



**A PHONOLOGICAL DESCRIPTION OF MEUNG YUM  
AND PHONOLOGICAL COMPARISON OF MEUNG  
YUM WITH THREE WA VARIETIES IN CHINA**

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**Presented in Partial Fulfillment of the Requirements for the Degree  
of  
MASTER OF ARTS  
IN  
LINGUISTICS**

**Payap University**

April 2013



Title: A Phonological Description of Meung Yum and Phonological  
Comparison of Meung Yum with Three Wa Varieties in China  
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## ACKNOWLEDGEMENTS

First of all I would like to thank God for giving me this opportunity and the strength, wisdom, grace and mercy to accomplish this thesis in His timing, despite challenging situations in the beginning. The Bible says “And we know that in all things God works for the good of those who love him, who have been called according to his purpose” (Romans 8:28).

Secondly, I would like to express my gratitude to the Myanmar survey team and surveyors who arranged the data collection trip to Mae Sai, Chiang Rai, Thailand. I would also like to express my appreciation to SIL members Jeff German and Mark Wannemacher who provided ideas for my thesis topic and to Noel Mann for giving suggestions on a word list to use for Fieldworks and data collection. The SIL computer team, especially Tim Armstrong, has provided invaluable assistance in solving Fieldworks and other computing problems. Many others from SIL, including Larin Adams, Mary Peterson, Terry Gibbs, Ellie Hall, Kristen Herr, and Erick Fickle have provided help in other ways.

I would particularly like to thank my mentor, Ajarn William J. Hanna, for taking time to read and comment on this paper with patience and care, my advisor, Ajarn Dr. Phinnarat Akharawatthanakun, for making herself available and giving wise guidance and profound suggestions throughout the process of my thesis and my committee chair Professor Dr. Somsonge Burusphat to make herself available for suggestions of this thesis.

I am so thankful to have all of you involved in this thesis. Although the result is important I value even more highly the process of writing this thesis.

Phung Wei Ping

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Institution: Payap University, Chiang Mai, Thailand

Number of Pages: 132

Keywords: Meung Yum, Waic, Mon-Khmer, Phonological description, Phonological comparison.

## **ABSTRACT**

Meung Yum is a language that has not yet been studied in detail and limited resources are available regarding the classification of this language. It is one of the Wa varieties under the Waic subgroup of Eastern Palaungic in the Mon-Khmer family. The main objective of this thesis is to present a phonological description of Meung Yum by analyzing four sets of 1,628 lexical items from four different villages in Shan State, Myanmar: Namt Yoke, Loi Yang, Pang Wan and Pan Tang. It also presents a phonological comparison of Meung Yum with three Wa varieties in China, in order to give an overview of the phonological similarities and differences between Meung Yum at Kunlong Township, Shan State, Myanmar and the three Wa sub-groups in China.

The main syllable structure of Meung Yum is shown in this study to be C(C)V(V)(V) for an open syllable and C(C)V(V)(V)C for a closed syllable. However, the full occurrence of both syllable structures, i.e. CCVVV and CCVVC do not exist. The stress pattern of Mueng Yum is iambic. Monosyllables and sesquisyllables are common structures in Meung Yum but disyllables are rare. There are 21 contrastive consonants in Meung Yum as spoken in the Namt Yoke and Loi Yang varieties, and 19 contrastive consonants in the Pang Wan and Pan Tang varieties. This is because the Pang Wan and Pan Tang varieties have no voiced stops /b/ and /d/. The Meung Yum consonants include nine voiceless stops /p<sup>h</sup>, t<sup>h</sup>, c<sup>h</sup>, k<sup>h</sup>, p, t, c, k, ʔ/. All four varieties have three fricatives /v, s, h/; four nasals /m, n, ɲ, ŋ/; the lateral /l/, the trill /r/ and the approximant /j/. Meung Yum has nine clear monophthongs /i, e, ε, a, u, o, ɔ, ʉ, ʏ/ and six breathy monophthongs /i̤, ε̤, a̤, ʉ̤, o̤, ʏ̤/. Nine clear

diphthongs /ai, oi, ɤi, ɔi, ue, ia, ua, au, io/ and seven breathy diphthongs /ɰi, io, ia, ɤi, ɔi, ɤu, ue/ are found in Meung Yum. Three triphthongs of Mueng Yum /iai, iau, uai/ occur only in clear vowels. Meung Yum has two registers, clear and breathy. The clear and breathy registers contrast primarily with voiced consonants. There are two interesting findings in Meung Yum, the first finding is two varieties of Meung Yum has retained the voiced stops /b/ and /d/, two varieties have lost them. The second finding is the asymmetrical vowel system resulting from the unequal distribution of breathy vowels. Based on these two findings, it can be hypothesized that Meung Yum may be undergoing the language change.

The phonological comparison of Meung Yum and three Wa varieties in China demonstrates that although all of these languages share some common phonological features each also has unique phonological features, thus it is difficult to determine which Wa varieties in China are the most similar to Meung Yum.

ชื่อเรื่อง:	ระบบเสียงในภาษาเมืองยุมและการเปรียบเทียบระบบเสียงในภาษาเมืองยุมกับภาษาว่า 3 วิธภาษาที่พูดในประเทศจีน
ผู้จัดทำ:	พิ่ง ไว พิง
ปริญญา:	ศิลปศาสตรมหาบัณฑิต สาขาวิชาภาษาศาสตร์
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จำนวนหน้า:	132
คำสำคัญ:	เมืองยุม, ว่าอิก, มอญ-เขมร, คำอธิบายทางสัทวิทยา, การเปรียบเทียบทางสัทวิทยา

### บทคัดย่อ

ภาษาเมืองยุมเป็นภาษาที่ยังไม่มีการศึกษาวิจัยมากนักและงานที่ศึกษาเกี่ยวกับการจัดกลุ่มภาษานี้มีค่อนข้างจำกัด ภาษาเมืองยุมเป็นวิธภาษาหนึ่งของภาษาว่า โดยอยู่ในสาขาย่อยว่าอิกของภาษาสาขาปะหล่องตะวันออกในตระกูลมอญ-เขมร งานวิจัยนี้แสดงระบบเสียงของภาษาเมืองยุม โดยวิเคราะห์ข้อมูลจากรายการคำ 1,628 หน่วยอรรถ และเก็บข้อมูลจากหมู่บ้าน 4 แห่ง คือ หมู่บ้านน้ำยาก หมู่บ้านลอยยัง หมู่บ้านบั้งวัน และหมู่บ้านปันตัง ซึ่งอยู่ในรัฐฉาน ประเทศเมียนมาร์ งานวิจัยนี้ยังได้แสดงการเปรียบเทียบระบบเสียงภาษาเมืองยุมกับวิธภาษาว่าอื่น ๆ ในประเทศจีนอีก 3 ภาษาด้วย เพื่อเสนอแนวคิดให้เห็นความคล้ายคลึง และความแตกต่างทางด้านระบบเสียงระหว่างภาษาเมืองยุมที่พูดในเมืองกุนลง รัฐฉาน ประเทศเมียนมาร์ และวิธภาษาว่าทั้ง 3 กลุ่มย่อยในประเทศจีน

ผลการวิเคราะห์แสดงให้เห็นว่าโครงสร้างพยางค์หลักของภาษาเมืองยุมที่เป็นพยางค์เปิดมีโครงสร้างเป็น C(C)V(V)(V) ส่วนพยางค์ปิดมีโครงสร้างเป็น C(C)V(V)(V)C อย่างไรก็ตามโครงสร้างพยางค์แบบสมบุรณ์ทั้งสองโครงสร้างคือ CCVV และ CCVVC ไม่ปรากฏในภาษาเมืองยุมแต่อย่างใด ภาษาเมืองยุมมีรูปแบบการลงเสียงหนักเบาแบบลงเสียงหนักในพยางค์หลักซึ่งเป็นพยางค์หลัง โครงสร้างพยางค์ในคำที่พบมาก คือ โครงสร้างคำพยางค์เดียวและโครงสร้างคำพยางค์ครึ่ง ส่วนโครงสร้างคำ 2 พยางค์มีค่อนข้างน้อย พยัญชนะในภาษา

เมืองยุมที่พูดในหมู่บ้านน้ำยอกและหมู่บ้านลอยยังมี 21 หน่วยเสียง ส่วนในหมู่บ้านบึงวันและหมู่บ้านบันตังมี 19 หน่วยเสียง เนื่องจากไม่มีเสียงกักก้อง /b/ และ /d/ พยัญชนะในภาษาเมืองยุมมีเสียงกักไม่ก้อง 9 หน่วยเสียง ได้แก่ /p<sup>h</sup>, t<sup>h</sup>, c<sup>h</sup>, k<sup>h</sup>, p, t, c, k, ʔ/ ภาษาถิ่นทั้ง 4 ภาษาถิ่นมีเสียงเสียดแทรก 3 หน่วยเสียง ได้แก่ /v, s, h/ เสียงนาสิก 4 หน่วยเสียง ได้แก่ /m, n, ŋ, ŋ/ เสียงข้างลิ้น /l/ เสียงร้ว /r/ และเสียงเปิด /j/ สระในภาษาเมืองยุมมีรายละเอียดดังนี้ สระเดี่ยวลักษณะน้ำเสียงก้องธรรมดา 9 หน่วยเสียง ได้แก่ /i, e, ε, a, u, o, ɔ, ɯ, ɤ/ และสระเดี่ยวลักษณะน้ำเสียงก้องต่ำท่อม 6 หน่วยเสียง ได้แก่ /ī, ε̄, ā, ɯ̄, ō, ɤ̄/ สระประสม 2 คุณสมบัติลักษณะน้ำเสียงก้องธรรมดา 9 หน่วยเสียง ได้แก่ /ai, oi, xi, ɔi, ue, ia, ua, au, io/ สระประสม 2 คุณสมบัติลักษณะน้ำเสียงก้องต่ำท่อม 7 หน่วยเสียง ได้แก่ /ɯi, īo, īa, xī, ɔī, āu, ūe/ ส่วนสระประสม 3 คุณสมบัติมี 3 หน่วยเสียงโดยมีเฉพาะลักษณะน้ำเสียงก้องธรรมดาเท่านั้น ภาษาเมืองยุมมีคุณสมบัติน้ำเสียง 2 แบบ คือ คุณสมบัติน้ำเสียงก้องธรรมดาและคุณสมบัติน้ำเสียงก้องต่ำท่อม ความแตกต่างระหว่างคุณสมบัติน้ำเสียง 2 แบบนี้ โดยมากปรากฏในเสียงพยัญชนะก้อง ผลการวิจัยเกี่ยวกับภาษาเมืองยุมที่น่าสนใจมี 2 ประการ ประการแรกคือมีภาษาเมืองยุม 2 ถิ่นที่ยังคงมีพยัญชนะเสียงกักก้อง /b/ และ /d/ ในขณะที่ในภาษาเมืองยุมอีก 2 ถิ่น พยัญชนะทั้งสองหน่วยเสียงดังกล่าวได้สูญหายไปแล้ว ประการที่สองคือ ระบบสระในภาษาเมืองยุมที่ไม่มีความสมมาตร เนื่องจากการปรากฏของสระที่มีลักษณะน้ำเสียงก้องต่ำท่อมไม่เท่ากัน ผลการวิจัยดังกล่าวนี้ทำให้สันนิษฐานได้ว่า ภาษาเมืองยุมอาจอยู่ระหว่างการเปลี่ยนแปลง

ผลการเปรียบเทียบระบบเสียงระหว่างภาษาเมืองยุมและภาษาว่า 3 วิธภาษาในประเทศจีน แสดงให้เห็นว่า ถึงแม้ภาษาว่าทั้ง 3 วิธภาษาและภาษาเมืองยุมจะมีลักษณะทางเสียงบางประการร่วมกัน แต่ภาษาเหล่านี้ก็มีลักษณะทางเสียงบางประการที่เป็นลักษณะเด่นแตกต่างกัน ด้วยเหตุนี้จึงตัดสินได้ยากว่า ภาษาว่าวิธภาษาใดในประเทศจีนที่มีคล้ายคลึงกับภาษาเมืองยุมมากที่สุด



## TABLE OF CONTENTS

Acknowledgements.....	ii
Abstract .....	iii
บทคัดย่อ.....	v
List of Tables .....	x
List of Figures .....	xii
Chapter 1 Introduction .....	1
1.1 Origins of the Meung Yum people .....	2
1.2 Language name .....	3
1.3 Geographical location .....	4
1.4 Population .....	5
1.5 Education and religion .....	5
1.6 Language classification.....	6
1.7 Methodology .....	9
Chapter 2 Literature Review .....	13
2.1 Overview of generic linguistic features in Mon-Khmer languages.....	13
2.2 Overview of linguistic features of Proto-Waic and Palaungic sub-groups.....	14
2.2.1 Consonants .....	14
2.2.2 Vowels .....	16
2.2.3 Tones and registers .....	17
2.3 Proto and Modern Waic phonology.....	19
2.3.1 Phonology of Proto-Waic.....	19
2.3.2 Phonology of Yaongsoi Wa .....	21
2.3.3 Phonology of Ai Shuai Wa .....	24
2.3.4 Phonology of Standard Wa .....	26
2.3.5 Phonology of Bulang .....	28
2.3.6 Phonology of Wa of Ban Santisuk in Chiang Rai.....	31
2.3.7 Phonology of Lawa in villages between Chiang Mai and Maehongson.....	34
2.3.8 Phonology of Kontoy Plang.....	37
2.4 A comparison of Proto-Waic and phonologies of modern Waic languages.....	39
2.4.1 Consonants .....	39

2.4.2 Vowels .....	46
2.4.3 Registers, tones and intonations.....	48
Chapter 3 Syllable and Word Structures in Meung Yum .....	50
3.1 Introduction.....	50
3.2 Syllables.....	50
3.2.1 Open syllable structures .....	51
3.2.2 Closed syllable structures .....	52
3.3 Pre-syllable .....	54
3.4 Stress.....	54
3.5 Word structures.....	54
3.5.1 Monosyllabic word structures.....	54
3.5.2 Sesquisyllabic word structures.....	55
3.5.3 Disyllabic word structures .....	56
3.6 Summary .....	56
Chapter 4 Segmental Phonology of Meung Yum .....	57
4.1 Introduction.....	57
4.2 Consonants.....	57
4.2.1 Initial consonants .....	59
4.2.2 Final consonants.....	70
4.2.3 Consonant clusters .....	73
4.2.4 Consonant contrasts .....	76
4.2.5 Variation .....	81
4.3 Vowels .....	82
4.3.1 Monophthongs .....	83
4.3.2 Diphthongs.....	84
4.3.3 Triphthongs .....	87
4.3.4 Monophthong contrasts.....	88
4.3.5 Diphthong contrasts .....	91
4.4 Summary .....	94
Chapter 5 Suprasegmentals of Meung Yum .....	96
5.1 Introduction.....	96
5.2 Pitch in Meung Yum.....	96
5.2.1 Level pitch .....	97
5.2.2 Falling pitch .....	98
5.2.3 Rising pitch .....	98
5.3 An analysis of pitch contours.....	99

5.4 Clear and breathy registers.....	102
5.4.1 Clear register .....	102
5.4.2 Breathy register .....	103
5.5 Hypotheses on language change .....	105
5.6 Summary .....	107
Chapter 6 Phonology of Wa Varieties and Comparison of Wa Varieties with Meung Yum.....	108
6.1 Introduction.....	108
6.2 Phonology of three Wa varieties in China .....	109
6.2.1 Phonology of Parauk: Ai Shuai.....	109
6.2.2 Phonology of A-Vax: Xi Yun .....	112
6.2.3 Phonology of Wa/Vax: Meng Gong .....	114
6.3 A phonological comparison of Wa varieties with Meung Yum .....	116
6.3.1 A comparison of consonants.....	116
6.3.2 A comparison of consonant clusters .....	119
6.3.3 A comparison of vowels .....	120
6.3.4 A comparison of registers and tones .....	123
6.4 Summary .....	123
Chapter 7 Conclusion.....	126
7.1 Introduction.....	126
7.2 Summary of findings.....	126
7.2.1 Phonological Findings of Meung Yum.....	126
7.2.2 Phonological similarities and differences of Meung Yum and three Wa varieties .....	128
7.3 Limitations of the study .....	131
7.4 Suggestions for further study .....	131
Bibliography .....	133
Appendix A 1,628 Word list.....	139
Resume.....	222

## LIST OF TABLES

Table 1: Information of language resource persons.....	10
Table 2: The generic linguistic features of Mon-Khmer .....	13
Table 3: Merge of palatals and velars after close front vowels .....	15
Table 4: The Proto-Waic *s reflexed in Wa as –ih.....	16
Table 5: Simple and complex initial consonants of Proto-Waic (Diffloth, 1980).....	19
Table 6: Final consonants of Proto-Waic.....	20
Table 7: Consonant clusters of Proto-Waic .....	20
Table 8: Monophthongs of Proto-Waic .....	21
Table 9: Initial consonants of Yaongsoi Wa.....	21
Table 10: Final consonants of Yaongsoi Wa .....	22
Table 11: Consonant clusters of Yaongsoi Wa.....	22
Table 12: Monophthongs of Yaongsoi Wa.....	23
Table 13: Diphthongs and Triphthongs of Yaongsoi Wa .....	23
Table 14: Initial consonants of Ai Shuai Wa in China .....	24
Table 15: Final consonants of Ai Shuai Wa in China.....	25
Table 16: Consonant clusters of Ai Shuai Wa in China .....	25
Table 17: Monophthongs of Ai Shuai Wa in China .....	25
Table 18: Diphthongs and triphthongs of Ai Shuai Wa in China.....	26
Table 19: Initial consonants of Standard Wa of Watkins (2002).....	27
Table 20: Final consonants of Standard Wa of Watkins (2002).....	27
Table 21: Monophthongs of Standard Wa of Watkins (2002).....	28
Table 22: Diphthongs and Triphthongs of Standard Wa of Watkins (2002).....	28
Table 23: Initial consonants of Bulang in China of Li, Nie and Qiu (1986) .....	29
Table 24: Final consonants of Bulang in China of Li, Nie and Qiu (1986).....	29
Table 25: Consonant clusters of Bulang in China of Li, Nie and Qiu (1986) .....	30
Table 26: Monophthongs of Bulang in China of Li, Nie and Qiu (1986) .....	30
Table 27: Diphthongs and triphthongs of Bulang in China of Li, Nie and Qiu(1986).....	30
Table 28: Initial consonants of Wa in Chiang Rai province of Thailand .....	31
Table 29: Final consonants of Wa in Chiang Rai province of Thailand.....	32
Table 30: Consonant clusters of Wa in Chiang Rai province of Thailand .....	32
Table 31: Monophthongs of Wa in Chiang Rai province of Thailand .....	32
Table 32: Diphthongs and Triphthongs of Wa in Chiang Rai province of Thailand .....	33
Table 33: Initial consonants of Lawa in Thailand .....	34
Table 34: Final consonants of Lawa in Thailand.....	35
Table 35: Consonant clusters of Lawa in Thailand .....	35
Table 36: Monophthongs of Lawa in Thailand.....	36
Table 37: Diphthongs and Triphthong of Lawa in Thailand .....	36
Table 38: Initial consonants of Kontoy Plang.....	37
Table 39: Final consonants of Kontoy Plang.....	37
Table 40: Consonant clusters of Kontoy Plang.....	38
Table 41: Monophthongs of Kontoy Plang.....	38
Table 42: A comparison of proto and modern Waic consonants.....	40
Table 43: A comparison of proto and modern Waic final consonants .....	44

Table 44: A comparison of proto and modern Waic consonant clusters .....	45
Table 45: A comparison of proto and modern Waic of vowels .....	46
Table 46: Diphthongs and triphthongs .....	47
Table 47: A comparison of modern Waic registers, tones and intonations .....	49
Table 48: Consonant phoneme chart of Meung Yum .....	58
Table 49: Final consonants of Meung Yum .....	58
Table 50: Consonant clusters of Meung Yum .....	59
Table 51: Inter-village variation between /p/, /t/ and /b/, /d/ .....	63
Table 52: Consonant clusters of Meung Yum .....	73
Table 53: Monophthongs .....	82
Table 54: Diphthongs and Triphthongs .....	82
Table 55: Inter-village variation in open syllables .....	104
Table 56: Inter-village variation in closed syllables .....	105
Table 57: Initial consonants of Ai Shuai Wa in China .....	110
Table 58: Consonant clusters of Ai Shuai Wa in China .....	110
Table 59: Monophthongs of Ai Shuai Wa in China .....	111
Table 60: Diphthongs and Triphthongs of Ai Shuai Wa in China .....	111
Table 61: Initial consonants of Xi Yun in China .....	112
Table 62: Consonant clusters of Xi Yun in China .....	112
Table 63: Monophthongs of Xi Yun in China .....	113
Table 64: Diphthongs of Xi Yun in China .....	113
Table 65: Initial consonants of Meng Gong in China .....	114
Table 66: Consonant clusters of Meng Gong in China .....	115
Table 67: Monophthongs of Meng Gong in China .....	115
Table 68: Diphthongs of Meng Gong in China .....	116
Table 69: A comparison of consonants .....	117
Table 70: A comparison of consonant clusters .....	119
Table 71: A comparison of vowels .....	121
Table 72: A comparison of diphthongs and triphthongs .....	122
Table 73: A comparison of registers and tones .....	123
Table 74: A summary of the comparisons .....	125
Table 75: Summary of phonological similarities and differences .....	128

## LIST OF FIGURES

Figure 1: The map of Myanmar second special regions (Wa autonomous) .....	3
Figure 2: Meung Yum villages in Kunlong Township and Wa special region (Myint Myint Phyu 2011).....	4
Figure 3: Position of Wa in Mon-Khmer language family (adapted from Lewis 2009)7	7
Figure 4: Position of Wa in the Palaungic language family (Diffloth 1982).....	8
Figure 5: Position of Wa varieties in Wa sub-group (adapted from Zhou and Yan 1995, 2004).....	9
Figure 6: Syllable structure of the word /sim/ ‘bird’ (0107).....	51
Figure 7: The spectrogram of /pɛʔ/ ‘goat’ 1164 in Pang Wan .....	64
Figure 8: The spectrogram of /bɛʔ/ ‘goat’ 1164 in Namt Yoke .....	65
Figure 9: The spectrogram of /tɛʔ/ ‘arm’ 0168 in Pang Wan.....	65
Figure 10: The spectrogram of /dɛʔ/ ‘arm’ 0168 in Namt Yoke.....	66
Figure 11: The three pitches of Namt Yoke.....	100
Figure 12: The three pitches of Loi Yang.....	100
Figure 13: The three pitches of Pang Wan.....	101
Figure 14: The three pitches of Pan Tang.....	101
Figure 15: Position of Wa varieties in Wa sub-group (adapted from Zhou and Yan 1995, 2004) .....	108

# Chapter 1

## Introduction

The Meung Yum people are an unresearched ethnic group, among whom no linguistic research has previously been conducted. A sociolinguistic survey was conducted in 2009, when a survey team traveled into a mountainous area to meet the Meung Yum people and research their villages and language. The background information regarding this people group is mainly drawn from an unpublished sociolinguistic report by Myint Myint Phyu, a student in the linguistics department of Payap University (Myint Myint Phyu 2011). According to this report, Meung Yum is classified in the Waic subgroup of the Eastern Palaungic languages, part of the Mon-Khmer family.

The main objective of this research is to present a phonological description of Meung Yum as spoken in Namt Yoke, Loi Yang, Pang Wan and Pan Tang villages of Kunlong Township, Shan State, Myanmar. Meung Yum, a variety of Wa, is spoken outside of the main Wa community in the Wa Autonomous Region. Thus, this thesis begins by exploring the sociolinguistic background in Chapter 1. Chapter 2 reviews the literature on linguistic features of Mon-Khmer languages, and Waic languages in particular. Chapter 3 presents the syllable structures and word structures of Meung Yum and Chapter 4 presents the segmental structures. Suprasegmentals in Meung Yum are discussed in Chapter 5.

The phonological study in Chapters 3 to 5 makes significant contributions to two areas of study. First, it documents the phonology of a previously undescribed variety of Wa, which will be of interest to those who are interested in Wa languages. Second, the description of the phonological system of Meung Yum contributes to the development of a Meung Yum writing system and development of literacy materials in Meung Yum.

A secondary objective of this research is found in Chapter 6 in which research on the phonology of three Wa varieties in China, Parauk, A-Vax and Wa/Vax, are described and then compared to Meung Yum in Myanmar. Therefore, this research contributes to the understanding of the phonological similarities and differences between Meung

Yum at Kunlong Township, Shan State, Myanmar and the three Wa sub-groups in China. A summary of the result of this thesis is presented in Chapter 7. A word list taken from the four Meung Yum villages on which this study is based is included as Appendix A.

## **1.1 Origins of the Meung Yum people**

Little is known of the origins, background and linguistic affiliation of the Meung Yum people, as nothing has been published on them. Three older Meung Yum people, when asked where the Meung Yum people came from, thought that around a hundred years ago they may have moved from Wa lands. The Burmese government has officially designated Wa lands as the second special region of Myanmar, Wa lands are divided into Northern Wa and Southern Wa situated at the East of Shan state (see the map in Figure 1). They left that area because of infertility of the land, poor health conditions and religious conflicts (Myint Myint Phyu 2009: 1).





Figure 1: The map of Myanmar second special regions (Wa autonomous)<sup>1</sup>

## 1.2 Language name

The Meung Yum refer to themselves as “Rok Mong Yum” [rok mainj yum], and call their language “Laka Meung Yum” or “Laka Rok”. The word “Rok” is one of the language varieties that are related to Wa. Meung is probably a loan word from Tai meaning ‘city’ but the meaning of Yum is unknown. According to the opinion of the surveyor, the name of Meung Yum is used because the people moved from Meung Yum village which is located in the Wa special region. When they settled down outside the Wa region for the purpose of recognizing their origin, they used the village name they came from to identify themselves. The word “Meung Yum” itself

<sup>1</sup> The map of Myanmar second special regions is from <http://www.hudong.com/wiki/%E6%8E%B8%E9%82%A6>, August 10, 2012. This map has been modified by the author of this thesis by adding English translation.

has no specific meaning. When the Meung Yum introduced themselves to Shan people they call themselves “Loi Muang Yum”, meaning ‘mountain people’. The Chinese call them “Khala” [k<sup>h</sup>ala] or “Laca” [la-dʒa]; the exact meaning of these two terms is unknown. According to the Meung Yum “Khala” [k<sup>h</sup>ala] or “Laca” [la-dʒa] are uncomplimentary terms. The Burmese know them as “Loi Lah” [loi lah], meaning ‘people who are left behind’, while the Lhaovo<sup>2</sup> call them “Leh Nu” [le? nú], and the Kachin call them “Meung Yum” [mɔ̃ɪŋ jum]. (Myint Myint Phyu 2011: 7-8)

### 1.3 Geographical location

Meung Yum live in Kunlong Township, Northern Shan State, Myanmar and in the Myanmar second special Region (Wa) (see Figure 1). Their villages are located in a mountainous area beginning on the east side of the Salween River and extending westward across the river into Kunlong township, as shown in Figure 2; the Salween River forms the geographical division between Kunlong Township and the second special Region (Wa). The exact location of the original Meung Yum village is not known.



**Figure 2: Meung Yum villages in Kunlong Township and Wa special region (Myint Myint Phyu 2011)**

<sup>2</sup> Lhaovo is one of the Kachin varieties. There are a subgroup of the Burmis, part of the Lolo-Burmese languages in the Tibeto-Burman family.

The bigger dots in Figure 2 denote pure Meung Yum villages, the smaller dots signify villages of Meung Yum mixed with other people groups. The heavy black lines designate the boundaries between townships, and the villages which are underlined show the places that the survey team visited for data collection (Myint Myint Phyu 2011: 2-3). The Meung Yum has close contact with other people groups, only nine of the villages are pure Meung Yum villages. Seven of the pure Meung Yum villages are located in Kunlong Township: Namt Yoke, Pang Khaw, Pang Wan, Man Pein, Pa Paw, Kaung Sang and Man Kan villages. The other two Meung Yum and Noat Awng are located in the Wa Region (the specific location of Meung Yum and Noat Awng are unknown). (Myint Myint Phyu 2011: 5-6). The language resource persons in this thesis are from Namt Yoke, Loi Yan, Pang Wan and Pan Tan villages, but on the map in Figure 2 the village names Loi Yan and Pan Tan should be spelled Loi Yang and Pang Tan.

## **1.4 Population**

According to Meung Yum interviewees, thirty of the Meung Yum villages are located in the Wa Autonomous Region and twenty in Kunlong Township. The total number of Meung Yum households in Kunlong Township is approximately 790 and the total population is about 4,000. The number of Meung Yum people in the Wa region is unknown. The estimated total population of Meung Yum is about 8,000. (Myint Myint Phyu 2011: 5). Further research in this area is needed.

## **1.5 Education and religion**

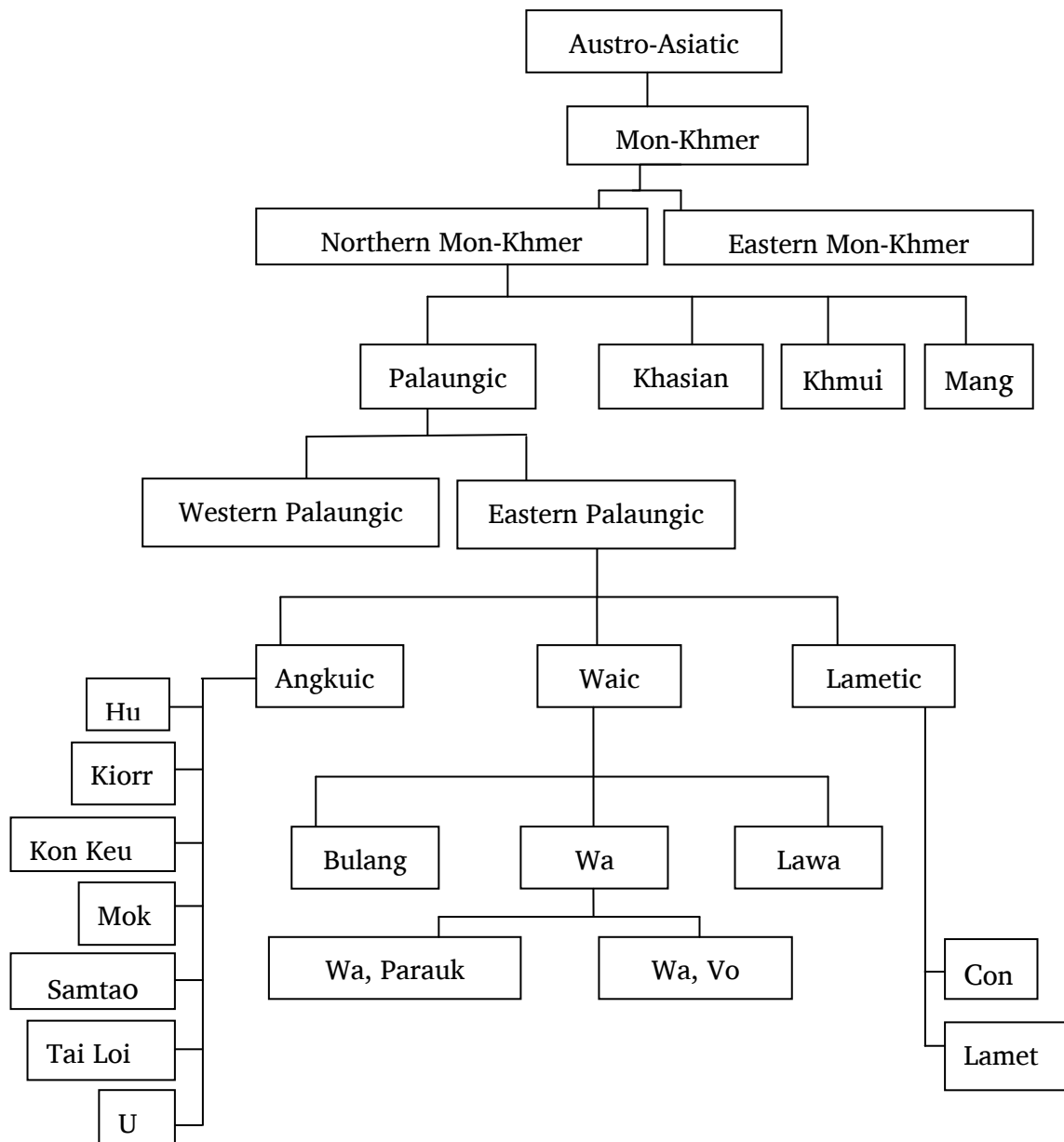
Primary school is only available to Meung Yum children in some villages; if they do not have primary schools in their village they must attend school outside the village. The language of instruction is mainly Burmese but in some villages schools may also include the local language such as Lhaovo . The highest village education available is the primary level; no high school is available in the village. If children want to acquire higher education they must travel to a large town such as Lashio, Kutkai, Kunlong or Hopang, to study alongside with other ethnic groups, including Kachin, Wa and Chinese.

