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.

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2. Previous studies

Purnell (1970)

- The first serious study on Hmong-Mien phylogeny

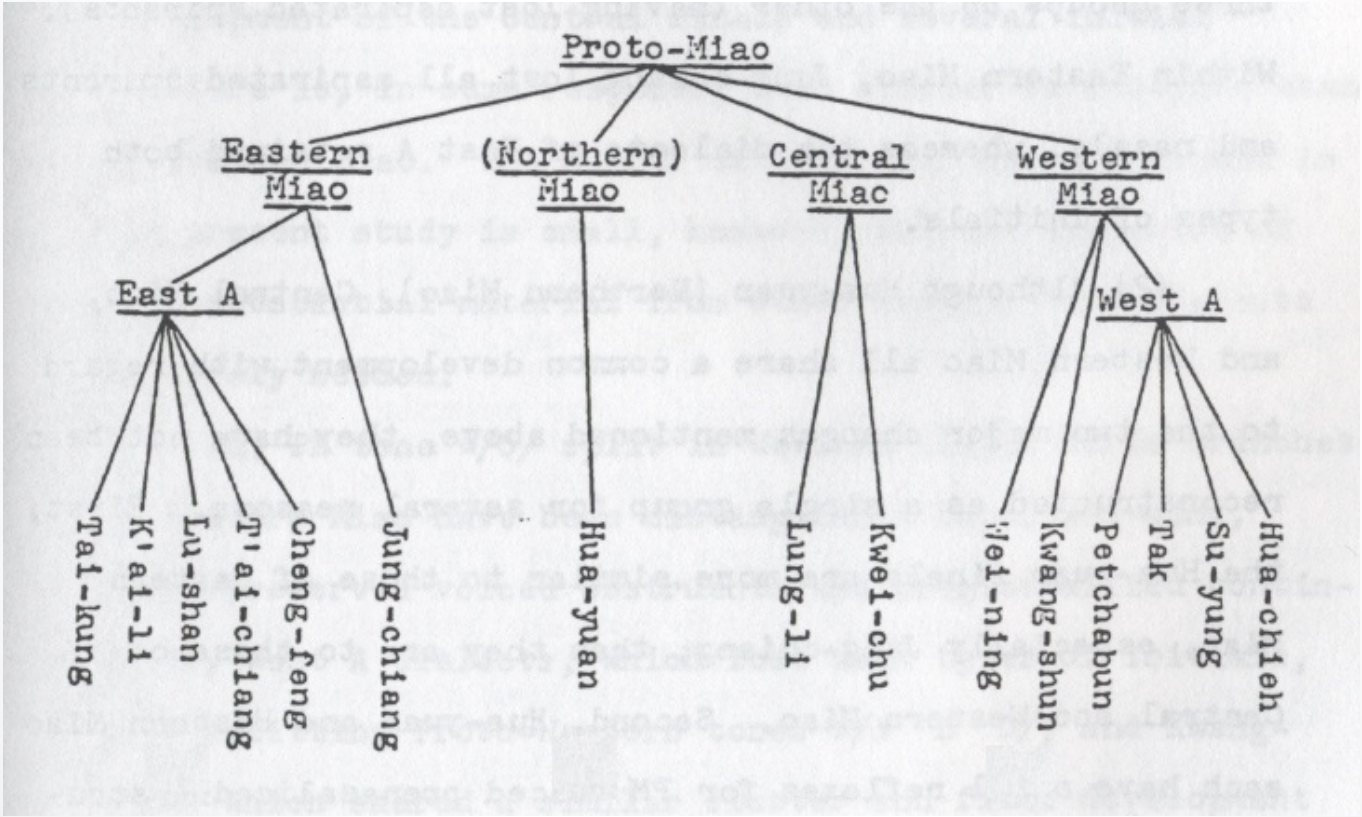


Figure 1. Hmongic phylogeny by Purnell (1970: 40)

Wang Fushi (1983)

“On the dialect division of Miao language”

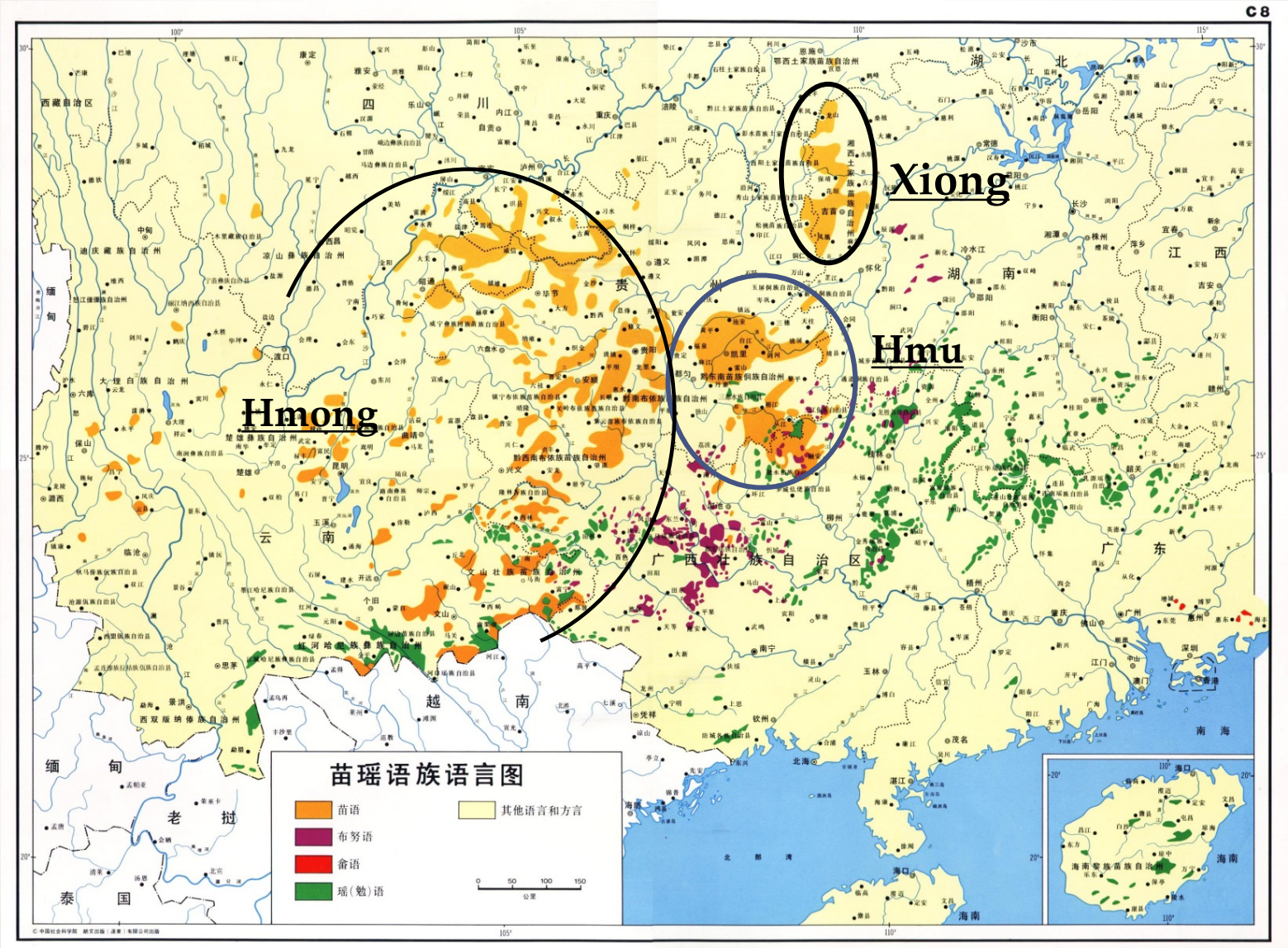
- He classified the lects spoken by the ethnic Miao into three dialects based on their phonological characteristics. The term **“three major dialects of Miao 苗语三大方言”** has been often used for designating major subgroups of the Miao language.

