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A Phonological Description of Western Bru, Sakon Nakhorn Variety, Thailand

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Abstract
This paper provides a phonological analysis for a Western Bru variety spoken in Northeast Thailand labelled Bru Sakon Nakhorn (Bru SN). Previous descriptions of Western Bru varieties differ in the amount of distinctive vowel qualities, the presence of onglides linked to phona tion and vowel height, the contrastive status of the feature nasalisation, and vowel contrast in reduced syllables. The present analysis identifies contrastive onglides, lack of contrastive nasalization, and predictable vowel qualities in reduced syllables. It further argues that the consonants often described as palatal plosives or alveolo-palatal affricates in Mon-Khmer languages are alveolo-palatal plosives. The vowel system indicates that diphthongs are phonologically short vowels. Ongliding related to vowel height and ponation type is not present. Furthermore, this variety appears to differ from closely related So in distinguishing onglides and offglides. Spectrograms and minimal pairs reveal that they are contrasting phonemes, not allophones, indicating that Bru SN clearly retains this vowel contrast, in line with other Bru varieties.

Keywords: Katuic, Western Bru, phonology

ISO 639-3 language codes: brv

1. Introduction
Bru belongs to the Katuic branch of the Austroasiatic languages and is spoken in Vietnam, Laos, Cambodia, and Thailand. The Katuic family derives its name from the Katu language and has a special status within the Mon-Khmer group because it is rich in both ancient lexical and phonological retentions as well as innovations regarding the vowel system (Sidwell 2005). There are different views on which Katuic subgroup Bru belongs to. The categorization as West, North, or North-East Katuic is mainly based on whether lexical or phonological parameters were chosen for comparison (Sidwell 2009). Peiros (1996) considers Bru, Kui and Pacoh as separate subgroups next to Katu. Miller & Miller (1996) label Bru, So, Tri, Makong, Siliq and Katang as North Katuic. Luang-Thongkum (2001) categorizes Bru, So and Pacoh as North-East Katuic. Sidwell (2005) agrees with Diffloth & Zide (1992) in identifying Bru, So, Kui and Souei as West Katuic, placing them next to the Ta’oih, Katu, and Pacoh dialect chains. Under West Katuic, Lewis et al. (2013) distinguishes Eastern Bru in Laos and Western Bru in Thailand next to So in Laos and Khua in Vietnam under the Brou-Sou branch. Independent from the actual classification, So commonly appears in the same subcategory as Bru (Diffloth & Zide 1992, Miller & Miller 1996, Thongkum 2001, Sidwell 2005).

Apart from comparative studies on Katuic languages including Bru, there are grammatical observations on the Eastern Bru variety Bru Tri of Vietnam and Laos by J Miller (1964) and C Miller (1964), vowel descriptions for the same variety (J Miller 1976; Phillips, Miller & Miller 1976; Vuong 1999) and phonological descriptions for a Western Bru variety in North-East Thailand by Luang-Thongkum (1979) and Green (1996). Gainey (1985) compared the phonological inventories of Kui, Bru and So varieties in northeastern Thailand. A grammatical description of So was provided by Migliazza (1998). Miller and Miller compared the phonological inventories of six Bru varieties in three provinces of northeast Thailand (1995), provided a Bru dictionary (1995), and conducted a lexical comparison of So and Bru dialects in Thailand (Miller & Miller 1996). Grammatical observations (Engelkemier 2010) and a discourse study (Tebow 2010) are available for one of these Bru varieties, referred to as Kok Sa-ak in Miller and Miller’s 1996 study and found in Sakon Nakhorn.
As Luang-Thongkum (1979) points out, the language name Bru (found with various spellings in the literature) refers to phonologically different varieties, depending on whether they are found in Thailand or in Vietnam. In the Vietnam variety, register is contrastive only for long monophthongs and diphthongs and basically manifests itself in diphthongisation; here onglides mark the tense register, and monophthongs are found in the lax register (cf. J Miller 1967; Philips, Miller, and Miller 1976; Vương 1999). For the Thai Khong Chiam variety, Luang-Thongkum (1979) identifies contrastive modal to slightly tense and breathy phonation for all short and long vowels. In the context of breathy phonation, open vowels are realised with slight onglides. For the same variety, Green (1996) identifies onglides also for tense close and mid vowels.

