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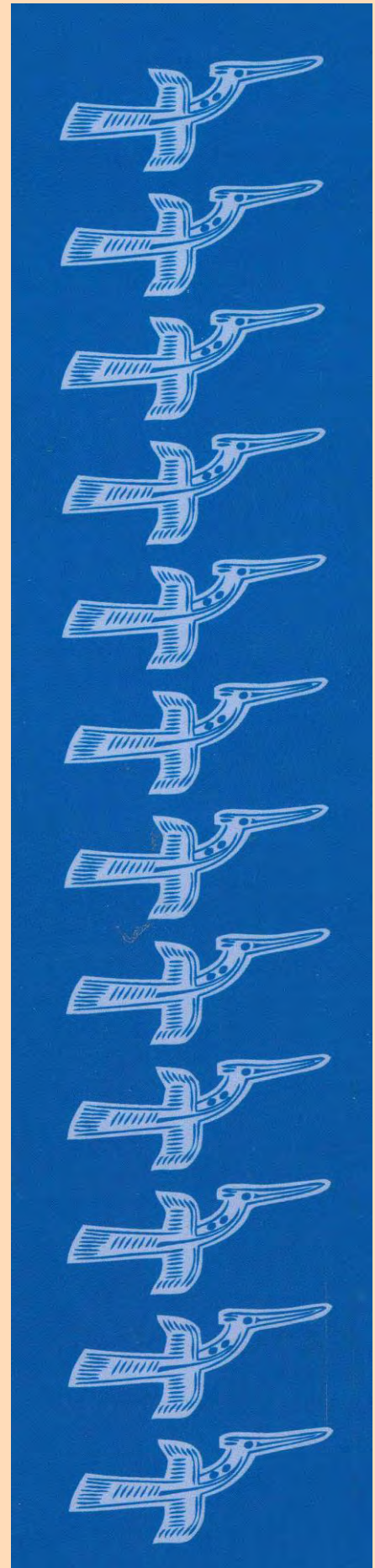
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A Lexical Comparison of the Palaung Dialects Spoken in China, Myanmar, and Thailand¹

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Abstract

Palaung belongs to the Palaungic branch of the Austroasiatic language family. Although at least three main Palaung dialects are generally recognized, namely, Ta-ang, Rumai, and Darang; as many as 13 are recognised by Mak (2012) (according to a combination of language, clothing, and culture, etc.). This paper presents the results of a lexical study using a 100 word data list (chosen following Mann 2004) collected from 16 sites in China, Myanmar, and Thailand. For the lexical analysis, the data were classed into cognates groups, and then analysed using the lexicostatistical package GLOTTO and SplitsTree4 (version 4.13.1) for computing phylogenetic networks. The results are compared with those groupings categorized by names used by the Palaung people in China and by outsiders (Deepadung, 2011); and those classified by the criteria of historical phonology (Mitani, 1977; Ostapirat, 2009).

Keywords: Lexicostatistics, Dialect classification

ISO 639-3 language codes: pce, rbb, pll, ril, yin

1. Introduction:

Palaung is an Austroasiatic language spoken in China, Myanmar, and Thailand. It belongs to eastern sub-branch of Palaungic branch (formerly called Palaung-Wa) of the Mon-Khmer family (Diffloth & Zide, 2003). The Palaung speaking area extends over southwestern Yunnan Province in China, Shan State of Myanmar, and northern Thailand. Nowadays, there are about 17,804 speakers (Xiu Dingben, 2008) of Palaung in China, and they are officially known as belonging to the De'ang nationality. Most of the Palaung in China live in SanTaiShan in Luxi county² of Dehong Dai-Jingpo Autonomous Prefecture, and Junnong in Zhenkang county of Lingcang Prefecture. They also inhabit counties and cities of Lianghe, Longchuan, Yingjiang, Ruili, Wanding, Baoshan, Gengma, and Yongde. In Myanmar, the Palaung live in Northern Shan State, concentrated in Namhsan, Nam kham and Hsipaw areas. In Southern Shan State, they live near Kalaw and in and around Keng Tung. In Myanmar there is no census of Palaung populations conducted since 1983³. However, based on *Ethnologue* (Lewis, Simons, and Fennig (eds.), 2013) the estimation is about

¹ This study is from the on-going research project entitled "Palaung dialects in China, Myanmar, and Thailand: Phonology, Lexicon, and Sub-grouping", which is supported by the Thailand Research Fund (TRF), Grant number BRG5580020 (2012-2014). The authors would like to express their gratitude to the TRF. And thanks also go to Mahidol University, Khon Kaen University and Chiang Mai University for all their support. In addition, we want to thank the audience of ICAAL6 for their valuable comments and encouragement. Last, but not least, we wish to express appreciation to Dr. Paul Sidwell for his suggestions and help in the organization and the final write-up of this paper.

² Luxi county was renamed "Mang Shi City" in 2012

³ In 2014, the Myanmar Population and Housing Census has just released series of census reports stating that the total population of the country is 51,486,253. However, there are no details about the ethnic groups.

600,000, and Howard (2005: 25) states that “there are about 600,000 Palaung in Burma,...”. In northern Thailand, there are around 4,500-5,500 Palaung speakers living in three districts of Chiang Mai Province: Fang, Chiang Dao, and Mae Ai, and in Mae Sai district of Chiang Rai Province. (Deepadung, Rattanapitak and Buakaw, 2014)

The Palaung language spoken in these three countries consists of several dialects. The classification of Palaung dialects was first presented in Mitani (1977). Based on available data at that time, Mitani (1977) classifies Palaung dialects into 5 sub-groups. According to Howard and Wattanapun (2001:1), the Palaung are divided into three main sub-groups: Ta-ang (or Shwe Palaung), Pale (or Ngwe Palaung), and Rumai. Mak noted that from the knowledge of the speakers there are 13 dialects of Palaung, which are classified according to languages, clothing, and culture. However in the footnote she states that:

It is believed that, among these thirteen dialects, some are closer to one another that they are really dialects; some are more different from the others that they are different languages. [...] There may be more (or less?) languages or dialects beyond these thirteen. Further investigation will determine the actual reality of this cluster.
(Mak 2012:1)

During 2012-2014 under the ongoing project, “Palaung dialects in China, Myanmar, and Thailand: Phonology, Lexicon, and Sub-grouping”, we collected a Palaung wordlist⁴ of 1,000 items from 16 Palaung villages in the three countries, i.e., Dehong Dai-Jingpo Autonomous Prefecture of Yunnan Province, China, Shan State of Myanmar, Chiang Mai and Chiang Rai Provinces of Thailand. In this paper, we will present the results of a lexical comparison using a 100 item wordlist of Palaung spoken in China, Myanmar, and Thailand. (the 100 item wordlist collected from the 16 Palaung villages during the field trips is attached in the appendix). To begin with, we review the classification of Palaung dialects in the published literature, then we discuss our data collection, and finally we present the results of our lexical analyses.

Table 1. A tentative classification of Palaung dialects by Mitani (1977:193-194)

<ol style="list-style-type: none"> 1. Central Group <ol style="list-style-type: none"> a) Ta-ang: Milne’s Palaung, Shorto’s Palaung (Namhsan, Tawngpeng) b) ‘Palaung or Rumai of Nam Hsan’ in <i>GUB</i> (id.) c) Kumkaw, in the Appendix of Milne’s dictionary (Tawngpeng) d) Kwanhai, id. e) Pangnim, id. 2. Northern Group <ol style="list-style-type: none"> A. Ra-ang: Luce’s Palaung (Koduang) B. Rumai Group <ol style="list-style-type: none"> a) Milne’s Rumai (China-Burma border area) b) Davies’ Palaung (Nam Kham) c) Bigandet’s Palaung (southeast of Bhamo) d) ‘Rumai in the Shan States’ in <i>GUB</i> 3. Southern Group <ol style="list-style-type: none"> a) Darang, in <i>GUB</i> (Kengtung) b) Yeseji, or Diffolth’s Palaung (Pindaya near Taunggyi) c) Kyusao, in the Appendix of Milne’s dictionary (Hsipaw) d) ‘Palaung or Rumai in the neighborhood of Manton’ in <i>GUB</i> (Manton) 4. Omachawn, in the Appendix of Milne’s dictionary (Tawngpeng) 5. Unclassified <ol style="list-style-type: none"> a) Hupawng, id. b) Humau, id.: Central Group (?)

2. Previous studies

The first Palaung dialect classification was linguistically presented by Mitani (1977). Mitani (1977) compared four dialects: Ta-ang, Darang, Ra-ang, and Rumai. Based on phonological

⁴ This Palaung wordlist is based on Rattanapitak (2009: 77-122)

development of the data available to him at that time, he proposed reconstructed initials and vowels of Proto-Palaung. The 5 sub-groups of Palaung dialects included: 1) Central group, 2) Northern group, 3) Southern group, 4) Omachawn, and 5) Unclassified, see Table 1.

