THE PHONOLOGY OF KOMPONG THOM CHAM

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0. Introduction
Cham is a member of the Chamic Group of Austronesian. Other Chamic languages include Chru, Haroi, Jarai, Radé, and Roglai. It is classified into two major dialects: Eastern Cham (spoken by about 30,000 people in the Socialist Republic of Vietnam in the vicinity of Phan Rang) and Western Cham (spoken by about 150,000 people in Vietnam in the vicinity of Châu Đốc and in Tây Ninh Province, and in Cambodia along the Mekong River and its tributaries). This study describes the synchronic and diachronic phonology of the Western Cham dialect spoken in Kompong Thom Province, Cambodia,¹ (KTC). This dialect differs somewhat from the Western Cham dialect of Châu Đốc (CHD) described by Friberg and Hor (1977); it differs substantially from the Eastern Cham of Vietnam (CVN).

The Western Chams apparently represent the descendants of immigrants who left Vietnam after the collapse of the Cham Kingdom in the sixteenth century. The majority of Western Chams are Muslims and use an adoption of the Arabic script—via Malaysia—to write Cham. Recently, a Latin script has been devised to write Eastern and Western Cham.

1. The Word
The native Cham word—which may differ significantly in pattern from borrowed words—has the following syllabic patterns:

MONOSYLLABLES: (C₁V₂)C₁(C₂)V₁F

| CV     | /la/  | ['la:] | 'leaf' |
| CVF    | /saw/ | ['sa:] | 'dog'  |
| CVCV   | /taho/ | ['tho:] | 'large jar' |
|        | /pata/ | [pà'to:] | 'teach' |
| CVCVF  | /kanon/ | [kn'oon] | 'be angry' |

¹This study is based on a corpus of data obtained from a male speaker in his late twenties from Phum Baray in southern Kompong Thom province. The Proto-Chamic reconstructions are mainly from Lee (1965) with some minor modifications, such as *ca?huay 'mouth' for Lee's *ca?huai, and a few new reconstructions by the author. Additional Western Cham data are from Friberg et al. (1977), and Eastern Cham data are from Blood (1967) and Moussay (1971). Forms between slants are phonemic while forms in italic are generally in the popular orthography of the language.
POLYSYLLABLES: "$C_4V_3C_3V_2F_2'C_1V_1F_1$

CVCVCV /marasa/ ['mayə'sə:] 'maybe'
CVCVCVF /panatən/ ['pənətən] 'animal'
CVCVFCVF /patanrəu/ ['pətən'raj] 'make heavy'

In the patterns above: C = any consonant, V = a vocalic nucleus, ' marks primary stress of the following syllable, '' marks secondary stress of a following syllable, and F = any final consonant. Borrowed words from Khmer, Vietnamese, Arabic, Malay, Sanskrit, or European sources may show varied syllabic patterns. In some cases, there has been a reshaping of a foreign word into a Cham syllabic pattern. More recent borrowings are less likely to be reshaped than older ones.

/ʃoŋga/ [ʃoŋga] 'heaven' (Skt. svarga)
/ʃim/ [ʃim] 'film' (ultimately from French or English 'film')

2. Register

Western Cham is a two-register language. The effects of register are seen most obviously on the vocalic nucleus. The High Register (HR) vowels are higher (in terms of tongue height), rather 'breathy' in voice quality, and associated with low pitch. Low Register (LR) vowels are lower in tongue height, often with lower on-glides, rather 'clear' in voice quality, and associated with higher pitch. Friberg and Hor (1977: 18-19), following Gregerson (1976), suggest that the physiological basis for register is the advancement or retraction of the tongue root. They describe First Register (with the tongue root retracted, called Low Register in this paper) vowels as generally lower and tense and Second Register (with tongue root advanced, called High Register in this paper) vowels as generally higher and lax with associated lower pitch and slightly breathy quality.

The High Register developed in syllables which originally, in an earlier stage of Cham, began with voiced consonants. In the dialect of Western Cham described by Friberg and Hor (1977), the High versus Low Register opposition was noted only following stops. Low register vowel nuclei followed originally voiceless stops and high register vowel nuclei followed originally voiced stops. The remaining consonants seemed to be associated with the high register. In the Kompong Thom dialect, original clusters of /h/ + /w, l, y, r, m, n, η/ have lost the /h/ and have vowel nuclei associated with the low register. In some cases, the original Proto-Chamic (PC) cluster had initial /s/ which must have become /h/ before the Cham Empire broke up, e.g.:

*humə ‘field’ > /mi/ [məi] cf. CHD hame and CVN hmu or həmu
*hanə? ‘asthma’ > /nəʔ/ [nəʔ] (cf. CHD hamec and CVN hamec)

2. Since the traditional Cham script distinguishes between voiced and voiceless stops and it was adopted prior to the eighth century A.D., it is believed that the voiced-voiceless distinction was present in Cham at that time.
3. /h/ + /ʔ/ has not been found.
4. In careful speech, the /h/ may be pronounced, but it has been lost in the everyday spoken language.
*sana ‘roast’ > /na/ [na:] (cf. CHD hana and CVN hna)
*hure? ‘vine’ > /rəʔ/ [rəʔ] (cf. CHD hrēk and CVN harē)
*surā ‘writing’ > /rəʔ/ [rəʔ] (cf. CHD hrak and CVN hraʔ or sraʔ)
*sula ‘leaf’ > /la/ [la:] (cf. CHD hla and CVN hala)
*haway or huway ‘rattan’ > /wāʔ/ [waj] (cf. CHD haway or CVN hawēy)

The contrast between the reflexes of *w, *l, *y, *r, *m, *n, *ŋ and *h(V) + *w, *l, *y, *r, *m, *n, *ŋ can be seen in pairs like the following.