The majority of the Meung Yum people are Buddhist. None of the Meung Yum can read or write their own language although some of them can read the Buddhist scripture in the old Shan script. There is also a Christian minority among the Meung Yum, who have neither an orthography nor the Bible in their language. In 2011 the

Meung Yum Christians started to use their mother tongue in their worship services, but for preaching, they use one of the Kachin varieties and for Bible reading, either Burmese or Jingphaw. (Myint Myint Phyu 2011: 12-13)

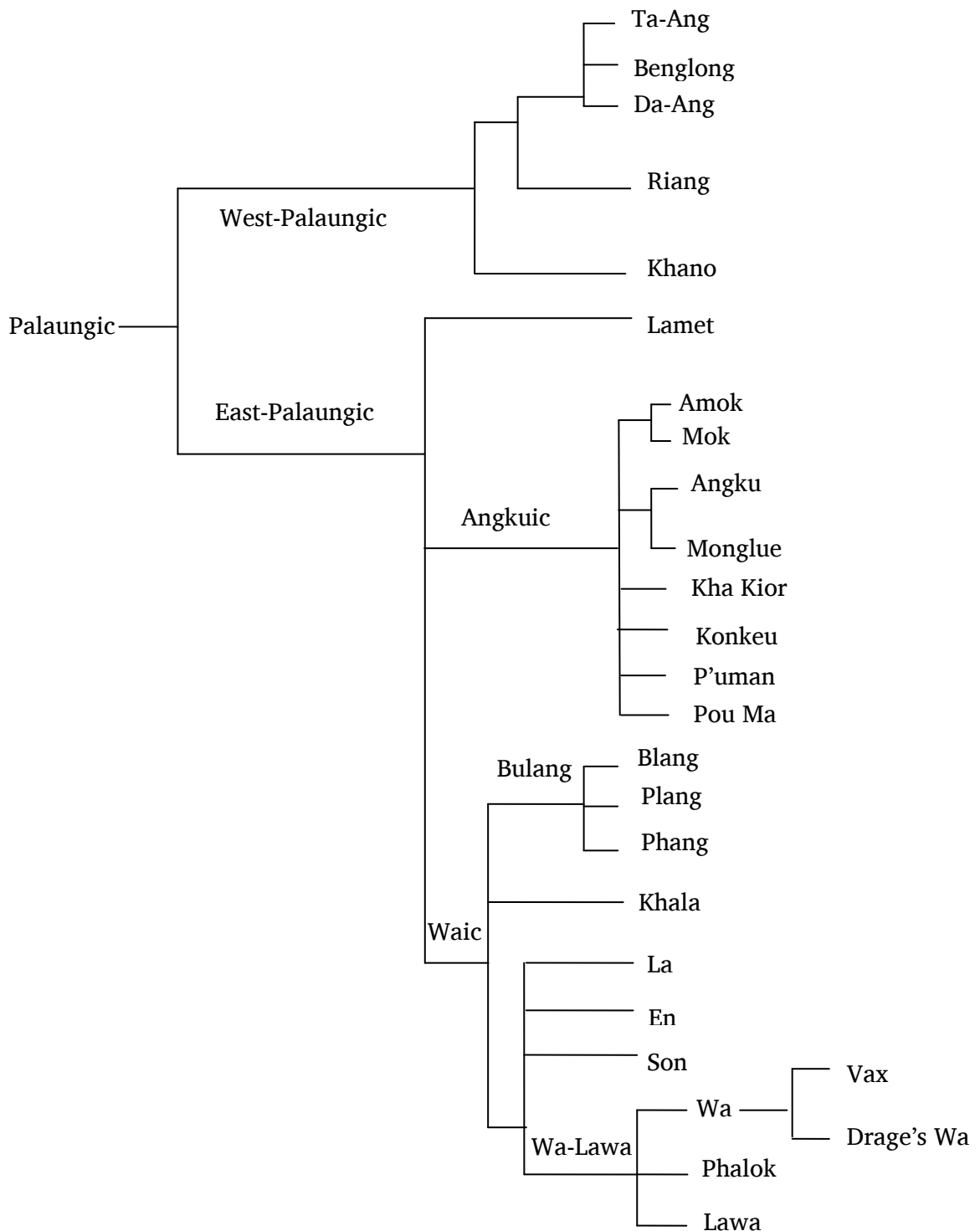
## **1.6 Language classification**

The Meung Yum language has not yet been studied in detail and limited resources are available regarding the classification of this language. According to Myint Myint Phyu (2011), Meung Yum is one of the Wa varieties under the Waic subgroup of Eastern Palaungic in the Mon-Khmer family (2011: vii). Based on the SIL Ethnologue (Lewis 2009), Wa is a member of the Northern Mon-Khmer sub-family of Mon-Khmer. Within the Northern Mon-Khmer sub-family, it belongs to the Eastern Palaungic sub-branch of the Palaungic branch as shown in the following Figure 3.



**Figure 3: Position of Wa in Mon-Khmer language family (adapted from Lewis 2009)**

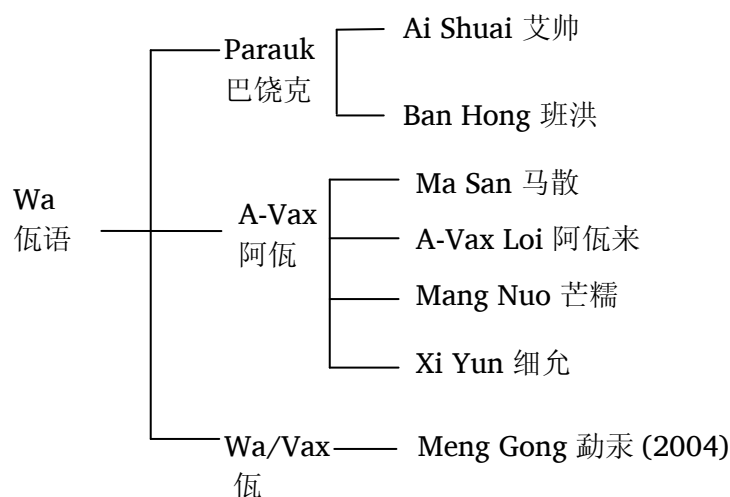
Lewis (2009) classified Waic as the sub-group under Eastern Palaungic. Within Waic there are Bulang, Wa and Lawa. Wa, Parauk and Wa, Vo are the sub-groups of Wa. The SIL Ethnologue (Lewis 2009) and Diffloth (1982) subdivide the Eastern Palaungic sub-group into three groups, of which Waic is one member. Wa, in turn, is one of three sub-groups of Waic. Diffloth's classification of Wa in the Palaungic language family is given in the following Figure 4.



**Figure 4: Position of Wa in the Palaungic language family (Diffloth 1982)**

Wa is in the sub-group of Wa-Lawa and under Wa there are two varieties which are Vax and Drage's Wa. There are three varying classifications of the varieties within Wa. The Chinese linguists, Zhou and Yan (1995, 2004) classify the Wa subgroup into three varieties: Parauk, A-Vax and Wa/Vax. The sub-varieties of Parauk are Ai Shuai

and Ban Hong. The sub-varieties of A-Vax are Ma San, A-Vax Loi, Mang Nuo and Xi Yun. The Wa/Vax has one sub-variety which is Meng Gong (Zhou and Yan 2004: 22). The Chinese linguists Zhou and Yan’s (1995, 2004) classification of Wa is shown in Figure 5.



**Figure 5: Position of Wa varieties in Wa sub-group (adapted from Zhou and Yan 1995, 2004)**

Comparing the above Figure 5 with the SIL Ethnologue (Lewis 2009) to the classification of Wa varieties in Figure 3, they are very similar. They both divide Wa into ‘Wa, Parauk’ and ‘Wa, Vo’ (See Figure 3). However, Diffloth (1982: 1) groups Wa and Lawa together as one subgroup and has placed Vax and Drage’s Wa as varieties of Wa can be seen in Figure 4.

## 1.7 Methodology

This research was conducted with Meung Yum speakers outside Myanmar because, the Meung Yum villages are located in mountainous areas of Shan State, Myanmar, where access by outsiders is prohibited. As a result, the research was carried out in Thailand. It required local people contacting and connecting the Meung Yum native speakers from different villages to travel to Mae Sai District, Chiang Rai, Northern Thailand for the purpose of data collection. The total word list<sup>3</sup> of 1,628 items was elicited from each of four speakers. This word list was compiled by integrating two

<sup>3</sup> The word list consists of 1,628 words. Some words are repeated twice and some words have either no such word in Meung Yum or the speakers do not know the words. All of these are indicated as “no data”. This word list also contains a lot of loan words from Shan, a Tai language which were borrowed into Meung Yum and these loan words are marked with asterisk -\* see Appendix A.

word lists—one from the Tibeto-Burman Survey 449-item word list and the other from the SIL Comparative African Word list (Roberts and Snider 2006). The word list included vocabulary for body parts, animals, plants, natural environment, emotions, quality, quantity and grammatical items, and was translated into Burmese. There were two main areas of screening criteria for choosing language resource persons. First, he or she must be a native speaker of Meung Yum. Second, he or she must be between 20 and 60 years old, with complete articulators and a clear voice. The data was collected from four language resource persons aged between 40 to 60 years old, from four different villages. Four male language resource persons volunteered themselves for this research. They are from Pan Tang, Namt Yoke, Loi Yang and Pang Wan villages. The native speaker from Pan Tang is YK, his age is around 40 years old. He speaks Meung Yum as his first language and Shan is second followed by Burmese. The second native speaker from Namt Yoke is ST, his age is 53. Meung Yum is his mother tongue and he speaks Shan as his second language followed by Kachin, and Kogan. The third speaker from Loi Yang village is NY, 44 years old, Meung Yum is his first language and he speaks Lhaovo (one of the Kachin varieties) as second language followed by Burmese, Shan and Chinese. The last speaker NL is from Pang Wan village, 56 years old. He is a bilingual and his Shan is equally good as Meung Yum which is his mother tongue. All of them work as a farmer. The speaker who has highest education level is the speaker from Pan Wan who had six years of education in the monastery and the speaker from Loi Yang completed primary level. The other two are illiterate. The details of each language resource person are summarized in the following table.

**Table 1: Information of language resource persons**

	Pan Tang	Namt Yoke	Loi Yang	Pang Wan
Name	YK	ST	NY	NL
Age	40	53	44	56
Sex	Male	Male	Male	Male
First language	Meung Yum	Meung Yum	Meung Yum	Meung Yum
Other languages	Shan, Burmese	Shan, Kachin, Kogan	Lhaovo, Burmese, Shan, Chinese	Shan
Education	illiterate	illiterate	primary level	6 years education in the monastery



The research was conducted through interpreters, primarily interpreters 1 and 2. Interpreter 1 elicited the word list at Pan Tang village and was the interpreter for the Pang Wan word list. She speaks Shan as her mother tongue and also speaks Burmese, English and Thai fluently. She used Shan and Burmese to communicate with Meung Yum speakers. Interpreter 2 was the interpreter for the Namt Yoke and Loi Yang word lists. He speaks Lhaovo as his mother tongue but also speaks Jingphaw, Meung Yum, Burmese and English. He used Lhaovo and Meung Yum while interpreting.

A Sony IC digital recorder ICD-UX200f was used for data collection. The software<sup>4</sup>, SheetSwiper 0.3, Phonology Assistant 3.3.2, Audacity 1.3 (beta), Praat 5.0.35 and Fieldworks Language Explorer (Flex) 7.05 were used in the analysis. The word lists were recorded and transcribed using the International Phonetic Alphabet (IPA). The initial word list data was input into Microsoft Excel 2007 and SheetSwiper 0.3 was used to convert the format from '.xls' to '.db' for use in SIL Phonology Assistant 3.3.2. However Audacity 1.3 (beta) was used to cut the sound files into single-item audio files for use in the Praat 5.0.35 software which was used to deal with sound analysis and pitch analysis. The phonological analysis showing the distribution of contrasts in consonants and vowels, syllables helped by finding word patterns for analysis, it is also helped to handle some ambiguous segments.

The final process requires the use of SIL Fieldworks Language Explorer 7.05. This language software tool is used for collecting and documenting word and sound files. The data from the four Meung Yum villages was keyed into Fieldworks for analysis. This program will also serve as a basis for beginning a Meung Yum dictionary, a resource for language development, and as a means of preserving spelling decisions.

There are some limitations in the elicitation process, some words were translated through two or three languages, such as English to Burmese, Burmese to Lhaovo or Shan to Meung Yum, which may have caused the loss of the meaning of the original word by the time it reached the Meung Yum language resource person. Therefore the accuracy of the meaning may be affected but not the phonetic transcription. This research is also limited by the small sampling size of the language community;

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<sup>4</sup> SheetSwiper 0.3 developed by John Hatton, SIL International & SIL Papua New Guinea. Written in c#. Phonology Assistant 3.3.2 and Fieldworks Language Explorer (Flex) 7.05 by SIL. Audacity 1.3 (beta) by Dominic Mazzoni and Praat 5.0.35 by Paul Boersma and David Weenink SIL Encore Font™.

it is based on only four speakers from four villages and may or may not be representative of the whole language community.

## Chapter 2

### Literature Review

This chapter presents a review of the general linguistic features of Mon-Khmer languages and linguistic features of Proto-Waic and other sub-groups of the Palaungic branch in the Mon-Khmer family. In addition the reviews narrow to the phonology of Proto-Waic and modern Waic languages. In order to put these topics in the broader context, this chapter is divided into four Sections. Section 2.1 presents the overview of generic linguistic features in Mon-Khmer languages and Section 2.2 demonstrates the overview linguistic features of Proto-Waic and other sub-groups of Palaungic branch in Mon-Khmer family. Section 2.3 presents one phonology of Proto-Waic and seven phonologies of modern Waic from eight different linguists. Section 2.4 contains a comparison of Proto-Waic and modern Waic languages from the eight linguists in Section 2.3. These chapters provide an overview of linguistic features and review the phonologies of the most famous linguists in Waic languages.

#### 2.1 Overview of generic linguistic features in Mon-Khmer languages

Mon-Khmer languages are mostly spoken in border areas between tonal languages such as Chinese, Tibeto-Burman and Tai-Kadai languages and non-tonal languages such as Austronesian and different Indian languages (Svantesson 1989: 1). The linguistic features of Mon-Khmer languages are complex and some features are poorly known by linguists. Donegan and Stampe (1983: 2) listed the generic linguistic features of Mon-Khmer languages which are displayed in Table 2. This modified Table only presented the relevant features that give an overview of the generic linguistic features of Mon-Khmer languages in Southeast Asia.

**Table 2: The generic linguistic features of Mon-Khmer**

Word structures:	Iambic <sup>5</sup> , Monosyllabic
Syllable structures:	Unaccented (C)a, accented (C)(C)(V)(G) <sup>6</sup> (C)
Consonantism and Vocalism:	Shifting, Tonogenetic; Shifting, diphthongal
Tone/Register:	Contour tones or registers

<sup>5</sup> Iambic means syllables with a light syllable followed by a heavy syllable (Matthews 1997: 168).

<sup>6</sup> G refers to glides.

Donegan and Stampe (1983: 2) described ten generic linguistic features in Mon-Khmer languages. The most relevant features related to this paper include the following: The first feature is that in Mon-Khmer word structures the general word canon are iambic and monosyllabic. Second, the syllable structures of Mon-Khmer are unaccented (C)a and accented (C)(C)(V)(G)(C). Third, the consonants and vowel systems of Mon-Khmer are the most challenging features. Both are possibly in a shifting process or tonogenesis. These processes have not been explored much by linguists. Last, the languages in this area are possible still in the process of developing tones or registers. Diffloth commented that complicated features may be due to the inflow of Tai borrowings<sup>7</sup>. (Diffloth 1991: 16)

Another common feature of syllable structures in Mon-Khmer languages is sesquisyllable. The term sesquisyllable describes the type of syllable between monosyllabic and disyllabic structure. This structure is a common phenomenon in Southeast Asia languages (Huffman 1972: 54, Matisoff 1989: 165). The sesquisyllable in Mon-Khmer languages is sometimes recognized as a syllable preceded by a half syllable, a half syllable is also known as pre-syllable (unstressed syllable) or minor syllable. These types of syllable structures can be found in Cambodian languages (Matisoff 1973, Thomas 1964). This structure was referred to by Donegan and Stampe (1983) as unaccented syllable structure.

## **2.2 Overview of linguistic features of Proto-Waic and Palaungic sub-groups**

Consonants, vowels, tones and register features of Proto-Waic and the palaungic sub-group have been described in the literature.

### **2.2.1 Consonants**

Consonants include the two sections, Section 2.2.1.1 on Palatal consonants and Section 2.2.1.2 described Proto-Waic \*-s and \*-h in modern Waic languages.

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<sup>7</sup> Tai borrowings refer to words with tones: Lawa has borrowed from Northern Thai and more recently from Standard Thai; Paraok has borrowed from Shan (referred to in China as Dehong Dai); Bulang has borrowed from Lü (referred to in China as ‘Xishuangbanna Dai, or Xi Dai for short). (Diffloth 1991: 16)

### 2.2.1.1 Palatal Consonants

Waic has two properties, one is the palatal on-glide and the other is affricate<sup>8</sup> with other places of articulation (Watkins 2002: 46). Palatal as initial and final consonants are common features that can be found in Waic languages. There are differing views regarding the palatal on-glide which affects the transcription of words in this thesis.

The palatal on-glide is one of the features distinguishing the palatal /c/ as a final consonant. Waic is largely consistent with the pattern that palatal finals have a distinct palatal on-glide (Diffloth 1980: 45). Watkins (2002: 42) comments that the final /-ɲ/ and /-c/ with the diphthong /ai/ phonemically is the final /-aɲ/ and /-ac/, phonetically is recognized as [-a<sup>i</sup>ɲ] and [-a<sup>i</sup>c] respectively. But Diffloth (1980) gave a more careful interpretation because he maintains the difference between the /ai/ + velar and /a/ + palatal in certain items. The Chinese scholars Zhou and Yan (1984) and, Wang and Chen (1981) take a third analysis, they handle all palatal finals and all fronted velars as final /-ik/. The following examples presented four kinds of Wa transcription which represent Diffloth's transcription, phonemic transcription, Chinese scholars' transcription and narrow transcription.

The merge of palatals and velars after close front vowels of Standard Wa (adapted from Watkins 2002: 43) is given as below.

**Table 3: Merge of palatals and velars after close front vowels**

Proto-Waic	Contrasts in Diffloth's (1980) transcription	Phonemic transcription	Chinese Scholars' transcription	Narrow transcription	Gloss
*hɔc	hɔc	/hɔc/	hɔik	[hɔ <sup>i</sup> c <sup>ɿ</sup> ]	'finish'
*khoc	k <sup>h</sup> ɔc	/k <sup>h</sup> ɔc/	khoik	[kho <sup>i</sup> c <sup>ɿ</sup> ]	'wash self'
*pruc	pruc	/pruc/	pruik	[pru <sup>i</sup> c <sup>ɿ</sup> ]	'wing'
*pac	puɔc	/pac/	paik	[pu <sup>i</sup> c <sup>ɿ</sup> ]	'take off clothes'
*mɔɲ	mɔɲ	/mɔɲ/	mɔɲiɲ	[mɔ <sup>i</sup> ɲ]	'mouth'
*rmuɲ	mɔɲ	/mɔɲ/	mɔɲiɲ	[mɔ <sup>i</sup> ɲ]	'wife'
*sʔuɲ	s.ʔuɲ	/s.ʔuɲ/	s.ʔuɲiɲ	[s.ʔu <sup>i</sup> ɲ]	'snake'
*kaɲ	kuɲ	/kuɲ/	kuɲiɲ	[ku <sup>i</sup> ɲ]	'father'

<sup>8</sup> Affricated appear in the phonological system of Wang and Chen 1981, Zhou and Yan 1984 and Li, Nie and Qiu 1986.

### 2.2.1.2 Reflexes of Proto-Waic \*-s and \*-h consonants in modern Waic languages

Diffloth (1980: 16) remarked that a contrastive final /s/ and /h/ are rarely found today in Waic languages. Watkins found that the Proto-Waic \*-s has a reflex in Wa as a back vowels -ih. Some examples of the Proto-Waic \*-s reflexed in Wa as -ih (adapted by Watkins 2002: 43) are shown below.

**Table 4: The Proto-Waic \*s reflexed in Wa as -ih**

Proto-Waic	Wa varieties			Gloss
	Contrasts in Diffloth's (1980) transcription	Phonemic transcription	Chinese Scholars' transcription	
*lʔos	los	/loih/	loih	'grease'
*ʔmus	mus	/muih/	muih	'love'
*bus	pʊs	/pʊih/	pʊih	'carry on back'

### 2.2.2 Vowels

Complex vowel systems are well known in the Mon-Khmer family. The complex vowel systems include vowel length, phonation types (registers) causing diphthongization, etc. Vowel length is lost in some of the Waic vowel systems. For instance Angkuic is one of the sub-groups of Palaungic branch. Its vowel system displays vowel length (in Hu and U), whereas the vowel length contrast was lost in Ta-ang one of the Western Palaungic languages. (Svantesson 1988, 1991, Diffloth 1991)

Proto-Waic has nine vowels which are \*i, \*e, \*ɛ, \*ɨ, \*ʏ, \*o, \*ɔ, \*a, \*ɐ, eight proto-vowels (excluding \*ɐ) are found with final\*-ʔ and seven are found with final\*-h (eliminate \*ʏ, and \*ɐ) (Diffloth 1991: 14-16).

Regarding the reconstruction of diphthong system in Waic languages, Diffloth (1980) made a generalisation as phonation types (registers) affect vowel systems by causing diphthogization, but tones have little effect on vowel quality and do not create diphthongs. This study gives a general guideline to the research of vowel systems in this thesis.

### **2.2.3 Tones and registers**

The definition of tone and register by different authors and tonogenesis or registrogenesis are discussed in the following section.

#### **2.2.3.1 Definition of tone and register**

Theraphan (1988: 319) defines a tone language as a language in which the pitch by itself may distinguish the lexical meanings of words. A register language may be defined as a language that has a lexically contrastive register complex (a combination of phonation type, pitch, vowel length, vowel quality, and so on). She states that most of the Northern Mon-Khmer languages have two lexically contrastive phonation types: clear (normal, modal) voice versus breathy voice. Phalok and Wa of the Palaungic branch of Northern Mon-Khmer family are languages with this feature. Other Mon-Khmer register languages include Chong, Mon, Bru, Kui, So, Nyah Kur, Thung Kabin Khmer, etc.

In defining register, Watkins (1999: 1) states that the principal phonetic correlates of Mon-Khmer register are pitch-based tone as seen in Khmmu and Bulang, phonation type found in Wa, Mon and Chong or vowel quality as displayed in Khmer and Ximeng Wa, or some amalgam of these and other features.

The term 'register' has been defined differently by linguists. Henderson (1952: 151) was the first to apply the term 'register' as a vowel system to Mon-Khmer languages. She describes the register as first register and second register in Khmer. First register vowels are described as having a 'normal' or 'head' voice quality normally associate with high pitch and the second register vowels as having a 'deep rather breathy' or 'sepulchral' voice quality occur with low pitch and second register vowels are generated with lowering of the larynx. The 'register' suggested by Henderson (1952) was adopted by some Southeast Asia linguists (e.g. Gregerson 1976, Theraphan 1991). Another definitions was given by Preecha (1992: 245). He characterized his two way register complex in Kuay as register 1 (tense register) and register 2 (lax register). Register 1 refers to clear voice quality, fewer short vowel phonemes, some allophonic vowel height, strong aspiration, voiceless unaspirated initials, a larger consonant inventory, and higher pitch, whereas Register 2 refers to breathy voice, more short vowel phonemes, no allophonic vowel height, weak aspiration, voiced initial stops, a smaller consonant inventory, and lower pitch. The register complexes are generally similar to those described by Henderson (1952), Gregerson (1976) and Theraphan (1989).

### **2.2.3.2 Tonogenesis or registrogenesis**

The development of register system in Mon-Khmer languages is historically caused by the devoicing of initial consonants. Svantesson (1989: 5-8) provided the evidence that tone (or register) development is connected with a merger of voiced and voiceless initial consonants. These examples can be seen in Kammu, Blang and Lamet whereas tone development in Hu and U is not by devoicing but it is related to its vowel length. Diffloth (1991: 14) gave evidence that the register system is caused by devoicing of initial consonants in Kuy, Bruu and Phlok. He commented that the development of Pacoh register system is not by devoicing but it was due to the changes in vowel quality. Thus tonogenesis or registrogenesis are either affected by devoicing the initial consonants or the effect of the vowel quality.

Svantesson (1989: 1) commented that tone is absent in most of the Mon-Khmer languages, but he pointed out that in Angkuic, there are tonal languages include Hu (Svantesson 1991: 67) which has a two tone system, and U which employs a four tone system (Svantesson 1988: 74). The most widely known tonal Mon-Khmer language is Vietnamese which has six contrastive tones. Other tonal languages in the Palaungic branch of the Mon-Khmer family include Plang which has a high and a low tone (Paulsen 1996: 136) and the Waic subgroup of Bulang has four tones (Li, Nie and Qiu 1986: 13).

Mon-Khmer languages have a complex register system. Watkins (1999: 1) refers to Mon-Khmer register as pitch-based, phonation type or vowel quality, or some combination of these and other features. Kuay has two-way register complex, tense and lax register (Preecha 1992: 245), Chong has a two register system, static registers and dynamic registers (Theraphan 1991: 144). Lamet is the sub-group of Palaungic branch in Mon-Khmer family, Svantesson (1989: 8) comments that Lamet has developed two registers which he denotes as tense and lax. This register is based on phonation types, the tense register being relatively creaky and the lax register relatively breathy. In contrast, Narumol (1982: 40-44) refers to Lametic pitch contrast as high and low and also called it a “quasi-tonal register”.

The studies of tones and registers of Kammu, Blang, Lamet, Hu, U, Plang, Kuy, Bruu, Phlok, etc., provide a good backdrop regarding the complexity of register and tonal systems in Mon-Khmer languages that cannot be ignored. These processes of tonogenesis or registrogenesis can be applied to other languages that under Palaungic branch in Mon-Khmer family. Hence, these reviews lay down a foundation



for analysis of the data in this thesis as this paper adopts the concepts of register suggested by Henderson (1952), Gregerson (1976) and Theraphan (1989).

## 2.3 Proto and Modern Waic phonology

This section surveys various phonological descriptions of Waic languages. It includes a reconstruction of Proto-Waic by Diffloth (1980), and phonologies of Yaongsoi Wa by Wang and Chen (1981), Ai Shuai Wa by Zhou and Yan (1984) and Standard Wa by Watkins (2002). In addition, phonologies of Bulang by Chinese linguists Li, Nie and Qiu (1986); Wa in Thailand by Wattana (1998); Lawa in Thailand by Suriya and Lakhana (1985) and Kontoy Plang by Paulsen (1996) will be presented.

### 2.3.1 Phonology of Proto-Waic

Diffloth (1980) reconstructed proto-Waic based on data from Lawa, Samtau, Bible Wa, Kawa, Drage's Wa and other resources. His reconstruction of Proto-Waic consonant phonemes was 20 simple initial consonants and 18 complex initial consonants. The complex initial consonants can be categorised into three types which pre-aspirated sonorant, pre-glottalised sonorants and complex initials starting with a liquid. Proto-Waic has 15 final consonants and eight consonant clusters. For vowels he has nine monophthongs and there are no diphthongs in the Proto-Waic vowel system. The following tables display the phonological system of Proto-Waic in Diffloth (1980: 22, 70, 80).

**Table 5: Simple and complex initial consonants of Proto-Waic (Diffloth, 1980)**

a) Simple initial consonants	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Glottal
Stop	*p *b		*t *d	*c	*k *g	*ʔ
Fricative		*f *v	*s			*h
Nasal	*m		*n	*ɲ	*ŋ	
Lateral			*l			
Trill			*r			
Approximant	*w			*y		

b) Complex initial consonants	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Glottal
Pre-aspirated sonorants	*hm		*hn	*hɲ	*hŋ	
	*hw			*hy		
			*hl			
			*hr			
Pre-glottalised sonorants	*ʔm		*ʔn	*ʔɲ	*ʔŋ	
	*ʔw			*ʔy		
			*ʔl			
			*ʔr			
c) Complex initial starting with liquid			*lʔ			
			*rʔ			

**Table 6: Final consonants of Proto-Waic**

	Bilabial	Alveolar	Palatal	Velar	Glottal
Stop	*-p	*-t	*-c	*-k	*-ʔ
Fricative		*-s			*-h
Nasal	*-m	*-n	*-ɲ	*-ŋ	
Approximant	*-w		*-y		
Lateral		*-l			
Trill		*-r			

**Table 7: Consonant clusters of Proto-Waic**

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants	
	l	r
*p	*pl	*pr
*b	*bl	*br
*k	*kl	*kr
*g	*gl	*gr

**Table 8: Monophthongs of Proto-Waic**

	Front	Central	Back	
			unrounded	rounded
Close	*i	*ɨ		
Close-mid	*e		*ɤ	*o
Open-mid	*ɛ			*ɔ
Open	*a			*ɒ

There are no diphthongs in the Proto-Waic vowel system as reconstructed by Diffloth. After he compared the vowels of four Waic languages (Samtau, Drage’s Wa, Wa proper and Lawa) and their varieties, Diffloth generalised his finding statement as ‘phonation types (registers) affect vowel systems by causing diphthongisation...’ (1980: 36). But this generalisation cannot draw a universal that Waic has no diphthong system. It only can be said that the diphthongisation of Proto-Waic was affected by register.

### 2.3.2 Phonology of Yaongsoi Wa

Yaongsoi Wa (岩帅) is also known as Ai Shuai (艾帅) in Zhou and Yan (1984, 2004). They described the consonants, vowels and register features of Yaongsoi Wa as follows:

#### 2.3.2.1 Consonants

Yaongsoi Wa has 36 initial consonants, of which 16 are aspirated (/p<sup>h</sup>, b<sup>h</sup>, t<sup>h</sup>, d<sup>h</sup>, dz<sup>h</sup>, k<sup>h</sup>, g<sup>h</sup>, v<sup>h</sup>, m<sup>h</sup>, n<sup>h</sup>, ɲ<sup>h</sup>, tɕ<sup>h</sup>, j<sup>h</sup>, l<sup>h</sup>, r<sup>h</sup>/). These initial consonants are found at each point of articulation as seen in the table below.

**Table 9: Initial consonants of Yaongsoi Wa**

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Stop	p <sup>h</sup> p b <sup>h</sup> b		t <sup>h</sup> t d <sup>h</sup> d			k <sup>h</sup> k g <sup>h</sup> g	ʔ
Fricative		f v <sup>h</sup> v	s				h

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Nasal	m <sup>h</sup> m		n <sup>h</sup> n	ɲ <sup>h</sup> ɲ		ŋ <sup>h</sup> ŋ	
Affricate				tʃ <sup>h</sup> tʃ dʒ <sup>h</sup> dʒ			
Lateral			l <sup>h</sup> l				
Trill			r <sup>h</sup> r				
Approximant					j <sup>h</sup> j		

The final consonants are limited only to voiceless unaspirated stops, the voiceless glottal fricative and nasals these are found in four points of articulation.

**Table 10: Final consonants of Yaongsoi Wa**

	Bilabial	Alveolar	Velar	Glottal
Stop	-p	-t	-k	-ʔ
Fricative				-h
Nasal	-m	-n	-ŋ	

There are 16 consonant clusters in Yaongsoi Wa. The first consonants in the cluster are bilabial and velar stops, both aspirated and unaspirated. The second consonants are the alveolar lateral and the trill. The clusters are given below.

**Table 11: Consonant clusters of Yaongsoi Wa**

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants	
	l	r
p	pl	pr
p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r
b <sup>h</sup>	b <sup>h</sup> l	b <sup>h</sup> r
b	bl	br

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants	
	l	r
k	kl	kr
k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r
g <sup>h</sup>	g <sup>h</sup> l	g <sup>h</sup> r
g	gl	gr

### 2.3.2.2 Vowels

Wang and Chen (1981) found nine monophthongs, 15 diphthongs and two triphthongs in Yaongsoi Wa. These vowels are displayed in the tables below.

**Table 12: Monophthongs of Yaongsoi Wa**

	Front	Back	
		unrounded	rounded
Close	i	ɯ	u
Close-mid	e	ɤ	o
Open-mid	ɛ		ɔ
Open	a		

**Table 13: Diphthongs and Triphthongs of Yaongsoi Wa**

Diphthongs			Triphthongs	
iu	ɯi	ui, ue	iau	uai
ie (ie)		ua		
io				
ia				
ɛu	ɤi	oi		
		ɔi		
ai	aɯ	au		

### 2.3.2.3 Registers

According to Yaongsoi, there are two contrasting registers which Wang and Chen call tense (紧) and lax (松). Here the tense and lax refers to tenseness of the larynx. When you pronounce a vowel with tenseness in the larynx it is tense and when articulate a vowel with laxness in the larynx it is lax.