Later, Mitani (1978) revised his classification – using the lexicostatistic method, and proposed the Western and Eastern sub-branch division of Palaungic. Also, in his 1978 work, he added Rieng back to the Palaungic as in the following figure:

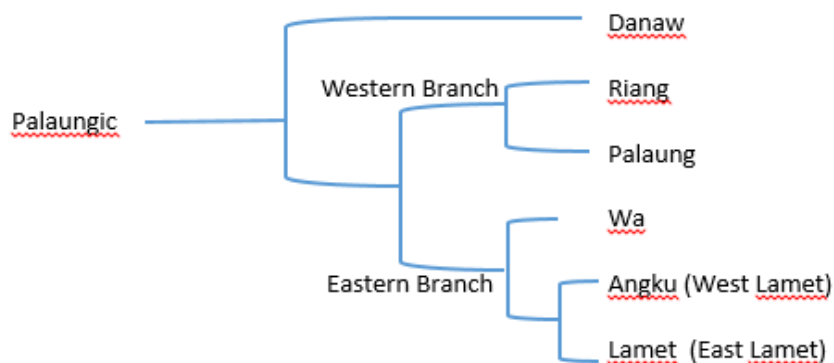


Figure 1. Mitani’s 1978 classification of Palaungic (Adapted from Mitani 1978: 3)

In his own statement (1978:3), Mitani explains that “Except for Danaw, the Palaungic proper is divided into two branches: ‘Western branch’ which comprises Palaung and Rieng, and ‘Eastern branch’ which comprises Wa, Angku and Lamet. The division is apparently the Salween.”⁵ His earlier classification of Palaung in a 1977 article (see Table 1) on the reconstruction of Proto-Palaung was revised in 1978 as follows:

1. (1) Ta-ang: Milne’s Palaung, Shorto’s Palaung (Tawngpeng)
 - (?) (2) a. “Rumai of Nam Hsan” (Tawngpeng)
 - b. Kumkaw (Tawngpeng)
 - (1) / (2) Kwanghai (Tawngpeng)
2. (1)
 - a. Milne’s Rumai (Burma-China border area)
 - b. Bigandet’s Palaung (southeast of Bhamo)
 - c. Davies’ Palaung (Nam Kham)
 - “Rumai of Shan States”
- (?) (2) Ra-ang: Luce’s Palaung (Kodaung)
- (3)
 - a. “Rumai of Manton” (Manton)
 - b. Kyusao (Hsipaw)
 - c. Darang (Kengtung)
 - d. Yeseji: Diffloth’s Palaung (Pindaya)

Figure 2. Mitani’s (1978) classification of Palaung dialects

Mitani (1978: 8) referred to his article in 1977 stating that “Earlier I suggested a classification of Palaung in an article on a reconstruction of Proto-Palaung, It basically agrees with the classification here,”.

In 1991, Diffloth proposed the term “Palaung-Rumai”. He mentioned that Palaung-Rumai consisted of several languages which include Ta-ang of Nam Hsan, Rumai, Rieng, and Pale. The so called “Pale” contained Da-ang, Na-ang, Ka-ang, and Ra-ang. In 2009, based on phonological

⁵ See also Diffloth & Zide (2003)

innovations among the Palaung dialects, Ostapirat (2009) proposed a tentative sub-grouping of Palaung dialects. Three groups of dialects are Ta-ang group, Rumai group, and Darang group. The phonological development and relationship between the dialects is shown in Figure 3.

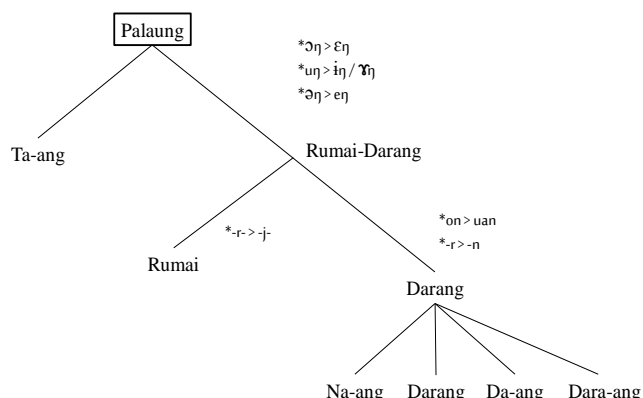


Figure 3. A tentative classification of Palaung dialects by Ostapirat (2009:73)

According to Figure 3, the primary split is between the Ta-ang and Rumai-Darang groups and then the Rumai-Darang group was split into Rumai and Darang groups. The Darang group is a cluster of dialects including Na-ang, Darang, Da-ang, and Dara-ang. In terms of homeland of the Palaung, Ostapirat (2009) suggests that the original center of Palaung settlement is likely to have been in the northern Shan State, west of Salween and the adjacent areas of Yunnan.

Deepadung (2011), based on her fieldwork in Kengtung, Myanmar and Dehong in Yunnan Province of China, reports that there are 5 sub-groups of Palaung speakers which belong to the De'ang nationality. The 5 sub-groups of De'ang consist of 1) Pule, 2) Raojin, 3) Liang, 4) Rumai, and 5) Raokot. These sub-groups are classified by names for the Palaung used by the people in China and by outsiders. Deepadung (2011) also notes that the Raojin dialect spoken in Dehong, Yunnan is close to the Palaung dialect of Kengtung in Myanmar and Palaung dialect of Noe Lae village, Chiang Mai Province, Thailand.

3. Methodology

In this paper, Palaung dialect classification is based on lexicostatistic methods. We conduct a lexical similarity analysis using the method described by Blair (1990), plus analyses based on cognate counts. Crystal (1985: 178-179) offers the explanation that lexicostatistics is a technique of measuring similarity between lexical items across languages or dialects. This method is used more commonly to determine the degree of genetic relatedness between languages or dialects by establishing indices of lexical similarity. Smith (1981: 180) briefly reviewed work on the classification of Mon-Khmer languages using the lexicostatistic method (Thomas, 1960; Thomas and Headley, 1970; Huffman, 1976; Smith, 1974, 1978; etc.). Smith himself (1981:203) presented a lexicostatistic analysis of 45 Mon-Khmer languages with a final word of caution stating that “The lexico-statistic classification of languages is perforce tentative, but helpful for lack of a more definitive means to relate languages. More phonological work is urged to refine these language relationships more definitively.” The limitations of lexicostatistics were described by Thomas and Headley:

To sum up, lexicostatistics is not a precision tool. Careful phonological reconstruction is necessary if one desires detailed information about language relationships. Lexicostatistics is useful, however, for giving a quick general picture of language groupings. (Thomas and Headley 1970:411)

In 1960, Hymes (1960 cited in Huffman, 1976:545) defined lexicostatistics as “the simple quantification of cognates sharing a common gloss, without the historical implications of

glottochronology⁶). Gives all of the above cautions and the main objective of classification of Palaung spoken in three countries, the wordlist and criteria for deeming lexical similarity, and locations of data gathering will be given in subsequent sections.

As for lexicostatistic comparison, a 100 item wordlist was chosen following Mann (2004). Mann (2004) compared wordlists developed by SIL linguists (1980), James Matisoff (1978), and Morris Swadesh (1967) to find a standard wordlist for use in lexicostatistic study. He then created a hybrid wordlist which was suitable for comparative studies in Mainland Southeast Asia. The first 100 items of Mann's (2004) comparative wordlist was chosen for the comparison of the Palaung dialects in this paper (see Appendix). This 100 item wordlist is a subset of a 1,000 item wordlist with English and Thai glosses, which was devised for elicitation of Palaung dialect spoken in China, Myanmar, and Thailand.

At first we collated the wordlists into tables and followed the criteria in lexicostatistics for determining lexical similarity which is based on Blair (1990: 31-33), and the preliminary results based on that methods were presented at the 6th International Conference on Austroasiatic Linguistics (ICAAL6) at Siem Reap, Cambodia (July 29-31, 2015). Constructive feedback we received following that presentation persuaded us to redesign our study: the methodology described by Blair is based on grouping lexical items by similarity criteria, and does not require the investigators knowing the real historical relationships between the forms. Such a method is useful in the absence of a well developed historical reconstruction, but the recent publication of a proto-Palaungic reconstruction by Sidwell (2015) now permits an analysis based strictly on well supported cognate judgements, and Paul Sidwell agreed to review the collated data and offer suggestions and corrections to the cognate judgements, which were subsequently accepted and incorporated into the present study.

The cognate scores were then counted and arranged into a matrix using GLOTTO software (see Guy 1994), and tree diagrams generated using both GLOTTO and SplitsTree4 (version 4.13.1) (Huson & Bryant 2006) for comparison, and a NeighborNet created (also using SplitsTree4). The results are presented further below, and are also compared with those presented at ICAAL6.

Table 2. A list of 16 Palaung villages chosen for wordlist collection

Country	Village	Location	Ethnic name
China	Chu Dong Gua (CDG)	Santaishan, Dehong	Liang/Ta-ang
	Meng Dan (MD)	Santaishan, Dehong	Pule/Ka-ang
	Nan Sang (NS)	Ruili, Dehong	Rumai
	Guang Ka (GK)	Ruili, Dehong	Rumai
	Mang Bang (MB)	Longchuan, Dehong	Rumai
	Cha Ye Qing (CYQ)	Mangshi, Dehong	Raokot/La-ang
	Xiang Cai Tang (XCT)	Mangshi, Dehong	Raojin/Na-ang
Myanmar	Namhsan (NH)	Namhsan Township, Shan	Ta-ang/SaamLoong
	Kun Hawt (KH)	Namhsan, Shan	Ta-ang
	Htan Hsan (TS)	Hsipaw, Shan	Ta-ang
	Pang Kham (PK)	Hsipaw, Shan	Dara-ang/Ta-ang
	Man Loi (ML)	Hsipaw, Shan	Dara-ang/Katiang
	Nyaung Gone (NG)	Kalaw, Shan	Da-ang
	Ban Paw (BP)	KengTung, Shan	Dara-ang
Thailand	Noe Lae (NL)	Fang, Chiang Mai	Dara-ang
	Pong Nuea (PN)	Mae Sai, Chiang Rai	Dara-ang

4. Data gathering Locations

During 2012-2014, several field trips to Palaung speaking areas in northern Thailand, Myanmar, and China were made. Wordlists were collected in 16 villages. Selection of these villages was determined based on previous studies and information provided by provincial

⁶ For detail, see Sidwell, 2009:46-48

authorities. A list of all Palaung villages where wordlists were collected in China, Myanmar, and Thailand is given in Table 2.