/ni/ [nii] ‘bee’ < *huni
/ni/ [niː] ‘this’ < *huni

/miʃ/ [miʃ ‘ear’ < *hmʃt
/miʃ/ [miʃ ‘always’ < *(miš)†

/wəʔ/ [yaʔ] ‘eat’ < *hua?
/wəʔ/ [mà] ‘pull down’ < *(wəʔ)

/yaw/ [iau] ‘like’ < *(hyəu)
/yaw/ [iau] ‘yoke’ < *yəu

/rəʔ/ [yaʔ] ‘writing’ < *surəʔ
/rəʔ/ [yaʔ] ‘vein’ < *urət

3. Consonants
The following consonants occur in KTC:

<table>
<thead>
<tr>
<th>BILABIAL</th>
<th>DENTAL</th>
<th>PALATAL</th>
<th>VELAR</th>
<th>GLOTTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOPS</td>
<td>p</td>
<td>t</td>
<td>c</td>
<td>k</td>
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<tr>
<td></td>
<td>b</td>
<td>d</td>
<td>j</td>
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<tr>
<td>NASALS</td>
<td>m</td>
<td>n</td>
<td>ɲ</td>
<td>ŋ</td>
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<tr>
<td>SONANTS</td>
<td>w</td>
<td>l</td>
<td>y</td>
<td>r</td>
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</tbody>
</table>

/r, f, s, z/ also occur in borrowed words.

The consonant phonemes of KTC are described in detail below.
/p t k/ are voiceless, unaspirated bilabial, dental, palatal, and velar stops respectively. They are unreleased in final position. When followed by /ʔ/, they are lenis.

/cip/ ‘Thursday’ [çiփ] /täʔ/ ‘chop trees’ [taʔ]
/taraʔ/ ‘sow rice’ [täʃyʔ] /tahäw/ ‘know’ [thau]
/matäʔ/ ‘raw’ [mäʃtah] /ŋät/ ‘be careful’ [ŋat]
/ciʃ/ ‘bird’ [çiʃ] /cakes/ ‘cut with scissors’ [ʧəkˈkaʊ]
/tacuiʔ/ ‘spit’ [täʃciuhʔ] /keʔ/ ‘to bite’ [keʔ]
/kapal/ ‘thick’ [kəpə:l] /tæk/ ‘horn, antler’ [təkˈke:]
/palāk/ ‘muddy’ [pɔlāk] /tōʔ/ ‘bottom’ [tōʔʔ]
/tōʔ/ ‘be at’ [tōʔʔ] /kūʔ/ ‘Cambodian’ [kūʔ]
/kūʔ/ ‘kind of taro’ [kūʔʔ] /tahuʔ/ ‘dry’ [thuʔʔ]
/tahuʔ/ ‘bat’ [thuʔʔ] /pāʔ/ ‘lead’ [pāʔ]
/parāʔ/ ‘shoulder’ [pōʔyāʔ] /tapāʔ/ ‘bland’ [tōʔpāʔ]
/toāh/ ‘search for’ [toāʔ] /tarāp/ ‘of’ [tōʔyāp]
/patār/ ‘reminder’ [pōʔtāʔʔ] /kiŋ/ ‘oven’ [kiŋ]
/karāʔ/ ‘rough’ [kāʔyāʔʔ] /carūʔ/ ‘medicine’ [cōʔyūʔʔ]

Modern KTC initial /p t c k/ are reflexes of Proto-Chamic *p, *t, *c, *k and *b, *d, *j, *g. The four voiced PC stops conditioned following high register vowel nuclei.

*patōw ‘stone’ /pataw/ *tupəʔ ‘straight’ /tapəʔ/
*tubaw ‘sugarcane’ /tapəw/ *duərə ‘thorn’ /truəʔ/
*pagi ‘tomorrow’ /pəkəʔ/ *bala ‘tusk’ /pləʔ/
*ʔadəj ‘younger sibling’ /təj/ *tiən ‘abdomen’ /tejn/
*čim ‘bird’ /čim/ *keʔ ‘bite’ /keʔ/
*jūʔ ‘black’ /čuʔ/ *groh ‘to bark’ /krəh/

The clusters *dl- and *tl become /kl-/.

*tlaw ‘three’ /kləw/ *dleh ‘tired’ /kləh/

Voiceless stops are retained in words borrowed from Khmer.

Khm. /pʰəŋ/ ‘inch’ /phəŋ/
Khm. /kiciel/ ‘gouge’ /cakial/
Khm. /kmaoc/ ‘ghost’ /kamot/
Khm. /tnaot/ ‘sugar palm’ /tanot/
Khm. /taəʔ/ ‘only’ /təəʔ/.

Some words which contained voiced stops in Middle Khmer were apparently borrowed before these stops were devoiced in Khmer and then subsequently devoiced in KTC. The vowel nuclei in KTC that follow originally voiced Khmer stops are those associated with the high register.

Khm. /pəl/ (bel) ‘time’ /pəl/
Khm. /kum/ (gōm) ‘lamp’ /kəm/
Khm. /toap/ (dāpa) ‘army’ /təp/
Khm. /tup/ (daʔpa) ‘stop’ /təp/

There are several problems with the reflexes of the final PC stops. Generally, KTC has /ʔʔ/ as the reflex for *-p *-t *-c *-k and *-ʔ. Final *-p
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becomes /-u/;\footnote{The Chamic languages are in the process of losing final */-p/. This process has almost reached completion in Cham, Chru, Roglai, and Haroi. Compare the following chart:}
final */-t/ becomes /-ʔ/; final */-c/ becomes /-ʔ/ or /-ʔ/ after front vowels, and final */-k/ and */-ŋ/ become /-ʔ/. Examples of the normal reflexes are given below.