### 2.3.3 Phonology of Ai Shuai Wa

Zhou and Yan (1984) and Wang and Chen (1981) worked on Ai Shuai Wa (艾帅) and Yoangsoi Wa (岩帅) respectively, Ai Shuai Wa or Yangsoi Wa are considered the same Wa variety in China. The interesting part is Zhou and Yan described 38 initial consonants in Ai Shuai whereas Wang and Chen (1981) only have 36 consonants in Yoangsoi Wa. The comparison between Zhou and Yan's (1984) and Wang and Chen's (1981) consonant systems, the Zhou and Yan's palato-alveolar fricatives [ʃ], [ʃ<sup>h</sup>] and alveolar affricates [ts], [ts<sup>h</sup>] do not exist in Wang and Chen's consonant system, on the other hand, Zhou and Yan has no palatal approximants [j] and [j<sup>h</sup>]. Zhou and Yan (1984) and Wang and Chen (1981) both have eight final consonants. Aside the differences mentioned above, most of the their consonant system are identical. The following tables summarize of Zhou and Yan's Ai Shuai Wa.

#### 2.3.3.1 Consonants

Table 14: Initial consonants of Ai Shuai Wa in China

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Velar	Glottal
Stop	p <sup>h</sup> p b <sup>h</sup> b		t <sup>h</sup> t d <sup>h</sup> d		k <sup>h</sup> k g <sup>h</sup> g	ʔ
Fricative		f v <sup>h</sup> v	s	ʃ <sup>h</sup> ʃ		h
Nasal	m <sup>h</sup> m		n <sup>h</sup> n	ɲ <sup>h</sup> ɲ	ŋ <sup>h</sup> ŋ	
Affricate			ts <sup>h</sup> ts	tʃ <sup>h</sup> tʃ dʃ <sup>h</sup> dʃ		
Lateral			l <sup>h</sup> l			
Trill			r <sup>h</sup> r			

**Table 15: Final consonants of Ai Shuai Wa in China**

	Bilabial	Alveolar	Velar	Glottal
Stop	-p	-t	-k	-ʔ
Fricative				-h
Nasal	-m	-n	-ŋ	

**Table 16: Consonant clusters of Ai Shuai Wa in China**

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants	
	l	r
p	pl	pr
p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r
b <sup>h</sup>	b <sup>h</sup> l	b <sup>h</sup> r
b	bl	br
k	kl	kr
k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r
g <sup>h</sup>	g <sup>h</sup> l	g <sup>h</sup> r
g	gl	gr

### 2.3.3.2 Vowels

Zhou and Yan (1984) identified nine tense and nine lax monophthongs, 14 tense and 14 lax diphthongs and two tense and two lax triphthongs in their vowel system. They transcribed tense vowel with a marker “V”. However, Wang and Chen (1981) did not have a way to transcribe register specifically in their vowel system. The Zhou and Yan’s vowel system is shown in the tables below:-

**Table 17: Monophthongs of Ai Shuai Wa in China**

	Front	Back	
		unrounded	rounded
Close	i, <u>i</u>	ɯ, <u>ɯ</u>	u, <u>u</u>
Close-mid	e, <u>e</u>	ɤ, <u>ɤ</u>	o, <u>o</u>
Open-mid	ɛ, <u>ɛ</u>		ɔ, <u>ɔ</u>
Open	a, <u>a</u>		

**Table 18: Diphthongs and triphthongs of Ai Shuai Wa in China**

Diphthongs			Triphthongs	
iu, <u>iu</u>	ui, <u>ui</u>	ui, <u>ui</u>	iau, <u>iau</u>	uai, <u>uai</u>
iɛ, <u>iɛ</u>				
	ɣi, <u>ɣi</u>			
io, <u>io</u>				
ia, <u>ia</u>		ua, <u>ua</u>		
ɛa (-k, -ŋ) <sup>9</sup> , <u>ɛa</u>		oi, <u>oi</u>		
		ɔi, <u>ɔi</u>		
ai, <u>ai</u>	au, <u>au</u>	au, <u>au</u>		

### 2.3.3.3 Registers

Ai Shuai has no tones but has two registers which are tense (紧) and lax (松). Zhou and Yan (1984) noted that the tense vowels normally are pronounced with a high pitch and falling contour, and the lax vowel's pitch with a lower and falling contour. There are environments in which some tense vowels are pronounced with high pitch and mid contour and lax vowels with lower pitch with mid contour. In spite of the inconsistency of pitches and contours of tense and lax vowel mentioned above, the tense and lax registers were factors that affected the actual pronunciation. (Zhou and Yan 1984: 12, 2004: 95)

### 2.3.4 Phonology of Standard Wa

The Wa in Watkins (2002) are Standard Wa<sup>10</sup> varieties. He proposed that the phonological system of Standard Wa has 35 consonants of which 16 are aspirated consonants /p<sup>h</sup>, t<sup>h</sup>, c<sup>h</sup>, k<sup>h</sup>, m<sup>b</sup><sup>h</sup>, n<sup>d</sup><sup>h</sup>, ɲ<sup>j</sup><sup>h</sup>, ŋ<sup>g</sup><sup>h</sup>, m<sup>b</sup><sup>h</sup>, n<sup>d</sup><sup>h</sup>, ɲ<sup>j</sup><sup>h</sup>, ŋ<sup>g</sup><sup>h</sup>, v<sup>h</sup>, l<sup>h</sup>, r<sup>h</sup>, y<sup>h</sup>/, four pre-nasalized aspirated consonants /<sup>m</sup>b, <sup>n</sup>d, <sup>ɲ</sup>j, <sup>ŋ</sup>g/ and four pre-nasalized unaspirated consonants /<sup>m</sup>b, <sup>n</sup>d, <sup>ɲ</sup>j, <sup>ŋ</sup>g/. There are ten final consonants. These consonants are shown in the following tables.

<sup>9</sup> The diphthong /ɛa/ only occurs with the finals /-k/ and /-ŋ/

<sup>10</sup> Standard Wa refers to Ai Shuai or also known as Yoangsoi of Parauk variety.



### 2.3.4.1 Consonants

Table 19: Initial consonants of Standard Wa of Watkins (2002)

	Bilabial	Labio-dental	Dental alveolar	Alveolar	Palatal	Velar	Glottal
Stop	p <sup>h</sup> p m <sup>b</sup> <sup>h</sup> m <sup>b</sup>		t <sup>h</sup> t n <sup>d</sup> <sup>h</sup> n <sup>d</sup>		c <sup>h</sup> c ɲ <sup>j</sup> <sup>h</sup> ɲ <sup>j</sup>	k <sup>h</sup> k ŋ <sup>g</sup> <sup>h</sup> ŋ <sup>g</sup>	ʔ
Fricative		v <sup>h</sup> v		s			h
Nasal	m <sup>h</sup> m		n <sup>h</sup> n		ɲ <sup>h</sup> ɲ	ŋ <sup>h</sup> ŋ	
Lateral				l <sup>h</sup> l			
Trill				r <sup>h</sup> r			
Approximant					y <sup>h</sup> y		

Table 20: Final consonants of Standard Wa of Watkins (2002)

	Bilabial	Alveolar	Palatal	Velar	Glottal
Stop	-p	-t	-c	-k	-ʔ
Fricative					-h
Nasal	-m	-n	-ɲ	-ŋ	

### 2.3.4.2 Vowels

The vowel system of Standard Wa in Watkins (2002) has nine monophthongs, 13 diphthongs and two triphthongs. The details are exhibited in the following tables.

**Table 21: Monophthongs of Standard Wa of Watkins (2002)**

	Front	Back	
		unrounded	rounded
Close	i	ɯ	u
Close-mid	e	ɤ	o
Open-mid	ɛ		ɔ
Open	a		

**Table 22: Diphthongs and Triphthongs of Standard Wa of Watkins (2002)**

Diphthongs			Triphthongs	
iu	ɯi	ui, ua	iau	uai
ei	ɤi	ou, oi		
ia		ɔi		
ai	aɯ	au		

### 2.3.4.3 Registers

Standard Wa as studied by Watkins (2002) has two phonemic registers, clear and breathy. The register contrast is a feature of the syllable, not the vocalic segments; it can be detected in adjacent sonorants. Thus both registers are unmarked in his phonemic transcription. In this thesis registers are treated as vocalic segments see Chapter 5 Section 5.4.

### 2.3.5 Phonology of Bulang

The data of Li, Nie and Qiu come from the Chinese Academy of Social Sciences and Ethnic Study. The Bulang are one of the ethnic groups living in Yunnan province of China. Although they are officially recognized as Bulang, those who live in Sipsongpanna Dai autonomous region and Jing Hong are called [plaŋ] or [paŋ] and some call themselves [pɾaŋ]. Those who live in Simau identify themselves as [aɪvaʔ], [aɪvaʔ], [vaʔ] or [iɪvaʔ]. Bulang who live in other areas like to be called [phuɿman] (Han Chinese is 蒲满), or [vaʔ].

Bulang has a complex phonological system. There are 35 initial consonants, ten final consonants and eight consonant clusters. The Chinese Academy of Social Sciences and Ethnic Groups has collected this data over more than 50 years from the National Ethnic Institute. The consonants of Bulang are given in Tables 23-25.

### 2.3.5.1 Consonants

Table 23: Initial consonants of Bulang in China of Li, Nie and Qiu (1986)

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Velar	Uvular	Glottal
Stop	p <sup>h</sup> p np <sup>h</sup> np		t <sup>h</sup> t nt <sup>h</sup> nt		k <sup>h</sup> k nk <sup>h</sup> nk	q <sup>h</sup>  nq <sup>h</sup>	ʔ
Fricative		f v	s	ʃ	x		h
Nasal	m̥ m		n̥ n	ɲ̥ ɲ	ŋ̥ ŋ		
Affricate				tʃ <sup>h</sup> tʃ ntʃ <sup>h</sup> ntʃ			
Lateral			l̥ l				

Table 24: Final consonants of Bulang in China of Li, Nie and Qiu (1986)

	Bilabial	Alveolar	Velar	Glottal
Stop	-p	-t	-k	-ʔ
Fricative				-h
Nasal	-m	-n	-ŋ	
Lateral		-l̥ -l		

**Table 25: Consonant clusters of Bulang in China of Li, Nie and Qiu (1986)**

1 <sup>st</sup> consonants		2 <sup>nd</sup> consonant
		l
Labial	p	pl
	p <sup>h</sup>	p <sup>h</sup> l
	np <sup>h</sup>	np <sup>h</sup> l
	np	npl
Velar	k	kl
	k <sup>h</sup>	k <sup>h</sup> l
	nk <sup>h</sup>	nk <sup>h</sup> l
	nk	nkl

### 2.3.5.2 Vowels

Li, Nie and Qiu describe the vowel system of Bulang as having nine monophthongs, 14 diphthongs and two triphthongs. The inventory of vowels is given below.

**Table 26: Monophthongs of Bulang in China of Li, Nie and Qiu (1986)**

	Front	Back	
		unrounded	rounded
Close	i	ɯ	u
Close-mid	e	ɤ	o
Open-mid	ɛ		ɔ
Open	a		

**Table 27: Diphthongs and triphthongs of Bulang in China of Li, Nie and Qiu (1986)**

Diphthongs			Triphthongs	
iu	ɯi	ui	iau	uai
ie		ua, (ɔa) <sup>11</sup>		
	ɣi, ɣu			
ia				
ei		oi		
ɛi		ɔi		
ai		au		

<sup>11</sup> The diphthongs [ɔa] is the variant of /ua/.

### 2.3.5.3 Tones

There are four tones in Bulang. Tone 1 is mid rising /<sup>1</sup>/ or /35/; Tone 2 is mid level /-/ or /33/; Tone 3 is mid level falling /<sup>1</sup>/ or /331/; and Tone 4 is low falling /<sup>4</sup>/ or /21/. When Tone 1, mid rising /<sup>1</sup>/ or /35/ occurs in a compound word, the Tone 1 will change to Tone 4, Low falling /<sup>4</sup>/ or /21/.

### 2.3.6 Phonology of Wa of Ban Santisuk in Chiang Rai

Wattana (1998) collected data from Ban Santisuk Moo 19, Chiang Rai province of Thailand. In his analysis of Wa in Thailand, Wattana finds 27 consonants, of which two are pre-nasalized, three voiceless nasals, a voiceless lateral and a voiceless trill. Wa at Ban Santisuk Moo 19 has eleven final consonants and ten consonant clusters, as shown in Tables 28-30 below.

#### 2.3.6.1 Consonants

Table 28: Initial consonants of Wa in Chiang Rai province of Thailand

	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Glottal
Stop	p <sup>h</sup> p <sup>m</sup> b		t <sup>h</sup> t <sup>n</sup> d	c <sup>h</sup> c	k <sup>h</sup> k	ʔ
Fricative		f v	s			h
Nasal	<sup>ṁ</sup> m m		<sup>ṅ</sup> n n	<sup>ɲ</sup> j	<sup>ŋ</sup> ŋ ŋ	
Lateral			<sup>l̥</sup> l l			
Trill			<sup>r̥</sup> r r			
Approximant				j		

**Table 29: Final consonants of Wa in Chiang Rai province of Thailand**

	Bilabial	Alveolar	Palatal	Velar	Glottal
Stop	-p	-t	-c	-k	-ʔ
Fricative		-s			-h
Nasal	-m	-n	-ɲ	-ŋ	

**Table 30: Consonant clusters of Wa in Chiang Rai province of Thailand**

1st consonants	2nd consonants	
	l	r
p	pl	pr
p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r
<sup>m</sup> b	<sup>m</sup> bl	<sup>m</sup> br
k	kl	kr
k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r

### 2.3.6.2 Vowels

Wa as spoken in Ban Santisuk Moo 19 has the same nine common monophthongs which appear in most of the Waic languages, as well as eleven diphthongs and two triphthongs, as shown in Tables 31 and 32 below.

**Table 31: Monophthongs of Wa in Chiang Rai province of Thailand**

	Front	Central	Back	
			unrounded	rounded
Close	i		ɯ	u
Close-mid	e			o
(mid)		a		
Open-mid	ɛ			ɔ
Open	a			

**Table 32: Diphthongs and Triphthongs of Wa in Chiang Rai province of Thailand**

Diphthongs			Triphthongs	
iu	ui, ua	ui	iau	uai
ia		ua		
	ai	oi		
		ɔi		
ai		ao		

### 2.3.6.3 Registers

Wattana (1998) concluded that there were no tones or registers in Wa at Ban Santisuk Moo 19. Two non-phonemic intonation patterns were observed which are rising contour, which marks as [ ——— ] (questions and commands) and mid level contour, which marks as [ ——— ] (affirmative and negative statement). Examples of these two non-phonemic intonation patterns in Wa are shown below.

Examples of rising contour in question and command:

Question:

Wa	ʔot	noŋ	ɲiaʔ	na:nu:
Gloss	to stay	in	house	Nanu
Free translation	Is Nanu in the house?			

Command:

Wa	p <sup>h</sup> u:i	haoʔ
Gloss	don't	go
Free translation	don't	go

Examples of mid level contour in affirmative and negative statement:

Affirmative statement:

Wa	ʔot	meʔ	tiat	tiat
Gloss	to stay	you	there	there
Free translation	'he is over there'			

Negative statement:

Wa	<u>ʔaŋ taiʔ ɲum</u>
Gloss	not food delicious
Free translation	‘food is not delicious’

### 2.3.7 Phonology of Lawa in villages between Chiang Mai and Maehongson

Suriya and Lakhana (1985) collected their data at Lawa villages in northern Thailand between Baw Luang, Hot district, Chiang Mai province in the east and Maesariang district, Maehongson province in the west. There are 37 consonants in Lawa, four of the Lawa consonants are pre-nasalised /<sup>m</sup>b, <sup>n</sup>d, <sup>ɲ</sup>c, <sup>ɲ</sup>g/, seven are pre-glottalised /ʔm, ʔn, ʔɲ, ʔl, ʔj, ʔɣ/ and five are pre-aspirated /hm, hn, hɲ, hŋ, hl/ consonants. The phonological features of the pre-nasalisation and pre-aspiration are commonly found in Waic languages but pre-glottalised, pre-aspirated and pre-nasalised consonants rarely occur in Waic languages according to the earlier reviewed research in this chapter. The consonant inventory for Lawa is shown in the tables below.

#### 2.3.7.1 Consonants

**Table 33: Initial consonants of Lawa in Thailand**

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Stop	p <sup>h</sup> p b <sup>m</sup> b		t <sup>h</sup> t  <sup>n</sup> d		c <sup>h</sup> c  <sup>ɲ</sup> c	k <sup>h</sup> k  <sup>ɲ</sup> g	ʔ
Fricative		f v	s			ɣ ʔɣ	h
Nasal	m hm ʔm		n hn ʔn	ɲ hɲ ʔɲ		ŋ hŋ ʔŋ	



	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Lateral			l hl ʔl				
Approximant					j ʔj		

**Table 34: Final consonants of Lawa in Thailand**

	Bilabial	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Stop	-p	-t		-c	-k	-ʔ
Fricative						-h
Nasal	-m	-n	-ɲ		-ŋ	

**Table 35: Consonant clusters of Lawa in Thailand**

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants	
	l	j
p	pl	pj
p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> j
<sup>m</sup> b	<sup>m</sup> bl	<sup>m</sup> bj
k	kl	kj
k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> j
<sup>ŋ</sup> g	<sup>ŋ</sup> gl	<sup>ŋ</sup> gj

### 2.3.7.2 Vowels

Ten monophthongs are found in Lawa vowel system. Suriya and Lakhana (1985) classified [w] as higher-mid spread central vowel in their vowel system. There are 14 diphthongs and one triphthong /aiɛ/. This triphthong is uncommon compared to the previous studies of Waic languages.

**Table 36: Monophthongs of Lawa in Thailand**

	Front	Central	Back
			rounded
Close	i	ɨ	u
Close-mid	e	ɤ	o
(mid)		a	
Open-mid	ɛ		ɔ
Open	a		

**Table 37: Diphthongs and Triphthong of Lawa in Thailand**

Diphthongs			Triphthong
ia	ia	ui, ua	
ɛɔ	ai, ai, ao	oi	
		ɔi, ɔɛ	
ai, ai, ao			aiɛ

### 2.3.7.3 Registers

Two types of phonemic intonation were observed by Suriya and Lakhana (1985). The statement contour is mid level, marked as [—]; the question contour is rising, marked as [—]. Examples of both types of phonemic intonation in Lawa are given below:-

Statement contour:

Lawa	_____
	kuan som ?aop
Gloss	child eat rice
Free translation	‘A child eats rice’

Question contour:

Lawa	_____
	kuan som ?aop
Gloss	child eat rice
Free translation	‘Does a child eat rice?’

### 2.3.8 Phonology of Kontoy Plang

Plang is known as Bulang in Sipsongpanna, Yunnan province of China. Kontoy is the most representative variety of Plang and is spoken in Sipsongpanna, Yunnan province, China, Huay Nam Khun, Chiang Rai province of Thailand and is also found in Myanmar. Paulsen (1996) proposed that Kontoy Plang has 25 consonants, 13 final consonants and nine consonant clusters. The consonant cluster /kw/ does not appear in previous studies of Waic languages. The consonants of Kontoy Plang are summarized in the tables below.

#### 2.3.8.1 Consonants

**Table 38: Initial consonants of Kontoy Plang**

	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Glottal
Stop	p <sup>h</sup> p		t <sup>h</sup> t	c <sup>h</sup> c	k <sup>h</sup> k	ʔ
Fricative		f	s			h
Nasal	m̥ m		ŋ̥ n	ɟ̥ ɟ	ŋ̥ ŋ	
Lateral			l̥ l			
Trill			r			
Approximant				ɟ̥ j		

**Table 39: Final consonants of Kontoy Plang**

	Bilabial	Alveolar	Palatal	Velar	Glottal
Stop	-p	-t	-c	-k	-ʔ
Fricative					-h
Nasal	-m	-n	-ɟ	-ŋ	
Approximant	-w		-j		
Lateral		-l			

**Table 40: Consonant clusters of Kontoy Plang**

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants		
	l	r	w
p	pl	pr	
p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r	
k	kl	kr	kw
k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r	

### 2.3.8.2 Vowels

There are seven clear and four breathy monophthongs in Kontoy Plang’s vowel system and the non- phonemic schwa [a] only occurs in pre-syllables. In Kontoy Plang all vowels (except clear and breathy /i/ and /i/) have a high front off-glide before palatal stops this is a common feature in Waic languages. There are no diphthongs because Paulsen transcribed the ambiguous segments of final diphthong ending in an [i] or [u] to be final consonants of /j/ or /w/ respectively. The following table shows that vowel inventory of Kontoy Plang.

**Table 41: Monophthongs of Kontoy Plang**

	Front	Central	Back	
			unrounded	rounded
Close	i, i̥		ɯ	u, u̥
Close-mid	e, e̥			o
(mid)		(a)		
Open-mid				ɔ
Open	a, ḁ			

### 2.3.8.3 Tones and registers

Paulsen (1996) observed two tones and two registers in Kontoy Plang. The two contrastive tones are high and low. Two registers in Kontoy Plang are characterized by a normal, clear voice quality and breathy phonation type. Kontoy’s two contrastive tones variants affected by the type of syllable final consonant. For example, a high tone with an obstruent final consonant will be high level pitch; if it is a sonorant the pitch is high rising.

**Examples:**

High level pitch		High rising pitch
[faʔ] ‘monkey’	obstruent final;	[fam] ‘sticky’      sonorant final

For the low tone, however, if the final consonant is an obstruent it has low level pitch, and if a sonorant, it has low falling pitch.

**For examples:**

Low level pitch		Low falling pitch
[puk] ‘to paint’	obstruent final;	[puŋ] ‘to speak’      sonorant final

Besides Kontoy Plang has co-occurrence of tones and registers in the language, Lawa is also one of the Waic languages that has tones and registers.

## 2.4 A comparison of Proto-Waic and phonologies of modern Waic languages

### 2.4.1 Consonants

The section compares the consonants of Proto-Waic from Diffloth (1980) to the seven modern Waic phonologies reviewed in the previous sections: Yaongsoi Wa (Wang and Chen 1981), Ai Shuai Wa (Zhou and Yan 1984), Standard Wa (Watkins 2002), Bulang (Li, Nie and Qiu 1986), Wa Ban Santisuk (Wattana 1998), Lawa (Suriya and Lakhana 1985) and Kontoy Plang (Paulsen 1996).

There are 38 consonants in Proto-Waic and in the modern Waic languages the count ranges from a full inventory of 38 to a low of 25: Ai Shuai Wa (38), Lawa (37), Yaongsoi Wa (36), Standard Wa and Bulang (35), Wa Ban Santisuk (27) and Kontoy Plang (25).

In comparing the phonological features of the consonants in Proto-Waic and modern Waic, similarities and differences were found. All the modern Waic languages, like the Proto-Waic, have voiceless stops /p, t, k, ʔ/, voiced nasals /m, n, ŋ/, voiceless alveolar sibilant /s/, voiceless glottal fricative /h/ and the voiced alveolar lateral approximant /l/. Voiced aspirated stops are only found in Yaongsoi Wa (Wang and Chen 1981), Ai Shuai Wa (Zhou and Yan 1984) and Standard Wa (Watkins 2002).

Proto-Waic has pre-aspiration, pre-glottalisation and initial consonants start with liquid, it has no pre-nasalisation occur in its consonant system. Among the modern Waic languages, the two features pre-aspiration and pre-glottalisation in addition to pre-nasalisation can be found only in Lawa (Suriya and Lakhana 1985). Pre-nasalisation did occur in some of the Waic languages such as Bulang (Li, Nie and Qiu 1986), Standard Wa (Watkins 2002) and Wa (Wattana 1998).

A compilation of consonants in Proto-Waic and the modern Waic languages are shown in the following table.

**Table 42: A comparison of proto and modern Waic consonants**

	Proto-Waic (Diffloth 1980)	Yaongsoi Wa (Wang and Chen 1981)	Ai Shuai Wa (Zhou and Yan 1984)	Standard Wa (Watkins 2002)	Bulang (Li, Nie and Qiu 1986)	Wa (Wattana 1998)	Lawa (Suriya and Lakhana 1985)	Kontoy Plang (Paulsen 1996)
Labial		p <sup>h</sup>	p <sup>h</sup>	p <sup>h</sup>	p <sup>h</sup>	p <sup>h</sup>	p <sup>h</sup>	p <sup>h</sup>
	*p	p	p	p	p	p	p	p
					np			
					np <sup>h</sup>			
				<sup>m</sup> b <sup>h</sup>				
				<sup>m</sup> b		<sup>m</sup> b	<sup>m</sup> b	
		b <sup>h</sup>	b <sup>h</sup>					
	*b	b	b				b	
	*f	f	f		f	f	f	f
		v <sup>h</sup>	v <sup>h</sup>	v <sup>h</sup>				
	*v	v	v	v	v	v	v	
	*m	m	m	m	m	m	m	m
		m <sup>h</sup>	m <sup>h</sup>	m <sup>h</sup>	m̚	m̚		m̚
*w								
Alveolar	*t	t	t	t	t	t	t	t
		t <sup>h</sup>	t <sup>h</sup>	t <sup>h</sup>	t <sup>h</sup>	t <sup>h</sup>	t <sup>h</sup>	t <sup>h</sup>
					nt <sup>h</sup>			
					nt			
				<sup>n</sup> d <sup>h</sup>				

	Proto-Waic (Diffloth 1980)	Yaongsoi Wa (Wang and Chen 1981)	Ai Shuai Wa (Zhou and Yan 1984)	Standard Wa (Watkins 2002)	Bulang (Li, Nie and Qiu 1986)	Wa (Wattana 1998)	Lawa (Suriya and Lakhana 1985)	Kontoy Plang (Paulsen 1996)
				<sup>n</sup> d		<sup>n</sup> d	<sup>n</sup> d	
		d <sup>h</sup>	d <sup>h</sup>					
	*d	d	d					
	*s	s	s	s	s	s	s	s
		n <sup>h</sup>	n <sup>h</sup>	n <sup>h</sup>	ṅ	ṅ		ṅ
	*n	n	n	n	n	n	n	n
			ts <sup>h</sup>					
			ts					
		l <sup>h</sup>	l <sup>h</sup>	l <sup>h</sup>	l̥	l̥		l̥
	*l	l	l	l	l	l	l	l
		r <sup>h</sup>	r <sup>h</sup>	r <sup>h</sup>		r̥		
	*r	r	r	r		r		r
Palato-Alveolar		dʒ <sup>h</sup>	dʒ <sup>h</sup>					
		dʒ	dʒ					
			ʒ <sup>h</sup>					
			ʒ		ʒ			
		ɲ <sup>h</sup>	ɲ <sup>h</sup>		ṅ			
		ɲ	ɲ		ɲ		ñ	
		tʃ <sup>h</sup>	tʃ <sup>h</sup>		tʃ <sup>h</sup>			
		tʃ	tʃ		tʃ			
					ntʃ <sup>h</sup>			
					ntʃ			
Palatal	*ç			c		c	c	c
				c <sup>h</sup>		c <sup>h</sup>	c <sup>h</sup>	c <sup>h</sup>
				ɲj <sup>h</sup>			ñç	
				ɲj				
				ɲ <sup>h</sup>				ɲ̥
	*ɲ			ɲ		ɲ		ɲ

	Proto-Waic (Diffloth 1980)	Yaongsoi Wa (Wang and Chen 1981)	Ai Shuai Wa (Zhou and Yan 1984)	Standard Wa (Watkins 2002)	Bulang (Li, Nie and Qiu 1986)	Wa (Wattana 1998)	Lawa (Suriya and Lakhana 1985)	Kontoy Plang (Paulsen 1996)
		j <sup>h</sup>						
				y <sup>h</sup>				ɟ
	*y	j		y		j	j	j
Velar	*k	k	k	k	k	k	k	k
		k <sup>h</sup>	k <sup>h</sup>	k <sup>h</sup>	k <sup>h</sup>	k <sup>h</sup>	k <sup>h</sup>	k <sup>h</sup>
					nk <sup>h</sup>			
					nk			
					x			
				ŋ <sup>g</sup> <sup>h</sup>				
				ŋ <sup>g</sup>			ŋ <sup>g</sup>	
		g <sup>h</sup>	g <sup>h</sup>					
							ɣ	
		*g	g	g				
			ŋ <sup>h</sup>	ŋ <sup>h</sup>	ŋ <sup>h</sup>	ŋ̊	ŋ̊	
	*ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ
Uvular					q <sup>h</sup>			
					nq <sup>h</sup>			
Glottal	*ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ
	*h	h	h	h	h	h	h	h
Pre-aspiration	*hm						hm	
	*hn						hn	
	*hɲ						hñ	
	*hŋ						hŋ	
	*hw							
	*hy							
	*hl						hl	
	*hr							
pre-glottalisation	*ʔm						ʔm	
	*ʔn						ʔn	
	*ʔɲ						ʔñ	



	Proto-Waic (Diffloth 1980)	Yaongsoi Wa (Wang and Chen 1981)	Ai Shuai Wa (Zhou and Yan 1984)	Standard Wa (Watkins 2002)	Bulang (Li, Nie and Qiu 1986)	Wa (Wattana 1998)	Lawa (Suriya and Lakhana 1985)	Kontoy Plang (Paulsen 1996)
	*ʔŋ						ʔŋ	
	*ʔr							
	*ʔw							
	*ʔy							
	*ʔl						ʔl	
							ʔj	
							ʔɣ	
Initial consonants start with liquid	*rʔ							
	*lʔ							
Total	38	36	38	35	35	27	37	25

### Final consonants

Proto-Waic has 15 final consonants which are /\*p,\*m,\*w,\*t,\*s,\*n,\*l,\*r,\*c,\*ŋ,\*y,\*k,\*ŋ,\*ʔ,\*h/. The modern Waic languages have eight final consonants in common with each other and the Proto-Waic: /-p, -t, -k, -m, -n, -ŋ, -ʔ, -h/. Chinese scholars Wang and Chen (1981), Zhou and Yan (1984) and Li, Nie and Qiu (1986) have no palatal stop in their final consonant charts for Yaong Soi Wa and Ai Shuai Wa because according to their analysis the palatal stop -c was transcribed as -ik unlike the rest (Watkins 2002: 43). Bulang has voiced and voiceless alveolar lateral /l/ and /l̥/ as its final consonants (Li, Nie and Qiu 1986) while Kontoy Plang only has voiced alveolar lateral /l/ as final consonant (Paulsen 1996). When compare to other modern Waic languages, only Wa (Watkins 2002), Wa (Wattana 1998), Lawa (Suriya and Lakhana 1985) and Plang (Paulsen 1996) have voiceless unaspirated palatal stop /c/ as final consonants when compare to other modern Waic languages.

Besides, Kontoy Plang (Paulsen 1996) is the only modern Waic language that shares the final consonants /w/ and /j/<sup>12</sup> with Proto-Waic.

All of the final consonants of Proto-Waic and modern Waic languages are listed as below.

**Table 43: A comparison of proto and modern Waic final consonants**

	Proto-Waic (Diffloth 1980)	Yaongsoi Wa (Wang and Chen 1981)	Ai Shuai Wa (Zhou and Yan 1984)	Standard Wa (Watkins 2002)	Bulang (Li, Nie and Qiu 1986)	Wa (Wattana 1998)	Lawa (Suriya and Lakhana 1985)	Kontoy Plang (Paulsen 1996)
Labial	*-p	-p	-p	-p	-p	-p	-p	-p
	*-m	-m	-m	-m	-m	-m	-m	-m
	*-w							-w
Alveolar	*-t	-t	-t	-t	-t	-t	-t	-t
	*-s					s		
	*-n	-n	-n	-n	-n	-n	-n	-n
	*-l				-l			-l
					-l̥			
Palatal	*-c			-c		-c	-c	-c
	*-ɲ			-ɲ		-ɲ	-ɲ̃	-ɲ̃
	*-y							-j
Velar	*-k	-k	-k	-k	-k	-k	-k	-k
	*-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ
Glottal	*-ʔ	-ʔ	-ʔ	-ʔ	-ʔ	-ʔ	-ʔ	-ʔ
	*-h	-h	-h	-h	-h	-h	-h	-h

### Consonant clusters

The most common first consonant in a consonant cluster in Proto-Waic and modern Waic languages are the voiceless bilabial stop /p/ and voiceless velar stop /k/. The most common second consonant of a cluster is voiced lateral /l/. The trill /r/ in the second consonant position of cluster is common in the other Waic languages but does not exist in Bulang (Li, Nie and Qiu 1986) and Lawa (Suriya 1985). The

<sup>12</sup> Final consonant \*-y in Proto-Waic is used while in Kontoy Plang it is /j/.

occurrence of the second consonant as the voiced palatal approximant /j/ or voiced labial-velar approximant /w/ are rare. These only occur in Lawa (Suriya and Lakhana 1985) and Kontoy Plang (Paulsen 1996) respectively. The pre-nasalized consonant clusters /<sup>m</sup>bl/ occurs in both Wa Ban Santisuk and Lawa. The cluster /<sup>m</sup>br/ only occur in Wa Ban Santisuk (Wattana 1998) and /<sup>m</sup>bj/ cluster is found only in Lawa (Suriya and Lakhana 1985). The consonant clusters /npl, np<sup>h</sup>l, nkl, nk<sup>h</sup>l/ only appear in Bulang (Li, Nie and Qiu 1986) and the /<sup>ŋ</sup>gj/ cluster occurs only in Lawa (Suriya and Lakhana 1985). The consonant cluster /kw/ appear only in Kontoy Plang (Paulsen 1996). A compilation of the proto and modern Waic consonant clusters are given in the table below.

