CONSONANTAL LENITION AND VOCALIC TRANSFER IN KADAI LANGUAGES: WITH DISYLLABIC PROTO-BE-TAI AS SUPPORTING EVIDENCE

Ryuichi Kosaka

Lisbon
<liu_ryuichi@hotmail.com>

0 Introduction
The Be forms for ‘stone’, ‘horn’, ‘leg’ etc. have long constituted a significant problem from a Comparative Tai, historical point of view because their initials show “extra-normal” L tone category rather than an H tone, which is otherwise uniformly found in other Tai dialects (cf. Hansell, 1988).

In addition to this, a further, confusing patterning is presented by the occurrence of certain consonants and vowels in Be words such as ‘to laugh’, ‘ear’, ‘snake’ etc. in the process of reconstructing Proto-Be-Tai.

In order to provide these problems with a logically convincing solution, it is now necessary to posit proto-forms other than those set up by simply putting together the existing phonemes of cognate words.

This paper suggests that the phonetic changes here called “Consonantal Lenition (CL)” and “Vocalic Transfer (VT)” occurred in the course of development from Proto-Be-Tai to both Proto-Be and Proto-Tai, and elsewhere widely in the Kadai languages, and supports this hypothesis with descriptions of concrete historical changes from Proto-Be-Tai to modern Be and Tai dialect forms. Both of the CL and VT changes correspond to what has characteristically occurred in certain sesqui-syllable types of words when these turned into monosyllabic forms.

It should be noted that the designation of “Southern Tai” (ST) is used here to include Li Fang Kuei’s (1977) Central Tai (CT) and also Southwestern Tai (SWT). The variety Saek is occasionally referred to independently from Northern Tai (NT) due to its extremely conservative phonetic features, though in principle it would belong to the NT group.

The abbreviations used in this paper are as follows:

PB Proto-Be
PT Proto-Tai
PBT Proto-Be-Tai
(P)NT (Proto-)Northern-Tai
(P)ST (Proto-)Southern-Tai
(P)CT (Proto-)Central-Tai
(P)SWT (Proto-)Southwestern-Tai
(P)KS (Proto-)Kam-Sui
PKS (T) PKS reconstructed by Thurgood (1988)
PLakkja Proto-Lakkja (cf. Theraphan, 1991)
PAN Proto-Austronesian (cf. Dempwolff, 1938)
Be (Qs.) Qionshan dialect of the Be language (cf. Liang Min et al., 1996)

© Ryuichi Kosaka
The modern Be forms are from Hashimoto (1980) unless otherwise noted. The modern Lakkja forms are cited from Mao Zongwu et al. (1982).

1 Consonantal lenition

First, consider the following interesting phonetic changes.

- ?an daj ( = 'thing' + 'which') > *?a(n)j > Siam. ?āraj 'what'
- ?an nii ( = 'thing' + 'this') > *?a(n)n > Saek. ?ārii 'this (thing)'
- *lūk bau > *lūk kā-bau > Saek. (lūk) kwoō 'daughter-in-law'

Now observe that the Nhaheun language of the Mon-Khmer family (Bahnari branch) historically demonstrates a series of similar consonant changes in a systematic manner, as follows. Capital C is used to represent an optional consonant.

* Cāph- > * Cāb- > * Čw- (ex. *tēpal > *tēbal > dwaw 'mortar')
* Cām- > * Čw- (ex. *tēmā > nwā 'stone')
* Cātd- > * Cād- > * Čr- (ex. *pōteh > *pādeh > breh 'earth')
* Cān- > * Čr- (ex. *kōnal > *ŋiaw > ŋōo 'pillow')
* Cāo-j- > * Čj- > * Čj- (ex. *kēceet > *kējeet > gjeet 'to kill')
* Cāk(g)- > * Cāg- > * Čw- (ex. *tēkuaj > *tēguaj > *dwwaj > dwaj 'horn')
* Cās- > * Čs- (ex. *kōsee > khjee 'rope')

On the other hand, the following change is seen in Oy (also of Bahnari branch).
* Cāl- > * Čr- (ex. *jōlaa > jraa 'thorn', *hōlaaj > hrōn 'neck' etc.)