*gap 'each other' > /kʌu/  *lap 'fold' > /lʌu/
*asap 'smoke' > /sʌu/  *hadip 'alive' > /tɪu/
*chēp 'wing' > /ceau/  *?diap 'sticky rice' > /dɪau/

There are numerous examples of final */-p/ in all phonetic environments in KTC. Many of these words are clearly borrowings, but others are not identifiable as such.

/kûmsup/ 'dawn' cf. CHD masup and N. Roglai mûsûp.
/rədəp/ 'acoustumed' cf. Chru lôdôp and S. Roglai lôdôp.
/pakəp/ 'compare' cf. Chru pøgəp.
/pəp/ 'evil' cf. Khm. /baap/ (< Skt. pãpã).
/tânəp/ 'low' cf. Old Khm. dhəp 'lowland' < dəpa 'low'
/ep/ 'accompany' cf. Khm. ?aep/ ('ëpa) 'take shelter'
/rəp/ 'body' cf. Skt. rûpa.

*haget 'what' > /kãʔ/  *tuʔut 'knee' > /taʔãʔ/
'jhit 'sew' > /çiʔ/  *laŋit 'sky' > /laŋiʔ/

Lee (1965) has two reconstructions of PC words with final */-t/ that have kept */-t/ in Cham.

*capət 'squeeze' > /capət/  *kawət 'wire' > /kawət/

There are other words with final */-t/ for which reconstructions are not available, but which have cognates in the other Cham dialects.

/klût/ 'stuck, jammed' cf. CHD glût and CVN klît (< glût)
/cahêt/ 'jump rope' cf. CHD chhêt
/thit/ 'cured, recovered' cf. CHD and CVN dhût
/miʔ/ 'hear' cf. CHD and CVN hamû
/nət/ 'be careful' cf. CHD ngât
/padût/ 'compare' cf. CHD padût
/pawêt/ 'cut in half' cf. CHD pawêt
/sit/ 'small' cf. CHD sit

\footnotesize

<table>
<thead>
<tr>
<th>CHAM</th>
<th>'fold'</th>
<th>'smoke'</th>
<th>'tie'</th>
<th>'hide'</th>
<th>'full'</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUTH ROGLAI</td>
<td>lôu'</td>
<td>asûu</td>
<td>că</td>
<td>(pô)dôû</td>
<td>—</td>
</tr>
<tr>
<td>NORTH ROGLAI</td>
<td>—</td>
<td>asa?</td>
<td>ica'</td>
<td>dô?</td>
<td>bâ'</td>
</tr>
<tr>
<td>HAROI</td>
<td>—</td>
<td>asa?</td>
<td>caù?</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>JARAI</td>
<td>lâp</td>
<td>asâp</td>
<td>čâ</td>
<td>dôp</td>
<td>bô</td>
</tr>
<tr>
<td>RADE</td>
<td>lâp</td>
<td>săp</td>
<td>čâp</td>
<td>dâp</td>
<td>bô</td>
</tr>
</tbody>
</table>
There are also a fair number of words with final /-t/ in KTC for which no cognates have been found: /pât/ ‘of’, /prêt/ ‘run fast’, /cawët/ ‘erratically’, /cût/ ‘small bamboo’, /mit/ ‘run’, /padït/ ‘make up a story’, /padet/ ‘make a fingerprint’, /prêt/ ‘to set limits’, /srêt/ ‘collapse’, /wêt/ ‘shake the head’, /yït/ ‘keep on doing’. Of interest is the fact that, in all of these words, /-t/ is preceded by a short vowel and in most of them the vowel is a front vowel. Borrowed words with final /-t/ are numerous: /ahât/ ‘Sunday’ (Malay ahat, ahad), /pêt/ ‘hospital’ (Khm. /peet/), /böt/ ‘turn’ (Khm. /bot/, /carït/ ‘cricket’ (Khm. /cagrat/), /makêt/ ‘female’ (Malay megat’). There may be some modifications of the vowel: /pêt/ ‘surround’ (Khm. /poat/ ba‘ta), /êt/ ‘kick with the toe’ (Khm. /toat/ da‘ta). Final /-c/ in Khmer loans becomes /-t/ in KTC: /khut/ ‘broken’ (Khm. /khoc/), /kamot/ ‘ghost’ (Khm. /kmaoc/).

*bûc ‘pull up’ > /pûï/?  *duac ‘run’ > /duai/?
*pruc ‘intestine’ > /proi/?
*hûc ‘whistle’ > /huï/?
*amrec ‘pepper’ > /mrê/?

*brûk ‘rotten’ > /prû/?
*bruñ ‘work’ > /prû/?
*katûk ‘flatus ventr铣s’ > /katu/?
*pä ‘four’ > /pa’/  *nû ‘upgrade’ > /nû/?
*hua ‘eat rice’ > /hoïa/  *tasi ‘sea’ > /tasi/?

Usually, following a nasalised vowel in PC and in borrowed words, /-k/ and /-ʔ/ become /-k/:

*nû ‘dive’ > /nûk/.  *tulôk ‘disk shape’ > /talôk/
*masâk ‘brave’ > /masâk/

but, in some cases, no evidence of a nasalised vowel has been found:

*kutok ‘grasshopper’ > /katôk/  *jâk ‘clever’ > /câk/.

KTC also retains final stops intact in borrowings from Khmer.

Khm. /sroop/ ‘absorb’ > /srop/
Khm. /aep/ ‘move’ > /ep/
Khm. /book/ ‘hump’ > /bok/
Khm. /lout/ ‘jump’ > /lôt/

/b d j/ are voiced, fortis, optionally preglottalised, bilabial, dental, and palatal stops. The preglottalisation is especially noticeable in /j/ which appears to vary between [’] and [‘]. These stops do not occur in final position.