5. Results and Discussions

5.1 Lexical Similarity Analysis

Following the method specified by Blair (1990), the percentages of lexical similarity between Palaung dialects that we calculated are presented in Table 3.

Table 3. The percentages of lexical similarity among Palaung dialects

NH													A		
77	KH														
76	87	TS													
68	63	67	MD									B			
66	57	62	86	CTG											
67	64	69	81	81	ML										
66	64	67	81	78	91	PK									
68	59	57	72	69	70	73	NG					C			
67	63	61	73	70	73	75	94	BP							
61	61	60	69	67	76	76	83	85	PN						
67	60	65	71	68	72	75	95	94	83	NL					
61	59	61	72	70	72	75	84	84	86	82	XCT				
56	52	57	71	72	69	69	62	66	61	61	69	CYQ			D
54	48	51	66	68	65	65	65	65	64	64	65	83	GK		
54	49	50	65	65	67	67	66	65	67	67	67	84	90	MB	
49	48	49	60	60	64	63	65	65	65	65	68	75	84	88	NS
Myanmar			China			Myanmar			Thailand			China			

According to the matrix in Table 3, the percentages of lexical similarity range from 48% to 95%. To aid analysis, we have shaded blocks at the cut-off point of 75% and above. Within each group we note that the average lexical similarity is above 80%, while the between group average percentages drop as low as 51% (see Table 4), and this confirms the identification of the four groups on the basis of lexical similarity. On this basis, the dialects of Palaung spoken in China, Myanmar, and Thailand can be grouped into 4 main sub-groups, and named according to the most commonly ethnic names, as follows: (A) Ta-ang, (B) Pule, (C) Dara-ang, (D) Rumai.

Table 4. Average lexical similarity among sub-groups.

Average between sub-groups	A :Ta-ang			
	65	B:Pule		
	62	72	C: Dara-ang	
	51	66	65	D:Rumai

These averages range from 51% to 72% similarity. As seen from Table 4, the average lexical similarity among sub-groups ranges from a low of 51% between sub-group A and sub-group D to a high of 72% between sub-group B and sub-group C. These figures suggest a tentative classification as presented in Figure 4.

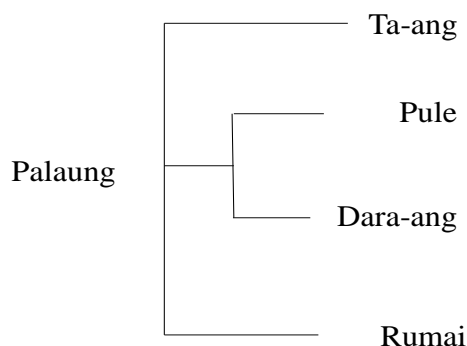


Figure 4. Tentative classification of Palaung dialect sub-groups based on lexical similarity

1) **Ta-ang.** Sub-group A or the Ta-ang sub-group is spoken mainly in the area of northern Shan State, Myanmar: Nam Hsan (NH), Kun Hawt (KH), and Htan Hsan (TS). This sub-group in previous literature (e.g., Janzen, 1978; Howard, 2005; Mak, 2012) is referred to by the name “Golden Palaung”. The group originally lived in the vicinity of Tawngpeng, which is in the Nam Hsan area. Nowadays, the Palaung people living in Nam Hsan Township refer to the language they speak as “Saam-Loong”. As mentioned in Mak (2012:1-2), the Palaung dialect of Nam Hsan is considered to be the central dialect. This dialect is recognized by all of the natives as having high prestige. It is now being promoted to be the lingua franca of those who used to be known as “Golden Palaung”.

2) **Pule.** Sub-group B or the Pule sub-group is found in two countries. That is, in China they are found in Santaishan district of Dehong, Yunnan Province: Chu Dong Gua (CDG) and Meng Dan (MD) villages. In Myanmar, this sub-group of Palaung dialects is found in the villages surrounding Hsipaw city, Shan State: Pang Kham (PK) and Man Loi (ML) villages.

3) **Dara-ang.** Sub-group C or the Dara-ang sub-group is diversely found in terms of geographical distribution. The Palaung dialects in this sub-group can be found in Xiang Cai Tang (XCT), Mangshi city of Dehong, Yunnan Province. Apart from that, they also can be found in Southern Shan State: Nyaung Gone (NG), Kalaw city and Ban Paw (BP) of Keng Tung. Due to recent migration to Thailand, as stated in Deepadung (2011), the dialects of Dara-ang sub-group are found in Chiang Mai and Chiang Rai, northern Thailand: Noe Lae (NL) and Pong Nuea (PN) villages.

4) **Rumai.** Sub-group D or the Rumai sub-group, which is known as “Black Palaung”, are concentrated in Nan Sang (NS) and Guang Ka (GK) of Ruili and Mang Bang (MB) of Longchuan, Yunnan as well as around the border area between China and Myanmar. They are also found in Mangshi district of Dehong in Cha Ye Qing (CYQ). However, the natives of Cha Ye Qing refer to themselves as “Raokot”.

From the matrix in Table 4, there are two important points worth discussion. Firstly, the minimum lexical similarity is 51% between Ta-ang and Rumai – such that they cannot use their own dialects for mutual communication. The lexical similarity between Rumai and Pule and Dara-ang is 65% to 66%. The close relationship between Rumai and Dara-ang or Darang as called by Ostapirat (2009) has also been observed by Ostapirat (2009: 72). He found that the Rumai and Darang dialects appear to share a number of rime innovations (see Ostapirat, 2009: 65-72). Secondly, due to the high lexical similarity of 72% between Pule and Dara-ang, they are able to converse with each other using their own dialect.

Concerning the Ta-ang and the Rumai, Lewis stated that:

We may now proceed to consider the ethnical divisions of the Palaung peoples of Hsipaw and Tawngpeng. The unit to which analysis carries us back is the originally endogamous clan, known by a distinctive name, wearing a distinctive dress and confined in the first instance to a particular locality. For the purpose of this consideration it will be convenient to keep in sight the division of the peoples into Palaungs and Pales.
(Lowis 1906: 20)

That is to say, Palaung of Nam Hsan or “Ta-ang” is a distinctive group. They differ from the so-called “Pule” or “Pales” both in language and clothing. The Palaung who live in and around the neighborhood of Namhsan, the capital of Tawngpeng are considered “the pure Palaung or Palaung proper or Ta-ang”. The other Palaung in Shan State are Pale. The Pale are divided into “Eastern Pale or Humai” and “Western Pale” (Lowis, 1906: 19). Based on lexical comparison, we can perhaps say that Eastern Pale corresponds to the Rumai and Western Pale corresponds to the Pule living in and around Hsipaw, Shan State and in Santaishan of Dehong, Yunnan Province.

As for the Dara-ang group of dialects, the Palaung living in Southern Shan State and northern Thailand are descendants of late migrants following the Salween River southward as discussed in Ostapirat (2009: 74). According to Deepadung (2011), the Palaung in northern Thailand are the most recent ethnic group to settle in the Fang district of Chiang Mai Province. Deepadung (2011) mentions that, from the oral history, the Palaung of Noe Lae migrated from their villages in Kengtung to Thailand between 1982 and 1984. Howard and Wattanapun (2001: 20-21) also reported that the Palaung in Southern Shan State (also called Silver Palaung) migrated to the south and west of Kengtung. For that reason, there are Palaung speakers now living in and near Kalaw, southern Shan State and in Chiang Mai, northern Thailand.

5.2 Lexical Analysis with GLOTTO

Consequent to discussions that followed the presentation of the results described above at the ICAAL6 meeting, the data were rescored according to cognate judgements, rather than similarity judgements. The effect of this procedure is that the distance between dialects is measured based on the replacement of etyma, without regard to phonetic or phonological changes to forms of specific etyma. This is the most typical lexicostatistical methodology and also widely used for computational phylogenetic analyses. To count the cognates programs from the GLOTTO package of Jacques Guy were used (GLOTPC to count the cognate scores and generate the matrix, and GLOTTOTREE to generate the family tree). The matrix of cognate percentages is presented as Table 5. Readers will immediately notice that the percentage figures are generally higher than for similarity (by Blair’s definition), yet still tend to fall out into the same four apparent groupings.