Next to different transcriptions of monophthongs depending on the register, Luang-Thongkum’s (1979) and Green’s (1996) studies also differ in the amount of contrastive vowel qualities. Luang-Thongkum (1979) identifies a symmetrical system with 11 vowel qualities comprised of 4 unrounded front and 4 rounded back vowel heights, and 3 unrounded back vowel heights next to three offglides /iə, ɯə, uə/ and two onglides /ia, ua/. Green (1996) describes closed, close-mid and open vowels with all expected length and register distinctions but postulates a rather irregular set of mid and open-mid vowels with gaps for opening degree, length, and phonation contrast, next to vowel contrast for /u/ and /a/ in reduced syllables. Miller and Miller (1996) identify 3 front vowel heights, 4 central vowel heights, and even 5 back vowel heights for six Bru varieties in Thailand.

Lastly, Gainey (1985) calls nasalization contrastive for Bru and So in Thailand whereas Luang-Thongkum (1979) identifies some contrastive but mostly context-bound nasalization, and Green (1996) similarly argues that nasalisation contrast is predictable or doubtful. This study will examine the phonological inventory of the Bru variety in Sakon Nakhorn province, hereafter Bru SN, in order to determine where in the varying phonological descriptions of Western Bru it fits in regard to the amount of distinctive vowel qualities, the presence of onglides linked to phonation and vowel height, the feature nasalisation, and vowel contrast in reduced syllables since there appears to be no consensus in the previous studies.

After providing a short overview of Bru SN in its linguistic context, a description of Bru SN syllable and word structure will follow. Bru SN phonology with its 24 consonants and 15 contrastive vowels further distinguished by length and two phonation types will then be presented and discussed in the third section. It will be argued that obstruents typically described as palatal stops or alveolo-palatal affricates best are interpreted as alveolo-palatal stops. Whereas diphthongs correlate to long vowels in the related Kui varieties (Van der Haak & Woykos 1990), they pattern like short vowels. Special consideration will be given to the two types of diphthongs found in this language, onglides and offglides, as postulated for Proto Katuic by Sidwell (2005). The distinction of onglides and offglides may not be found in this very closely related language, depending on the analysis (Gainey 1985 vs. Migliazza 2003). Explanations for this deviation from So are discussed in the final part.

2. Bru SN Linguistic Background

The particular variety underlying this phonological description is spoken in the Phang Khone and Phanna Nikhom sub-districts of Sakon Nakhorn province of Thailand. It has approximately 5000 speakers and was initially named after the village where the development took place, Bru Khok Sa-at, because it has been found to represent the dialects spoken in all eight Bru villages along the shore of the Nam Un reservoir. Bru SN speakers in Thailand are generally bilingual or trilingual. The older generation (40+ years) have had little formal education and speak Bru in the home and in the village. In situations where there are Isan speakers present, they will speak Isaan. Bru SN who are younger than 40 years speak both Bru and Isaan in the home and in the village, Isaan in the wider community, and standard Thai in formal situations and outside of the Isan district as they have had more formal education (Choo et. al. 2012).

Gainey (1985) notes that Kui, Bru and So are lexically and phonologically similar. All three varieties have eight out of 24 compared phonological phenomena in common, with Kui and So sharing ten of those. Bru and So, however, share 17 out of 24 phonological features, including

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1 The eight villages are Khok Sa-at, Kham Wae, Nong Hai Yaay, Nong Hai Noi, Naa Lao, Naa Than, Huay Bun and Hin Taek.

contrastive nasalization, identical vowel inventories, more variety in the consonant and vowel inventory of reduced syllables, final voiceless and glottalized approximants, and a /tʰɾ-/ cluster. Bru SN and the So language of the Kusuman district of Northeast Thailand in fact are very similar, as seen in the 91 percent of cognates they share (Miller & Miller 1996) and in the ease of acquired intelligibility between the two languages (Choo 2012). Migliazza (2003) reports that the So people came to Thailand from central Laos within the last 150 years due to political and economic conditions there. According to the story teller of Khok Sa-at (personal communication with Tebow), the neighboring So of Kusuman district and the Bru of Dong Luang were in the same migration from Laos a few generations ago, settling in different regions. Miller & Miller (1996) state that the Bru of Khok Sa-at originate from the Meung Wang area in Laos near the Vietnamese Border. Based on the author Tebow’s personal observations and in agreement with C. Miller (personal correspondence), Bru SN is not mutually intelligible with the Eastern Bru variety Bru Tri of Laos and Viet Nam (250 kilometers distant), nor is it mutually intelligible with the Bru of Don Luang in Mukdahan province (100 kilometers away).