The above consonant changes could be arranged in formulae as in Table 1.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>*-p-, -b-, -m- &gt; -w-</td>
</tr>
<tr>
<td>*-t-, -d-, -n-, -l- &gt; -r-</td>
</tr>
<tr>
<td>*-c-, -j-, -s- &gt; -h-</td>
</tr>
<tr>
<td>*-k-, -g- &gt; -w-</td>
</tr>
</tbody>
</table>

These consonant changes as shown above are referred to as Consonantal Lenition (CL) hereafter.

In fact, the Be and Tai languages also underwent a parallel (though not quite identical with the velar series) set of CL changes (Table 2).

<table>
<thead>
<tr>
<th>Table 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>*-p-, -b-, -m- &gt; *(-)w-</td>
</tr>
<tr>
<td>*-t-, -d-, -n-, -l- &gt; *(-)r-</td>
</tr>
<tr>
<td>*-j-, -z- &gt; *(-)j-</td>
</tr>
<tr>
<td>*-k-, -g- &gt; *x-, *y-</td>
</tr>
</tbody>
</table>
We will now present the details of CL for the Be and Tai languages (Note that when the minor-syllable initial is specifically taken up in \textit{cf.}, the manner of change follows the described formula).

### 1.1 CL in Be

**Table 3: Principal formulae**

<table>
<thead>
<tr>
<th>Proto-Be-Tai</th>
<th>Proto-Be</th>
<th>Be (Hashimoto)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*-p, *-b-</td>
<td>*w-, *w-</td>
<td>v-, v- (ex. ‘year’, ‘thin’)</td>
</tr>
<tr>
<td>*-d, *-l-</td>
<td>*ʔr-</td>
<td>l- (z- in Be (Qs.)) (ex. ‘raw’)</td>
</tr>
<tr>
<td>*-k, *-g-</td>
<td>*x-, *γ-</td>
<td>h-, h- (ex. ‘green’, ‘person’)</td>
</tr>
<tr>
<td>**cf. <em>T-d- ( &gt; <em>ʔd-)</em></em></td>
<td>*ʔl-</td>
<td>l- (l- in Be (Qs.)) (ex. ‘red, purple’)</td>
</tr>
<tr>
<td>**cf. <em>h-t- ( &gt; <em>(h)n-t-)</em></em></td>
<td>*d-</td>
<td>d- (ex. ‘stone’)</td>
</tr>
<tr>
<td>**cf. <em>h-k- ( &gt; <em>(h)n-k-)</em></em></td>
<td>*g-</td>
<td>g- (ex. ‘bitter’)</td>
</tr>
<tr>
<td>*<em>cf. <em>hʔ/k-l</em></em></td>
<td>*ʔl-</td>
<td>l- (l- in Be (Qs.)) (ex. ‘yellow’)</td>
</tr>
<tr>
<td>*<em>cf. <em>mp-</em></em></td>
<td>*b-</td>
<td>b- (ex. ‘cloud’)</td>
</tr>
<tr>
<td>*<em>cf. <em>-b-</em></em></td>
<td>*w-</td>
<td>b- (in Be (Qs.); reposition)</td>
</tr>
</tbody>
</table>