Table 5. Cognate percentages matrix calculated with GLOTPC.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Namhsan		85	85	73	74	72	73	69	68	66	66	67	66	66	64	64
2 Khun Hawt	85		94	75	75	71	69	70	68	67	67	68	65	64	62	65
3 Htan Hsan	85	94		76	77	73	72	72	70	69	69	70	68	67	65	68
4 Pang Kham	73	73	76		95	84	85	82	82	81	81	82	81	80	80	79
5 Man Loi	74	75	77	95		86	85	83	84	82	82	83	83	80	79	81
6 Meng Dan	72	71	73	84	86		93	83	81	79	79	80	82	79	78	77
7 Chu Dong Gua	73	69	72	85	85	93		84	83	81	81	82	83	81	79	77
8 Xiang Cai Tang	69	70	72	82	83	83	84		87	88	88	88	78	79	78	80
9 Pong Nuea	68	68	70	82	84	81	83	87		94	95	95	79	81	82	82
10 Nyaung Gone	66	67	69	81	82	79	81	88	94		98	96	79	82	83	83
11 Noe Lae	66	67	69	81	82	79	81	88	95	98		97	80	84	83	84
12 Ban Paw	67	68	70	82	83	80	82	88	95	96	97		81	85	83	85
13 Cha Ye Qing	66	65	68	81	83	82	83	78	79	79	80	81		85	83	81
14 Guang Ka	66	64	67	80	80	79	81	79	81	82	84	85	85		95	94
15 Mang Bang	64	62	65	80	79	78	79	78	82	82	83	83	83	95		94
16 Nan Sang	64	65	68	79	81	77	77	80	82	83	84	85	81	94	94	

Blocks have been shaded within the matrix at Table 5 with light grey to indicate cognate percentages averaging 85% and above, and dark grey for above 90%. This reveals indications of further close groupings within the four indicated groups. Additionally, a tree diagram of these

relations was calculated using GLOTTOTREE; and these results also indicate four primary groups, although the membership is somewhat different, with GLOTTOTREE suggesting the grouping of Pang Kham and Man Loi with Namhsan, Khun Hawt and Htan Hsan, instead of with Meng Dan and Chu Dong Gua, with whom they share significantly higher percentages of cognates. It is not clear to us why GLOTTOTREE produced this result, but in other respects it reproduces the groupings indicated by the similarity analysis.

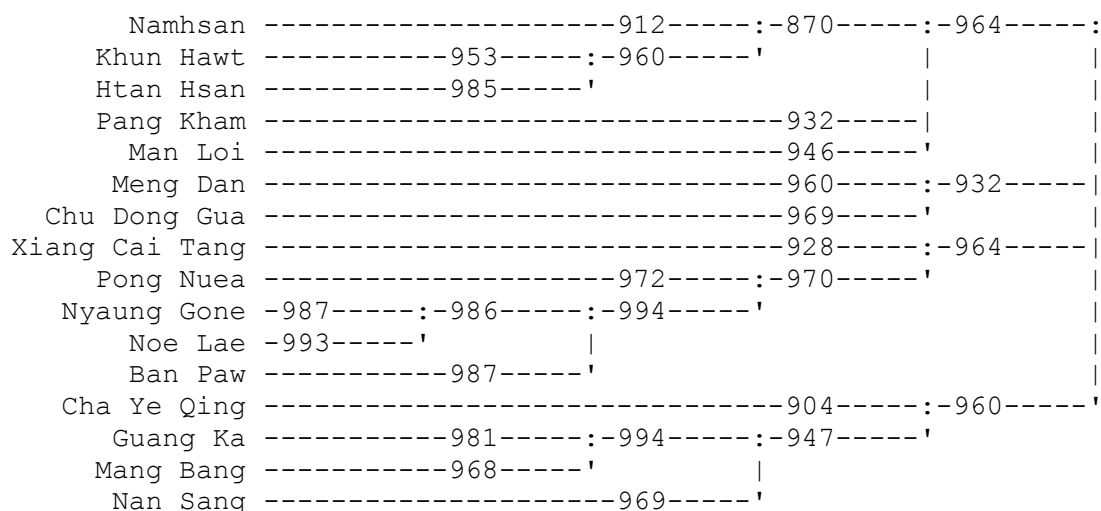


Figure 5. Tree diagram for Palaung dialects sub-groups generated by GLOTTOTREE (Note figures on branches are words retained per 1000)

5.3 Lexical Analysis with SplitsTree4

The same cognate score data was analysed using SplitsTree4 to generate various network and tree representations of the lexical relations within the dataset. SplitsTree4 is a leading application for computing phylogenetic networks from molecular sequence data and has lately come to be used for linguistic phylogenetics, including Austroasiatic (e.g. see Nagaraja, Sidwell & Greenhill 2013 for their analysis of Khasian language relations).

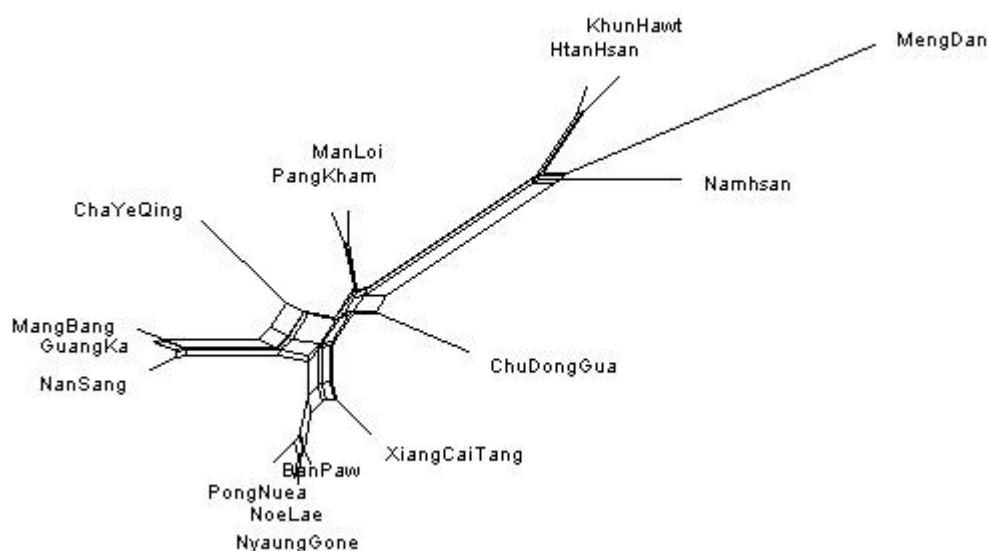


Figure 6. NeighborNet for 16 Palaung dialects generated with SplitsTree4.

The NeighborNet (Figure 6) recapitulates much of the grouping indicated by the similarity analysis and the lexicostatistics, plus we also see the placement of Pang Kham and Man Loi in a

relatively isolated position, which is consistent with the conflicting signals for these in the lexicostatistics discussed above. Striking is the disparate positioning of Chu Dong Gua and Meng Dan varieties in the NeighborNet. But having regard to the absolute high percentage of 93% cognates between Meng Dan and Chu Dong Gua, and their apparent strong lexical relation to Pang Kham and Man Loi, we are inclined to group these together as Pale.

Compare the NeighborNet to the Unrooted UPGMA Consensus Tree at Figure 7. Here we see Che Ye Qing and Chu Dong Gua grouped with Pang Kham and Man Loi, strongly contradicting the GLOTTOTREE, while Xiang Cai Tang groups neatly with the Dara-ang lects, consistent with all the above analyses. Meng Dan is something of an outlier in the tree, weakly grouping with the Ta-ang lects, but this may be a reflection of the strong influence of Namhsan as a prestigious dialect.

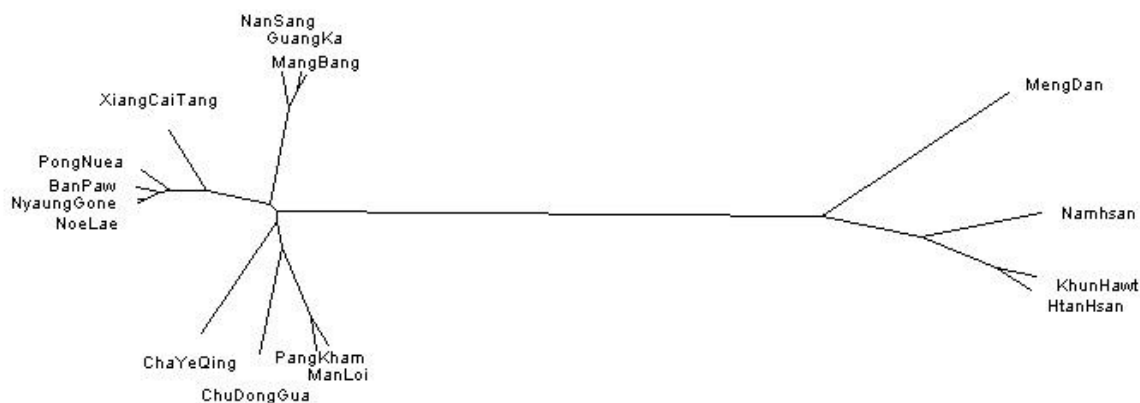


Figure 7. Unrooted UPGMA (Unweighted Pair Group Method with Arithmetic Mean) Consensus Tree for 16 Palaung dialects generated with SplitsTree4.

SplitsTree4 was also used to generate a Phylogram to visualise the UPGMA Consensus Tree (see Figure 8). Note that the phylogram places Namhsan at the highest branching node, rather than clearly within a sub-grouping with Htan Hsan/Khun Hawt. Note that Namhsan shares 85% cognates with Khun Hawt and Htan Hsan, while the next geographically close group, the Pule dialects, share an average of 73% with Namhsan/Khun Hawt/Htan Hsan, while even more distant groups still share percentages with Namhsan which are also quite high, up around 70%, so it seems likely to us that there is a Ta-ang group (Namhsan, Khun Hawt and Htan Hsan) which occupies the highest branching node, and this is consistent with the phonological analysis of Ostapirat (2009).

However, neither the Phylogram nor the NeighborNet immediately support a special grouping of Pule and Dara-ang, but instead suggest that Rumai is a little closer to Pule. This could relate to the statistical treatment of Cha Ye Qing, whose position varies depending on the analysis. This is understandable if we look back at the lexicostatistical matrix and note that Cha Ye Qing shares an average of 83% with Rumai and 82% with Pule, figures which are too close to help us decide (and hardly much more than the 79% average Cha Ye Qing shares with Dara-ang). Consequently it is not at all clear how to treat Cha Ye Qing at present.