The data for this description comes from a lexicon of 3000 words collected in the village between February 2007 and April 2008. Further text collection has continued from October 2008 to May 2012. A corpus of 3100 words has been recorded and processed using FieldWorks and Speech analyser (SIL 2007).

3. Bru SN Word Structure

Bru SN is an isolating language with very little derivation or inflection. A limited set of verbs can be marked as plural iterative with the minor syllable prefix /-ɾə/ . A larger set of verbs can also be preceded by the causative marker /a-/ . Compounding is a common way of word formation, like /tʰɾɛː/ ‘shirt’ and /a.laːj/ ‘pants’ joining to form /tʰɾɛː.a.laːj/ ‘clothes’, or /sɛːm/ ‘younger sibling’ and /aːj/ ‘older sibling’ forming /sɛːm.aːj/ ‘siblings.’ Compound words can have two to four syllables. The longest words in the data corpus are loanwords with up to four syllables, as in /seː.naː.bɔ.diː/ ‘advisor’ coming from Thai. The shortest word would consist of a vowel as in /ɔː/ ‘good’.

Bru SN follows the word structure typical for mainland southeast Asia and has monosyllabic as well as quasi-disyllabic (cf. Michaud 2012) or sesquisyllabic words (cf. Matisoff 1973), the latter consisting of a full syllable and a preceding phonologically reduced syllable. Sesquisyllables can be either full words with a bound grammatical prefix, originally cluster-initial loanwords with epenthetic vowels to avoid any non-native consonant sequences, or old compounds where the first classifying element fossilised (Matisoff 1989); over time it entirely or partially lost its meaning and, consequently, some of its phonological features that were not needed to distinguish the former meaning anymore. This appears to be the reason why only a limited inventory of consonants is found in reduced syllables. Vowel contrast and contrast of suprasegmental features like length, tone, or voice quality is neutralised in this context so that reduced syllables can be considered mora-less (Herr 2011). Therefore they may be entirely deleted, especially in Austroasiatic languages (Michaud 2012). Nasal initials often turn into syllabic nasals in this context, causing the so-called prenasalisation which is another areal feature found in languages of all types in mainland southeast Asia (cf. Henderson 1965).

Full syllables show the full range of initial and final consonants and have contrastive vowel quality, length and register. All consonants except glottalized approximants /wˀ, jˀ/ and the voiceless palatal approximant /j/ can serve as onsets. Full syllables can have initial clusters formed by plosives liquids /l, r/. Codas consist of voiceless plosives and fricatives, the nasals, and all approximants including the liquids. Syllable kernels are made up by a long or short monophthong or a diphthong with either modal or breathy voice. The shape of the full syllable is C1(C2)V(:)(C3).

In reduced syllables, phonation, vowel quality and length are neutralized. The consonant inventory is restricted to initial /p, pʰ, t, t, k, kʰ, m, s, r, l/, a short open central vowel with the obligatory glottal onset [ʔ], marked with the glottal stop in this paper, and optional final nasals /m, n/, with the place of articulation assimilating to the following full syllable onset. Reduced syllables with a final nasal as in [tɛmːpʰɔːr] ‘yank’ are rare, though. Even though the glottal stop is a redundant feature, occurring as an abrupt onset for initial vowels and following final short vowels with modal voice, it is chosen to mark the reduced syllable onset in line with the contrastive...
consonant onsets, since the vowel is not contrastive in this position, either. Unlike Green’s (1996) findings for Bru Khong Chiam, vowel quality is predictable in reduced syllables. The default is is a short near-open central vowel [ɐ̆] as in [ʔ.ʔ.маʔ] /ʔ.ма/ ‘who’, whereas a near-close back [ʊ̆] occurs with velar /k/ as in [k.قترʔ] /k.قتر/ ‘earth’, and near-close front [i] follows alveolar and alveolo-palatal /s, k/ as in [s.բաʔw] ‘shout’ or [Ք.փիʔ] ‘mongoose’. Since there is no contrast between the three vowel qualities in reduced syllables, there are some dialectal differences for the vowels in reduced syllables. For example, in the dialect of Naa Lao village located 10 kilometers from Khok Sa-at village, the vowel is not assimilated to back articulation in velar-initial reduced syllables, as in [k.قترʔ] ‘earth’. Because vowels in reduced syllables differ from area to area and are not contrastive but fully predictable, they do not occur in the phonemic transcriptions, following current practice (cf. Svantesson & House 2006, Gafos 1999, Shaw 1993). The syllable breaks indicate that the consonant is the syllable onset, not the first consonant of a cluster onset.