### 1.2 CL in Saek

**Table 4: Principal formulae**

<table>
<thead>
<tr>
<th>Proto-Be-Tai</th>
<th>Proto-Saek</th>
<th>Saek</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>-p, <em>-b, (</em>-m-)</em></td>
<td>*h-, *ʔw, (<em>ʔw-)</em></td>
<td>v-, v- (ex. ‘ruin’, ‘thin’)</td>
</tr>
<tr>
<td><em>-t, <em>-d, (</em>-n-)</em></td>
<td>*hr-, *ʔr, (<em>ʔr-)</em></td>
<td>r-, r-, (r-) (ex. ‘stone’, ‘red’)</td>
</tr>
<tr>
<td>*-j, <em>-z</em></td>
<td>*j, *j-</td>
<td>j-, j- (ex. ‘lover’, ‘to wash’)</td>
</tr>
<tr>
<td>*-k, <em>-g</em></td>
<td>*x-, *γ-</td>
<td>h-, γ- (ex. ‘green’, ‘neck’)</td>
</tr>
<tr>
<td>*<em>cf. <em>p-b</em></em></td>
<td>*ʔb-</td>
<td>b- (ex. ‘leaf’, ‘sky’)</td>
</tr>
<tr>
<td>*<em>cf. <em>T-d</em></em></td>
<td>*ʔd-</td>
<td>d- (ex. ‘nose’, ‘navel’)</td>
</tr>
<tr>
<td>*<em>cf. <em>R-r</em></em></td>
<td>*ʔr-</td>
<td>r- (ex. ‘boat’, ‘roof’)</td>
</tr>
<tr>
<td>**cf. <em>k-p, <em>k-b</em></em></td>
<td>*kw-, *kw-</td>
<td>kw-, kw- (ex. ‘kelp’)</td>
</tr>
<tr>
<td>**cf. *p-t, <em>p-d, <em>k-d</em></em></td>
<td>*pr-, *pr-, *kr-</td>
<td>pr-, pr-, tr- (ex. ‘eye’)</td>
</tr>
<tr>
<td>**cf. <em>h-j- ( &gt; <em>(h)-j-)</em></em></td>
<td>*s-</td>
<td>s- (ex. ‘man, male’, ‘to use’)</td>
</tr>
<tr>
<td>**cf. <em>h-k- ( &gt; <em>(h)n-k-)</em></em></td>
<td>*h-g-</td>
<td>γ- (ex. ‘bitter’)</td>
</tr>
<tr>
<td>*<em>cf. <em>(h)-mp-,</em> h-nt-,</em> h-nk- ( &gt; <em>(b)-d, <em>g-)</em></em></td>
<td>(ph-,) th-, kh- (ex. ‘to arrive’)</td>
<td></td>
</tr>
</tbody>
</table>

*(Note: * indicates a minor-syllable position.)*
### 1.3 CL in NT

**Table 5: Principal formulae**

<table>
<thead>
<tr>
<th>Proto-Be-Tai</th>
<th>Proto-Northern-Tai</th>
<th>Northern Tai dialects</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>p-</em></td>
<td>*hw-</td>
<td>*f-, f- etc. (ex. ‘rain’, ‘tree’)</td>
</tr>
<tr>
<td>*t-, *m-</td>
<td>*hr-</td>
<td>*r-, r- etc. (ex. ‘stone’)</td>
</tr>
<tr>
<td>*-r-</td>
<td>*j-</td>
<td>j- etc. (ex. ‘lover’, ‘to point’)</td>
</tr>
<tr>
<td>*k-, *g-</td>
<td>*x-, *y-</td>
<td>h-, h- etc. (ex. ‘green’)</td>
</tr>
<tr>
<td>cf. *h-j-</td>
<td>*s-</td>
<td>s- etc. (ex. ‘man, male’)</td>
</tr>
<tr>
<td>cf. *h-k-</td>
<td>*h-g-</td>
<td>h- etc. (ex. ‘bitter’)</td>
</tr>
<tr>
<td>cf. *h-m/n/ŋ/l-</td>
<td>*h-n-</td>
<td>m-n, n- etc. (ex. ‘dog’)</td>
</tr>
<tr>
<td>cf. (*h-mp-∗) *h-nt-</td>
<td>*h-ŋk-</td>
<td>*b-, *d-</td>
</tr>
<tr>
<td>cf. *b-, *d-</td>
<td>*b-, *d-</td>
<td>b-, d- etc. (ex. ‘thin’, ‘red’)</td>
</tr>
<tr>
<td>cf. *h/k/p-l-</td>
<td>*hl-</td>
<td>l-, kl-, pl- etc. (ex. ‘yellow’)</td>
</tr>
</tbody>
</table>