**Table 44: A comparison of proto and modern Waic consonant clusters**

	Proto-Waic (Diffloth 1980)		Yaongsoi Wa (Wang and Chen 1981)		Ai Shuai Wa (Zhou and Yan 1984)		Standard Wa (Watkins2002) <sup>13</sup>		Bulang (Li, Nie and Qiu 1986)		Wa (Wattana 1998)		Lawa (Suriya and Lakhana 1985)		Kontoy Plang (Paulsen 1996)	
1st consonants	2 <sup>nd</sup> consonant															
	l	r	l	r	l	r		l	l	r	l	j	l	r	w	
p	*pl	*pr	pl	pr	pl	pr		pl	pl	pr	pl	pj	pl	pr		
p <sup>h</sup>			p <sup>h</sup> l	p <sup>h</sup> r	p <sup>h</sup> l	p <sup>h</sup> r		p <sup>h</sup> l	p <sup>h</sup> l	p <sup>h</sup> r	p <sup>h</sup> l	p <sup>h</sup> j	p <sup>h</sup> l	p <sup>h</sup> r		
b <sup>h</sup>			b <sup>h</sup> l	b <sup>h</sup> r	b <sup>h</sup> l	b <sup>h</sup> r										
b	*bl	*br	bl	br	bl	br										
k	*kl	*kr	kl	kr	kl	kr		kl	kl	kr	kl	kj	kl	kr	kw	
k <sup>h</sup>			k <sup>h</sup> l	k <sup>h</sup> r	k <sup>h</sup> l	k <sup>h</sup> r		k <sup>h</sup> l	k <sup>h</sup> l	k <sup>h</sup> r	k <sup>h</sup> l	k <sup>h</sup> j		k <sup>h</sup> r		
g <sup>h</sup>			g <sup>h</sup> l	g <sup>h</sup> r	g <sup>h</sup> l	g <sup>h</sup> r										
g	*gl	*gr	gl	gr	gl	gr										
mb									<sup>m</sup> bl	<sup>m</sup> br	<sup>m</sup> bl	<sup>m</sup> bj				
np								npl								
np <sup>h</sup>								np <sup>h</sup> l								
nk								nkl								
nk <sup>h</sup>								nk <sup>h</sup> l								
<sup>ŋ</sup> g											<sup>ŋ</sup> gl	<sup>ŋ</sup> gj				

<sup>13</sup> No consonant clusters mentioned in Watkins (2002), therefore, the column is empty.

## 2.4.2 Vowels

It is very common to have nine vowels /i, e, ε, ʉ, a, a, u, o, ɔ/ in a Waic vowel system. Zhou and Yan (1984) posited nine tense vowels and nine lax vowels in Yaongsoi Wa vowel system. Suriya and Lakhana (1985) interpreted the nonsyllabic vowel [w] as a vowel in their Lawa inventory. The Proto-Waic \*p had been lost in the modern Waic languages. The vowel systems of Proto and modern Waic are shown below.

**Table 45: A comparison of proto and modern Waic of vowels**

	Proto-Waic (Diffloth 1980)	Yaongsoi Wa (Wang and Chen 1981)	Ai ShuaiWa (Zhou and Yan 1984) <sup>14</sup>		Standard Wa (Watkins 2002)	Bulang (Li, Nie and Qiu 1986)	Wa (Wattana 1998)	Lawa (Suriya and Lakhana 1985)	Kontoy Plang (Paulsen 1996)
Front unrounded	*i	i	i	<u>i</u>	i	i	i	i	i
	*e	e	e	<u>e</u>	e	e	e	e	e
	*ε	ε	ε	<u>ε</u>	ε	ε	ε	ε	
Central unrounded or back unrounded	*i	ʉ	ʉ	<u>ʉ</u>	ʉ	ʉ	ʉ	i	ʉ
	*ɣ	ɣ	ɣ	<u>ɣ</u>	ɣ	ɣ	a	a	(a)
	*a	a	a	<u>a</u>	a	a	a	a	a
Back rounded		u	u	<u>u</u>	u	u	u	u	u
	*o	o	o	<u>o</u>	o	o	o	o	o
	*ɔ	ɔ	ɔ	<u>ɔ</u>	ɔ	ɔ	ɔ	ɔ	ɔ
	*ɖ								
Non-syllabic vowel							w		

<sup>14</sup> Tense vowels are marked as V in Zhou and Yan (1984).

### Diphthongs and triphthongs

All Waic languages have diphthongs and triphthongs except Kontoy Plang (Paulsen 1996). The two most common triphthongs are [iau] and [uai] . They are found in all the Waic languages except for Lawa which has only one triphthong [aiɛ] (Suriya and Lakhana 1985). All the modern Waic diphthongs and triphthongs are shown in below table.

**Table 46: Diphthongs and triphthongs**

	Yaong-soi Wa (Wang and Chen 1981)	Ai Shuai Wa (Zhou and Yan 1984)	Standard Wa (Watkins 2002)	Bulang (Li, Nie and Qiu 1986)	Wa (Wattana 1998)	Lawa (Suriya and Lakhana 1985)	Kontoy Plang (Paulsen 1996)
Diphthongs				ie		ia	No diphthongs or triphthongs
						ia	
	iɛ (ie)	iɛ					
	iu	iu	iu	iu	iu		
	io	io					
	ia	ia	ia	ia	ia		
			ei	ei			
	ɛu	ɛa		ɛi		ɛɔ	
	ui	ui	ui	ui	ui		
					ua		
	ue					ua	
	ua	ua	ua	ua (ɔa)	ua		
	ui	ui	ui	ui	ui	ui	
	ɣi	ɣi	ɣi	ɣi	ai	ai	
						ai	
						ao	
				ɣu			
			ou				
	oi	oi	oi	oi	oi	oi	
	ɔi	ɔi	ɔi	ɔi	ɔi	ɔi	
					ɔɛ		
ai	ai	ai	ai	ai	ai		

	Yaong-soi Wa (Wang and Chen 1981)	Ai Shuai Wa (Zhou and Yan 1984)	Standard Wa (Watkins 2002)	Bulang (Li, Nie and Qiu 1986)	Wa (Wattana 1998)	Lawa (Suriya and Lakhana 1985)	Kontoy Plang (Paulsen 1996)
	au	au	au	au	ao	ao	
	auw	auw	auw			ai	
Triphthongs	iau	iau	iau	iau	iau		
	uai	uai	uai	uai	uai		
						aiɛ	

### 2.4.3 Registers, tones and intonations

Register, tone and intonation contrasts were reported in the modern Waic languages reviewed. Four of the seven modern Waic languages had register. Yaongsoi Wa (Wang and Chen 1981) and Ai Shuai Wa (Zhou and Yan 1984) have tense and lax registers. Kontoy Plang (Paulsen 1996) has two registers, the first register is a normal clear voice quality and second register is breathy phonation type. In Watkins (2002) the registers of Standard Wa are called clear and breathy and the contrast is a feature of the syllable not phonetically distinct. However, Wa Ban Santisuk (Wattana 1998) did not have any phonemic registers. Two of the modern Waic languages had tone. Kontoy Plang had two contrastive tones: high and low. Bulang (Li, Nie and Qiu 1986) is the only Waic language that had four tones: Tone 1 is mid rising /˨/ or /35/; Tone 2 is mid level /˨/ or /33/, Tone 3 is mid level falling /˨/ or /331/ and Tone 4 is low falling /˨/ or /21/.

Only one of the studies had information on contrasting intonation contours. Suriya and Lakhana (1985) found two contrastive intonations in Lawa: a statement contour that is normally a mid contour and a question contour that is rising.

After reviewing on Waic's registers, tones and intonations, one can be concluded that the suprasegmental systems of Waic languages are complex because it includes not only registers but tones and also combinations of registers and tones. The following table will give a summary of registers, tones and intonations in Waic languages.

**Table 47: A comparison of modern Waic registers, tones and intonations**

Intonations	Tones	Registers <sup>15</sup>	
No information	None	Tense and lax	Yaong-soi Wa (Wang and Chen 1981)
No information	None	Tense and lax	Ai Shuai Wa (Zhou and Yan 1984)
No information	None	Clear and breathy	Standard Wa (Watkins 2002)
No information	Tone 1: Mid rising /˧/ or /35/ Tone 2: Mid level /˨/ or /33/ Tone 3: Mid level falling /˨˨/ or /331/ Tone 4: Low falling /˨˨/ or /21/	None	Bulang (Li, Nie and Qiu 1986)
None	None	None	Wa (Wattana 1998)
The statement contour: mid level; The question contour: rising	None	None	Lawa (Suriya and Lakhana 1985)
No information	high and low	Clear and breathy	Kontoy Plang (Paulsen 1996)

<sup>15</sup> Different linguists use different terms for registers. The term tense and lax is used in Wang and Chen (1981) in Section 2.3.2.3 and Zhou and Yan (1984) in Section 2.3.3.3. Clear and breathy is used by Watkins (2002) in Section 2.3.4.3 and Paulsen (1996) in Section 2.3.8.3.

## Chapter 3

### Syllable and Word Structures in Meung Yum

#### 3.1 Introduction

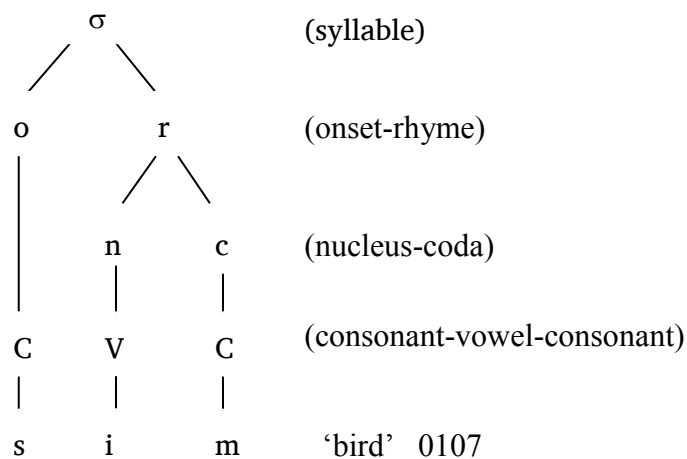
This chapter begins with a definition of the syllable. The descriptions of open and closed syllable structures will be presented as the first part of this chapter. The second part of this chapter will briefly explain the pre-syllable, stress, and word structures in Meung Yum.

Sesquisyllabic structure is a common feature of Mon-Khmer languages. The sesquisyllable consists of a syllable preceded by a half syllable (Matisoff 1973, Thomas 1964). A half syllable may also be known as a pre-syllable (unstressed syllable) or minor syllable. In this chapter this phenomenon of unstressed syllables will be referred to as a pre-syllable, and will be demonstrated in word structures. Meung Yum word structures include monosyllabic, sesquisyllabic, disyllabic and trisyllabic words. Loan words from Shan, a Tai language, will be included, marked by \* after a lexical item; for example, /vai/\* ‘paddle (v)’ #1077. These loan words may have been borrowed into Meung Yum long time ago because the language resource persons used the words naturally and they cannot tell whether they are loan words or not.

#### 3.2 Syllables

A syllable ( $\sigma$ ) is constructed of an onset and a rhyme; the rhyme consists of a nucleus and a coda. Syllable structure commonly has relevance to consonant and vowel patterns. Often abbreviated as (C) for consonant and (V) for vowel, the CV syllable type is considered the most basic syllable in all languages. It is more common than the CVC because the onset is the stronger position in the syllable, and the coda is in a subordinated syllable position (Burquest 2001: 149-150). The basic syllable structure in this paper is CV. A V syllable structure or a syllable structure which only has a vowel does not exist in Meung Yum. The notion of a syllable may be illustrated as follows:





**Figure 6: Syllable structure of the word /sim/ ‘bird’ (0107)**

In Meung Yum an onset may consist of a consonant (C) or a consonant cluster (CC); the nucleus consists of a vowel which may be a monophthong (V), a diphthong (VV) or a triphthong (VVV). The coda is a consonant (C) in final position.

The possible monosyllabic structures in Meung Yum include open syllables (CV, CCV, CVV, CVVV, CCVV) and closed syllables (CVC, CCVC, CVVC, CVVVC, CCVVC). These two types of syllable structure will be presented in the following two sections.

### 3.2.1 Open syllable structures

An open syllable is a syllable without a coda. The syllable structure for open syllables in Meung Yum is C(C)V(V)(V) however, the full occurrence of CCVVV does not exist. Five types of open syllable occur: CV, CCV, CVV, CVVV and CCVV are found in Meung Yum. Examples are given below.

Examples:

Meung Yum	English gloss	Recording reference
CV		
/mɤ/	silver	0038
/kɯ/	wind	0012
/ŋo/	fire	0242
/tɛ/ or (/dɛ/) <sup>16</sup>	begin	1501
/ri/	to be thin (thing)	0382

<sup>16</sup> The parentheses ( ) refer to a lexical item that only appears in the Namt Yoke and Loi Yang varieties of Meung Yum.

	Meung Yum	English gloss	Recording reference
CCV			
	/plu/	to fly	0112
	/k <sup>h</sup> lo/	phlegm	0496
	/mlo/	to be loose	0459
	/kro/	to be dry (rice)	0415
	/p <sup>h</sup> ra/* <sup>17</sup>	God (supreme being)	1118
CVV			
	/kau/	annoy	0819
	/lai/	to exchange	0353
	/vai/*	paddle (v)	1077
	/p̩io/ or (/b̩io/)	(be) happy, (be) joyful	0599
	/m̩i/	to sneeze	0271
CVVV <sup>18</sup>			
	/p <sup>h</sup> iai/	spear	0252
	/t <sup>h</sup> iai/	to hit/beat (with force)	0336
CCVV			
	/k <sup>h</sup> rau/	season	1377
	/p <sup>h</sup> r̩i/	necklace	0853
	/plai/	liquor	0061
	/klau/	stir	0882

In the above examples it may be seen that breathy register was not found in syllables with a CC onset or VVV nucleus.

### 3.2.2 Closed syllable structures

Closed syllables are syllables which have a coda. The syllable structure of closed syllable is C(C)V(V)(V)C however, the full occurrence of CCVVVC does not exist. This study found five types of closed syllable, CVC, CCVC, CVVC, CVVVC and CCVVC in all Meung Yum varieties. Examples are given below.

<sup>17</sup> The \* marker after a lexical item refers to a loan word from Shan, a Tai language that has influenced Meung Yum.

<sup>18</sup> The CVVV structure is rarely found in the data.

Examples:

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
<b>CVC</b>			
	/mim/	finger nail	0173
	/raŋ/	tooth	0155
	/jam/	to weep	0260
	/lɣt/	to be deaf	0432
	/jɯm/	vine	1297
<b>CCVC</b>			
	/klec/	armpit	0170
	/k <sup>h</sup> lap/	to count	0293
	/krak/	buffalo	0102
	/p <sup>h</sup> lan/	to be poor	1044
	/p <sup>h</sup> rɔm/	agree	0787
<b>CVVC</b>			
	/t <sup>h</sup> iam/	to be short (height)	0380
	/kuaŋ/	startle, surprise	0607
	/liat/	to lick	0277
	/lɥeʔ/	heel	0179
<b>CVVVC<sup>19</sup></b>			
	/ʔuaih/	swelling	0557
	/suaih/	charcoal	1366
<b>CCVVC<sup>20</sup></b>			
	/krauʔ/	cocoyam, taro	1318
	/plauʔ/	to kill	0349

The syllable structures CVVVC and CCVVC occurred only with one final consonant in each case, /-h/ and /ʔ/ respectively. Similarly to what is seen with the open

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<sup>19</sup> The CVVVC structure occurs only two times in the data. The front vowel /i/ in CVVVC for example is not a transitional vowel when the final consonant is /h/ (see Section 2.2.1.2); the transitional front vowel /i/ occurs only when the final consonant is palatal /c/ (see Section 4.3.2 note on ambiguous segments).

<sup>20</sup> The CCVVC structure occurs only three times in the data.

syllable, in closed syllable structures of Meung Yum breathy register never occurs in a syllable with a CC onset or VVV nucleus.

### **3.3 Pre-syllable**

The pre-syllable, or unaccented syllable, is a common feature in Mon-Khmer languages. The pre-syllable is an unstressed syllable, with a consonant followed by /a/ vowel, here transcribed as /Ca-/. The predominant type of pre-syllable in Meung Yum consists of one of the initial consonants /p/, /t/, /k/, /m/, /s/ or /l/, with the vowel /a/, which may be phonetically realized as [a] or [ə]. Some pre-syllables are semantic, for examples the pre-syllable /ka-/ carries a meaning of direction and /ta/ carries a meaning of body part, but no consistent semantic pattern has been found so far for /pa-/, /ma-/, /sa-/ or /la-/. Pre-syllables will also be discussed in Section 3.5.2, Sesquisyllabic word structure.

### **3.4 Stress**

Mon-Khmer languages are monosyllable and iambic, meaning that if the word is not monosyllable, then a light syllable is followed by a stressed heavy syllable. Meung Yum shares this structure; thus stress is identified. In Meung Yum the stress is identified by hearing and it was identified from loudness, pitch and syllable weight. Heavy syllable weight refers to having a complex nucleus (VV) or diphthong.

### **3.5 Word structures**

In this section only single morpheme words with single meanings are described, whether monosyllable, sesquisyllable or disyllables. Three types of word structures are found in Meung Yum: monosyllabic, sesquisyllabic, and disyllabic. There are also compound words which combine these word structures in various ways. These are presented in Sections 3.5.1 through 3.5.3.

#### **3.5.1 Monosyllabic word structures**

Monosyllabic words have only one syllable. Possible monosyllabic word structures may be summarized as C(C)V(V)(V)(C); the bracket ( ) refers to non-obligatory consonants or vowels. However, the full occurrence of a CCVVVC structure does not exist in Meung Yum. There are only ten monosyllabic word structures found in the data; examples are given below.

Examples:

<b>Monosyllabic Word Structures</b>	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
1. CV	/mɤ/	money	1045
2. CVV	/hɔi/*	snail	0131
3. CCV	/k <sup>h</sup> lo/	phlegm	0496
4. CVC	/k <sup>h</sup> ɔŋ/	caterpillar	1267
5. CVVC	/kuaŋ/	startle, surprise	0607
6. CCVV	/k <sup>h</sup> rau/	season	1377
7. CVVV	/p <sup>h</sup> iai/	spear	0252
8. CCVC	/krak/	buffalo	0102
9. CCVVC	/plauʔ/	to kill	0349
10. CVVVC	/suaih/	charcoal	1366

### 3.5.2 Sesquisyllabic word structures

The sesquisyllable in Mon-Khmer languages (Matisoff 1973, Thomas 1964) is also found in Meung Yum. When a syllable preceded by a half syllable, the half syllable in Meung Yum is recognized as a pre-syllable (unstressed syllable). There are ten sesquisyllabic words are found in Meung Yum. The sesquisyllabic word structure in Meung Yum may be summarized as Ca.C(C)V(V)(C) however, the full occurrence of the word structure does not exist. Examples are given below.

Examples:

<b>Sesquisyllables</b>	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
1. Ca.CV	/ma.p <sup>h</sup> u/	what	0442
2. Ca.CV	/ma.p <sup>h</sup> i/	who	0441
3. Ca.CVC	/ta.jaʔ/	ear	0151
4. Ca.CVC	/ka.laŋ/	top	1413
5. Ca.CVV	/la.pai/ or (/la.bai/) <sup>21</sup>	medicine	0301
6. Ca.CVV	/pa.hio/	cemetery	1157
7. Ca.CVVC	/sa.viat/	jump (v)	0525
8. Ca.CVVC	/la.niap/	fold (v)	1454
9. Ca.CCVC	/ta.kraŋ/	throat	0468
10. Ca.CCVC	/sa.plap/	edge (n)	1419

<sup>21</sup> The parentheses ( ) indicate that this lexical item is only found in the Namt Yoke variety.

### 3.5.3 Disyllabic word structures

Disyllables are rare in Mon-Khmer languages. In Meung Yum also single-morpheme disyllabic words are uncommon; only has five single-morpheme disyllables are found in the data. Disyllabic word structure in Meung Yum may be summarized as C(C)V(V)(C).C(C)V(V)(C) and the full occurrence of CCVVC.CCVVC does not exist. The single-morpheme disyllabic words found in the data are given below.

Examples:

Disyllabic Word Structures	Meung Yum	English gloss	Recording reference
1. CVV.CV	/pai.pu/*	cockroach	0130
2. CVC.CV	/mʌt.mo/*	mist/fog	0006
3. CVC.CCVC	/saŋ.krɔŋ/	back	0162
4. CCVC.CVC	/kʰruŋ.rak/	game	1114
5. CCVC.CVVC	/kraʔ.sauʔ/	fever (not malaria)	0570

### 3.6 Summary

The main syllable structure of Meung Yum for the open syllable is C(C)V(V)(V) and for the closed syllable is C(C)V(V)(V)C but full occurrence of CCVVV and CCVVVC do not exist. Register is not found in open or closed syllables with a CC onset or VVV nucleus. The pre-syllables found in Meung Yum are /pa-/, /ta-/, /ka-/, /ma-/, /sa-/ and /la-/, of which only /ka-/ and /ta-/ were found to carry a recognizable semantic value, of direction and body part respectively. Meung Yum has no contrastive stress; stress is predictable. The stress pattern is iambic. Monosyllabic word structure in Meung Yum may be summarized as C(C)V(V)(V)(C), sesquisyllabic word structure as Ca.C(C)V(V)(C), and disyllabic word structure as C(C)V(V)(C).C(C)V(V)(C) however, the full occurrence of all of these word structures do not exist. Monosyllabic and sesquisyllabic word structures are common in Meung Yum, but disyllabic word structure is rare.

## Chapter 4

### Segmental Phonology of Meung Yum

#### 4.1 Introduction

This chapter presents the consonant and vowel phonemes in Meung Yum. In addition, phoneme charts are produced in each section and consonants and vowels are categorised according to their types: initial consonants, final consonants and consonant clusters. There are also three vowel types which are monophthongs, diphthongs and triphthongs. In the last section each phoneme will be illustrated with examples and evidence of contrast demonstrated with minimal pairs and analogous pairs. Some examples given are loan words from Shan, a Tai language which were borrowed into Meung Yum and these loanwords will be marked with *-\**, e.g. /p<sup>h</sup>in/\* ‘opium’, recording reference 0060.

#### 4.2 Consonants

There are 21 contrastive consonants in the varieties of Meung Yum spoken in Namt Yoke and Loi Yang villages. The Pan Tang and Pang Wan varieties have 19 contrastive consonants. The Meung Yum consonants include nine voiceless stops /p<sup>h</sup>, t<sup>h</sup>, c<sup>h</sup>, k<sup>h</sup>, p, t, c, k, ʔ/. The two voiced stops /b, d/ occur only in the Namt Yoke and Loi Yang varieties, but not in the Pan Tang or Pang Wan varieties. The voiced velar stop /g/ does not occur with phonemic contrast in any of these four Meung Yum varieties. All four varieties have three fricatives /v, s, h, /and four nasals /m, n, ŋ, ŋ/. In addition there is one lateral /l/, the trill /r/ and one approximant /j/. The consonant phoneme chart of Meung Yum is given in Table 48 below.

**Table 48: Consonant phoneme chart of Meung Yum**

	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Glottal
Stop	p <sup>h</sup> p (b)		t <sup>h</sup> t (d)	c <sup>h</sup> c	k <sup>h</sup> k	ʔ
Fricative		v	s			h
Nasal	m		n	ɲ	ŋ	
Lateral			l			
Trill			r			
Approximant				j		

Meung Yum has ten final consonants. The final consonants are given in Table 49 and the details can be found in Section 4.2.2.

**Table 49: Final consonants of Meung Yum**

	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Glottal
Stop	-p		-t	-c	-k	-ʔ
Fricative						-h
Nasal	-m		-n	-ɲ	-ŋ	

Namt Yoke and Loi Yang varieties have 13 consonant clusters whereas Pang Wan and Pan Tang varieties only have 12. Consonant cluster /br/ only occurs in Namt Yoke and Loi Yang varieties. However, the first consonant /ɲ, ŋ/ only occur with the trill /r/ as second consonant but /m/ has both trill and lateral as its second consonants. The chart of consonant clusters is given in Table 50 below.



**Table 50: Consonant clusters of Meung Yum**

		2 <sup>nd</sup> consonants	
		l	r
1 <sup>st</sup> consonants	p	pl	pr
	p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r
	(b) <sup>22</sup>		(br)
	k	kl	kr
	k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r
	m	ml	mr
	ɲ		ɲr
	ŋ		ŋr

Meung Yum consonants can be grouped into three types according to their occurrence. The first type is initial consonants. The second is final consonant which consists of the voiceless stops /-p, -t, -c, -k/, the nasals /-m, -n, -ɲ, -ŋ/, the glottal stop /-ʔ/ and the voiceless glottal fricative /-h/. The third type of consonants is consonant cluster. The second members of these consonants are voiced alveolar lateral /l/ or voiced alveolar trill /r/. The consonants which precede /l/ are /p, p<sup>h</sup>, k, k<sup>h</sup>, m/ and the consonants which precede /r/ are /p, p<sup>h</sup>, k, k<sup>h</sup>, m, ɲ, ŋ/ and /b/ occurs only in Namt Yoke and Loi Yang varieties. The details of these three types of consonant are discussed in the following sections.

#### 4.2.1 Initial consonants

The initial consonants in Meung Yum include stops, fricatives, nasals, lateral, trill, and approximant.

##### 4.2.1.1 Voiceless aspirated stops: /p<sup>h</sup>, t<sup>h</sup>, c<sup>h</sup>, k<sup>h</sup>/

There are voiceless aspirated stops at the bilabial, alveolar, palatal and velar points of articulation. In Pang Wan variety /t<sup>h</sup>/ is realized phonetically as a voiceless aspirated dental stop [t<sup>h</sup>]. The phoneme /c<sup>h</sup>/ is realized phonetically as an alveolo-palatal affricate [tʃ<sup>h</sup>]. The examples are given below.

<sup>22</sup> The parentheses ( ) refer to the voiced bilabial stop and the consonant cluster /br/ which only occurs in Namt Yoke and Loi Yang varieties.

Examples:

	Meung Yum	English gloss	Recording reference
/p <sup>h</sup> /	/p <sup>h</sup> a/	to be blunt	0418
	/p <sup>h</sup> ap/	white	0399
	/p <sup>h</sup> u/* <sup>23</sup>	to float	0326
	/p <sup>h</sup> in/*	opium	0060
	/p <sup>h</sup> aʔ/*	monk	0725
/t <sup>h</sup> /	/t <sup>h</sup> a/	turn round (intr)	0520
	/t <sup>h</sup> u/	gizzard	1219
	/t <sup>h</sup> o/	crevice	1343
	/t <sup>h</sup> ap/	forbid	0618
	/t <sup>h</sup> u/*	chopsticks	0896
/c <sup>h</sup> /	/c <sup>h</sup> a/	(be) scarce	1046
	/c <sup>h</sup> iʔ /	moon	0003
	/c <sup>h</sup> u/*	name	0213
	/c <sup>h</sup> im/*	taste	0516
	/c <sup>h</sup> ɔm/	follow	0816
/k <sup>h</sup> /	/k <sup>h</sup> a/	trap (n)	1023
	/k <sup>h</sup> a/	to give	0329
	/k <sup>h</sup> ɔ/*	hoe (n)	0998
	/k <sup>h</sup> up/	enough	1586
	/k <sup>h</sup> ap/*	(be) tight	0928

#### 4.2.1.2 Voiceless unaspirated stops: /p, t, c, k, ʔ/

Voiceless unaspirated stops occur at the bilabial, alveolar, palatal, velar and glottal points of articulation. Voiceless unaspirated bilabial /p/ and voiceless alveolar stops /t/ have variants among the four Meung Yum varieties, the variants present in Table

<sup>23</sup> The examples with marker \* at the back of the lexical items are possible loan words from Shan, a Tai language spoken in the same area as four Meung Yum varieties.

51 . Two types of examples are presented below. The first set of examples consists of lexical items with initial consonants of /p, t, c, k, ʔ/ in all four varieties of Meung Yum. The second set consists of lexical items with initial consonants of /p, t/ in Pan Tang and Pang Wan varieties, but voiced bilabial or alveolar stops /b, d/ in Namt Yoke and Loi Yang varieties.

Examples:

**i) First set: voiceless stop initials /p, t, c, k, ʔ/ in all four varieties of Meung Yum**

Examples:

	Meung Yum	English gloss	Recording reference
/p/	/pai/	heal (tr), cure (v)	0553
	/puŋ/	bucket, pail	0900
	/pɔŋ/	ladder	0952
	/pɰi/	carry on head	1084
	/pai/	heal (tr), cure (v)	0553
/t/	/tak/	tongue	0153
	/ton/	carry (in arms)	1082
	/taŋ/*	table	0954
	/ta/*	apply (ointment), besmear	0860
	/tuut/*	to pull	0321
/c/	/cip/	to cut (hair)	0339
	/cep/	shoe, sandal	0849
	/com/	to submerge something	0327
	/cot/*	to push	0320
	/cɔʔ/	mortar (for peppers)	0237

	Meung Yum	English gloss	Recording reference
/k/	/ka/	dance (n)	1104
	/ku/	wind	0012
	/kap/	chin	0157
	/kap/	sacrifice	1140
	/kam/*	rice husk (powder)	0083
	/?/	/ʔa/*	sister (younger of father)
/ʔɔ/		pot (cooking)	0236
/ʔo/		daughter-in-law	0689
/ʔɣh/		say	0753
/ʔim/		(be) alive	0576

**ii) Second set: voiceless stops /p/ and /t/ vary with /b/ and /d/**

The voiced stops at the bilabial and alveolar points of articulation /b, d/ only occur in the Namt Yoke and Loi Yang varieties, i.e., they do not appear in Pang Wan and Pan Tang consonant systems. The inter-village variation between /p/ and /t/ vary with /b/ and /d/ are illustrated in Table 51.

**Table 51: Inter-village variation between /p/, /t/ and /b/, /d/**

<b>/p/</b>					
Pang Wan	Pan Tang	Namt Yoke	Loi Yang	Gloss	Recording reference
/pɛʔ/	/pɛʔ/	/bɛʔ/	/bɛʔ/	you (2p)	0448
/pɛʔ/	/pɛʔ/	/bɛʔ/	/bɛʔ/	goat* <sup>24</sup>	1164
/pi/	/pi/	/bi/	/bi/	flute*	1106
/pua/	/pua/	/bua/	/bua/	bundle (n)	0916
/puc/	/puc/	/buc/	/buc/	spill (liquid) (tr)	0905
<b>/t/</b>					
Pang Wan	Pan Tang	Namt Yoke	Loi Yang	Gloss	Recording reference
/teʔ/	/teʔ/	/dɛʔ/	/dɛʔ/	arm	0168
/tih/	/tih/	/dih/	/dih/	mushroom	0055
/tiŋ/	/tiŋ/	/diŋ/	/diŋ/	bottle	0901
/tɣi/	/tɣi/	/dɣi/	/dɣi/	milk (cow)	0101
The exceptional phenomenon of voiced and voiceless in Namt Yoke and Loi Yang					
Pang Wan	Pan Tang	Namt Yoke	Loi Yang	Gloss	Recording reference
/pɣ/	/pɣ/	/pɣ/	/bɣ/	earring	0855
/tu/	/tu/	/tu/	/du/	body*	0463
/tɯn/	/tɯn/	/tɯn/	/dɯn/	run	0524
/tau/	/tau/	/dau/	/tau/	send (someone to do something)	0813

From the above table we observed an exceptional phenomenon on the lexical items of /pɣ/ ‘earring’ (0855); /tu/ ‘body’ (0463) and /tɯn/ ‘run’ (0524) the initials are voiceless stops in Namt Yoke but voiced stops in Loi Yang. On the other hand, the initial of the lexical item 0813 ‘send (someone to do something)’ /tau/ is voiceless in Loi Yang but voiced in Namt Yoke. But the inconsistency of voiced and voiceless stops between these two Namt Yoke and Loi Yang varieties are rare. The following section provide some evidences to distinct the voiced and voiceless stops of /p/, /b/ and /t/, /d/ in Pang Wan and Namt Yoke respectively.

