TENTATIVE KOBON PHONEMICS

by

Marcus and May Dawson
Summer Institute of Linguistics

August, 1969
TENTATIVE KOBON PHONEMICS

TABLE OF CONTENTS

1 LIST OF ABBREVIATIONS

2. INTRODUCTION

3 OUTLINE OF PHONEMES
   3.1. Consonants.
   3.1.1. Consonant Chart.
   3.1.2. Contrastive Consonantal Features Described.
   3.2. Vowels.
   3.2.1. Vowel Chart.
   3.2.2. Contrastive Vowel Features Described.

4 INTERPRETATION
   4.1. Nonsuspect Consonant Vowel Patterns.
   4.1.1. Nonsuspect Consonant Vowel Patterns for the Syllable.
   4.1.2. Nonsuspect Consonant Vowel Patterns for the Word.
   4.2. The Status of Items which may be either Consonant or Vowel
   4.3. The Status of Items which may be either Sequence or Unit.
   4.3.1. Vocoid Clusters.
   4.3.2. Aspirated Plosives.
   4.3.3. Homorganic Affricates.
   4.3.4. Palatalized Contoids.
   4.3.5. Labialized Contoids.
   4.3.6. Contoids preceded by [h].
   4.3.7. Plosives preceded by Homorganic Nasals.
   4.3.8. Affricates preceded by Homorganic Nasal.
DESCRIPTION OF PHONEMES

5.1. Consonants.
5.1.1. Phonetic Work Chart.
5.1.2. Description of Consonant Phonemes.
5.1.3. Suspect Pairs of Consonant Phonemes Contrasted.
5.2. Vowels.
5.2.1. Phonetic Work Chart.
5.2.2. Description of Vowel Phonemes.
5.2.2.1. Description of Vowel Phonemes except Schwa.
5.2.2.2. Description of Schwa.
5.2.3. Suspect Pairs of Vowel Phonemes Contrasted.
5.3. Suprasegmental Items.

CONTROVERSIAL ISSUES

DISTRIBUTION

7.1. The Syllable.
7.1.1. The Syllable Described.
7.1.2. Syllable Distribution.
7.2. Consonant Distribution.
7.2.1. Single Consonants.
7.2.2. Consonant Clusters.
7.3. Vowel Distribution.
7.3.1. Single Vowels.
7.3.2. Vowel Clusters.
7.3.3. Consonant Vowel Cooccurrence Restrictions.
3.

ORTHOGRAPHY

8.1. Orthography Chart.
8.2. Consonant Orthography.
8.3. Vowel Orthography.
8.4. English Words as Pronounced by Vernacular Speakers.
8.5. Sample Text.
LIST OF ABBREVIATIONS

The following abbreviations are used throughout the course of this paper.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>adj.</td>
<td>adjective</td>
</tr>
<tr>
<td>adv.</td>
<td>adverb</td>
</tr>
<tr>
<td>cv</td>
<td>consonant, vowel. This abbreviation is used when describing the consonant vowel patterns of the language. Thus pattern cvc = consonant, vowel, consonant, and so on.</td>
</tr>
<tr>
<td>imp.</td>
<td>imperative</td>
</tr>
<tr>
<td>/k/</td>
<td>The phonetic norm of phoneme /k/ is [kʰ]</td>
</tr>
<tr>
<td>pl.</td>
<td>plural</td>
</tr>
<tr>
<td>sing.</td>
<td>singular</td>
</tr>
<tr>
<td>trans.</td>
<td>transitive</td>
</tr>
<tr>
<td>——</td>
<td>When immediately following a verb form, this indicates that the form is a verb root, or &quot;infinitive&quot;. e.g. /'hau̯'g—/ [ˈhau̯'g—] &quot;to forget&quot;.</td>
</tr>
<tr>
<td>.</td>
<td>Syllable break. e.g. /'hru.e/ [ˈhru.e] &quot;some day previous to yesterday&quot; may be thus signified as being two syllables and not one.</td>
</tr>
</tbody>
</table>
According to Professor Wurm, Kobon is distantly related to the East New Guinea Highland stock of languages. The people of this language group inhabit the Schrader mountain ranges to the west of Simbai Patrol Post and north of the Jimi and Yuat rivers. The general language area is roughly 50 miles north of Mount Hagen. As far as is known there are approximately 3,500 speakers of Kobon and it seems that there may well be four or even five dialects of the language. The dialect considered here is a central one and is situated about 15 miles west of Simbai. It is spoken at Ainonk, Sanguvak and Salemp. These place names spelt in this way appear on some very large scale maps.

This phonemic paper is based upon language material contained in some 400 utterances, some of which were elicited and some of which were spoken in context. It may be assumed that the majority of these utterances are sentences, though no official grammatical analysis has yet been attempted. A limited amount of additional vocabulary was elicited to provide sufficient material for an adequate statement.

The amount of time spent in gathering the above corpus of data was about 5 months. The chief informant was Belendo, who is about 22 years old, and one of the few Kobons who have travelled outside their own tribal area. Whilst working on a plantation for two years he learnt some Pidgin English, but apart from this he has lived in the above mentioned dialect area for the whole of his life and is without any education.
3. OUTLINE OF PHONEMES

3.1. Consonants.

3.1.1. Consonant Chart.

<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Alveolar</th>
<th>Alveo-Palatal</th>
<th>Velar</th>
<th>Pharyngeal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>Unvoiced</td>
<td></td>
<td>tʃ</td>
<td>k</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Voiced</td>
<td>b</td>
<td>d</td>
<td>dz</td>
<td>g</td>
</tr>
<tr>
<td>Nasals</td>
<td></td>
<td>m</td>
<td>n</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>Fricatives</td>
<td></td>
<td>r</td>
<td>s</td>
<td></td>
<td>h</td>
</tr>
<tr>
<td>Laterals</td>
<td>Unflapped</td>
<td>l</td>
<td>ɭ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flapped</td>
<td></td>
<td></td>
<td></td>
<td>ɭ</td>
</tr>
<tr>
<td>Vibrant</td>
<td></td>
<td>r</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semivowels</td>
<td></td>
<td>w</td>
<td></td>
<td>j</td>
<td></td>
</tr>
</tbody>
</table>

3.1.2. Contrastive Consonantal Features Described.

The five general points of consonant articulation are bilabial, alveolar, alveo-palatal, velar, and pharyngeal. These are cross sectioned by eight different modes of articulation which are unvoiced stop, voiced stop, nasal, fricative, unflapped lateral, flapped lateral, vibrant, and semivowel. The maximum number of these modes of articulation to contrast at a given point of articulation is six, and this only takes place in the alveolar region of the mouth as is shown by the chart. The maximum number of points of articulation that can occur with a given mode of articulation is four, and it will be seen that this can only occur in the case of voiced stops or nasals.
3.2. Vowels

3.2.1. Vowel Chart

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i</td>
<td>i</td>
<td>u</td>
</tr>
<tr>
<td>Mid</td>
<td>e</td>
<td>e</td>
<td>o</td>
</tr>
<tr>
<td>Low</td>
<td>ai</td>
<td>a</td>
<td>au</td>
</tr>
</tbody>
</table>

3.2.2. Contrastive Vowel Features Described.

Vowels contrast as to whether they are front, central or back, and high, mid or low.
INTERPRETATION

In general, the procedure employed in this section is that first of all the nonsuspect cv patterns for the syllable and the word are listed together with examples. The various suspect items are then interpreted in the light of these patterns. Certain nonsuspect examples include a suspect vowel, but this has only been permitted where the environment renders the interpretation of the vowel self-evident.

4.1. Nonsuspect Consonant Vowel Patterns.

4.1.1. Nonsuspect Consonant Vowel Patterns for the Syllable.

cv  Initial  /meʰˈneʃ/  [meʰˈneʃ]  "two"
     Medial  /kʰeˈseŋə/  [kʰeˈseŋə]  "new"
     Final  /baˈdo/  [baˈdo]  "men married to sisters"

cvc Initial  /ˈʃelbin/  [ˈʃelbin]  "I have pulled"
         Final  /andzəˈmeŋ/  [andzəˈmeŋ]  "full"

v  Initial  /aˈga/  [aˈga]  "or"

vc  Initial  /amˈge/  [amˈge]  "an eye"
     Final  /Iuˈeʃ/  [Iuˈeʃ]  "he scooped out"

4.1.2. Nonsuspect Consonant Vowel Patterns for the Word

The following is an index of nonsuspect cv patterns for the word and is followed by examples.

1. cv   6. cv.cv.cv.cvc   11. v.cv.cv
2. cvc  7. v   12. v.cv.cvc
3. cv.cv  8. vc   13. v.cv.cv.cv
4. cv.cvc  9. v.cv   14. cvc.cvc
5. cv.cv.cv  10. v.cvc   15. vc.cv   16. vc.cv
9.

There are quite a number of patterns not listed here, which contain vowel sequences. For proof of the existence of vowel sequences in all positions in the word, see section 4.3.1.

Examples of nonsuspect word patterns.

1. cv /be/ [be] "the bush"
2. cvc /daŋ/ [dæŋ] "across"
3. cv.cv /'bana/ ['bane] "a relative through marriage"
4. cv.cvc /dæ'nam/ [dæ'nam] "the wind"
5. cv.cv.cv /dã.teŋ 'g—/ [dã.teŋ 'g—] "to tear, spoil"
6. cv.cv.cvc /dãmeleŋ / [dãmeleŋ] "a sunny period"
7. v /i/ [i] "here"

It is assumed here that a consonant cannot constitute a word.

8. vc /as/ [as] "a frog"
9. v.cv /a'na/ [æ 'na] "a shadow, spirit of a dead person"

10. v.cvc /a'pëa/ [æ 'pëa] "grandmother"
11. v.cv.cv /aɫa'pã/ [æla'pã] "a casuarina tree"
12. v.cv.cvc /amo'laŋe/ [æmo'laŋe] "three or more persons including a man and his father-in-law"

14. cvc.cvc /nua'nbin/ [nua'nbin] "I have seen, heard, understood"
15. vc.cv /am'ga/ [æm'ga] "an eye"
16. vc.cvc /am'pêl me'faith/ [æm'pêl me'faith] "a person together with her mother"
The Status of Items which may be either Consonant or Vowel. [i] is interpreted as /i/ when it occurs in a syllabic position and as /j/ when it occurs in a nonsyllabic position.

/i/ [i] "here"
/diʃ/ [diʃ] "you (sing.) run"
/'kaβi/ ["kʰaβi"] "a variety of pitpit"

[u] is interpreted as /u/ when it occurs in a syllabic position and as /ɻ/ when it occurs in a nonsyllabic position.

/u/ [u] "there"
/'kaβum/ ["kʰaβum"] "round" (adjective)
/mu/ [mu] "blue"

[j] is interpreted as /j/ when it occurs in a nonsyllabic position and as /i/ when it occurs in a syllabic position.

/ju/ [ju] "you (sing) throw, remove"
/jæm/ [jæm] "a clan"

[w] is interpreted as /w/ when it occurs in a nonsyllabic position and as /u/ when it occurs in a syllabic position.

/wur/ [wur] "a stick"
/a'wan/ [əw'wan] "a wing (of a bird)"

[h] is interpreted as a consonant in all environments.

/hel/ [hɛl] "a trap (for an animal)"
/we'halən/ [we'halən] "yellow"
4.3. The Status of Items which may be either Sequence or Unit

In considering this matter it is necessary that attention be focused on the subject of syllable boundaries. This is an important criterion which applies right throughout this whole section of items which may be either sequence or unit. If the item occurs, or potentially occurs across a syllable boundary, it is interpreted as a sequence. If, on the other hand, the item does not occur across a syllable boundary, the nonsuspect syllable patterns in each case cause the item to be interpreted as a unit.

