kòkòmà   'to write'

mbótò   'seed, grain'

mbòtò   'kind of tree'

(b) Grammatical

nàsálà   'I work'

násálà   '...that I may work'

There are basically two kinds of contour tones: Falling
and Rising, or, analytically, High-Low and Low-High
In Bantu languages often contour tones are associated
with phonetically long syllables.[3] The following are
examples of contour tones from Lingala:[4]

mbôŋgò[5]   'money'

nyŏnsò[5]   'all, everything'

nàákòkòmà   'I am writing'

Kisukuma,[6] which displays both types of tone, is one of
the rare Bantu language which have three-level contrasts
phonemically.[7] Here are some examples:

kupeelá   'to donate'

kupeela   'to run'

ikála   'member of Kala tribe (perjorative)'

ikalà   'a big badger'

ikàlà   'charcoal'

ikala   'stay'

waasolá   'he has just picked up'

waasolà   'he has already picked up'

waásolà   'you have already picked up'

waasóla   'you have just picked up'

Morphophonemically however only two levels can be
distinguished, namely High and Non-High, i.e. Marked and
Un-Marked.

Section 2
TONAL DISPLACEMENT IN KISUKUMA

Kisukuma has often been described as a language with
"tonal displacement" in that high tones often appear to
surface two syllables after the syllables to which they

belong underlyingly (Richardson 1959,1971 Gleason 1961
Richardson and Mann 1966, Batibo 1976a,1976b). The
rules are complex, but the following selection should
provide typical examples of this system.

1

An H (underlying high tone) surfaces as h (high tone)
on the second syllable after if the two following
syllables are characterised by N (normal tone):

(a) {V́ V V V}[8] ⟶ |V́ V V̆ V| ⟶ V V V́ V

e.g. {kɔ-bón-el-el-a} ⟶ kɔbonelɛ́la

    'to see something by means of'

(b) {V́ V V V V} ⟶ |V́ V V V̆ V| ⟶ V V V́ V V

e.g. {n-témi sagala} ⟶ ntemi sagála

    'clumsy chief'

(c) {V V́ V V V} ⟶ |V́ V V V̆ V| ⟶ V V V V́ V

e.g. {n-dɔgɔ́ sagala} ⟶ ndɔgɔ sagála

    'clumsy relative'

2

An H surfaces as h on the following syllable or on
the first syllable of the following word, if this is
N and the second is "displaceable" H or R (rising tone):

(a) {V́ V V́ V V} ⟶ |V́ V́ V́ V V̆| ⟶ V V́ V V V́

e.g. {bá-kɔ-bón-el-el-a} ⟶ bakɔ́bonelɛ́la

(b) {V́ V V V́ V V} ⟶ |V́ V́ V̆ V́ V V̆| ⟶ V V V́ V VVV́

e.g. {ba-témi ba-dó geete} ⟶ batemi bádɔ geetɔ

    'very few chiefs'

(c) {V́ V V V̌ V V} ⟶ |V́ V́ V V̌ V V| ⟶ V V V́ V̌ V V

e.g. {n-témi a-laá-šik-a} ⟶ ntemi álaášika

    'the chief will arrive on that day'

3

An H on a penultimate syllable will surface as h on the
following, last, syllable if the following word begins
with H or F (falling tone).

(d) {V V V́ V́(V)} ⟶ |V V V́ V́(V)| ⟶ V V V́ V̀(V̀)

e.g. {ba-dogó pyí} ⟶ badogó pyì

'all relatives'

{badogó gáʃi} ⟶ badogó gàʃì

'they are, in fact, relatives'

6

An H on a penultimate or final syllable (i.e. a
syllable followed by pause) will surface as L (Low).
In the case of a penultimate syllables, the following
syllable will also be L.

(a) {V V V́} ⟶ |V V V̊| ⟶ V V V̀

e.g. {ba-dogó} ⟶ badogò

'relatives'

(b) {V V́ V́} ⟶ |V V́ V̊| ⟶ V V̀ V̀

e.g. {ba-témi} ⟶ batèmì

'chiefs'

    Kisukuma can therefore be described as a language
with two level morphological tones H and L as well as
two contour tones F and R, and that a set of complex
rules relate these tones to their surface representations
Although up to now these processes have been described
synchronically, a diachronic approach, such as the one
undertaken in the following pages, would make explicit
the different stages of tonal changes which are
assumed or hypothetically thought to have occurred
through time, and demonstrate that tonal "displacement"
in Kisukuma is just one developmental stage of tone in
Bantu languages, and should not be regarded as an
isolated or phenomenal case.

Section 3
TONAL EVOLUTION IN BANTU LANGUAGES

Looking at the Bantu languages in general from a
diachronic perspective, one easily identifies four
types of languages according to the kind of change
the tones have undergone.[9]

(a) Etymological Type

These are languages whose original tones have not
changed. They are therefore termed etymological.
They include Bobangi (Zaire), Sengele (Zaire), Mongo
(Zaire), Lingala (Zaire), Kinilyamba (Tanzania).

In these languages the tonal patterns resemble
those of proto-Bantu, (Greenberg 1948, Meeussen 1969)
and of Guthrie's Common Bantu (Guthrie 1967).

Examples

Proto-Bantu/Common Bantu		Bobangi
–* téma	(Greenberg)	
–* tíma	(Guthrie)	–téma (cl.14) 'heart'
–* beéde	(Meeussen)	
–* bédɛ	(Greenberg)	–bélɛ (cl.5) 'breast'
–* beéde	(Guthrie)	
–* cóni	(Guthrie, Greenberg)	–cóni (cl.9) 'shame'
–* bóko	(Guthrie, Greenberg)	–bóko (cl.11) 'arm'
–* táma	(Guthrie, Greenberg Meeussen)	–táma (cl.5) 'cheek'

(b) Reversing Type

These are languages whose original tones have taken
the opposite values, that is, original high tones
are now low tones and original low tones are now high
tones. A typical example of such a language is
Chiluba, spoken in Zaire.

Examples

Proto-Bantu		Chiluba
–* bóko	(Greenberg)	–bokó (cl.11) 'arm'
–* ama	(Greenberg)	–ámá (cl.9) 'meat'

—✸ bódi	(Greenberg)	-buzí (cl.9) 'goat'
—✸ kíngó	(Greenberg)	-siɲu (cl.9) 'neck'

(c) Anticipating Type

These are languages whose original high tones have been anticipated on preceding syllables. Languages of this type include Tonga (Zimbabwe) and Nkhumbi (Angola).

Examples

Proto-Bantu/Common Bantu		Tonga
—✸ túm-	(Meeussen)	íkúsuma 'to sew'
—✸ kánga	(Guthrie, Greenberg)	ínkanga 'guinea fowl'
—✸ dób-	(Greenberg)	íkúloba 'to fish'
—✸ gudu	(Meeussen, Guthrie)	ijulu 'sky, light'
—✸ dim-	(Meeussen, Guthrie)	ikulima 'to cultivate'

(d) Repeating Type

In this type of language the original high tones have been repeated on subsequent syllables. Languages such as Kisambaa (Tanzania), Tetela (Zaire), Shona (Zimbabwe), Shi (Zaire), Budya (Zaire), and Ndau (Mozambique and Zimbabwe) are of this type.

Examples

Proto-Bantu		Kisambaa	Tetela	
—✸ bódi	(Greenberg)	-búzí (cl.9)	-bódí (cl.9)	'goat'
—✸ búda	(Greenberg)	-fúlá (cl.9)	-vúlá (cl.9)	'rain'
—✸ táma	(Greenberg, Meeussen)	-támá (cl.5)	-támá (cl.5)	'cheek'

In many of these languages this phenomenon of repetition occurs also synchronically as a tonological process in utterances.

(i) Kisambaa

{wa-ána wa-gima} —➔ wáná wágíma 'healthy children'
{mu-kalá mu-babaʃ i} —➔ mukalá múbábáʃi 'foolish hunters'
{ní muntu} —➔ ní múntu 'it is a man'

(ii) Tetela

{ló n-seŋgɛ} —➔ ló nséŋgɛ 'in the millet'
{kó ndé ɲ-ama} —➔ kó ndé ɲáma 'but the animal...'

(iii) Shona

{húni mu-gomo} ⟶ húní múgomo 'firewood on the hill'
{ku-kwázis-a} ⟶ kukwázísá 'to greet'

It is clear that out of the four types, languages
with tonal anticipation and repetition have usually
many successions of two or more high tones.
Also such languages increase, substantially, the
number of high tones so much that in certain
utterances, the number of high tones is higher than
the number of low tones.

Section 4
THE EMERGENCE OF AN H-DISSIMILATION RULE

It is assumed that a High Tone Dissimilation Rule
appeared in some of the languages with tonal
anticipation or repetition so as to limit the number
of high tone successions. The dissimilation
process took place in different ways.

(a) By lowering the first high tone
According to this rule, a high tone surfaces as a
low tone if it occurs on a vocalic syllable before
another high tone.