There are exceptions for minor syllables with a sibilant onset in loan words. If a borrowed word starts with [sʰ] the vowel quality is kept, as in [sʰ.լոփ] ‘to faint’, and not changed to the predictable vowel form in reduced syllables. Since the phonological process of vowel reduction and ultimately deletion in initial syllables of sesquisyllabic words does not get applied to /s/-initial loanwords, it could be argued that these borrowed words are not perceived as sesquisyllabic but disyllabic. The vowel in the first syllable appears to be perceived as a phoneme because it does not follow the pattern of Bru SN sesquisyllabic words where the initial sibilant is always followed by a high close vowel.

A mere reflex of a former nasal-initial reduced syllable is found in the prenasalization of initial plosives of full syllables. These homorganic nasals such as /n.to/ ‘tree-bark’ or /ŋ.կոːŋ/ ‘to crawl’ are perceived as a modification of the following plosive and are considered to be one syllable by native speakers. Obstruent- and liquid initial sesquisyllabic words like [ʔ.տաʔ] ‘dog’, on the other hand, are counted as two syllables. Accordingly, the compound word /m.պես.մուտ/ (lit. ‘mother ant’ = ‘witch’) with a prenasalized full syllable followed by a reduced syllable is considered to have three syllables: [“ֶפֶ standpoint]. Examples for mono- and sesquisyllabic Bru SN words are given below.

| V  | /ɔ/  | ‘grandfather’ |
| V: | /ɔː/ | ‘good’ |
| CV | /po/ | mouth |
| CV: | /ki:/ | ‘loom’ |
| CVC | /sok/ | ‘hair’ |
| CV:C | /tʃ.t/ | ‘wipe’ |
| CV | /pra/ | ‘money’ |
| CCV: | /pla:/ | ‘flame’ |
| CCVC | /ploŋ/ | ‘to blow’ |
| CCV:C | /kʰlaːp/ | ‘wing’ |
| c.CV | /ʔ.տաʔ/ | ‘dog’ |
| c.CVC | /ʔ.լայ/ | ‘3rd PL’ |
| c.CCVC | /ʔ.բլուհ/ | ‘ask’ |
| c.CVC | /k.բաʔ/ | ‘bowl’ |
| c.CCV | /t.kloː/ | ‘lay head down’ |
| c.CCVC | /k.բռի/ | ‘shake’ |
| cn.CV | /kn.ցɛː/ | ‘key’ |
| cn.CVC | /tm.pօտ/ | ‘to yank’ |
4. Bru SN Phonology

Bru SN has 23 consonants and 46 vowels, including contrastive length and phonation. All Bru SN phonemes with examples will be described in the three sections below.

4.1 Consonants

20 of the 23 distinctive Bru SN consonants can occur in syllable-initial position. Aspiration is contrastive for all plosives. Voicing is contrastive for bilabial and alveolar but not for alveolo-palatal and velar stops. The alveolo-palatal stop has been transcribed with the symbol for palatal stops /c/ by many researchers (e.g. Thomas 1967, Sidwell 2005). Since the plosive has a relatively long release noise, an affricate symbol /tɕ/ like used in Thai (Tingsabadh & Abramson 1993) could be used instead. This is misleading for two reasons.

- The short [i]-like transition preceding it when it occurs in syllable-final position clearly indicates that the closure is not alveolar; a final /t/ would not be preceded by this transitional vowel.
- Even though frication is allowed for finals, as in final /h/, final plosives always are unreleased. This favors the interpretation of the alveolo-palatal obstruent as a plosive, not an affricate, because in syllable-final position this sound is always unreleased and thus patterns like a plosive.

For the present description, the non-IPA symbols for alveolo-palatal plosives have been chosen because they represent the actual sound more closely than the symbol for the palatal stop.

The rhotic is realised as an alveolar flap in the onset and as a trill in the coda of a syllable. In clusters, it can be a trill or an alveolar approximant. Table 1 below shows all Bru SN consonant phonemes.