  Xiangxi = Xiong

  Qiandong = Hmu

  Chuanqiandian = Hmong

The Hmong-Mien (Miao-Yao) languages



- Wurm, S.A. et al. (eds.) 1988. *Language atlas of China*. Hong Kong: Longman.

Strecker (1987)

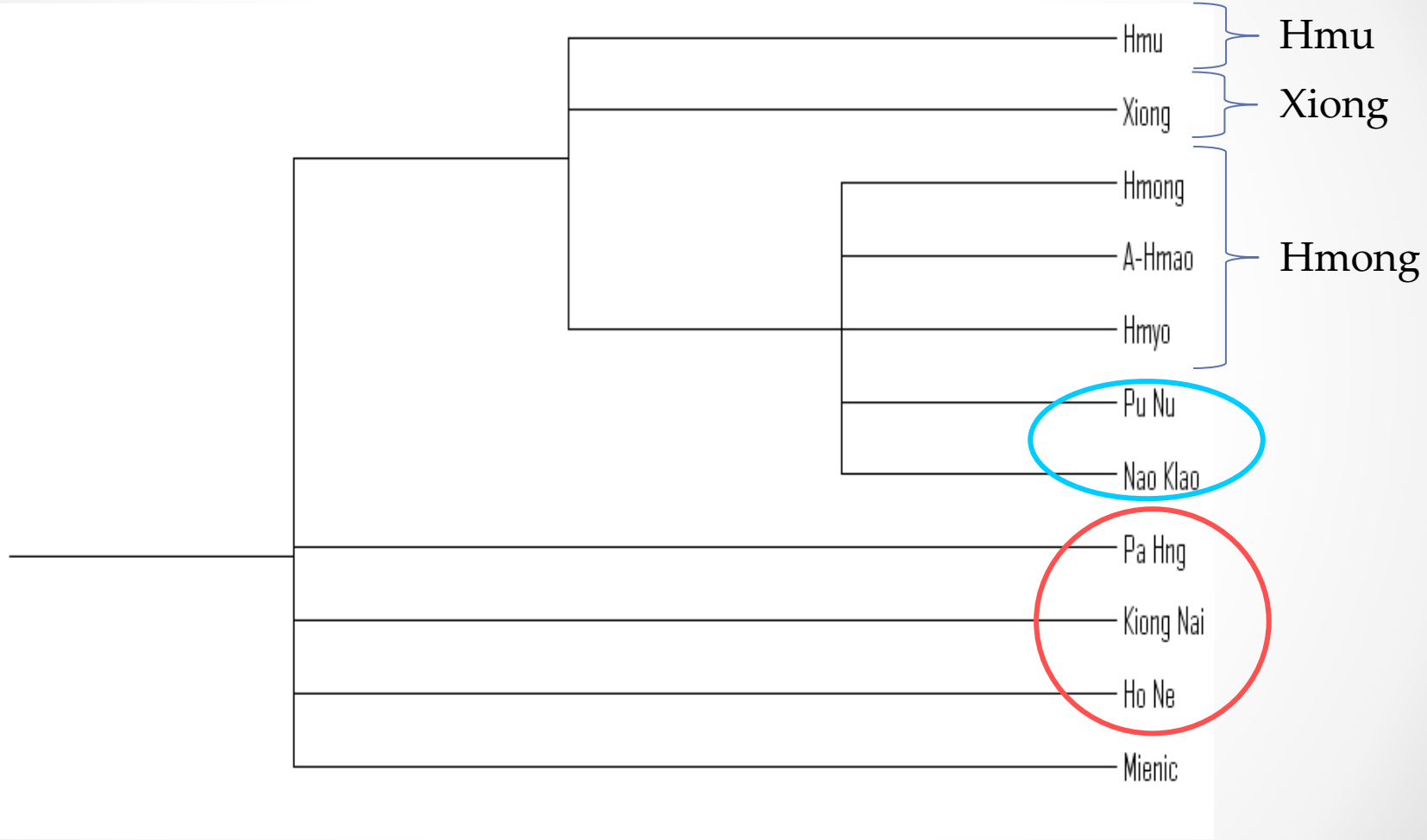


Figure 2. Strecker's classification of Hmong-Mien (Adapted from 1987:2-3)

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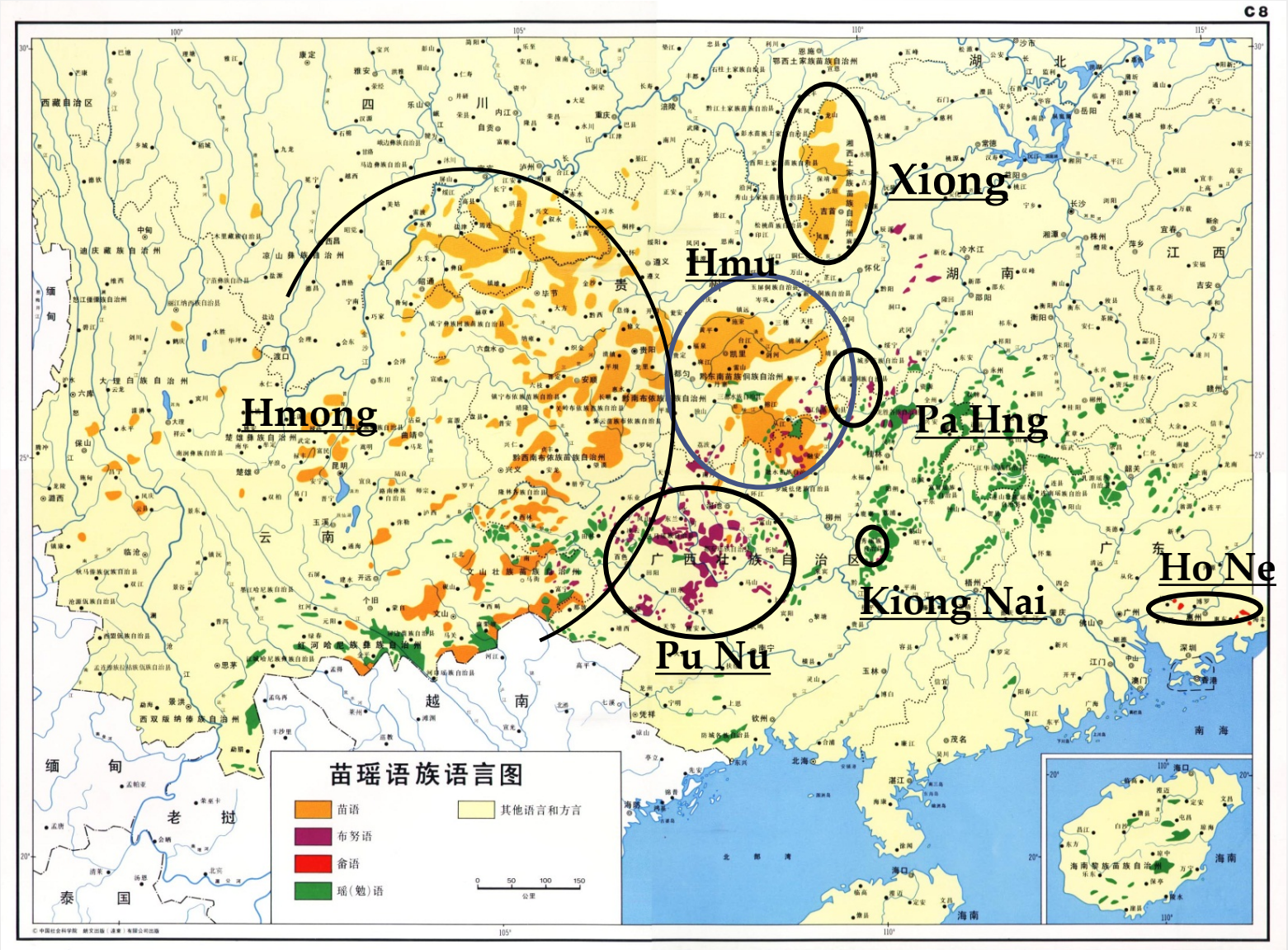

