{(DR \quad \neq \quad DA) \ \ (f+f) \ (F+)}{1}$

$VR = \underline{\{(DR \neq DA)\} \ \{(f + f) \ (F+)}\}$

8.2.2 b v/s F+

The front vowel which initiates vowel raising acts on the back vowel which is found in the penultimate syllable of the lexical item concerned. In this example all words containing back vowels i.e. mid-back vowels in their penultimate syllables will be used as examples. Words falling into this category are:

letodi (animal related to mongooses i.e. Suricata suricata),

seodi (the bird Gypaetus meridionalis),

kotsi (danger),

modisa (herd, shepherd),

moriana (drug), etc.

The code in the TI looks as indicated:

$VR \quad = \quad \dfrac{(DR \quad \neq \quad DA)}{(b) + (F+)}$

The phonological reaction takes place between (b) and (F+). *F+ exerts its raising influence on (b).*

In the TE the code looks as follows:

$$\frac{VR}{1} = \frac{(DR \neq DA)}{1} \quad \frac{(b) \quad (F+)}{1}$$

8.2.3 b v/s B+

Words found in this category are :

tlou (Loxodonta africanus), sebodu (rotten thing), mobu (soil), motsu (arrow), etc.

The code looks as follows:

$$VR = \frac{DR \neq DA}{(b) + (B+)} \quad \text{in the TI}$$

In the TE the B+ will effect vowel raising on (b), which will affect the whole word. The code will therefore look as follows.

$$\frac{VR = (DR / DA) \quad (b) \quad (B+)}{1}$$

When the lexical items that are involved in vowel raising contain identical vowel phonemes in their root syllables or penultimate and terminative syllables, their vowel raising code changes slightly from those of the example treated above. Note the following words:

<u>lehehemu</u> (the bird Balearica regulorum (crowned crane)),

<u>lekekeruwane</u> (the bird Stephanibyx coronatus, crowned plover), etc.

lehehemu   [lɪȟeȟẹmu]

$$VR = \frac{(\underline{DR \neq DA}) \text{ in TI}}{(f) + (B+)}$$

i.e $$VR = \frac{(\underline{DR \neq DA}) \text{ in } TE}{2(f) + (B+)}$$

2(f) stands for the vowel / ɛ / phonemes that are being acted upon by (B+) to be raised to [ɛ̣].

In the T E tthe structure will look as shown:

$$VR = \frac{\{(\underline{DR \neq DA}) \ (f + f \ (B+))\}}{1}$$

8.2.4 f v/s B+

Words featuring in this category are the following:

-tshweu (white),   ditedu (beard),

peo   (seed),   nketu (frog), etc.

In these words raising is effected by the back vowels [u] and [ʋ] on the preceding front vowel. The base for vowel raising to take place in the T I looks as follows:

$$\frac{VR}{1} = \frac{(DR \neq DA)}{(f) + (B+)}$$

In the TE the (B+) will exert its raising qualities on (b) in a reversive process. (bB+) together affect the whole word as far as its pronunciation is concerned.

$$TE \text{ has } \frac{(DR \neq DA)}{1} \quad \frac{(fB+)}{1} = \frac{V R}{1}$$

8.3 PROGRESSIVE VOWEL RAISING

Progressivé Vowel Raising takes place according to the Direction
of Reading (DR) of a word.   It is divided into four subdivisions.

8.3.1 F+ v/s f

Some of the words found in this category are :

sena (this one),< *sv̰z̰na < *sr̰ena < *sr+ɛna

tsena (these)   < *dv̰ɛna < *diɛna < *di +ɛna

The code in the TI looks as indicated.

$$VR = \frac{\{DR = DA\}}{(F+) + (f)}$$

In the TE it looks as shown:

$$\frac{(DR = DA)}{1} \quad \frac{(F+) \quad (f)}{1} = \frac{VR}{1}$$

8.3.2 F+ v/s b

There are very few words falling into this category if there
are any. The following examples are dialectically variable.

phiô or phiŏ (kidney) (Paroz's orthography)

sejô or sejö (food, crops)

tshilô or tshilŏ (grindstone)

lekôdilô or lekŏdilö (flute made out of stem of plant)

tshimo or tshimọ´ (field)

The codes for these words in the T I would look as shown:

(Examples are dialectical)

sejö for sejô; phiö for phiô; tshilö for tshilô)

$$VR = \frac{(DR = DA)}{(F+) + (b)}$$

In the TE the equation would look as shown:

$$VR = \{(\underline{DR = DA})\}_1 \quad \{(\underline{F+) \quad (b)}\}_1$$

8.3.3 B+ v/s b

Examples falling in this category are those of the demonstrative type:

hona (this one) < *ho ɔna < [*hʊ ɛna] < *ho + ena.