<sup>24</sup> The marker \* at the back of the gloss refers to the lexical items which are loan words from Shan, a Tai language.

### The evidences of the voiceless and voiced stops distinction in spectrogram

The distinction between voiceless and voiced stops /p/, /b/ and /t/, /d/ is determined by whether or not there is the vibration of the vocal cords is present in the utterance. There are two ways to determine voicing using Praat 5.0.35<sup>25</sup>. The first involves looking at the spectrogram itself and noticing the regular alternation of light bands and dark bands forming waves. If it is a voiced stop, the vibration of the vocal cords is seen in the wave form as a typical wave; If it is a voiceless stop, the wave form is vertical dark bands forming waves. The second way involves looking at the pitch line appearing at the bottom of the spectrogram in the lower frequencies. The pitch line shows voicing that occurs in the utterance. If there is no vibration of the vocal cords, the pitch line at the bottom of the spectrogram is not present in the dark band. If there is vibration of the vocal cords, the pitch line is present in the light bands at the bottom of the spectrogram. Examples of the spectrograms of voiced and voiceless stops in Pang Wan and Namt Yoke are presented below.

#### a) The spectrograms of lexical items with voiceless and voiced stops /p/ and /b/

The pronunciation of voiceless bilabial stop /p/ in the word /pɛʔ/ ‘goat’ does not have any vibration of the vocal cords because the spectrogram shows no dark band with the pitch line at the bottom of the spectrogram. The spectrogram in Figure 7 suggests that the pre-nasalized voiceless bilabial stop /mp/ may occur in Meung Yum. Further study in this area is needed.

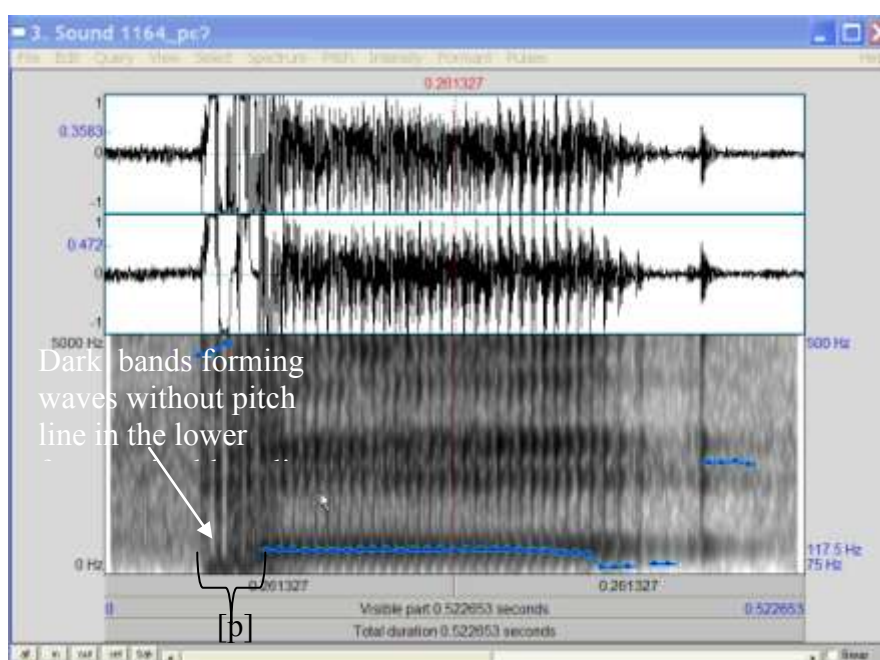
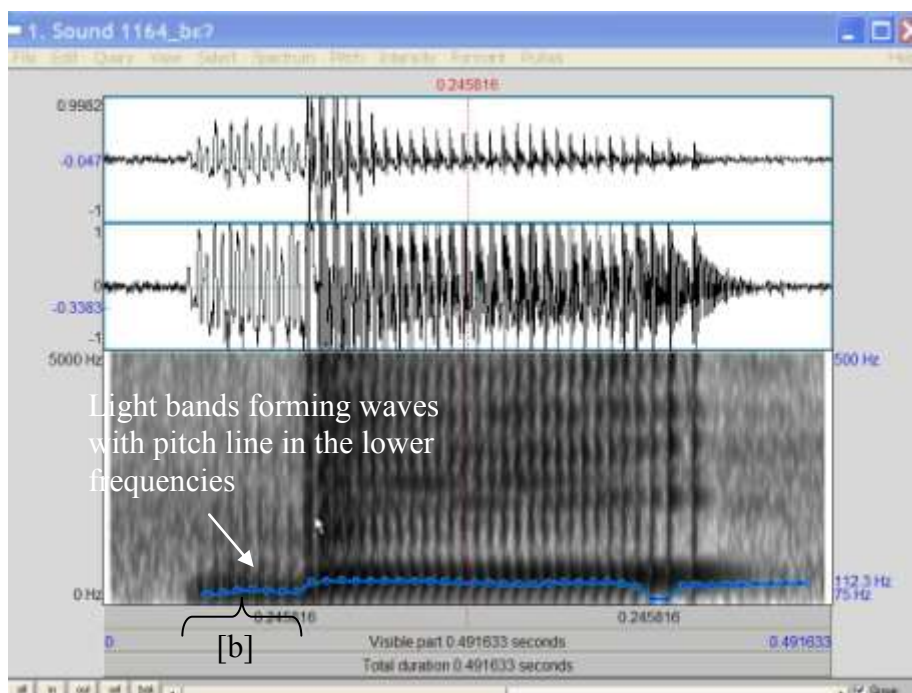


Figure 7: The spectrogram of /pɛʔ/ ‘goat’ 1164 in Pang Wan

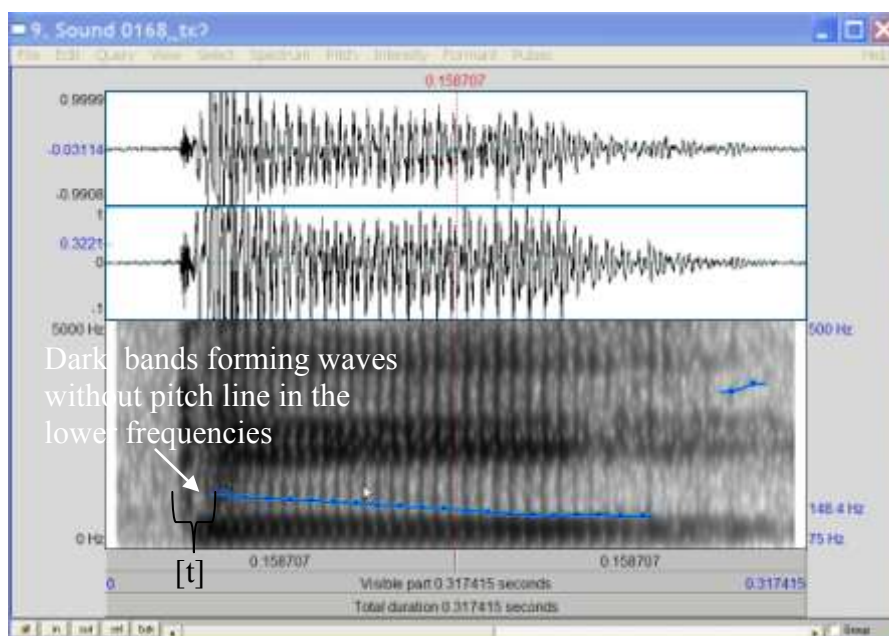
<sup>25</sup> Praat 5.0.35 is a freeware program for the analysis and reconstruction of acoustic speech signals.

The pronunciation of voiced stop /b/ does involve vibrating of the vocal cords. This vibration can be seen in the dark bands with the pitch line at the bottom of this spectrogram in Figure 8.



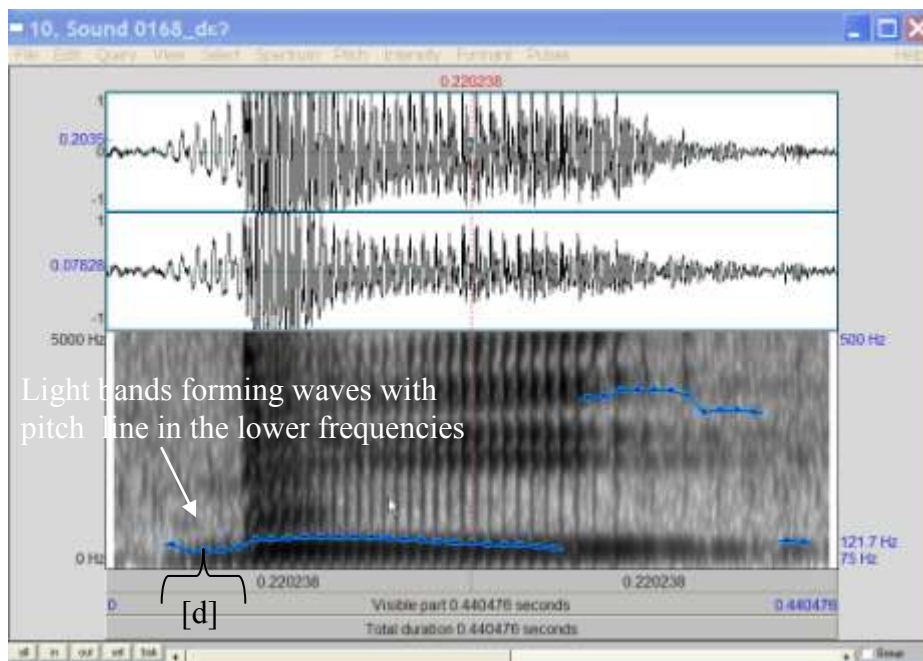
**Figure 8: The spectrogram of /bɛʔ/ ‘goat’ 1164 in Namt Yoke**

b) The spectrograms of lexical items with voiceless and voiced stops /t/ and /d/ The pronunciation of voiceless stop /t/ does not involve vibrating of the vocal cords as the dark bands are missing the pitch line at the bottom of this spectrogram.



**Figure 9: The spectrogram of /tɛʔ/ ‘arm’ 0168 in Pang Wan**

The spectrogram in Figure 9 suggests that the pre-nasalized voiceless alveolar stop /nt/ may occur in Meung Yum. Further study in this area is needed. The pronunciation of voiced stop /d/ in Figure 10 does involve vibrating of the vocal cords because the dark bands with the pitch line are found at the bottom of this spectrogram.



**Figure 10: The spectrogram of /dɛʔ/ ‘arm’ 0168 in Namt Yoke**

The spectrograms in a) and b) confirm the presence of voiceless and voiced bilabial and alveolar stops in Pang Wan and Namt Yoke.

### iii) Hypothesis on language change in Pang Wan and Pan Tang varieties

There is variation in voicing when comparing the Namt Yoke and Loi Yang varieties (this mentioned in Table 51 under the exceptional phenomenon). This variation may be caused by the variety changing as the isoglosses for different words move across the map. Moreover, the Namt Yoke and Loi Yang initial voiced /b/, /d/ but in Pang Wan and Pan Tang as voiceless /p/, /t/, here we suggests various possibilities regarding the direction of language change. Pang Wan and Pan Tang may have changed their previously voiced stops/b/ and /d/ (details are discussed in Chapter 5, Section 5.5). However, a synchronic description of Namt Yoke or Loi Yang are not inconsistent to its own system but vary with other villages, these phenomenon indicate that all villages may be going through a change from voiced toward voiceless stops. Further research is needed in this area.



### 4.2.1.3 Fricatives: /v, s, h/

There are three fricatives in Meung Yum, voiced labiodental, voiceless alveolar and voiceless glottal fricatives /v, s, h/ respectively. Of these, the voiced labiodental fricative /v/ and the voiceless alveolar fricative /s/ occur only in initial position, whereas the voiceless glottal fricative /h/ can occur in both initial and final position (For Final consonants see Section 4.2.2). The examples of occurrences of fricatives /v, s, h/ are presented as follows.

Examples:

	Meung Yum	English gloss	Recording reference
	/v/		
	/vet/	belly	0163
	/və/	get well, recover	0554
	/vit/	wrinkle (on skin)	0540
	/veʔ/	darkness	1385
	/vai/	cane/rattan	0056
	/s/		
	/soh/	wake up (intr)	0513
	/sim/	bird	0107
	/siʔ/	louse (head)	0127
	/saŋ/*	elephant	0105
	/seŋ/*	noise, sound (n)	1372
	/h/		
	/hu/	to go	0312
	/hiŋ/	bell	0957
	/hak/	to be hot (water)	0023
	/hon/	yam	1319
	/haʔ/	to ascend	0316

#### 4.2.1.4 Nasals /m, n, ɲ, ŋ/

There are four voiced nasals at the bilabial, alveolar, palatal and velar points of articulation /m, n, ɲ, ŋ/ in all four varieties of Meung Yum . The examples are shown below.

Examples:

	Meung Yum	English gloss	Recording reference
/m/	/meʔ/	you (2s)	0445
	/maʔ/	sister (younger of m)	0211
	/mɔ/	tobacco pipe	1115
	/mim/	claw	1220
	/mit/*	fishhook	1034
	/mɔ/	to crawl on belly (like a snake)	0311
	/n/	/nɛc/	meat/flesh (edible)
/na/*		cheek	0150
/nɔ/		to be slow	0426
/nam/		blood	0187
/neŋ/*		goiter	0561
/nau/		lung	0490
/ɲ/	/ɲa/	groan (with pain)	0507
	/ɲih/	gums	0156
	/ɲɛ/	(be) silent	0760
	/ɲap/*	to be difficult	0457
	/ɲaʔ/	birdlime (adhesive to catch birds)	1022
/ŋ/	/ŋɔm/	(be) seated	0535
	/ŋɔʔ/	deaf (mute) person	0545
	/ŋɔk/	neck	0160
	/ŋau/	to be the same	0408
	/ŋap/	to yawn	0272
	/ŋɔʔ/	paddy rice	0072

#### 4.2.1.5 Lateral /l/

The voiced alveolar lateral /l/ only occurs as an initial consonant in the four varieties of Meung Yum. The examples are shown as follows.

Examples:

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/l/			
	/lɔ/	mix (v)	0881
	/lɣ/	to be many (people)	0370
	/lih/	to descend	0317
	/lum/	pus	0189
	/lɔ/	need (v)	1037
	/liɑ/	six	0362

#### 4.2.1.6 Trill /r/

The voiced alveolar trill /r/ occurs only as an initial consonant in Meung Yum as shown below. See the voiced alveolar trill /r/ served as the second member of a consonant cluster in Section 4.2.3.

Examples:

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/r/			
	/rip/	grass (field/jungle)	0052
	/riam/	iron	0039
	/rɣ/*	boat	0216
	/ren/*	learn	0595
	/rat/*	tighten (tr)	0927
	/ri/	to be thin (thing)	0382

### 4.2.1.7 Approximant /j/

The voiced palatal approximant /j/ only occurs as an initial consonant in the four varieties of Meung Yum. The examples are displayed below.

Examples:

	Meung Yum	English gloss	Recording reference
/j/			
	/ja/	(be) inexpensive	1048
	/jam/	to weep	0260
	/juh/	act, do	0959
	/jaŋ/	village	0214
	/jɯm/	vine	1297

### 4.2.2 Final consonants

Final consonants are consonants which occur in final position. In Meung Yum there are the voiceless unaspirated stops /-p, -t, -c, -k/, the glottal stop /-ʔ/, the nasals /-m, -n, -ŋ, -ŋ̃/ and the voiceless glottal fricative /-h/ which can occur in final position of a syllable. Palatal finals /-c, -ŋ/ in Meung Yum has palatal on-glide features as is common in Waic languages. Wa is largely consistent with this pattern (Diffloth 1980: 45). When the voiceless palatal stop /-c/ occurs as a final consonant, phonetically it is pronounced as unreleased with a front vowel glide [-<sup>i</sup>c] for examples, (0035) ‘sand’ /mac/ it is phonetically realized as [ma<sup>i</sup>c] and (0333) ‘to wash (hands)’ /k<sup>h</sup>oc/ is phonetically realized as [k<sup>h</sup>o<sup>i</sup>c], and so on. When the palatal nasal /-ŋ/ occurs as a final consonant it is phonetically pronounced as [-<sup>i</sup>ŋ] for examples, (0195) /kʏŋ/ is phonetically realized as [kʏ<sup>i</sup>ŋ] and (0399) ‘white’ /p<sup>h</sup>aŋ/ is phonetically realized as [p<sup>h</sup>a<sup>i</sup>ŋ], and so on. All examples of final consonants in Meung Yum are presented below.

#### a) Stops /-p, -t, -c, -k, -ʔ/

	Meung Yum	English gloss	Recording reference
/-p/			
	/t <sup>h</sup> ip/	move away	0838
	/rip/	grass (field/jungle)	0052
	/cep/	shoe, sandal	0849
	/ŋap/*	to be difficult	0457
	/ŋap/	to yawn	0272

	Meung Yum	English gloss	Recording reference
	/-t/		
	/vit/	wrinkle (on skin)	0540
	/vet/	belly	0163
	/pɛt/	to listen	0255
	/lat/	fear (n)	0605
	/sat/*	animal (tame/wild)	0085
	/-c/		
	/mac/	sand	0035
	/k <sup>h</sup> oc/	to wash (hands)	0333
	/muc/*	ant	0129
	/kluc/	to be wrong	0437
	/puc/ or (/buc/) <sup>26</sup>	spill (liquid) (tr)	0905
	/-k/		
	/nɤk/	fill	0907
	/lik/	pig	0099
	/ʔak/	bow	0249
	/tɤk/ or (/dɤk/)	box	0898
	/mɔk/*	hat	0846
	/-ʔ/		
	/kraʔ/	road/path	0215
	/kaʔ/	fish	0116
	/maʔ/	mother	0196
	/paʔ/	house	0217
	/joʔ/	to see	0258
	/ŋoʔ/	paddy rice	0072

<sup>26</sup> The parentheses ( ) refer to lexical items occur in Namt Yoke and Loi Yang, i.e., when Namt Yoke and Loi Yang is /buc/, Pan Tang and Pang Wan is /puc/. If /b/ occurs as an initial consonant in closed syllable in Namt Yoke and Loi Yang varieties, it is predictable that it is /p/ in Pan Tang and Pang Wan (Examples can be found in Section 4.2.1.2 (ii) and (iii). The details of breathiness are discussed in Chapter 5 Section 5.4.2 Breathy register).

**b) Nasals /-m, -n, -ŋ, -ɲ/**

<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
<b>/-m/</b>		
/mim/	finger nail	0173
/rom/	water	0022
/k <sup>h</sup> om/	thorn	0046
/ʔom/	cloud (rain)	0005
/c <sup>h</sup> em/*	(be) salty	1533
<b>/-n/</b>		
/lon/	marrow	0182
/mon/*	otter	0122
/p <sup>h</sup> in/*	opium	0060
/kan/*	work (n)	0960
/tɯŋ/ or (/bɯŋ/)	story (tale)	0794
<b>/-ɲ/</b>		
/t <sup>h</sup> ɲ/	to be big	0375
/p <sup>h</sup> ɲ/	white	0399
/kɲ/	father	0195
/nɲ/*	war	1088
/pɲ/*	to shoot (gun)	0347
<b>/-ŋ/</b>		
/k <sup>h</sup> ɲ/	rat	0094
/jaŋ/	village	0214
/neŋ/*	goiter	0561
/seŋ/*	voice	0755
/saŋ/*	elephant	0105

c) Voiceless glottal fricative /-h/

Meung Yum	English gloss	Recording reference
/-h/		
/ʔih/	to eat	0261
/sɛh/	castrate	1015
/soh/	(be) awake, alert	0539
/c <sup>h</sup> ih/	salt	0084
/tih/ or (/dih/) <sup>27</sup>	mushroom	0055

### 4.2.3 Consonant clusters

The common second members of the consonants clusters in Waic languages are voiced alveolar lateral /l/ and voiced alveolar trill /r/ (Diffloth 1980, Wang and Chen 1981, Zhou and Yan 1984, Wattana 1998 and Paulsen 1996). This has no exception for Meung Yum varieties. Meung Yum has five consonants precede the voiced alveolar lateral consonants /l/ as /p, p<sup>h</sup>, k, k<sup>h</sup>, m/, and eight consonants precede an alveolar trill consonant /r/ as /p, p<sup>h</sup>, (b), k, k<sup>h</sup>, m, ɲ, ŋ/. The consonant clusters of /ɲr/ and /ŋr/ are rare in Waic languages. Meung Yum consonant clusters are displayed in Table 50 and again in Table 52 below.

**Table 52: Consonant clusters of Meung Yum**

		2 <sup>nd</sup> consonant	
		l	r
1 <sup>st</sup> consonant	p	pl	pr
	p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r
	(b)		(br)
	k	kl	kr
	k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r
	m	ml	mr
	ɲ		ɲr
	ŋ		ŋr

<sup>27</sup> The parentheses ( ) refer to lexical items in Namt Yoke and Loi Yang, i.e., Namt Yoke and Loi Yang: /dih/; Pan Tang and Pang Wan: /tih/.

The examples of consonant clusters with the voiced alveolar lateral /l/ and the voiced alveolar trill /r/ as the second member are shown in the following a) and b) sections respectively.

**a) Consonant clusters with voiced alveolar lateral /l/ as the second member:**

**/pl, p<sup>h</sup>l, kl, k<sup>h</sup>l, ml/<sup>28</sup>**

Examples:

	Meung Yum	English gloss	Recording reference
/pl-/			
	/plu/	to fly	0112
	/plom/	land leech	0138
	/ploŋ/	bud	1295
	/plai/	liquor	0061
	/plɔi/*	drop (tr)	1446
/p <sup>h</sup> l-/			
	/p <sup>h</sup> lan/	to be poor	1044
	/p <sup>h</sup> lɔŋ/	sprout (v)	1329
/kl-/			
	/kle/	stutter	0758
	/kla/	(be) flat	1513
	/klɔ/	kapok	0057
	/klec/	armpit	0170
	/kleŋ/	sharpen (knife)	1520
/k <sup>h</sup> l-/			
	/k <sup>h</sup> lo/	phlegm	0496
	/k <sup>h</sup> lap/	to count	0293
	/k <sup>h</sup> laŋ/	eel	1237
/ml-/			
	/mlo/	to be loose	0459
	/mlak/	bat	1195
	/mlut/	to swallow	0262

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<sup>28</sup> The occurrences of consonant clusters /p<sup>h</sup>l-/ , /k<sup>h</sup>l-/ and /ml-/ are rare in the data.



**b) Consonant clusters with the voiced alveolar trill /r/ as the second member:**

**/pr, p<sup>h</sup>r, (br), kr, k<sup>h</sup>r, mr, ɲr, ŋr/**

Examples:

Meung Yum	English gloss	Recording reference
<b>/pr-/</b>		
/prɛ/	mend, repair	0961
/preʔ/	to be spicy	0412
/prɤŋ/	mosquito	0132
/prah/ or (/brah/) <sup>29</sup>	some (people)	0372
<b>/p<sup>h</sup>r-/</b>		
/p <sup>h</sup> ri/	sorcerer (male)	0735
/p <sup>h</sup> rɛ/	unwrap (v)	0920
/p <sup>h</sup> rɔm/	agree	0787
/p <sup>h</sup> ra/*	God (supreme being)	1118
<b>(/br-/) <sup>30</sup></b>		
/bruɔc/	(be) open [blossom]	0909
/briʔ/	wing	0110
<b>/kr-/</b>		
/kro/	wither (plant)	1332
/krip/	cut (tr) (wood/fish)	0877
/krak/	buffalo	0102
/kraʔ/	road/path	0215
<b>/k<sup>h</sup>r-/</b>		
/k <sup>h</sup> ri/	gold	0037
/k <sup>h</sup> rak/	to shave (beard)	0159
/k <sup>h</sup> raʔ/	trousers	0231
/k <sup>h</sup> ran/*	(be) lazy	0638

<sup>29</sup> The parentheses ( ) refer to lexical item in Namt Yoke and Loi Yang, i.e., Namt Yoke and Loi Yang: /brah/; Pan Tang and Pang Wan: /prah/.

<sup>30</sup> This consonant cluster with parentheses ( ) refer to /br/ which occurs only in the Meung Yum varieties spoken in Namt Yoke and Loi Yang villages.

Meung Yum	English gloss	Recording reference
/mr-/		
/mraʔ/	(be) healthy, (be) well	0550
/mrai/	disgusting	0612
/mroŋ/	horse	1178
/pr-/		
/pri/	mat	0223
/prec/	break (tr)	1469
/ŋr-/		
/ŋruŋ/	termite hill	1276
/ŋriʔ/	pestle (for peppers)	0238
/ŋrum/	plunder (a town)	1099
/ŋrək/	to snore	0297

It is important to note that the consonant clusters of /pr-/ , /p<sup>h</sup>r-/ , /kr-/ and /k<sup>h</sup>r-/ are more commonly found in Meung Yum, but the occurrences of consonant cluster (/br/), /mr/, /pr/, /ŋr/ are rare in the word list.

#### 4.2.4 Consonant contrasts

Meung Yum phonological analysis is based on general phonological principles. There are three types of relationship between phonetically similar segments in a language. The first type is they may have contrast in Identical Environments (CIE) or contrast in Analogous Environments (CAE); second type is they may be in complementary distribution and the third is they may have free variation. Some of the evidences in the following are not phonetically similar segments but there are good evidence for contrasts of some segments. Complementary distribution is not found in Meung Yum and free variation is noted in Section 4.2.5. The contrast of initial consonants and contrast of final consonants will be presented below.

**Initial consonants:**

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/p <sup>h</sup> / - /p/	/p <sup>h</sup> ai/	to be fast	0425 CIE
	/pai/	heal (tr), cure (v)	0553
(/p/ - /b/) <sup>31</sup>	/pau?/	bag	0897 CIE
	/bau?/	father-in-law (male)	0685
	/pre?/	to be spicy	0412 CAE
	/bri?/	wing	0110
/p <sup>h</sup> / - /t <sup>h</sup> /	/p <sup>h</sup> a/	to be blunt	0418 CIE
	/t <sup>h</sup> a/	turn round (intr)	0520
/p/ - /t/	/pai/	heal (tr), cure (v)	0553 CIE
	/tai/	sarong (female)	0230
/t/ - /t <sup>h</sup> /	/tai/	sarong (female)	0230 CIE
	/t <sup>h</sup> ai/	cotton	1327
(/t/ - /d/)	/tak/	tongue	0153 CAE
	/de?/	arm	0168
/t <sup>h</sup> / - /c <sup>h</sup> /	/t <sup>h</sup> ej/	quarrel	0821 CIE
	/c <sup>h</sup> ej/	cooking stone	0893
/c <sup>h</sup> / - /c/	/c <sup>h</sup> au/	order (someone to do something)	0810 CIE
	/cau/	(be) alone	0743

<sup>31</sup> The parentheses ( ) refer to the contrasts only occur in the Namt Yoke and Loi Yang varieties.

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording Reference</b>
/c <sup>h</sup> / - /k <sup>h</sup> /	/c <sup>h</sup> a/	(be) intelligent	0592 CIE
	/k <sup>h</sup> a/	to give	0329
/t/ - /c/	/tɔʔ/	to look at	0259 CIE
	/cɔʔ/	mortar (for peppers)	0237
/k <sup>h</sup> / - /k/	/k <sup>h</sup> auʔ/	tree	0043 CIE
	/kauʔ/*	classifier of persons (ten persons)	0366
/k/ - /ʔ/	/kɔk/*	cup	0895 CIE
	/ʔɔk/	sister (elder of f)	0206
/ʔ/ - /h/	/ʔia/	chicken	0114 CIE
	/hia/	bee	0133
/t/ - /s /	/tak/	tongue	0153 CIE
	/sak/	to be full (after eating)	0264
/m/ - /n/	/mat/	tether (sheep, goats) (v)	1013 CIE
	/nat/*	gun	1094
/m/ - /ɲ/	/meʔ/	you (2s)	0445 CIE
	/ɲeʔ/	needle	0233

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/m/ - /ŋ/	/maʔ/	mother	0196 CIE
	/ŋaʔ/	to be itchy	0302
/n/ - /ɲ/	/naʔ/	to be sour	0410 CIE
	/ɲaʔ/	house	0217
/ɲ/ - /ŋ/	/ɲaʔ/	birdlime (adhesive to catch birds)	1022 CIE
	/ŋaʔ/	to be itchy	0302
/r/ - /j/	/raŋ/	face	0141 CIE
	/jaŋ/	village	0214
/l/ - /j/	/laŋ/	to be tall	0379 CIE
	/jaŋ/	village	0214
/r/ - /l/	/rat/*	tighten (tr)	0927 CIE
	/lat/	fear (n)	0605
/n/ - /r/	/naŋ/	ringworm	0567 CIE
	/raŋ/	face	0141
/s/ - /h/	/sak/	to be full (after eating)	0264 CIE
	/hak/	feather (body hair)	0111

It is important to note that the voiced velar stop /g/ does not phonemically occur in any variety of Meung Yum. The voiced stops /b/ and /d/ do not exist in Pan Tang and Pang Wan but occur in Namt Yoke and Loi Yang.

**Final consonants:**

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/-p/ - /-t/	/t <sup>h</sup> iap/	side (of something)	1417 CIE
	/t <sup>h</sup> iat/	to kick	0322
/-c/ - /-k/	/mac/	sand	0035 CIE
	/mak/	to cough	0270
/-k/ - /-ʔ/	/hak/	feather (body hair)	0111 CIE
	/haʔ/	to ascend	0316
/-ʔ/ - /-p/	/kriʔ/	trap (animal) (v)	1025 CIE
	/krip/	cut (tr) (wood/fish)	0877
/-ʔ/ - /-h/	/c <sup>h</sup> iʔ/	firewood	0241 CIE
	/c <sup>h</sup> ih/	salt	0084
/-m/ - /-n/	/ʔim/	(be) alive	0576 CIE
	/ʔin/	this	0396
/-n/ - /-ɲ/	/klun/	mongoose	1193 CIE
	/kluɲ/	to be fat (person)	0383
/-ɲ/ - /-ŋ/	/naɲ/	war	1088 CIE
	/naŋ/	ringworm	0567

## 4.2.5 Variation

### Free variation

In Meung Yum the voiceless velar stop [k] and voiced velar stop [g] may occur in the same position without changing the meaning; this phenomenon only occurs in consonant clusters. There is no phonemic contrast between [k] and [g] in Meung Yum. The only examples exhibited in the data are shown below.

Examples:

Meung Yum	English gloss	Recording reference
[k]~[g]		
[kriʔ]~[griʔ]	trap (animal) (v)	1025
[krih]~[grih]	bear	0088
[klun]~[glun]	mongoose	1193

### Note on ambiguous sequences:

In the phonological analysis a phonetic data can either interpreted as two phonological units or as a single unit thus the unambiguous of CV patterns need to be determined. The ambiguous sequences of Meung Yum need to be decided are shown below.

### /p<sup>h</sup>, t<sup>h</sup>, c<sup>h</sup>, k<sup>h</sup>/

[ph, th, ch, kh] are treated as one consonant (C), rather than as the clusters (CC) in this analysis. In Pang Wan variety /t<sup>h</sup>/ is realized phonetically as voiceless aspirated dental stop [t<sup>h</sup>]. The phoneme /c<sup>h</sup>/ is phonetically realized as an affricate alveolo-palatal [tʃ<sup>h</sup>].

### /c<sup>h</sup>, c/

Phonetically there are two alveolo-palatal affricates, the voiceless aspirated alveolo-palatal affricate [tʃ<sup>h</sup>] and the voiceless unaspirated alveolo-palatal affricate [tʃ]. Both are treated as single units (C), rather than as clusters (CC), i.e., [tʃ] and [tʃ<sup>h</sup>]. In this thesis following Watkins' treating the initial consonant of voiceless aspirated alveolo-palatal affricate [tʃ<sup>h</sup>] is phonemically transcribed as voiceless aspirated palatal stop /c<sup>h</sup>/ and the initial and final consonant of voiceless unaspirated alveolo-palatal affricate [tʃ] is phonemically transcribed as voiceless palatal stop /c/.

### 4.3 Vowels<sup>32</sup>

Meung Yum has nine clear monophthongs /i, e, ɛ, a, u, o, ɔ, ɯ, ʉ/, six breathy monophthongs /ĩ, ɛ̃, ɛ̃̃, ʉ̃, ɔ̃, ʉ̃̃/, nine clear diphthongs /io, ia, ɣi, oi, ɔi, ai, au, ue, ua/ and seven breathy diphthongs /ɰi, ĩo, ĩa, ɣ̃i, ɔ̃i, ɰu, ɰe/. Three triphthongs /iai, iau, uai/ are found in Meung Yum but there are no breathy triphthongs.