### 1.4 CL in ST

**Table 6: Principal formulae**

<table>
<thead>
<tr>
<th>Proto-Be-Tai</th>
<th>Proto-Southern-Tai</th>
<th>Southern Tai dialects</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p-</td>
<td>*hw-</td>
<td>f- (ex. ‘rain’)</td>
</tr>
<tr>
<td>*t-</td>
<td>*hr-</td>
<td>h- (ex. ‘stone’)</td>
</tr>
<tr>
<td>*k-, *g-</td>
<td>*x-, *y-</td>
<td>x/kh-, x/kh- etc. (ex. ‘green’)</td>
</tr>
<tr>
<td>cf. *h-p-, *h-t-, *h-k-</td>
<td>*ph-</td>
<td>ph-, th-, kh- etc. (ex. ‘to extract’)</td>
</tr>
<tr>
<td>cf. *b-, *d-</td>
<td>*b-, *d-</td>
<td>b-, d- etc. (ex. ‘thin’, ‘red’)</td>
</tr>
<tr>
<td>cf. *k-t-</td>
<td>*l- (only in PCT)</td>
<td>th-, h- etc. (ex. ‘stone’)</td>
</tr>
</tbody>
</table>

Examples of CL follow.

*Čapii⁰ | *wii⁰ | *woj⁰ (PB) > vai⁰, ‘year’
*Čišak⁰ | *rok (PB) | lok⁵⁵, zok⁵⁵ (Qs.) ‘to steal’
*Čidiin⁰ | *riin⁰ | riin (Sack) ‘red’
*Činam⁰ | *ram⁰ (PNT) | ram etc. ‘water’
*Hjiaaj⁰ | *hjiaaj⁰ | *saaj⁰ (PNT) > saaj etc. ‘man, male’
*Kštin⁰ | *[k]štin⁰ | *hštin⁰ > *hrin⁰ (PNT/PSWT) > riin, hin etc. ‘stone’

### 2 Vocalic transfer

Vocalic Transfer (VT) is defined here as a movement of the minor-syllable vowel to the medial position of the major syllable in the course of lexical monosyllabization.

In VT proposed by Benedict (1975, p.182-3), the appearance of the vowel *-wu(-) is attributed to the minor-syllable vowel *-i- (corresponding to what is represented here as *-l-), whereas in the author’s opinion, *-wu(-) must have occurred by way of diphthongization from *-aa(-) due to the voiced nature of the major-syllable initial (cf. Chapter 3).
As a consequence, what is meant by VT here is different from Benedict’s in that it is not responsible for *-ua(-) diphthongization, and indicates in concrete the type of phonetic changes described in formulae below (Table 7, 8). It is to be mentioned that the distinction between “Standard type” and “Medial-encroaching type” of VT below is not really based on the existence of some explicit or inevitable boundary between the two. Cᵢ in formulae is used here to represent the major-syllable initial.

2.1 Standard type

Table 7: Principal formulae

| *CᵢCᵢaac | *(-)Cᵢjaac | (> -*ia) | (ex. ‘händ’ in KS; ‘snake’ in Be) |
| *CᵢCᵢawc | *(-)Cᵢjaw | (> -*iaw) | (ex. ‘to laugh’ in Be and NT) |
| *CᵢCᵢakc | *(-)Cᵢjaak | *(-)Cᵢjaak | (ex. ‘woman girl’ in KS) |
| *CᵢCᵢuc | *(-)Cᵢjup | | (ex. ‘raw’ in Sui) |
| *CᵢCᵢaac | *(-)Cᵢwaa | (> -*ua) | (ex. ‘nave’ in Sui, Hla; ‘boat’ in Sui, NT) |
| *CᵢCᵢawc | *(-)Cᵢwaw | (*-uaw) | (ex. ‘to laugh’ in Sack) |
| *CᵢCᵢac | *(-)Cᵢwaj | (> -*uaj) | (ex. ‘stream’ in ST) |
| *CᵢCᵢic | *(-)Cᵢwii | | (ex. ‘trace’, ‘chicken louse’, ‘stream’ in NT) |

Examples of VT (Standard type) follow.

