On the Phylogeny of Hmongic languages

Yoshihisa Taguchi  
田口善久  
( Chiba University, 千葉大学 )
1. **Introduction**

- This is a preliminary study on the phylogeny of the Hmongic languages.

- The Hmongic languages constitute a part of the Hmong-Mien language family (also called the Miao-Yao languages) distributed in East and Southeast Asia.

- The Hmong-Mien language family comprises two branches: Hmongic and Mienic. This study utilizes the Mienic group as an outgroup.
1. **Introduction**

- This is a preliminary study on the phylogeny of the Hmongic languages.

- The Hmongic languages constitute a part of the Hmong-Mien language family (also called the Miao-Yao languages) distributed in East and Southeast Asia.

- The Hmong-Mien language family comprises two branches: Hmongic and Mienic. This study utilizes the Mienic group as an outgroup.
1. **Introduction**

- This is a preliminary study on the phylogeny of the Hmongic languages.

- The Hmongic languages constitute a part of the Hmong-Mien language family (also called the Miao-Yao languages) distributed in East and Southeast Asia.

- The Hmong-Mien language family comprises two branches: Hmongic and Mienic. This study utilizes the Mienic group as an outgroup.
2. Previous studies

Purnell (1970)

• The first serious study on Hmong-Mien phylogeny

Figure 1. Hmongic phylogeny by Purnell (1970: 40)
Wang Fushi (1983)

“On the dialect division of Miao language”

- He classified the lects spoken by the ethnic Miao into three dialects based on their phonological characteristics. The term “three major dialects of Miao 苗语三大方言” has been often used for designating major subgroups of the Miao language.

Xiangxi = Xiong
Qiandong = Hmu
Chuanqianqian = Hmong
The Hmong-Mien (Miao-Yao) languages

Figure 2. Strecker’s classification of Hmong-Mien (Adapted from 1987:2-3)
The Hmong-Mien (Miao-Yao) languages


- Xiong
- Hmu
- Hmong
- Pa Hng
- Pu Nu
- Kiong Nai
- Ho Ne

Figure 3. Classification of Wang and Mao (Adapted from 1995: 2-3)
Figure 4. Tree diagram of Ratliff 2010 (Adapted from 2010: 3)
Major issues for discussion

(1) The three Miao languages (dialects) are considered to constitute a monophyletic group. Is it OK?

(2) Where should we position Pa Hng, Kiong Nai, and Ho Ne (She)?
Figure 4. Tree diagram of Ratliff 2010 (Adapted from 2010: 3)
3. **The position of Pa Hng and Xiong**

Concerning the position of Pa Hng and Xiong, Ratliff (2010) made an important finding that these lects preserve some phonological features that have been lost in other Hmongic lects (2010:24-25).

<table>
<thead>
<tr>
<th>Rhyme 4</th>
<th>Proto-Hmong-Mien</th>
<th>Hmongic</th>
<th>Pa Hng</th>
<th>Xiong</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*at</td>
<td>&gt;</td>
<td>*a</td>
<td>e, i</td>
</tr>
<tr>
<td></td>
<td>*a</td>
<td>&gt;</td>
<td>a</td>
<td>ø</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rhyme 7</th>
<th>Proto-Hmong-Mien</th>
<th>Hmongic</th>
<th>Pa Hng</th>
<th>Xiong</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*əp, *ət, *ɭət</td>
<td>&gt;</td>
<td>*o</td>
<td>a</td>
</tr>
<tr>
<td></td>
<td>*o, *ʊo, *əw, *ɨʊ</td>
<td>&gt;</td>
<td></td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rhyme 13</th>
<th>Proto-Hmong-Mien</th>
<th>Hmongic</th>
<th>Pa Hng</th>
<th>Xiong</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tone7 (&lt; -p, -t, -k)</td>
<td>&gt;</td>
<td>*ow</td>
<td>u</td>
</tr>
<tr>
<td></td>
<td>tones1,3,4,5,6</td>
<td>&gt;</td>
<td></td>
<td>ø</td>
</tr>
</tbody>
</table>
3. **The position of Pa Hng and Xiong (continued)**

