CHRU PHONEMES

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0. INTRODUCTION

Chru, a member of Vietnam's Austronesian family, is spoken by an estimated 10,000 people in the Don Duong district of Tuyen Duc province and in Binh Tuy province. The analysis here is of the language spoken in Diom village in the district of Don Duong, Tuyen Duc province.

1. THE PHONOLOGICAL WORD

A main syllable and one or two optional presyllables make up the Chru phonological word. The main syllable receives heavier stress, the presyllables lighter stress. When two presyllables occur the one just before the main syllable is more lightly stressed.

Using PS for presyllable and MS for main syllable the phonological word is formulated as: \((PS_2) PS_1) MS\). The syllables are filled by consonants and vowels as follows:

\[
\begin{align*}
PS_2: & C_1 V_1 \\
PS_1: & C_2 V_2 C_3 \\
MS: & C_4 C_5 C_6 V_3 C_7
\end{align*}
\]
The fullest phonological word expansion discovered so far is pשורבクロ 'to turn over'. The maximum expansion of the MS is ברא 'work'. (Cf. sections 3 and 5 for distribution of phonemes.)

2. CONSONANTS

2.1 CONSONANT CHART

<table>
<thead>
<tr>
<th>Stressed</th>
<th>Labial</th>
<th>Apical</th>
<th>Alveopalatal</th>
<th>Velar</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>vl</td>
<td>p</td>
<td>t</td>
<td>c</td>
<td>k</td>
<td>'</td>
</tr>
<tr>
<td>vd</td>
<td>b</td>
<td>d</td>
<td>j</td>
<td>g</td>
<td></td>
</tr>
<tr>
<td>Fricatives</td>
<td>vl</td>
<td></td>
<td>s</td>
<td>h</td>
<td></td>
</tr>
</tbody>
</table>

| Resonants |          |        |             |       |         |
| liquid vd | l,r      |        |             |       |         |
| nasal vd  | m        | n      | nh           | ng    |         |
| median vd | w        |        | y            |       |         |
| Post-glottal | vd  |        | w'           | y'    |         |

2.2 Analytical problems are posed by the glottalised and post aspirated consonants.

2.2.1 Syllable initial glottalised consonants are 'b, 'd, 'w, 'y. The glottal stop and each of these other consonants function freely as independent phonemes. No preglottalised consonants have been found in presyllabic position in which only a CV and CVC patterns are well attested. These glottalised consonants are most simply analysed as sequences.

2.2.2 Post aspirated consonants are ph, th, kh. In some cases where a verb is used to form a noun through an infixed -n- there is evidence that the stop plus aspiration is a sequence rather than a unit, e.g. פלא 'to plane' is in the nominal form פומ-להל 'a plane'. Stop-continuant sequences are commonly found in the main syllable. Post aspirated stops do not occur in the presyllable. The simplest analysis, therefore, is to regard post aspirated consonants as sequences of phonemes.

2.2.3 The syllable final post aspirated consonant is [yh]. The syllable pattern clearly indicates a complex unit interpretation. Occurring only word finally [yh] may be analysed as an allophone of /s/ since [s] never occurs word finally, and [yh] and [s] are phonetically fairly
close. Of the few words so far discovered having the -yh ending one, monayh 'pineapple', is reconstructed by Dempwolff as *kenas and *nanas.  

Ernest W. Lee reconstructs 'pineapple' as *m_nas for Proto-Chamic. This word appears to be a reflex of Dempwolff's Proto-Malayo-Polynesian reconstructions for 'pineapple' which supports [yh] as an allophone of /s/.

For a parallel example, what is reconstructed by Lee as *kapas 'cotton' for Proto-Chamic is k paīh in Jorai and kpaīh in Rade. Here the /s/ is reflected as -ih. On the basis of the foregoing [yh] will be regarded as an allophone of /s/.