On balance it seems that we can broadly reconcile these analyses with only marginal difficulties, suggesting the following dialect groups:

- **Dara-ang group** of Pong Nuea, Noe Lae, Ban Paw, Nyaung Gone plus Xiang Cai Tang as a northern outlier;
- **Rumai group** of Guang Ka, Nan Sang and Mang Bang;
- **Pule group** of Pang Kham, Man Loi, Meng Dan and Chu Dong Gua;
- **Ta'ang group** of Namhsan, Khun Hawt and Htan Hsan;
- **Ambiguous:** Cha Ye Qing.

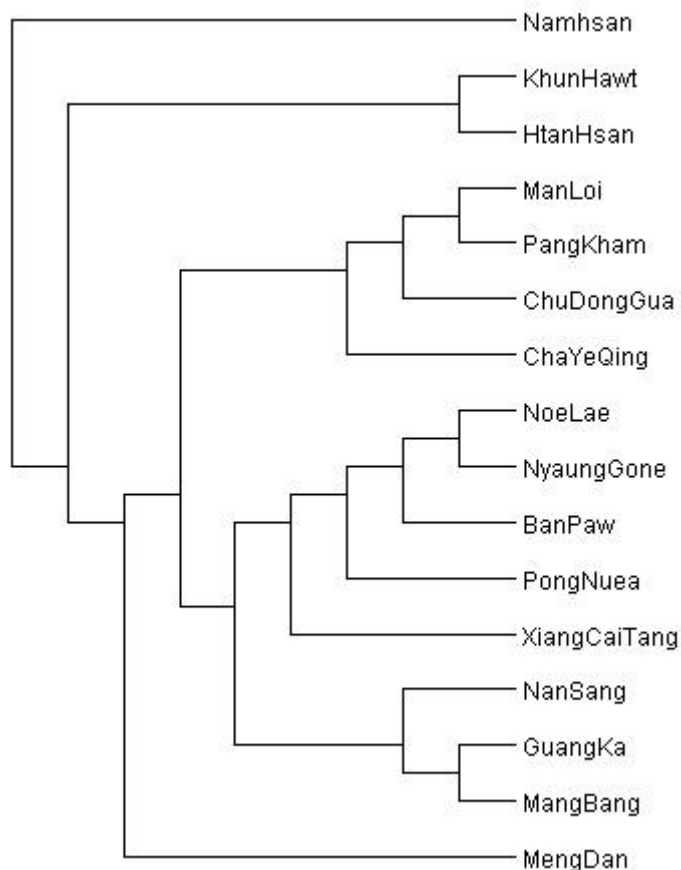


Figure 8. Phylogram (UPGMA Consensus Tree) for 16 Palaung dialects generated with SplitsTree4.

5. Conclusion

In this paper, Palaung dialects are compared based on a 100 item wordlist from 16 villages. Four groups of dialects of Palaung spoken in China, Myanmar, and Thailand were found and given the names: Ta-ang, Pule, Dara-ang, and Rumai. One dialect, Cha Ye Qing, remains unclassified for now. How these groups coordinate into a tree is problematic based on the lexical data; while it does appear that Ta-ang branches form the highest node, consistent with Ostapirat (2009), it is not clear whether the remaining three groups fall within nested branches or are relatively equidistant; it seems that the latter is more likely with the data at hand. The geographical groupings we have identified in relation to these four groups are indicated on the map at Figure 9, and our tentative classification, based on statistical analyses (combined with the results of Ostapirat 2009), are presented at Figure 10. While lexical analyses are very suggestive, they are also clearly problematic, and careful phonological reconstruction is necessary to further clarify the results. The grouping presented here is just a beginning, and further indepth linguistic study may result in different groupings.

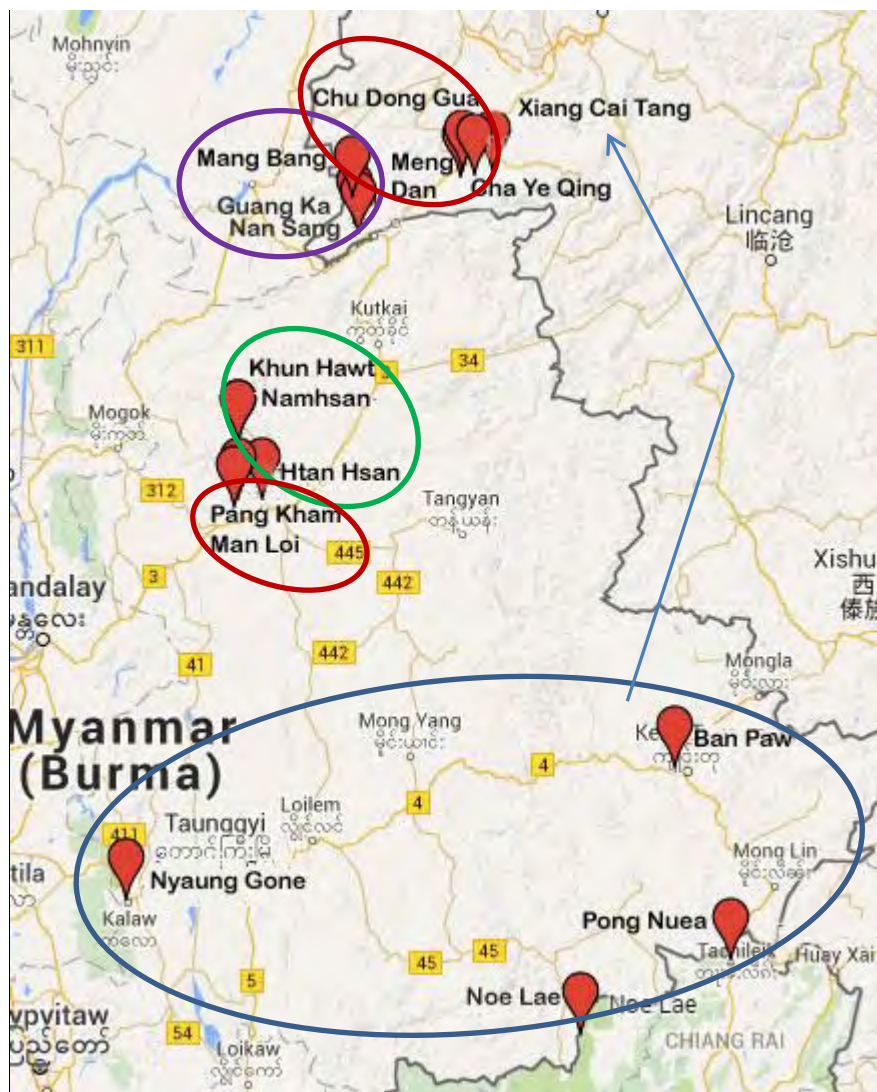


Figure 9. Map of Palaung dialect locations created with Google Maps. Suggested groupings are color coded: Ta-ang (green), Pule (red), Rumai (violet), Dara-ang (blue). Note apparent discontinuous groups.



Figure 10. A tentative grouping of Palaung dialects spoken in China, Myanmar, and Thailand (based on lexical, phonological and geographical factors)

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Appendix: 100 word list data and cognate scores.