6. There may have been metathesis here: *pirâk (I am unsure of the length here, it may have been *pirâk which would explain the Cham form better) > *priak > Cham /prea/.

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/beah/ ‘until’ [ʔbeah] /dēh/ ‘sputter’ [ʔdēh]
/bīn/ ‘eat’ [ʔbīn] /labāh/ ‘miserable’ [lāʔbah]
/kadon/ ‘bell’ [kāʔdoŋ] /jāuʔ/ ‘must’ [ʔjāuʔ]
/pajuan/ ‘move’ [pāʔjuːn]

The KTC preglottalised series reflects preglottalised consonant in PC:
*ʔbōŋ ‘eat’ > /bīn
*duac ‘run’ > /duaiʔ/
*ʔjōuʔ ‘must’ > /jāuʔ/

Preglottalised stops are retained in words borrowed from Khmer:
Khm. /book/ ‘hump’ > /bok/
Khm. /sambaṃ/ ‘great’ > /sabom/
Khm. /daeʔ/ ‘which’ > /del/

/m n ŋ n/ are bilabial, dental, palatal, and velar nasals respectively. All but /ŋ/ have been found in final position.

/mít/ ‘hear’ [mīt]
/mōh/ ‘place’ [mōh]
/pām/ ‘kind of pancake’ [pam]

/ní/ ‘bee’ [nīː]
/kōn/ ‘group’ [kōn]
/ŋān/ ‘noun’ [ŋān]

/maŋum/ ‘drink’ [māŋuːm]

The PC nasals *m, *n, *ŋ, and *ŋ are retained unchanged in KTC.

*mata ‘eye’ > /mata/
*tamā ‘enter’ > /tami/
*maŋak ‘oil’ > /maŋiʔ/
*ʔinā ‘main’ > /nī/
*ŋāʔ ‘do’ > /ŋāʔ/
*sāŋ ‘house’ > /saŋ/

The nasals are also retained in words borrowed from other languages.

Khm. /mei/ ‘chief’ > /mē/ Khm. /maak/ ‘type’ > /māk/
Khm. /fien/ ‘addicted’ > /fiaŋ/ Khm. /aenj/ ‘self’ > /ej/
Mal. hina (ult. from Skt. hīna) ‘inferior’ > /hina/ ‘difficult’
Mal. saman (ult. from Ar. zaman) ‘era’ > /samāŋ/ or /zamāŋ/.

/w/ is a bilabial semi-vowel. It occurs in C₁ and F positions, and, in rare occasions, in C₂ position; and it is associated with high register nuclei. Original *hVw- clusters have become /w/ following by low register nuclei.

/wāʔ/ ‘pull down’ [yāʔ]/yw/ ‘like’ [jau]
/lawāy/ ‘stir’ [lāʔuaj] /iw/ ‘left (side)’ [ʔiːu]
In at least one case, the diphthong /oa/ which is a reflex of PC *ua and which seems regularly to become /wa/ in Eastern Cham, formed a cluster with /w/ as C₂. This forms alternates with the expected /oa/ form.

/hoa/ and /wā/ (< *hwā < PC *hua) ‘eat rice’
/w/ is a reflex of PC *w. In borrowings from Khmer, /v/ is reflected by KTC /w/ in all positions.

*wać ‘stable’ > /وافق/   *patও ‘stone’ > /پاتواب/  
*lawa or jawa ‘soul’ > /ناوواب/   *ئَا ‘left (side) > /یو/ 
*haway (or) huway ‘rattan’ > /وای/  
Khm. /viel/ ‘field’ > /وائ/  Vn. chiều ‘mat’ > /ciaw/  
Khm. /sêypañ/w/ ‘book’ > /سپادواب/ or /سپادواب/ 

/l/ is a lateral sonant. It occurs in C₁, C₂, C₃, and F positions.

/لا/’u/ ‘coconut’ [لاسو:]   /بلی/ ‘buy’ [پبل]  
/لانی/ ‘eel’ [لین]   /تال/ ‘until’ [تل] 
/l/ is a reflex of PC *l; the clusters *h(V)l- and *s(V)l- are reflected in KTC by /l/ followed by a low register nucleus. /l/ in borrowed words is retained.

*لی ‘much, many’ > /لوب/   *لی ‘fall’ > /لی/  
*لی ‘brain’ > /لک/   *تلان ‘bone’ > /تلان/  
*لپان ‘centipede’ > /لپان/   *یال ‘net’ > /کال/  
*لپ ‘thick’ > /لپ/   *تال ‘until’ > /تل/ 
*هی ‘rare dust’ > /لی/   *هی ‘sharp’ > /لی/  
*هی ‘rare dust’ > /لی/   *سلا ‘leaf’ > /لا/  
Khm. /لیو/ ‘jump’ > /لوب/  
Khm. /پیل/ ‘time’ > /پل/  
Khm. poolih (ult. from French, police) > /پلیه/ ‘police’  
French chaland ‘ferry’ > /شالان/  
Skt. dhuli ‘dust’ /ثلی/  
Khm. /رُبسو/ (spoken: /ناسو/) ‘wounded’ > /نابا/ 

/ɾ/ has two allophones. In all positions but F it is a voiced velar fricative [ɾ] which sometimes seems to approach a voiced stop [g]. In C₂ position preceding high central vowels, /ɾ/ shows a tendency to be lost; in F position, it is a voiced, high-mid, unrounded semi-vowel [ɻ], while in C₃ position, there is some alternation between /ɾ/ and /l/.