It is noteworthy that in Meung Yum breathy vowels mostly occur with voiced consonants such as /m/, /n/, /v/, /j/ and /l/. They rarely occur with stops consonants. The monophthongs are shown in Table 53 and diphthongs and triphthongs in Table 54.

**Table 53: Monophthongs**

	Front	Central	Back	
			unrounded	rounded
Close	i, ĩ		ɯ, ʉ̃	u
Close-mid	e		ɣ, ɣ̃	o, ɔ̃
(mid)				
Open-mid	ɛ, ɛ̃			ɔ
Open		a <sup>33</sup> , ɶ		

**Table 54: Diphthongs and Triphthongs**

Diphthongs			Triphthongs		
ia, ĩa, io, ĩo	ɰi	ue, ɰe, ua	iai, iau		uai
	ɣi, ɣ̃i	oi			
		ɔi, ɔ̃i			
ai		au, ɰu			

<sup>32</sup> Meung Yum has an asymmetrical vowel system of not having breathy monophthongs [e, u, ɔ̃]; clear diphthong [ɰi] and breathy diphthongs [ai, ɰa, oi] in Tables 53 and 54 respectively, this asymmetrical vowel system is noted and it will be discussed in Footnote 38 of Chapter 5 Section 5.4.2 Breath register and Section 5.5 Language change in Example 2.

<sup>33</sup> The open central vowel /a/ is phonetically realised as [ə] (schwa) which occurs only in pre-syllables (see Chapter 3 Section 3.3 and 3.5.2).



### 4.3.1 Monophthongs

Meung Yum has no phonemic vowel length. There are nine clear vowels /i, e, ε, a, u, o, ɔ, ʉ, ɤ/ and six breathy vowels /i̥, e̥, ḁ, ʉ̥, ɤ̥, ɔ̥/ are found in Meung Yum. All clear vowels appear in open and closed syllables. And the breathy vowel /ʉ̥/ only occurs in closed syllables while the rest can occur in both environments. The examples of occurrences of monophthongs in Meung Yum are presented below.

#### Examples of vowels in open syllables:

Meung Yum	English gloss	Recording reference
/pi/ or (/bi/) <sup>34</sup>	flute	1106
/pe/	(be) pregnant	0578
/p <sup>h</sup> ε/	conquer, defeat	1096
/va/	garden	0946
/ku/	wind	0012
/pɤ/ or (/bɤ/)	earring	0855
/t <sup>h</sup> u/	gizzard	1219
/ro/	grow up	0584
/ʔɔ/	pot (cooking)	0236
/ri/	to be thin (thing)	0382
/tε/ or (/dε/)	begin	1501
/tɑ/ or (/dɑ/)	to rub/scrub	0332
/lɤ/	to be many (people)	0370
/rɔ/	to bark	0096

#### Examples of vowels in closed syllables:

Meung Yum	English gloss	Recording reference
/ʔih/	to eat	0261
/peʔ/	needle	0233
/peʔ/ or (/beʔ/)	goat	1164
/vac/	knife/blade	0253
/mlut/	to swallow	0262
/kɤp/	father	0195

<sup>34</sup> All parentheses ( ) without any footnotes in this Section 4.3 Vowels refer to lexical items occurs only in the Namt Yoke and Loi Yang varieties.

Meung Yum	English gloss	Recording reference
/jum/	death	0585
/p <sup>h</sup> on/	get, obtain	1038
/ʔɔk/	brother (elder of father)	0204
/nɛ/	domesticate, tame	1009
/raŋ/	tooth	0155
/juum/	vine	1297
/tiŋ/ or (/diŋ/)	harp	1107
/tɣk/ or (/dɣk/)	box	0898
/ŋoʔ/	paddy rice	0072

### 4.3.2 Diphthongs

There are nine clear diphthongs /io, ia, ɣi, oi, ɔi, ai, au, ue, ua/ and seven breathy diphthongs /ɰi, i̯o, i̯a, ɣ̥i, ɔ̥i, ḁu, u̯e/ in Meung Yum. The second member of a diphthong can be /i, e, a, u, o/. The clear diphthongs /ai/, /oi/ only occur in open syllables and /ɣi/, /ɔi/, /ue/, /ia/, /ua/, /au/ and /io/ appear in both open and closed syllables. There are no breathy vowels of /ai/, /oi/ and /ua/ nor clear diphthong of /ui/, it has only one breathy diphthong /ɰi/. Breathly vowels in Meung Yum mostly occur in open syllables except /u̯e/. All examples are given below.

Examples:

Meung Yum	English gloss	Recording reference
<b>/io/</b>		
/mioʔ/	town, city	0841
/pa.hio/	cemetery	1157
<b>/i̯o/</b>		
/pi̯o/ or (/bi̯o/)	(be) happy, (be) joyful	0599
<b>/ia/</b>		
/ʔia/	chicken	0114
/riam/	iron	0039
<b>/i̯a/</b>		
/li̯a/	six	0362

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/ɣi/	/krɣi/	thread (n)	0980
	/mɣiʔ/	ant	1259
/ɣi/	/tɣi/ or /dɣi/	breast	0471
/oi/	/ploi/*	to set free, let go (animal)	0461
	/roi/	fly	0134
	/soi/*	to slice/saw	0338
/ɔi/	/mɔi/	cow	0100
	/ŋɔit/	end (n)	1504
/ɔi/	/mɔi/	banana (fruit)	0062
	/ŋɔi/	(be) expensive	1047
/ai/	/tai/	sarong (female)	0230
	/pai/	heal (tr), cure (v)	0553
	/mai/	(be) engaged, (be) betrothed	1145
/au/	/kau/	annoy	0819
	/vau/	(be) courageous, (be) brave	0634
	/kauʔ/	yesterday	0017
/aʊ/	/laʊ/	to be hot (person)	0024

Meung Yum	English gloss	Recording reference
/ue/		
/klue/	gong	0248
/tuec/	pluck (feathers)	0884
/ɥe/		
/lɥe/	oil	0864
/lɥeʔ/	heel	0179
/ua/		
/k <sup>h</sup> uat/	to be old (person)	0197
/kua/	to hunt	0348
/suat/	to stab	0340
/ɥi/		
/pɥi/	carry on head	1084
/ta.mɥi/	nose	0149

From the above observations, the occurrences of breathy monophthongs and diphthongs are rare and this finding is significant, thus the observation will be discussed in Chapter 5 in Section 5.4.2 Breath registers and in Section 5.5 Language change.

**Note on ambiguous segment on front vowels /i/ before and after Palatal stops:** Meung Yum diphthongs ending with the front vowel /i/ before final palatal stops /-c/ or /-ɲ/ create an ambiguous segment due to its palatal onglide features (see Section 4.2.2 Final consonants). In order to create an unambiguous syllable structures and simplify the diphthong system, the front vowel /i/ before final palatal stop /-c/ or /-ɲ/ is treated as a transitional vowel. Example are given below.

Examples:

**Final palatal stops: /-c/, /-ɲ/**

Meung Yum Phonemic	Meung Yum Phonetic	English gloss	Recording reference
/mac/	[ma <sup>i</sup> c]	sand	0035
/ɲruɲ/	[ɲru <sup>i</sup> ɲ]	termite	0128

Moreover, if the diphthongs begin with front vowel [i] on initial palatal stops [c-], [c<sup>h</sup>-] or [ɲ-] it will be phonemically transcribed as monophthongs. The examples are given below.

Examples:

**Initial palatal stops:** /c-/ , /c<sup>h</sup>-/, /ɲ-/

<b>Meung Yum Phonemic</b>	<b>Meung Yum Phonetic</b>	<b>English gloss</b>	<b>Recording reference</b>
/cot/	[ciot]	to push	0320
/c <sup>h</sup> an/	[c <sup>h</sup> ian]	to be heavy	0419
/ɲaʔ/	[ɲiaʔ]	house	0217

Although some linguists may transcribe the diphthong [au] as [aw], in this paper [au] is chosen because the Meung Yum consonants system has no phonemic /w/; this transcription will simplify the consonant phonological rules in Mueng Yum. On the other hand, the reason of [ai] is selected instead of [aj] because of the syllable structures. For example, in (1366) ‘charcoal’ [suaih] the syllable structure is CVVVC, however if [ua] is transcribed as [wa] and [ai] transcribed as [aj] the syllable structures will be more complicated, for example: [swajh] will be CCVCC. According to the previous studies, this syllable structure with two final consonants is not found in Mon-Khmer languages.

### 4.3.3 Triphthongs

There are three triphthongs in Meung Yum, involving /i/ and /u/ which are /iai, iau, uai/.

Examples:

<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/iai/		
/p <sup>h</sup> iai/	spear	0252
/t <sup>h</sup> iai/	to hit/beat (with force)	0336
/iau/ <sup>35</sup>		
/miau/	cat	0098

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<sup>35</sup> The occurrence of triphthong /iau/ is rare in the data, it only occurs in the lexical item given above.

Meung Yum	English gloss	Recording reference
/uai/		
/ʔuaih/	swelling	0557
/suaih/	charcoal	1366

#### 4.3.4 Monophthong contrasts

In this analysis no phonemic contrast was found between short and long vowels in Meung Yum. Long and short duration is predictable, i.e., the long duration often occurring in open syllables and short duration occurring in closed syllables. The contrasts between vowels are provided in Identical Environments (CIE) or in Analogous Environments (CAE). The evidences of monophthong contrasts can be divided into two categories which are clear monophthong contrasts, and clear and breathy monophthong contrasts, the details are given below.

##### Clear monophthong contrasts:

Meung Yum	English gloss	Recording reference
/i/ - /e/		
/c <sup>h</sup> in/	bile, gall	0500 CIE
/c <sup>h</sup> en/	to sew	0232
/i/ - /ɯ/		
/c <sup>h</sup> in/	bile, gall	0500 CIE
/c <sup>h</sup> ɯn/	fry	0886
/e/ - /ɛ/		
/vet/	to be dark (outside)	0406 CIE
/vet/*	surround	1452
/ɛ/ - /e/		
/c <sup>h</sup> ɛʔ/	they (3p)	0449 CIE
/c <sup>h</sup> eʔ/	before	1388
/leʔ/	rain	0007 CIE
/leʔ/	water leech	0137

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/ɯ/ - /u/	/hɯt/	kiss (v)	0800 CAE
	/mut/	catch (object in air)	1442
	/ŋruɲ/	termite	0128 CAE
	/klɯŋ/	to be fat (person)	0383
/ɯ/ - /ɤ/	/lɯŋ/*	yellow	0402 CAE
	/lɤn/	to be wet (with water)	0416
/a/ - /ɤ/	/p <sup>h</sup> aʔ/*	monk	0725 CIE
	/p <sup>h</sup> ɤʔ/	to suck (milk)	0276
/u/ - /o/	/ɲu/	broom	0986 CIE
	/ɲo/	beeswax	1278
/o/ - /ɔ/	/ʔo/	daughter-in-law	0689 CIE
	/ʔɔ/	pot (cooking)	0236
/a/ - /ɔ/	/kla/	(be) flat	1513 CIE
	/klɔ/	kapok	0057
/ɤ/ - /o/	/p <sup>h</sup> ɤʔ/	to suck (milk)	0276 CIE
	/p <sup>h</sup> oʔ/	bake (in ashes)	0887

**Clear and breathy monophthong contrasts:**

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/i/ - /i̥/	tij or (/diŋ/)	wall of house	0221 CIE
	tij̥ or (/diŋ̥/)	harp	1107

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/ɛ/ - /ɛ̣/	/ɲɛ/	(be) silent	0760 CIE
	/ɲɛ̣/	domesticate, tame	1009
/a/ - /ạ/	/ɲa/	groan (with pain)	0507 CIE
	/ɲạ/	tobacco	1116
	/raŋ/	shine	1495 CIE
	/raŋ̣/	tooth	0155
/u/ - /ụ/	/puun/ or (/buun/)	announce	0765 CIE
	/p̣uun/ or (/ḅuun/)	story(tale)	0794
/o/ - /ọ/	/mon/*	otter	0122 CAE
	/ṃom/	to be good	0434
	/ro/	monkey	0090 CIE
	/ṛo/	to bark	0096
/e/ - /ɤ̣/	/tek/ or (/dek/)	accuse	0784 CAE
	/tɤ̣k/ or (/dɤ̣k/)	box	0898

**Breathy and breathy monophthong contrasts:**

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/ạ/ - /ọ/	/jạ/	to be easy	0458 CAE
	/lọ/	undress	0845
	/jạm/	nail (n)	0979
	/ṃom/	to be good	0434
/ọ/ - /ɛ̣/	/nọ/	to be slow	0426 CAE
	/ɲɛ̣/	domesticate, tame	1009



	Meung Yum	English gloss	Recording reference
/ɛ/ - /a/	/ɲɛ/	domesticate, tame	1009 CAE
	/ɲa/*	tobacco	1116
/i/ - /ɯ/	/tɪŋ/ or (/dɪŋ/)	wall of house	0221 CAE
	/tɯŋ/ or (/dɯŋ/)	to run	0315

### 4.3.5 Diphthong contrasts

Meung Yum diphthong contrasts can be divided into two categories which are clear diphthong contrasts, and clear and breathy diphthong contrasts. The evidences of diphthong contrasts are given below.

#### Clear diphthong contrasts:

	Meung Yum	English gloss	Recording reference
/ai/ - /oi/	/plai/	liquor	0061 CIE
	/ploi/	to set free, let go (animal)	0461
	/vai/	hire (v)	1053 CAE
	/soi/	to slice/saw	0338
/ia/ - /io/	/piaʔ/ or (/biaʔ/)	show	0597 CAE
	/mioʔ/	town, city	0841
	/ʔia/	chicken	0114 CAE
	/k <sup>h</sup> io/	lower (tr)	1445
/ai/ - /au/	/vai/	paddle (v)	1077 CIE
	/vau/	(be) courageous, (be) brave	0634
	/tai/	sarong (female)	0230 CIE
	/tau/ or (/dau/)	send (something to someone)	1081

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/ai/ - /ɿi/	/pai/	heal (tr), cure (v)	0553 CIE
	/pɿi/ or (/bɿi/)	mole	1192
/ai/ - /ɔi/	/mai/	(be) engaged, (be) betrothed	1145 CIE
	/mɔi/	cow	0100
	/p <sup>h</sup> ai/	to be fast	0425 CIE
	/p <sup>h</sup> ɔi/	feast (n)	1142
/oi/ - /ɔi/	/soi/*	to slice/saw	0338 CIE
	/sɔi/	draw (picture)	1111
	/roi/	fly	0134 CIE
	/rɔi/*	footprint (human)	1018
/ua/ - /ue/	/kua/	to be hard (rock)	0421 CIE
	/kue/	to have	1036

**Clear and Breathy diphthong contrasts:**

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/iɔ/-/i̯ɔ/	/piɔ/	to be soft (cotton)	0422 CAE
	/p̣i̯ɔ/ or (/ḅi̯ɔ/)	(be) happy, (be) joyful	0599
/ɔi/ - /ɔ̣i/	/mɔi/	cow	0100 CIE
	/ṃɔ̣i/	banana (fruit)	0062
/ɔi/ - /ɰ̣i/	/p <sup>h</sup> ɔi/	feast (n)	1142 CAE
	/p̣ɰ̣i/	carry on head	1084

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/ɣi/ - /ɣ̣i/	/pɣi/ or (/bɣi/)	mole	1192 CAE
	/tɣi/ or (/dɣi/)	milk (cow)	0101
/ue/ - /uẹ/	/tuec/	pluck (feathers)	0884 CAE
	/lueʔ/	heel	0179
/ia/ - /ịa/	/mia/	spit (noun)	0154 CAE
	/lịa/	six (persons)	0362
/au/ - /ạu/	/ŋau/	to be the same	0408 CAE
	/lạu/	to be hot (person)	0024

**Breathy and breathy diphthong contrasts:**

	<b>Meung Yum</b>	<b>English gloss</b>	<b>Recording reference</b>
/uẹ/ - /ịo/	/kuẹ/	porcupine	0093 CAE
	/pịo/ or (/bịo/)	(be) happy, (be) joyful	0599
/ɣ̣i/ - /ɔ̣i/	/dɣ̣i/	breast	0472 CAE
	/ŋɔ̣i/	(be) expensive	1048
/ại/ - /ạu/	/lại/	market(n)	0842 CIE
	/lạu/	to be hot (person)	0024
/ɔ̣i/ - /ạu/	/mɔ̣i/	banana (fruit)	0062 CAE
	/nạu/	lung	0490

	Meung Yum	English gloss	Recording reference
/ai/ - /ɔ̃i/	/lai/	market(n)	0842 CAE
	/ŋɔ̃i/	(be) expensive	1047
/ɔ̃i/ - /ai/	/mɔ̃i/	banana (fruit)	0062 CAE
	/rai/	to choose	0288

It is noteworthy that the breathy and breathy monophthongs and diphthongs contrast are rare in the data and there are no breathy triphthongs and a breathy vowel never occurs in a syllable with a consonant cluster in Meung Yum.

#### 4.4 Summary

There are 21 contrastive consonants in Meung Yum spoken in Namt Yoke and Loi Yang varieties, whereas the contrastive consonants in Pang Wan and Pan Tang varieties are only 19. The Meung Yum consonants include nine voiceless stops /p<sup>h</sup>, t<sup>h</sup>, c<sup>h</sup>, k<sup>h</sup>, p, t, c, k, ʔ/. The Pang Wan and Pan Tang varieties have no voiced stops; conversely, Namt Yoke and Loi Yang have the voiced stops /b/ and /d/. All four varieties have three fricatives /v, s, h/; four nasals /m, n, ɲ, ŋ/; the lateral /l/; the trill /r/ and the approximant /j/. Meung Yum has ten final consonants /-p, -t, -c, -k, -ʔ, -h, -m, -n, -ɲ, -ŋ/. There are 13 consonant clusters in Namt Yoke and Loi Yang varieties. Five consonant /p, p<sup>h</sup>, k, k<sup>h</sup>, m/ with the voiced alveolar lateral /l/ as the second member and eight consonant /p, p<sup>h</sup>, b, k, k<sup>h</sup>, m, ɲ, ŋ/ with the voiced alveolar trill /r/ as the second member. However, Pang Wan and Pan Tang only have 12 consonant clusters, i.e., consonant cluster /br/ does not exist in these varieties.

Meung Yum has nine clear vowels /i, e, ε, a, u, o, ɔ, ʉ, ʏ/ and six breathy vowels /ĩ, ε̃, ã, ʉ̃, õ, ʏ̃/. There are nine clear diphthongs /io, ia, ʏi, oi, ɔi, ai, au, ue, ua/ and seven breathy diphthongs /ĩi, ĩo, ĩa, ʏĩ, ɔĩ, ãu, ũe/ are found in Meung Yum.

Meung Yum's triphthongs /iai, iau, uai/ only occur as clear vowels. Meung Yum's asymmetrical vowel system (see Tables 53 and 54) may be due to the effect of language change (the details will be discussed in Chapter 5 Section 5.4.2 Breathly register and Section 5.5 Language change in Example 2.)

The examples given in this analysis consist of many loan words from Shan, a Tai language which was borrowed into Meung Yum long time ago. These loan words seem natural to all four speakers from Meung Yum varieties.

The interesting finding in this chapter is in Section 4.2.1.2 (ii) and (iii). This language is probably undergoing language change. From the observation in Section 4.2.1.2 (ii) and (iii) three lexical items ‘earring’ (0855), ‘run’ (0524) and ‘body’ (0463) in Namt Yoke provide reasons to believe that a devoicing process in Namt Yoke is occurring. In addition, the loss of voiced stops in Pang Wan and Pan Tang lead to the possibility that a devoicing process in Namt Yoke and Loi Yang may happen in the future. Further research is needed in this area.

## **Chapter 5**

### **Suprasegmentals of Meung Yum**

#### **5.1 Introduction**

Contour tone and register features are commonly found in Mon-Khmer languages (Dnegan and Stampe 1983: 2). As seen in previous studies of Waic languages, the registers tense and lax are found in Yaongsoi Wa (Wang and Chen 1981) and Ai Shuai Wa (Zhou and Yan 1984). The registers clear and breathy in addition to high and low tone are found in Kontoy Plang (Paulsen 1996). In Bulang, however, there is no register but there are four tones ( Li, Nie and Qiu 1986). This chapter begins with a discussion of pitch in Meung Yum in Section 5.2. The acoustic parameters of each pitch variety are given in Section 5.3. The clear and breathy register are demonstrated in Section 5.4. Based on the findings, Meung Yum is suspected of undergoing a process of developing tone. This phenomenon is described in Section 5.5 on hypotheses on language change. A summary of this chapter is provided in Section 5.6.

#### **5.2 Pitch in Meung Yum**

While doing field research in Meung Yum many questions were asked of speakers regarding pitch. The language resource persons speak languages such as Burmese or Shan that are tonal, but they are not conscious of tone and do not have a Meung Yum word to describe tone. For some Meung Yum words, the language resource persons insist they must be pronounced with a certain pitch, but many words are uncertain. One day a list was made on a whiteboard of words grouped by pitch, but the next day the speakers changed their minds. As a result, there does not seem to be any clear tone in Meung Yum.

There are, however, about forty words that all the speakers agreed should be pronounced on a certain pitch. There appears to be some degree of incipient pitch or tone that may be developing in the language; this may be connected with the loss of voiced stop consonants. It is hypothesized that we have found a language in the very early stages of tonogenesis.

Because of these recording and analysis of words with a specific pitch have been made, it is hoped that this will be of use to linguists in the future who can see the direction that Meung Yum has taken.

In this section pitches are discussed based on the data collected from the four villages of Namt Yoke, Loi Yang, Pang Wan and Pan Tang. Four lexical items with level pitch and five lexical items with falling pitch are chosen for pitch analysis. Five lexical items are pronounced with rising pitch in Namt Yoke, Loi Yang and Pan Tang but Pang Wan has a different set of four lexical items with rising pitch. The lexical items are chosen based on three criteria: first, open syllables with a low vowel; secondly, voiceless initial consonants, and third, if a voiceless consonant with low vowel was not possible, then the nearest environment was considered. These criteria were chosen based on the phonetic background of syllable types, initial consonants, final consonants and vowels which may affect pitch. For example, if the pitch of a voiced bilabial stop with low vowel [ba] is compared with the pitch of a voiceless bilabial stop with low vowel [pa], the pitch of the syllable with the voiceless consonant initial is always higher. Therefore for comparison purposes the same features are desired, for a more reliable result. The lexical items for Sections 5.2.1, 5.2.2 and 5.2.3 are chosen based on the above criteria. An analysis of pitch contours is presented in Section 5.3.

### 5.2.1 Level pitch

The lexical items selected for the level pitch in the four Meung Yum varieties are as follows:

Meung Yum	English gloss	Recording reference
/ta/* <sup>36</sup>	apply (ointment), besmear	0860
/ʔa/*	sister (younger of f)	0210
/pe/	(be) pregnant	0578
/lɔ/*	need (v)	1037

These words have the mid level pitch in the Namt Yoke, Loi Yang and Pan Tang varieties. In contrast, the Pang Wan mid level pitch (in five range level) is slightly lower than the other varieties; its level pitch is low level. While three of these words

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<sup>36</sup>The asterisk \* marks at the back of the lexical items hypothesized to be loan words from Shan. The loan words here may be borrowed with tones in these lexical items.

are loan words from Shan, they come from three different tone classes in Tai languages (/ta/ ‘apply (ointment)’ is A4, /ʔa/ ‘sister’ is A2, and /lo/ ‘need’ is A1).

### 5.2.2 Falling pitch

The falling pitch has two possible contours, high falling or mid falling, depending upon the village. The lexical items for Namt Yoke and Pan Tang villages tend to have high falling pitch, whereas the mid falling pitch occurs in Loi Yang and Pang Wan. Lexical items with falling pitches for the four villages are given below.

Meung Yum	English gloss	Recording reference
/na/*	cheek	0150
/ʔɔ/	pot (cooking)	0236
/tɣi/ or (/dɣi/) <sup>37</sup>	breast	0471
/ro/	grow up	0584

### 5.2.3 Rising pitch

The lexical items with rising pitch in three of the Meung Yum varieties are given below.

a)

Meung Yum (Namt Yoke, Loi Yang and Pan Tang)	English gloss	Recording reference
/jah/	to be easy	0458
/ɲa/	groan (with pain)	0507
/t <sup>h</sup> a/	turn round (intr)	0520
/ka/	dance (n)	1104
/leʔ/	slander (v)	0778

These lexical items have rising pitch in the Namt Yoke, Loi Yang and Pan Tang varieties, but not in Pang Wan. The Pang Wan variety has different lexical items that occur with rising pitch as seen in the following examples.

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<sup>37</sup> The parentheses ( ) denote lexical items that occur only in the Namt Yoke and Loi Yang varieties. The voiced stop /d/ in Namt Yoke and Loi Yang is realized as voiceless stop /t/ in Pang Wan and Pan Tang.



b)

<b>Meung Yum (Pang Wan)</b>	<b>English gloss</b>	<b>Recording reference</b>
/k <sup>h</sup> a/	to give	0329
/p <sup>h</sup> a/	to be blunt	0418
/c <sup>h</sup> a/	(be) scarce	1046
/lɛʔ/	slander (v)	0778

The four varieties share the same set of lexical items for level pitch and falling pitch. For the rising pitch Pang Wan has its own set, but the other three varieties share the same set of lexical items; these sets will be used for measuring the acoustic parameters in Section 5.3.

### **5.3 An analysis of pitch contours**

This section provides evidence for the pitches in Meung Yum. The analysis is based on the lexical items given previously in Section 5.2. For each variety there are three sets of lexical items. Praat 5.0.35 was used for measuring the acoustic parameters related to articulation rate, the fundamental frequency (F0) and F0-Range. All acoustic parameters were keyed into Microsoft Office Excel 2007 to calculate the normalization of duration and fundamental frequency in order to produce the charts of pitches for each variety; each pitch curve is one speaker with four different lexical items, four times each, for a total of 16 measurements arranged for each pitch. These are shown below. From these analyses three pitches are observed in Meung Yum: level, falling and rising. The pitches of each variety are presented in the following sections.

#### **i. Pitch contours of Namt Yoke**

The three pitch contours in Namt Yoke are level, falling and rising. These are based on the lexical items in Sections 5.2.1, 5.2.2, and 5.2.3a. All the Namt Yoke pitches are lower<sup>38</sup> than those of the other three villages. The falling contour of Namt Yoke is the only one begins from extra high, falling to the beginning of low level when falling contour is compared in Figures 11 through 14. The three Namt Yoke pitches are given in Figure 11.

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<sup>38</sup> Namt Yoke pitches are lower than the rest because the fundamental frequency of Namt Yoke is between 75.33 – 152.98 Hz. See Figure 11.

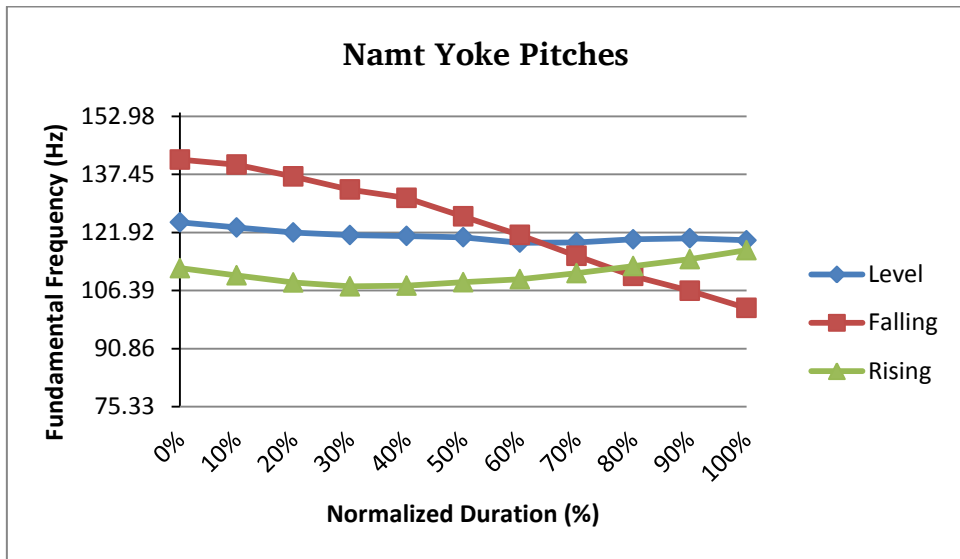


Figure 11: The three pitches of Namt Yoke

ii. Pitch contours of Loi Yang

The three pitch contours of level, falling and rising in Loi Yang are also based on the lexical items in Sections 5.2.1, 5.2.2 and 5.2.3a respectively. These results are given in Figure 12.

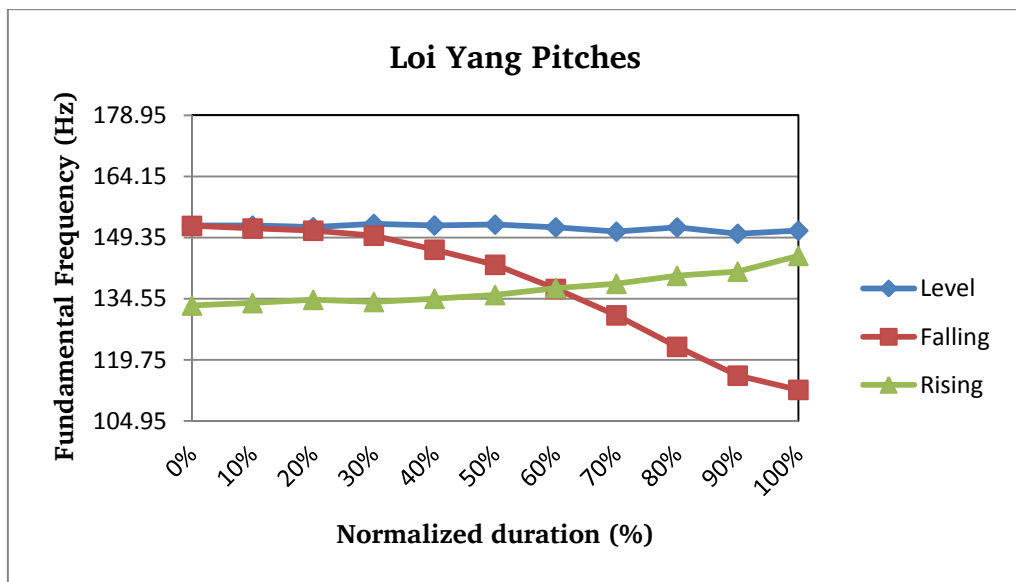


Figure 12: The three pitches of Loi Yang

iii. Pitch contours of Pang Wan

The three pitch contours in Pang Wan, level, falling and rising, are based on the lexical items in Sections 5.2.1 and 5.2.2 but for rising pitch in the Pang Wan variety a different set of lexical items, given in Section 5.2.3b, is used. The level pitch

contour of Pang Wan starts from a slightly lower level compared to the level pitch of the other Meung Yum varieties displayed in Figures 11 through 14. The three pitches of Pang Wan are given in Figure 13 below.

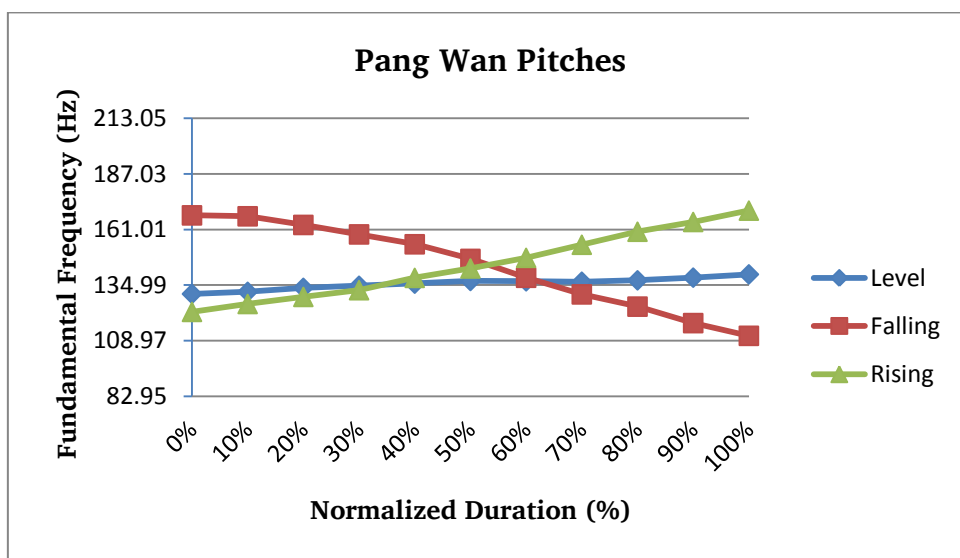


Figure 13: The three pitches of Pang Wan

#### iv. Pitch contours of Pan Tang

The three pitch contours in Pan Tang for level, falling and rising are based on the lexical items in Sections 5.2.1, 5.2.2 and 5.2.3a respectively. The falling contour in Pan Tang is slightly lower than Namt Yoke but higher than Loi Yang and Pang Wan. The three pitch contours of Pan Tang are presented in Figure 14.