		Namhs an		Khun Hawt		Htan Hsan		Pang Kham		Man Loi		Meng Dan		Chu Dong Gua		Xiang Zhai Tang		Pong Nuea		Nyaun g Gone		Noe Lae		Ban Paw		Cha Ye Qing		Guan g Ka		Mang Bang		Nan Sang			
1	sun	saŋi:	1	saŋi:	1	saŋi:	1	saŋaj	1	saŋaj	1	ŋəj	1	səŋəj	1	saŋe:	1	saŋej	1	saŋe	1	saŋe	1	saŋe	1	saŋe	1	khaŋaj	1	saŋaj	1	saŋaj	1	saŋaj	1
2	moon	blaŋkia: r	1	paŋkia	1	baŋkia	1	blaŋgian	1	blaŋgia :	1	blaŋgia r	1	blaŋki ar	1	məŋgian	1	maŋgian	1	magia n	1	magia n	1	magia n	1	magia n	1	lənlarw	2	paŋjə:	1	paŋjə:	1	paŋjə:	1
3	star	səmeŋ	1	səmeŋ	1	səmeŋ	1	pləŋ	2	pləŋ	2	kəman	1	səmaŋ	1	səmeŋ	1	səmaŋ	1	səməŋ	1	səməŋ	1	səməŋ	1	səməŋ	1	khaman	3	la:w	4	la:w	4	la:w	4
4	cloud	ʔut	1	ʔut	1	ʔu:ʔ	1	ʔaʔut	1	ʔaʔut	1	ʔut	1	kiʔut	1	ŋʔuʔ	1	ŋʔuʔ	1	ŋ ʔuʔ	1	ŋ ʔu	1	ŋ ʔuʔ	1	ŋ ʔuʔ	1	ŋʔu:ʔ	1	ʔəŋʔu: ʔ	1	ŋʔuʔ	1	ŋʔu:ʔ	1
5	rain	ʔəuŋ	1	ʔəuŋ	1	ʔəu:ŋ	1	gla:j	2	gla:j	2	gla:j	2	klaj	2	gla:j	2	gla:j	2	gla:j	2	gla:j	2	gla:j	2	gla:j	2	gla:j	2	klaj	2	klaj	2	klaj	2
6	wind	khur	1	khur	1	khur	1	khur	1	khur	2	khur	1	khur	1	khur	1	khur	1	khur	1	khur	1	khur	1	khur	1	khur	2	khur	2	khur	2	khur	2
7	night	raŋəu	1	laŋmə:	1	rəŋmə:	1	khimmə u	1	khimmə u	1	khimmə əu	1	khimmə u	1	ʔəuŋmə u	1	khimmə u	1	raŋmə	1	khimmə	1	khimmə	1	khimmə	1	khimmə	1	kasem	2	kasə m	2	kasəm	2
8	year	sanəm	1	sanəm	1	sənəm	1	sanam	1	sanam	1	sənəm	1	sanəm	1	sanəm	1	sanəm	1	sanəm	1	sanəm	1	sanəm	1	sanəm	1	sanam	1	sana m	1	sanam	1	sanam	1
9	water	ʔəm	1	ʔəm	1	ʔəm	1	ʔəm	1	ʔəm	1	ʔəm	1	ʔim	1	ʔim	1	ʔim	1	ʔim	1	ʔim	1	ʔim	1	ʔim	1	ʔem	1	ʔem	1	ʔəm	1	ʔəm	1
10	earth, soil	kədə:	1	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kədəj	2	kataj	2	kataj	2	kataj	2
11	stone	mo:	1	məw	2	məw	2	ma:w	2	ma:w	2	məw	2	ma:w	2	ma:w	2	ma:w	2	ma:w	2	ma:w	2	ma:w	2	ma:w	2	ma:w	2	ma:w	2	ma:w	2	ma:w	2
12	mounta in	sur	1	sor	1	sur	1	ŋət	2	ŋauʔ	2	sul	2	kədəŋ	3	nən	3	nən	3	nən	3	nən	3	nən	3	nən	3	no:	2	koŋ	4	nə:	2	koŋ	4
13	tree	dəŋ he:	1	dəŋ hej	1	dəŋ hej	1	hej	1	daŋ he:	1	hi	1	hi	1	daŋhej	1	hej	1	he	1	he	1	he	1	he	1	ho:j	1	taŋho: j	1	taŋho: j	1	taŋhoj	1
14	root	riah	1	riah	1	riah hej	1	riah	1	riah hej	1	riah hi:	1	riahhi	1	riahhej	1	riah	1	riah	1	riah	1	riah	1	riah	1	yəhhəj	1	zəh həj	1	yəh	1	rəhhəj	1
15	leaf	la:	1	la: hej	1	la:	1	la:	1	lə:	1	lə: hi	1	la: hi:	1	lə:	1	ləa	1	lə	1	la	1	la	1	la:	1	la: həj	1	la: həj	1	la:	1	la:	1

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16	flower	6oh	1	6oh	1	6oh	1	boh	1	6oh	1	6oh	1	boh	1	bouh	1	bouh	1	bouh	1	bouh	1	box	1	poh	1	poh	1	poh	1				
17	fruit	6le:	1	plej	1	6lej	1	ble:	1	blej	1	bli:	1	6li:	1	blej	1	blej	1	ble	1	ble	1	ble	1	6lɔj	1	plɔj	1	plɔj	1	plɔj	1		
18	grass	kərbam	1	kərbam	1	brej	2	praj	2	praj	2	praj	2	6rai	2	pət	3	pət	3	pət	3	pət	3	pət	3	bjai	2	bat	3	bət	3	bat	3		
19	salty	tɛ:m	1	saŋ	2	səʔ saŋ	2	je:m	1	seʔ saŋ	2	saŋ	2	tɛm	1	seʔsəŋ	2	səŋ	2	sək	2	səŋ	2	səŋ	2	tɛm	1	tɛm	1	tɛm	1	səŋ	2		
20	dog	ʔaʔoʔ	1	ʔaʔoʔ	1	ʔaʔoʔ	1	ʔaʔoʔ	1	ʔaʔoʔ	1	ʔaʔuʔ	1	ʔaʔoʔ	1	sow	2	masow	2	maso	2	maso	2	maso	2	maʔoʔ	1	saw	2	saw	2	sow	2		
21	bite	gaʔ	1	gaʔ	1	gaʔ	1	gak	1	kak	1	kiaʔ	1	gaʔ	1	kəʔ	1	kauʔ	1	kauʔ	1	kauʔ	1	kauʔ	1	gak	1	gak	1	gək	1	kək	1		
22	horn	nuŋ kraʔ	1	nəŋ	1	nuk	1	niŋ	1	nuŋ	1	nuŋ	1	nuŋ	1	niŋ	1	niŋ	1	nik	1	niŋ	1	niŋ	1	niŋ	1	niŋ	1	niŋ	1	niŋ	1		
23	tail	sadɑ:	1	sadɑ:	1	sadɑ:	1	sadɑ:	1	sadɑ:	1	kədə:	1	sada:	1	sədə:	1	sadɛa	1	sada	1	sada	1	sada	1	sada	1	khadɑ:	1	sata:	1	sata:	1	sata:	1
24	bird	sim	1	sim	1	sim	1	sim	1	sim	1	sim	1	sim	1	sim	1	masim	1	masim	1	masim	1	masim	1	sim	1	sim	1	sim	1	sim	1		
25	fly	pər	1	bər	1	6ər	1	min	2	bər	1	phru:	3	phru:	3	bən	1	bən	1	bən	1	bən	1	bən	1	bən	1	6aj	1	pi:h	4	pi:	4	pi:	4
26	egg	kadam 6eʔ	1	kadam	1	kadam	1	glaw	2	klaw khaj	2	gle:w	2	gra:w ʔiar	2	pə:m	3	pə:m	3	pən ʔian	3	pən ʔian	3	pən ʔian	3	pən ʔian	3	bə:m	3	bə:m	3	bə:m	3	bə:m	3
27	fish	ka:	1	ka:	1	ka:	1	ga:	1	ge:	1	ke:	1	ka:	1	ga:	1	magea	1	maga	1	maga	1	maga	1	ka:	1	ka:	1	ka:	1	ka:	1	ka:	1
28	snake	həp	1	hep	1	hep	1	həp	1	han	1	hən	1	həp	1	həp	1	mahəp	1	han	1	mahəp	1	mahəp	1	han	1	han	1	han	1	han	1	han	1
29	louse	si:	1	si:	1	sej	1	saj	1	saj	1	kəbran	2	sa:j	1	mase:	1	mase:	1	mase	1	mase	1	mase	1	mase	1	masaj	1	saj	1	saj	1	saiʔ	1
30	head	kiŋ	1	keŋ	1	kij	1	giŋ	1	giŋ	1	kiŋ	1	giŋ	1	giŋ	1	gin	1	giŋ	1	giŋ	1	giŋ	1	ken	1	ken	1	kən	1	kən	1		
31	hair	huʔkiŋ	1	houʔ keŋ	1	houʔ kij	1	hik giŋ	1	huk giŋ	1	huʔ kiŋ	1	huʔ kiŋ	1	hu:j	2	hik giŋ	1	hik giŋ	1	hik giŋ	1	hik giŋ	1	hik ken	1	hik ken	1	hikkə n	1	hikkən	1		
32	eye	ŋa:j	1	ŋa:j	1	ŋa:j	1	ble: ŋa:j	1	ble: ŋa:j	1	ŋa:j	1	ŋa:j	1	ŋa:j	1	ŋa:j	1	ŋaj	1	ŋaj	1	ŋaj	1	ŋaj	1	ŋaj	1	ŋa:j	1	ŋa:j	1	ŋa:j	1
33	nose	kəŋmu h	1	kəŋmuʔ	2	kəŋmuh	1	gəŋmuh	1	gəŋmu h	1	ʔamu:jh	1	mujh	1	guŋmu h	1	guŋmu h	1	gumu h	1	gəŋmu h	1	guŋmu h	1	gəŋmu h	1	kəŋmu uh	1	kəŋmu uh	1	kəŋmu uh	1	kəŋmu uh	1
34	ear	lajtɕhə: ʔ	1	ralaŋ	2	lalaŋ	2	jok	1	lejok	1	jok	1	joʔ	1	ʔauʔ	1	ʔajauʔ	1	ʔouʔ	1	ʔajouʔ	1	ʔajouʔ	1	tɕhok	1	tɕhok	1	latɕhok	1	tɕhok	1	tɕhok	1