/ɾǔ/ ‘shake out’ [ɾǔ]   /پری ‘give’ [پری]  
/kɾi/ ‘bamboo’ [کری] or [کی] /پار ‘to fly’ [پار]  
/rənί/ or /ارئ/ ‘wide’ [روئ] or [لئ] 

/ɾ/ in all positions is a reflex of PC *r, which in F position following a high back rounded vowel or a diphthong is lost in KTC. /ɾ/ in borrowed words has several treatments. In most borrowings from Sanskrit and Khmer, it has the same allophonic distribution as it has in native Cham words, but in some Sanskrit and Arabic loans, /ɾ/ is a flap [ɾ].

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*ruah ‘choose’ > /roah/ *ariañ ‘crab’ > /riañ/
*krām ‘bamboo’ > /krim/ *usar ‘seed’ > /sär/
*cur ‘lime’ > /cu/ *biër ‘dwarf’ > /pia/
*kuar ‘gather up’ > /kua/ Skt rūpa ‘body’ /rup/
Skt. nagara ‘fortress’ > /lakār/ ‘country’
Skt. naraka ‘hell’ > /nāřka/ Skt svarga ‘heaven’ > /śoṛga/
Malay murtabat or martabat (ult. from Arabic) ‘grade, step’ >
/mūṛtabāt/ ‘knowledge’
Khm. /riep/ ‘level’ > /rāp/ Khm. /sroop/ ‘absorb’ > /srop/

/y/ is a palatal semi-vowel. In C₁ position preceding a vowel it may have
considerable friction, approaching [j].

/yāw/ ‘like’ [iɑ̃] /yāw/ ‘yoke’ [iɑ̃]
/hatāy/ ‘after’ [hɑ̃tɑ̃] /kayāw/ ‘tree’ [kɑ̃jɑ̃]

/y/ in all positions reflects PC *y. The cluster *hVy- gives /y/ followed by
low register vowel nuclei.

*yōw ‘yoke’ > /yāw/ *hayōw ‘like’ > /yāw/
*hayuak ‘harvest’ > /yəo/? *tuāy ‘stranger’ > /tuay/

/y/ in borrowed words remains /y/.

Khm. /claය/ ‘answer’ > /chlay/
Mal. duṇia (ult. from Arabic) ‘world’ > /tūnya/

/s/ is a voiceless dental spirant. It occurs in C₁, C₃, and C₂ positions. It
occurs in F position only in some recently borrowed words.


/s/ is a reflex of PC *s. Final s in early borrowings is usually reflected by
-/ih/; final PC *s has become */-h/.

*suay ‘slow’ > /suay/ *usar ‘seed’ > /sär/
*sṛūh ‘nest’ > /srũh/ *brās ‘husked rice’ > /prãh/
*tikus (or) *tukus ‘rat’ /takûh/ *kakās ‘scale’ > /kakãh/

Khm. /saak/ ‘attempt’ > /sak/ Skt. doṣa ‘fault’ > /tûih/

Skt. mānuṣa ‘man’ > /manuih/
Khm. /ceba/ < (cebās) ‘clear’ > /cabaih/
Khm. /cumnuah/ < (jamnuas) ‘substitute’ > /camnūaih/

PC *s in C₃ position may be lost before stops or retained before other
consonants. In the latter case, *s sometimes becomes *h which in turn is
lost after causing a change in the register of the following syllable.
sagor ‘drum’ > /kâr/
sara ‘salt’ > /sra/
sidor (or) *sidor ‘remember’ > /târ/
sidOm (or) *sudOm ‘ant’ > /tôm/
samû (or) *sumû ‘flat’ > /samû/
surâ? ‘writing’ > *harâ? > /râ?/
sula ‘leaf’ > *hala > /la/
sana ‘roast’ > *hana > /na/

/h/ is a voiceless glottal spirant. It occurs in all positions.

/hoa/ ‘pull tight’ [hoä]
/hawà/ ‘dissatisfied’ [hô:ya:] /plâh/ ‘split’ [plâh]

/h/ in all positions reflects PC *h. Final PC *h and *s have merged, and are reflected by /-h/. In borrowed words, /h/ remained /h/. Arabic ḥ merged with Cham /h/.

*hâ ‘yes’ > /hi/
hüc ‘whistle’ > /hui?/ *bahrow ‘new’ > /phâw/
hadûm ‘how many’ > /hatôm/ *ábîh ‘all’ > /pîh/

Mal. hakêm ‘judge’ (ult. from Ar. ḥakîm) < /hakêm/
Khm. cneah (≪ jhnah) ‘win’ > /canè

/f/ s/z/ appear to be limited to borrowed words especially those from Arabic through Malay. /f/ is a voiceless bilabial spirant; /s/ is a voiceless palatal spirant, and /z/ is a voiced dental spirant. In casual speech, /s/ and /z/ usually become /s/.

/šàrga/ ‘heaven’ < Skt. sr̥gā /fâl/ ‘memorise’ < Ar. fāl
/išrât/ (or) /îsrât/ ‘show’ < Mal. ışharât (ult. from Ar.) ‘signal’
/ižîn/ ‘permission’ < Mal. idžîn (or) izzîn (ult. from Ar.)

There seem to be two kinds of initial consonant clusters in KTC. One may be represented as /C<1C<2/ and consists of two consonants in close juncture without any intervening vowel. C<2 in these clusters is limited to /l r h/. The following examples have been noted in this corpus:

<table>
<thead>
<tr>
<th>SECOND MEMBER</th>
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<tr>
<td>l</td>
</tr>
<tr>
<td>p</td>
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<tr>
<td>t</td>
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<tr>
<td>c</td>
</tr>
<tr>
<td>k</td>
</tr>
<tr>
<td>n</td>
</tr>
</tbody>
</table>

The second type of cluster may be represented as /C<1aC<2/. In clusters of this type, there is an intervening short vowel. Some of these show considerable variation. One speaker, in slow, careful speech may pronounce a cluster with the short vowel, e.g., [tâhun] ‘year’, while the
same speaker in more casual, rapid speech may pronounce the same cluster without any perceptible intervening vowel, e.g. [thun]. The C₂ in these clusters can be /p t c k ? j m n ñ ŋ w l y r s h/. As described in the second type above, there has been some simplification of PC clusters of *hVC- and *sVC-. In at least one case, the historical treatment of clusters differs. PC *tl- and *dl- > CHD /kl-/ but *tvl- > KTC /tal-/ , *tlaw ‘three’ > /klaw/, *tulāŋ ‘bone’ /talaŋ/.