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Wang and Mao (1995)

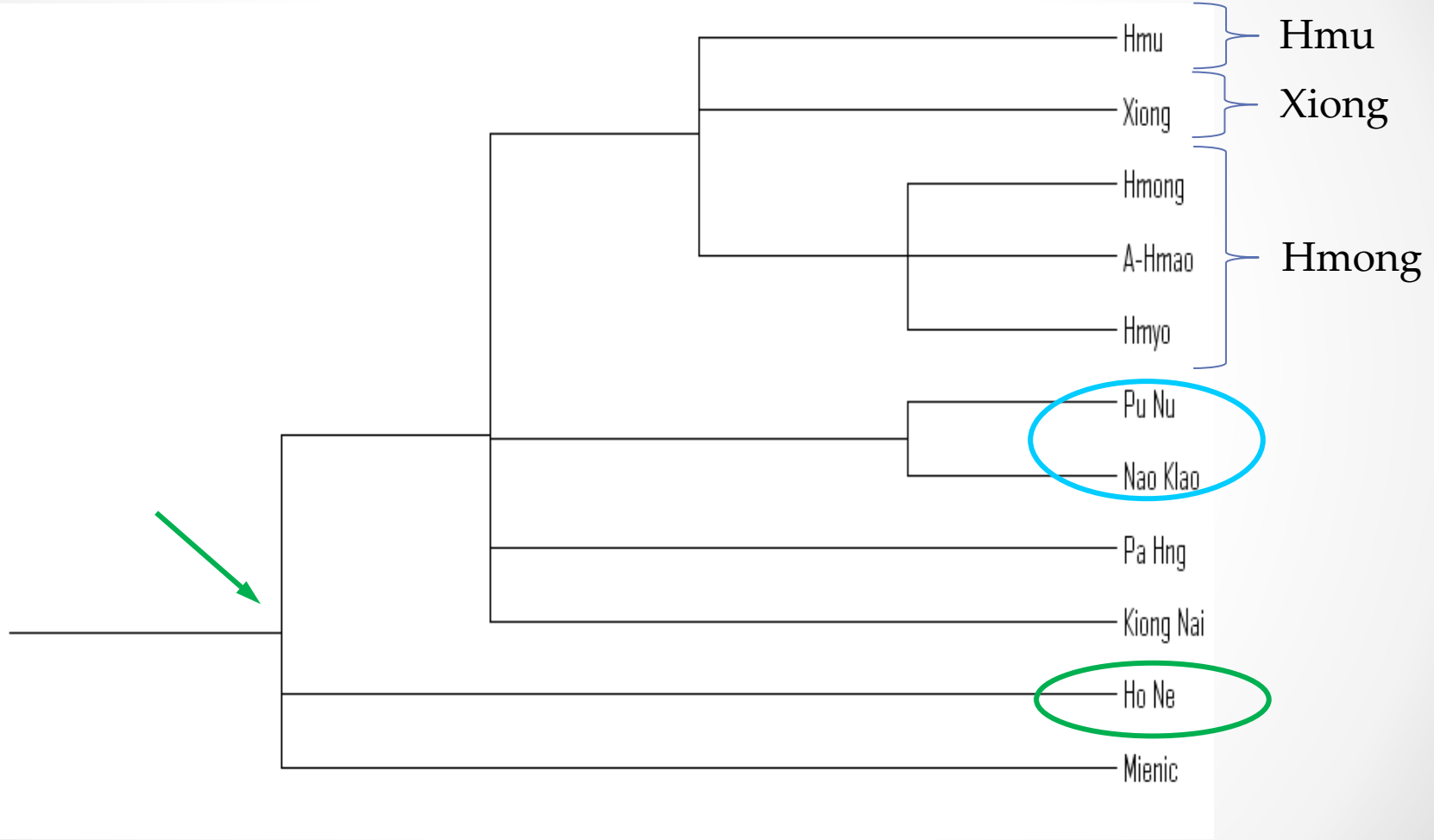

Figure 3. Classification of Wang and Mao (Adapted from 1995: 2-3)

Ratliff (2010)