The case in Rhyme 4

<table>
<thead>
<tr>
<th></th>
<th>Hmu</th>
<th>Xiong</th>
<th>Hmong</th>
<th>Hmyo</th>
<th>Pu Nu</th>
<th>Pa Hng</th>
<th>Ho Ne</th>
<th>Pana</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIVE</td>
<td>tsa1</td>
<td>pzq1</td>
<td>tʂ1</td>
<td>pæA</td>
<td>pjo1</td>
<td>pja1</td>
<td>pi1</td>
<td>pei1</td>
</tr>
<tr>
<td>BORROW</td>
<td>--</td>
<td>qa3</td>
<td>qe3</td>
<td>--</td>
<td>--</td>
<td>qa3</td>
<td>kje3</td>
<td>ka3</td>
</tr>
<tr>
<td>PRICE</td>
<td>qa5</td>
<td>Nqa5</td>
<td>Nqe5</td>
<td>NqaC</td>
<td>--</td>
<td>Nqa5</td>
<td>--</td>
<td>ga5</td>
</tr>
<tr>
<td>MOON</td>
<td>hlha5</td>
<td>hlha5</td>
<td>hli5</td>
<td>hlaC</td>
<td>hlo5</td>
<td>hla5</td>
<td>ne5</td>
<td>la5</td>
</tr>
<tr>
<td>WING</td>
<td>ta7</td>
<td>tei3&lt;7</td>
<td>ti7</td>
<td>taB</td>
<td>to7</td>
<td>te7</td>
<td>te7</td>
<td>dla7</td>
</tr>
<tr>
<td>ESCAPE</td>
<td>fa8</td>
<td>qwei4&lt;8</td>
<td>thli6</td>
<td>ñwaA</td>
<td>ko8</td>
<td>--</td>
<td>--</td>
<td>tla8</td>
</tr>
<tr>
<td>PEPPERY</td>
<td>za8</td>
<td>mẑei4&lt;8</td>
<td>ntsri8</td>
<td>mbæA</td>
<td>mpjo8</td>
<td>mpH18</td>
<td>pi8</td>
<td>bja8</td>
</tr>
</tbody>
</table>
3. The position of Pa Hng and Xiong (continued)

The case of “a loosely adjoined nasal pre-initial” (Ratliff 2010:14).

<table>
<thead>
<tr>
<th></th>
<th>Hmu</th>
<th>Xiong</th>
<th>Hmong</th>
<th>Hmyo</th>
<th>Pu Nu</th>
<th>Pa Hng</th>
<th>Ho Ne</th>
<th>Pana</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAIN</td>
<td>*m-products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*m-noŋ</td>
<td>ŋoŋ̥6</td>
<td>ŋoŋ̥6</td>
<td>ŋaŋ̥6</td>
<td>ŋoŋ̥C</td>
<td>ɲoŋ̥6</td>
<td>mø6</td>
<td>ɲuŋ̥6</td>
<td>ɲoŋ̥6</td>
</tr>
<tr>
<td>BIRD</td>
<td>*m-nək</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*m-nək</td>
<td>ɲə6</td>
<td>ɲu6</td>
<td>ɲoŋ̥6</td>
<td>ɲoC</td>
<td>ɲaŋ̥6</td>
<td>мо6</td>
<td>ɲo6</td>
<td>ɲu6</td>
</tr>
</tbody>
</table>
3. **The position of Pa Hng and Xiong (continued)**

- These correspondences indicate that Pa Hng and Xiong preserve archaic features.

- It suggests that other Hmongic languages may share the changes as innovations.

- Evidence to indicate that Pa Hng and Xiong are the first two languages to separate from the Hmongic branch?
4. Lexical evidence *1

A method of computer-based lexicostatistics that utilizes Bayesian inference is used. The software used in this study was Mrbayes (3.1.2) (http://mrbayes.sourceforge.net/index.php).

- It is a character-based method.
- It identifies the best trees with credibility scores.
- Its validity has been widely acknowledged in linguistics and biology (Gray and Atkinson 2003, Greenhill and Gray 2009)

*1 I would like to thank Professor J. Edmondson for his kind advice on phylogenetic analysis and software use.
Target lects (languages/dialects)

(1) The lect is mentioned in the language list of Wang and Mao (1995).

(2) Sufficient lexical data of the lect are available.