Cham also has consonant clusters in polysyllabic words. In these, the common pattern is CVCCV(F), as in:

/čakla/ ‘lightning’ [čʰ’klᵃ:]  
/paplāy/ ‘to sell’ [pʰ’plᵃj]  
/kənraith/ ‘trap’ [kʰn’yəm]  
/masrüh/ ‘war’ [məs’yuh]  
/təplēt/ ‘scraped off’ [tə’plət]

Another pattern has a short vowel between the two middle consonants. The third syllable receives the main stress while the first receives secondary stress.

/maraśa/ ‘maybe’ [’məyaś’sə:]  
/masatäh/ ‘from a distance’ [’masə’ta’h]  
/palahtiŋ?/ ‘to destroy’ [’pälə’hiŋ?]  

Finally, there is the pattern CVCVFCVF as in:

/patanrâuŋ?/ ‘make heavy’ [’pətän’yəŋ?]  

4. Vowels

KTC has the following vowels:

<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-HIGH</td>
<td>e</td>
<td></td>
<td>ü</td>
</tr>
<tr>
<td>MID</td>
<td>ë</td>
<td>e</td>
<td>o</td>
</tr>
<tr>
<td>MID-LOW</td>
<td>e</td>
<td>ë</td>
<td>ë</td>
</tr>
<tr>
<td>LOW</td>
<td>a</td>
<td>a</td>
<td>ë</td>
</tr>
</tbody>
</table>

GLIDES: /ia, iu, ea, au, ua, oá/

All vowels that precede /-h/ are short, but they are still marked with the breve (') in this article. First or low register vowels are generally lower than their second or high register counterparts and may have on-glides. The vowels are now described in detail:

/i/ [iː] are high front vowels. First register /i/ is [iː]:

/ni/ ‘this’ [nɪː]; /ni/ ‘bee’ [nɪː];

/lín/ ‘I’ [liː’n] /pädìŋ?/ ‘hurt’ [pädìŋ?]
KTC /i/ and /ɨ/ are reflexes of PC *i, *i, *i, and *ɨ.

*čim ‘bird’ > /cĩm/
*jhît ‘sew’ > /chi/ *
*anţin ‘wind’ > /nĩn/
*phï? ‘bitter’ > /phi?/

KTC /i/ and /ɨ/ may reflect /i/ and /ə/ in borrowed words.

Pali bhikkhu > Khm. /phiʔkhoʔ/ > /phiʔ/ ‘Buddhist monk’
French police > Khm. /pooliʔ/ > /plĩh/ ‘police’
Khm. /kən/ > /kĩn/ ‘to mill rice’
Skt. sāksīn > Malay saksi > /sãksi/ ‘witness’

/e/ is a long mid-high front vowel; no short /e/ has been found in the present material except preceding /-h/.

/mèʔ ‘chief’ [mε:] /pèl/ ‘time’ [pɛ:l]
/ʔen/ ‘self’ [pɛn] /sẽh/ ‘student’ [sẽh]
/take/ ‘horn, antler’ [tẽ:ke:]

KTC /e/ is a reflex of PC *ɨ.

*pagi ‘tomorrow’ > /pakeʔ/ *tuki ‘horn, antler’ > /take/

It also occurs in words borrowed from Khmer in which it is a reflex of /ei/ and /ae/.

Khm. /peil/ ‘time’ > /pèl/ Khm. /meiʔ/ ‘chief’ > /mε:
Khm. /ʔaen/ ‘self’ > /ʔen/ Khm. /dael/ ‘have ever’ > /del/

/e ɨ/ are mid-low front vowels; first register /e/ is [æ] in open syllables.

/leʔ/ ‘fall into’ [leʔ] /cẽh/ ‘insert’ [cẽh]
/sarɛ/ ‘debt’ [sɛʔæ]

PC *ẽ and *ɛ and *ẽ are reflected by KTC /e/ and /ɛ/.

*kẽʔ ‘bite’ > /kẽʔ/ *ʔẽh ‘excrement’ > /ʔẽh/
*bube ‘goat’ > /papẽʔ/ *sẽ ‘debt’ > /sarɛ/

/i ɨ/ are high central unrounded vowels; first register /i/ is [ɨ]: in open syllables.

/biŋ/ ‘eat’ [biŋ] /mi/ ‘field’ [mɨʔ]:
/miʔ/ ‘get’ [mɨʔ] /nɨ/ ‘chief, main’ [nɨ:]:

KTC /i/ and /ɨ/ are reflexes of PC *ā and *a and *ā and *ā.

*tanāʔ ‘cook’ > /tanãʔ/ *lanaŋ ‘worm’ > /lãnãŋ/
*limā ‘five’ > /lami/ *lumān ‘elephant’ > /lamin/
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*lumiʔ? ‘prepare’ > /lamiʔ?/ or /ramiʔ?/
*hã ‘yes’ > /hi/  *bɔŋ ‘eat’ > /bįŋ/
*cũʔ ‘mountain’ > /cũʔ/  *dɔŋ ‘stand’ > /tiŋ/

KTC /i/ may reflect /a/ in ancient borrowings.