35	mouth	mo?	1	muꞥ	2	muꞥ	2	mua?	1	mua?	1	moj?	1	moj?	1	moj?	1	mo:c	1	moc	1	moc	1	mot	1	moj?	1	moj?	1	moj?	1	moj?	1				
36	tongue	kərda?	1	kərda?	1	kərda?	1	kaɗa?	1	kaɗa?	1	kəde?	1	kaɗa?	1	sida?	1	sada?	1	sadā?	1	sadā?	1	sidā?	1	khada?	1	sata?	1	sata?	1	sata?	1				
37	tooth	ɾaŋ	1	ɾaŋ	1	ɾaŋ	1	ɾaŋ	1	ɾaŋ	1	ɾeŋ	1	saŋ	1	ɾaŋ	1	ɾaŋ	1	ɾak	1	ɾaŋ	1	ɾaŋ	1	xaŋ	1	saŋ	1	xaŋ	1	xaŋ	1				
38	abdomen	ve?	1	vac	1	vaic	1	wa?	1	vai?	1	ve?	1	ve?	1	vac	1	vaic	1	vāt	1	vāc	1	vāt	1	vat	1	vat	1	vat	1	vat	1				
39	heart	ble phəm	1	blej phəm	1	blej phəm	1	ble: phəm	1	ble: phəm	1	bli nɔj	2	nɔj	2	blejnox	2	berɔ:	3	----	*	baraw	3	mahuj ə	4	blojnɔh	2	poŋ kənh	2	kənh	2	poŋkənh	2				
40	liver	kərdɔ:m	1	kaɗo:m	1	kaɗo:m, ɗap	1	kaɗo:m	1	khadɔ:m	1	kəɗo:m	1	kaɗo:m	1	kado:m	1	kado:m	1	kado:m	1	kado:m	1	kado:m	1	kado:m	1	katɔ:m	1	katɔ:m	1	----	*				
41	intestines	----	*	----	*	----	*	----	*	rɔn ʔiar	1	rɔn	1	vac	2	ɲoŋ vaic	2	ɲoŋ vat	2	ɲoŋ vac	2	ɲoŋ vāt	2	ɲoŋ vāt	2	khəyan	3	----	*	sonvat	2	sonvat	2				
42	hand	ɗi:	1	ɗi:	1	ɗi:	1	ɗaj	1	ɗaj	1	ɗaj	1	ɗaj	1	de:	1	de:	1	de	1	de	1	de	1	de	1	ɗaj	1	taj	1	taj	1	taɪ?	1		
43	nail	rənim	1	rənimɗi:	1	rənhim	1	ʔahim	1	ʔahim	1	ʔahim	1	ʔahim	1	ŋhim	1	ŋhim	1	ŋ him	1	ŋ him	1	ŋ him	1	ŋ him	1	khim	1	khim	1	khim	1	ki:m	1		
44	foot	ɗəŋ	1	ɗəŋ	1	ɗəŋ	1	təŋ	1	təŋ	1	təŋ	1	ɗəŋ	1	təen	1	ceŋ	1	plɔ	2	ceŋ	1	ceŋ	1	ɗəɔn	1	ɗəɔn	1	ɗəɔn	1	ɗəɔn	1	ɗəɔn	1		
45	bone	kaʔaŋ	1	kanʔaŋ	1	kəŋʔaŋ	1	kaʔaŋ	1	kaʔaŋ	1	kaʔeŋ	1	kaʔaŋ	1	kaʔaŋ	1	kaʔaŋ	1	kaʔak	1	kaʔaŋ	1	kaʔaŋ	1	kaʔaŋ	1	kaʔaŋ	1	kaʔaŋ	1	kaʔaŋ	1	kaʔaŋ	1	kaʔaŋ	1
46	fat	priaŋ	1	priaŋ	1	priaŋ	1	briaŋ	1	briaŋ	1	priaŋ	1	priaŋ	1	priaŋ	1	briaŋ	1	briaŋ	1	briaŋ	1	briaŋ	1	briaŋ	1	bjaŋ	1	pjaŋ	1	pjaŋ	1	pjaŋ	1		
47	skin	hur	1	hur	1	hur	1	hu:n	1	hur	1	hur	1	hur	1	hu:n	1	hu:n	1	hun	1	hun	1	hun	1	hun	1	hu:	2	hu:	1	hu:	1	hu:	1		
48	blood	ɲam	1	ɲam	1	ɲam	1	ɲa:m	1	ɲam	1	ɲe:m	1	ɲam	1	ɲam	1	ɲam	1	ɲam	1	ɲam	1	ɲam	1	ɲam	1	ɲam	1	ɲam	1	ɲam	1	ɲam	1		
49	person, human	bi:	1	ɸi:	1	ɸi	1	duʔi:	2	duʔi:	2	duʔi:	2	duʔi:	2	naʔuj	2	duvij	2	ʔi, duʔi	2	duʔi	2	duʔij	2	duʔuj	2	taʔi:	2	taʔi:	2	taʔi:	2	taʔi:	2		
50	child	kuan	1	----	*	kuan	1	gɔn	1	gɔn	1	kəŋpɔm	1	kɔn	1	gɔn	1	gɔn	1	gɔn	1	gɔn	1	gɔn	1	gɔn	1	ko:n	1	kɔn	1	kɔn	1	kɔn	1		
51	name	tɛi:	1	ɗɛi:	1	ɗɛi:	1	tɛi:	1	tɛi:	1	tɛi:	1	tɛi:	1	tɛi:	1	tɛi:	1	ci	1	ci	1	ci	1	ɗɛi:	1	----	*	ɗɛi:	1	tɛi:	1	tɛi:	1		
52	road, path	radeŋ	1	rade:ŋ	1	ɗe:ŋ	1	nteŋ	1	nteŋ	1	----	*	deŋ ɗaŋ	1	nten	1	nteŋ	1	n ten	1	n teŋ	1	n teŋ	1	n teŋ	1	ndɔn	1	ndɔn	1	ndɔn	1	n ɗɔn	1		
53	sew	ɗeij	1	ɗeɣ	1	ɗeij	1	tɛij	1	tɛin	1	tɛij	1	ɗeij	1	tɛij	1	tɛij	1	cin	1	cij	1	cin	1	ɗe:n	1	kadɔn	1	ɗɔn	1	ɗɔn	1	ɗɔn	1		

54	fire	ɲar	1	ɲar	1	ɲal	1	ɲɑː	1	ɲɑː	1	ɲal	1	ɲor	1	ɲɑː	1	ɲɑː	1	ɲɑ	1	ɲɑ	1	ɲɑ	1	ɲaj	1	ɲaj	1	ɲaj	1	ɲai?	1		
55	ashes	kafaŋ	1	kafaŋ	1	kafaŋ	1	kafaŋ	1	kafaŋ	1	kəfɛŋ	1	kafaŋ	1	kafaŋ	1	brɔŋɑː	2	brɔ ɲɑ	2	brɔ ɲɑ	2	brɔ ɲɑ	2	kafaŋ	1	kafaŋ	1	kafaŋ	1	kafaŋ	1		
56	smoke	dɪŋar	1	dək	1	dəkŋal	1	dək ɲɑː	1	dak	1	dɔ?	1	dək	1	dak	1	dāk	1	dāk	1	dāk	1	dāk	1	dak	1	tak	1	tak	1	tak	1		
57	smell	khri?	1	kruət	1	khri?	1	khɾət	1	khrit	1	ʔujh	2	ʔujh	2	ʔuh	2	ɲɑː?	3	ɲɑ?	3	ɲɑ?	3	ɲɑ?	3	ʔuh	2	ɲɑj?	3	ɲɑj?	3	ɲɑj?	3		
58	see	ɲəp	1	dəː	2	jəː	2	dəu	2	dəː	2	dəiː	2	jiː	2	jəu	2	jəu	2	jə	2	jə	2	jə	2	dəw	2	jew	2	jew	2	jew	2		
59	eat	həm	1	həm	1	həm	1	həm	1	həm	1	həm	1	həm	1	həm	1	həm	1	hom	1	hom	1	hom	1	həm	1	həm	1	hom	1	hom	1		
60	drink	dian	1	tian	1	dian	1	dian	1	dian	1	dian	1	dian	1	dian	1	dian	1	diak	1	dian	1	dian	1	tɔŋ	1	tɔŋ	1	tɔŋ	1	tɔŋ	1		
61	spit	be?	1	baic	1	baic	1	pa?	1	paɪ?	1	baɪ?	1	pe?	1	be?	1	pec	1	paic	1	pāt	1	pāc	1	pāt	1	bat	1	bat	1	bat	1	bat	1
62	breathe	khri? phə:m	1	kanhəh phə:m	1	kənʔəh phə:m	1	thuj phə:m	1	phə:m leh	1	phə:m	1	həh phə:m	1	hək phə:m	1	hək phə:m	1	phəm	1	hək phəm	1	hək phəm	1	doh phe:m	1	toh phe:m	1	toh phə:m	1	tohphə:m	1		
63	laugh	jum	1	dum	1	dum	1	kanpah	2	kanpah	2	kanjah	2	kəŋajh	2	kanpah	2	kanpah	2	kanpāh	2	kanpāh	2	kanpāh	2	kanpāh	2	kəŋah	2	kəŋah	2	kəŋah	2	kanpah	2
64	know	nap	1	nap	1	nap	1	nap	1	na?	1	nap	1	nap	1	nap	1	nap	1	nāp	1	nāp	1	nāp	1	nɑ?	2	nɑː?	2	nɑː?	2	naː	2		
65	fear	dəː	1	jow	1	dəː	1	dəː	1	dəː	1	dəː	1	joː	1	-----	*	jow	1	kacua	2	kacua	2	jo	1	dəw	1	jaw	1	jaw	1	jaw	1		
66	sleep	ʔi?	1	ʔit	1	ʔi?	1	ʔit	1	ʔit	1	ʔit	1	ʔit	1	ʔi?	1	ʔi?	1	ʔi?	1	ʔi?	1	ʔi?	1	ʔit	1	ʔi?	1	ʔi?	1	ʔi?	1	ʔi?	1
67	scratch	gra?	1	kraj?	1	kraj?	1	kriah	1	kria?	1	bo?	2	bo?	2	bou?	2	bou?	2	bou?	2	bou?	2	bou?	2	bou?	2	ɓok	2	pok	2	pok	2	kaba:n	3
68	die	jam	1	jam	1	jam	1	jam	1	jam	1	dəam	1	jam	1	jam	1	jam	1	jām	1	jām	1	jām	1	dəom	1	dəom	1	jəm	1	jəm	1	jəm	1
69	sit	mɑ?	1	mɑ?	1	mɑ?	1	mɑŋ	2	mɑŋ	2	ɲɑj	3	ɲɑj	3	kɑj	4	tuic	5	tuc	5	tuc	5	tut	5	ʔak	6	ʔək	6	ʔək	6	ʔak	6		
70	stand	dəŋ	1	dəŋ	1	dəŋ	1	təŋ	1	təŋ	1	təŋ	1	dəŋ	1	təŋ	1	təŋ	1	cək	1	cəŋ	1	cəŋ	1	dəŋ	1	dəŋ	1	dəŋ	1	dəŋ	1	dəŋ	1
71	fall, to drop	dəh	1	dəh	1	dəh	1	təh	1	təh	1	təh	1	dəh	1	-----	*	təuh	1	cəuh	1	coh	1	cəuh	1	dəh	1	dəh	1	dəh	1	dəh	1	dəh	1
72	give	deh	1	daih	1	daih	1	deh	1	teh	1	deh	1	deh	1	tajh	1	taih	1	taih	1	taih	1	taih	1	taih	1	deh	1	deh	1	deh	1	deh	1

