A Preliminary Phonological Analysis of Huay Jo Khmu

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1. Introduction

This research was carried out under the sponsorship and support of the Payap Research and Development Institute of Payap University, Chiang Mai, Thailand. This is an abridged version of that research. A full version of this paper (including an appended wordlist) was previously published in PYU Working Papers in Linguistics, vol. 3, 1999, produced by the Graduate Linguistics Department of Payap University.

The research was conducted in the village of Huay Jo in the Wiang Kaen district of Chiang Rai province, northern Thailand. The dialect spoken in Huay Jo is very similar to the dialect referred to as “Kroong” ([krɔŋ]), studied by Professor Suwilai Premrit of Mahidol University (1987, 1993).

This paper is limited to an analysis of the speech of a single person represented in a tape-recorded wordlist of 500 basic vocabulary items. This recording was later digitized using MacCECIL. MacCECIL was also used in acoustic analysis by comparing waveforms, pitch plots and sound spectrograms.

The native speaker who recorded the wordlist was Mrs. Khwiin Buncoeng, a 63-year-old woman. Her speech is particularly interesting, because she, along with her daughters and several other women of Huay Jo village, exhibit a falsetto voice quality in certain tense register syllables.

2. Words

The phonological word in Khmu Kroong is the domain of the minimal stress contour represented as follows:

\[ PW = (S_r) + S_m \]

The phonological word (PW) consists of a main (fully stressed) syllable \( (S_m) \) optionally preceded by a reduced (weakly stressed) syllable \( (S_r) \). Thus, in general, phonological words are monosyllabic or “sesquisyllabic”.

The phonological word (hereafter simply ‘word’) may be distinguished further as either tense or lax in phonation type. We represent tense phonation with an acute accent over the vowel of the main syllable (ú). A double acute accent (û) marks tense forms that also exhibit falsetto voice quality. Lax phonation is represented by a grave accent (û). Words of both
types exhibit the same basic word structure as shown in these examples:

<table>
<thead>
<tr>
<th>Tense:</th>
<th>$S_m$</th>
<th>$S_r + S_m$</th>
</tr>
</thead>
<tbody>
<tr>
<td>S_m</td>
<td>kāp 'cut (hair)'</td>
<td>pité:ʔ 'earth'</td>
</tr>
<tr>
<td>S_m</td>
<td>pū:t 'cloud'</td>
<td>kimū:l 'silver'</td>
</tr>
<tr>
<td>Lax:</td>
<td>$S_m$</td>
<td>$S_r + S_m$</td>
</tr>
<tr>
<td>S_m</td>
<td>tàːŋ 'lizard'</td>
<td>lõmttàːŋ 'eggplant'</td>
</tr>
</tbody>
</table>

As previously stated, in general, Khmu words are either monosyllabic or sesquisyllabic. However, there are some disyllabic words found in our data as well as three examples of words that appear to be trisyllabic words.

3. Syllables

3.1 Main Syllables

The structure of main syllables may be symbolized as:

$$S_m = (C)(C)V(C)$$

Initial consonants (C)(C) are optional and can be either a single simple consonant or a two-segment cluster. The syllable nucleus V can be a long vowel, a diphthong, or a short vowel. The optional final (-C) can only be a single consonant from a limited set. Each type of main syllable is exemplified below:

- VC: ?óm 'water' (simple nucleus)
- VC: ?úːːk ‘drink’ (complex nucleus)
- CV: nà: ‘she’
- CCV: pʰréː ‘cut grass’
- CVC: róːt ‘choke’
- CCVC: plòːŋ ‘rattan’

The first element of an initial cluster can be /p/, /pʰ/, /t/, /c/, /k/, /kʰ/ and /s/. The second element of a cluster is either /l/ or /r/ (realized as a flap, [ɾ]). Table 1 shows all the clusters found in our data. Note that there are no clusters *tl, *cl or *sl.