(3) Pana

18 lects (11 lects of the Hmongic languages)
<table>
<thead>
<tr>
<th>Name of lect</th>
<th>Data point</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hmu, Qiandong 黔东</td>
<td>Yanghao 养蒿, Guizhou</td>
<td>Wang 1985</td>
</tr>
<tr>
<td>Qo Xiong, Xiangxi 潇西</td>
<td>Jiwei 吉卫, Hunan</td>
<td>Wang 1985</td>
</tr>
<tr>
<td>Sichuan-Guizhou-Yunnan, Chuanqiandian 川黔滇</td>
<td>Dananshan 大南山, Guizhou</td>
<td>Wang 1985</td>
</tr>
<tr>
<td>Luobo river, Luobohe 罗泊河</td>
<td>Gaozhai 高寨, Guizhou</td>
<td>Taguchi 2008</td>
</tr>
<tr>
<td>Pu Nu, Bunu 布努</td>
<td>Qibainong 七百弄, Guangxi</td>
<td>Meng 2001</td>
</tr>
<tr>
<td>Nao Klao, Baonao 包瑙</td>
<td>Lihu 里湖, Guangxi</td>
<td>Meng 2001</td>
</tr>
<tr>
<td>Pa Hng, Baheng 巴哼</td>
<td>Wenjie 文界, Guangxi</td>
<td>Mao and Li 1997</td>
</tr>
<tr>
<td>Kiong Nai, Jiongnai 炯奈</td>
<td>Longhua 龙华, Guangxi</td>
<td>Mao and Li 2005</td>
</tr>
<tr>
<td>Ho Ne, She畲</td>
<td>Duozhu 多祝, Guangdong</td>
<td>Mao and Meng 1986</td>
</tr>
<tr>
<td>Mien, Guangdian 广滇</td>
<td>Jiangdi 江底, Guangxi</td>
<td>Mao 2004</td>
</tr>
<tr>
<td>Mien, Xiangnan 湘南</td>
<td>Miaoziyuan 庙子源, Hunan</td>
<td>Mao 2004</td>
</tr>
<tr>
<td>Changping 长坪</td>
<td>Changping 长坪, Guangxi</td>
<td>Mao 2004</td>
</tr>
<tr>
<td>Luoxiang 罗香</td>
<td>Luoxiang 罗香, Guangxi</td>
<td>Mao 2004</td>
</tr>
<tr>
<td>Biao Min, Dongshan 东山</td>
<td>Dongshan 东山, Guangxi</td>
<td>Mao 2004</td>
</tr>
<tr>
<td>Kim Mun, Diangui 滇桂</td>
<td>Liangzi 梁子, Guangdong</td>
<td>Mao 2004</td>
</tr>
<tr>
<td>Dzao Min, Zaomin 藻敏</td>
<td>Daping 大坪, Guangdong</td>
<td>Mao 2004</td>
</tr>
<tr>
<td>Pana, Bana 巴那</td>
<td>Changanying 长安营, Hunan</td>
<td>Chen (2001), Taguchi 2001</td>
</tr>
</tbody>
</table>
Data analysis

- Meaning list used: Culturally Appropriate Lexicostatistical Model for South East Asia (CALMSEA) wordlist (Matisoff 1978). 210 meaning items.


- 496 characters for 18 lects.
<table>
<thead>
<tr>
<th></th>
<th>sky</th>
<th>sky</th>
<th>sky</th>
<th>sky</th>
<th>sky</th>
<th>sky</th>
</tr>
</thead>
<tbody>
<tr>
<td>天</td>
<td>天</td>
<td>天</td>
<td>天</td>
<td>天</td>
<td>天</td>
<td>天</td>
</tr>
<tr>
<td>Hmu</td>
<td>vэ2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xiong</td>
<td>ta1pzæ1ŋhe1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hmong</td>
<td>nto2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-Hmao</td>
<td>ntu2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hmyo</td>
<td>ngwanA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pu Nu</td>
<td>ŋkʋn2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nao Klao</td>
<td>ŋkɔ2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pa Hng</td>
<td>vfi52</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiong Nai</td>
<td>ŋkwuŋ2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ho Ne</td>
<td>kuan2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pana</td>
<td>gwon2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>jiangdi</td>
<td>luŋ2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>xiangnan</td>
<td>luŋ2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>changping</td>
<td>ɗuŋ2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>luoxiang</td>
<td>gung2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dongshan</td>
<td>lwɔ2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>liangzi</td>
<td>gun2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>daping</td>
<td>vaŋ2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The conditions for calculation