2.2.4 The syllable final post glottalised consonants are [w'] and [y']. As with [yh] these are complex units occurring in main syllable final position when the normal pattern has only a single consonant filling that position. One solution is to regard these as allophones of /b/ and /j/ respectively since these segments have phonetic features similar to [w'] and [y']. All are stops, [w'] and /b/ are labial, and [y'] and /j/ are alveopalatal. The phonemes /b/ and /j/ never occur word finally, [w'] and [y'] occur only word finally. However, an allophonic solution raises difficulties of symmetry as James Cooper has pointed out in dealing with this same problem in the analysis of Halang phonemes.4 There are no corresponding allophones for /d/ and /g/ which also do not occur word finally. This makes the allophonic solution seem arbitrary.

Another possible solution is to regard [w'] and [y'] as complex units occurring only in word final position. Lee has shown that Proto-Chamic *-c becomes i' in Roglai and y' in Cham in most environments.5 Jorai has a similar reflex in lai' 'to say' from Proto-Chamic *iac6; for this Chru has las'y'. These reflexes add weight to considering [y'] as a unit.

Concerning [w'] Lee notes a single example in Roglai in which *p is reflected as [u']. (Roglai hadiu' 'alive' from *hadip7. The Chru reflex is hadiu'.) This shows a complex segment reflected from a simple unit.

On the basis of this historical data and because of the well attested canonical pattern of the main syllable final consonant slot [y'] and [w'] will be considered unit phonemes occurring in the final consonant position of the main syllable.

2.3 LABIAL PHONEMES

/p/ simple voiceless labial stop.

pah 'to slap'  p 아니다 'village'

bah 'to sweep'  b Anda 'to buy'
/b/  [b] simple voiced labial stop which may vary to fricative word medially.
    brah 'swollen'  ba' 'to carry'
    prah 'throw away'  wa' 'to write'

[m] median voiced labial resonant when preceded by a glottal stop and followed by a nasalised vowel.
    /'bãŋ/ ['mãŋ] 'time'
    /'bang/ ['bang] 'door'

/m/  nasal voiced labial resonant.

/w/  median voiced labial resonant.
    ma' 'to take'
    wa' 'to write'
    pa' 'place'

/w'/  median voiced post glottal labial resonant.
    hodw' 'alive'
    klo' 'to stab'
    kɔ'dip 'to hold in tongs'
    klo' 'three'

2.4 APICAL PHONEMES

/t/  simple voiceless apical stop.
    tra 'more'
    dra 'young woman'
    potɔi 'banana'
    podɔi 'rest'

/d/  [d] simple voiced apical stop.
    moɗa 'rich'
    maɗa 'eye'
    dɔɾi 'self'
    tɔɾi 'full'

[n] voiced apical nasal resonant when preceded by a glottal stop and followed by a nasalised vowel.
    /lɔ'deh/ [lɔ'neh] 'youngster'
    /ɾɔ'deh/ [ɾɔ'deh] 'pebble'

/l/  lateral voiced apical resonant.

/r/  medial voiced apical resonant.
    leh 'kidney'
    reh 'to cut open'
    bɔɾi 'to sell'
    brɔɾi 'to give'

/n/  voiced apical nasal resonant.
    ana 'mother animal'
    aia 'snake'
    anű 'rodent like animal'
    nhũ 'he, she, it'
2.5 ALVEOPALATAL PHONEMES

/c/  affricated voiceless alveopalatal stop.
/j/  affricated voiced alveopalatal stop.
    coh 'to kick'            cam 'The Cham'
    joh 'to break'           jam 'to jail'
/s/  [s] grooved voiceless alveolar fricative which fills non-final consonant slots.
    sang 'digging tool'      soh 'only'
    hang 'spicy'             coh 'to kick'
/y/  [j] median voiced alveopalatal resonant followed by voiceless glottal fricative filling the word final consonant slot.
    [mənayə] 'pineapple'
    cənəh  'tributary'