4.3.1. Vocoid Clusters

The vocoid clusters [ai] and [au] are interpreted as units since they function as syllable nuclei, and according to the nonsuspect cv patterns they can only be interpreted as units in this position. They do not occur across syllable boundaries and so are never interpreted as sequences and thus it is completely safe to write them as [ai] and [au] respectively. This form of symbolization is used throughout the rest of this paper. The following words give an example of each of the units just considered:

/ʃai/ [ʃai] "a young girl"

/au'bi/ [au'bi] "father's sister"

Other vocoid clusters are interpreted as sequences since they only occur across syllable boundaries, and in this position the nonsuspect syllable patterns require that each member of the cluster be interpreted as a separate unit. Note the following word for example:

/lu'zi/ [lu.'zi] "a horizontal member of a wooden framework for a wall or fence"
12.

It is clear that the syllable structure can only be properly represented by interpreting [ue] as a vocoid sequence. Compare also the following words, some of which include vowel clusters which have already been interpreted as single units.

\[
\begin{aligned}
/kʰi.ˈeːləŋ/ & \quad [kʰi.ˈeːləŋ] & \quad "I am hungry" \\
/wi.ən/ & \quad ['wi.ən] & \quad "a mango" \\
/gi.ən/ & \quad ['gi.ən] & \quad "at right angles" \\
/hi.ˈt/ & \quad [hi.ˈt] & \quad "you (sing.) open" \\
/geiəˈuːleŋ/ & \quad [geiəˈuːleŋ] & \quad "a chattering noise" \\
/du.ˈambin/ & \quad [du.ˈambin] & \quad "I am breaking (transitive)" \\
/mo.ə/ & \quad ['mo.ə] & \quad "indeed, that is so" \\
/hru.ə/ & \quad ['hru.ə] & \quad "the day before yesterday or some previous day" \\
/wəhəi.ˈambin/ & \quad [wuhəi.ˈambin] & \quad "I am laughing" \\
/aɪ.ˈɪndʒ/ & \quad [aɪ.ˈɪndʒ] & \quad "good" (adj) \\
/aɪ.ən/ & \quad ['aɪ.ən] & \quad "a witch" \\
/lau.ˈambin/ & \quad [lau.ˈambin] & \quad "I am cooking" \\
/bau.ˈund/ & \quad [bau.ˈund] & \quad "tapioka"
\end{aligned}
\]

The above list of words contains various vocoid combinations which occur in the language, and it will be seen that there are never more than two vocoids in sequence and that this only takes place across syllable boundaries.

4.3.2. Aspirated Plosives

Voiceless aspirated plosives [pʰ] and [tʰ] occur word finally and are each interpreted as a unit since there are no non-suspect clusters of three consonants occurring in this position.

\[
\begin{aligned}
/aˈrəmb/ & \quad [əˈɾəmbʰ] & \quad "he is going" \\
/jənd/ & \quad [jəndʰ] & \quad "I"
\end{aligned}
\]
Voiceless aspirated plosive $[k^h]$ is interpreted as a unit in all environments because of:

(1) Non-occurrence across syllable boundaries.

(2) Nonsuspect word patterns.

/\kak/ $[k^h\text{ak}^h]$ "you (sing.) carry"
/\a'kai/ $[\text{a}e\,'	ext{k}^h\text{ai}]$ "variety of edible pitpit"
/\wəŋ/ $[\text{we}ŋ^h]$ "work" (see section 4.3.7. re this pattern).

4.5.3. Homorganic Affricates

[tʃ] and [dz] are each interpreted as a unit in all environments because of:

(1) Non-occurrence across syllable boundaries.

(2) Nonsuspect word patterns.

/tʃ/ $[tʃ]$ "milk"
/batʃ/ $[\text{bat}ʃ]$ "grandfather"
/dzoʃ/ $[\text{dzo}ʃ]$ "the tail of a bird"
/a'dzəd/ $[\text{a}e\,'\text{d}zə\,d]$ "something unwanted (as something in one's eye)"

4.5.4. Palatalized Contoids

[n] and [lj] are each interpreted as a unit in all environments because of:

(1) Non-occurrence across syllable boundaries

(2) Nonsuspect word patterns

/\nəl/ $[\text{\n}ə\text{l}]$ "fire, firewood"
/a'pā/ $[\text{\ae\,'p}^\text{\ae}]$ "one"
/a'map/ $[\text{\ae\,'mæp}]$ "mother's sister"
/'ljaŋ 'gā/ $[\text{'l}j\text{aŋ} '\text{g}^\text{ā}]$ "you (sing.) pull"
/'haŋjā/ $[\text{'hæŋj}^\text{ā}]$ "any edible leaf"

4.5.5. Labialized Contoids

[mw] and [nw] are each interpreted as consonant sequences
Because:

(1) They only occur across syllable boundaries with [w] occupying a nonsyllabic position.

(2) Nonsuspect word medial consonant clusters occur across syllable boundaries.

/əm'wel me'hau/ [əm'wel me'hau] "a man together with his father-in-law"

/ən'wel me'hau/ [ən'wel me'hau] "man and wife together"

1.3.6. Contoids Preceded by [h]

[hə] and [hᵊ] only occur word initially and each is interpreted as a unit because of nonsuspect word patterns.

/ˈlembe/ ['hʌmbe] "the name of a stream"

/ˈre/ [hᵊrᵊ] "a snake, lizard".

1.3.7. Plosives preceded by Homorganic Nasals

Plosives preceded by homorganic nasals may either be voiced or voiceless. When voiced the range of sound is [mb] [nd] and [ŋg] and then voiceless [mpʰ] [ntʰ] and [ŋkʰ]. Interpretation of the voiced range of sounds is straightforward as they only occur word medially across syllable boundaries. In this position the nonsuspect word patterns show them to be contoid sequences. [mpʰ], [ntʰ] and [ŋkʰ] are more difficult to interpret because they only occur in the word final position, and there are no nonsuspect consonant clusters occurring word finally.

The problem is that the voiceless plosives [pʰ], [tʰ] and [kʰ] are allophones of [b], [d] and [g] respectively and so the same treatment must of necessity be given to each range of sounds. There are two possible interpretations:

(1) [mb], [nd] and [ŋg] are sequences. Therefore [mpʰ], [ntʰ] and [ŋkʰ]
must also be sequences.

(2) \([mp^h], [nt^h] and [qk^h]\) are units. Therefore \([mb], [nd] and [qg]\) must also be units.

Solution (1) posits a consonant cluster in the word final position without any precedent for this. Solution (2) has to contend with consonant clusters occurring across syllable boundaries, and does so by interpreting them as single units. This is equally without precedent.

On the above basis the two arguments seem equal in value, so the first interpretation has been chosen as it appears to give the simpler analysis of the actual language. It means an economy of phonemes since \([m]\) and \([b]\), \([n]\) and \([d]\), \([q]\) and \([g]\) all occur individually in the language in any case. It is also felt that it will be simpler to teach the syllables of the language if this interpretation is used. Accordingly every supporting criterion is presented in the following pages in order to show the reasonableness of interpreting both ranges of sounds as sequences.

\([mb], [nd] and [qg]\).

These are each interpreted as contoid sequences for the following reasons:

(1) They only occur across syllable boundaries and so in the light of nonsuspect word patterns they are sequences.

\[
\begin{align*}
/am'bap/ & \quad [æm'bæp] & \quad "a\ bed;\ platform\ for\ a\ corpse" \\
/men'deφ/ & \quad [mən'deφ] & \quad "he\ or\ it\ remains,\ is\ present" \\
/kən'gaφ/ & \quad [kən'gaφ] & \quad "a\ variety\ of\ bean" 
\end{align*}
\]
16.

The following additional points further substantiate this conclusion:

(2) Each of the plosives in the above words takes stress as the onset of its own syllable.

(3) [m] and [b], [n] and [d], [q] and [g] all occur individually in the language.

(4) [m], [n] and [q] already occur in nonsuspect syllable final positions:

/\textipa{am'ge}/  \quad /\textipa{\textipa{æm'ge}}/  \quad "an eye"

/'renhe/  \quad /\textipa{\textipa{\textipa{h\textipa{r}enhe}}}/  \quad "ashes"

/\textipa{nəq'bin}/  \quad /\textipa{\textipa{nuq'bin}}/  \quad "I have seen, heard, understood"

(5) [b], [d] and [g] occur in nonsuspect syllable initial positions:

/\textipa{han'bin}/  \quad /\textipa{\textipa{heen'bin}}/  \quad "I slept"

/\textipa{am'dam}/  \quad /\textipa{\textipa{æm'dæm}}/  \quad "the string of a bow"

/\textipa{am'ge}/  \quad /\textipa{\textipa{æm'ge}}/  \quad "an eye"

(6) A morpheme beginning with [b] may be suffixed to a verb form ending in [m]:

/\textipa{naqnam}/  \quad /\textipa{\textipa{nuqnam}}/  \quad "I must see, hear, understand"

/\textipa{nəq'nambin}/  \quad /\textipa{\textipa{nuq'nambin}}/  \quad "I will see, hear, understand"

/\textipa{\textipa{a'rəm}}/  \quad /\textipa{æ '\textipa{rəm}}/  \quad "go (non final verb stem occurring as a free form)"

/\textipa{\textipa{a'rəmbin}}/  \quad /\textipa{æ '\textipa{rəmbin}}/  \quad "I am going"

These examples again emphasize that [mb] is a contoid sequence as the same morpheme can just as easily be added to another form of the verb. e.g.:

/\textipa{aɾə'bin}/  \quad /\textipa{æɾə\textipa{bin}}/  \quad "I have gone (i.e. I have been)"
By drawing parallels this also strengthens the case for [nd] and [ŋg] being consonant clusters. Thus it is held that these six points together afford ample evidence for interpreting [mb], [nd] and [ŋg] as contoid sequences, and that to interpret them as units violates the various criteria just considered.

[mpʰ], [ntʰ] and [ŋkʰ]

It will be noted that [pʰ] and [tʰ] and [kʰ] have already been interpreted as units (Section 4.3.2.). These units in turn form clusters with their homorganic nasals as above. These resultant clusters only occur word finally and there are no nonsuspect consonant clusters occurring in this position. Nevertheless [mpʰ], [ntʰ] and [ŋkʰ] are each interpreted as sequences of two contoids because [pʰ], [tʰ] and [kʰ] are the voiceless counterparts of [b], [d] and [g] which also occur following [m], [n] and [ŋ] respectively, as has been seen; and the significant thing is that when another morpheme is added to the word; [pʰ], [tʰ] and [kʰ] become [b], [d] and [g] respectively, and at the same time a syllable break is introduced between the newly formed [mb], [nd] and [ŋg] with [b], [d] and [g] each taking stress as the onset of the next syllable. This clearly seems to indicate that [m] and [pʰ] for example are two segments and not one. The same naturally applies to [n] and [tʰ], and to [ŋ] and [kʰ]. Compare the following pairs of words:

/'hɾemʰ/  ['hɾemʰ]  "you (sing.) cut"
/hɾemʰ'bambin/  ['hɾum'beəmbin]  "I am cutting"
/wend/  [wendʰ]  "you (sing.) hold"
/wən'damb/  [wendəmbʰ]  "he is holding"
/'haŋg/  [haŋgʰ]  (i) "you (sing.) speak" (ii) "a cucumber"
/haŋ'gəb/  [haŋ'gəb]  "he said"
4.3.8. Affricates Preceded by Homorganic Nasal.

The clusters comprising this groups of sounds are [ndz] and [ntʃ], of which it should be noted that [dz] and [tʃ] have already been interpreted as single units (section 4.3.3.). Both [ndz] and [ntʃ] are now subsequently interpreted as sequences of two contoids for the reasons outlined below.

[ndz]

The argument for separating [n] and [dz] is identical with points 1 – 5 of that used for [mb], [nd] and [ŋg] in section 4.3.7. The various points are enumerated again as follows:

(1) [ndz] only occurs across syllable boundaries and so in the light of nonsuspect word patterns it is a sequence:

/an'dzəŋ/  ['æn'dzəŋ]  "a door"

(2) The affricate in the above example takes stress as the onset of its own syllable. The existence of the syllable boundary is thus further accentuated.