Rule: If H_1 H_2

Then L

Condition: H_1 must occur on a vocalic syllable

Examples

(i) Budya

{mu-ézi} ⟶ |mu-ézí| ⟶ mwezí 'moon'
{mu-ána} ⟶ |mu-áná| ⟶ mwaná 'child'
{di-íso} ⟶ |di-ísó| ⟶ diisó 'eye'

(ii) Shona

{mu-édzi} ⟶ |mu-édzí| ⟶ mwedzí 'moon'
{ma-íso} ⟶ |ma-ísó| ⟶ meesó 'eyes'

In all these cases two processes have taken place. First, the high tone has been repeated on the subsequent syllable. Second, the first high tone has undergone a dissimilation rule in order to avoid a succession of two high tones. The result is that the high tone is now found on the subsequent syllable and not on the original or etymological position.

(b) By downstep

According to this rule the subsequent high tones are realised at a level slightly lower than the normal high.

Rule: If H_1 H_2

Then 'H

'H indicates a downstepped high tone.

Examples

Kisambaa

~~zumbé ní-mu-tana~~ → |zumbé ní mú-tána| → zumbé ní mútána
'the chief is good'

~~ni-té-há-kúnd-a~~ → |ni-té-há-kúnd-á| → nitéhákúndá
'I want it (place)'

~~taté mu-kúlu~~ → |taté mú-kúlú| → taté múkúlú
'paternal uncle'

Two processes occur. First, there is tone repetition which increases the number of high tones in succession. Second, the subsequent high tones are downstepped to be dissimilar in levels from the first ones.

(c) By having an intermediate low

This rule states that no high tone will be repeated on a syllable preceding another high tone. As a result, successive high tones will be interrupted by intermediate low tones.

Examples

(i) Kisambaa

{ní-fika-kúnda} ⟶ níffkakúndá... 'I want something
'I want something immediately'

(ii) Shona

(ndi-rí ku-ténges-a mu-ɲú} ⟶ ndirí kuténgésá muɲú
'I sell some salt'

(iii) Tetela

{ndé m-bɔtɔ́) ⟶ ndé mbɔtɔ́ 'he left'
{ló n-kambá) ⟶ ló nkambá 'at work'

Here the monotony of successive high tones
is broken by intermediate low tones. However,
a succession of high tones is tolerated wh re
a high tone is repeated on a n mber of successive
low tones. The number of successive high tones
may be as many as five or more.

Section 5
THE CASE OF KINYAMWEZI

In order to appreciate the tonal development of
Kisukuma, it would be appropriate to observe
tonal behaviour in Kinyamwezi, a language which
is linguistically closely related to i.Isukuma.

It could be shown that in Kinyamwezi there
are two tonal processes which are interdependent.
The first is that high tones are repeated on the
two following syllables. The second is that all tones
but the last tone are realised at a level slightly
lower than that of the normal high tone. This se
second process is henceforward referred to as
High Tone Depression. It is a phenomenon which is
similar to downstep, only it happens the other way
round.

(

Examples[10]

(i)

+mu-ána+ ⟶ |mu-áná| ⟶ mwáná
   'child'

+mu-ána lo-goye+ ⟶ |mu-áná lógoye| ⟶ mwáná lógoye
   'child of ro·e

(ii)

+m-búzi+ ⟶ |m-búzí| ⟶ mbúzí
   'goat'

+m-búzi lo-goye+ ⟶ |m-búzí ló-goye| ⟶ mbúzí lógoye
   'goat of rope'

It is this high tone depression which has
caused Kinyamwezi to be described as a "musical
language", because an intermediate tonal level,
one just below the level of the high tone, has
been created.

Section 6
THE H-DISSIMILATION RULE APPLIED TO KISUKUMA

Kisukuma is a language which has undergone significant
tonological evolution. If we regard this evolution
as the result of a series of systematic changes
which have been effected by certain conditions and
developments, it is possible to hypothetically
postulate two types of processes.

(a) Tonal Repetition
We can postulate that, as in languages with tonal
repetition, the high tones in Kisukuma are repeated
on subsequent syllables, if the latter are
characterised by non-marked (i.e. normal) tones
These high tones are repeated on the next two
syllables within the same word, but on the first
two syllables of the following word if the high ·
tone is on the last or penultimate syllable of
a word.

4,5

No repetition will occur if a high tone is immediately followed by another high tone or another marked tone such as Rising or Falling. In this case either the first high tone will be depressed or will be realised as high tone.

(a) $\{\acute{v}\ \acute{v}\} \longrightarrow |\acute{v}\ \acute{v}| \longrightarrow v\ \acute{v}$

e.g. $\{t\acute{a}l\acute{a}\} \longrightarrow |t\acute{a}l\acute{a}| \longrightarrow tal\acute{a}$
'lamp'

(b) $\{\acute{v}\ \hat{v}\ v\} \longrightarrow |\acute{v}|\hat{v}\ v| \longrightarrow v\ \hat{v}\ v$

e.g. $\{b\acute{a}-l\acute{a}a-ja\} \longrightarrow |b\acute{a}l\acute{a}aja| \longrightarrow bal\acute{a}aja$
'they will go'

(c) $\{v\ v\ \acute{v}\ \ \acute{v}\ v\} \longrightarrow |v\ v\ \acute{v}\ \ \acute{v}\ v| \longrightarrow v\ v\ \acute{v}\ \ \acute{v}\ v$

e.g. $\{ba-dɔgɔ́\}$ búṭu $|badɔgɔ́\ búṭu|\ badɔgɔ́\ búṭu$
'they are true relatives'

(c) $\{v\ v\ \acute{v}\ \ \acute{v}(v)\} \longrightarrow |v\ v\ \acute{v}\ \ \acute{v}\ v|\ \ \ \ \ v\ v\ \acute{v}\ \ \grave{v}\ \grave{v}$

e.g. $\{ba-dɔgɔ́\ pyí\} \longrightarrow |badɔgɔ́\ pyí| \longrightarrow badɔgɔ́\ pyì$
'all relatives'

6

Where a high tone happens to characterize a final or penultimate syllable and therefore there is no possibility of the high tone on at least two subsequent syllables the depression is so deep that the tones on the respective syllables are realised as low tones rather than normal tones[11]. Thus we can have the following minimal pairs:

$\{kɔ-súm-a\} \longrightarrow |kɔsúmá| \longrightarrow kɔsùmà$ 'to sew'
$\{kɔ-sum-a\} \longrightarrow |kɔsuma| \longrightarrow kɔsuma$ 'to pick'

$\{n-kolo\} \longrightarrow |nkolo| \longrightarrow ŋholo$ 'sheep'
$\{n-kólo\} \longrightarrow |nkóló| \longrightarrow ŋhòlò$ 'heart'

There are two other differences which distinguish the above pairs. Both of these differences are phonetic. The first is that a normal tone on the final syllable is realised with a falling cadence while the low tone (i.e. the depressed high tone) on the final syllable is not. The second difference is that, where both the penultimate and the final syllables are depressed the low tone of the final syllable is realised slightly lower than the low tone of the penultimate syllable.[12]

Here are some more examples:

$\{n\text{-}dogó\} \longrightarrow \lvert ndogő\rvert \longrightarrow ndogò$ 'relatives'
'relatives'

$\{bá\text{-}á\text{-}bá\text{-}bón\text{-}á\} \longrightarrow \lvert bááfábóná\rvert \longrightarrow baababònà$
'they have just seen them'

Looking at this phenomenon diachronically, it is possible to demonstrate hoW the original high tones are now seen to surface two syllables after or are not realised at all as high tones. This is shown below

Proto-Bantu

*bódi (Greenberg) $\rightrightarrows$ búli $\longrightarrow$ búlî $\longrightarrow$ mbùlì (cl 9) 'goat'
*béede (mccuson) $\rightrightarrows$ béele $\longrightarrow$ béélé $\longrightarrow$ lubeelé (cl 11) 'breast'
*táma (Greenberg) $\rightrightarrows$ táma $\longrightarrow$ támá $\longrightarrow$ itàmà (cl 5) 'cheek'
*búda (Greenberg) $\rightrightarrows$ búla $\longrightarrow$ búlá $\longrightarrow$ mbùlà (cl 9) 'rain'

Section 7
CONCLUSION

It has been possible, in this study, to describe what has been traditionally called "displacement of high tones in Kisukuma" as a series of systematic tone evolutions. By looking at this phenomenon from a historical and comparative perspective, I have succeded in showing that tonal "displacement" in Kisukuma is not an isolated or phenomenal case, but that it is one advanced stage of one type of tonal evolution. Also I have shown that this phenomenon could be described as a result of two successive developments which have occurred also in some other Bantu languages, namely high tone repetition and high tone depression. The reason for the first development is still not clear. Emphatic, accentual or stylistic needs are among the possibilities.

The second development is clearly a result of the
emergence of a more recent dissimilation rule which
states that no two high tones should occur on two
successive syllables. Synchronically,
these developments could be looked at as two
morphophonemic processes which take place successively.
First there is high tone repetition, then all but
the last high tones are suppressed. This kind of
analysis is clearer and indicates once more that strict
separation of synchronic and diachronic approaches[13]
in the study of certain linguistic phenomenon limits,
rather than helps, in discovering the actual mechanisms
or patterns involved, especially when one is dealing
with complex cases[14] such as the tonal system of
Kisukuma. The traditional approach of tonal
"displacement" as proposed by the late Professor
Richarson leaves much to be desired.