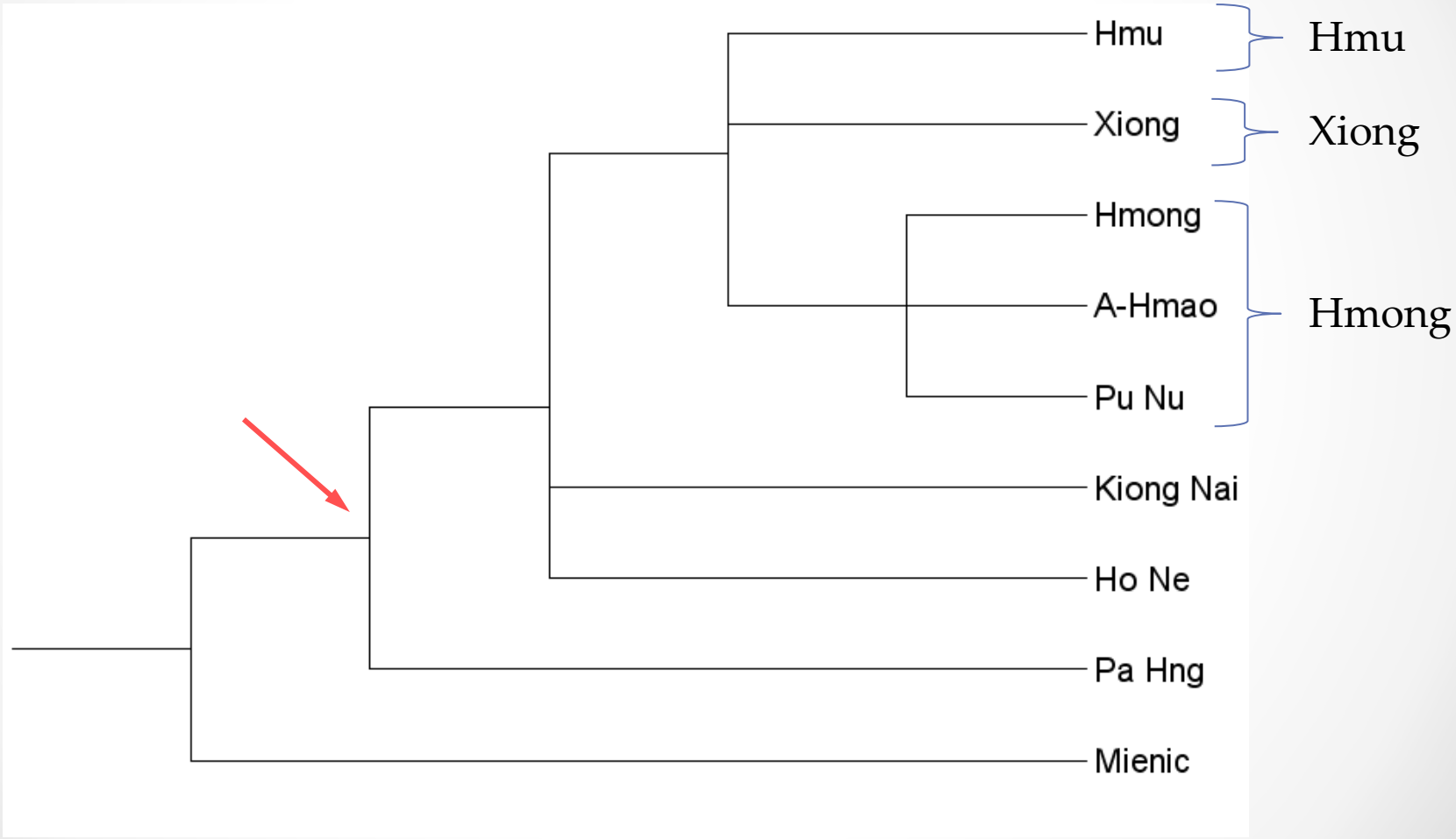

Figure 4. Tree diagram of Ratliff 2010 (Adapted from 2010: 3)

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)?

Ratliff (2010)

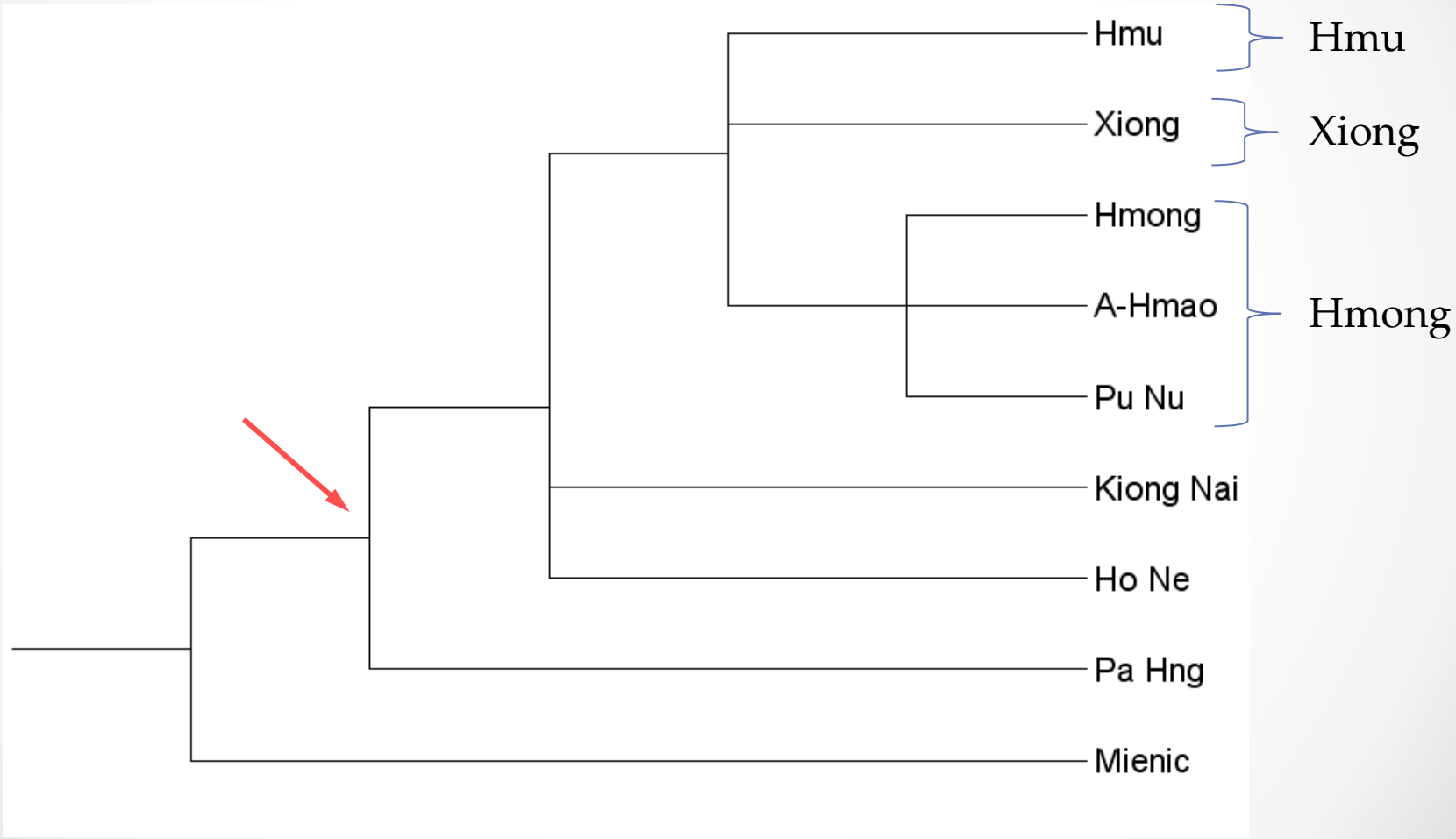

Figure 4. Tree diagram of Ratliff 2010 (Adapted from 2010: 3)

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).