Khm. /cneah/ (jhnah) > /caniʔ/ ‘win’

The word /iŋnãʔ?/ ‘verb?’ is probably a loan from Malay.

/ɔ ɔ/ are mid-central unrounded vowels. The perceived difference between first register /i/ and second register /ɔ/ is often very slight.

/yɔʔ/ final emphatic particle [iɔ:]  /pɔŋ/ ‘blown away’ [pɔːŋ]
/pɔʔ?/ ‘small dam’ [pɔʔ?]  /pɔʔ?/ ‘(banana) sheath’ [pɔʔ?]
/calɔŋ/ ‘very tall’ [cɔʃˈlɔŋ]

KTC /a/ and /ɔ/ are reflexes of PC *ǭ and *ə. They also derive from Khmer /ɔə/ and /aə/ in borrowed words.

*pɔŋ ‘to nail, pound’ > /pɔŋ/  *wɔŋ ‘instead’ > /wɔŋ/  *(…təʔ ‘tremble’ > /cataʔ/
Khm. /claay/ ‘answer’ > /cləy/
Khm. /sambəm/ ‘important’ > /səbəm/
Khm. /prəhən/ or /pəhən/ ‘arrogant, insolent’ > /phən/

There is one instance of KTC /ɔ/ from Khmer /aə/.

Khm. /təc/ ‘only’ > /təa/ (cf. p.108 above).

/a ă/ are low central unrounded vowels. /a/ in unstressed presyllables represents a very short mid-central vowel [ə]; when it occurs before /m/ in presyllables, it is backed and rounded to [ɔ]:

/saŋ/ ‘house’ > [saŋ]  /nəŋ/ ‘that’ [nən]
/tây/ ‘younger sibling’ [tâj]  /kapâʔ/ ‘walk’ [kɔpəʔ]

KTC /a/ and /ă/ are reflexes of PC *a and *ă. PC *ǭ preceding *r and *l is also reflected by /ă/.

*blâh ‘split’ > /plâh/  *hãŋ ‘spicy’ > /hãŋ/
*dalâm ‘deep’ > /talâm/  *katâl ‘itchy’ > /katâl/
*pha ‘thigh’ > /pha/  *tulâ ‘bone’ > /talaŋ/
*pã ‘four’ > /paʔ/  *hujâŋ ‘rain’ > /cân/
**ulâ ‘snake’ > /lâ/  *geŋ ‘handle’ > /kâr/
*tôt ‘until’ > /tâl/

KTC /a/ may reflect /a/ in borrowed words as well as /ie/ in some borrowings from Khmer.
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Pali akkhara > /akhār/ ‘letter’
Pali kappāsa > Khm. /kapbaah/ > /kapāh/ ‘cotton’
Malay akal (ult. from Arabic) > /akāl/ ‘intelligence’
Skt. rājakāra > Khm. /rieccakaa/ > /racaka/ ‘government’
Khm. /riep/ (rāpa) > /rāp/ ‘level’

/u ū/ are high back rounded vowels; first register /u/ and /ū/ have lower on-glides [ʰu] or [o].

/hu/ ‘have’ [ʰu] /kūŋ/ ‘who’ [kʊŋ]
/ūŋ/ ‘he, she, it’ [nũ:] /cārũh/ ‘fall down’ [ců’yũ’h]

KTC /u/ and /ū/ are reflexes of PC *ū and *ū and PC *ū and *ū.

*tōh ‘pour’ > /tōh/ *pitū ‘star’ > /patū/?
*tpūŋ ‘flour’ > /taptŋ/ *thūn ‘year’ > /thūŋ/
*manū? ‘chicken’ > /manū?/ srūh ‘nest’ > /srūh/
*ũūs ‘blow nose’ > /ũuh/ *jū? ‘black’ > /cǔ/?
*cūr ‘time’ > /cũ/ *ja?bū ‘dry’ > /cabu/
*jamūk ‘mosquito’ > /camūŋ/ *nū ‘he, she, it’ > /nũ/

KTC /u/ and /ū/ reflect /u/ in borrowed words.

Skt. dhūlī > Khm. /thuulii/ > /thũl/ ‘dust’
Malay dunia (ult. from Arabic) > /tũnya/ ‘world’
Khm. /puun/ (būna) > /pũn/ ‘to mound up’
Skt. guru > Khm. /kruu/ > /krũ/ ‘sorcerer’
Malay kubur (ult. from Arabic) > /kupũř/ ‘tomb’

/o õ/ are mid-high back rounded vowels.

/o/ final negative particle [ʔo:] /pahoŋ/ ‘group’ [phoŋ]
/põh/ ‘fruit’ [põh] /lõ/ ‘very’ [lõ:]

KTC /o/ and /õ/ are reflexes of PC *ů, *ů and *ũ. In loanwords, KTC /o/ may also reflect Khmer /oo/, /ou/, and /ao/.

*ʔbuh ‘see’ > /bõh/ *hũŋ ‘papaya’ > /lahõŋ/
*ḥađūm ‘how long’ > /ḥatôm/ *ďã ‘many’ > /lõ/
*tagũ? ‘arise’ > /takõ/? *plũm ‘leech’ > /plom/
*tǔ? ‘receive’ > /to?/

Khm. /tnaot/ ‘sugar palm’ > /tanot/ Khm. /sroop/ ‘absorb’ > /srop/
Khm. /younŋ/ ‘two’ > /yõŋ/ Khm. /lout/ ‘jump’ > /lõt/  

/o õ/ are mid-low back rounded vowels.

/lomŋ ‘cow’ [lõmŋ:] /tõʔ/ ‘to be located at’ [tõ:] 
/tõp/ ‘hit with the flat of the fist’ [tõp]

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/kõh/ ‘knock’ [kõh]

KTC /ɔ/ and /ɔ/ are reflexes of PC *o, *õ, *ô, and *õ.