• The prior probability of each tree is the same.
• The rate of change is the same for all the characters.
• The number of generations to be calculated is 2 million.
• Sampling rate is 100 generation.
• The number of chains is four.
The conditions for calculation

- The prior probability of each tree is the same.
- The rate of change is the same for all the characters.
- The number of generations to be calculated is 2 million.
- Sampling rate is 100 generation.
- The number of chains is four.

After calculation, we discarded the 25% of the sample in “burnin” period and constructed a majority consensus tree based on the remaining trees.
4. Calculation result

Figure 5. Consensus tree of the Hmongic languages

The standard deviation of splits was 0.002661.
The value of the convergence diagnostic (potential scale reduction factor) was 1.000.
4. Calculation result (continued)

The consensus tree constructed by the algorithm supports the findings of previous scholars:

- The close relations between Hmong, A-Hmao, and Hmyo on the one hand (1.00), and Pu Nu and Nau Klau on the other hand (1.00).  

- The close relationship among these four languages (1.00) <Strecker 1987, Ratliff 2010 >

- The close relation between Kiong Nai and Ho Ne (0.93)  
4. Calculation result

Figure 5. Consensus tree of the Hmongic languages

The standard deviation of splits was 0.002661.
The value of the convergence diagnostic (potential scale reduction factor) was 1.000.
4. Calculation result (continued)

The consensus tree constructed by the algorithm supports the findings of previous scholars:

- The close relations between Hmong, A-Hmao, and Hmyo on the one hand (1.00), and Pu Nu and Nau Klau on the other hand (1.00). <Strecker 1987, Wang and Mao 1995>.

- The close relationship among these five languages (1.00) <Strecker 1987, Ratliff 2010>.

- The close relation between Kiong Nai and Ho Ne (0.93) <Mao and Li 2002, Ratliff 2010>.
4. Calculation result

Figure 5. Consensus tree of the Hmongic languages

The standard deviation of splits was 0.002661.
The value of the convergence diagnostic (potential scale reduction factor) was 1.000.
The consensus tree constructed by the algorithm supports the findings of previous scholars:

- The close relations between Hmong, A-Hmao, and Hmyo on the one hand (1.00), and Pu Nu and Nau Klau on the other hand (1.00). <Strecker 1987, Wang and Mao 1995>.

- The close relationship among these four languages (1.00) <Strecker 1987, Ratliff 2010>.

- The close relation between Kiong Nai and Ho Ne (0.93) <Mao and Li 2002, Ratliff 2010>.
4. Calculation result

Figure 5. Consensus tree of the Hmongic languages

The standard deviation of splits was 0.002661.
The value of the convergence diagnostic (potential scale reduction factor) was 1.000.
4. Calculation result (continued)

- The consensus tree indicates that Pa Hng and Xiong (Northern) are split off at a node higher than the node comprising the other lects.
4. Calculation result

Figure 5. Consensus tree of the Hmongic languages

The standard deviation of splits was 0.002661. The value of the convergence diagnostic (potential scale reduction factor) was 1.000.
(1) “Three major dialects of Miao” needs revision.

- It is likely that Pa Hng and Xiong are the first two to separate from the branch.

- The notion of “three major dialects of Miao” as a monophyletic group, which has been “standard” since Wang (1983), needs reexamination.
6. Conclusion

(2) Ho Ne is inside of Hmongic.

- Ratliff (1998) argued that Ho Ne is a Hmongic language, and here we have confirmed this point on lexical grounds.

- Now, we can add that Ho Ne has two relatives, Kiong Nai and Pana, although the internal relationship is still unclear.
Geographical distribution of Hmongic subgroups
References


Wurm, S.A. et al. (eds.) 1988. *Language atlas of China*. (cartography, Theo Baumann ; produced by the Australian Academy of the Humanities and the Chinese Academy of Social Science in collaboration with, and assisted by, the Department of Linguistics, the Research School of Pacific Studies, the Australian National University), Hong Kong: Longman.
Thank you