	Proto-Hmong-Mien		Hmongic	Pa Hng	Xiong
Rhyme 4	*at	>	*a	e, ɪ	ei, i
	*a	>		a	ɑ
Rhyme 7	*əp, *ət, *u̯ət	>	*o	a	
	*o, *u̯o, *əw, *i̯ou	>		o	
Rhyme 13	tone7 (< -p, -t, -k)	>	*ow		u
	tones1,3,4,5,6	>			ə

3. The position of Pa Hng and Xiong (continued)

The case in Rhyme 4

	Hmu	Xiong	Hmong	Hmyo	Pu Nu	Pa Hng	Ho Ne	Pana
FIVE	tsa1	pzɑ1	tʂi1	pæA	pjo1	pja1	pi1	pei1
BORROW	--	qɑ3	qe3	--	--	qa3	kje3	ka3
PRICE	qa5	Nqɑ5	Nqe5	NqaC	--	Nqa5	--	ga5
MOON	hlha5	hlhɑ5	hli5	hlaC	hlo5	hla5	ne5	la5
WING	ta7	tei3<7	ti7	taB	to7	te7	te7	dla7
ESCAPE	fa8	qwei4<8	thli6	ʁwaA	ko8	--	--	tla8
PEPPERY	za8	mzei4<8	ntsri8	mbæA	mpjo8	mpHɪ8	pi8	bja8

3. The position of Pa Hng and Xiong (continued)

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

	Hmu	Xiong	Hmong	Hmyo	Pu Nu	Pa Hng	Ho Ne	Pana
RAIN *m-noŋ	noŋ6	noŋ6	naŋ6	noŋC	nɔŋ6	mõ6	nuŋ6	noŋ6
BIRD *m-nɔk	nə6	nu6	noŋ6	noC	naŋ6	mo6	nɔ6	nu6

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 1. Data points and sources

	Name of lect	Data point	Source
1	Hmu, Qiandong 黔东dialect of Miao	Yanghao 养蒿, Guizhou	Wang 1985
2	Qo Xiong, Xiangxi 湘西dialect	Jiwei 吉卫, Hunan	Wang 1985
3	Sichuan-Guizhou-Yunnan, Chuanqiandian 川黔滇 subdialect of Chuanqiandian dialect, Hmong	Dananshan 大南山, Guizhou	Wang 1985
4	A-Hmao, Diandongbei 滇东北 subdialect of Chuanqiandian dialect	Shimenkan石门坎, Guizhou	Office of Miao-Yao Research 1987
5	Luobo river, Luobohe 罗泊河subdialect of Chuanqiandian dialect, Hmyo	Gaozhai 高寨, Guizhou	Taguchi 2008
6	Pu Nu, Bunu 布努 dialect of Bunu	Qibainong七百弄, Guangxi	Meng 2001
7	Nao Klao, Baonao 包瑙dialect of Bunu	Lihu里湖, Guangxi	Meng 2001
8	Pa Hng, Baheng 巴哼	Wenjie 文界, Guangxi	Mao and Li 1997
9	Kiong Nai, Jiongnai 炯奈	Longhua 龙华, Guangxi	Mao and Li 2005
10	Ho Ne, She畲	Duozhu 多祝, Guangdong	Mao and Meng 1986
11	Mien, Guangdian 广滇vernacular of Mian dialect	Jiangdi江底, Guangxi	Mao 2004
12	Mien, Xiangnan 湘南vernacular of Mian dialect	Miaoziyuan庙子源, Hunan	Mao 2004
13	Changping 长坪vernacular of Mian dialect	Changping长坪, Guangxi	Mao 2004
14	Luoxiang 罗香vernacular of Mian dialect	Luoxiang 罗香, Guangxi	Mao 2004
15	Biao Min, Dongshan 东山vernacular of Biao Min dialect	Dongshan 东山, Guangxi	Mao 2004
16	Kim Mun, Diangui 滇桂vernacular of Jinmen dianlect	Liangzi梁子, Guangdong	Mao 2004
17	Dzao Min, Zaomin 藻敏dialect	Daping 大坪, Guangdong	Mao 2004
18	Pana, Bana 巴那	Changanying长安营, Hunan	Chen (2001), Taguchi 2001

Data analysis

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

- Cognacy decision: mostly based on Ratliff (2010) *Hmong-Mien language history*, except for SKY and SKIN.

- Loanword discrimination: based on Ratliff (2010) *Hmong-Mien language history*.

- 496 characters for 18 lects.

Sky

	85	85	85	85	85
	sky	sky	sky	sky	sky
	天	天	天	天	天
Hmu	vɛ2				
Xiong			tɑ1pzɑ1nḛhe1		
Hmong				nto2	
A-Hmao				ntu2	
Hmyo		ɴGwaɴA			
Pu Nu		ŋkuŋ2			
Nao Klao		ŋkɔ2			
Pa Hng	vɦɔ̃2				
Kiong Nai		ŋkwaŋ2			
Ho Ne		kuaŋ2			
Pana		gwon2			
jiangdi					luŋ2
xiangnan					luŋ2
changping					ðuŋ2
luoxiang					gung2
dongshan					lwə2
liangzi					guŋ2
daping	vaŋ2				

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.

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- 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