(3) [n] and [dz] occur individually in the language.

(4) [n] occurs in nonsuspect syllable final positions:

/'hanbin/  ['hænbin]  "I slept"

(5) [dz] occurs in nonsuspect syllable initial positions.

/a'dzəɡ/  [æ 'dzəɡ]  "something unwanted (as something in one eye)."

[ntʃ]

[ntʃ], like [mpʰ], [ntʰ] and [ŋkʰ] only occurs in the word final position and there are no nonsuspect consonant clusters which occur word finally. There is clear evidence for separating [n] and [tʃ] however and the argument is very similar to that used for [mpʰ], [ntʰ] and [ŋkʰ] in section 4.3.7.
19.

(1) [n] and [t/] both occur separately in the language.

(2) [t/] following [n] is an allophone of [dz] and when another
morpheme is added to the word [nt/] becomes [ndz] with a
syllable break being introduced between [n] and [dz]. Compare
the following:

/ˈandz/   [ˈeəntʃ]   "you (sing) go for a walk"

/anˈdzəmbin/   [eənˈdzəmɪn]   "I am going for a walk"
5 DESCRIPTION OF PHONEMES

All sounds in Kobon are produced with egressive lung air and thus for the sake of brevity this fact is not mentioned again in describing individual sounds in the following subsections.

5.1. Consonants.

5.1.1. Phonetic Work Chart.

5.1.2. Description of Consonant Phonemes

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Allophone</th>
<th>Description and Occurrence with Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>/tʃ/</td>
<td>[ʧʃ]</td>
<td>Homorganic affricate comprising voiceless unaspirated alveolar plosive followed by a voiceless palato-alveolar grooved fricative. Occurs in all positions in the word, but when occurring word finally it is never preceded by /n/.</td>
</tr>
</tbody>
</table>

/ tʃ1 / [ tʃ1 ] "milk"
/ tʃe:tʃu 'g-/ [ tʃe:tʃu ʃg- ] "to be boiling (of water)"
/'nambeťʃ/ ['næmbiʧʃ] "a head (human or animal)"
/k/ [x] Voiceless velar flat fricative. Occurs intervocally only and is in free fluctuation with [kh] in this position.

/a'kai/ [ə 'xaɪ] "edible pitpit"

[kʰ] Voiceless aspirated velar plosive. Occurs in all positions in the word but when occurring word finally it is never preceded by [ŋ]. In the word medial position it fluctuates freely with [x].

/'kumī/ ['kʰumɨ] "a cloud"
/a'kai/ [ə 'kʰai] "edible pitpit"
/lāk/ [lākʰ] "at a little higher level"

/b/ [pʰ] Voiceless aspirated bilabial plosive. Only occurs word finally. Following /m/.

/'wanemboy/ ['wanempʰ] "a string bag"
/'səngemboy/ ['səŋempʰ] "a variety of edible leaf"

[b] Voiced bilabial plosive. Occurs word initially and medially.

/bá/ [bâ] "a man"
/aŋ'gabo/ [əŋ'gabo] "a branch of a tree"

/d/ [tʰ] Voiceless aspirated alveolar plosive. Only occurs word finally.

/'remend/ ['hr̥umuntʰ] "an ear"
/jand/ [jantʰ] "I"

[d] Voiced alveolar plosive. Occurs word initially and medially.

/dum/ [dum] "a mountain"
/ham'bada/ [hem'bade] "generic name for kunai"

/iz/ [dz] Homorganic affricate comprising voiced alveolar plosive followed by a voiced palato-alveolar grooved fricative. Occurs word initially and medially.

/dzoʔ/ [dzoʔ] "the tail (of a bird)"
22.

/dze'dzadzen 'g-/ [dze'dzadz'm 'g-] "to be black and repulsive (as of an old house now used as an urinal)"

[θ]/
Homorganic affricate comprising voiceless unaspirated alveolar plosive followed by a voiceless palato-alveolar grooved fricative. Only occurs word finally following /n/.

/'ná 'andζ/ ['ná 'ant] "you (sing.) go for a walk"

[ɣ]/
Voiced velar flat fricative. Occurs word medially and finally. In the word medial position it occurs:

(1) Intervocally where a verb morpheme commencing with a vowel is suffixed to a verb stem ending in a vowel.

(2) In other intervocalic environments where it is in free fluctuation with [g].

In the word final position it is preceded by a vowel.

/kawe'gambin/ [kʰawε'gəmbin] "I am whistling"

/a'ge/ [ae'ye] "exclamation of surprise, shock or delight"

/'ná 'ag/ ['ná 'aʃ] "you (sing) sharpen (trans.)"

[kʰ]/
Voiceless aspirated velar plosive. As a submember of /g/ it only occurs word finally after [ŋ]

/wəŋ/ [waŋkʰ] "work (noun)"

/haŋ/ [heŋkʰ] (1)"you (sing) speak" (2)"a cucumber"

[g]/
Voiced velar plosive. Occurs word initially and medially. In the word medial position it never occurs intervocally where a verb morpheme commencing with a vowel is suffixed to a verb stem ending in a vowel. With the exception of this non-occurrence [g] fluctuates freely with the few isolated cases of word medial [ɣ]. In addition to this it occurs frequently in the word medial position in a variety of environments.
Voiced bilabial nasal. Occurs in all positions in the word.

/mandz/ [mantʃ] "a sweet potato"
/a'men/ [æ mən] "the tail (of an animal)"
/dum/ [dum] "a mountain"

Voiced alveolar nasal. Occurs in all positions in the word.

/no/ [no] "a ridge"
/me'neə/ [me'nə] "ground, earth"
/nan/ [nən] "a thing, sickness"

Voiced alveopalatal nasal. Occurs in all positions in the word.

/pel/ [pəl] "fire, firewood"
/me'nə/ [mə'nə] "a big sickness"
/a'map/ [æ məp] "mother's sister"

Voiced velar nasal. Occurs medially and finally in the word.

/ˈpəzen/ [ˈpəzen] "a garden"
/miŋ/ [miŋ] "downstream"

Voiced bilabial flat fricative. Only occurs medially in the word.

/ba'ʃə/ [baʃə] "father"
/hale'si 'pambal/ [hæleʃi pəmbal] "they are playing"

Voiceless bilabial flat fricative. Occurs word initially and finally.

/ʃə're/ [ʃə're] "small"
/kəʃ/ [kəʃ] "a leaf"
Voiceless aspirated bilabial plosive. As an alphone of /b/ it only occurs word finally and is never preceded by /m/.

/əˈrɛpʰ/[əˈɾɛpʰ] "he has gone"

Apart from the example just given, voiceless aspirated plosives [ph] and [th] only occur word finally after /m/ and /n/ respectively, and it will be seen from section 4.3.2. that [ph] and [th] in these environments have been interpreted as submembers of /b/ and /d/ respectively.

The one exception is [aɾɛpʰ] "he has gone". Phonetically it would be completely natural to interpret this as /aˈɾɛb/ [əˈɾɛpʰ] "he has gone". Morphemically however this does not seem possible as every other occurrence of this morpheme ends in /ə/ which belongs to phoneme /ə/.

The only logical conclusion is that there is overlapping of phonemes in the case of this particular word and that in this special environment [ə] is manifested as [ph]. Thus [ph] in the word final position when not preceded by [m] is an allophone of [ə].

/s/ [s] Voiceless alveolar grooved fricative. Occurs in all positions in the word.

/'sɛnde/ [ˈsɛnde] "the sun"

/'wəsɛ/ [ˈwəse] "a sore"

/wəw/ [wəw] "a bark cap"

/h/ [h] Voiceless pharyngeal flat fricative. Occurs word initially and medially.

/hɛl/ [hɛl] "A trap (for animals)"

/wɛˈhalen/ [weˈhalen] "yellow"

/l/ [l] Voiced alveolar lateral. Occurs in all positions in the word except initially before [u].

/le/ [le] "a bone"

/iˈleə/ [iˈleə] "a stick"

/wəl/ [wəl] "a 'possum"

[hl] Voiceless pharyngeal flat fricative followed by a voiced alveolar lateral. Only occurs word initially before [u].
/lɪmba/    ['hlumbe]    "the name of a stream"

[1z] Voiced alveolar lateral fricative. Only occurs word finally.

/bɪlz/    [bɪlz]    "sugar"

/nəi'welz/   [nəi'welz]    "wife's sister"

[1j] Voiced alveopalatal lateral. Occurs initially and medially in the word.

/'lɪjəʊ  'gə/    ['lɪjəʊ  'gə]    "you (sing.) pull"

/a'ljamh/    [a  'ljamp]    "tongue"

[ɬ] Voiced alveolar flapped lateral. Occurs in all positions in the word.

/Iu'ambin/    [Iuɛmbin]    "I am scooping out"

/a'ɪɑ/    [aɪɑ]    "bamboo"

/goɪ/    [goɪ]    "a knuckle"

[hɾ] Voiceless pharyngeal flat fricative followed by a voiced alveolar flapped vibrant. Only occurs word initially.

/kram/    [kɾæm]    "a house"

/ɜru/    [ɜru]    "an axe"

[r] Voiced alveolar rolled vibrant. Occurs word finally only and is in free fluctuation with [ɾ] in this position.

/um'ber/    [um'ber]    "a neck, saddle, dip in a ridge"

/bɔr/    [bɔr]    "bracken"

[ɾ] Voiced alveolar flapped vibrant. Occurs word medially and is in free fluctuation with [r] in the word final position.

/i'ɾu/    [iɾu]    "many"

/jaur/    [jauɾ]    "a bird"
[w] Voiced rounded labiovelar semivocoid. Occurs word initially and medially.

/'womai/ ['womai] "a variety of bean"

/kawə'gambin/ [kʰawə'γambin] "I am whistling"

[j] Voiced spread palatal semivocoid. Only occurs word initially.

/jand/ [jantʰ] "I"

/ják/ [jákʰ] "at a little lower level"

Suspect pairs of Consonant Phonemes Contrasted. /b/ and /p/.

/ba/ [ba] "a steep slope"

/pa/ [pa] "you (sing.) strike"

/bə/ [bə] "a tool"

/pə/ [pə] "an arrow"

/au'bil me'hau/ [au'bil me'hau] "a child together with its father's sister"

/a'bil me'hau/ [a've'bil me'hau] "a father and his child together"

//au'bi/ [au'bi] "father's sister"

/ba'bi/ [ba'bi] "father"

/aŋ'gabo/ [aŋ'gabo] "a branch of a tree"

/han'gaβe/ [həŋ'gaβe] "blood"

/se'baibai g-/ [si'baibai g-] "to turn something (e.g. a mangle handle)"

/kə'βai/ [kʰə'βai] "a type of skin disease"

/d/ and /t/.

/daŋ/ [daŋ] "across there"

/'t'ange/ ['t'ange] "tobacco"

/dák/ [dákʰ] "across there"
/tʃi/ 'g/' ['tʃi 'g-'] "to be stuck (adhered) to some thing"

Set (3) /'didebu/ [didebu] "footsteps (the sound of someone walking)"

/tʃi/ [tʃi] "milk"

Set (4) /ham'bade/ [haem'bade] "generic name for kunai"
/tʃa'tʃal 'g/' [tʃa'tʃal 'g-] "to break something into little pieces"

Set (5) /am'dam/ [æm'dæm] "the string of a bow"
/tʃam'tʃa 'g/' [tʃam'tʃa 'g-] "to be fast (as a rock)"

Set (6) /sɛnd/ [sɛnt] "a yam"
/sɛndz/ [sɛntz] "a singing hat"

Set (7) /jand/ [jænt] "I"
/antz/ [antz] "husband's sisters"
/d/ and /dz/

Set (1) /de/ [de] "salt"
/'dze 'g-' ['dze 'g-] "to break (trans.)"

Set (2) /dam/ [dæm] "you (sing) carry away"
/dzam'bu/ [dzæm'bu] "a variety of bird".