Table 1: Bru SN Consonants

<table>
<thead>
<tr>
<th>Manner/Place of Articulation</th>
<th>bilabial</th>
<th>alveolar</th>
<th>alveolo-palatal</th>
<th>post-palatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>plosive</td>
<td>b p pʰ</td>
<td>d t tʰ</td>
<td>ȶ  ȶʰ</td>
<td>k kʰ</td>
</tr>
<tr>
<td>nasal</td>
<td>m</td>
<td>n</td>
<td>η</td>
<td>η</td>
</tr>
<tr>
<td>approximant</td>
<td>w wˀ</td>
<td>l r</td>
<td>j jˀ  ȷ̊</td>
<td></td>
</tr>
<tr>
<td>fricative</td>
<td>s</td>
<td></td>
<td>h</td>
<td></td>
</tr>
</tbody>
</table>

Apart from /wˀ jˀ ȷ̊/ every consonant occurs in syllable-initial position. Examples for syllable-initial clusters are: /pra/ ‘money’, /pʰrɪː/ ‘to unroll’, /bɾɨː/ ‘speak’, /tɾan/ ‘animal’, /tʰrɔː/ ‘rice’, /kru p/ ‘to cover’, /plɔŋ/ ‘to blow’, /błoŋ/ ‘alcohol’, /klɔːk/ ‘white’, /kʰlaːp/ ‘wing’. The bilabial approximant /w/ is realized as a fricative [ʋ] when it precedes the closed front vowel /i/, as in [vil] ‘village’. The bilabial fricative [f] in words borrowed from Thai such as /farəŋ/ ‘foreigner’ and /fǔn/ ‘dust’ is a possible allophone of the aspirated voiceless bilabial plosive /pʰ/ that these loan words usually are produced with, as in the Bru rendering /pʰ.raŋ/ and /pʰon/. Examples for initial consonants are given below.

/bak/ ‘cut’ /dop/ ‘dive’ /tʰut/ ‘wipe’ /kʰaŋ/ ‘middle’
/pak/ ‘pierce’ /top/ ‘basket’ /tʰut/ ‘sting’ /kʰaŋ/ ‘flat blade’
/pʰæk/ ‘scrape’ /tʰok/ ‘flick. rope’ /ɾaŋ/ ‘rich’ /sʰaŋ/ ‘to weigh’
/mʰɛ̄ŋ/ ‘rain’ /naj/ ‘this’ /ŋʰaŋ/ ‘cry’ /ŋʰaŋ/ ‘sweet’
/wʰa/ ‘borrow’ /ɾaŋ/ ‘stripe’ /jɛŋ/ ‘gold’ /ŋɛŋ/ ‘critical’

Bru unreleased voiceless oral stops, all nasal stops, and all approximants including the liquids occur in syllable-final position. The glottalized approximants /wˀ jˀ/ as well as the voiceless voiceless approximant /j/ occur only as codas; they are not allophones of the non-
glottalized or voiced approximants since they form clear contrast and are found with both phonation types. Examples for final consonants are seen in the following words.

/klap/ ‘touch’ /màt/ ‘eye’ /màt/ ‘beautiful’ /màk/ ‘love’
/təm/ ‘spread’ /tən/ ‘thresh’ /mən/ ‘borrow’ /təŋ/ ‘abandon’
/kjàw/ ‘step’ /tmir/ ‘lips’ /rtaj/ ‘scatter’ /sah/ ‘bail’

4.2 Vowels

Bru SN has 14 contrastive vowel qualities. Nine of them are monophthongs and five are diphthongs. For the monophthongs, length is phonemic, totalling 24 vowels. Only short monophthongs and modal voice diphthongs can be followed by a glottal stop, indicating that diphthongs are phonologically short vowels. For the onglides /a, òa/ the phonetic final glottal stop is an artefact indicating modal voice. Phonation is phonemic for both monophthongs and diphthongs which leads to a total of 46 contrastive vowel varieties. The occurrence of breathy vowels is slightly limited: There is no short /e/ in smooth syllables and no long /a:/ in checked syllables. Syllable-initially, vowels are preceded by a fully predictable glottal stop, meaning there are no vowels without a glottal onset. In syllable-final position its occurrence is limited to short modal vowels.