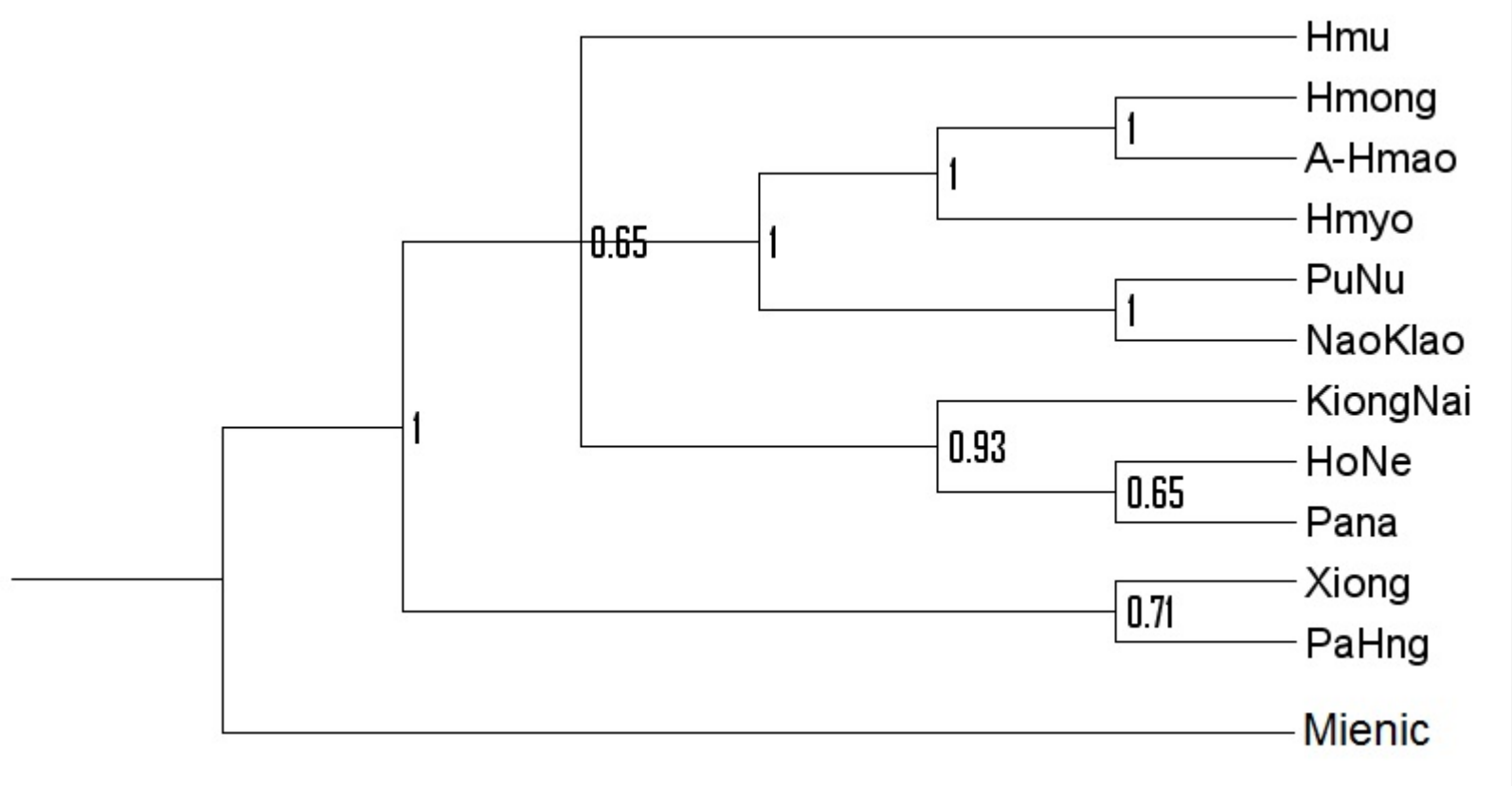

Figure 5. Consensus tree of the Hmongic languages

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) .
  <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)
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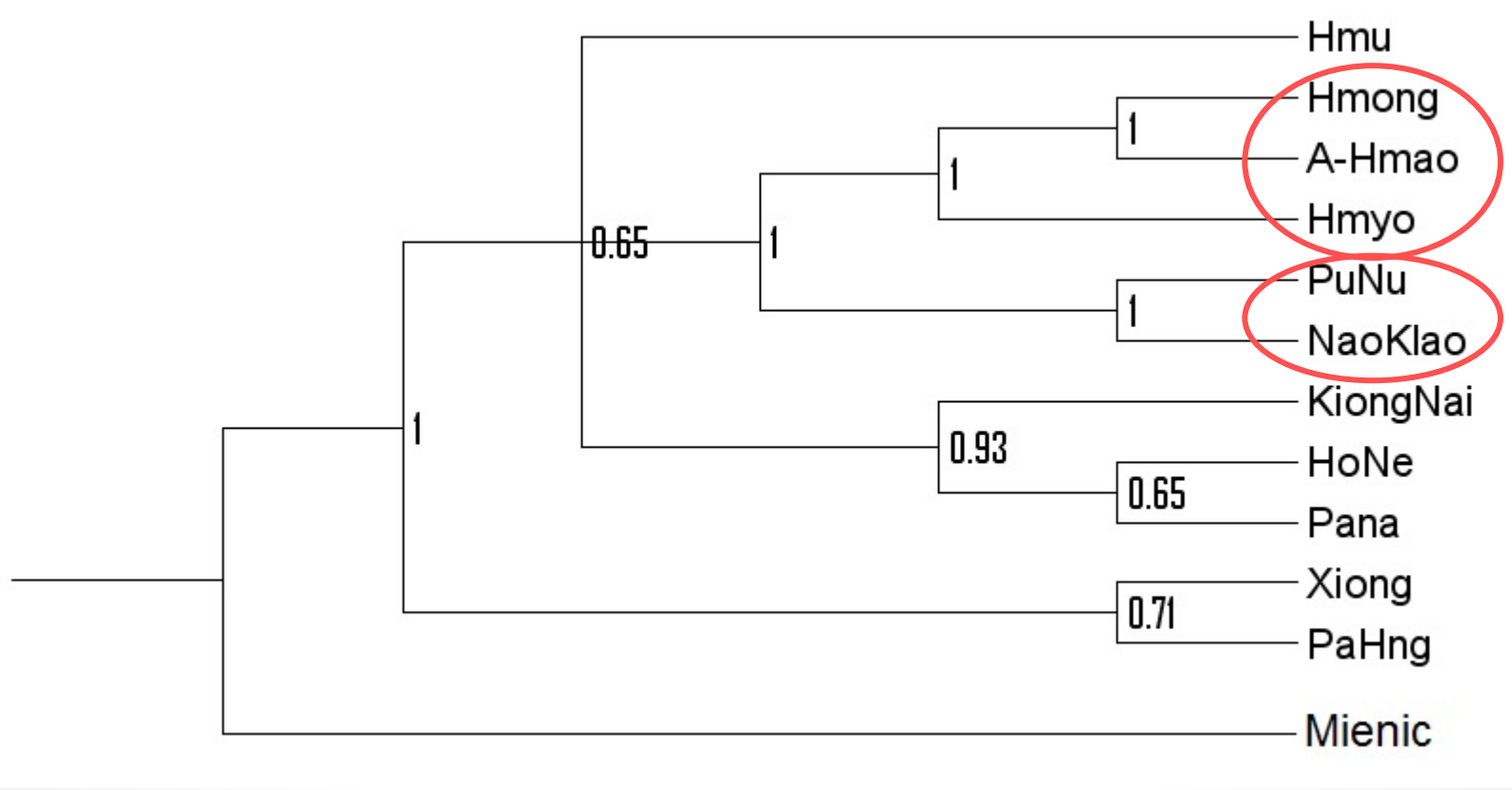