Set (3) /dan/ [dæn] "across there (a reasonable distance away)"
/'dzandzə/ ['dzændzə] "a variety of bird"

Set (4) /ham'bade/ [haem'bade] "generic name for kunai"
/'dzadze/ ['dzadze] "a root"

Set (5) /an'dzambin/ [æn'dzambin] "I am walking about"
/an'dambin/ [æn'dambin] "I am making a mumu"

Set (6) /an'de/ [æn'de] "above"
/'mandza/ ['mandza] "important"
/tʃ/ and /dz/

Set (1) /tʃənə/ ['tʃənə] "the feathers on the wing tip"
/dzən/ [dzən] "upstream"
(2) /t'á 'gaə/ [t'á 'gaə] "it has stuck (adhered)"
    /dəz'á 'gaə/ [dəz'á 'gaə] "it has fallen down (and is in state of decay)". Used of fruit which has fallen from a tree.

(3) /t'á 'ænəge/ [t'á 'ænəge] "tobacco"
    /dəz'ænəgul/ [dəz'ænəgul] "a variety of tree gum"

(4) /t'á 'mætə 'g-/ [t'á 'mætə 'g-] "to be fast (like the proverbial rock)"
    /dæməz'æm 'p-/ [dæməz'æm 'p-] "to tie two pieces of rope together."

(5) /t'á 'raədəl/ [t'á 'raədəl] "a variety of tobacco"
    /dəz 'raədəl/ [dəz 'raədəl] "a variety of banana"

(6) /t'á 'ætəl 'g-/ [t'á 'ætəl 'g-] "to break so mething into little pieces"
    /dæz 'ætəl 'g- [dæz 'ætəl 'g-] "a root"

(7) /t'æk/ [t'æk] "an empty container; something worthless; a leg"
    /dæz 'baə/ [dæz 'baə] "a stone axe variety"

(8) /t'á 'təq/ [t'á 'təq] "a drum (for playing)"
    /dæz 'dzəl/ [dæz 'dzəl] "argumentative talk"

(9) /t'ətə 'g-/ [t'ətə 'g-] "to be boiling (of water)"
    /dæz 'dzə 'g- [dæz 'dzə 'g-] "to be heavy" (used of the eyes when a person cannot keep awake.

/k/ and /g/

(1) /ka/ [kʰa] "you (sing.) carry"
    /ga/ [ga] "he did"

(2) /kədə/) [kʰədə] "a leaf"
    /ɡəd/ [ɡəd] "he has done"

(3) /a'kəi/ [æ 'kəi] "edible pitpit"
    /a'ɡa/ [æ 'ɡa] "or"
| Set (4) | /ka/          | [ka]          | "oneself; separate" |
| Set (5) | /'kambe/     | ['kambe]     | "a stone"           |
| Set (6) | /'kaβi/      | ['kaβi]      | "a pitpit variety"  |
|        | /'gaβi/      | ['gaβi]      | "a star"            |

| Set (1) | /ka/          | [ka]          | "a bed"             |
|         | /ha/          | [ha]          | "an exclamation when going from a hot to a cold temperature or vice versa" |
| Set (2) | /kel/         | [kel]         | "you, your (plural)" |
|         | /hel/         | [hel]         | "a trap"           |
| Set (3) | /'kameŋ/      | ['kameŋ]      | "good, alright (of health)" |
|         | /'hameŋ'g-/   | ['hameŋ'g-]   | "to cry"           |
| Set (4) | /'kende g-/   | ['kende g-]   | "to plant a stick to help oneself to walk" |
|         | /'hande g-/   | ['hande g-]   | "to split firewood" |
| Set (5) | /a'kai/       | [a'kai]       | "edible pitpit"     |
|         | /we'hai/      | [we'hai]      | "to laugh"          |

| /n/ and /p/ |
| Set (1) | /næ/          | [næ]          | "you (sing.)"       |
|         | /pæ/          | [pæ]          | "child"             |
| Set (2) | /neŋ/         | [neŋ]         | "you (sing.) look, understand, hear" (imperative) |
|         | /neŋ/         | [neŋ]         | "you (sing.) eat, drink" (imperative) |
[an] /an/ "who?"
[ap] /ap/ "a female cousin; sister"
[han] /han/ "you (sing) sleep"
[hap] /hap/ "skin"
[man] /man/ "a louse"
[əˈmaŋ] /aˈmaŋ/ "mother's sister"

/iˈlen/ /iˈlen/ [iˈlen] "pain"
/iˈlɛn/ /iˈlɛn/ [iˈlɛn] "a stick"
[hon] /hon/ [hon] "we"
[hoŋ] /hoŋ/ [hoŋ] "close to"
[an] /an/ [an] "who?"
[æŋ] /æŋ/ [æŋ] "the middle"
[əˈna] /aˈna/ [əˈna] "shadow"
[əˈna ɡ-/] /aˈna ɡ-/ [əˈna ɡ-] "to be loose; to make a noise"
[ban] /ban/ [ban] "which man?"
[baŋ] /baŋ/ [baŋ] "a variety of frog"

/p/ /p/ and /ŋ/
[əp] /ap/ [əp] "female cousin; sister"
[æŋ] /æŋ/ [æŋ] "the middle"
[əmˈbaŋ] /amˈbaŋ/ [əmˈbaŋ] "a table, platform"
[əmˈbaŋ] /amˈbaŋ/ [əmˈbaŋ] "the name of a river"
[baŋ] /baŋ/ [baŋ] "a roof"
[baŋ] /baŋ/ [baŋ] "one side (of something with two sides)"
[heŋˈɡaŋ] /haŋɡəˈpaŋ/ [heŋɡəˈpaŋ] "a mosquito"
[ɡiˈpaŋ] /ɡeˈpaŋ/ [ɡiˈpaŋ] "let him shut (third person imp)"
Set (5) /a'map/ [ɔə'mɛɲ] "mother's sister"
/wa'map/ [weə'mɛɲ] "let him bind up (third person imp)
Set (6) /me'na 'g-/ [ma'i'nə 'g-] "to be very sick"
/a(ŋa 'g- [ə'nə 'g-] (1) "to be loose"
(2) "to make a noise"
/ʃ/ and /w/
Set (1) /'əən 'g-/ ['uŋə 'g-] "to put on (clothes), to wear"
/wəŋ/ [wum] "feathers, fur"
Set (2) /'əəs 'g-/ ['uŋə's-'g-] "to be finished, used up"
/wəs/ [wus] "bark cap"
Set (3) /əəŋ/ [əəŋh] "together, with"
/wəŋ/ [weŋh] "work" (noun)
Set (4) /kai'barəm/ [kʰai'barəm] "weeds"
/nai'welj/ [nai'welz] "wife's sisters"
Set (5) /ba'ʃa/ [ba'ʃa] "father"
/'kawe — / [kʰawε —] "to whistle"
Set (6) /'jawe/ ['jawε] "yes"
/u'βen/ [u'βɛn] "the binding on the end of a bird arrow"
/l/ and /lj/
Set (1) /a'lamb/ [ə'lɛmpʰ] "he is shooting"
/a'ljamb/ [əe'lɛmpʰ] "tongue"
Set (2) /'hala/ ['hɛəlɛ] "in addition, more"
/'haljɛt/ ['hɛəlɛt] "edible leaves"
Set (3) /əe'lap/ [əe'lap] "it has fruited"
/əlja ɡɛp/ [əlja ɡɛp] "it is light" (not heavy)
Set (4) /am'wel me'hau/ [əmwel mehau] "a husband with his father-in-law"
/nai'welj/ [nai'welz] "wife's sisters"
Set (5)  /um'bel/  [um'bel]  "upstream" 
/báli/  [báli]  "sugar" 
/I/ and /l/ 
Set (1)  /a'land/  [ee'lanh]  "over the horizon" (sunrise or sunset) 
/a'veljamb/  [ee'ljamph]  "tongue" 
Set (2)  /a'laq/  [ee'laq]  "variety of 'possum" 
/a'ljange/  [ee'ljængæ]  "variety of tree" 
Set (3)  /sə'laq/  [sə'laq]  "to dam water, shut a door, block up a hole etc." 
/haljá/  [hæljá]  "edible leaves" (generic term) 
Set (4)  /jəm'bel/  [jəm'bel]  "very" (intensified) 
/báli/  [báli]  "sugar" 
Set (5)  /ke'seł/  [kʰe'seł]  "rubbish" 
/nai'welj/  [nai'welj]  "wife's sisters" 
/l/ and /I/ 
Set (1)  /a'laq/  [ee'laq]  "let him shoot" (3rd sing. imp) 
/a'laq/  [ee'laq]  "variety of 'possum" 
Set (2)  /jəm'bul/  [jəm'bul]  "we two planted" 
/jəm'bel/  [jəm'bel]  "very" (intensified) 
Set (3)  /lel/  [lel]  "strongly, quickly, well, hard (adverb) 
/lu'el/  [lu'el]  "horizontal timbers" (when making a framework for a wall or fence) 
Set (4)  /a'ljamb/  [ee'ljamph]  "he is shooting" 
/a'land/  [ee'lanh]  "over the horizon" 
Set (5)  /am'bal/  [ee'mbal]  "name of a river" 
/jam'bal/  [jəm'bal]  "bird of paradise"
/l/ and /r/

Set (1) /um'bél/  [um'bél]  "upstream"
       /um'bér/  [um'bér]  "neck, saddle, dip in a ridge"

Set (2) /a'lambin/  [ə 'læmbin]  "I am shooting"
              /a'rambin/  [ə 'ræmbin]  "I am going"

Set (3) /ðel/  [ðel]  "you (sing.) pull (kunai etc.) (imperative.)
       /ðer/    [ðer]  "always"

Set (4) /we'lim/  [wu'lim]  "place name"
             /we'ri/    [wu'ʁi]  "now"

Set (5) /rul/  [hʁul]  "a hole; steep place"
        /wur/   [wur]  "a stick"

Set (6) /'la'mbe/  ['hlumbe]  "the name of a stream"
              /'ra'mbe/  ['hʁumbe]  "area bordering on to some other object"

/I/ and /r/

Set (1) /ðe'i'a gæ'/  [ðe'ɪa gæ̞]  "it is shut, blocked up"
         /ðe'ri gæ'/  [ðe'ʁi gæ̞]  "it is black"

Set (2) /a'Iaq/  [æ 'ɪaq]  "variety of possum"
             /a'raq/    [æ 'ʁaq]  "let him go" (third person imp.)

Set (3) /'hauĩ g-/  ['hauĩ g-]  "to forget"
        /'jaur/    ['jaur]  "bird"

Set (4) /goĩ/  [goĩ]  "knuckle"
         /bor/  [bor]  "bracken"

Set (5) /jum'beĩ/  [jum'beĩ]  "very" (intensifier)
       /um'ber/  [um'beɾ]  "neck, saddle, dip in a ridge"

Set (5) /ɪu/  [ɪu]  "you (sing.) scoop out"
         /'ru/  [hʁu]  "an axe"
34.

Set (7)  γ̃'a +gamin/ [γ̃'a +gamin] "I am uncovering" (a mumu)
  /'ru' gamin/ ['ru' gamin] "I am cutting"
36.