Ladefoged and Maddieson (1996) have organised phonation types on a continuum from maximal glottal opening to maximal glottal constriction. The five laryngeal settings in this continuum which they find to be sufficient to describe languages are: 1. Breathy, 2. Slack, 3. Modal, 4. Stiff and 5. Creaky. They argue that for consonants, languages contrast phonation types which are more than one degree in distance. For vowels, Jalapa Mazatec has been reported to have a three way contrast between breathy, modal and creaky voice. Tonal Mpi contrasts modal and stiff voice. For many languages with contrastive phonation the voice quality is slack or slightly breathy, also called lax by Keating et al. (2010), versus stiff or slightly creaky, also called tense (Keating et al. 2010). Bru SN contrasts modal and breathy voice like the related language So. The Eastern Bru language Bru Tri, on the other hand, contrasts creaky and modal voice for the same cognates. Thus all three languages have a lax and a tense register, placed at different points on the continuum of glottal constriction.

All Bru SN vowels, including length and phonation distinctions, are shown in Table 2. Unlike observed for Bru Khong Chiam (Luang-Thongkum 1979, Gainey 1985), nasalisation is not contrastive in Bru SN. Also, there are not four but only three front and back vowel heights, resembling Green’s analysis (1996). The vowel inventory will be discussed in the sections below.

Table 2: Bru SN Vowels

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Back centralized</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close</td>
<td>i i</td>
<td>i i</td>
<td>u y</td>
</tr>
<tr>
<td></td>
<td>iː iː</td>
<td>iː iː</td>
<td>uː yː</td>
</tr>
<tr>
<td>Mid</td>
<td>e e</td>
<td>e e</td>
<td>o o</td>
</tr>
<tr>
<td></td>
<td>eː eː</td>
<td>eː eː</td>
<td>oː oː</td>
</tr>
<tr>
<td>Open</td>
<td>e e</td>
<td>a a</td>
<td>o o</td>
</tr>
<tr>
<td></td>
<td>eː eː</td>
<td>aː aː</td>
<td>oː oː</td>
</tr>
<tr>
<td>Diphthongs</td>
<td>iᵃ i²</td>
<td>iᵃ iᵃ</td>
<td>uᵃ uᵃ</td>
</tr>
<tr>
<td></td>
<td>òa òã</td>
<td>òa òã</td>
<td>òa òã</td>
</tr>
</tbody>
</table>

The diphthongs in Bru SN are comprised of three offglides or rising diphthongs, and two onglides or falling diphthongs, like Bru Khong Chiam described by Luang-Thongkum (1979) and Green (1996). Neither onglides nor offglides distinguish length; like the short monophthongs, they
can be followed by glottal stops and thus pattern like short vowels. The existence of five
diphthongs is not surprising since they follow general Bru phonology. On the other hand, for So
which shares many cognates with Bru SN there is no consensus on its diphthong inventory. It has
been described as having three offglides and two onglides (Gainey 1985) but also only three
diphthongs which are all offglides (Migliazza 2003). Even though the long vowels /a:/ and /ɔ:/ in
Thai or Lao words often are replaced by breathy diphthongs, as seen in words like /tʰaː/ → /tʰɔː/ ‘to
spread’, /næj/ → /næŋ/ ‘mister’. /pʰɔ:/ → /pʰɔ̄ː/ ‘enough’ or /kʰɔːn/ → /kʰɔn/ ‘hammer’ (tones are
not marked as they differ in the Tai-Kadai sources and have no impact on the Bru SN vowel quality
under study), only approximately one third of the data with onglides could be the product of a
loanword mechanism. The breathy offglide /i醑/ is found in 16 words of which 4 are Tai-Kadai loan
words. Breathy /ɑ:/ is found in 91 words of which 32 are borrowed from Thai or Lao where it
replaces the long /a:/.