NOTES

1 The original version of this paper was presented
         at a Staff-Student Seminar organised by
         the Department of Foreign Languages and
         Linguistics at the University of Dar es
         Salaam on Wednesday 15th October 1978

2 The acute accent (V́) stands for High Tone, the
         grave accent (V̀) stands for Low Tone, and,
         in this paper, the absence of mark
         indicates that the syllable is characterised
         by "Normal Tone".

3 Contour tones occur also where two adjacent and
         identical vowels belong fundamentally to
         two morphemes with different pitches,
         but are realised as one syllable.

4 Falling Tones will be marked (V̂) or (V́V), and
         rising tones will be marked   (V̌) or (VV́).

5 Phonetically [mbô:ŋgo] and [ɲǒ:nso].

6 This is a Bantu language (Guthrie's F 21) spoken
         by about two million Tanzanians who live
         to the south and south-east of Lake Nyasa
         (or Victoria). The four main dialects
         constituting the language are named
         according to their geographical position.
         Although these four dialects differ mostly
         phonetically, phonemic and lexical
         variations are not infrequent. However
         these differences, though linguistically
         significant, have little bearing on
         general intercomprehension. The dialect
         described here is kɪmunasukìmà or the
         "the northern way of speaking".

7 The only other three level tone Bantu language
         known to the author is Bafia, spoken in
         Cameroon (Guarisma 1973). The three
         levels are High (V́), Normal (V)(unmarked)
         and Low (Ṿ). Normal tone is by far the
         most frequent.

8 The braces ( ) indicate morphophonemic
         representation, while the vertical lines
             indicate the operational level at
         which the displacement takes place.
         See Batibo 1976a pp467-82.

9 In this section we are not going to discuss
         languages which have lost their tonal
         distinctiveness or which have
         developed "restricted" tonal systems.

10 We need et giving somewhat similar phonological
         This is because the questionnaire was

10 We regret giving somewhat peculiar examples;
        this is because the questionnaire was
        specially prepared to extract certain
        tone patterns.

11 It is this reason which prompted Batibo 1976b
        to introduce the term "downslip" to
        describe such phenomenon.

12 This is one reason why Batibo 1976a p28
        introduced the term "infra-bas" (extra-
        low) to describe this tone level.

13 For a longer discussion of this issue, see
        Equipe de Recherche du Centre National
        de la Recherche Scientique 1971 pp147-59.

14 As has been pointed out by many linguists
        including Richardson 1971 and Gleason 1961,
        the tonal system of Kisukuma is one of the
        most complex among the tonal languages.

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            of the Upper Congo, West Central Africa
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TANZANIAN SPEAKERS OF ENGLISH:

EFFECTS OF SPELLING ON VOWEL PRONUNCIATION

J B Maghway

Section 1

INTRODUCTION

1.1 The learning and use of English in Tanzania
has in recent years attracted the attention of scholars.
Impressionistic views have been expressed regarding
written and spoken English in Tanzania. Some research
has also been done in both areas. Previous literature
in this area suggests that there is deviance from
RP in the pronunciation of the vowels of English as
spoken by Tanzanians. This is in view of the fact
RP is the official target for the teaching of
pronunciation in English in Tanzanian schools.[1]
Kassulamemba (1977) reports that his respondents
made "errors" in the pronunciation of seven "problem
vowels"; that is to say they produced un-RP-like
sounds for each of the vowels for which tests were
administered. He attributes the "errors"
severally to four causes:

      (i) interference from mother-tongue
     (ii) intralingual factors
   (iii) induced errors
    (iv) negative attitudes towards English

Professor T Hill (1973) also relates his impressions,
based not on formal research-data but on long-term,
first-hand observation of the Tanzanian linguistic scene.
These can be summed up as follows. Although taught
the pronunciation of English with RP as target,

Tanzanians do not learn to speak RP, however
defined (p 4). The deviance from RP reported by
Hill and termed "errors" by Kassulamemba can, in
fact, be perceived by the casual ear capable of
discriminating what is RP and what is not.

1.2 In the following pages are presented the
findings of a study conducted among Form Five
students in a Dar es Salaam school in 1979. Its
object was to find out what, if any, is the
the relationship between the spelling of vowels and
their pronunciation by Tanzanian speakers of
English.

1.3 For the purposes of the complete study, the
vowel phonemes of RP are understood to consist of
/iː ɪ e æ ɑ ɒ ɔ ɒ ʊ ʌ ɜ ə eɪ əʊ aɪ ɑʊ ɔɪ ɪə ɛə ʊə/ in
seat, pit, pet, pat, part, pot, port, put, pool,
pearl, appeal, bay, bow (n), buy, bow (v), boy, beer,
bare, boor,. The description of RP vowel phonemes
followed is chiefly that given by Gimson (1970);
reference is, however, also made to those given by
others such as O'Connor and Jones (see Bibliography).

1.4 The sample for the study was made up of 20
Form Five students with a Bantu language as
vernacular,   who had completed the eleven years
formal programme for English. They came from eight
Regions of Tanzania. The 11 Bantu languages they
represented are: Yao (1), Swahili (1), Ngoni (2),
Kinga (1), Hehe (1), Kaguru (1), Sukuma (2),
Pare (1), Chaga (6), Haya (3) and Bena (1). The
choice of the sample was guided by its character:
. fairly homogenous linguistic (Bantu) and
educational background.[2]

1.5 Each RP vowel phoneme was contextualized in genuine English words and nonsense-words. The latter resembled the former in all respects, but were in fact not items in the English lexicon. Several experiments were then designed.[3] The words containing the common spellings of each RP vowel were presented in isolation and in lists of sentences. The aim was to simulate slow speech in the first and normal or fluent speech in the second. The subjects' pronunciations were then recorded in each experiment.

1.6 A research hypothesis was formulated: the deviance from RP reported in the speech of Tanzanian speakers of English is related to the spelling that represents the sounds in the written medium, which is central to the learning of English in Tanzania. The aim of the study was primarily to verify this hypothesis with respect to the 20 vowel phonemes of RP. But it also aimed to establish the reported deviance itself.

1.7 The elicitation of data was conducted in an atmosphere as informal as was possible. That not withstanding, several problems defied all attempts at solution. The presence of both the researcher and such research paraphernalia as taperecorders was a constant source of inhibition to the subject as he was observed and recorded. The recording itself was not done in an environment free from external interference: there was no studio accessible for the purpose. Furthermore, for the analysis of the recorded phonetic data, no instruments were available to measure the quality and quantity of each with accuracy. These, together with the time constraint under which the study had to be done, mitigated against a high

degree of accuracy and objectivity aimed at in
the whole exercise. However, it is believed that
the findings, on the whole, remain both objective
and reliable.[4]

1.8 The actual field study was preceded by a pilot
survey which was restricted in sample and in the
experiments performed. Its object was two-fold.
It sought to establish (a) the legitimacy and
research-worthiness of the problem area, and
(b) the validity and adequacy of the main
experiments designed for the collection of data.
Only three of the experiments were performed:
Experiment 2 (Nonsense-words), Experiment 4
(wordlist of genuine English words) and experiment
8 (genuine English words in sentences). Three of
the four pilot subjects were educated Tanzanians
whose spoken English showed rather divergent
pronunciations (B,C,D in Table 1). The fourth
was an educated native speaker of RP (subject A).
Sample results of the pilot survey are set out in
Tables 1 and 2.

1.9 The data for pilot subjects B and D (Table 1)
indicates significant evidence of deviance from
the pronunciation of the native speaker of RP
(Subject A) for the corresponding items. Table 2
brings together further evidence of deviance in
the phones elicited from D. The deviance from RP,
as reflected by the two tables, correlates with
the spelling more than with the native speaker's
pronunciations for the same items. Thus, for
example, /ə/ is systematically pronounced [a] when
it is spelt 'a', but [ɔ] when spelt 'or', or
'e' and 'a' followed by 'l'. /ɜ/ is pronounced
[il] when spelt 'ir' and [ɔ] when spelt 'or', but
the same phoneme is pronounced [e] when it is

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Table 1

Pronunciation of selected RP vowels
by pilot subjects

	Subject A	Subject B	Subject C	Subject D	RP
*swanted	[ɪ̞]	[e̦]	[ɪ̞]		/ɪ/
*fruitments	[u̦]	[ui̦̦]	[u̦]	[ui̦̦]	/u/
*adjournals	[ɜ:]	[ɔ̥]	[ɜ:]	[ɔ̥]	/ɜ/
*pragmental	[əl]	[ɔ̥]	[əl]	[ɔ]	/əl/ or /l̩/
*bruels	[o̞ə]	[uə̦̦]	[o̞ə]	[uə̦̦]	/oə/
*highered	[aɪə]	[a-ja]	[aɪə]	[a-ja]	/aɪə/
*quackless	[ə]	[e̦]	[ɪ̞]	[ɛ]	/ə/ or /ɪ/

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Table 2

Pronunciations elicited from pilot subject D
for selected experiments

Spelling	Exp. 2	Exp. 4	Exp. 8	RP
*premakers	[ɛ]			/ɪ/
knowledge			[ɔɤ]	/ɒ/
*acknowlish	[ɔɤ]			/ɒ/
glove		[ɔ:]	[ɔ:]	/ʌ/
*sircous	[il]			/ɜ/
*worthings	[ɔl]			/ɜ/
*herdments	[e.]			/ɜ/
machine		[a]		/ə/
*acknowlish	[a]			/ə/
forgive		[ɔ]	[ɔ]	/ə/
medium		[iɤ]	[iɤ]	/ɪə/
usual		[ɔ]	[ɔ]	/oəl/
*lawtide	[ɔɤ]			/ɔ/
label			[ɔ]	/əl/ or /l̩/
mental		[ɔ]		/ə./ or /l̩/

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spelt 'er'. These patterns become even more
systematic in the data from the actual sample.