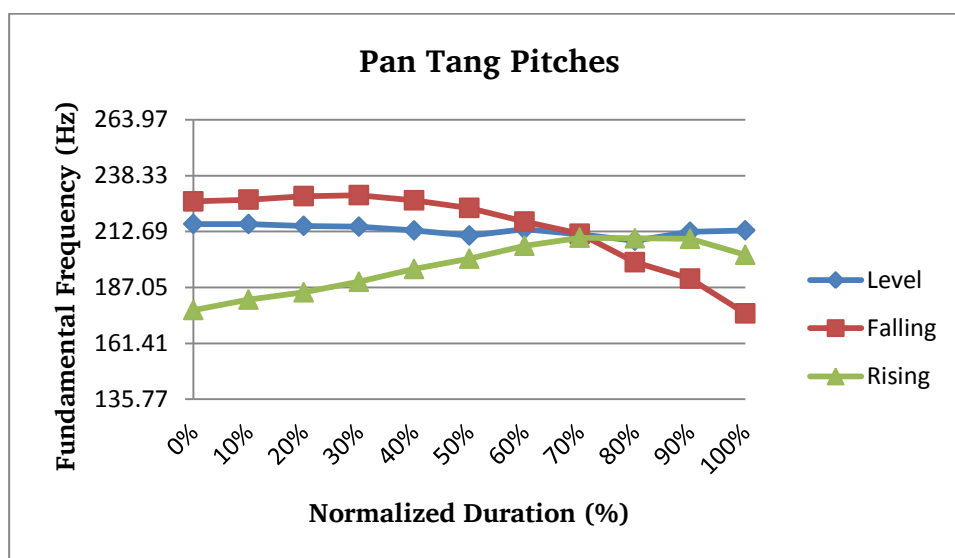


Figure 14: The three pitches of Pan Tang

The acoustic parameters of the four varieties given in Figures 11, 12, 13 and 14 above are based on the lexical items chosen in Sections 5.2.1, 5.2.2 and 5.2.3, which are pronounced with the same pitch in all four varieties. These fixed pitches with the same lexical items are level, falling and rising. This analysis shows that it is possible the language is moving toward developing tonal contrast, but this situation is not stable in the language. Outside of the above lexical items with fixed pitch as chosen by the three criteria given in Section 5.2 for these four varieties of Meung Yum, of which several items are Shan loan words, it is possible that the language resource persons borrowed not only consonants and vowels but also the whole words with tones or pitch in this context. Therefore some words have fixed pitch but many words seem to have no fixed pitch and speakers will accept them as correct with any pitch; neither are they pronounced consistently by these four varieties.

## 5.4 Clear and breathy registers

The previous studies on Waic registers in Yaongsoi Wa (Wang and Chen 1981) and Ai Shuai Wa (Zhou and Yan 1984) describe it as tense and lax, whereas, the registers in Kontoy Plang (Paulsen 1996) are described as clear and breathy. Meung Yum has two lexically contrastive registers, clear and breathy, which is unlike the registers in Yaongsoi Wa and Ai Shui Wa but similar to Kontoy Plang. Meung Yum's clear register is not marked in the transcription but the breathy register is marked as  $\underset{\cdot}{V}$ . In Watkins (2002) register is treated as a feature of the syllable but in Ai Shuai Wa according to Zhou and Yan (1984) and in Yaongsoi Wa according to Wang and Chen (1981), it is treated as vocalic segments. In this thesis registers are treated as vocalic segments, following the notation of Chinese linguists . The clear and breathy lexical items are given below.

### 5.4.1 Clear register

Clear register occurs in all environments with voiced, voiceless and voiceless aspirated consonants. Some examples are given below.

Phonemic transcription	English gloss	Recording reference
/cep/	shoe, sandal	0849
/c <sup>h</sup> i/*	indicate, point (as with the finger)	0529
/hon/	yam	1319
/jam/	to weep	0260

Phonemic transcription	English gloss	Recording reference
/jah/	to be easy	0458
/juh/	act, do	0959
/kaʔ/	fish	0116
/k <sup>h</sup> ac/	(be) shy	0633
/lik/	pig	0099
/mim/	claw	1220
/mɔ/	tobacco pipe	1115
/neŋ/*	goiter	0561
/nɛ/	(be) silent	0760
/p <sup>h</sup> ap/	white	0399
/p <sup>h</sup> i/	to forget	0287
/pɔk/	take revenge	0822
/sum/	to plant	0341
/tak/	tongue	0153
/t <sup>h</sup> u/*	chopsticks	0896
/ʔuŋ/	mud	0032
/veʔ/	darkness	1385

### 5.4.2 Breathy register<sup>39</sup>

The breathy register occurs with both voiced and voiceless consonants but not with aspirated consonants. Voiceless stops with breathy register are rare for both monophthongs and diphthongs. Some examples are presented below.

Phonemic transcription	English gloss	Recording reference
/jə/	to be easy	0458
/jə̃m/	nail (n)	0979
/lɔ/*	need (v)	1037
/lɔ/	undress	0845
/mɔ̃m/	to be good	0434
/nɔ/	to be slow	0426

<sup>39</sup> The total vowels in the data set are 3600; 15 unique vowels (excluded schwa /ə/), if each vowel occurred with equivalent frequency it should occur 240 times; since there are six breathy vowels 1440 uses of breathy vowels would be expected; in fact there are fewer than 100 uses. This observation is significant as evidence that the breathy vowels may be lost or changing in this language.

Phonemic transcription	English gloss	Recording reference
/ŋɛ̃/	domesticate, tame	1009
/ŋã/*	tobacco	1116
/pɔ̃/ or (/bɔ̃/)	pick, pluck (fruit)	1003
/pɯ̃n/ or (/bɯ̃n/)	story(tale)	0794
/rãŋ/	tooth	0155
/rɔ̃/	to bark	0096
/tɪ̃ŋ/ or (/dɪ̃ŋ/)	wall of house	0221
/tɛ̃/ or (/dɛ̃/)	begin	1501
/tɯ̃n/ or (/dɯ̃n/)	to run	0315
/vã/	get well, recover	0554
/kɯ̃e/	porcupine	0093
/lɔ̃i/	market(n)	0842
/lɔ̃u/	to be hot (person)	0024
/mɔ̃i/	banana (fruit)	0062
/nɔ̃u/	lung	0490
/ŋɔ̃i/	(be) expensive	1047
/pɪ̃o/ or (/bɪ̃o/)	(be) happy, (be) joyful	0599
/rɔ̃i/	to choose	0288
/tɣ̃i/ or (/dɣ̃i/)	milk (cow)	0101

Breathy vowels occur only rarely with initial consonants /p/ and /t/ in the Pang Wan and Pan Tang varieties and there are nearly none in the Namt Yoke and Loi Yang varieties. Table 55 provides some examples that Namt Yoke and Loi Yang initial consonants are /b/ or /d/ with breathy vowels in open syllables. In Pang Wan and Pan Tang they are realized as /p/ and /t/ respectively. The inter-village variation with initials /b/ and /d/ in open syllables in Namt Yoke and Loi Yang versus Pang Wan and Pan Tang is shown in Table 55.

**Table 55: Inter-village variation in open syllables**

	Namt Yoke and Loi Yang	Pang Wan and Pan Tang	Gloss	Recording reference
/b/ in Open syllable	/bɪ̃o/	/pɪ̃o/	(be) happy, (be) joyful	0599
	/bɯ̃e/	/pɯ̃e/	barking deer	0089
/d/ in Open syllable	/dɛ̃/	/tɛ̃/	begin	1501
	/dɣ̃i/	/tɣ̃i/	breast	0471

Table 56, below, shows the same phenomenon in closed syllables.

**Table 56: Inter-village variation in closed syllables**

	Namt Yoke and Loi Yang	Pang Wan and Pan Tang	Gloss	Recording reference
/b/ in Closed syllable	/b̥uc/	/p̥uc/	spill (liquid) (tr)	0905
	/b̥un/	/p̥un/	story (tale)	0794
/d/ in Closed syllable	/d̥un/	/t̥un/	to run	0315
	/d̥iŋ/	/t̥iŋ/	wall of house	0221

Interestingly when Namt Yoke and Loi Yang have voiced stops /b/ or /d/ with breathy vowels, Pang Wan and Pan Tang have voiceless stops /p/ or /t/ with breathy vowels. It may also be seen that voiceless stops with breathy vowels in Namt Yoke and Loi Yang are rare. These observations may suggest that Meung Yum is undergoing a process of language change. Section 5.5, below, discusses this hypothesis of change.

## 5.5 Hypotheses on language change

According to Matisoff (1973) and Haudricourt (1954)<sup>40</sup>, the diachronic development of tone systems is commonly conditioned by the loss of a voicing contrast in initial obstruents. In the Meung Yum consonant system there is no consonant contrast between the voiced stops /b/ and /d/ and /p/ and /t/ in Pang Wan and Pan Tang varieties whereas these stops do display a voicing contrast in the Namt Yoke and Loi Yang varieties. Diffloth (1980) commented that loss of the Proto-Waic voiced or voiceless contrast in stops gave rise to clear and breathy registers, and the Proto-Waic \*a in Drage's Wa (one of the Waic languages in Diffloth's data) produced breathiness in vowel ö<sup>41</sup>. The following examples are taken from Diffloth (1980) to compare with Meung Yum.

<sup>40</sup> Haudricourt statement was translated in Thurgood (2007: 3).

<sup>41</sup> The pair dots (¨) refers to breathiness in diffloth (1980).

**Example 1: Proto-Waic voiceless stops remain voiceless stops initially in Meung Yum**

Proto-Waic Diffloth 1980	Meung Yum	English gloss	Recording reference
*kɔn	kɔn	child	0198
*kap	kap	chin	0157
*pon	pon	four	0360
*taŋ	taŋ	to weave	0227

Example 1 shows that in Meung Yum voiceless stops remain unchanged when compared to the Proto-Waic.

**Example 2: Proto-Waic voiced stops become voiceless aspirated initially in Meung Yum**

Proto-Waic (Diffloth 1980)	Drage's Wa	Meung Yum	English gloss	Recording reference
*gah	hkö	k <sup>h</sup> a	to give	0329
*gaŋ	hköang	k <sup>h</sup> aŋ	rat	0094
*gac	hköit	k <sup>h</sup> ac	shy	0633
*baŋ	pöin	p <sup>h</sup> aŋ	white	0399

Voiced stops \*g and \*b in Proto-Waic are becoming voiceless aspirated stops /k<sup>h</sup>/ and /p<sup>h</sup>/ in Meung Yum. However, in Diffloth's data the Proto-Waic voiced stops \*g and \*b become aspirated velar stop [hk] and voiceless bilabial stops [p] with breathy vowel in Drage's Wa. The vowel \*a in Proto-Waic has produced breathiness as vowel ö in Drage's Wa but not in Meung Yum. Tables 55 and 56 in Section 5.4.2 show that in Namt Yoke and Loi Yang the voiced bilabial stop /b/ and voiced alveolar stops /d/ are realized as voiceless bilabial stop /p/ and voiceless alveolar stop /t/ in Pang Wan and Pan Tang respectively. The inconsistent patterns of stops give an idea that the language is going through a change.

Haudricourt (1954) and Svantesson (1989) offer an explanation for the pitch contours and clear and breathy registers occurring in Meung Yum.



Haudricourt (1954)<sup>42</sup> states that:

‘In the segmental interpretation of Vietnamese in which tones are correlated directly with earlier classes of finals and initials. In the initial stage, the three-way distinction among classes of post-vocalic finals (open finals, nasal finals, stopped finals and voiceless fricatives) led to the rise of a three-way distinction in pitch contours a level, a rising, and a falling pattern, respectively.’ (Haudricourt 1954)

Svantesson (1989) states that:

‘The basic tonogenetic rule is that voiceless and voiced initial consonants have merged, giving rise to a high and low tone, respectively. Stops merged into the voiceless members of the opposition (b, p > p; d, t > t; ʃ, c > c; g, k > k).’ (Svantesson 1989: 5).

Meung Yum demonstrates loss of the voiced velar stop [g] when compared to Proto-Waic (see Example 2, Section 5.5 and the Meung Yum consonant phoneme chart, Table 48). Although the voiced stops /b/ and /d/ remain in Namt Yoke and Loi Yang they are lost in Pang Wan and Pan Tang (see Section 4.2.1.2 ii). Furthermore, it is noteworthy that in Meung Yum breathy vowels occur primarily following voiced consonants; following voiceless stops they are rare; therefore a process of language change in Meung Yum is hypothesized. If the statements by Matisoff (1973), Haudricourt (1954) and Svantesson (1989) are applied in Mueng Yum, a process of tonogenesis has begun, but further study is needed.

## 5.6 Summary

Based on the findings on suprasegmental phonology, it is hypothesized that Meung Yum is undergoing a process of language change. The three possible pitches: level, falling and rising appear in the same lexical items of all four varieties. The clear and breathy registers contrast primarily with voiced consonants. However, determining whether voiced initials will develop to become devoiced and progress to breathy vowels or aspiration will require further observation. This has not been proven (see Example 2, Section 5.5) and remains an area for further study. Meung Yum demonstrates loss of the voiced velar stop [g] when compared with Proto-Waic and the loss of the voiced stops /b/ and /d/ as well in the Pang Wan and Pan Tang varieties. It is hypothesized that a process of tonogenesis in Meung Yum has begun. More research needs to be done in the area of suprasegmentals of Meung Yum.

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<sup>42</sup> Haudricourt’s statement is translated in Thurgood (2007: 3).

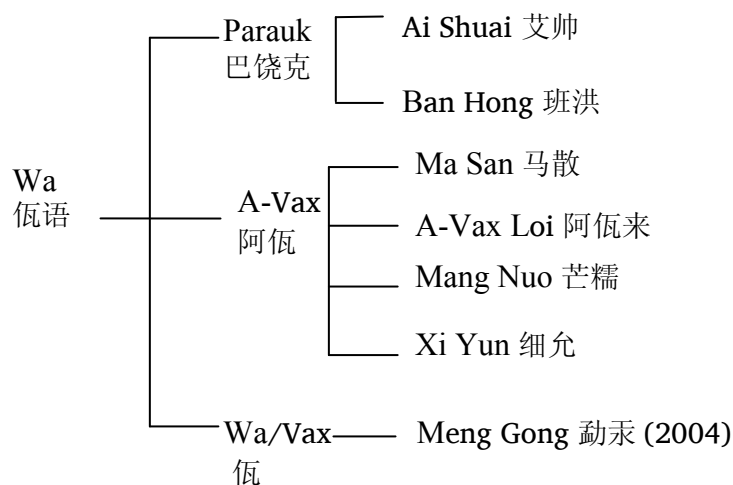
## Chapter 6

# Phonology of Wa Varieties and Comparison of Wa Varieties with Meung Yum

### 6.1 Introduction

Chapter 6 examines the phonology of three Wa varieties in China and make a phonological comparison of those three Wa varieties with Meung Yum in Myanmar. All these varieties have their own phonological features, therefore, this chapter is divided into two parts. The first part presents the phonology of three Wa varieties in China based on the classification of Chinese linguists Zhou and Yan (2004). They classify the Wa sub-group into three varieties: Parauk, A-Vax and Wa/Vax. The sub-varieties of Parauk are Ai Shuai and Ban Hong. The sub-varieties of A-Vax are Ma San, A-Vax Loi, Mang Nuo and Xi Yun. The Wa/Vax has one sub-variety, Meng Gong (Zhou and Yan 2004: 22), the classification of Wa varieties in Wa sub-groups has been presented as Figure 5, here displays again in this chapter.

The following figure displays the classification of Wa according to the Chinese linguists Zhou and Yan (1995, 2004).



**Figure 15: Position of Wa varieties in Wa sub-group (adapted from Zhou and Yan 1995, 2004)**

The second part of this chapter is to make a phonological comparison of these three Wa varieties and Meung Yum. The sub-varieties that have been chosen for comparison are the sub-variety of Parauk, Ai Shuai; the sub-variety of A-Vax, Xi Yun; and the sub-variety of Wa/Vax, Meng Gong. This comparison will give an overview of the phonological similarities and differences between Meung Yum in Kunlong Township, Shan State, Myanmar and the three Wa sub-groups in China.

The phonology of three Wa varieties in China and a comparison between those varieties and Meung Yum is presented in the following sections.

## **6.2 Phonology of three Wa varieties in China**

In this section the phonology of three Wa varieties in China are presented, based on Zhao and Yan 2004. These are the Ai Shuai variety of Parauk; the Xi Yun variety of A-Vax; and the Meng Gong variety of Wa/Vax. The phonology includes initial consonants and consonant clusters (final consonants are absent in Zhao and Yan (2004)); for vowels it includes monophthongs, diphthongs and triphthongs. Lastly tones and registers will be presented. The phonologies of the three Wa varieties are shown below.

### **6.2.1 Phonology of Parauk: Ai Shuai**

The phonology of Ai Shuai Wa variety was presented in Section 2.3.3, based on Zhao and Yan (1984), and will be presented again based on Zhao and Yan (2004). The consonant system in Zhao and Yan (1984) and (2004) are the same.

#### **6.2.1.1 Consonants**

Ai Shuai has 38 consonants of which 17 are aspirated /p<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>, b<sup>h</sup>, d<sup>h</sup>, dz<sup>h</sup>, g<sup>h</sup>, v<sup>h</sup>, z<sup>h</sup>, m<sup>h</sup>, n<sup>h</sup>, ɲ<sup>h</sup>, ts<sup>h</sup>, tɕ<sup>h</sup>, l<sup>h</sup>, r<sup>h</sup>/. The initial consonants of Ai Shuai were presented previously in Table 14 based on Zhao and Yan (1984) and are presented again in the following table based on more recent data from Zhao and Yan (2004).

**Table 57: Initial consonants of Ai Shuai Wa in China**

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Velar	Glottal
Stop	p <sup>h</sup> p b <sup>h</sup> b		t <sup>h</sup> t d <sup>h</sup> d	  dʒ <sup>h</sup> dʒ	k <sup>h</sup> k g <sup>h</sup> g	?
Fricative		f v <sup>h</sup> v	s	 ʒ <sup>h</sup> ʒ		h
Nasal	m <sup>h</sup> m		n <sup>h</sup> n	ɲ <sup>h</sup> ɲ	ŋ <sup>h</sup> ŋ	
Affricate			ts <sup>h</sup> ts	tʃ <sup>h</sup> tʃ		
Lateral		l <sup>h</sup> l				
Trill		r <sup>h</sup> r				

**Consonant clusters**

There are 16 consonant clusters in Ai Shuai. Consonant clusters with the alveolar lateral /l/ as the second member include /pl, p<sup>h</sup>l, b<sup>h</sup>l, bl, kl, k<sup>h</sup>l, g<sup>h</sup>l, gl/ and consonant clusters with the alveolar trill /r/ as the second member include /pr, p<sup>h</sup>r, b<sup>h</sup>r, br, kr, k<sup>h</sup>r, g<sup>h</sup>r, gr/. These were given in Table 16; Table 58 presents them again based on the Zhao and Yan (2004) version.

**Table 58: Consonant clusters of Ai Shuai Wa in China**

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants	
	l	r
p	pl	pr
p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r
b <sup>h</sup>	b <sup>h</sup> l	b <sup>h</sup> r
b	bl	br
k	kl	kr
k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r
g <sup>h</sup>	g <sup>h</sup> l	g <sup>h</sup> r
g	gl	gr

### 6.2.1.2 Vowels

Zhou and Yan (1984, 2004) identified 18 monophthongs, 28 diphthongs and four triphthongs in the vowel system. When pharyngeal muscles contract it affects the muscles of the oral cavity therefore it becomes tense and the articulation of vowels is tense. When the pharyngeal muscles are lax, however, lax vowels are produced. Zhou and Yan transcribed tense vowel with a marker “V”. The monophthongs are given in Table 59 below.

**Table 59: Monophthongs of Ai Shuai Wa in China**

	Front	Central	Back	
			unrounded	rounded
Close	i, <u>i</u>		ɯ, <u>ɯ</u>	u, <u>u</u>
Close-mid	e, <u>e</u>		ɤ, <u>ɤ</u>	o, <u>o</u>
Open-mid	ɛ, <u>ɛ</u>			ɔ, <u>ɔ</u>
Open	a, <u>a</u>			

The 28 diphthongs and four triphthongs were shown in Table 18 and are presented again in Table 60 below.

**Table 60: Diphthongs and Triphthongs of Ai Shuai Wa in China**

Diphthongs			Triphthongs	
iu, <u>iu</u>	ɯi, <u>ɯi</u>	ui, <u>ui</u>	iau, <u>iau</u>	uai, <u>uai</u>
iɛ, <u>iɛ</u>				
	ɤi, <u>ɤi</u>			
io, <u>io</u>				
ia, <u>ia</u>		ua, <u>ua</u>		
ɛa(-k), (-ŋ), <u>ɛa</u>		oi, <u>oi</u>		
		ɔi, <u>ɔi</u>		
ai, <u>ai</u>	aɯ, <u>aɯ</u>	au, <u>au</u>		

### 6.2.1.3 Registers

Ai Shuai has two registers, tense (紧) and lax (松). Zhou and Yan state that usually high pitch and falling contour is associated with tense vowels and lower pitch with falling contour are associated with lax vowels. There are some rare exceptions where tense and lax registers produced mid contour instead of falling contour. (Zhou and Yan 1984: 12, 2004: 95)

## 6.2.2 Phonology of A-Vax: Xi Yun

### 6.2.2.1 Consonants

Xi Yun has 19 consonants. It has no voiced stops, aspirated voiced stops, affricates and trill unlike the Ai Shuai. The phonemes are given in Table 61, below.

**Table 61: Initial consonants of Xi Yun in China**

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Velar	Glottal
Stops	p <sup>h</sup> p		t <sup>h</sup> t		k <sup>h</sup> k	ʔ
Fricative		f v	s z		ɣ	h
Nasal	m		n	ɲ	ŋ	
Affricate				tʃ		
Lateral		l				

#### Consonant clusters

Xi Yun has twelve consonant clusters. Those with the alveolar lateral /l/ as the second member, /pl, p<sup>h</sup>l, kl, k<sup>h</sup>l, ml, ŋl/, are common. Furthermore Xi Yun has other consonant clusters with the voiced velar fricative /ɣ/ as second member, i.e., /pɣ, p<sup>h</sup>ɣ, kɣ, k<sup>h</sup>ɣ, mɣ, ŋɣ/, which is rare in Waic languages.

**Table 62: Consonant clusters of Xi Yun in China**

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants	
	l	ɣ
p	pl	pɣ
p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> ɣ
k	kl	kɣ
k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> ɣ
m	ml	mɣ
ŋ	ŋl	ŋɣ

### 6.2.2.2 Vowels

Xi Yun has a simple vowel system, with only nine monophthong vowels: /i, e, E<sup>43</sup>, a, ɔ, o, u, ʏ, ʊ/ as shown in Table 63, below.

**Table 63: Monophthongs of Xi Yun in China**

	Front	Central	Back	
			unrounded	rounded
Close	i		ʊ	u
Close-mid	e		ʏ	o
Mid	E			
Open-mid				ɔ
Open	a			

### Diphthongs

Xi Yun has ten diphthongs, /iu, iɔ, ia, ai, ʊi, ʏi, ui, uʊ, ua, oi/, as seen in Table 64.

**Table 64: Diphthongs of Xi Yun in China**

Diphthongs		
	ʊi	ui
iu	ʏi	uʊ
iɔ		
ia		ua
		oi
ai		

### 6.2.2.3 Tones

Xi Yun has three tones, low tone /˩/ or /11/, mid tone /˨˨/ or /33/ and high tone /˨˨˨/ or /55/.

<sup>43</sup> E is mid front unrounded vowel (non- IPA symbol), and is the symbol that Zhou and Yan use in their transcription.

## 6.2.3 Phonology of Wa/Vax: Meng Gong

### 6.2.3.1 Consonants

Meng Gong has 31 consonants. The consonants /ts, ts<sup>h</sup>, tʂ, tʂ<sup>h</sup>, ʂ, zɿ/ are consonants seen in Chinese borrowed words, Zhao and Yan (2004) included consonants found in borrowed words in the Meng Gong consonant inventory. Moreover, Meng Gong has voiced stops but no voiced aspirated stops as in Ai Shuai. The retroflex is a unique feature of Meng Gong which is not found in Ai Shuai or Xi Yun.

**Table 65: Initial consonants of Meng Gong in China**

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Retroflex	Velar	Glottal
Stop	p <sup>h</sup> p b		t <sup>h</sup> t d			k <sup>h</sup> k g	ʔ
Fricative		f v	s	ʃ ʒ	ʂ zɿ		h
Nasal	m		n	ɲ		ŋ	
Affricate			ts <sup>h</sup> ts	tʃ <sup>h</sup> tʃ dʒ	tʂ <sup>h</sup> tʂ		
Lateral		l					
Trill		r					

#### Consonant clusters

There are twelve consonant clusters in Meng Gong. Consonant clusters with the alveolar lateral /l/ as the second member include /pl, p<sup>h</sup>l, bl, kl, k<sup>h</sup>l, gl/ and consonant clusters with the alveolar trill /r/ as the second member include /pr, p<sup>h</sup>r, br, kr, k<sup>h</sup>r, gr/. Examples are given in Table 66 below.



**Table 66: Consonant clusters of Meng Gong in China**

1 <sup>st</sup> consonants	2 <sup>nd</sup> consonants	
	l	r
p	pl	pr
p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r
b	bl	br
k	kl	kr
k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r
g	gl	gr

### 6.2.3.2 Vowels

Meng Gong has 21 vowels, including tense (紧) vowels and lax vowels (松). The tense vowel in Meng Gong is produced mainly by pharyngeal muscle contraction. The tongue and the wall of the oral cavity is not tense. When the centralized /i/ occurs with /ts, ts<sup>h</sup>, s/ it is articulated as [ɿ] (voiceless unrounded alveolar apical). With /tʂ, tʂ<sup>h</sup>, ʂ, z/ it is articulated as [ʮ] (voiceless unrounded retroflex apical). When /ɔ, ɔ/ is followed by /t/ or /n/ as a final consonant it is articulated as [ɔ<sup>a</sup>, ɔ<sup>a</sup>]; when [E, E] is followed by /k/ or /ŋ/ as final consonant it is pronounced as [E<sup>a</sup>] and [E<sup>a</sup>] (Zhou and Yan 2004: 25).

**Table 67: Monophthongs of Meng Gong in China**

	Front	Central	Back	
			unrounded	rounded
Close	i, <u>i</u>	ĩ <sup>44</sup>	ɯ, <u>ɯ</u>	u, <u>u</u>
Close-mid	e, <u>e</u>		ɤ, <u>ɤ</u>	o, <u>o</u>
Mid	E <sup>45</sup> , <u>E</u>			
Open-mid			ʌ, <u>ʌ</u>	ɔ, <u>ɔ</u>
Open	a, <u>a</u>			

Meng Gong has 25 diphthongs. The diphthong /ʌu/ is in borrowed word from Chinese. The diphthongs /Eu/ and /Eu/ are articulated as [E<sup>a</sup>u] and [E<sup>a</sup>u] respectively and the diphthongs /ɔi/ and /ɔi/ are articulated as [ɔ<sup>a</sup>i] and [ɔ<sup>a</sup>i] respectively. There are no triphthongs in Meng Gong. The details are given as below.

<sup>44</sup> ĩ refer to centralised i.

<sup>45</sup> E is mid front unrounded vowel (non- IPA symbol).

**Table 68: Diphthongs of Meng Gong in China**

Diphthongs		
iu, <u>i</u> u	ui, <u>u</u> i	ui, <u>u</u> i
eu, <u>e</u> u	ɣi, <u>ɣ</u> i	
Eu, <u>E</u> u		ua, <u>u</u> a
		oi, <u>o</u> i
	ɬi, <u>ɬ</u> i	ɔi, <u>ɔ</u> i
	<u>ʌ</u> u	
ai, <u>a</u> i		au, <u>a</u> u

### 6.2.3.3 Registers and pitches of Meng Gong in China

Meng Gong has two registers, tense and lax. Its tense and lax vowels are correlated with pitches. Tense normally occurs with falling contour but when the final consonants are /-p, -t, -k/ it becomes mid level pitch. Lax occurs with low falling pitch. (Zhou and Yan 2004: 26).

## 6.3 A phonological comparison of Wa varieties with Meung Yum

This section provides a phonological comparison of consonants, vowels, tones and registers of three Wa varieties in China and Mueng Yum in Myanmar.

### 6.3.1 A comparison of consonants

Voiceless aspirated stops /p<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>/ are typical of three Wa varieties and of Meung Yum, but voiced aspirated consonants /b<sup>h</sup>, d<sup>h</sup>, dz<sup>h</sup>, g<sup>h</sup>, v<sup>h</sup>, z<sup>h</sup>, m<sup>h</sup>, n<sup>h</sup>, ŋ<sup>h</sup>, l<sup>h</sup>, r<sup>h</sup>/ and voiceless aspirated consonants /ts<sup>h</sup>, tɕ<sup>h</sup>/ occur only in Ai Shuai; palatal consonants /c<sup>h</sup>, c, ɲ, j/ occur only in Meung Yum. Palato-alveolar /ʃ, ʒ, tʃ<sup>h</sup>, tʃ, dʒ/ and retroflex /ʂ, ʐ, tʂ<sup>h</sup>, tʂ/ consonants only occur in Meng Gong. Xi Yun is the only one with the voiced alveolar sibilant /z/ and the voiced velar fricative /ɣ/ in its phonological system. The comparison of consonants of three Wa varieties in China and Meung Yum in Myanmar are given in Table 69 below.

**Table 69: A comparison of consonants**

	Three Wa Varieties in China			Myanmar
	Parauk: Ai Shuai	A-Vax: Xi Yun	Wa/Vax: Meng Gong	Meung Yum
Labial	p <sup>h</sup>	p <sup>h</sup>	p <sup>h</sup>	p <sup>h</sup>
	p	p	p	p
	b <sup>h</sup>			
	b		b	(b) <sup>46</sup>
	f	f	f	
	v <sup>h</sup>			
	v	v	v	v
	m <sup>h</sup>			
m	m	m	m	
Alveolar	t <sup>h</sup>	t <sup>h</sup>	t <sup>h</sup>	t <sup>h</sup>
	t	t	t	t
	d <sup>h</sup>			
	d		d	(d)
	s	s	s	s
		z		
	n <sup>h</sup>			
	n	n	n	n
	ts <sup>h</sup>		ts <sup>h</sup>	
	ts		ts	
	l <sup>h</sup>			
	l	l	l	l
	r <sup>h</sup>			
	r		r	r

<sup>46</sup> The parentheses ( ) denote consonants occurring only in the Namt Yoke and Loi Yang varieties.

	Three Wa Varieties in China			Myanmar
	Parauk: Ai Shuai	A-Vax: Xi Yun	Wa/Vax: Meng Gong	Meung Yum
Palato- alveolar			ʃ	
			ʒ	
			tʃ <sup>h</sup>	
			tʃ	
			dʒ	
Palatal				c <sup>h</sup>
				c
				ɲ
				j
Retroflex			ʂ	
			ʐ	
			tʂ <sup>h</sup>	
			tʂ	
Velar	k <sup>h</sup>	k <sup>h</sup>	k <sup>h</sup>	k <sup>h</sup>
	k	k	k	k
	g <sup>h</sup>			
	g		g	
	ŋ <sup>h</sup>			
		ŋ		
	ŋ	ŋ	ŋ	ŋ
Glottal	ʔ	ʔ	ʔ	ʔ
	h	h	h	h

In the comparison of consonants of three Wa varieties and the previous research on Waic phonology in Chapter 2, it is common that tonal languages have no voiced stops in the phonological system. These may be seen in Xi Yun, which has three tones with no voiced stops. Other Waic languages with this features are Bulang (Li, Nie and Qiu 1986) which has four tones but no voiced stops (see in Chapter 2 Section 2.3.5) and Kontoy Plang (Paulsen 1996) which has two tones and two registers with no voiced stops (see Chapter 2, Section 2.3.8). The Pang Wan and Pan Tang varieties of Meung Yum has no voiced stops (see Chapter 4 Section 4.2.1.2 ii and iii) but there is here no evidence to claim that Pang Wan and Pan Tang are tonal. This consonant comparison does give a reason to consider the possibility that this variety may be going through a process of language change (see Chapter 5).

### 6.3.2 A comparison of consonant clusters

The comparison of consonant clusters is presented in Table 70.