*Ci₃maa⁰ > *Ci₃mjaa⁰ > *?mjaa⁰ (PKS) ‘hand’

*Ci₃dup⁰ > *Ci₃dup⁰ > *?mjaa⁰ (Lakkja) ‘hand’

*Ci₃duu⁰ > *Ci₃duu⁰ > *?mjaa⁰ > *?mka⁰ > *?mka⁰ > *?mka⁰

*Ci₃duu⁰ > *Ci₃duu⁰ > *?mjaa⁰ > *?mka⁰ (Sui) ‘raw’

*Ci₃duu⁰ > *Ci₃duu⁰ > *?mjaa⁰ > *?mka⁰ (Sack) ‘to laugh’

2.2 Medial-encroaching type

Table 8: Principal formulae

| *CᵢCᵢaac | *(-)Cᵢjaac | *(-)Cᵢjaac (assim.) | *(-)Cᵢjaac (reciprocal assim.) |
| *CᵢCᵢakc | *(-)Cᵢjak | *(-)Cᵢjak (assim.) | *(-)Cᵢjak (reciprocal assim.) |
| *CᵢCᵢaac | *(-)Cᵢwaa | *(-)Cᵢwaa (assim.) | *(-)Cᵢwaa (assim.) |
| *CᵢCᵢakc | *(-)Cᵢwak | *(-)Cᵢwak (assim.) | *(-)Cᵢwak (assim.) |
| *CᵢCᵢic | *(-)Cᵢwii | *(-)Cᵢwii (assim.) | *(-)Cᵢwii (assim.) |

*Ci₃maa⁰ > *Ci₃maa⁰ > *Ci₃maa⁰ > *Ci₃maa⁰ (PKS) ‘hand’

*Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ (Lakkja) ‘hand’

*Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ (Sui) ‘raw’

*Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ (Sack) ‘to laugh’

*Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ (PKS) ‘trace’

*Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ (PKS) ‘trace’

*Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ (PKS) ‘trace’

*Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ (PKS) ‘trace’

*Ci₃duu⁰ > *Ci₃duu⁰ > *Ci₃duu⁰ (PKS) ‘trace’
Examples of VT (Medial-encroaching type) follow.

*Çimaa > *Çmjaa > *Çmjoo > *[Ç]muu (PBT) ‘hand’
*Cilak > *Çlajak > *[Ç]ljak > *luuk (PNT) ‘child’
cf. *[Ç]lak > *lak (PLakkja) ‘person’
*kørna > *kørwa > *[k]’woo > *[k]’ruu (PST) > kjuu, huh etc. ‘ear’
cf. *kara > *k’ara > *h’ara > *saa > *ca (PB) > sa’.
*Cöla > *[Ç]luwa > *[Ç]wok > *luuk (PST) ‘child’
*Cöri > *[Ç]ruwi > *[Ç]ruy > *ruj (PST) > rəj etc. ‘trace’

Following are some phonetic changes similar to the ones described above (medial-encroaching type).

English
year [Χαγ] (vs. German. Jahr [jar])
warm [wɔ̃o] (vs. German. warnen [værən])

Chinese
/ja/ [je] ‘also’ (vs. /ɔ/ [ɔɔ]/ ‘to get’)
/wɔ/ [wo] ‘I, me’ (vs. /ka/ [kɔ]/ ‘to separate’)

3 Diphthongization
The supposition of proto-sesqui-syllabic structure and the subsequent CL change have made it possible to hypothesize that the diphthongized vowel *-ua(-) is due to the voiced quality of the major-syllable initial.

*p’räak > *p’ruak > *p’ruak (PT) ‘taro’ (cf. PKS. *-aak)
*h’laai > *hluua > *hluua (PT) ‘to be left over’ (cf. PKS/PHla. *-aa)
*T’duaaj > *T’duuaj > *duaj (Saek) ‘empty’ (cf. PST. *-aaj)
*p’ilaak > *p’luak > *pluak (PST) ‘bark’ (cf. Saek. -aak)

We must bear in mind, however, that the fact of the diphthongization not occurring regularly where expected cannot be explained satisfactorily for the time being. See the following counter-examples where diphthongization failed to occur.