Section 2
ENGLISH VOWELS: SOUNDS AND LETTERS

2.0 This Section gives a brief account of the
relationship between pronunciation and spelling in
English vowels. Speech is primary and writing
secondary (Saussure, 1959). Many modern languages
such as English or Swahili are however, both
spoken and written. Their orthographies, as
writing systems are called, are essentially
conventional systems of symbols which attempt to
represent graphically the sound system of the spoken
medium. Whereas the spoken medium of a language
utilises a set of sounds, writing makes use of a
set of graphic symbols. As the sounds of a
language belong to its phonological system, the
sets of graphic symbols used in writing it are
letters of its alphabet.

2.1 Writing systems are said to bear a 'phonemic'
or 'graphemic' reference to the spoken medium
(Gleason, 1961). The English orthography bears a
phonemic reference to spoken English. It consists
of the 26 letters of the English alphabet.
However, the phonemes of English, say of the RP
dialect, do not have a one-to-one relationship with
the letters of the English alphabet. In languages
such as Swahili, it is the case that the vowel
sounds, for example, have a simple correspondence
with the letters used to represent them. The
result is spelling-pronunciation: what you say is

exactly what you write, and vice versa. Thus the
five Swahili vowel phonemes /i e a o u/ in /sisi
wewe kaka popo kuku/, are spelt by the letters
'i e a o u' in 'sisi wewe kaka popo kuku'[5]. The
relation of sound to letter is regular: one vowel
sound one vowel letter.

2.2 In English that is far from the case. The
English vowel letter 'o', for example, has several
common phonemic references.

e.g. /ɒ/ in 'pot   /ɑ/ in 'bosom'
     /u/ in 'lose'   /ʌ/ in 'love'
     /ə/ in 'society'   /əɑ/ in 'social'

In English, therefore, a given vowel letter often spells
more than one phoneme. Several vowel letters also
often spell the same vowel phoneme. This can be
illustrated for the central vowels as follows.

/ʌ/	'o'	'love'		/ɜ/	'er'	'herd'
	'ou'	'southern'			'ir'	'bird'
	'u'	'butter'			'ear'	'heard'
					'or'	'word'
/ə/	'a'	'alone'			'ur'	'burn'
	'i'	'possible'			'our'	'journey'
	'u'	'minimum'				
	'er'	'rivers'				
	'or'	'forgive'				
	'oar'	'cupboard'				
	'ure'	'nature'				

This state of affairs is summarised appropriately
by Wijk (1966:7). "There is hardly a letter
or combination of two or
three letters in the English
alphabet which cannot be
pronounced in two or three
different ways, and a
good many ... actually have
from half a dozen to a dozen
different pronunciations."

2.3   There are therefore sharp irregularities in
the relationships between the vowel phonemes of RP
and the letters of the English alphabet used to
spell them.   These irregular relationships are a
potential source of difficulty in literacy, not
only for second and foreign language learners, but
even for native speakers.   The irregularities
account for the high degree of unpredictability
of either the pronunciation of a given vowel
letter in English or the appropriate standard
spelling of any given vowel phoneme of RP in an
English word.   Nevertheless, the phonemic reference
of English vowel letters is not totally arbitrary
and random.   As Gleason (1961) says, it is merely
a complex and intricate fit (p 411).   The
intricate fit is partly theresult of the fact that
the phonological systems of the dialects of spoken
English possess vowel phonemes much in excess of
vowel letters in the standard orthography of .
English.   Another explanation (Wijk, 1966; Scragg,
1977) attributes it to the different rates of
historical development of the English language --
in its phonology on the one hand, and orthography
on the other.   The English orthographic system ,
has, over the years, come in contact with and
borrowed heavily from those of Greek, Latin and

French. The phonological system has, however, not been as avaricious. Therefore, to accomodate the 20 vowel phonemes of RP, the spelling system uses a variety of strategies: (1) the single vowel-letters; (2) the consonant letters 'y' and 'w' at the end of a syllable or words; (3) vowel digraphs and trigraphs; (4) combinations of single vowel-letters, diagraphs or trigraphs with the letter 'r' (at the end of a syllable or word), and (5) the environment provided by the consonant letters.

Section 3
FINDINGS

3.0 All the actual pronunciations elicited from the sample were rendered into a narrow phonetic transcription according to the transcription scheme shown on the following page. They were then

(a) compared with the cardinal vowels as demonstrated by Jones (1955);

(b) compared with the most significant phonetic features of RP vowel phonemes (as described by Gimson and others);

(c) compared with the pronunciations of the native speaker for the same item (ie with the pilot subject A);

(d) compared with the pronunciation of Swahili vowels by the Sample (Fig. 2), and

(e) correlated with the spellings for which they were elicited.