bona (this one) < *bo ɔna < [*bʊ ɛna] < *bo + ena

There are very few lexical items in the form of nominals that are found in this category. Some of these nominals are the following:

modupŏ (me.) n., favour

lekulŏkulŏ, n., rustling of a skin garment

The word lekŏdiŏpŏ or lekŏduôpo can pose as ambiguous situation. Some critics may claim that the allophone [o] could have been brought about by the phonemes /-i-/ or /-u-/ of the two forms provided above. They present b v/s B+ or b v/s F+ situations instead of B+ v/s b.

The following words show beyond any scepticism that they belong to B+ v/s b:

morŏmphata [mʊrɔ̰ m phat´a]   (n. cl.2., great swallowtail (earmark))

hubo [ɦubɔ̰], interjection imitating the bark of a dog.

(The nominal hukŏbétsi i.e. the plant Helichrisum trilineatum may partially be included here because of its terminative [-ts´-] which could effect reversive vowel raising.)

The words provided above would have the following formula in their TEs.

$$\text{i.e} \quad VR \quad = \quad \{(DR \quad = \quad DA)\} \quad \{(B+) \; (\overset{\frown}{b})$$

8.3.4 B+ v/s f

Words found in this category are not plentiful. Some of them are the following:

mokěbë [mʋkˊɛ bɛ] (fabulous snake)

lerutle [lɪrutleˊ] (n, a large grasshopper).

This could be a derivative from −rutla i.e. to pull out, to escape or to loosen oneself, hence morutla means a strong big person. Lerutle is therefore a large grasshopper which jumps off from its encroacher forcefully.

Sephumě (sephumo) (n.)

Sephume sa boroko means first and deep sleep.

It has two dialectical variations i.e.

[sɪphumɛ] and [sɪphumɔ]. The first form is the one that belongs to this category.

The words provided above have the following formula in their TIs.

$$\{(DR \quad = \quad DA \;)\}$$
$$(B+) \quad + \quad \overset{\frown}{}(f)$$

The moment this formula has been established in their TIs, phonological reactions take place between (B+) + (f) in the deep structure or base of the phonological reaction. B+ influences f. It partially assimilates it. This gives rise to the formation of TE. The triangle of effect will only be accomplished when complete vowel raising (VR) has taken place.

Since VR will affect the whole lexical item, the formula shown above will be altered accordingly. The formula of the completed process of vowel raising will be as shown:

$$VR = \frac{\{(DR = DA)\} \quad \{(B+) \quad (f)}{1}$$

8.4 IMAGINARY VOWEL RAISING

This is the type of vowel Raising that cannot be likened wih the
normal vowel raising treated thus far. The word normal in this
case refers to a type of vowel raising which can be proved that
it existed. The normal situation for the so-called "normal vowel
raising" is the juxtapositioning of at least two vowel phonemes
of the same lexical item. These phonemes should be of different
height distribution on the vowel chart. Sometimes juxtaposed
words may affect one another which may result in vowel raising.

8.4.1 Loan Words

Sometimes loan words are taken from their source or parent
language together with their phonetic structures and
sometimes slightly altered to suite the phonological
structure of the new language.   Such words provide
problems when their phonemic structures are analysed. The
problem occurs when a loan word is taken with its vowel
phonemes. Some of them sound as though they are raised.
They are therefore equated with the raised vowels of the
secondary language. Are they actually raised?   Many
examples of loan words will be taken from Kunene's
"Southern Sotho Words of English and Afrikaans origin"
(Word, Vol. 19 ,1963 :347-375)

SS. pêipi `pipe´ < A. pyp [peip] p. 348)

Kunene´s (op.cit.) Southern Sotho "pêipi" should show e as
a raised vowel because of the presence of "i-" next to it.
Paroz (1961 : 349) writes the same word as "p̈eipi". He
also shows that it is from Afrikaans "pyp".

The problem at present is to determine whether the
Southern Sotho "ei" or "ëi" is acoustically identical with
the Afrikaans "y". If they are acoustically identical
which phoneme do they represent in Southern sotho? The
original /e/ which is identical with C V No 2 or the
allophone [ɛ̣] which is a raised variant of [ɛ]? If it
represents [ɛ̣] in Southern Sotho , it means it has lost
its phonemic value and became reduced to an allophone. It
would be proper to retain it at phonemic level with its
acoustics.