Sujaritlak DEEPADUNG, Supakit BUAKAW, Ampika RATTANAPITAK. 2015.
 A Lexical Comparison of the Palaung Dialects Spoken in China, Myanmar, and Thailand.
Mon-Khmer Studies 44:19-38

73	rub hard with both hands	sakua?	1	dudit	2	thuthei?	3	sabot	4	sabo?	4	thu?daj	2	səbət daj	4	sabo?	4	sabo?	4	sabo?	4	sabo	4	sabo?	4	səbo?	4	thuthi k	3	thuthi :	3	thuthi:	3		
74	cut	gəp	1	gəp	1	gəp	1	kap	1	kap	1	kiap	1	kap	1	kəp	1	kəp	1	kăp	1	kăp	1	kakăp	1	kep	1	kjap	1	kiap	1	kiap	1		
75	dig	kəhbiŋ	1	kəŋ	2	kəŋ	2	gəh	2	gəh	2	lo?	3	lo?	3	gəx	2	gəh	2	gəh	2	gəh	2	gəh	2	khut	4	lok	3	lok	3	kəh	2		
76	burn	gu?	1	gut	1	gu?	1	ɗok	2	ɗok	2	ɗo?	2	ɗo?	2	dou?	2	dou?	2	dou?	2	dou?	2	dou?	2	ɗok	2	tok	2	tok	2	tok	2		
77	hunt	biam	1	koh pri:	2	luanbrej	3	kuh praj	2	khroh praj	2	lip riŋ	4	klo: brai	5	lippre:	4	ŋauh	6	le khe pre	7	le pre	7	ba pre	8	ləp bjaj	4	pai to:	*	le:	7	jit:	9		
78	kill	biam	1	piam	1	ɕiam	1	ŋoh	2	ŋah	2	ŋah	2	ŋah	2	ŋoh	2	ŋauh	2	ŋauh	2	ŋauh	2	ŋauh	2	ŋoh	2	ŋai?	3	ŋaj	3	ŋai	3		
79	one	?ur	1	?u:	1	?u:	1	?u:	1	?u:	1	lu?	1	?u:	1	?u:, lejh	1	ləih	1	?u, lejh	1	?u, lejh	1	?u, lejh	1	?u:	1	?u:	1	?u:	1	?u:	1		
80	two	?ar	1	?ar	1	?a:	1	?a:	1	?e:	1	?e:	1	?a:	1	?a:	1	?a:	1	ha?a	1	?a	1	?a	1	?e:	1	?e:	1	?e:	1	?a:	1		
81	three	?uaj	1	?uaj	1	?uaj	1	?uaj	1	?uaj	1	?oj	1	?oj	1	?oj	1	?oj	1	?oj	1	?oj	1	?oj	1	?oj	1	?oj	1	?oj	1	?oj	1		
82	four	phon	1	phon	1	pho:n	1	phuan	1	pho:n	1	phon	1	pho:n	1	mphuan	1	mphuan	1	m phuan	1	m phuan	1	phuan	1	pho:m	1	pho:n	1	pho:m	1	phon	1		
83	many	bram	1	səp,	2	pərtəu	3	rian	4	rian	4	bram	1	bram	1	-----	*	-----	*	kin	5	kin	5	kin	5	gin	5	gin	5	gin	5	kin	5		
84	long	ɾəŋɾəŋ	1	ləŋ	1	ləŋ	1	ɗoŋ	2	toŋ	2	doŋ	2	doŋ	2	-----	*	toŋ	2	tok	2	toŋ	2	toŋ	2	doŋ	2	doŋ	2	doŋ	2	doŋ	2		
85	full	no?	1	no?	1	nau?	1	no?	1	nok	1	no?	1	nok	1	nou?	1	nou?	1	nou?	1	nou?	1	nou?	1	nok	1	nok	1	nok	1	nok	1		
86	right side	khon ?idam	1	khonnap	2	khonnap	2	?a?oh	3	?a?oh	3	diŋ?a?oh	3	dua?oh	3	na?ah	3	?a?ah	3	?a?ah	3	?a?ah	3	?a?ah	3	na?ah	3	na?eh	3	?a?eh	3	?a?oh	3	?a?oh	3
87	left side	khon ?ive:	1	khonkan ap	2	khonkan ap	2	?aka?	3	?aga?	3	?ake?	3	?aka?	3	naga?	4	?aga?	3	?agā?	3	?agā?	3	nagā?	3	naka?	3	?aka?	3	?aka?	3	?aka?	3	?aka?	3
88	far	saŋa:j	1	saŋa:j	1	saŋa:j	1	doŋ	2	toŋ	2	doŋ	2	doŋ	2	toŋ	2	toŋ	2	n tok	2	toŋ	2	toŋ	2	doŋ	2	doŋ	2	doŋ	2	doŋ	2		
89	near	tada?	1	dat	1	dat	1	?aɗat	1	ta?	1	ndat	1	dat	1	mtat	1	khria?	2	khria?	2	khria?	2	khria?	2	ndo?	2	təɗom	3	katɕam	3	katɕam	3		
90	this	ha?i:	1	?anin	2	?anin	2	ni:	3	naŋ?i:	1	ɗu?ur:	1	ha?i	1	?ani:	3	nij	1	ni	3	ni	3	nij	3	?anin	2	ni:	3	?ani:	3	?ani	3		

91	black	ḍəm	1	ḍəm	1	ḍəm	1	vaŋ	2	vaŋ	2	vaŋ	2	vaŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	vəŋ	2	ʔivəŋ	2										
92	white	blɔʔ	1	blɔʔ	1	plɔʔ	1	luj	2	luj	2	plɔʔ	1	blɔʔ	1	luj	2	luj	2	luj	2	luj	2	luj	2	lijh	3	luj	2	luj	2	lijh	3	luj	2	luj	2	lijh	3	luj	2	luj	2	lijh	3	ʔiluj, luj	2												
93	new	kənme:	1	kərmej	1	kənmej	1	kamaj	1	kamaj	1	kamaj	1	kamaj	1	kamaj	1	kamaj	1	kamaj	1	kamaj	1	kamaj	1	ləmaj	1	tamaj	1	tamaj	1	tamaj	1	tamaj	1	tamaj	1	tamaj	1	tamaj	1	tamaj	1	tamaj	1	tamaj	1	tamaj	1										
94	old-aged	kontcha: :	1	paʔam	2	pəʔam	2	kat	3	kaʔ	3	ket	3	gat	3	kat	3	kat	3	kāt	3	kāt	3	kāt	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3	gəʔ	3										
95	cold	kat	1	kat	1	kat	1	giaʔ	1	gaʔ	1	gat	1	kat	1	gat	1	gat	1	gāt	1	gāt	1	gāt	1	kok	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1	kəʔ	1								
96	heavy	ḍan	1	ḍan	1	ḍan	1	ʈan	1	ʈən	1	ʈan	1	ḍən	1	ʈan	1	ʈan	1	cǎn	1	cǎn	1	can	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍən	1	ḍan	1								
97	who?	ʔase miməh	1	siʔan məh	1	simiməh	1	ʔase:	1	ʔasej	1	ʔi si:	1	sim muh	1	ʔasej	1	ʔasej	1	ʔase	1	ʔase	1	ʔase	1	ʔasi	1	si:	1	si dəh	1	tchimə:	1	tchimə:	1	tchimə:	1	tchimə:	1	tchimə:	1	tchimə:	1	tchimə:	1	tchimə:	1	tchimə:	1	tchimə:	1	tchimə:	1						
98	what?	sinmə haʔi:	1	siməh	1	sənməh	1	simuh	1	simuh	1	sinəmu h	1	sinmu h	1	masej	2	masej	2	mase	2	mase	2	mase	2	səmuh	1	səmo h	1	si	1	tchəmə:	1	tchəmə:	1	tchəmə:	1	tchəmə:	1	tchəmə:	1	tchəmə:	1	tchəmə:	1	tchəmə:	1	tchəmə:	1	tchəmə:	1	tchəmə:	1						
99	I	ʔə:	1	ʔə:	1	ʔə:	1	-----	*	ʔə:	1	ʔə:	1	ʔə:	1	ʔow	1	ʔow	2	ʔo	1	ʔo	1	ʔo	1	ʔaw	1	ʔau	1	1	2	ʔaw	1	ʔaw	1	ʔaw	1	ʔaw	1	ʔaw	1	ʔaw	1	ʔaw	1	ʔaw	1	ʔaw	1	ʔaw	1								
100	you (sg.)	mi:	1	mi:	1	mi:	1	maj	1	maj	1	məj	1	məj	1	me:	1	me:	1	me	1	me	1	me	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1	maj	1