*h’laai > *hluua (PT) ‘to be left over’ VS. *hnaa > *hna (PT) ‘thick’
*p’ilaak > *pluak (PST) ‘bark’ VS. *k’laak > *klaak (PST) ‘scabies’
*maa > *mua > *mio > mie (Lakkja) ‘hand’ VS *maa > ma (Lakkja) ‘you’

4 Conclusion
CL, in a sense, can be characterized as a sort of medialization of the major-syllable initial under a strong drift of monosyllabization, whereas VT can be regarded as a sort of medialization (via metathesis) of the minor-syllable vowel.7

Therefore, we can say that two waves of medialization (chronologically, first for the minor-syllable vowel, and second for the major-syllable initial) occurred in the process of monosyllabization of sesqui-syllabic proto-forms in the Tai-Kadai family.
In the present study, we have shown that certain historical changes in Mon-Khmer languages offer crucial evidence for the postulation of CL.

The reconstructed sesqui-syllabic proto-forms, moreover, make it easy to hypothesize the occurrence of phonetic changes such as assimilation, dissimilation, metathesis, simple dropping of the minor syllable etc. that we end up depending upon to explain some “problematic” correspondences in Kadai languages as well as their genetic identification at a higher level.  

DATA (excerpt)

The manner of Be’s (Hashimoto, 1980) tonal split is as follows.

<table>
<thead>
<tr>
<th></th>
<th>Ø</th>
<th>1</th>
<th>2</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>13</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>L</td>
<td>55</td>
<td>21</td>
<td>21</td>
<td>55</td>
</tr>
</tbody>
</table>

1 Proto-Be-Tai

1.1 Diachronic changes of initials (original simple or cluster type)

PBT   >   PB   >   Modern Be

*p- > *p- > b- (ex. ‘mouth’, ‘wing’)  
*b- > *b- > b- (ex. ‘leaf’)  
*m- > *m- > m- (ex. ‘anf’, ‘fruit’)  
*l- > *l- > d- (ex. ‘eye’, ‘liver’)  
*d- > *d- > d- (ex. ‘body louse’, ‘ashes’)  
*n- > *n- > n- (ex. ‘this’, ‘otter’)  
(*j- > *z- > s- (ex. ‘hole’))  
*j- > *j- > j- (ex. ‘mosquito’)  
*k- > *k- > g- (ex. ‘to eat’, ‘to go up’)  
*g- > *g- > g- (ex. ‘neck’, ‘to itch’)  
*n- > *n- > n- (ex. ‘gills, cheek’)  
*r- > *r- > l- (r- in Be (Qs)) (ex. ‘house’, ‘strength’)  
*l- > *l- > l- (l- in Be (Qs)) (ex. ‘to choose’, ‘deep’)  
*w- > *w- > v- (ex. ‘fire’, ‘seed’)  
*s- > *h- > h- (ex. ‘pillar’, ‘pestle’)  
*h- > *h- > h- (ex. ‘shell’, ‘to smell, fragrant’)  
*i- > *i- > i- (ex. ‘to take’, ‘to go out, to emerge’)  
*tj- > *tj- > j- (ex. ‘to stay’, ‘to stand’)  
*pl- > *p- > b- (ex. ‘fish’, ‘water lice’)  
*br- (> *dz-) > *j- > j- (ex. ‘tomorrow’)  
*mp- > *b- > b- (ex. ‘sky, cloud’)  
*ml- > *m- > m- (ex. ‘insect’, ‘seed, grain’)
1.2 Diachronic changes of initials (original sesquisyllabic type)

<table>
<thead>
<tr>
<th>PBT</th>
<th>→</th>
<th>PB</th>
<th>→</th>
<th>Modern Be</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kr-</td>
<td>&gt;</td>
<td>*x-</td>
<td>&gt;</td>
<td>h- (ex. ‘head’, ‘(for two persons) to carry’)</td>
</tr>
<tr>
<td>*gr-</td>
<td>&gt;</td>
<td>*y-</td>
<td>&gt;</td>
<td>h- (ex. ‘mortal’)</td>
</tr>
<tr>
<td>*ŋw-</td>
<td>&gt;</td>
<td>*ŋw-</td>
<td>&gt;</td>
<td>v-ŋ- (before a round vowel) (ex. ‘sun, day’)</td>
</tr>
</tbody>
</table>