2.2 VOWELS

2.2.1. Phonetic Work Chart

2.2.2. Description of Vowel Phonemes

2.2.2.1. Description of Vowel Phonemes except Schwa

<table>
<thead>
<tr>
<th>phoneme</th>
<th>Allophone</th>
<th>Description and Occurrences with Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i/</td>
<td>[i]</td>
<td>Voiced close front spread vocoid. Occurs in all positions in the word.</td>
</tr>
<tr>
<td></td>
<td>/i'ru/</td>
<td>[i'ɾu] &quot;many&quot;</td>
</tr>
<tr>
<td></td>
<td>/himp/</td>
<td>[himpʰ] &quot;belly; name; emotions&quot;</td>
</tr>
<tr>
<td></td>
<td>/'kumi/</td>
<td>[kʰumi] &quot;cloud&quot;</td>
</tr>
<tr>
<td>/e/</td>
<td>[ɛ]</td>
<td>Voiced half-open front spread vocoid. Only occurs word medially. [ɛ] also occurs word medially but the two allophones fluctuate with each other in this position and are never in contrast.</td>
</tr>
<tr>
<td></td>
<td>/kel/</td>
<td>[kʰɛl] &quot;you, your (plural)&quot;</td>
</tr>
<tr>
<td></td>
<td>/ra'lemb/</td>
<td>[hɾɛə'lembʰ] &quot;eight&quot;</td>
</tr>
<tr>
<td>[æ]</td>
<td></td>
<td>Voiced half-close front spread vocoid. Occurs in all positions in the word. It fluctuates and never contrasts with [ɛ] in the word medial position.</td>
</tr>
<tr>
<td></td>
<td>/lel/</td>
<td>[lel] &quot;well, hard, quickly&quot; (adverb)</td>
</tr>
<tr>
<td></td>
<td>/me'leθ/</td>
<td>[mu'leθ] &quot;dry&quot;</td>
</tr>
</tbody>
</table>
/a/  [æ] Voiced open front spread vocoid. Occurs in all positions in the word but only in the following environments:

(a) In unstressed syllables.
(b) Following /h/ when [æ] is interconsonantal.
(c) Occasionally in free fluctuation with [a] when preceding a nasal.

/a'ga/  [æ'ga] "or"
/'halu/  ['hælu] "thigh"
/a'laŋə/  [æ'laŋə] "breadfruit"

[a] Voiced open central spread vocoid. Always occurs in a stressed syllable or following /h/.

/kaŋ'gaŋ/  [kʰæŋ'gaŋ] "type of bean"
/ba'ge/  [ba'ge] "a white sign"

/o/  [o] Voiced half close back rounded vocoid. Only occurs word finally and is in free fluctuation with [o] in this position.

/øe'ro/  [øe'ɾo] "small"
/øo/  [øo] "ripen; split apart"

[ɔ] Voiced half-open back rounded vocoid. Occurs medially and finally in the word and is in free fluctuation with [ɔ] in the word final position.

/me'mon/  [mu'mon] "an earthquake"
/ro/  [hoɾ] "a dividing mark across a garden"

/u/  [u] Voiced close back rounded vocoid. Occurs in all positions in the word.

/u'memh/  [u'mempʰ] "he has died"
/'bua/  ['bua] "father's brother"
/mu/  [mu] "blue"

/ə/  [ə] Voiced close central spread vocoid. Occurs medially and finally in the word.

/an'din/  [æn'din] "an end" (of some tangible object)
/əValidity  [ə'Validity] "casuarina tree"
37(a)

/aɪ/  [ai]  Vowel glide going from a voiced open central spread vowel to a voiced close front spread vowel. Occurs in all positions in the word.

/ai'gek/  [ai'gekʰ]  "how much?"
/kai'ʁarəm/  [kʰai'ærəm]  "weeds"
/ka'i'ai/  [kʰæi'ai]  "a flower"

/u/  [au]  Vowel glide going from a voiced open central spread vowel to a voiced close back rounded vowel. Occurs in all positions in the word.

/au'ljəŋg/  [au'ljəŋgʰ]  "a tadpole"
/a'ŋauŋ/  [æŋauŋ]  "a scar"
/me'haŋ/  [me'haŋ]  "two"
### Description of Schwa

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Allophones</th>
<th>Description and Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ᵰ]</td>
<td>Voiced lowered and centralized close front spread vocoid. Occurs medially and finally in the word.</td>
<td></td>
</tr>
<tr>
<td>[ʉ]</td>
<td>Voiced lowered and centralized close back rounded vocoid. Occurs medially in the word.</td>
<td></td>
</tr>
<tr>
<td>[æ]</td>
<td>Voiced half-close central spread vocoid. Occurs medially and finally in the word.</td>
<td></td>
</tr>
</tbody>
</table>

Factors governing the occurrence of the above allophones are somewhat involved and are considered below. It is first shown that [ᵰ] and [ʉ] are joint allophones and then in turn it is proved that they are allophones of schwa. The analytical observations are based on interconsonantal occurrences of the three allophones in question. It is then shown that the word final occurrences of schwa and its allophones are governed by the same principles.
Silence for Combining [.] and [u] as Joint Allophones

Certain predominant consonants exert their own characteristic assues upon schwa either influencing it towards [.] or towards [u] the case may be. Each of these consonants is listed in the appropriate column below together with its range of influence over consonants exerting opposing pressures.

[.]

palatal - over all other sounds except /w/. Note however that the verb "to eat" is an exception, e.g.,

/ˈµæəbin/ ['µɔəbin] "I have eaten"

/tʃ/, /dz/ - over all that they occur with.
/a/ - over all sounds except /w/ and /a/.

[u]

/i/ - over all other sounds.
/o/ - over all except palatal, though note the exception above.
/m/ - over all except palatal and /s/.

To say for example that /w/ is over all other sounds does not mean that schwa will be manifested as [u] whenever it occurs adjacent to /w/. Under circumstances to be considered later schwa may be manifested as schwa or [u] in this position. What is meant by /w/ being over all other sounds is that there is no sound in the opposite column, headed to which can exert pressure upon a schwa contiguous to /w/ sufficient to cause that schwa to be manifested as [.].

Conversely the same is true in the case of /s/ for example. With the exceptions of /w/ and /o/ there is no sound in the [u] column which can exert pressure upon a schwa adjacent to /s/ sufficient to
cause that schwa to be manifested as [u] though the Schwa may still be manifested as [i] or Schwa in such a position.

Other alveolars and bilabials also exert their pressures upon schwa but these pressures seem to be of approximately equal value and are not predominant. Alveolars include /l/, /l/, /n/ and /r/ and influence schwa towards [i]. Bilabials include /b/ and /p/ and influence schwa towards [u]. Velars /k/ and /g/ also naturally tend to influence schwa towards [u] and their influence may be quite strong.

In addition to the above mentioned influences, schwa is also influenced by neighbouring vowels and possibly even consonants other than those which are contiguous.

When one consonant is exerting opposing pressure against another consonant additional vowel pressure on either side of the scale can quite often be the deciding influence as to what the final manifestation of schwa shall be. In the following examples the direction of this influence is indicated by arrows:-

/'nembi/  ['nəmbi]  "a woman"
/'bərəŋ/  ['bərəŋh]  "an armband"

It is quite plain throughout that conditioning factors are responsible for the occurrences of [i] and [u]. An exception however is the word /'gəlɡəl/  ['ɡəlɡəl]  "fear". One would expect it to be /'ɡəlɡəl/  ['ɡəlɡəl]  but such is not the case. The other exception which has already been mentioned is the word /ɡəŋ-/  [ɡəŋ-]  "to eat".

Thus it cannot be claimed that there are no exceptions to the above rules re consonant pressure, but for practical purposes they sufficiently indicate that the occurrences of [i] and [u] are
predictable and mutual exclusive and thus [i] and [u] are allophones of the same phoneme.

EVIDENCE FOR COMBINING [i] AND [u] AS SUBMEMBERS OF SCHWA

It was earlier stated that [i] and [u] are in turn submembers of schwa and evidence substantiating this further conclusion is now considered.

The first thing to do is to look again at the ranges of consonants influencing schwa towards [i] and [u] respectively. It is important here to understand that they do not always produce the effects just outlined. They have greater or lesser tendencies in this direction but sometimes these tendencies may not materialize, and in such a case one finds the occurrence of schwa. There are various reasons as to why this may be the case:

1. There may be free fluctuation between schwa and [i] or schwa and [u]:

/peŋ/ [p̥eŋʰ] "water" /weŋ/ [weŋ] "feathers, fur, hair"

/peŋ/ [p̥eŋʰ] "water" /weŋ/ [weŋ] "feathers, fur, hair"

2. There may be neutralization between consonants exerting opposing pressures upon schwa. This neutralization may be complete or just sufficient to allow schwa not to be perturbed to [i] or [u].

It should be said here that the schwa allophone is regarded as the norm, or basic or central member of the phoneme. This is seen from the fact that schwa may be perturbed in the directions of [i] or [u], and in certain environments be in free fluctuation with either. It clearly occupies the central position. Furthermore one does not normally get free fluctuation between [i] and [u], and this lack of fluctuation is exactly what one would expect to find
41.

ith special sets of conditioning factors coming into operation
in the case of either manifestation. Examples of opposing forces
neutralized are as follows:

\[ \text{um'bes/ \ [e m'bes]: "tongs" /tʃæŋ/ \ [tʃæŋh]: "empty cont-} \\
\text{ainer, worthless, useless"} \]

\[ \text{pëndz/ \ [pëntʃ]: "singsing hat" /um'bel/ \ [um'bel]: "upstream"} \]

Stress may also be an influencing factor. Lighter stress seems
to make little or no difference even though it may be primary as
far as the word is concerned. Heavy stress on the other hand may
completely overrule other conditioning factors so that sounds which
would otherwise be manifested as [\_\_] or [\_\_] are reduced to schwa.
The reason for this is because heavy stress is accompanied by extra
lengthening of the vowel concerned, and this lengthening in turn
causes [\_\_] or [\_\_] to revert to schwa. It is fairly clear from the
very nature of their pronunciation that [\_\_] and [\_\_] must be compar-
atively short vowels, whereas schwa on the other hand is much more
flexible and may be either long or short. Thus an [\_\_] or [\_\_] heavily
stressed and so lengthened, becomes a schwa.

By analogy it is possible that the speed at which an utterance
spoken could influence the quality of variable schwa, but I am not
able to cite any specific instances of this.

Examples of stress causing schwa to remain schwa in otherwise
similar environments are as follows:

\[ \text{wæŋ/ \ ['wæŋh]: "work" (noun) /ʃæŋ/ \ ['ʃæŋ]: "it has happened"} \]

\[ \text{kæŋ/ \ ['kæŋ]: "leaf" /bæŋ/ \ [bæŋ]: "one side" (of same-} \\
\text{thing with two sides"} \]

That stress really is the conditioning factor here may be further
demonstrated by the following pair of words where the root is the same
in each case:

/ŋɛː'bin/ [ŋuː'bin] "I understand, see, hear"

/'ná ˈneʃ/ [ˈná ˈneʃ] "you (sing) understand, see, hear" (imp)

Further evidence in support of the fact that [v] and [u] are developed or perturbed from schwa is that one may have various degrees of intermediate sounds between [v] and schwa and [u] and schwa. The quality of an intermediate sound relative to these fixed points is determined by the degree of perturbation involved.

It is frequently difficult to know to which fixed point a given sound should be ascribed. Sometimes it may be heard as one thing and sometimes as another. This is different from free fluctuation in that one is hearing the "same" sound in different ways on different occasions.

It should also be mentioned that what has been said about medial schwa is similarly applicable to schwa occurring as a consonant release at the end of a word. For example, compare the following two words:

/'mændze/ [ˈmandzə]: "big, important"

/'hændze/ [ˈhændzə]: "the spirit of a deceased person"

It is apparent here that the character of the previous vowels is responsible for the way in which final schwa manifests itself.

Note also the following utterance:

/'pɛl ˈhremb ˈdɛ ˈɡá/ [ˈpɛl ˈhɛmbə ˈdə ˈgə] firewood cut break do i.e. "you (sing) chop up some firewood" (imp)

It is clear that consonantal influence is crossing one of the above word boundaries and conditioning schwa accordingly. Such consonantal influence is reduced somewhat however, when it crosses such boundaries.
Differing combinations and degrees of pressure and counter pressure have necessitated a somewhat lengthy explanation as to the occurrence of the allophones of schwa. Because of these very combinations of pressure it has been a little difficult in places to obtain examples illustrating one particular kind of pressure which is not involved at one and the same time with pressure of another type. Thus there may be a certain amount of overlapping of these influencing factors in the examples which have been cited.