Figure

Transcription Scheme
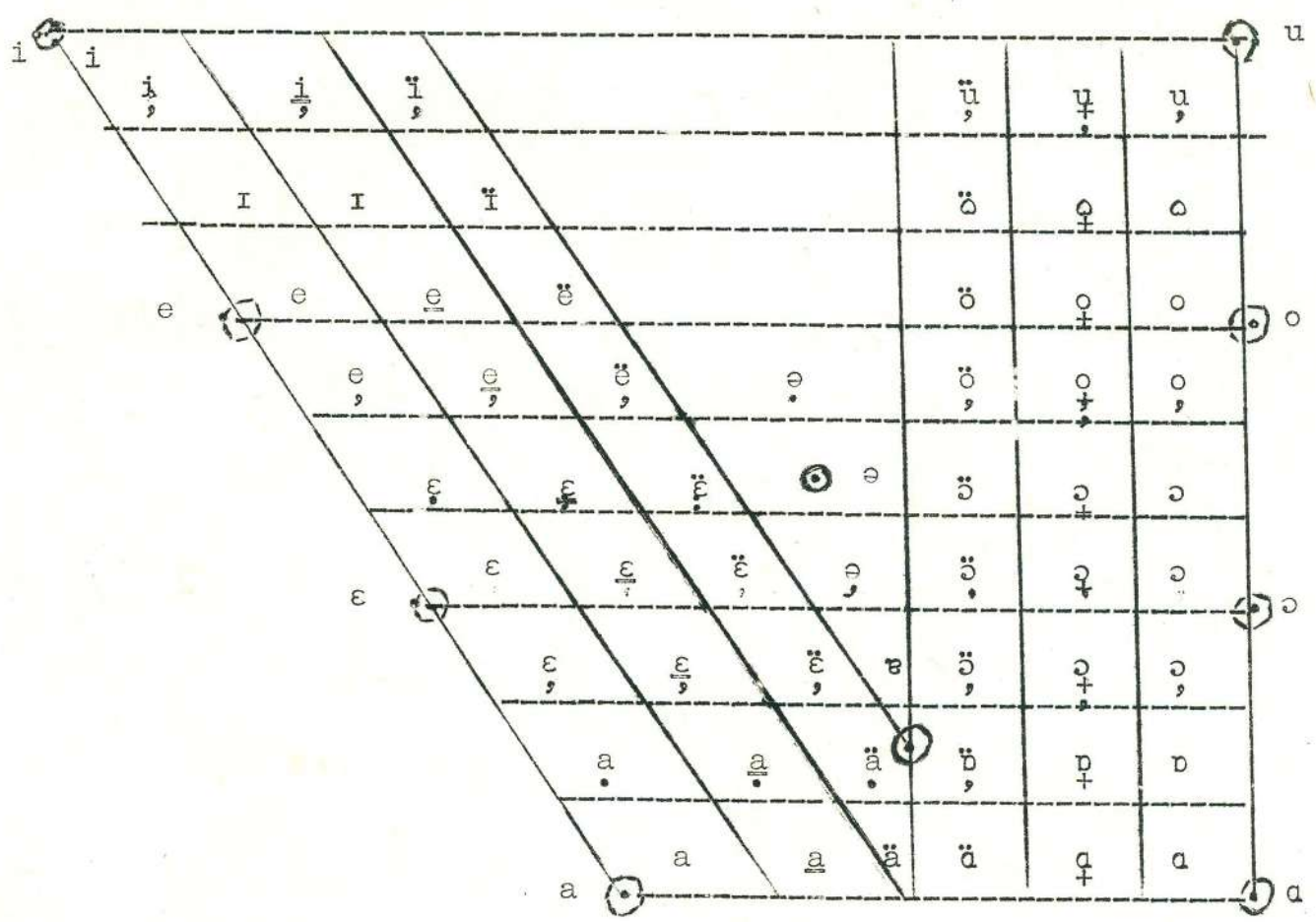
⊙ Cardinal Vowels

Figure 2

The vowels of Swahili
as pronounced by the sample
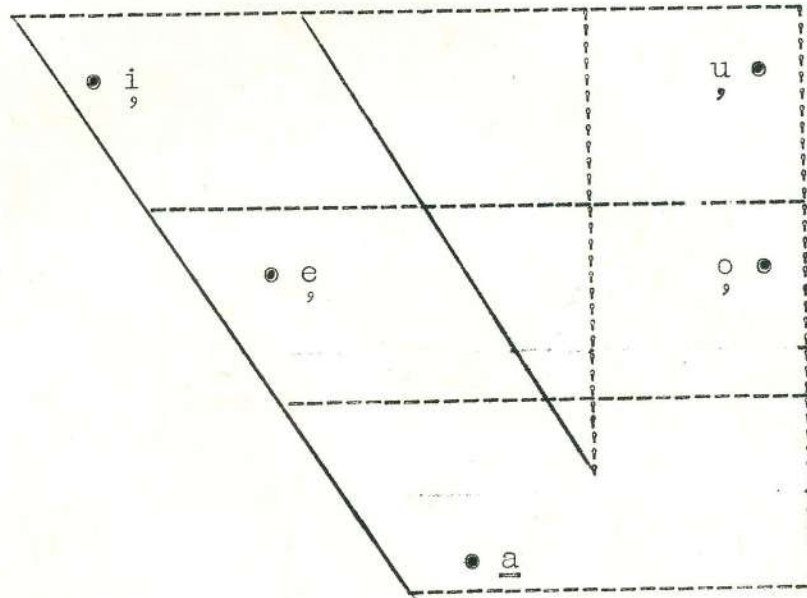
Figure 3

The seven selected vowels of RP
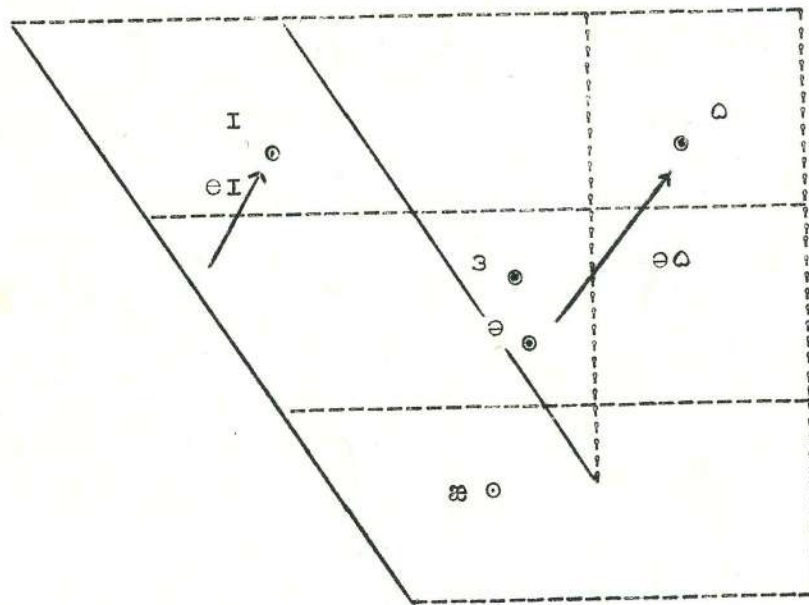
The findings presented here are primarily those for
seven selected RP vowel phonemes: /ɪ æ ɒ ɜ ə eɪ
əʊ/ (Fig. 3). The first five are monophthongs and
the remaining two are diphthongs. We have here
front vowels, a back vowel, central vowels and two
diphthongs. This is fairly representative of the
20 vowel phonemes of RP and the phones elicited
for them from the sample. Apart from the fact that
there is not sufficient space here to present
findings for all 20 (see Maghway 1980), the seven
are also those selected by Kassulamemba to "test"
for "errors". This therefore provides occasion
to compare the findings of the two studies on
spoken English in Tanzania. The findings for each
of the seven are presented following the order
/ɪ æ ɒ ɜ ə eɪ ʌʊ/. Then those for the remaining
13 RP vowels are summarised in the final paragraph
in the Section.

3.1   RP 2: /ɪ/

3.1.1 This phoneme is described as short, produced
with the front of tongue slightly above half-close
and between centre and front. Its typical RP
pronunciations are [ɪ], [ɪ̯] and [ɪ̈]. In the
standard orthography of English it can be spelt
in several ways. The spellings presented to the
sample were: 'i, y, e, ua, ei,' in 'city,
happiness, useless, remember, prepare, elect,
employ, enclose, extend, wanted, perfect,
biggest, language, foreign;' and 'a' in 'lagage,
surface'. The three typical RP pronunciations
are conditioned by their phonetic environment.
They do not depend upon the different spellings
used to represent the phoneme. A good example
is the word 'visibility', in which RP 2 occurs
five times - twice as [ɪ], twice as [ɪ̈] and

Table 3

Phones elicited
for the spelling of /ɪ/

Spelling	Experiment 2						Experiment 8						Total
	[i	i:	ɨ	e	ɛ	ei	i	i:	ɨ	e	ɛ	ei]	
'i'	20	75					90	10					200%
'y'			5				45		40	15			100%
'-ate-'				65	35				85	15			200%
'-age-'				65	20	15	5		10	70			200%
'-ace-'			5	60	30	5				100			200%
'-be-'	30	15		50	5		15		5	55	25		200%
'-re-'	70	10		20	10		20	80					200%
'pre-'	80	10		5	5		60		15	25			200%
'en-'	5	5		60	30					100			200%
'ex-'	5	5		65	35					80	20		200%
'-ed'				70	30					95	5		200%
'-et'				65	35					90	10		200%
'-est'				80	20					75	25		100%
'-less'				60	40					80	20		200%
'-ness'													100%

or 'y' in 'city, pit, daily', etc. In the three
major experiments, the [e] and [ɛ] segments were
produced for all the spellings of /ɪ/ which contain
either the letter 'e' or 'a' in an unstressed
syllabl. as in 'wanted, enclose, surface,
climate. management', etc. The spelling 'ua' – as
in 'language', also elicited [e] and occasionally
[ɛ]. Some of the 'a' spellings elicited the
segment [a]. The overall picture that one gets
from Table 3 is that the sample produced eleven
slightly different vowel segments for /ɪ/. The
segment produced is generally a monophthong,
but occasionally also a diphthongs. The segment
is in all cases a front voel sound. This relates
in a systematic way with the vowel-letters used
in spelling /ɪ/ and presented to the sample.
All the vowel-letters seen in the words presented
are those normally used to represent front vowel
sounds in English (ie the letters 'i, y, e, a').
More significantly, these letters, with the
exception of 'y', are those used to spell the
vowel sounds of Swahili /i/, /e/ and /a/ (cf
fig. 2). This correspondence between the vowel
segments produced by the sample for the different
spellings of /ɪ/ is too characteristic to be fortuitous.

3.2. RP 4 /æ/

3.2.1 The fourth vowel phoneme of RP has one main
typical realization by the native speaker of RP.
However the phonemically normally short sound [æ]
becomes longer in the environment of a following
voiced sound. Thus 'cap, bat, back', and 'cab,
bad, bag' are pronounced [kæp, bæt, bæk] and
[kæːb, bæːd, bæːg], respectively. The English
orthography usually spells this phoneme with the

letter 'a' followed by a single consonant letter
or a sequence of these (eg bat   marry, bands,
etc.). In a limited number of words, it is also
spelt with 'ai', as in 'plait, plaid'.

3.2.2 When these spellings were presented in
different words to the sample, several different
phones were elicited in the actual pronunciations
(Table 4).

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Table 4

Phones elicited
or the spellings of /æ/

Phones Elicited

Spellings	Experiment 2					Experiment 4					Experiment 8					Total
	i.	e	ε	æ	ei	i.	e	ε	a.	ei	i.	e	ε	a.	ei	
'a'		5	50	40			5	80		20			65	35		300
'ai'													5		95	100

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3.2.2 Again the phonetic character of the phones elicited depended upon the spelling of the phoneme in the words presented, rather than on environmental conditioning of any kind. All respondents produced [a̱.] for the spelling 'a' (with a following 'l', as in 'ba̱lance'). For the spelling 'a' before any other consonant letter, the greatest percentage of phones elicited was for [e] or [ɛ]. However, the phone elicited from 95% of the sample was the diphthong [ei] when words with the digraph 'ai' were presented. Thus the elicited phone is generally predictable from the spelling. /æ/ is generally pronounced [a̱.] when in its spelling 'a' precedes 'l'; it tends to be pronounced [e] when in the spelling 'a' is followed by any other consonant letter, and when spelt with the digraph, the elicited phone is almost invariably the closing diphthong [ei] (clearly due to false analogy with the pronunciation of 'ai' in eg. 'bait' - ie [ˈbeɪt]).