/nh/ voiced nasal alveopalatal resonant.
    mənhə 'oil'              lənəhə 'to shake the head'
    mənəs 'pineapple'        cənəh  'tributary'

/y'/ median voiced post glottal alveopalatal resonant.
    sə'y 'type of fishing'   tʊy 'to light fire'
    sə'yə 'hull rice'        tʊy 'to follow'

2.6 VELAR PHONEMES

/k/  simple voiceless velar stop.
    kəɾəi 'different'         pəkəu 'tobacco'           cək 'probably'
    təɾəi 'full'              pətəu 'king, ruler'       cəŋən 'wall a house'

/g/  simple voiced velar stop.
    goh 'clean'               pəɡəi 'turn around'
    koh 'to cut'              pədai 'rice'

/ng/ voiced nasal velar resonant.
    'bliŋən 'yard'            ngo 'on'
    bliŋən 'month'            go 'pot'
2.7 GLOTTAL PHONEMES

`/v/` simple voiceless glottal stop.
\begin{align*}
'wa' & \text{ 'to wipe'} & \text{rowah 'to choose'} \\
\text{wa' 'to write'} & \text{rowa' 'to be ill'}
\end{align*}

`/h/` slit voiceless glottal fricative.
\begin{align*}
wah & \text{ 'to fish'} & \text{hang 'spicy'} \\
wa & \text{'uncle'} & \text{sang 'a digging tool'}
\end{align*}

3. CONSONANT DISTRIBUTION

3.1 As many as two presyllables may occur in a word. When two presyllables do occur the consonant of the first is a stop, e.g. τσιοβατ 'worship'. Voiced stops appear in the second presyllable only when the main syllable initial consonant is voiced or is `/v/` or `/h/`.

The first presyllable is only CV, the second may be CV or CVC. When the pattern is CVC the first consonant is filled only with stops or `/s/` and the final consonant is filled only by `/l/`, `/m/`, or `/r/` with the latter most frequently occurring. Contrasting the CVC and CV patterns of the second presyllable is:

\begin{align*}
τσι & \text{'a line up'} \\
τσι & \text{'rope'}
\end{align*}

3.2 The main syllable is obligatory and is formulated in its maximum expansion as: \(((c_4)c_5)c_6)v_3(c_7), \text{ e.g. brwa' 'work'}.\]

Each slot, individually considered, may be filled as follows:

- $c_4$ may be filled by all consonant phonemes.
- $c_5$ may be filled by all consonant phonemes.
- $c_6$ is filled by `/y/` spya' 'to go out' and `/w/` brwa' 'work'.
- $c_7$, the main syllable consonant slot, has all but the following consonants: `/c/`, `/b/`, `/d/`, `/j/`, `/g/`, `/nh/`.

The most common main syllable pattern is $c_4v_3c_7$: bah 'to sweep', hil 'brave', sap 'voice'.

4. VOWELS

4.1 CHART

(on page 83)
<table>
<thead>
<tr>
<th>FRONT</th>
<th>CENTRAL</th>
<th>BACK</th>
</tr>
</thead>
<tbody>
<tr>
<td>short</td>
<td>long</td>
<td>short</td>
</tr>
<tr>
<td>HIGH</td>
<td>i</td>
<td>u</td>
</tr>
<tr>
<td>MID</td>
<td>è</td>
<td>o</td>
</tr>
<tr>
<td>LOW</td>
<td>e</td>
<td>a</td>
</tr>
</tbody>
</table>

### 4.2 Vowel Position

Chru has eight basic vowel positions. Adding contrastive length and nasalisation gives 27 vowel phonemes. Both long and short oral vowels and long and short nasal vowels have been observed in the front and back high positions and in all the low positions. In the high and mid positions of articulation the distribution is incomplete. High central vocoids are allophone of `/σ/`. In mid-front position only the long vowel occurs, and that only before `-ng`. The mid back long vowel, `/ò/`, tends toward a higher position when followed by `-ng` or glottal stop. In none of the mid positions has nasalisation been observed. When `σ` is nasalised it is realised as `u`. The `σ` only occurs orally, the `u` only occurs nasalised, e.g. `lσhσ` 'rice hull', `lσhù` 'sharp'.