A further interesting observation is that the schwa phoneme may also manifest itself as [æ]. This takes place in unstressed syllables and is due to vowel harmony. Note the following examples:

/kæ'galu/ [kʰæ'galu] "spider"
/kæ'lamh/ [kʰæ'lamh] "it is laying (an egg)"
/au'ambɛn/ [au'æmbeɛn] "you are coming" (used as a form of greeting)

With the foregoing in mind we now turn, as previously indicated, to give a few examples of occurrence of the allophones of schwa.

/æ/ [æ] Occurs medially and finally in the word.
/'weljæ/ ['wuljæ] "a shell" (generic name)
/'handze/ ['hændzɛ] "the spirit of a deceased person"

[u] Occurs medially in the word.
/'sɛndɛn/ [ˈsʌndɛn] "ten"

/ɛ/ Occurs medially and finally in the word
/me'nɛn/ [mɛ'nɛn] "ground, earth"
/wɛ'he/ [wɛ'hɛ] "no!" (denotes refusal)
5.2.3. Suspect Pairs of Vowel Phonemes Contrasted.

/i/ and /e/

Set (1) /au'i/ [au'i] "here"

Set (2) /'kaβi/ [kʰaβi] "pitpit"

Set (3) /si/ [si] "particle" indicating an action to be contrary to the accepted norm of behaviour

Set (4) /'wese/ [wuse] "a sore"

Set (5) /nem'bi/ [num'bi] "woman"

Set (6) /himh/ [himpʰ] "belly; name; emotions"

/a/ and /u/

Set (1) /ba/ [be] "the bush"

Set (2) /ke/ [kʰe] "separate; myself, yourself etc." (emphatic)

Set (3) /meŋ/ [meŋʰ] "tooth"

Set (4) /həl/ [həl] "a trap"

/hala/ [hələ] "more"
45.

Set (5) /ˈbana/ ['bane] "a relative through marriage"

/ˈbama/ ['bamæ] "husband's father-in-law or any of his father-in-law's brothers"

Set (6) /aŋˈgel/ [əŋˈɡɛl] "whole; unbroken; altogether"

/aŋˈgaʃ/ [əŋˈɡaʃ] "claw; finger; toe"

/a/ and /o/

Set (1) /ma/ [ma] "foot"

/mo/ [mo] "underneath"

Set (2) /əˈna/ [əˈna] "shadow"

/no/ [no] "a ridge, spur"

Set (3) /əa/ [əa] "you (sing.) strike"

/əo/ [əo] "ripe, split apart"

Set (4) /ral/ [hɾal] "you (sing.) cut, gather, pull, collect"

/rol/ [hɾol] "tomorrow, yesterday"

Set (5) /han/ [hæn] "you (sing.) sleep"

/hon/ [hon] "we"

/o/ and /u/

Set (1) /əo/ [əo] "ripe"

/əu/ [əu] "you (sing) break" (firewood)

Set (2) /ro/ [hɾo] "dividing mark across a garda"

/ru/ [hɾu] "an axe"

Set (3) /mo/ [mo] "underneath"

/mu/ [mu] "blue"

Set (4) /rol/ [hɾol] "yesterday, tomorrow"

/rul/ [hɾul] "hole, steep place"

Set (5) /aŋˈgalo/ [əŋˈɡalo] "the part in front of the ear"

/kəŋˈgalu/ [kʰəŋˈgalu] "a spider"
\(/u/\) and \(/\&/\)

Set (1) /\(\text{mu}/\) \([\text{mu}]\) "blue"

/\(\text{má}/\) \([\text{má}]\) "taro"

Set (2) /\(\text{ru}/\) \([\text{hru}]\) "an axe"

/\(\text{rā}/\) \([\text{hřa}]\) "you (sing.) cut"

Set (3) /\(\text{tʃ̚e'tʃ̚u} \ 'g-/\) \([\text{tʃ̚itʃ̚u} \ 'g-]\) "to be boiling (of water)"

/\(\text{tʃ̚om'tʃ̚a} \ 'g-/\) \([\text{tʃ̚om'tʃ̚a} \ 'g-]\) "to be fast (as a rock)"

Set (4) /\(\text{keʃ'galu}/\) \([k^h\text{eʃ'galu}]\) "spider"

/\(\text{waʃ̚}/\) \([\text{waʃ̚}]\) "name of a river"

Set (5) /\(\text{wuʃ̚e}/\) \([\text{wuʃ̚e}]\) "together; fat; a leaf"

/\(\text{bālʃ̚}/\) \([\text{bālʃ̚}]\) "sugar"

\(/\&/\) and \(/i/\)

Set (1) /\(\text{ɡaʃ̚i}/\) \([\text{ɡaʃ̚i}]\) "star"

/\(\text{kaʃ̚i}/\) \([\text{kʰaʃ̚i}]\) "pitpit"

Set (2) /\(\text{mā}/\) \([\text{mā}]\) "taro"

/\(\text{kumi}/\) \([\text{kʰumi}]\) "cloud"

Set (3) /\(\text{ʃ̚e'ɾ̚a}/\) \([\text{ʃ̚u'ɾ̚a}]\) "black"

/\(\text{we'ɾ̚i}/\) \([\text{wu'ɾ̚i}]\) "now"

Set (4) /\(\text{ba'ʃ̚i}/\) \([\text{ba'ʃ̚i}]\) "father"

/\(\text{haʃ̚e'bi}/\) \([\text{haʃ̚e'bi}]\) "play" (noun)

Set (5) /\(\text{bā}/\) \([\text{bā}]\) "man"

/\(\text{au'bi}/\) \([\text{au'bi}]\) "nephew and aunt together"

Set (6) /\(\text{niʃ̚}/\) \([\text{niʃ̚}]\) "you (object); he, him"

\(\text{kun'diʃ̚}/\) \([\text{kʰun'diʃ̚}]\) "landslide"

\(/ə/\) and \(/e/\)

Set (1) /\(\text{an'dzel}/\) \([\text{eən'dzel}]\) "a bird arrow"

/\(\text{an'dzel}/\) \([\text{eən'dzel}]\) "you (two) go for a walk" (imperative)
Set (2) /'sænən/  ['sænən] "angry"
    /'sæŋən/  ['ʃəŋən] "a type of grass or leaf"
Set (3) /nɛl/  [nɛl] "fire, firewood"
    /nɛl/  [nɛl] "clear (of sight)"
Set (4) /nɛl-/  [nɛl-] "to fetch"
    /nɛl-/  [nɛl-] "to fruit (of a plant)"
Set (5) /mɛl/  [mɛl] "good, well"; also expresses idea of attraction though this is not necessarily good
    /mɛl-/  [mɛl-] "to fill"
Set (6) /mɛŋ/  [mɛŋʰ] "tooth"
    /nɛŋ/  [nɛŋʰ] "water"
Set (7) /æn'de/  [æn'de] "I"
    /æn'de/  [æn'de] "above"

/l/ and /a/
Set (1) /a'ɾambin/  [æəˈɾambin] "I am going"
    /a'ɾambɛn/  [æəˈɾambɛn] "you (sing.) are going"
Set (2) /'sambi/  ['sambi] "variety of edible pitpit"
    /'kambe/  ['kʰambe] "a stone"
Set (3) /kɛn'diʃ/  [kʰɛn'diʃ] "a landslide"
    /mɛn'dep/  [mɛn'dep] "it remains, is present"
Set (4) /wɪm/  [wɪm] "a bow" (for shooting an arrow)
    /jɛm/  [jɛm] "you (sing.) plant"
Set (5) /hɪmʰ/  [hɪmpʰ] "belly; name; emotions"
    /sɛmʰ/  [sɛmpʰ] "darkness, night"
Set (6) /jɪf/  [jɪf] "ground, territory"
    /jɛp/  [jɛp] "me"
Set (7) /ˈmɪmor/  [ˈmɪmoɾ] "a variety of green beetle"
    /nɛm'bi/  [nɛm'bi] "woman"
\(48\).

\(\text{/a/ contrasts with /i/, but it should be noted that there is a slight overlap of phonemes here in that /i/ occurring interconsonantly after /j/ or /k/ and before a lateral or vibrant, tends to be manifested, as [i], e.g.}

\('/jæ\ 'jiru 'gæ/ [\'jæ\ 'jįrų 'gę̝] "I am tired"

\(/ji\/ [ji] "ground, territory"

\('/kʰr̥e̝p/ [kʰr̥e̝p] "weeds"

\(/a/ and /e/

\begin{align*}
\text{Set (1)} & /\text{mä}/ \quad [\text{mä}] "\text{downstream}"
\text{\quad /mę̝}/ \quad [\text{mę̝}] "\text{rain}"

\text{Set (2)} & /\text{nä}/ \quad [\text{nä}] "\text{you}"
\text{\quad /nę̝}/ \quad [\text{nę̝}] "\text{mountain}"

\text{Set (3)} & /\text{naŋä}/ \quad [\text{naŋä}] "\text{rope}"
\text{\quad /maŋä}/ \quad [\text{maŋä}] "\text{a lump, piece, heap}"

\text{Set (4)} & /\text{mä}/ \quad [\text{mä}] "\text{downstream}"
\text{\quad /dę̝}/ \quad [\text{dę̝}] "\text{upstream}"

\text{Set (5)} & /\text{pä}/ \quad [\text{pä}] "\text{a young lad}"
\text{\quad /pę̝}/ \quad [\text{pę̝}] "\text{finger}"

\text{Set (6)} & /\text{mä}/ \quad [\text{mä}] "\text{downstream}"
\text{\quad /mę̝'gan}/ \quad [\text{mę̝'gan}] "\text{hole, twelve" in body parts or counting system}"

\text{Set (7)} & /\text{ląmbąg}/ \quad [\text{ląmbąg}^h] "\text{a yellow variety of bird}"
\text{\quad /lę̝mbe}/ \quad [\text{lę̝mbe}] "\text{the name of a stream}"

\(/u/ and /e/}

\begin{align*}
\text{Set (1)} & /\text{mę̝'lu}/ \quad [\text{mu'lu}] "\text{nose}"
\text{\quad /mę̝'la}/ \quad [\text{mu'la}] "\text{a long way}"

\text{Set (2)} & /\text{am'bu \ g-/} \quad [\text{äm'bu \ g-}] "\text{to leave meat in a stone oven overnight}"
\text{\quad /am'be \ g-/} \quad [\text{äm'be \ g-}] "\text{to tread, step on}"

\text{Set (3)} & /\text{ę̝u}/ \quad [\text{ę̝u}] "\text{you (sing.) break}"
\text{\quad /ę̝e}/ \quad [\text{ę̝e}] "\text{arrow}"
\end{align*}
Set (4) /\mu/ [\mu] "blue"
/\ma'\l/ [\mu'\l] "nose"

Set (5) /\dzu/ [\dzu] "you (sing.) pull up, withdraw (something); rouse yourself"
/\dze'\gu/ [\dzu'\gu] "imported sing sing paint"

Set (6) /'\wul\j(e)/ ['\wul\j(e)] "together; fat; a leaf"
/'\wel\ja\g\a/ ['\wul\j\b\l\e] "generic name for shells"

Set (7) /\wul\la\b/ [\wu'\l\a\b] "a short distance"
/\we'\l/ [\wu'\l] "a hole"

/o/ and /œ/

Set (1) /\o/ [\o] "ripe, stripped of bark"
/\e/ [\ø] "arrow"

Set (2) /\no/ [\no] "a ridge, spur"
/\ne/ [\ne] "mountain"

Set (3) /\ho\q/ [\ho\q] "close to, relatively near"
/\he\q/ [\he\q] "outside"

Set (4) /\go\b/ [\go\b] "a handle"
/\e\o\b/ [\go\b] "it has happened"

Set (5) /'bado/ [bado] "men married to sisters"
/\de/ [\de] "salt"

Set (6) /\mol/ [\mol] "a hole"
/\mel/- [\mul] "to fill"

Set (7) /\go\l/ [\go\l] "knuckle"
/'kela\g\a\l/ ['k\he\l\a\g\l] "ordinary fowl"

Set (8) /\ma'mon/ [\mu'mon] "earthquake"
/\a'm\a'n/ [\e\a'm\a'n] "tail of an animal"

Set (9) /\mol/ [\mol] "a hole"
/'\ma'\l/ ['\mu\l] "a long way"
In the above contrasts between /ə/ and /a/ it may perhaps be noted that no contrast is shown between [o] and the schwa allophone [u]. This is because it would be possible to unite [o] and [u] as allophones of the same phoneme on the basis of their distribution. Such a solution would not be practicable however, and the need to demonstrate this fact is the reason why contrasts have just been shown between:

[œ] and [ø]
[œ] and [œ]
[œ] and [œ]

The following points should here be remembered:

1. [u] has already been interpreted as an allophone of schwa.
2. [o] has likewise been united with [œ].
3. (a) Both [o] and [œ] contrast in identical environments with schwa (with which [u] has been united).
   (b) Conversely [u] has been seen to contrast with [œ]

This is now illustrated diagramatically:

Circles indicate allophones already united and straight lines indicate contrasts which have been established. The dotted circle indicates the possible uniting of [œ] and [u] which is the subject under discussion.