*ʔakõ ‘head’ > /kãʔ/  *grõh ‘to bark’ > /krõh/
*patõ ‘teach’ > /pato/  *rõn ‘nourish’ > /rõn/
*lõk ‘to peel’ > /lõʔ/  *ŋõʔ ‘on’ /ŋõʔ/
*hõn ‘wasp’ > /hõn/

Lee’s (1965) *O sporadically becomes KTC /ɔ/.

*ʔbrOm ‘arrow’ > /brõm/
*ṣudOm (or) *ṣidOm ‘ant’ > /tõm/

Khmer /oa/ and /ɔa/ become /ɔ/ in KTC; /oa/ becomes /ei/ before /-t/.

Khm. /toap/ ‘army’ > /tõp/  Khm. /crɔk/ ‘pickle’ > /crõk/

There is abundant evidence in KTC for a split in the PC high and low vowels: *i > /i/ and /e/, *u > /u/ and /o/, and *a > /a/ and /i/. The conditioning factor for the split of *a is apparently nasalisation: *a > /a/, while *ã > /i/. The conditioning factor for the split of the high vowels has not been discovered. Lee (1977: 89-92) relates similar vowel splits in Haroi to: (1) the voicing feature of a preceding obstruent, and (2) the height feature of a preceding vocoid. Both reflexes of *i and *u have been found in apparently identical environments in KTC. It is always possible that the /e/ and /o/ reflexes, which are statistically much rarer than the /i/ and /u/ reflexes, are limited to borrowings from other dialects or from related languages, but so far, in most cases, no sources have been found.

The following glides occur:

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<th></th>
<th>FRONT</th>
<th>CENTRAL</th>
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<tbody>
<tr>
<td>HIGH</td>
<td>i</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>MID</td>
<td>e</td>
<td>a</td>
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<td>LOW</td>
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</tbody>
</table>

/sia/ ‘near’ [sia] /hapian/ ‘when’ [hõ’piän]
lahiūʔ/ ‘lose’ [lǎ’hìuʔ] /seam/ ‘good’ [seam]
/eçaŋ/ ‘craftsman’ [çeŋ] /yuan/ ‘Vietnamese’ [jʊən]
/kua/ ‘embrace’ [kua] /rõah/ ‘seek’ [yõah]
/tõa/ ‘two’ [tõa] /sâuʔ/ ‘smoke’ [saʔ]
KTC /ia/ is a reflex of PC *iê, *ia, and *io. It also occurs in borrowings from Khmer and Vietnamese.

*biêr 'dwarf' > /pia/
*palia ‘hail’ > /pia/
*pioh ‘keep’ > /mapiaiah/
Kh. /ckiei/ ‘scrape’ > /cakial/ Vn. chiêu ‘sleeping mat’ > /ciao/
Khm. /nien/ ‘addicted’ > /ñian/

KTC /iuw/ occurs only before /-ŋ/ where it is a reflex of PC *iâŋ?

*lumia ‘put away’ > /lamiuw/?
*laiiâŋ ‘lose’ > /laiiuw/?
*ma?iâŋ ‘urinate’ > /ma?iuw/?

KTC /ea/ is a reflex of PC *iâng/

*hiâŋ ‘cry’ > /heaw/
*liah ‘lick’ > /leah/
*pa?diâŋ ‘hot’ /padea?
*tîán ‘abdomen’ > /tean/
*biâk ‘true’ > /pêa?/

KTC /ua/ is a reflex of PC *uâ and *uâñ. It also occurs in loanwords from Khmer.

*ruay ‘fly’ > /ruay/?
*luon ‘to swallow’ > /luan/
*suay ‘slow’ > /suay/
*kamuân ‘nephew’ > /kamuan/
Kh. /phuay/ ‘blanket’ > /phuay/ Khm. /su/ ‘ask’ > /su/
Kh. /totual/ ‘accept’ > /tatwaal/

KTC /oa/ is a reflex of PC *ua and *uâa.

*dua ‘two’ > /töa/
*jua? ‘step on’ > /coa?/
*cañuâ ‘basket’ > /cañoa/
*cuah ‘sand’ > /coah/

KTC /au?/ is a reflex of PC *-âp and *ây?. (See also the treatment of PC final *-p above p. 109).

*câp ‘tie’ > /cøy/?
*trøy? ‘heavy’ > /trøy?/
*ánâp ‘in front’ > /tanøy?/
*hau? ‘sweat’ > /hau?/

Presyllable Vowels
Lee (1965), mainly on the basis of evidence from Roglai, reconstructed three presyllable vowels: *i, *u, and *a. In KTC these have all merged to /a/, which is [ɔ]. When the presyllable began with *-i-, *h-, and sometimes *s-, the presyllable has been lost in KTC.

† cf. VN ruôt ‘housefly, fly’ (Ed.).
7. Although I suspect that *ây? derives ultimately from *âp.
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*?inā ‘female animal’ > /ni/  *bilān ‘season’ > /plān/
*dilah ‘tongue’ > /talāh/  *?unī ‘this’ > /ni/
*sula ‘leaf’ > /la/  *limā? ‘five’ > /lamī/
*kubaw ‘water buffalo’ > /kapāw/  *?adhāy ‘forehead’ > /thāy/
*hawāy ‘rattan’ > /wāy/  *patōw ‘stone’ > /patāw/

There may also be some evidence of the presyllable vowel in cases of metathesis.

*buŋa ‘flower’ > /paŋa/  *pirāk ‘silver’ > *pria? > /pria?/
*duŋay ‘thorn’ > /trūay/  *manī ‘bathe’ > *mnāy > /manāy/

REFERENCES