1.3 PBT examples of original sesquisyllabic type

| PBT. | *|[kɔ]pɔn⁰ | ‘hair (body), feather’ |
|-----|---|---------|
|     | > | *|[kɔ]pɔn⁰ | > | *wɔn⁰ | > | PB. *wun⁰ | > | vun⁵⁵ |
|     | > | PT.*pɔn⁰ | > | *pɔkɔn⁰ | (metath.) | > | *pɔn⁰(NT) | > | *xɔn⁰(ST) | > | pun, khon, xun etc. |

| PBT. | *|[kɔ]⁰ | ‘stone’ |
|-----|---|---------|
|     | > | *|[hɔt̂]⁰ | > | *hɔt̂⁰ | > | PB. *din⁰ | > | din⁵⁵ |
|     | > | PT.*[kɔ]⁰ | > | *|[hɔt̂]⁰ | > | PB. *hɔt̂⁰ | > | hɔt̂(NT/SWT) | > | *hɔt̂⁰(C) | > | riin, thin etc. |
PBT. *[hōn]tɔŋ⁰ 'to arrive'
   > PB: *tɔŋ⁰ > don¹³
   > PT:*hōntɔŋ⁰>*ntɔŋ⁰>*hɔtɔŋ⁰>*dan⁰(NT)~*thun⁰(ST) > təŋ, thun etc.

PBT. *[pɔŋ]kaa⁰ 'leg'
   (> *kɔpaa⁰ (metath.) >) PB: *wa⁰ > va⁵⁵
   > PT:*pɔŋ]kaa⁰>*kɔpaa⁰ (metath.) > *kaa⁰ (NT) ~ *xa⁰ (ST) ~ *kwa⁰ (Saek) > kaa, xa, kwa etc.

PBT. *hɔkɔm⁰ 'bitter'
   (> *hɔkɔm⁰ > *(h)ŋɔkɔm⁰ >) PB: *gan⁰ > gan⁵⁵
   > PT:*hɔkɔm⁰>*ŋɔkɔm⁰(*hɔgɔm⁰>*yan⁰(NT)~*khom⁰(ST)
   > yam etc.

PBT. *[kɔ ~ kɔ ~ o]raa⁰ 'car'
   (> *kɔraa⁰ > *[k]ɔraa⁰ > *hraa⁰ > *saa⁰ >) PB: *ca⁰ > sa¹³
   > PT:*kɔ]raa⁰>*rua⁰(NT)~*kɔːraa⁰(*[k]ɔruu⁰)(ST)
   > ruu, rua, kjuu etc.

PBT. *[k/h][i ~ o]raw⁰ 'to laugh'
   (> *hɔraw⁰ > *hɔjɔaw⁰ >) PB: *riaw⁰ > liau¹¹, ziu¹° (Qs.)
   > PT: *[k/i ~ ŋ]raw⁰ > *kɔraw⁰ ~ *kɔrɔaw⁰ > *[k]riaw⁰ (NT) ~
   *[k]rua⁰ (Saek) ~ *[k]rua⁰ (ST; dissim.)
   > ria, ruw, khua, hua etc.

1.4 P(B)T examples of original sesqui-syllabic type
The following sesqui-syllabic forms are those restrictedly reconstructed at the PT level for the moment, though potentially being traced back to the PBT level.

P(B)T. (*kɔtɔw⁰ >) *[k]ɔtɔw⁰ 'head louse'
   > PB. --- > ---
   (> *[k]ɔtɔw⁰ >) PT.*[k/t]ɔtɔw⁰ > *hraaw⁰(NT/SWT)~*tɔw⁰(CT)
   > raw, thaw

P(B)T. *[hʊ ~ ɔ]mii⁰ 'pubic hair'
   > PB. --- > ---
   > PT. *hʊ[ŋ ~ ŋ]mii⁰>*hɔmii⁰>*hɔmii⁰>*hɔmii⁰(NT)~*hɔmii⁰(NT) > mooj, mii

P(B)T. *p[ŋ ~ ŋ]lii¹ 'to release'
   > PB. --- > ---
   > PT. *p[ŋ ~ ŋ]lii¹>*pɔlii¹~*pɔlii¹>*pɔlii¹(NT)~*pliι(NT) > pliι, pli etc.