3.3 RP 8

3.3.1 This vowel phoneme corresponds to the /ɪ/. Like the latter, it is produced with the tongue in the half-close position. However, while RP 2 is produced with the front of the tongue, /ɒ/ is articulated with the back of the tongue. The RP realizations of RP 8 recorded are [ɒ], [ö] and [ü]. These variants are idiolectal; they do not depend on conditioning by phonetic environment (Gimson 1980, p 117). But they are phonetically very similar.

3.3.2 Four spellings were presented for this
phoneme. They are 'u, o, oo, ou', as in
'butcher, woman, book, should (stressed)'.
They elicited six phones (Table 5). Excepting
those elicited for 'ou' in Experiment 2, the
responses received are monophthongs. The only
diphthong, [ɔǫ], was produced for 'ou'. A front
monophthong [a] was produced for the spellings
'u', 'o' and 'oo'. The remaining elicited phones,
produced for all four spellings, are back
monophthongs (approximately between half close
and close). Of all the elicited phones, [ǫ]
is the nearest to the RP realizations of /o/
The remaining elicited phones are either too close
or too open (of 'transcription scheme   ).

3.3.3 There is a characteristic relationship
between the different phones elicited and the
four spellings of the phoneme. It is true that
each of the spellings elicits more than one phone,
and the same phone can be produced for more than
one spelling. However, for each spelling there
appears to be one or two phones that it most
commonly elicits. The phones less frequently
elicited by a given spelling might be regarded
as aberrations from the general 'norm' of the
sample's performance. Thus most characteristic
pronunciations of the sample for RP 8 in words
in which it is spelt 'u' is [a] or [ǫ]; [ɔ]
when the spelling is 'o'; [u] when the spelling
is 'oo', and [ɔǫ] (rarely [u]) when the spelling
is 'ou'. It appears that the explanation for
these emerging tendencies is partly related to
analogy and partly to spelling-pronunciation.
The phone [a.] was elicited elsewhere for 'u'
found in words such as 'butter, burn, minimum', etc.

The [a] elicited for the 'u' spelling of /ɒ/ therefore seems to be the result of the subjects making a false analogy. They see the letter 'u' as the graphic representation of the English vowel sounds they elsewhere realize with an [a] sound. Likewise, it is suggested here that the phone [ọ̟] produced for 'u' and [ọ], produced for 'o', are evidence of spelling-pronunciation. These correspond to the phones the sample generally produced for Swahili vowel similarly spelt.

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Table 5

Phones elicited
for the spellings of   /ɒ/

Phones Elicited

	Experiment 2						Experiment 4						Experiment 8						Total
Spelling	[a	ọ	ɔ	ọ̟	u	ɔọ̟	a	ọ	ɔ	ọ̟	u	ɔọ̟	a	ọ	ɔ	ọ̟	u	ɔọ̟]	Total
'u'	50				25		25				50	25	30				60	30	300
'o'		15	20	25	40		10	75	15				15	20	65				300
'oo'	10		5	35	50				100							25	75		300
'ou'					50	50					40	60					20	80	300

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3.4 RP 11 & 12 /3/   /ə/

3.4.1 This paragraph deals with the two RP
central vowels /3/ and /ə/. Although both
vowels have phonemic status, /3/ normally occurs main-
ly in stressed syllables and /ə/ in
unstressed ones only. They are both pronounced with
the highest part of the tongue in central
position. /3/ is pronounced long 'and /ə/ short.
Their phonetic variants are shown in Fig. 4.

3.4.2 The variants of /3/ are independent of
phonetic environment. Within the central area,
"great latitude of degree of tongue raising is
permissible" (Gimson 1980 , p 122).[6] For /ə/,
however, the variants - although covering much
the same latitude - are environmentally
conditioned. The variants marked 1 and 2
(fig. 3) occur in final position (eg. in
['mʌčə], ['dɒktə], etc.), while that marked
3 is produced in word non-final positions (as in
['aftəwədz], [ə'ləʌn], etc.), and the one marked
4 is pronounced when /ə/ is adjacent to velar
consonants (eg. [ə'klɒk], [ə'gensⱼ], etc.).

3.4.3 In the orthography /ə/ can be represented
by each of the five vowel letters; these combine
with 'r', c. (see 2.2). /3/ is usually spelt
with a vowel-letter (or vowel-letter combinations)
followed by 'r' (2.2).[7] When commonly used words
containing the usual spellings of /3/ and /ə/ were
presented to the sample, the results set out in
Table 6 and Table 7, respectively, were obtained.

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Figure 4

Positions of the phonetic variants of /ɜ/ and /ə/

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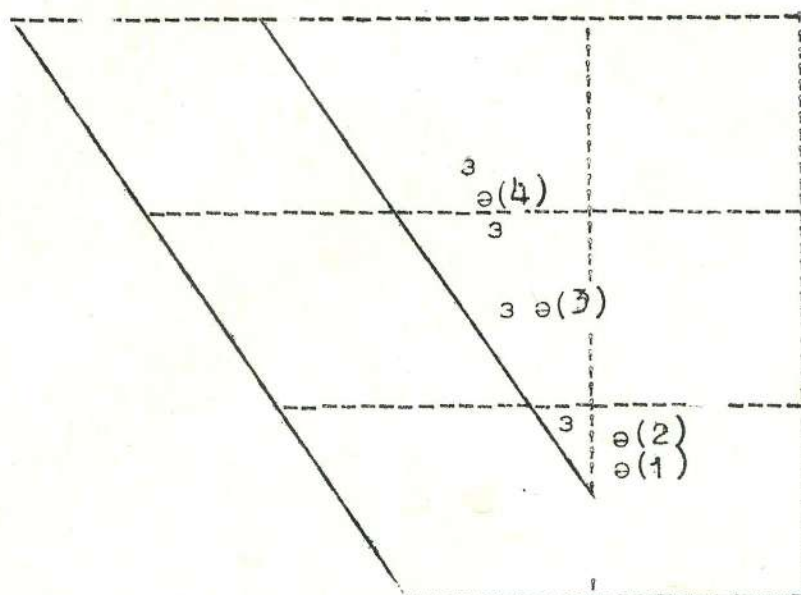
Table 6

Phones elicited for the spellings of /ɜ/

Spelling	[i	e	a	ɔ	ɔ	u	ere	ɛ	ä	ia	ea]	Total
'ear'		75					20	5				100%
'er'	5	55				10	5			15	10	100%
'ir'		80			10	5	5					100%
'our'		25		60	5	20						100%
'ur'		100										100%
'or'		85					15					100%

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Table 7
Phones elicited
for the spellings of /ə/ [9]

				PHONES ELICITED					
Spelling	[i̯	e̯	ʌ	ɔ̧	u̧	ɜ̧	aɪ	ɔ̧a]	Total %
'data'		100							100
'breakfast'		100							100
'island'	60	'40							100
'gentleman'	25	75							100
'salad'		100							100
'animal'				95		5			100
'travel'		20		80					100
'social'		5		95					100
'nation'	100								100
'doctor'		100							100
'cupboard'				95				5	100
'father'		100							100
'confirmation'	75	1		15					100

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Table 8
Phones elicited
for the spellings of /eɪ/

			PHONES ELICITED			
Spelling	[i̯	e̞	ɛ	e̞·ɪ	ɛ·ɪ]	Total %
'gate'		65	20	15		100
'bait'		30	60	5	5	100
'pray'		5	10	80	5	100
'break'	2	65		10		100
'streight'				100		100
'prey'				100		100

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3.4.4 The results show that, although a very large
number of vowel phones was produced for either
phoneme, no central vowels were elicited from the
sample. The nearest approximation to a central
vowel was either a front vowel so retracted, or a
back vowel so advanced, that it was perceived as
centralized vowel. Thus all the phones elicited for
the spellings of /ɜ/ and /ə/ could, strictly, be
described as deviant from typical RP realizations
of the two phonemes.

3.4.5 The deviant phones elicited for the spellings
of RP 11 are not apparently readily predictable from
the spelling. But a close analysis of the data
reveals that there is a certain general tendency
for the pronunciation of the spellings presented for
/ɜ/. This is that there are two phones which appear
to be the sample's approximation for /ɜ/. The
commonest of these — which is used by the largest
percentage for all the spellings except 'ur' (and
less frequently for 'our') — is [e̩] (sometimes
centralized to [ë]). The second, produced for
'ur' by the entire sample, is [a̲] (sometimes
centralized to [a̲]). Thirdly, the phone [ɔ̇] is
generally produced for the spelling our '(eg. in
'journal'). Matters are not so different in the
case of /ə/. For instance, the spelling 'io' in
'nation' elicits nothing but [e], and when 'a'
(e.g in 'separation, alone, etc.) was presented, it
also elicited a high percentage of [e̩]. These,
together with the tendencies for the spellings of
/ɜ/ could perhaps be attributed to what we may
here call 'stereotypes'. These are the phones
produced as approximations of a given RP vowel, the
actual phone — though not the same as that which
would would be elicited by the same spelling in

Swahili - is determined by the spelling. The other phones elicited for /ə/ could on the whole be regarded as instances of 'spelling-pronunciation'. All responses received for the spelling 'a' in 'dat__a__', 'breakf__a__st', sal__a__d', were for the phone [__a__]. The highest percentage of responses produced [i] for 'ir' in 'confirmation'; [e̬] for the 'e' in '__g__overnm__e__nt' and 'lab__e__l'.