### 4.3 Front Vowels

/i/ voiced high front unrounded short vocoid which varies between close and open positions.  
Wil 'round'

/ì/ voiced high close front unrounded long vocoid.  
Wil 'curved'

/è/ voiced mid close front unrounded long vocoid.  
prèng 'plate'

/e/ voiced mid open front unrounded short vocoid.  
ge' 'what'

/e/ [e] voiced mid open front unrounded long vocoid.  
`èh 'to peel'

[æe] voiced low close front unrounded vocoid when contiguous to palatals.  
cèng 'to carry'

### 4.4 Central Vowels

/σ/ [σ] voiced mid central unrounded short vocoid.  
pæng 'to hammer'
[u] voiced high central unrounded short nasalised vocoid.  
\(\text{\textipa{\textsc{\textmu}}}\) 'sharp'

/a/ [ɔ] voiced mid central unrounded long vocoid.  
\(\text{\textipa{\textomega}}}\) 'to hit'

[\(\text{\textmu}\)] voiced high central unrounded long nasalised vocoid.  
\(\text{\textipa{\textomega}}\) 'thing'

/a/ voiced low central short vocoid.  
\(\text{\textipa{\textomega}}\) 'swollen'

/à/ voiced low central long vocoid.  
\(\text{\textipa{\textomega}}\) 'rice'

4.5 BACK VOWELS

/u/ voiced high back rounded short vocoid.  
\(\text{\textipa{\textomega}}\) 'spider'

/\(\text{\textomega}\)/ voiced high back rounded long vocoid.  
\(\text{\textipa{\textomega}}\) 'balloon'

/\(\text{\textomega}\)/ voiced mid back rounded short vocoid.  
\(\text{\textipa{\textomega}}\) 'lord'

/\(\text{\textomega}\)/ voiced mid back rounded long vocoid.  
\(\text{\textipa{\textomega}}\) 'tease'

/o/ voiced low back rounded short vocoid.  
\(\text{\textipa{\textomega}}\) 'to dig'

/\(\text{\textomega}\)/ voiced low back rounded long vocoid.  
\(\text{\textipa{\textomega}}\) 'to pound'

5. VOWEL DISTRIBUTION

5.1 Presyllable vowels are either /ɔ/ or /a/ and are distributed as follows: /ɔ/ occurs only following a consonant, /a/ stands alone.  
\(\text{\textipa{\textomega}}\) 'pocket'
\(\text{\textipa{\textomega}}\) 'nose'

The /ɔ/ tends toward a higher position when contiguous to dental or alveopalatal consonants.

5.2 In the main syllable nasalised vowels may appear contiguous to nasal consonants. They frequently appear in the environment of /h/,  
/\(\text{\textomega}\)/, or /\(\text{\textomega}\)/: hā 'you', t\(\text{\textomega}\) 'knee', sr\(\text{\textomega}\) 'fed up with'.
6. NOTE ON A PROSODIC FEATURE

Chru seems to have a non-contrastive feature of register in which the vowel and sometimes the syllable has a lax, breathy quality or a tense, clear quality. Often the breathy quality is a concomitant of length in the vowel and voicing of the syllable initial stop.
NOTES

1. I am grateful to David Thomas, Kenneth Gregerson, Ernest Lee, and others of the Summer Institute of Linguistics and my Chru language helper, for their assistance during the preparation of this paper.


5. op. cit., Lee, p. 156.

6. ibid., p. 165.

7. ibid., p. 163f.

8. This example is of the Jut-Mordan dialect of Chru.