     SS. seteisele "starch" < A. stysel [steisəl]
     [s ɩ t´eis ɛl ɛ]

When the phonetic transcriptions of these words as provided
by Kunene (op.cit.) are compared, it becomes clear that
the part of "stysel" consisting of "y" has not been altered
even in the Sothoized version. The / -ei-/ phoneme has
been written the same. The diphthong /-ei-/ has not been
derived from the phonemes */- ɛi-/.

It has been taken from Afrikaans as "y" phoneme. It cannot be equated with the Southern Sotho *[ɛ] but rather with the original [e] that is identical with C.V. No. 2.

S.S. setôutu "naughty" < A. stout [stout]

bôutu "bolt" < A. bout [bout].

The Southern Sotho "setoutu" and "boutu" should have the /-o-/ phonemes as raised. Paroz writes them as "bõutu" and "se.toutu". This being the case it means that the Southern Sotho /-ou-/ phonemes are pronounced the same as those of Afrikaans. They therefore represent the original Southern Sotho /o/ phonemes identical with C V No 7. It would be linguistically incorrect to show /o/ phoneme as the raised form of /ɔ/ i.e. [ʔ] because it existed like that in the original language. (More examples from English may be read from the same source).

8.4.2 Emotive Words

These are words uttered in strong emotions. Because they are emotionally charged they are uttered in high tones. Some of them consist of "raised vowels" and others not.

8.4.2.1 Interjections

They are divided into two types:

8.4.2.1.1 Intérjections. (Primitive)

Interjections may be regarded as primitive

interjectives.   These have not been derived from

other parts of speech.

> In view of their highly emotional
> character their tones are significant;
> so also are the varying lengths of the
> vowels.   Doke and Mofokeng (1957 : 365
> (680).

(i)   /e/ [e] (yes) /E, re a bina/

(Yes we are singing)

(ii)   /hela/ [hela] /Hela! se ka ya mono!/

(Ho there, do not go there!)

(iii) /Ahe/ [aɦe] (used in greeting.)

/Helele/ [ɦelele] (used in greeting).

The examples provided above use the /e/ phonemes

uttered in high tone of the quality of [ɛ̣].

Seeing that there is no raising agent around, the

allophone [ɛ] cannot be accepted.   The /e/

phoneme has to be regarded as an original sound.

As far as the back vowel is concerned the following examples can be provided:

[ʒɔ] /jo! Ka batla ke wela!/

(Woe! I nearly fell inside.)

[ɔɦɔ] /Oho! O tla etsa jwang?/

(Oh my! How will you manage?)

[pɔ] /metsi ana a bata po!/

(This water is ice cold!)

Paroz (1961) writes the above words as jö, öhö, and pö. This is a proof that they consist of raised vowel tonemes which could be representing the original [o] in Southern Sotho.

This vowel is pronounced identically with [ɔ�]. The latter is the allophone of /ɔ/ whilst the former is an independent phoneme occupying position number seven on the vowel chart.

8.4.2.1.2 Interjections (Secondary)

They are almost like ideophones by exhibiting extranormal phonetic phenomena of lengthened vowels and unusual tonal variations:

8.4.2.1.2.1 Vocatives:

They are formed from nouns and pronouns.
Vocatives in usage are always addressed to a
second person singular or plural:

/Hela! O tswa kae?/

(Hallo! where do you come from?)

/Helang! Le batla mang mona?/

(Hallo (in plural) who are you looking for
here?)

Vocatives do not feature much in vowel
raising. They are however sporadic.

8.4.2.1.2.2 Imperatives

Imperatives are basically verbal. They
therefore feature well in vowel raising:

(a) /Ba bitseng!/ (call them)

    [ba bitsʼɛŋ]

(b) /Ke itse o ise ngwana enwa lapeng
    mo ise./

      [Kʼɩ itsʼɛ̣ ʋisɛ̣ ŋwana ɛ̣nwa lapʼɛ̣ŋ mʋ
    isɛ̣]

(I said you should take this child home, take
him/her there)

Note! The type of vowel raising shown here
can be accounted for. This means that
imperatives occur mostly in normal vowel
raising.

8.4.3 F v/s F+

How can the lexical items belonging to the category of the
imaginary "Raised Vowels" be codified?

F v/s F+

Kwekwelekwele (tumult)

kgehlelele (toy wheel made of clay or spinning top)

kotjellekotje (kind of dance).