3.5 RP 13 /eɪ/

3.5.1 This is a front closing dipthong: from about mid-front to approximately RP 2 (like /aɪ/ and /ɔɪ/). Typical RP allophones for this phoneme are [eɪ], [e̬ɪ]   and [ɛɪ] (Gimson, p 128). The spellings presented in Experiment 8 to the sample, together with the pronunciations elicited, are laid out in Table 8.

3.5.2 Five phones were elicited: four monophthongs and three diphthongs. Both the monophthongs and diphthongs are produced entirely in the front. Of all these, [e̬.ɪ̟]   and [ɛ̣.ɪ̟] are the only ones acceptable as possible RP realizations of /eɪ/. The remaining ones are deviant. The spellings 'a' and 'ea' produce the greatest percentage of the deviant phones. They each elicit 65% of [e̬]. They are followed by 'ai', which elicits 30% and 60% respectively, of the deviant phones [e] and [ɛ̣]. On the other hand, 'ei' and 'ey' tend to produce 100% non-deviant phones, followed by 'ay' - which elicits 85% non-deviant phones. This shows one important tendency. It shows that the sample, when presented with words containing digraphic spellings of /eɪ/ ending in 'i' or 'y', tends to

produce phones which are not deviant from the
typical, diphthongal, RP realization of /eɪ/.
On the contrary, when presented with a monographic
spelling of /eɪ/, or a digraphic one not ending
in 'i/y', the sample tends to produce the greatest
percentage of deviant phones.

3.6 RP 14 /əʊ/

3.6.1 The fourteenth vowel of RP is the diphthong
closing towards [ʊ] (similar to the ending of /ɑʊ/
or the beginning of /ʊə/). Its beginning point is
"a central position between half-close and half-open",
with neutral lips (Gimson 1980 , 133). The articul-
ation of the second element of the diphthong entails
slight closing of the lower jaw and the rounding of
the lips. There are two typical RP realizations
for the phoneme. The first, conservative, begins
about back half-close - [o̞] or [ŏ], and the
second, advanced, begins anywhere from mid central
to mid front - from [ə] or [ɜ] to [ɛ]. Both end
approximately slightly above back half-open, [ɔ].
Of the six spellings presented, only 'o' and 'ol'
were not digraphic. Table 9 shows the phones
elicited by the spellings presented in Experiments
2 and 8.

3.6.2 As for the previous phonemes investigated,
the phones elicited are either nonophthongs or
diphthongs (Table 9). The monophthongs are either
front ([ ], [e] or back ([ɔ.], [o·]; the
diphthongs are either closing from back - [ɔʊ], or
front, [aʊ]. The diphthong [ɔʊ] is the only one
acceptable as a possible allophone for /əʊ/ for the
native speaker. It is phonetically similar to the
native speaker's [oʊ] allophone. All the other
elicited phones are deviant.

Table 9
Phones elicited
for the spellings of /əʊ/

PHONES ELICITED

	Experiment No. 2						Experiment Number 8						Total %
[	i̞	ȩ	ɔ̥	ǫ	ɔ̥ʊ̞	a̞ʊ̞	i̞	ȩ	ɔ̥	ǫ	ɔ̥ʊ̞	a̞ʊ̞]	
Spelling													
'o'			95	5			70	10	20				200
'oa'			95	5			90	10					200
'oe'	10	15	7?										100
'ol'			10?				100						200
'ou'			35	55	10		50	45	5				200
'ow'			40	60			85	15					200

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Table 10
Analogy

Phoneme	Spelling	Elicited	Analogue	
/aɪ/	lite	90% [a̞.ɪ]	'like'	['laɪk]
/ɪə/	geographical	100% [i̞ə̞]	'geography'	[dʒɪˈɒgrəfɪ]
	ideological	100% [i̞ə̞]	'ideology'	[aɪdɪˈɒlədʒɪ]
/e/	says	80% [ȩi̞]	'say'	['seɪ]

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Table 11
Spelling-pronunciation

Phoneme	Spelling	Elicited	cf. Swahili		
/ɪə/		100% [i̞a̞]	'njia'	[nɟia]	'path'
/aɪ/	'either'	90% [ei̞]	'bei'	['bei]	'price'
/ɪ/	'foreign'	80% [ei̞]	"	"	"
/əə/	'fuel'	90% [u̞e̞]	[usicuˈkue]		'do not take'

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Table 9
Phones elicited
for the spellings of /əʊ/

	PHONES ELICITED Experiment No. 2						PHONES ELICITED Experiment Number 8						Total %
Spelling	[i̯	e̯	ɔ.	ɔ	ɔ̝̈	ä̝	i̯	e̯	ɔ.	ɔ	ɔ̝̈	ä̝]	
'o'			95	5			70	10	20				200
'oa'			95	5			90	10					200
'oe'	10	15	75										100
'ol'			100				100						200
'ou'			35	55	10		50	45	5				200
'ow'			40	60			85	15					200

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	ideological	100% [i̯ə]	'ideology'	[aɪdɪˈɒlədʒɪ]
/e/	says	80% [e̯ɪ]	'say'	['seɪ]

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/ɪə/		100% [i̯ə]	'njia'	[nɟia]	'path'
/aɪ/	'either'	90% [eɪ]	'bei'	['bei]	'price'
/ɪ/	'foreign'	80% [eɪ]	"	"	"
/əə/	'fuel'	90% [u̯e]		[usicuˈkue]	'do not take'

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3.6.3 The phones elicited show a pattern of relationship with the spellings. The following will illustrate. The non-deviant phone [ɔǫ] is most frequently produced in words in which /əʊ/ is spelt 'ou' or 'ow'. When the phoneme is spelt by 'o' or 'o' followed by a letter other than 'u' or 'w', the most frequently elicited phone is the monophthong [ɔ.] which is deviant.

3.7 Other RP Vowels

3.7.0 The 13 vowel phonemes of RP the findings for which are not included in the preceding sections manifest patterns similar to those seen in the seven selected phonemes. The three prominent tendencies noted for the seven can also be observed in the remaining vowel phonemes. Only a few examples for each tendency will be cited in the paragraphs that follow.

3.7.1 Analogy is that tendency to produce a given phone for a given spelling because it resembles another spelling whose pronunciation is apparently known to the subject. For example the 'i' of /aɪ/ (as in the nonsenseword *'lite') was pronounced, nondeviantly, as [a.ɪ] by 90% of the sample. This is probably due to the subject recalling the genuine English 'like' (RP ['laɪk]) - which resembles the nonsenseword in both spelling and even pronunciation, except for 'k' and 't'. Other examples are given in Table 10.

3.7.2 Spelling-pronunciation is the tendency for subjects to realize a given spelling of an RP vowel with a phone similar to one which would realize that spelling in Swahili. Stated differently,

this tendency is analogising the spelling of
English vowels with the vowels of Swahili. For
example, the spelling of /ɪə/ in 'Indian' was
only-a-little deviantly pronounced [ia] by 100%
of the sample. This is also the sample's
pronunciation of 'ia' in the Swahili 'njia'
(['nɟia'   See Table 11 for more examples.

3.7.3 Stereotype is used here to describe the
phone, deviant or non-deviant from typical RP
pronunciation for a given phoneme, produced by
a high percentage of the sample for one or more
spelling of a given RP vowel. For example, the
stereotype pronunciation for many spellings of
/ə/ is the phone [a], which is little deviant.
The spellings of /ɜ/, however, elicit [e.]
and [a.] to name two, as its deviant stereotypes
(Table 12).