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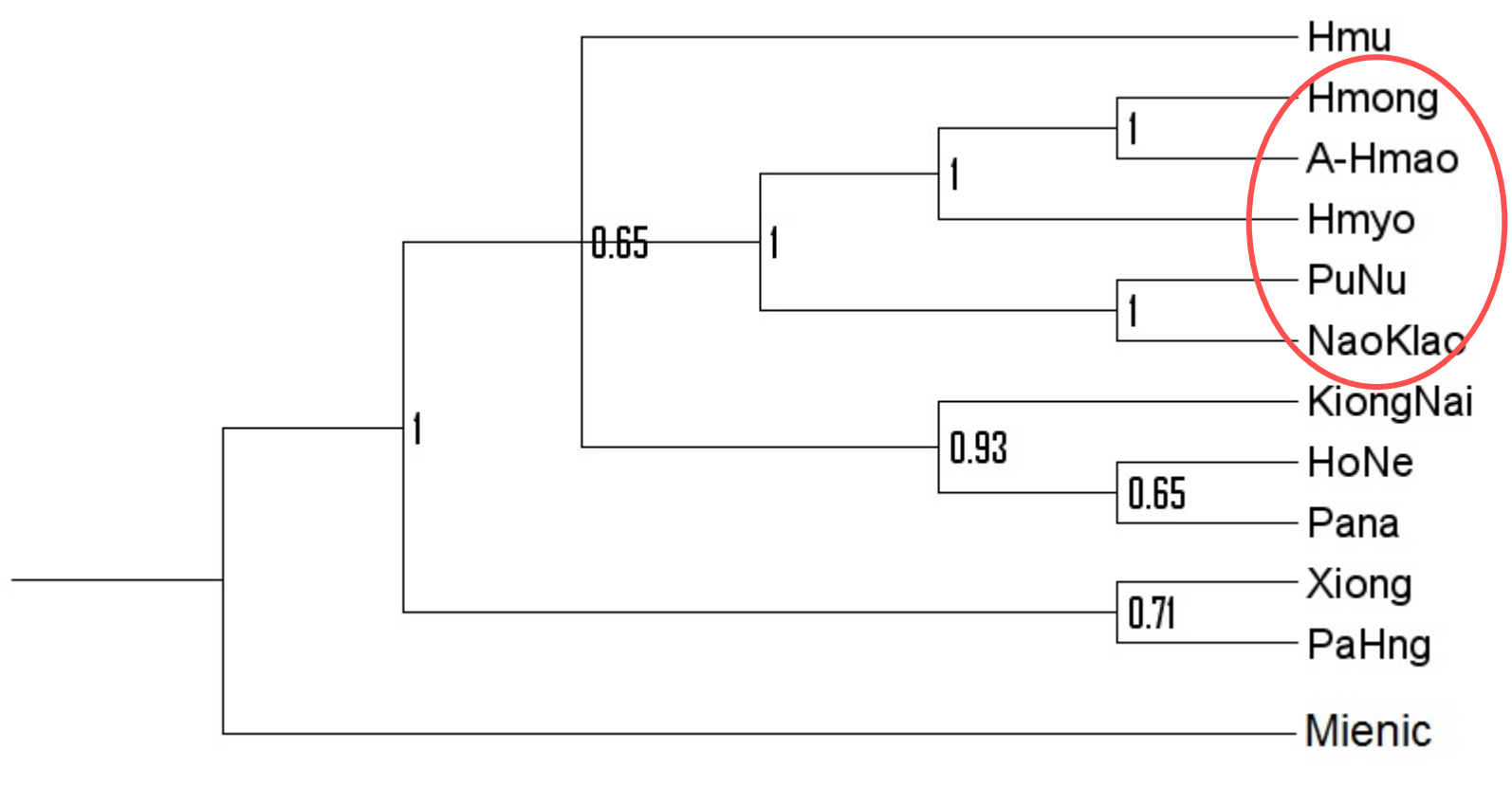

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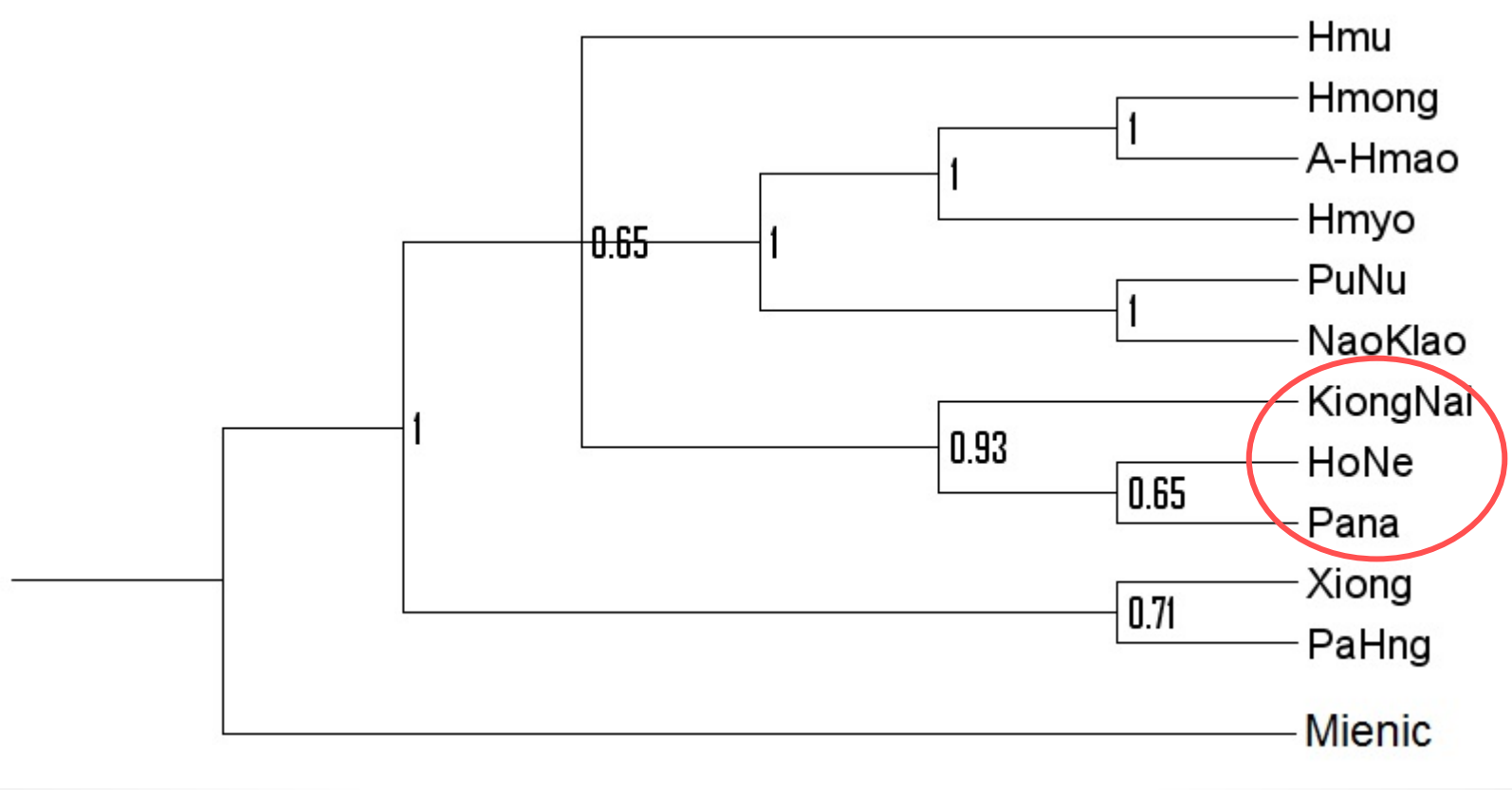

