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:

$$PS_2\text{: } C_1V_1 \quad PS_1\text{: } C_2V_2C_3 \quad MS\text{: } C_4C_5C_6V_3C_7$$

The fullest phonological word expansion discovered so far is pɔtɔrblɔ' *'to turn over'*. The maximum expansion of the MS is brwa' *'work'*. (Cf. sections 3 and 5 for distribution of phonemes.)

2. CONSONANTS

2.1 *CONSONANT CHART*

Stops		*Labial*	*Apical*	*Alveo-palatal*	*Velar*	*Glottal*
	vl	p	t	c	k	'
	vd	b	d	j	g	
Fricatives	vl			s		h
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. phà *'to plane'* is in the nominal form pɔn-hà *'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, mɔnayh *'pineapple'*, is reconstructed by Dempwolff as *kenas and *nanas.[2]

Ernest W. Lee reconstructs *'pineapple'* as *m_nas for Proto-Chamic.[3] 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 paih in Jɔrai and kpaih 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 Rɔglai and y' in Cham in most environments.[5] Jɔrai has a similar reflex in lai' *'to say'* from Proto-Chamic *lac[6]; for this Chru has làay'. These reflexes add weight to considering [y'] as a unit.

Concerning [w'] Lee notes a single example in Rɔglai in which *p is reflected as [u']. (Rɔglai hadiu' *'alive'* from *hadip[7]. The Chru reflex is hɔdiu'.) 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'*	plɔi *'village'*
bah *'to sweep'*	blɔi *'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.
/'bãng/ ['mãng] *'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.

hɑdiw' *'alive'* klɑw' *'to stab'*
kɑ'dip *'to hold in tongs'* klɑw *'three'*

2.4 APICAL PHONEMES

/t/ simple voiceless apical stop.

tra *'more'* pɑtɑi *'banana'*
dra *'young woman'* pɑdɑi *'rest'*

/d/ [d] simple voiced apical stop.

mɑda *'rich'* drɑi *'self'*
mɑta *'eye'* trɑi *'full'*

[n] voiced apical nasal resonant when preceded by a glottal stop and followed by a nasalised vowel.
/lɑ'dẽh/ [lɑ'nẽh] *'youngster'*
/rɑ'deh/ [rɑ'deh] *'pebble'*

/l/ lateral voiced apical resonant.

/r/ medial voiced apical resonant.

leh *'kidney'* blɑi *'to sell'*
reh *'to cut open'* brɑi *'to give'*

/n/ voiced apical nasal resonant.

ana *'mother animal'* anũ *'rodent like animal'*
ala *'snake'* 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'*

[yh] median voiced alveopalatal resonant followed by voiceless glottal fricative filling the word final consonant slot.

[mɑnayh] *'pineapple'*
cɑnah *'tributary'*

/nh/ voiced nasal alveopalatal resonant.

mɑnhà' *'oil'* lɑnhah *'to shake the head'*
mɑnas *'pineapple'* cɑnah *'tributary'*

/y/ [y] median voiced alveopalatal resonant.

pɑywa *'to send'* tɑryang *'to be industrious'*
pɑjwa' *'to thresh'* tɑrnhang *'a type of tree'*

[nh] voiced alveopalatal resonant when /y/ is preceded by a glottal stop and followed by a nasalised vowel.

/'yãm/ ['nhãm] *'vegetable'*
/'yɑm/ ['yɑm] *'to poison'*

/y'/ median voiced post glottal alveopalatal resonant.

sày' *'type of fishing'* tuy' *'to light fire'*
sày *'hull rice'* tuy *'to follow'*

2.6 *VELAR PHONEMES*

/k/ simple voiceless velar stop.

krɑi *'different'* pɑkau *'tobacco'* cak *'probably'*
trɑi *'full'* pɑtau *'king, ruler'* cang *'wall a house'*

/g/ simple voiced velar stop.

goh *'clean'* pɑgài *'turn around'*
koh *'to cut'* pɑdai *'rice'*

/ng/ voiced nasal velar resonant.