For Khmer it is hypothesised that the prolonged formant transition in breathy vowels allows
the reinterpretation as diphthongs (Wayland & Jongman 2002). That there is a link between long
open monophthongs and onglides is supported by the fact that Sidwell (2005) often offers two
reconstructions with both of these vowel types, as in Proto Katuic *baam, *biam ‘chew’ and *aŋŋaŋ,
*aŋŋaŋ ‘beans’. A possible explanation for why Bru SN and closely related So possibly differ in
their diphthong inventory might be found by taking a look at Proto Katuic as reconstructed by
Sidwell (2005). He postulates six diphthongs, *ie and *ia with front, *io and *ia with central, and
*uO and *ua with back commencing vowels. The Bru SN offglides /i醑/ and /u醑/ could be the
equivalents of PK *ie and *ua, and the onglides /ɑ:/ and /ɔ:/ would be the counterparts of PK *ia
and *ua with the open and thus more prominent central vowels. Bru SN might have lost two of
these six diphthongs already, a hypothesis underlined by the fact that onglide /ɔ:/ is frequent but has
no breathy counterpart, and there are only 10 lexemes which contain the central diphthong /i醑/
in the data corpus. The example /ŋaŋ/ ‘sweet’ and its PK root *ŋaam do not support this hypothesis.
A comparative study to investigate whether Bru SN and other related varieties like Khong Chiam possibly preserve older vowel distinctions than So appears promising but is not
possible within the framework of this paper. Furthermore, an analysis of So varieties in Thailand to
determine when particular words have been borrowed (Peiros 1991). Furthermore, the majority of
words with onglides are Bru cognates.

Examples for all Bru SN vowels including phonation and length contrast are given below.

| /k.triː/  | /kɪ/   | /trɪŋ/ | /kɪŋ/ | /buh/ | /tup/  |
| ‘shake’   | ‘pick off’ | ‘jungle’ | ‘stare’ | ‘burn’ | ‘bury’ |
| /kɪ/      | /kɪ/   | /kɪŋ/  | /kɪŋ/  | /suːn/ | /mʊt/  |
| ‘loom’    | ‘that’  | ‘small’ | ‘cave’  | ‘angry’ | ‘enter’ |
| /tɛt/     | /pɛt/  | /tʰɛt/ | /ŋaŋ/  | /ŋaŋ/  | /mʊk:k/ |
| ‘stuck to’| ‘prance’| ‘located’| ‘far’   | ‘to cover’| ‘praise’|
| /ʔ.kaːl/  | /tɛːt/ | /næŋ/  | /tæŋ/  | /moːk:/ | /mʊk:k/ |
| ‘knee’    | ‘chant’ | ‘also’  | ‘straight’| ‘hat’   | ‘glutton’ |
| /ʔ.lɛh/   | /pɛh/  | /ʔ.lan/ | /ʔ.lan/ | /ʔ.pɔt/ | /kʰk/  |
| ‘argue’   | ‘leech’ | ‘3rd sg’ | ‘clear’ | ‘unhook’ | ‘curve’ |
| /ʔ.deːl/  | /ŋɔː/w/ | /mat/  | /mat/  | /ʔ.pɔːt/ | /ʔ.pɔːh/ |
| ‘line up’ | ‘thing’ | ‘future’| ‘eye’   | ‘play violin w/ bow’ | ‘bubble’ |
| /lɪŋ/     | /tjɨ/  | /pɨt/  | /pɨŋ/  | /tuːŋ/  | /ŋuːŋ/ |
| ‘to study’| ‘before’| ‘bored’ | ‘straw’ | ‘lake’   | ‘before’ |

TEBOW II, Thomas Charles and Sigrid Lew. 2013. A phonological description of Western Bru,
Sakon Nakhon variety, Thailand. Mon-Khmer Studies 42: 127-139
4.2.1 Monophthongs

Length and phonation are contrastive for monophthongs. The symbol /a/ stands for an open central to back centralized vowel [ɑ̟]. The phonetically most unstable vowel is the mid central vowel /ə/. For the modal alternant, its length is neutralized in open syllables where it is realized long in isolation but short in connected speech. As to vowel quality, this phoneme has two allophones, a long close-mid back centralized [ɤ̟ː] and a short open-mid back centralized [ʌ̟] which sometimes is realized as close-mid [ɤ] if the syllable ends on a velar plosive. Apart from this conditioned variation, there is both inter and intra-speaker variation found for the height of this vowel. Another phonological process is observed for the open-mid rounded back vowel /ɔ/. It is realized as an open rounded back vowel [ɔ] if it is short and therefore followed by a glottal stop. In every other environment the vowel quality is close-mid [ɔ] as in [ʔɔː] ‘good’ and [pɔt] ‘unhook’ vs. [ʔɔʔ] ‘grandfather’. Green’s (1996) findings of an irregular system of contrastive open and mid back and central vowels for Bru Khong Chiam are not applicable to Bru SN; the interpretation of this variety’s data resembles the one provided by Luang-Thongkum (1979).