<table>
<thead>
<tr>
<th>pʰr</th>
<th>kʰr</th>
</tr>
</thead>
<tbody>
<tr>
<td>pl</td>
<td>kl</td>
</tr>
<tr>
<td>pr</td>
<td>tr</td>
</tr>
<tr>
<td>sr</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Khmu Kroong consonant clusters
In some cases, the clusters /sr/ and /cr/ are ambiguous with a presyllable consisting of /s/ or /c/, followed by a main syllable with /r/ as an initial; there seems to be a transitional vowel between the initial and the /r/, as shown in the following (phonetic) examples:

\[
\begin{align*}
tf^{n}\text{sr}:l & \quad \text{‘gold’} \\
cçirò: & \quad \text{‘deep’} \\
tf^{n}\text{ir}:n & \quad \text{‘gong’} \\
tf^{n}\text{ir}:h & \quad \text{‘scrub’} \\
tf^{n}\text{ir}:h & \quad \text{‘sand’}
\end{align*}
\]

The words for ‘gold’, ‘sand’ and ‘deep’ are found in Suksavang, Somseng, and Preisig (1994) with the clusters sr and cr respectively. Given this information and the fact that in our data there is no contrast between words with initial clusters and words with a single consonant presyllable preceding a liquid-initial main syllable, we conclude that the words above represent clusters phonemically.

3.2 Presyllables

The structure of presyllables may be represented in the following way:

\[
S_r = \left\{ \begin{array}{c}
C \\
[-\text{nas}] \\
[-\text{son}] \\
C \left( \begin{array}{c}
C \\
[+\text{son}] \\
\end{array} \right) \\
\end{array} \right. \\
\end{array}
\]

That is, the presyllable \((S_r)\) consists of an obligatory consonant either nasal or non-nasal. If this consonant is a nasal, no other segments may be part of the presyllable and that nasal consonant is syllabic. If the obligatory consonant is not a nasal, a reduced vowel \(v\) is obligatorily epenthesized and there may be an optional sonorant final. Listed below are examples of the three presyllable types generated by our formula:

\[
\begin{align*}
C & \quad \text{ntùp} & \quad \text{‘close’} \\
Cv & \quad \text{rimr}:j & \quad \text{‘ear’} \\
CvC & \quad \text{pinsuím} & \quad \text{‘plant’}
\end{align*}
\]
As shown by the formula, nasals never occur as initials in a closed presyllable, i.e. there are no forms such as the following: *nm, *ml, *ŋr etc. The following segments also do not occur as presyllable initials in the wordlist: /pʰ/, /kʰ/, /w/, and /j/. However, the aspirated stops are attested both by Suwilai (1993) and by data of our own apart from the wordlist. The approximants, on the other hand, appear to be disallowed as initials of presyllables.

Although other researchers (Suwilai 1993; Svantesson 1983:29) have found presyllables with stop finals, our data show only sonorants: /m/, /n/, /ŋ/, /l/, and /ɾ/. See below for more discussion regarding the presyllable vowel.

4. Segments

4.1 Consonants

<table>
<thead>
<tr>
<th></th>
<th>pʰ</th>
<th>tʰ</th>
<th>kʰ</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>t</td>
<td>c</td>
<td>k</td>
</tr>
<tr>
<td>(ʔm)</td>
<td>(ʔn)</td>
<td>(ʔj)</td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>n</td>
<td>n</td>
<td>ŋ</td>
</tr>
<tr>
<td>r</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</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>

Table 2. Kroong initial consonants

<table>
<thead>
<tr>
<th></th>
<th>p</th>
<th>t</th>
<th>c</th>
<th>k</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td>n</td>
<td>n</td>
<td>ŋ</td>
<td></td>
<td>h</td>
</tr>
<tr>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>l</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>w</td>
<td></td>
<td></td>
<td></td>
<td>?</td>
<td>j</td>
</tr>
<tr>
<td>j</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Kroong final consonants

As shown in Tables 2 and 3, there are no ordinary voiced stops in this variety of Khmu. However, there are sometimes audible differences between the initial stops of tense and lax syllables.

Also seen in these tables is the fact that the set of possible finals is more limited except for the inclusion of the two