8.4.4 B v/s F+

This formula works in words such as pokopoko
[p´ok´op´ok´o] i.e. an unidentified bird.

leköpököpö [lɪk´op´ok´op´o] < ideophone
köpököpö i.e. to flow strongly, to gush
köpö (di.) i.e. musical instrument.

When the locative suffix *-ini is used to these words,
their /o/ phonemes are never raised.

e.g. k̆ŏpŏlŏ (di.) (i.e. Small piece of a fresh skin wasted
and eaten, hide of an ox) would look like this:

k̆ŏpŏlŏ + inƚ > *k̆ŏpŏlŏinƚ >[kopoloŋ]

The formula would be:

$$\left\{ \frac{(DR = DA)}{(B) \quad (B+)} \right\} = \frac{\phi}{1}$$

These words consist of the vowel phonemes identical with
cardinal vowels numbers two and seven.

The locative suffix [-ŋ] < *inƚ will be suffixed to them
to determine their behaviour thereafter:

(a) kwĕkwẽlẽkwêlẽng < kwẽkwẽlẽkwẽlé + ng

     [kw´ekw´elekw´eleŋ] < kw´ekw´elekw´ele] + [-ŋ]

(b) kgèhlëlëlëng < kgëhlëlëlë + ng

     [kxhe ƚ eleleŋ] < [kxheƚelele] + [-ŋ]

(c) k̃ŏtjëllëk̃ŏtjẽng < k̃ŏtjëllëk̃ŏtjë + ng

     [k´otʃ´ellek´otʃ´eŋ] < [k´otʃ´ellek´otʃ´e] + [-ŋ]

There is no vowel raising taking place here. That is why the vowel phonemes are represented by capital symbols in the vowel raising code. They are basically in the region of [e] and [o]. They cannot practically be raised. They can be represented as indicated.

$$\left\{ \frac{(D\ R = D\ A)}{(F)\ +\ (F+)} \right\}$$

8.5 CONCLUSION

To conclude this work we may say, vowel raising as treated in this treatise has shown that the concept of allophones or raised vowels has not been correctly applied. Southern Sotho has basically many basic vowels compared to Nguni languages. Some basic vowels in Southern Sotho are acoustically identical with certain raised vowels e.g. [ɛ] and [ɔ] v/s [e] and [o] (as treated in this work).

The second problem encountered in Southern Sotho has been the lack of graphemes to represent all the phonetic phememes (cover term for the smallest lexical and grammatical units) i.e. phonemes and taxemes. When IPA made its phonetic symbols, Southern Sotho did not form part of the languages considered to be written phonetically. Since sometimes it shears the same sounds as some other languages in broad transcription, it then got its phonetic script. Its phonetic script could mainly function on broad transcription rather than narrow transcription. This has been the inherent problem and inefficiency of phonetic transcription of Southern Sotho.

All said and done, the salvation of using IPA script for Southern Sotho in this study is due to the presence of extra-phonetic symbols provided by IPA. These symbols have been of great help in separating semantically the /i/ and /ɪ/ and also the /u/ and /ʊ/ or /ɷ/ phonemes.

The Southern Sotho [ɪ] or [ɩ] and [ʊ] or [ɷ] have for ages been wrongly written as [e] and [o]! This mistake has arisen from the fact that the phoneticians for African Languages have been non-speakers of African Languages. Such mistakes have been corrected here and a correct Southern Sotho Vowel chart plotted.

A break-through in Vowel raising has been discovered. The concept of codification of VR will help many scholars in comprehending the type of VR they are dealing with. The codes are closely connected with the three triangles of vowel raising : TI, TE & TRV.

It has become clear in this study that one cannot linguistically engage oneself in Southern Sotho without encountering vowel raising. Vowel raising is the core, the warp and the woof of Southern Sotho. Note the following quotation from the Southern Sotho Bible.

1. Tshimolohong, Modimo o ne o hlole mahodimo le lefatshe.

2. Lefatshe le ne le hloka sebopeho, le le feela, lefifi le ne le le hodima bodiba, mme Moya wa Modimo o ne o solla hodima metsi.

3. Modimo wa re: Lesedi a le be teng, mme lesedi la eba teng.

4. Modimo wa bona hoba lesedi le molemo; mme Modimo wa arohanya lesedi le lefifi.

5. Modimo wa bitsa lesedi motshehare, mme lefifi wa le bitsa bosiu. Mme ha eba mantsiboya, ha eba hosasa: e bile letsatsi la pele.

(Bibele : 1978 : 7 (1-5)

In the first line of the quoted stanza there could be no less than six forms of vowel raising.