4.2.2 Diphthongs

Whereas there is no length distinction, phonation is contrastive for onglides and offglides, apart from /eə/ which always occurs with breathy voice. Examples for contrastive phonation are /liɑ̟n/ ‘to study’ vs. /ʔ.li̤ɑ̟ŋ/ ‘backwards, on back’, or /kuɑ̟t/ ‘small frog’ vs. /kʊɑ̟t/ ‘bottle’.

The three offglides commence with prominent close vowels [i, ɨ, u] and end on a central or back centralized near-open target vowel [ɐ] indicated through a superscript /ᵃ/. The front and back offglides /iᵃ/ and /uᵃ/ have ongliding counterparts /ᵉa/ and /ᵒa/. These commence with a short close-mid height [ĕ, ɤ̆], and the more prominent target vowel in these rising diphthongs is a clear open central vowel [a]. Waveforms for the minimal pair /krʊⁿɡ/ ‘city’ and /krʰɑ̟ŋ/ ‘fence’ show that both onglide and offglide are about 140 msec long, but the near-open central target vowel in the offglide (between the cursors) shown in Figure 1 is only about 50 msec long. In contrast, the open central vowel for the onglide in Figure 2 (between the cursors) is more prominent in both amplitude and about 120 msec long. There is an audible difference in quality and length for the first part of the onglides and offglides, seen in the spectrograms for these minimal pairs as well. Note that the rhotics in these tokens are realised as alveolar approximants, not trills.

Figure 1: Waveform and spectrogram for back offglide /uᵃ/ in krʊⁿɡ ‘city’
Figure 2: Waveform and spectrogram for back onglide /ə/ in kroŋ ‘fence’

The front diphthongs are realized in a similar way, seen in Figures 3 and 4 below. Figure 3 with an offglide in /ʔ.lí̄ŋ/ ‘backwards, on back’ has a vowel length of about 200 msec (between the cursors), with a commencing close element of about 130 msec, making up more than half of the diphthong. The onglide in /k̂êŋ/ ‘craftsman’ in Figure 4 is about 260 msec long, with the commencing close element of about 100 msec being less than half as long as the whole vowel. Again, a difference in vowel quality for both elements in the back onglides and offglides is not only heard but also indicated through amplitude and waveform seen in the spectrograms below.
Figure 3: Waveform and spectrogram for front offglide /i̯ː/ in ʔ.li̯äng ‘backwards, on back’

Figure 4: Waveform and spectrogram for front onglide /əa/ in  хозя́ ‘craftsman’

The close commencing vowels of the offglides are clearly longer than the commencing close-mid vowel of the onglide. It is not possible to interpret the short close element in these diphthongs as a semivowel because it would lead to clusters formed by three consonants which is prohibited by Bru SN syllable structure.
5. Summary and conclusions

The present analysis of Bru SN phonology shares all features described by Luang-Thongkum (1979) for the Western Bru variety Khong Chiam in northeast Thailand, except that Bru SN has only three, not four front and back vowel heights. The other deviation is that nasalization, also reported by Gainey (1985), is not contrastive in Bru SN which supports Green’s (1996) observations for Bru Khong Chiam. Vowel quality in reduced syllables is fully predictable, apart from Thai or Lao loanwords with initial sibilants where the original open or near-open central vowel is kept. There are two contrastive onglides as generally reported for Bru languages but the allophonic feature of ongliding for open vowels as a side effect of breathy voice (Luang-Thongkum 1979) or for close and mid tense vowels (Green 1996) is not present in Bru SN.

Onglides appear to be a register phenomenon, liked to phonation and vowel length. The development of onglides cannot be related to merely voicing of initials since onglides are found in both registers for Bru Tri of Vietnam. According to Huffman’s (1976) classification of states for Mon-Khmer register development, this would mean that Bru Tri is developing a ‘restructured’ vowel system with a complete consonant merger. The allophonic development of onglides linked to voice quality in Bru Khong Chiam suggests that this variety, too, is on its way towards a restructured vowel system. Bru SN has no register-related ongliding and is still is a true register language.

The Bru SN vowel system might differentiate more diphthongs than neighboring So; Gainey’s (1985) description shows the same inventory of three offglides and two onglides but according to Migliazza (2003), the onglides [‘a] and [‘a] are not found in this closely related language. A synchronic analysis of So varieties in Thailand and historical-comparative studies are necessary to explain the possible vowel inventory deviation in these otherwise very similar languages.

6. References


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