Section 4
A COMPARISON

4.1 The seven vowel phonemes of RP which have
been the focus of Section 3 were referred to as
"problem vowels" in Kassulamemba's 'error analysis'
(1977). Although, as already pointed out in an
earlier section, this study is based upon a sample
with much the same background as Kassulamemba's,
its findings differ with those of the earlier
study. Kassulamemba's findings suggest that a
single phone is produced for each of the phonemes
tested, except /ə/. In contrast, the findings
presented in Section 3 reveal that the sample
possesses a large phonetic inventory for the same
seven vowel phonemes. For each of the seven vowel
phonemes, several phones are elicited under

Table 12
Stereotypes

Phoneme	Spelling	Stereotypes elicited
/ɜ/	bird herd heard word	85% [ɛ̞ˑ]
	ʲɑːɑ	95% [a̠ˑ]
/ʊə/	poor usual pure	100% [ɥa̠] 100% [o̞o̟] 100% [i̞-wa̠]

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Table 13
Comparison of the findings of Kassulamemba (K)
and those of the present study (JBM)[10]

K's Findings	RP Phoneme	'JBM's F i n d i g s
i	/iː/	[e̞] most frequently, also [ɛ̞], [e̞i̟], [i̞], [ɪ̟], [a̠]
ʌ	/æ/	[e̞] or [ɛ] for 'a', [ei] for 'ai'
u	/ʊ/	[o̟] or [ů] for 'u', 'oo', 'ou', [ɔ] for 'o', [a̠] for 'u', [ɔo̞] for 'ou'
a	/ɜ/	[e̞ˑ] for 'er, ear, or, ir', [a̠] for 'ur', [ɔ̣] for 'our'
e	/eɪ/	[e̞ˑ] for all spellings, also [e·ɪ̟] for 'ei, ey, ay', [i̞] for 'ea'
ɔ	/əʊ/	[ɔ̣] generally, also [ɔ̣o̟] for 'ou, ow'
ʌ a ɒ ɔ	/ə/	[a̠] most frequently [e̞] for 'e, a, ai, io, er' [i̞] for 'ir' [ɔ̣] for 'or, oar, ou, o', vowel + r/1 [ɥ] for 'u, ou'

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differing circumstances, although one or two of
these are more frequently heard for that phoneme.
The phonetic variants elicited were generally
predictable from the spellings presented for a
given phoneme. They tended to be the result of analogy
spelling-pronunciation and stereotype pronunciation.
The two findings are juxtaposed for easy comparison
in Table 13.

Section 5
CONCLUSION

5.1 It has been demonstrated at length for the
seven vowel phonemes focussed upon in this paper,
and briefly for the remaining 13, that the sample
did not produce a small list of phones for RP vowel
phonemes. When analysed with some precision, the
pronunciations elicited from a Tanzanian speaker of
English shows a rich inventory of phones produced
for English vowels. This, therefore contradicts such
earlier research as Kassulamemba's which suggests
that only a limited list of phones is elicited
for RP vowel phonemes from a sample similar to that
on which this study is based. However, none of
the diverse phones elicited was a central vowel.
The nearest to a central vowel was a centralized
front or back vowel.

5.1.2 The rich phonetic inventory of elicited
phones is not distributed systematically with
respect to the vowel phonemes of RP, unlike that
of the native speaker. Compared with the description
of RP vowel phonemes and their realization by the
native speaker, the elicited pronunciation is
generally deviant. The variants elicited for
each phoneme differ significantly from those
of the native speaker of RP for corresponding

phonemes. This therefore corroborates suggestions
put forward in previous literature on spoken English
in Tanzania - that its pronunciation is deviant
from RP (which is the official target for
pronunciation teaching).

5.1.3 The findings presented in Section 3 also
verify the hypothesis advanced at the beginning of
the study: that the deviance (reported in previous
literature and corroborated by this study) is
probably related in certain ways to spelling. It
has been shown that the distribution of the phones
elicited for each phoneme is generally predictable
from the spellings presented for it. Normally,
for any given spelling of a given phoneme, one or
two phones were most frequently elicited. These
seemed to be the result of one of three tendencies:
(a) analogy, (b) spelling-pronunciation, and
(c) stereotype pronunciation. The first frequently
leads to a non-deviant pronunciation, but more
frequently to a deviant one. The second, as a rule,
leads to deviant pronunciation. The last tendency
results in both non-deviant and deviant phones.
If the findings attribute the deviance in
pronunciation primarily to spelling, they do not
exlude other causes - such as those suggested in
earlier literature (1.1).

5.2 More studies are required for a better and
more complete understanding of spoken English in
Tanzania. Consonant pronunciation is not expected
to produce any startling results. Only the
phonemes /ʒ/ (and perhaps /r/ and /l/) are likely
to produce significantly deviant phones. Therefore,
there remains a study on RP sounds in sequence, and
another one on the rhythm of connected English

speech and intonation. Apart from the vowels,
these are areas in which the greatest degrees of
deviance could be elicited. In a future study,
the sample ought to be made more inclusive to
represent different categories of Tanzanian speakers
of English. Such a relatively more comprehensive
study is a prerequisite if the teaching and learning
of English in Tanzania is to be enhanced by making
it more meaningful and realistic to its speakers.

5.3 The primary role of spelling in the
pronunciation of English vowels by Tanzanian speakers
is doubtless due to overdependence on spelling for
the pronunciation of English vowels. The
overdependence on spelling is, in turn, due to too
much emphasis upon the visual medium rather than
the aural-oral medium in the teaching and learning
of English in Tanzania. There is too little spoken
English in the learners' environment within as well
as outside the school. Reading and writing are
therefore the main skills acquired with some
proficiency. There is a need to increase drastically
the opportunity for learners to hear as much spoken
English as possible, and also to encourage them to
speak English as much as possible. This not only
means that the opportunity of the English class
must be maximised.[11] There is also an urgent
need to simulate an aural-oral English environment
outside the English class.[12] But by far the most
crucial step is to choose the most rational and
realistic target for spoken English in Tanzania;
once such a choice is made (be it the retention
of RP or otherwise), it is necessary to stick to
it with all possible rigor.[13] That entails a
genuinely adequate preparation of the teachers

who go to the Colleges of National Education to teach
future teachers of English in schools.[14] Finally,
from the findings of this study, it is imperative
that the beginning of English in the Primary schools
be delayed (at present in the first year) to distance
it from the beginning of the reading and writing
skills - introduced in Swahili in the first year.[15]
All this is tied to the fact that Tanzania still needs
and will continue to need English - just as other
nations of the world do - not only for its
interaction with the outside world, but also for many
of its development endeavours. The Government's
persistent efforts to revitalise the teaching of
English at all levels is witness to this.

NOTES

1 See Institue of Education 1974

2 It was therefore similar to the sample of
   Kasulamemba

3 These were termed 'experiments' because 'tests'
   seemed more appropriate for the error
   analysist, who evaluates and then makes
   value judgment as to 'correct' and
   'incorrect'.

4 Any part of the findings can be corroborated by
   making even casual observation of Tanzanian
   speakers of English (especially within the
   category of the sample).

5 Swahili for: 'we/us, you brother, bat, hen' respectively

6 For both /ɜ/ and /ə/ it is permissible to vary
   considerably the height of the tongue within
   the central position because, apart from /ʌ/
   in the fully open central position, there
   re no other vowels that come into
   ontrastiveness with /ɜ/ and /ə/.

7 The word 'colonel' was included in some experiments
   despite the fact that 'olo' as spelling for
   /ɜ/ occurs only in that word. However, the
   word was commonly known by the sample.

8 The findings presented here are from Experiment 4
   only.

9   The findings presented here are from Experiment
8. They are, however, quite representative
of all the results for this phoneme.

10   K's findings are reproduced here exactly as they
appear in the original (1977 p 31). JBM's
findings shown in Table 13 are a summary
of both those presented in Section 3 as well
as those for experiments not included in this
paper; the phones are presented in order
of frequency.

11   Many teachers of English in Tanzania are known
to conduct their classes bilinguslly,
presenting new material in English, but
giving the explanations in Swahili.

12   There was a time when s hools had a regulation
requiring pupils to speak English only,
within the school. If they flouted it,
they were punished. They learned and used
the language, albeit from fear of penalty.
That strategy cannot perhaps be invoked
today; But schools could, for instance,
oblige their pupils to speak no other
language but English at school on certain
days of the week or at certain times of
the day. The teachers should provide the
model.

13   At present, although the official target is
Received Pronunciation, no one really cares
what target the teacher is prepared in and
what he actually teaches in the classroom.
Since no local standard for spoken English
has been evolved in Tanzania, it is essential
we select one target dialect and stick to it.
If it is RP we choose to retain as target,
perhaps there is need to modify the
vowel system to make it rational and
realistic for Tanzanians, (in the light
of Section 3). Learners may not need to
be able to produce [əʊ] in ['rəʊd] or [ɔ]
in ['rɔd] and [ɒ] in ['rɒd] as distinctly
as the native speaker of RP. But they do
need to regognize that in English it is
necessary to recognise three different kinds
kinds of 'o' sound, as opposed to the single
one of Swahili and many of their own
languages. They must also be able to
produce three different 'o' sounds for the
native speaker's RP 14, 7, and 6. It is
not important what exact phonetic features
these will have, provided thay are not
confused with any of the remaining phonemes,
and they are distributed systematically.

This will enable them to recognise and;
produce distinctly without confusion:
/hɪ left ðə rɒd ɒn ðə rɒɒd wen ðə laɪən rɔd/.

14 With the introduction of U.P E. (Universal Primary
Education) the rate of increase in the number
of schools exceeds that of teachers. Standard
seven leavers are therefore being recruited
as a panacea for the shortfall in teachers.
Should these continue to be permitted
to teach English, the consequences are
easy to predict.

15 This has in fact happened already. The Ministry
of National Education has announced the
delaying of the beginning of English
until the third y ar of Primary School. (See
Daily News, 17th December 1979)

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