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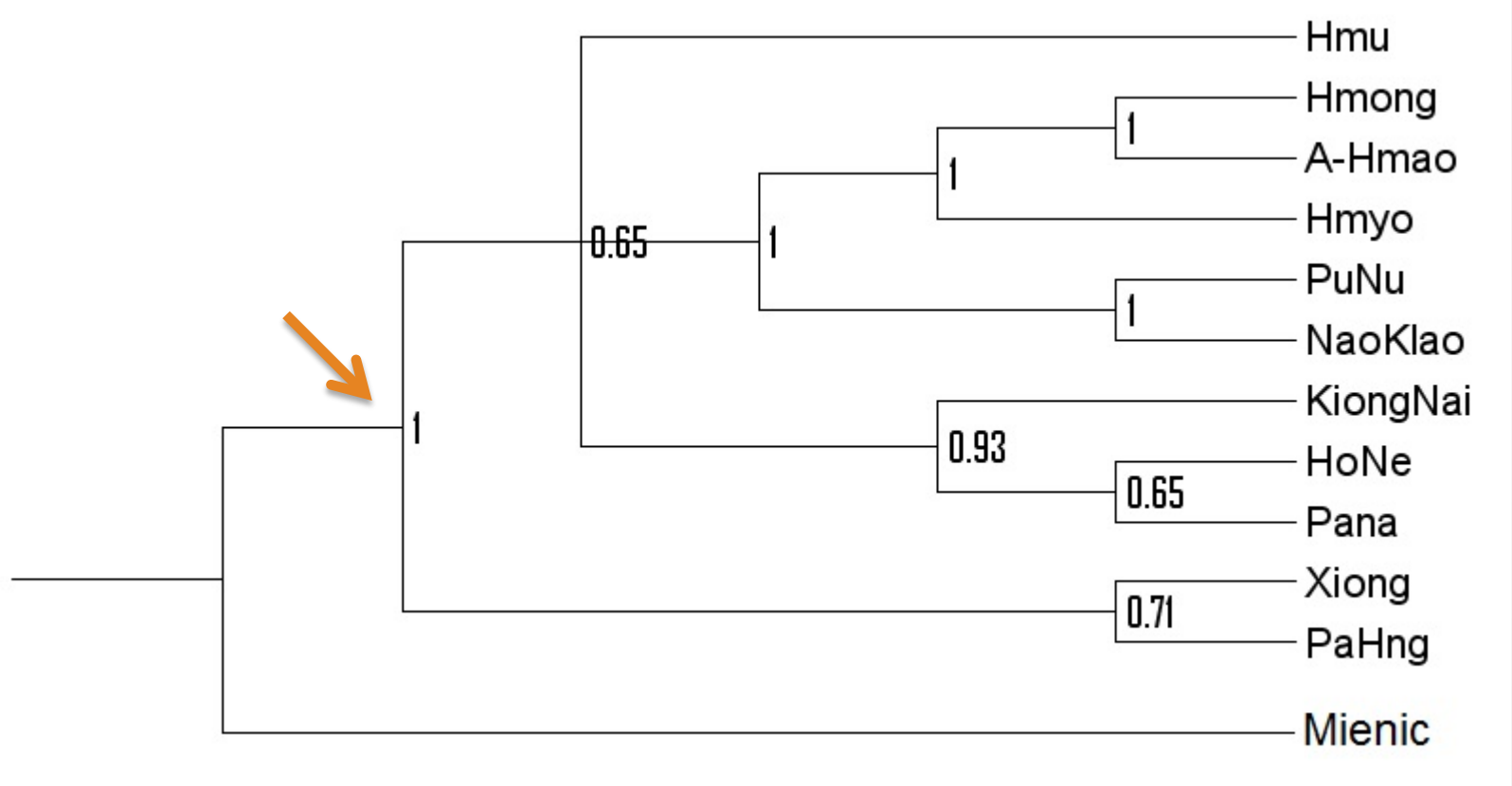
4. Calculation result (continued)

- 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



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6. Conclusion

(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.

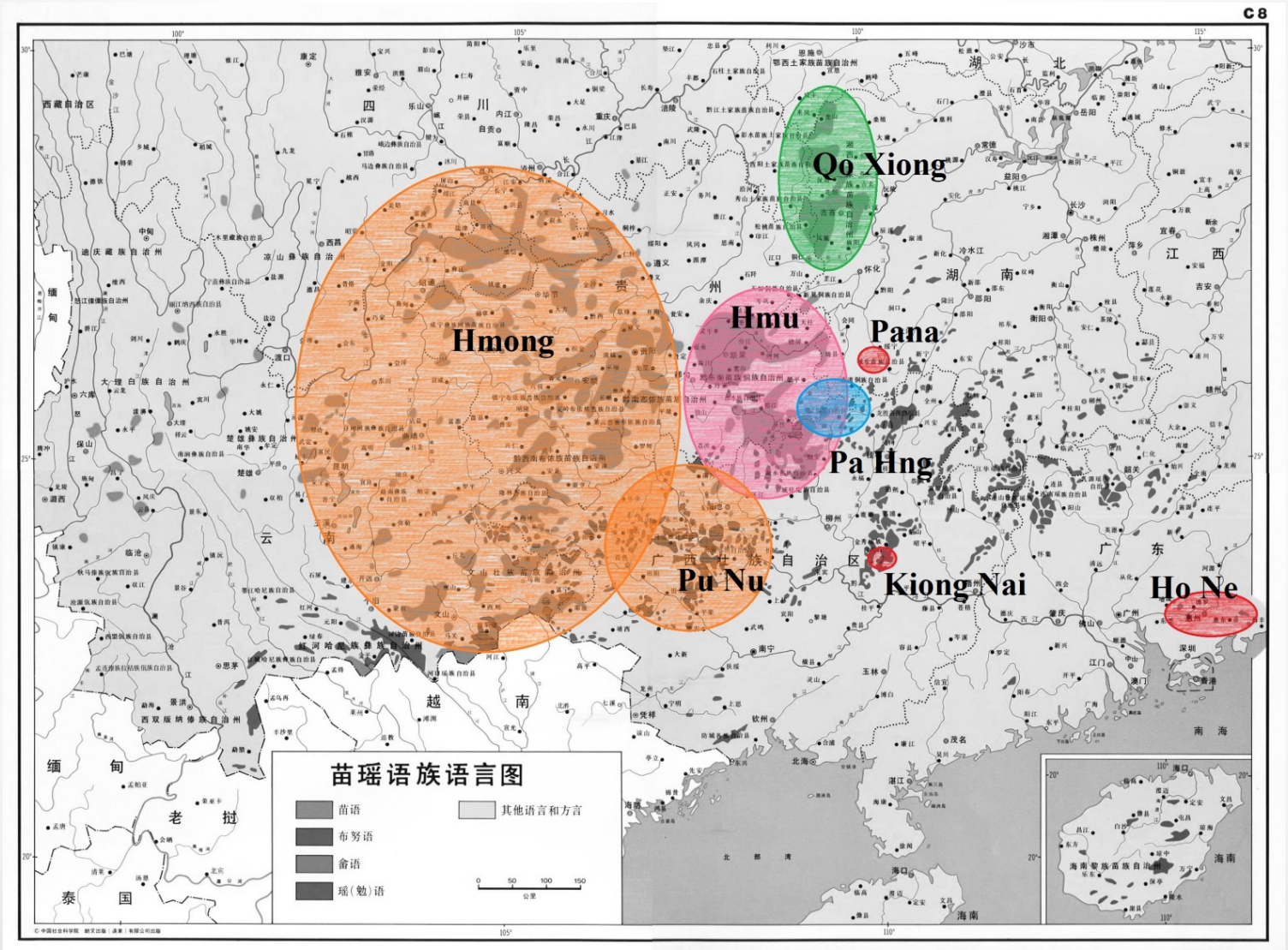
6. Conclusion

(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



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Thank you