P(B)T. *[kɔ ~ C]leep 'husk of rice'
   > PB. --- > ---
   > PT. *[kɔ ~ C]leep > *kleep (NT) ~ *reep (NT) > klep, yep, rip etc.
Notes

1. As for the capital letters other than C, their meanings are as indicated below:

P = p/b
T = t/d
R = r or some sonorant of that kind impossible to determine for the moment
L = l or some sonorant of that kind impossible to determine for the moment

For those having proceeded to undergo a preglottalization (phonetically considered as a kind of fortition) in Be and Saek—both of them are so to speak “CL language”—, we posit a minor syllable having a homorganic initial with that of the major syllable. See the following diachronic changes bringing about a fortis (or geminated) initial in Nhaheun, and a minor-syllable alternation between So and Kui.

cf. (*kʰəpənəŋ) → (*pəpənəŋ > Nhaheun. ʰpaŋ ‘crowd’ (cf. Laven. kʰəpənəŋ)
cf. (*hələnəŋ) → (*lənəŋ > Nhaheun. ʰlaŋ ‘tough’ (cf. Laven. lənəŋ)
cf. So. cələn ~ Kui. lənə ‘horn’

2. The nasalizing feature of the sound of h is further confirmed in the following examples.

cf. (*hətəŋ) > (*h)ntəŋ > Nhaheun. dan ‘bitter’ (cf. Laven. hntəŋ)
cf. (*hələŋ) > (*h)ləŋ > Nhaheun. ʰlnə ‘bridge’ (cf. Laven. hləŋ)
cf. (*hələŋ) > (*h)ləŋ > Nhaheun. ʰlnə ‘shrimp’ (cf. Laven. ʰlnə)

3. *h̥j- > s- is a phonetic change that occurred in Lawa as well (ex. ‘ear’).

4. It is very characteristic in NT that sesqui-syllabic *-b- and *-d- went through fortition (and not CL) differently from Saek, and commonly with ST.

5. In regard to the difference between *-k- > *-x- and *-h-k- > *kh- in PST, White Tai still maintains the distinction as in ʰxun ‘hair (body), feather’, ʰx̥al ‘horn’ etc. for the former and ʰxum/ ‘bitter’, ʰkhə ‘rice’ etc. for the latter.

6. Alternation between NT *-ii and ST *-aj is also attested with ‘fire’, ‘chicken louse’ etc.

7. In fact, there do exist cases in which VT seems to have occurred in Giarai (cf. Romah Dël, 1977) and Northern Roglai (cf. Thurgood, 1999) (not noted by R.K.).

Malay, taliŋa vs. Giarai, tongia ‘ear’
Malay, ular vs. Giarai, ʲlo ‘snake’
Malay, mjum vs. Giarai. mjum ‘to drink’
Malay, hidup vs. Northern Roglai. hadu ‘alive’
Malay, pirak vs. Northern Roglai. pari ‘silver’
Malay, duri vs. Northern Roglai. danai ‘horn’

8. In addition to the ones that have been frequently mentioned since long like ‘eye’, ‘hand/five’, ‘raw’, ‘head louse’ etc., we have very interesting examples in terms of comparison with Austronesian such as the following. Namely, all the three underwent VT in the manner of *u-i > *-wii.

PBT. * Côiri’ > riri ‘trace’ VS. PAN. *huḍi ‘latter part’
PT. *həmii > *həmi ‘public hair’ VS. PAN. *gum[f] ‘beard’
PT. *pəlii > *pəlii ‘to release’ VS. PAN. *pulih ‘to recover’

The idea of ‘putting again (to the original state)’ could be the semantic core for the both cases.
References