It is clear that to interpret [u] as an allophone of [œ] would
mean dragging [o] away from [ɔ] and [u] away from schwa. This is clearly unacceptable because it is violating two already existing interpretation procedures and at the same time setting up an extra phoneme to no useful purpose. Therefore [o] and [u] which could otherwise be united are regarded as belonging to different phonemes.

/ai/ and /a/

| Set (1)  | /ai'gek/      | [ai'gekʰ]       | "how much?"          |
| Set (2)  | /wəhai'namb/  | [wəhai'nambʰ]   | "I will laugh"       |
| Set (3)  | /wai'mand/    | [wai'mandʰ]     | "a flying fox"       |
| Set (4)  | /βai/         | [βai]           | "a young girl"       |
| Set (5)  | /gai/         | [gai]           | "place here (relatively close to)" |
| Set (6)  | /lai/         | [lai]           | "on this side of"    |
| Set (7)  | /gə'mai/      | [gə'mai]        | "husband's mother-in-law" |
| /aw/ and /a/  |

| Set (1)  | /au'bil mə'hau/ | [au'bil mə'hau] | "a child together with its father's sister" |
| Set (2)  | /rau'nambin/   | [hrau'nambin]   | "I will buy" |

"exclamation of surprise, shock or delight"
"he is asleep"
"a flying fox"
"you (sing) strike"
"place here (relatively close to)"
"on this side of"
Set (3) /an'daul me'hau/ [ænˈdaʊl meˈhau] "two men married to sisters; two children with noses pierced at the same time etc"

/hænˈdal/ [hænˈdal] "the wind"

Set (4) /ˈhau̯ɬ ˈg-/) [ˈhau̯ɬ ˈg-] "to forget"

/jəˈhɑːl/ [jəˈhɑːl] "a place name"

Set (5) /hau/ [hau] "you (sing.) bite"

/ha/ [ha] "an exclamation when going from a cold temperature to a hot or vice versa"

Set (6) /daʊ/ [daʊ] "you (sing.) bring"

/da/ [da] "he carried"

Set (7) /lau/ [lau] "you (sing.) cook"

/la/ [la] "he put"

5.3. SUPRA-SEGMENTAL ITEMS

Impressions as to the phonemic status of tone, stress and length are so inconclusive that no attempt is made here to give anything other than a passing reference to them. In general it seems that stress occurring concurrently with length is phonemic but that tone as such is not phonemic. Intonation patterns have not been worked on.
6. CONTROVERSIAL ISSUES

It was felt that the most convenient way of dealing with controversial issues was to include each in its own appropriate section during the course of this paper. A solution has been found in each case and reference is made here to those sections where controversial issues are discussed. Thus the appropriate sections of the paper should be referred to in conjunction with the additional notes included below.

\[
[i], [u], [j], [w], [ai] \text{ and } [au]
\]

In section 4.2., it will be seen that \([i]\), \([u]\), \([j]\) and \([w]\) have been interpreted as vowels when they occur in a syllabic position and as consonants in a nonsyllabic position. Further to this \([ai]\) and \([au]\) have been interpreted as vowel glides. (section 4.3.1.).

From these facts it could be argued that \([i]\) and \([u]\) as members of \([ai]\) and \([au]\) are actually in nonsyllabic positions and should therefore be written as \([j]\) and \([w]\) respectively. This has not been done because such an interpretation would posit word final consonant clusters with insufficient warrant for doing so. Note the following word as an example:

\[
/\text{jaur}/ \quad [\text{jau}\text{r}] \quad "a \text{ bird}"
\]

\([u]\) cannot be written as \([w]\) here because there are no non-suspect consonant clusters occurring in the word final position. It is true that word final consonant clusters have been posited in sections 4.3.7 and 4.3.8 but the essential difference there is that all such clusters do potentially occur across syllable boundaries, and under this criterion one certainly cannot include other possible consonant clusters of which this cannot be said. Thus the best and completely natural interpretation is that \([ai]\) and \([au]\) are vowel units
Plosives and Affricates preceded by Homorganic Nasals.

It could possibly be argued that these are units and not sequences. The whole matter is fully discussed in sections 4.3.7 and 4.3.8. In addition it should be noted that trial pronunciations have been elicited in order to determine where the people themselves make the syllable breaks. Though not consistent throughout, the results did give general support to the analysis which has been made.

It is also interesting to observe that [b], [d], [g], [tʃ] and [dz] contrast with [mb], [nd], [ŋg], [ntʃ] and [ndz] respectively. Thus no economy of symbols would be possible orthographically even if [mb], [nd], [ŋg], [ntʃ] and [ndz] were interpreted as unit phonemes.

Word Initial [ʃ]

/ʃ/ is sometimes manifested as [ʃ] in the following word stems:

/'dani/  [′dani] or [′ʁani] "this here"
/'damu/  [′danu] or [′ʁamu] "that there"

This is the only case of word initial [ʃ] and even then it is not accepted by all speakers of the language. Further investigation will be carried out.
7 DISTRIBUTION

7.1. The Syllable

7.1.1. The Syllable Described

A syllable is a unit of potential stress placement and its nucleus is a single vowel or a vowel glide. It may optionally have a consonant onset or closure or both. The consonant onset and the non-word final consonant closure are always single consonants. The word final consonant closure may be either a single consonant or a sequence of two consonants.

7.1.2. Syllable Distribution

The various syllable patterns which occur are seen in the following chart, together with their positions of occurrence in the word. An example of each pattern is also included. (✓) indicates that the syllable does occur, but only in the form of a grammatical word.

<table>
<thead>
<tr>
<th>Syllable Pattern</th>
<th>Word Initial</th>
<th>Word Medial</th>
<th>Word Final</th>
<th>Examples of words with the same patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>cv</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>/mu/ [mu] &quot;blue&quot;</td>
</tr>
<tr>
<td>cvc</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>/nan/ [næn] &quot;a thing&quot;</td>
</tr>
<tr>
<td>v</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>/u/ [u] &quot;there&quot;</td>
</tr>
<tr>
<td>vc</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>/æŋ/ [æŋ] &quot;the middle&quot;</td>
</tr>
<tr>
<td>cvcc</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>/jænd/ [jæntʰ] &quot;I&quot;</td>
</tr>
<tr>
<td>vcc</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>/æntʃ/ [æntʃ] &quot;husband's sisters&quot;</td>
</tr>
</tbody>
</table>

It will be seen that patterns cvcc and vcc are never followed by any other syllable as in the word initial position they are always complete words in themselves. Taking this restriction into consideration the remaining possible combinations of two syllables are now indicated in the following chart.
Syllables which may follow syllables in the left hand column:

<table>
<thead>
<tr>
<th>cv</th>
<th>cvc</th>
<th>v</th>
<th>vc</th>
<th>cvcc</th>
<th>vcc</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

From the above chart the following additional restrictions become clear:

1. *v* only occurs word initially or following a *cv* syllable.
2. *vc* only occurs word initially or following a *cv* or *v* syllable.
3. *vcc* only occurs word finally following a *cv* or *v* syllable.

The only syllables which may be followed by themselves in a given word are *cv* and *cvc*, each of which may appear up to three times consecutively.

The number of syllables found to occur in a phonological word ranges from 1-6. A phonological word is a rhythm unit containing one or more syllables and one major stress placement. The following are some assorted examples of such words:

/da/   [de]    "salt"
/a'gamb/ [æ 'gæmbʰ] "he is sharpening"
/rau 'wulje Ɨɨ/ [hɾau 'wulji Ɨɨ] "you (sing.) wash (trans)"
/híd'gasəgəmbin/ [hɪd'gasəgəmbin] "I will not open"

7.2 Consonant Distribution

7.2.1 Single Consonants

The distribution of single consonants is as follows:
<table>
<thead>
<tr>
<th></th>
<th>Word Initial</th>
<th>Word Medial</th>
<th>Word Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>$t_f$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$k$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$b$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$d$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$dz$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$g$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$m$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$n$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$p$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$p$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$s$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$h$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$l$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$lj$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$f$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$r$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$w$</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$j$</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 7.2.2 Consonant Clusters

The following chart shows the consonant clusters which occur, together with their positions in the word.
Consonant Clusters

<table>
<thead>
<tr>
<th>Word Medial</th>
<th>Word Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>θd</td>
<td></td>
</tr>
<tr>
<td>θf</td>
<td></td>
</tr>
<tr>
<td>θ's</td>
<td></td>
</tr>
<tr>
<td>lb</td>
<td></td>
</tr>
<tr>
<td>lg</td>
<td></td>
</tr>
<tr>
<td>ln</td>
<td></td>
</tr>
<tr>
<td>mb</td>
<td>mb</td>
</tr>
<tr>
<td>md</td>
<td></td>
</tr>
<tr>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>mn</td>
<td></td>
</tr>
<tr>
<td>mp</td>
<td></td>
</tr>
<tr>
<td>mw</td>
<td></td>
</tr>
<tr>
<td>nd</td>
<td>nd</td>
</tr>
<tr>
<td>ndz</td>
<td>ndz</td>
</tr>
<tr>
<td>ndz</td>
<td></td>
</tr>
<tr>
<td>nh</td>
<td></td>
</tr>
<tr>
<td>nw</td>
<td></td>
</tr>
<tr>
<td>θb</td>
<td></td>
</tr>
<tr>
<td>θg</td>
<td>θg</td>
</tr>
<tr>
<td>θn</td>
<td></td>
</tr>
</tbody>
</table>

The word medial consonant clusters all occur across syllable boundaries. The horizontal lines indicate that the word final consonant clusters occur in the word medial position as well.
7.3. Vowel Distribution

7.3.1 Single Vowels

These occur as charted below:

<table>
<thead>
<tr>
<th></th>
<th>Word Initial</th>
<th>Word Medial</th>
<th>Word Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>e</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>a</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>o</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>u</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ã</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>e</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ai</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>au</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

7.3.2 Vowel Clusters.

The following chart shows the vowel clusters which occur, together with their positions in the word.

<table>
<thead>
<tr>
<th></th>
<th>Word Initial</th>
<th>Word Medial</th>
<th>Word Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1.e</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1.a.</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>1.u</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1.a</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>1.e</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>0.u</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>u.1</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>u.a</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>u.u</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>u.e</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
7.3.3 Consonant Vowel Cooccurrence Restrictions

The following chart now shows which vowels may or may not occur before or after a given consonant.

<table>
<thead>
<tr>
<th>Vowels preceding consonant</th>
<th>CONSON-ANT</th>
<th>Vowels following consonant</th>
</tr>
</thead>
<tbody>
<tr>
<td>i e a o u á é e ai au</td>
<td>i e a o u á é e ai au</td>
<td>i e a o u á é e ai au</td>
</tr>
<tr>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>
61.