Tshimolohong   [tshimʊlʊɦɔŋ]

Modimo   [mʊdimʊ]

-ne   [nɛ]

-hlole   [-ɬɔlɪ]

mahodimo   [maɦʊdimʊ] or

dialectically [maɦɔdimʊ]

This is just an example to show how important vowel raising is in Southern Sotho. Divorce VR (Vowel raising) from Southern Sotho, Southern Sotho will never be the same!

The English version of the quoted Biblical passage reads thus:

1. In the beginning God created the heaven and the earth.

2. And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters.

3. And God said, Let there be light: and there was light,

4. And God saw the light, that it was good: and God divided the light from the darkness.

5. And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.

THE HOLY BIBLE (King James Version) GENESIS (The First Book of Moses.) p.1, Charlotte, N. Caroline

8.6 DISCOVERY

An important discovery in this study is that it does not support
the assertion that [e] and [o] are the allophones of [ɛ] and [ɔ]
as Kunene (1961) has shown.   There is, however, an acoustic
similitude between [e] and [o} with [ɛ̤] and [ɔ̤] which may lead
to orthographic confusion though they are different graphemes.
[ɛ̤] and [ɔ̤] are related to [ɛ] and [ɔ]. They are the
allophones of the latter.

[e] and [o] are not Southern Sotho Vowels numbers 2 and 7
respectively! What has been discovered is that [e] and [o] are
Southern Sotho Vowels identical with Cardinal Vowels (CVs)
numbers 2 and 7 respectively.   Their allophones [e̤] and [o̤] are
acoustically identical with their primary or source vowels i.e.
[e] and [o].

Another rare phenomenon discovered in Southern Sotho phonology is
that [ɛ̤], [e] and [e̤] are acoustically identical, so are [ɔ̤],
[o] and [o̤] too.

The Southern Sotho CVs numbers 2 and 7 have been represented by
[ɪ] and [ʊ] respectively. See Bolinger and Sears (1981 : 23).
Langacker (1973 : 149) (Judson and Weaver (1942 : 178 - 9) and
Kunene (1961 : 3, 1.7).   All of them use / ɪ / and / ʊ / as
phonemes.   Some prefer to use [ʊ] for   [u] and Kunene uses
[ɪ] as an allophone of [ɩ] and instead of [ʊ] he uses [ɷ].

The allophones of / ɪ / and /ʊ/ as used above are [ɩ] and [ʋ]
respectively.   [ɪ] must be regarded as a type of /i/ which is
not as tense as the latter.   It is phonemic like /i/ which is
identical with CV number 1. What makes [ɪ] to be a softer kind
of [i] it is because it is slightly open than [i] but still in
the environment of CV No 1. The same phenomenon is exhibited by
[ʋ] in relation to [u].   These two vowel phonemes lie midway
between CVs numbers 1 and 2 and also 7 and 8 respectively.

So far it has become clear that Southern Sotho has ;

(a)   Nine vowel phonemes, i.e.

    /i/, /I/, /e/, /ɛ/, /a/,

    /ɔ/, /o/, /ʋ/ and /u/

(b)   Eleven vowel phones, i.e.

    [i], [ɩ], [I], [ẹ,e,ɛ̣], [ɛ], [a],

    [ɔ [, [ɔ̣, o, ọ], [ʋ], [ʊ], [u]

(c)   Fifteen phonetic graphemes.

    [i], [ɩ], [ɪ], [ẹ], [e], [ɛ̣], [ɛ], [a],

    [ɔ], [ɔ̣], [o], [ọ], [ʋ], [ʊ], [u]

8.7 SUGGESTIONS

Suggestions for further research in VR could be done in the measurement sphere. An introduction into this aspect has been done in this work. One should know for instance how high a particular vowel should be raised before it can lose affinity with its source or basic vowel phoneme before it can be absorbed by a raising agent.

In Southern Sotho, it is said tshepe [tshɪp´ɪ] for iron but tshipi [tship´i] in Tswana. It is said phatodi [phat´ʊdi] in Southern Sotho for one who cuts a shield out of an ox hide, but phatudi [phat´uli] in Northern Sotho. A goat is called podi [p´ʊdi] in Southern Sotho but pudi [p´uli] in Northern Sotho. What an incostistency in Southern Sotho, Northern Sotho and Western Sotho (Tswana) about certain lexical items regarded as identical! Such inconsistencies should be researched upon to find the basic cause for them.

Some research could still be directed to the theory of GVS in African Languages to determine how far could basic vowels have shifted their locations and occupied new positions on the vowel chart.

Such a study should be accompanied by lexical items to be compared on the bases of their minimal pairs.

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