'blàng *'yard'* ngo' *'on'*
blàn *'month'* go' *'pot'*

2.7 *GLOTTAL PHONEMES*

/'/ simple voiceless glottal stop.

'wa' *'to wipe'*	rɔwah *'to choose'*
wa' *'to write'*	rɔwa' *'to be ill'*

/h/ slit voiceless glottal fricative.

wah *'to fish'*	hang *'spicy'*
wa *'uncle'*	sang *'a digging tool'*

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. tɔlɔbat *'worship'*.[8] Voiced stops appear in the second presyllable only when the main syllable initial consonant is voiced or is /'/ 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:

tɔrlɔi *'a line up'*
tɔlɔi *'rope'*

3.2 The main syllable is obligatory and is formulated in its maximum expansion as: $(((c_4)c_5)c_6)v_3(c_7)$, 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)

	FRONT		CENTRAL		BACK	
	short	*long*	*short*	*long*	*short*	*long*
HIGH	i	ì			u	ù
MID		è	ɔ	ɔ̀	ô	ò
LOW	e	è	a	à	o	ò

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 /ɔ/. In mid-front position only the long vowel occurs, and that only before -ng. The mid back long vowel, /ɔ̀/, tends toward a higher position when followed by -ng or glottal stop. In none of the mid positions has nasalisation been observed. When ɔ is nasalised it is realised as ʉ. The ɔ only occurs orally, the ʉ only occurs nasalised, e.g. lɔhɔ' *'rice hull'*, lɔhʉ̃' *'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.
wìl *'curved'*

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

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

/è/ [e] voiced mid open front unrounded long vocoid.
lèh *'to peel'*

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

4.4 *CENTRAL VOWELS*

/ɔ/ [ɔ] voiced mid central unrounded short vocoid.
pɔng *'to hammer'*

[ʊ̈] voiced high central unrounded short nasalised vocoid.
lʊ̈hʊ̈' *'sharp'*

/ʊ̀/ [ʊ̀] voiced mid central unrounded long vocoid.
pʊ̀ng *'to hit'*

[ʊ̀̈] voiced high central unrounded long nasalised vocoid.
sʊ̀nʊ̈' *'thing'*

/a/ voiced low central short vocoid.
brah *'swollen'*

/à/ voiced low central long vocoid.
bràh *'rice'*

4.5 *BACK VOWELS*

/u/ voiced high back rounded short vocoid.
blung *'spider'*

/ù/ voiced high back rounded long vocoid.
blùng *'balloon'*

/ô/ voiced mid back rounded short vocoid.
pô *'lord'*

/ò/ voiced mid back rounded long vocoid.
cò *'tease'*

/o/ voiced low back rounded short vocoid.
so' *'to dig'*

/ò/ voiced low back rounded long vocoid.
sò' *'to pound'*

5. VOWEL DISTRIBUTION

5.1 Presyllable vowels are either /ʊ/ or /a/ and are distributed as follows: /ʊ/ occurs only following a consonant, /a/ stands alone.

kʊdung *'pocket'*
adung *'nose'*

The /ʊ/ 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/, /'/, or /r/: hã̀ *'you'*, tʊ'ù̃' *'knee'*, srãp *'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.

2. Dempwolff, Otto, *Vergleichende Lautlehre des Austronesischen Wortschatzes*. This information is taken from an unpublished English translation of Dempwolff's Wordlist.

3. Lee, Ernest W., *Proto-Chamic Phonologic Word and Vocabulary*, a Ph.D. dissertation reproduced by the University Microfilms Inc., Ann Arbor, 1966.

4. Cooper, James, 'Halang Phonemes', *Mon Khmer Studies II*, p. 89, Linguistic Circle of Saigon, 1966.

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

6. ibid., p. 165.

7. ibid., p. 163f.

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