<table>
<thead>
<tr>
<th>Vowels preceding consonant</th>
<th>CONSONANT</th>
<th>Vowels following consonant</th>
</tr>
</thead>
<tbody>
<tr>
<td>i e a o u i e ai au</td>
<td>l</td>
<td>i e a o u i e ai au</td>
</tr>
<tr>
<td></td>
<td>lj</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f</td>
<td></td>
</tr>
<tr>
<td></td>
<td>r</td>
<td></td>
</tr>
<tr>
<td></td>
<td>w</td>
<td></td>
</tr>
<tr>
<td></td>
<td>j</td>
<td></td>
</tr>
</tbody>
</table>

From the above chart it will be seen that certain vowels do not occur at all with certain consonants. These non-occurrences are indicated in the following chart, where it will be observed that phonemes /b/, /g/, /m/, /n/, /l/ and /e/ do not appear.

<table>
<thead>
<tr>
<th>Consonant not occurring with vowel</th>
<th>Vowel not occurring with consonant</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>i e a o u i e ai au</td>
</tr>
<tr>
<td>k</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
</tr>
<tr>
<td>dz</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td></td>
</tr>
<tr>
<td>s</td>
<td></td>
</tr>
<tr>
<td>sh</td>
<td></td>
</tr>
<tr>
<td>h</td>
<td></td>
</tr>
<tr>
<td>lj</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td></td>
</tr>
<tr>
<td>r</td>
<td></td>
</tr>
<tr>
<td>w</td>
<td></td>
</tr>
<tr>
<td>j</td>
<td></td>
</tr>
</tbody>
</table>
## 8. ORTHOGRAPHY

### 8.1 Orthography Chart

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Allophones</th>
<th>Suggested Orthography</th>
</tr>
</thead>
<tbody>
<tr>
<td>/tʃ/</td>
<td>[tʃ]</td>
<td>ch</td>
</tr>
<tr>
<td>/k/</td>
<td>[x]</td>
<td>ǂ</td>
</tr>
<tr>
<td>/b/</td>
<td>[p h]</td>
<td>b</td>
</tr>
<tr>
<td>/d/</td>
<td>[t h]</td>
<td>d</td>
</tr>
<tr>
<td>/dz/</td>
<td>[tʃ]</td>
<td>j</td>
</tr>
<tr>
<td>/g/</td>
<td>[k h]</td>
<td>[ɣ] [γ] [g]</td>
</tr>
<tr>
<td>/m/</td>
<td>[m]</td>
<td>m</td>
</tr>
<tr>
<td>/n/</td>
<td>[n]</td>
<td>n</td>
</tr>
<tr>
<td>/p/</td>
<td>[p]</td>
<td>ny</td>
</tr>
<tr>
<td>/a/</td>
<td>[q]</td>
<td>ng</td>
</tr>
<tr>
<td>/ø/</td>
<td>[β]</td>
<td>[ɵ]</td>
</tr>
<tr>
<td>/a/</td>
<td>[s]</td>
<td>a</td>
</tr>
<tr>
<td>/h/</td>
<td>[h]</td>
<td>h</td>
</tr>
<tr>
<td>/l/</td>
<td>[hl]</td>
<td>[l]</td>
</tr>
<tr>
<td>/lj/</td>
<td>[lζ]</td>
<td>[lj]</td>
</tr>
<tr>
<td>/ʎ/</td>
<td>[y]</td>
<td>lt</td>
</tr>
<tr>
<td>/r/</td>
<td>[hř]</td>
<td>[ř] [r]</td>
</tr>
<tr>
<td>/w/</td>
<td>[w]</td>
<td>w</td>
</tr>
<tr>
<td>/i/</td>
<td>[j]</td>
<td>y</td>
</tr>
<tr>
<td>/i/</td>
<td>[i]</td>
<td>i</td>
</tr>
<tr>
<td>/æ/</td>
<td>[ɛ]</td>
<td>[e]</td>
</tr>
<tr>
<td>/a/</td>
<td>[æ]</td>
<td>[a]</td>
</tr>
<tr>
<td>/o/</td>
<td>[o]</td>
<td>[o]</td>
</tr>
<tr>
<td>/u/</td>
<td>[u]</td>
<td>u</td>
</tr>
</tbody>
</table>
8.2 Consonant Orthography

Digraphs have been chosen in the range of consonants to match as closely as possible the way that equivalent sounds are symbolized in Pidgin or English. Flap "l", for example, sounds like [-ld-] medially and [-lt-] finally. The symbol "lt" has been chosen as "d" is already being used. "ch" is almost identical with "ch" in "church".

/ʃ/ and /lj/ are likewise symbolized by "ny" and "ly" respectively on the basis of maximum transference value for the prospective reader of Pidgin or English. These again are very suitable digraphs as there is no possibility of phonemes "n" and "y" or "l" and "y" being juxtaposed and thus being confused with phonemes "ny" and "ly" respectively.

The same also applies to /ŋ/ being symbolized by "ng".

Phonemes /n/ and /g/ have not been found to co-occur. Thus no difficulty is envisaged in using this symbolization.

It is possible that there could later prove to be one or two words in the language where phoneme /n/ is followed by phoneme /g/, though this is naturally unknown at the moment. Even in this event however, the gain in transference value from Kobon to Pidgin for example, would far outweigh any loss sustained through the small degree of possible confusion involved. Prestige and Trade or national language trends etc. are felt to
be the all important factors here. Nida says, "It is not what is easiest to learn, but what people want to learn which ultimately determines orthographies." Smalley too shares this opinion.

8.3 Vowel Orthography

As far as the vowels are concerned there do not seem to be any cultural, prestige, educational or political factors to grapple with. The five vowels of the Roman alphabet have been used to represent their counterpart in Kobon and digraphs "ai" and "ei" very fittingly represent their corresponding vowel glides. This leaves two extra phonemes which it is not possible to write with suitable digraphs as far as sound correspondences in English or Pidgin are concerned. Thus no fruitful purpose is seen in attempting to use such a system which would tend to be unwieldy and more of an encumbrance than anything else. Added to this there is the fact that there would be a very definite negative transference value if the vowel digraphs chosen were sequences which also occurred in English or Pidgin.

After dealing with "The criteria of an adequate writing system....." Smalley concludes, "Maximum ease of reproduction is the least important principle with which we have to deal.....It would be far better to have to make several new characters for the type front than to destroy more important considerations already discussed." There is a likelihood however of certain extra symbols becoming available at the S.I.L. (Summer Institute of Linguistics) Printshop in New Guinea, and of these it is felt that 'İ' " (ordinary "i" with diaeresis) and "ė" can very suitably represent those sounds which have been written as /ɪ/ and /ø/ respectively in this paper.
8.4 English Words as Pronounced by Vernacular Speakers. Some loan words generally understood by the people are:

<table>
<thead>
<tr>
<th>English</th>
<th>Kobon</th>
<th>English</th>
<th>Kobon</th>
</tr>
</thead>
<tbody>
<tr>
<td>car</td>
<td>ka</td>
<td>lock</td>
<td>lok</td>
</tr>
<tr>
<td>coffee</td>
<td>kofi</td>
<td>nail</td>
<td>nel</td>
</tr>
<tr>
<td>hammer</td>
<td>hama</td>
<td>saw</td>
<td>so</td>
</tr>
<tr>
<td>key</td>
<td>ki</td>
<td>smoke</td>
<td>səmok</td>
</tr>
<tr>
<td>ladder</td>
<td>leda</td>
<td>tin</td>
<td>rin</td>
</tr>
</tbody>
</table>

Most of the following words are not commonly understood but they are included here because the way the native speaker pronounces them helps to support certain phonemic interpretations already discussed.

<table>
<thead>
<tr>
<th>English</th>
<th>Kobon</th>
<th>English</th>
<th>Kobon</th>
</tr>
</thead>
<tbody>
<tr>
<td>crocodile</td>
<td>k(ə)rokodail</td>
<td>drum</td>
<td>derəm</td>
</tr>
<tr>
<td>flower</td>
<td>f(ə)laue</td>
<td>school</td>
<td>səgul</td>
</tr>
</tbody>
</table>

Kobon does not have word initial consonant clusters but "f" or "k" followed by "lt" or "r" are often so close that the transitional vowel occurring between them can scarcely be heard. Thus they can easily be mistaken for consonant sequences. The Kobon speaker pronounces similar successions of consonants in English in the same kind of way as is seen from the first two examples immediately above. In the second two examples the English sequences "dr" and "sk" are much more foreign to the Kobon and so the schwa release between the consonants is quite obviously present.

A similar principle applies in the case of the following two groups of words immediately below. English sequences "gs", "tl"
and "ts" do not have any parallel in Kobon and thus in the first two words the vernacular speaker puts in his own vowel, and in the third word he equates the sequence with a similar sounding unit in his own language. In the case of the second group of three words the English sequences "lp", "st" and "lk" are foreign to Kobon but not completely so since \([p^h]\), \([t^h]\) and \([k^h]\) occur word finally following "m", "n" and "ng" respectively. Thus it is that the Kobon can say the second three words as indicated, though not with perfect ease.

<table>
<thead>
<tr>
<th>English</th>
<th>Kobon</th>
<th>English</th>
<th>Kobon</th>
</tr>
</thead>
<tbody>
<tr>
<td>bags</td>
<td>bagǹs</td>
<td>help</td>
<td>helb</td>
</tr>
<tr>
<td>bottle</td>
<td>bodol</td>
<td>wrist</td>
<td>resd</td>
</tr>
<tr>
<td>coconuts</td>
<td>kokanañh</td>
<td>milk</td>
<td>melg</td>
</tr>
</tbody>
</table>

Note also the following words:

<table>
<thead>
<tr>
<th>English</th>
<th>Kobon</th>
</tr>
</thead>
<tbody>
<tr>
<td>handcuff</td>
<td>handegef</td>
</tr>
<tr>
<td>salt</td>
<td>/sal/</td>
</tr>
</tbody>
</table>

Pronunciation of the word "handcuff" shows that the Kobon does not think in terms of a word medial cluster of three consonants. If he regarded "nd" as a unit he could be expected to pronounce the word as two syllables and not three.

Kobon pronunciation of the word "salt" indicates that "lt" is a suitable orthographical symbol for /ɬ/. 
8.5 Sample Text

The following text is interlinear and incorporates the phonetic transcription, the proposed orthographic representation, and a free translation.

hřem ʁab³'la gaŋ ʁa ga dikʰ gaŋ.
ram fafltʰ gəf fa dik gəf.

The house is delapidated and falling apart.

muŋ'gan ju'a gaŋ. hra'la 'juem hen num'be gamph.
menγgan yua gəf. raltʰ yuem hen nembə gamm.

A hole has appeared. He is clearing and throwing (the old house) away and is making another.

hřem 'bænde hra 'dæβəm ge'sən num'be ga nuqʰ gampʰ.
ram fəndə rˀ dafəm gəsən nembə gə nengg gamm.

He is cutting and bringing house posts in order to make a new one like it.

gun'dul hra 'dæβəm ge'sən num'be ge'nampʰ.
gundult rˀ dafəm gəsən nembə gənamb.

He will cut and bring leaves and will make a new one of that kind.

hřem də gəŋ a'la 'juem me'neŋ wun'dampʰ.
ram je gəf altʰ yuem mənəŋ wəndamb.

The house is broken and he is clearing and throwing it away, and digging away the ground.

me'neŋ wun'dəm æf'rəm 'bænde hra'la'əm daf
mənəŋ wəndəm aɾam ram fəndə rˀgəm daf

He will dig away the ground and go and cut and bring house posts
68.

ges'en num'be ge'namph

ges'en nembe genamb

and will make a new one.

dze ge'o ali 'lauem ges'en num'be k'ha jæŋ ge'namph.

dte ge'j alt' lauem ges'en nembe ka yang genamb.

It is broken and he will clear it away and burn it and will make a new one of that quality on the site down below.