**Table 70: A comparison of consonant clusters**

		Three Wa Varieties in China						Myanmar	
		Parauk: Ai Shuai		A-Vax: Xi Yun		Wa/Vax : Meng Gong		Meung Yum	
		2 <sup>nd</sup> consonants							
		l	r	l	ɣ	l	r	l	r
1st consonants	p	pl	pr	pl	pɣ	pl	pr	pl	pr
	p <sup>h</sup>	p <sup>h</sup> l	p <sup>h</sup> r	p <sup>h</sup> l	p <sup>h</sup> ɣ	p <sup>h</sup> l	p <sup>h</sup> r	p <sup>h</sup> l	p <sup>h</sup> r
	b <sup>h</sup>	b <sup>h</sup> l	b <sup>h</sup> r						
	b	bl	br			bl	br		(br)
	k	kl	kr	kl	kɣ	kl	kr	kl	kr
	k <sup>h</sup>	k <sup>h</sup> l	k <sup>h</sup> r	k <sup>h</sup> l	k <sup>h</sup> ɣ	k <sup>h</sup> l	k <sup>h</sup> r	k <sup>h</sup> l	k <sup>h</sup> r
	g <sup>h</sup>	g <sup>h</sup> l	g <sup>h</sup> r						
	g	gl	gr			gl	gr		
	m			ml	mɣ			ml	mr
	ɲ								ɲr
ŋ			ŋl	ŋɣ				ŋr	

Ai Shuai, Xi Yun, Meng Gong and Meung Yum has four identical consonant clusters, /pl, p<sup>h</sup>l, kl, k<sup>h</sup>l/. The clusters with the voiced alveolar trill /r/ as the second member of the cluster are absent in Xi Yun. The consonant clusters with voiced velar fricative /ɣ/ as the second member occur only in Xi Yun. The consonant clusters /br, bl/ occur in Ai Shuai, Meng Gong, and the Namt Yoke and Loi Yang varieties of Meung Yum. The /g/ as first consonant of a cluster appears only in Ai Shuai and Meng Gong; it is hypothesized that Xi Yun and Meung Yum has lost this /g/. The nasals /m, ŋ/ as first consonants occur in Xi Yun and in Meung Yum, the voiced palatal nasal /ɲ/ only occurs in Meung Yum. The consonant clusters /b<sup>h</sup>l, b<sup>h</sup>r/; /g<sup>h</sup>l, g<sup>h</sup>r/ only appear in Ai Shuai. However, the consonant clusters /mɣ, ŋl, ŋɣ/ only occur in Xi Yun. The unique consonant clusters to Meung Yum are /mr, jr, ɲr/ and Meng Gong shares it unique consonant clusters /bl, br, gl, gr/ with Ai Shuai.

### 6.3.3 A comparison of vowels

A comparison of monophthongs, diphthongs and triphthongs of three Wa varieties in China and Meung Yum in Myanmar will be presented in Tables 71 and 72 and it will be discussed in the following sections.

#### Monophthongs

The most common nine vowels among the three Wa varieties and Meung Yum are /i, e, ε, ɯ, ɤ, a, u, o, ɔ/. Tense and lax vowels only occur in Ai Shuai and Meng Gong. Meung Yum is the one variety that has breathy and clear vowels. Xi Yun and Meng Gong both include a non-IPA symbol in their vowel system, /E/, a mid front unrounded vowel. Meng Gong has another special vowel, a centralised /i/ which occurs only in Meng Gong. The vowel comparisons between Meung Yum and the three Wa varieties are shown in Table 71 below.

**Table 71: A comparison of vowels**

Monophthongs	Three Wa Varieties in China			Myanmar
	Parauk: Ai Shuai	A-Vax: Xi Yun	Wa/Vax: Meng Gong	Meung Yum
Front unrounded	i, <u>i</u>	i	i, <u>i</u>	i, <u>i</u>
	e, <u>e</u>	e	e, <u>e</u>	e
		E <sup>47</sup>	E, <u>E</u>	
	ɛ, <u>ɛ</u>			ɛ, <u>ɛ</u>
Central unrounded or back unrounded			ï	(a) <sup>48</sup>
	ɯ, <u>ɯ</u>	ɯ	ɯ, <u>ɯ</u>	ɯ, <u>ɯ</u>
	ʏ, <u>ʏ</u>	ʏ	ʏ, <u>ʏ</u>	ʏ, <u>ʏ</u>
			ʌ, <u>ʌ</u>	
Back rounded	a, <u>a</u>	a	a, <u>a</u>	a, <u>a</u>
	u, <u>u</u>	u	u, <u>u</u>	u
	o, <u>o</u>	o	o, <u>o</u>	o, <u>o</u>
	ɔ, <u>ɔ</u>	ɔ	ɔ, <u>ɔ</u>	ɔ

### Diphthongs and triphthongs

The most common diphthongs shared among three Wa varieties and Meung Yum are /ɯi, ua, ʏi, oi, ai/. Xi Yun and Meng Gong have no triphthongs but Ai Shuai has four, of which two are tense and two lax: /iau, uai, iau, uai/; Meung Yum has three triphthongs, /iau, uai, iai/. Details are given in Table 72 below.

<sup>47</sup> E is a mid front unrounded vowel (non- IPA symbol).

<sup>48</sup> The open central unrounded vowel /a/ (schwa) occurs only in pre-syllables in Meung Yum.

**Table 72: A comparison of diphthongs and triphthongs**

Diphthongs and triphthongs		Three Wa Varieties in China			Myanmar
		Parauk: Ai Shuai	A-Vax: Xi Yun	Wa/Vax: Meng Gong	Meung Yum
Diphthongs	iɯ		iɯ		
	iɛ	iɛ, <u>iɛ</u>			
	iu	iu, <u>iu</u>		iu, <u>iu</u>	
	io	io, <u>io</u>			io, <u>io</u>
	io		io		
	ia	ia, <u>ia</u>	ia		ia, <u>ia</u>
	Eu			Eu, <u>Eu</u>	
	eu			eu, <u>eu</u>	
	ɛa	ɛa(-k),(-ŋ), <u>ɛa</u>			
	ɯi	ɯi, <u>ɯi</u>	ɯi	ɯi, <u>ɯi</u>	ɯi
	uɯ		uɯ		
	ue				ue, <u>ue</u>
	ua	ua, <u>ua</u>	ua		ua
	ui	ui, <u>ui</u>	ui		
	ɣi	ɣi, <u>ɣi</u>	ɣi	ɣi, <u>ɣi</u>	ɣi, <u>ɣi</u>
	li			li, <u>li</u>	
	lu			<u>lu</u>	
	oi	oi, <u>oi</u>	oi		oi
	ɔi	ɔi, <u>ɔi</u>			ɔi, <u>ɔi</u>
	ai	ai, <u>ai</u>	ai	ai, <u>ai</u>	ai
au	au, <u>au</u>			au, <u>au</u>	
au	au, <u>au</u>				
Triphthongs	iai				iai
	iau	iau, <u>iau</u>			iau
	uai	uai, <u>uai</u>			uai

The diphthongs /iɯ, io, uɯ/ occur only in Xi Yun and the diphthongs /iɛ, iɛ/; /ɛa, ɛa/ and /au, au/ occur only in Ai Shuai. The diphthongs unique to Meng Gong are /Eu, Eu/; /eu, eu/; /li, li/ and /lu, lu/. Meung Yum shares most of its diphthongs and triphthongs with Ai Shuai except the diphthongs /ue, ue/ and a triphthongs, /iai/.



### 6.3.4 A comparison of registers and tones

Ai Shuai and Meng Gong both have tense and lax register and their register features are indistinguishable. However, the features of Meung Yum register are different from Ai Shuai and Meng Gong; it does not carry a specific pitch or contour. The clear and breathy registers in Meung Yum are mainly the vowel quality. Xi Yun has no register, but is tonal; it has three tones, low level /ɿ/ or /11/; mid level /ɨ/ or /33/; and high level /ʌ/ or /55/. as the register and tonal systems are summarized in Table 73 below.

**Table 73: A comparison of registers and tones**

Registers and tones	Three Wa Varieties in China			Myanmar
	Parauk: Ai Shuai	A-Vax: Xi Yun	Wa/Vax: Meng Gong	Meung Yum
Registers	Two registers: Tense (紧) and Lax (松)  (Tense is with high pitch and falling contour. Lax is lower pitch with falling contour.)		Two registers: Tense (紧) and Lax (松)  (Tense is with falling contour. Lax is with low falling pitch.)	Two registers: Clear and Breathy
Tones		Three tones : low level /ɿ/ or /11/; mid level /ɨ/ or /33/; and high level /ʌ/ or /55/		

## 6.4 Summary

Among three Wa varieties, Ai Shuai, Xi Yun and Meng Gong, of which Xi Yun is the only tonal variety, and Ai Shuai, Meng Gong and Meung Yum being register

languages, it is possible Meung Yum is in the process of language change and may develop tones in future (see discussion, Chapter 5). Ai Shuai has 38 consonants, Meng Gong has 31, Xi Yun has 19, Meung Yum has 21 in Namt Yoke and Loi Yang and 19 in Pang Wan and Pan Tang. Ai Shuai has more consonants than the others, mainly because of the voiced aspirated consonants /b<sup>h</sup>, d<sup>h</sup>, dz<sup>h</sup>, g<sup>h</sup>, v<sup>h</sup>, z<sup>h</sup>, m<sup>h</sup>, n<sup>h</sup>, ŋ<sup>h</sup>, l<sup>h</sup>, r<sup>h</sup>/ and voiceless aspirated consonants /ts<sup>h</sup>, tɕ<sup>h</sup>/; palatal consonants /c<sup>h</sup>, c, ɲ, j/ only occur in Meung Yum, the palato-alveolars /ʃ, ʒ, tʃ<sup>h</sup>, tʃ, dʒ/ and the retroflex consonants /ʂ, ʐ, tʂ<sup>h</sup>, tʂ/ only occur in Meng Gong. Xi Yun is the only one with the voiced alveolar sibilant /z/ and voiced velar fricative /ɣ/ in its system. Meng Gong stands out for its retroflex consonants /tʂ, tʂ<sup>h</sup>, ʂ, ʐ/. Namt Yoke and Loi Yang of Meung Yum has two more voiced stops /b, d/ when compared to Pang Wan and Pan Tang. Xi Yun has the simplest consonant system of those reviewed here. All three Wa varieties have palato-alveolars which are not found in Meung Yum, but the palatal is a place of articulation found only in Meung Yum (see Table 69).

Ai Shuai has the most consonant clusters (16 consonant clusters), because it has clusters involving the voiced stop aspirated as their first member of consonant /b<sup>h</sup>l, b<sup>h</sup>r, g<sup>h</sup>l, g<sup>h</sup>r/. All have /l, r/ as the second member of consonant except Xi Yun, which has /l, ɣ/. Xi Yun has the nasals /m, ŋ/ and Meung Yum has the nasals /m, ɲ, ŋ/ as first member of consonant clusters ; Ai Shuai has the voiced stops /b, b<sup>h</sup>, g, g<sup>h</sup>/ and Meng Gong has voiced stops /b, g/ as their first member of consonant. (see Table 70).

Meng Gong has the most monophthongs (21 vowels) followed by Ai Shuai (18 vowels) and Meung Yum (15 vowels). Meng Gong and Ai Shuai both have tense and lax vowel qualities and Meung Yum has clear and breathy vowel quality. Therefore they have more than nine vowels when compared to Xi Yun. Meng Gong and Xi Yun have a special non-IPA mid front unrounded vowel /E, E/ and /E/ respectively and Meng Gong has another monophthong, /Λ, Λ/ which does not occur in any of the Wa varieties nor in Meung Yum (see Table 71).

Each Wa variety and Meung Yum has their own unique diphthongs. Ai Shuai has 28 diphthongs, with the diphthongs /iɛ, iɛ/ and /ɛa, ɛa/ being of special interest; Xi Yun has ten diphthongs and is the only one with the diphthongs /iu, iɔ, uu/. Meng Gong has 25 diphthongs, with /Eu, Eu/; /eu, eu/; /li, li/ and /Λu/ being of special interest. 16 diphthongs in Meung Yum, the diphthongs /ue, ue/ are the only diphthongs that exist in Meung Yum. Xi Yun and Meng Gong have no triphthongs,

but Ai Shuai has two tense and two lax triphthongs, /iau, uai/ and /iau, uai/. Meung Yum has the same triphthongs /iau, uai/ as Ai Shuai and the triphthong /iai/ is the only one to appear in Meung Yum. Consonants, vowels, and registers and tones are summarized below.

**Table 74: A summary of the comparisons.**

	Three Wa Varieties in China			Myanmar
	Parauk: Ai Shuai	A-Vax: Xi Yun	Wa/Vax: Meng Gong	Meung Yum
Consonants:				
Single consonants	38	19	31	(21) <sup>49</sup> , 19
Consonant clusters	16	12	12	(13), 12
Vowels:				
Monophthongs	15	9	21	16
Diphthongs	28	10	25	16
Triphthongs	4	None	None	3
Registers and tones	Two registers: Tense (紧) and Lax (松)	Three tones: /11/, /33/, /55/	Two registers: Tense (紧) and Lax (松)	Two registers: Clear and Breathy

This comparison gives an overview of the phonological similarities and differences between Meung Yum at Kunlong Township, Shan State, Myanmar and the three Wa sub-groups in China.

It is noteworthy that Ai Shuai has more consonants when compared to the others. This is because the others may have lost the voiced aspirated series /b<sup>h</sup>, d<sup>h</sup>, dz<sup>h</sup>, g<sup>h</sup>, v<sup>h</sup>, z<sup>h</sup>, m<sup>h</sup>, n<sup>h</sup>, ɲ<sup>h</sup>, ŋ<sup>h</sup>, l<sup>h</sup>, r<sup>h</sup>/ and voiceless aspirated /ts<sup>h</sup>, tɕ<sup>h</sup>/. This may develop into breathiness or tone in the language. This is a hypothesis and further study of this phenomenon is needed.

<sup>49</sup> Parentheses ( ) denote the Namt Yoke and Loi Yang varieties; items without parentheses refer to the Pang Wan and Pan Tang varieties.

## **Chapter 7**

### **Conclusion**

#### **7.1 Introduction**

The main objective of this thesis is to describe the phonology of Meung Yum, an unknown language in Shan state of Myanmar. The second objective is to present the phonology of three Wa varieties: Parauk, Ai Shuai; A-Vax, Xi Yun; and Vax/Wa, Meng Gong Parauk, in order to make a phonological comparison with Meung Yum. The phonological similarities and differences between Meung Yum at Kunlong Township, Shan State, Myanmar and the three Wa sub-groups in China will be briefly given. The following sections summarize the findings of this study and give suggestions for further study.

#### **7.2 Summary of findings**

There are two summary findings in this section which are phonological findings of Meung Yum in Section 7.2.1 and phonological similarities and differences of Mueng Yum and three Wa varieties in Section 7.2.2.

##### **7.2.1 Phonological Findings of Meung Yum**

This research was conducted with Meung Yum speakers outside Myanmar for the purpose of data collection. The 1,628 word list elicitation items were used for data collection. Four male language resource persons volunteered themselves for this research. They are from Pan Tang, Namt Yoke, Loi Yang and Pang Wan villages, and aged between 40 and 56 years old. All speakers speak Meung Yum as their first language and they all speak Shan as their second or third language.

This study finds two main syllable structures in Meung Yum, the open syllable which is C(C)V(V)(V) and the closed syllable, which is C(C)V(V)(V)C. Meung Yum has clear and breathy registers, but these are not found in syllables with a CC onset or VVV nucleus. Six pre-syllables /pa-/ , /ta-/ , /ka-/ , /ma-/ , /sa-/ and /la-/ are found in Meung Yum. The stress pattern in Meung Yum is iambic and it is not contrastive. Two common word structures are found in Meung Yum, the monosyllable

C(C)V(V)(V)(C) and the sesquisyllable Ca.[C(C)V(V)(C). The disyllable C(C)V(V)(C).C (C)V(V)(C) in Mueng Yum is rare.

This study found 21 contrastive consonants in the Namt Yoke and Loi Yang varieties of Meung Yum and 19 in the Pang Wan and Pan Tang varieties, which lack the voiced stops /b/ and /d/. All Meung Yum varieties studied here have nine voiceless stops /p<sup>h</sup>, t<sup>h</sup>, c<sup>h</sup>, k<sup>h</sup>, p, t, c, k, ʔ/, three fricatives /v, s, h/, four nasals /m, n, ɲ, ŋ/, the lateral /l/, the trill /r/ and the approximant /j/. Meung Yum has ten final consonants /-p, -t, -c, -k, -ʔ, -h, -m, -n, -ɲ, -ŋ/ and all four Meung Yum varieties have the 12 consonant clusters /pl, p<sup>h</sup>l, kl, k<sup>h</sup>l, ml/and /pr, p<sup>h</sup>r, kr, k<sup>h</sup>r, mr, ɲr, ŋr/; the consonant /br/, however, occurs only in the Namt Yoke and Loi Yang varieties.

Meung Yum has 15 monophthongs, 16 diphthongs and three triphthongs. The vowel system of Mueng Yum is asymmetric, as there are nine clear monophthongs /i, e, ε, a, u, o, ɔ, ʊ, ʏ/ but only six breathy monophthongs /i̤, ε̤, a̤, ʊ̤, o̤, ʏ̤/; nine clear diphthongs /io, ia, ɿi, oi, ɔi, ai, au, ue, ua/ but only seven breathy diphthongs /ɿ̤i̤, i̤o, i̤a, ʏ̤i̤, ɔ̤i̤, a̤u, ṳe/. The number of clear and breathy vowels would be expected to be the same; the asymmetrical vowel system may be due to the effects of language change. Furthermore, Meung Yum's triphthongs /iai, iau, uai/ occur only as clear vowels.

In regards to suprasegmentals, that Meung Yum has developed three pitches, level, falling and rising, but these are not phonemic. The pitch analysis is based upon acoustic parameters being processed and normalization of duration and Fundamental Frequency being calculated in order to produce the chart of pitches for each variety. In addition, two phonemic registers, clear and breathy, are found in Meung Yum. The suprasegmentals in Meung Yum are complex because of the effects of language change.

Based on the finding one, the hypothesis on stages of language change in Meung Yum may be from voiced stops initials developing to breathiness and slowly progressing to develop tones. These stages<sup>50</sup> may be presented as follows:-

Voiced stops initials → breathiness → tones  
ba: pa → pa: p̤a → p̤à: pá

<sup>50</sup> The examples of the stages with lexical items in the diagram are hypothetical.

However, suprasegmentals will be addressed further in Section 7.3 below, Limitations of the study.

## 7.2.2 Phonological similarities and differences of Meung Yum and three Wa varieties

When a comparison of three Wa varieties in China and Meung Yum in Myanmar was made, their phonological systems were found to exhibit both similarities and differences among Mueng Yum, Ai Shuai, Xi Yun and Meng Gong.

Ai Shuai, Meng Gong and Meung Yum are register languages, but Xi Yun is the single tonal language among this group. Ai Shuai has 38 consonants, Meng Gong has 31, Xi Yun has 19, Meung Yum has 21 in the Namt Yoke and Loi Yang varieties and 19 in Pang Wan and Pan Tang. The A-Vax Xi Yun and the Pang Wan and Pan Tang varieties of Meung Yum has no voiced stops in their consonant systems. Previous studies of tonal languages in Waic branch suggest that tonal languages do not have voiced stops in their phonological systems; other Waic tonal languages without voiced stops include Bulang (Li, Nie and Qiu 1986) and Plang (Paulsen 1996). For Meung Yum, the three non-phonemic pitches level, falling and rising are found in all varieties. In addition, the Pang Wan and Pan Tang varieties have lost their voiced stops. From this it may be hypothesized that these two villages may in the process of language change and may in future develop tone.

Phonological similarities and differences among Ai Shuai, Xi Yun, Meng Gong and Meung Yum are shown in Table 75 below.

**Table 75: Summary of phonological similarities and differences**

	Ai Shuai	Xi Yun	Meng Gong	Meung Yum	
				Namt Yoke and Loi Yang	Pang Wan and Pan Tang
Consonants	voiced aspirated consonants /b <sup>h</sup> , d <sup>h</sup> , dz <sup>h</sup> , g <sup>h</sup> , v <sup>h</sup> , z <sup>h</sup> , m <sup>h</sup> , n <sup>h</sup> ,	No voiced stops /b, d/	retroflexes /tʂ, tʂ <sup>h</sup> , ʂ, zʂ/.		No voiced stops /b, d/

	Ai Shuai	Xi Yun	Meng Gong	Meung Yum	
				Namt Yoke and Loi Yang	Pang Wan and Pan Tang
	ŋ <sup>h</sup> , ŋ <sup>h</sup> , ts <sup>h</sup> , tɕ <sup>h</sup> , l <sup>h</sup> , r <sup>h</sup> /				
	have palato-alveolar /dʒ <sup>h</sup> , dʒ, ʒ <sup>h</sup> , ʒ, ɲ <sup>h</sup> , ɲ, tɕ <sup>h</sup> , tɕ/	have palato-alveolar /ɲ, tɕ/	have palato-alveolar /ɲ/	no palato-alveolar but palatal /c <sup>h</sup> , c, ɲ, j/	
Consonant clusters	/l, r/ as the second members of consonant clusters	/l, ʏ/ the second members of consonant clusters	/l, r/ as the second members of consonant clusters	/l, r/ as the second members of consonant clusters	
	voiced stops /b, b <sup>h</sup> , g, g <sup>h</sup> / as first member of consonant clusters	nasals /m, ŋ/ as first member of consonant clusters	voiced stops /b, g/ as first member of consonant clusters	nasal /m, ɲ, ŋ/ as first member of consonant clusters	
Vowels : Monophthongs		special non-IPA mid front unrounded vowel /E/	special non-IPA mid front unrounded vowel /E, <u>E</u> /, /Λ, <u>Λ</u> /		
Diphthongs	/iɛ, <u>iɛ</u> / and /ɛa, <u>ɛa</u> /	/iɯ, iɔ, uɯ/. /	/Eu, <u>Eu</u> /; /eu, <u>eu</u> /; /ɬi, <u>ɬi</u> / and /ɬu, <u>ɬu</u> /	/ue, <u>ue</u> /	
Triphthongs	/iau, <u>iau</u> /	No triphthongs	No triphthongs	/iai/	
Tones and Registers	Registers	Tones	Registers	Registers	

The consonants unique to Ai Shuai are the voiced aspirated consonants /b<sup>h</sup>, d<sup>h</sup>, dz<sup>h</sup>, g<sup>h</sup>, v<sup>h</sup>, z<sup>h</sup>, m<sup>h</sup>, n<sup>h</sup>, ɲ<sup>h</sup>, l<sup>h</sup>, r<sup>h</sup>/ and voiceless aspirated /ts<sup>h</sup>, tɕ<sup>h</sup>/, for those unique to Meng Gong are the retroflex /tʂ, tʂ<sup>h</sup>, ʂ, z/. A-Vax: Xi Yun, Pang Wan and Pan Tang of Meung Yum varieties have no voiced stops /b, d/. Xi Yun has the simplest consonant system of them all. Meung Yum has palatal but no palato-alveolar; these are found only in the phonologies of the three Wa varieties.

Ai shuai has largest inventory of consonant clusters (16) among these languages because it has a series of clusters with voiced aspirated stops as the first consonant of the cluster, /b<sup>h</sup>l, b<sup>h</sup>r, g<sup>h</sup>l, g<sup>h</sup>r/. Ai Shuai, Meng Gong and Meung Yum has /l, r/ as the second member of consonant clusters, but Xi Yun has a unique series of clusters of which the second member is /ɣ/. Xi Yun also has nasals /m, ɲ/, and Meung Yum has nasals /m, ɲ, ɲ/ as the first member of a consonant cluster, but Ai Shuai has clusters with the voiced stops /b, b<sup>h</sup>, g, g<sup>h</sup>/ and Meng Gong has clusters with the stops /b, g/ as the first member the cluster.

Meng Gong has the largest inventory of monophthong vowels (21) among these languages, followed by Ai Shuai (18 vowels) and Meung Yum (16 vowels). Xi Yun has the fewest, with only nine vowels. Meng Gong and Meung Yum has many monophthongs because the former has tense and lax vowel qualities and the latter has clear and breathy vowel qualities. Meng Gong and Xi Yun both have a special non-IPA mid front unrounded vowel, /E, E/ and /E/ respectively. Meng Gong has one more tense and lax monophthong which is not found in the other languages, /Λ, Λ/.

The comparison of diphthongs showed that Ai Shuai has 28 diphthongs, of which /iɛ, iɛ/ and /ɛa, ɛa/ are unique; Xi Yun has ten diphthongs of which /iu, iɔ, uu/ are particular to Xi Yun. Meng Gong however has 25 diphthongs, of which /Eu, Eu/; /eu, eu/; /Λi, Λi/ and /Λu/ are unique to Meng Gong. Meung Yum has 16 diphthongs, of which /ue, ue/ is found only in Meung Yum. There are no triphthongs in Xi Yun or Meng Gong, but Ai Shuai has two tense and two lax triphthongs, /iau, uai/ and /iau, uai/. The triphthongs /iau, uai/ are a similarity between Meung Yum and Ai Shuai, but the triphthong /iai/ appears only in the Meung Yum vowel system.

The phonological comparison of three Wa varieties with Meung Yum shows that they all share some common phonological features, but each phonological system is



also unique; therefore it is difficult to determine which Wa varieties are the most or the least similar to each other. Lexicostatistics may help to determine this and is a suggestion for further study. This study also found that Meung Yum has lost the voiced stops /b/ and /d/ from two Meung Yum varieties, but that it is preserved in the other two varieties. The idea of Meung Yum has lost the voiced stops is based on the observation of no voiced velar stop [g] in Namt Yoke and Loi Yang varieties, the second observation is from Proto-Waic which voiced stops become voiceless aspirated initially in Mueng Yum this evidence can be found in Chapter 5, 5.5 Example 2. In addition, the asymmetrical vowel system caused by the uneven distribution of breathy vowels may suggest that Meung Yum may be undergoing a process of language change.

### **7.3 Limitations of the study**

Based on this study, it may be hypothesized that Meung Yum is undergoing a process of language change. The three possible pitches, level, falling and rising appear in all four varieties of Mueng Yum they are non-phonemic. It is difficult to predict how they will develop in the future as the language changes.

The vowel system of Mueng Yum is asymmetrical, a possible result of language change causing a slow loss of the breathy vowel quality. If the 15 unique vowels occurred with equal frequency, they should occur 240 times, and since there are six breathy vowels, 1440 uses of breathy vowels would be expected; in fact, there are fewer than 100 occurrences in the data. This is significant as it supports the claim that breathy vowels may be lost or changing. These breathy vowels could lose their breathiness, causing voicing or aspiration of the preceding consonants or develop tones in future. Further observation will show the outcome of these processes.

### **7.4 Suggestions for further study**

There are many possible areas for further study. The first is that the devoicing<sup>51</sup> in Meung Yum, which demonstrates a loss of the voiced velar stop [g] when compared to Proto-Waic and the loss of voiced stops /b/ and /d/ as well in the Pang Wan and Pan Tang varieties. According to the research of Svantesson (1989: 5-8) and Diffloth (1991: 14) tonogenesis or registrogenesis are linked either to devoicing of the initial consonants or to the effects of vowel quality. As a result, based on the findings in Meung Yum, this study hypothesizes that a process of tonogenesis in Meung Yum

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<sup>51</sup> Devoicing is the process or change by which voiced is lost or restricted.

may have begun; but more research is needed in the area of suprasegmentals of Meung Yum in order to test this hypothesis.

A second area for further research is to study other Waic languages spoken in Myanmar in order to compare with Meung Yum. The third area for further study is to gather data on other Meung Yum varieties. To this author's knowledge, no grammatical studies have been undertaken of Meung Yum; this also may assist in the classification of Meung Yum within the appropriate Wa sub-group.

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**APPENDIX A**  
**1,628 WORD LIST**

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1	sky		la.jak	la.jak	la.jak	la.jak
2	sun		sa.ni?	sa.ni?	sa.ni?	sa.ni?
3	moon		c <sup>h</sup> i?	c <sup>h</sup> i?	c <sup>h</sup> i?	c <sup>h</sup> i?
4	star		sim.ʔuŋ	sim.ʔuŋ	sim.ʔuŋ	sim.ʔuŋ
5	cloud (rain)		ʔom	ʔom	ʔom	ʔom
6	mist/fog	mɤt.mo*	mɤt.mo	mɤt.mo	mɤt.mo	mɤt.mo
7	rain		lɛ?	lɛ?	lɛ?	lɛ?
8	rainbow		la.jɔŋ	la.jɔŋ	la.jɔŋ	la.jɔŋ
9	lightning (flashing)		prɔk.ple?	prɔk.ple?	prɔk.ple?	prɔk.ple?
10	thunder		la.nun.la.ja	la.nun.la.ja	la.nun.la.ja	la.nun.la.ja
11	shadow/shade		bɥe	bɥe	vui	pɥe
12	wind		ku	ku	ku	ku
13	night		p <sup>h</sup> an.p <sup>h</sup> o	p <sup>h</sup> an.p <sup>h</sup> o	p <sup>h</sup> an.p <sup>h</sup> o	p <sup>h</sup> an.p <sup>h</sup> o
14	day		p <sup>h</sup> an.sa.ni?	p <sup>h</sup> an.sa.ni?	p <sup>h</sup> an.sa.ni?	p <sup>h</sup> an.sa.ni?
15	morning		kam.sa?	no data	kam.sa?	ka.sɔm.sa?
16	noon		p <sup>h</sup> an.sa?	c <sup>h</sup> on.sa.ni?	c <sup>h</sup> on.sa.ni?	p <sup>h</sup> an.sa.ni?
17	yesterday		kau?	kau?	kau?	kau?
18	tomorrow		p <sup>h</sup> an.sa?	p <sup>h</sup> a.sa?	p <sup>h</sup> a.sak	p <sup>h</sup> a.sak
19	year		num	num	num	num
20	east		kra?.t <sup>h</sup> ut.sa.ni	kra?.t <sup>h</sup> ut.sa.ni	kra?.t <sup>h</sup> ut.sa.ni	kra?.t <sup>h</sup> ut.sa.ni
21	west		kra?.lek.sa.ni	no data	kra?.lek.sa.ni	kra?.lek.sa.ni

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
22	water		rom	rom	rom	rom
23	to be hot (water)		hak	hak	hak	hak
24	to be hot (person)		l̥au	l̥au	l̥au	l̥au
25	to be warm (water)		sa.ʔu	sa.ʔu	sa.ʔu	sa.ʔu
26	to be cold (person)		k <sup>h</sup> uŋ	k <sup>h</sup> uŋ	k <sup>h</sup> uŋ	rom.k <sup>h</sup> uŋ
27	to be cool (water)		rom.k <sup>h</sup> uŋ	rom.k <sup>h</sup> uŋ	rom.k <sup>h</sup> uŋ	rom.k <sup>h</sup> uŋ
28	stream		ŋət.rom	ŋət.rom	ŋət.rom	rom.ŋət
29	river		rom.t <sup>h</sup> iŋ	sa.k <sup>h</sup> rəŋ	rom.t <sup>h</sup> iŋ	sa.k <sup>h</sup> rəŋ
30	sea		paŋ.lai	nam.paŋ.lai	rom.paŋ.lai	nam.paŋ.lai
31	soil (earth)		hak.te	hak.te	hak.te	hak.te
32	mud		ʔuŋ	ʔuŋ	ʔuŋ	ʔuŋ
33	dust		la.kau	la.kau	la.kau	la.kau
34	stone		sa.moʔ	sa.moʔ	sa.moʔ	sa.moʔ
35	sand		mac	mac	mac	mac
36	lime (for betel chew)		t <sup>h</sup> un	t <sup>h</sup> un	t <sup>h</sup> un	t <sup>h</sup> un
37	gold		k <sup>h</sup> ri	k <sup>h</sup> ri	k <sup>h</sup> ri	k <sup>h</sup> ri
38	silver		mɤ.prim	mɤ	mɤ	mɤ
39	iron		riam	riam	riam	riam
40	mountain		mɔʔ	mɔʔ	mɔʔ	mɔʔ
41	cave (natural)		tauʔ.raŋ	tauʔ.raŋ	tauʔ.raŋ	tauʔ.raŋ
42	jungle/forest		lɤk	lɤk	lɤk	lɤk

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
43	tree		num.k <sup>h</sup> au?	num.k <sup>h</sup> au?	num.k <sup>h</sup> au?	num.k <sup>h</sup> au?
44	branch (tree)		kak.k <sup>h</sup> au?	kak.k <sup>h</sup> au?	kak.k <sup>h</sup> au?	kak.k <sup>h</sup> au?
45	tree bark		ŋɔ.k <sup>h</sup> au?	loʔ.k <sup>h</sup> au?	loʔ.k <sup>h</sup> au?	loʔ.k <sup>h</sup> au?
46	thorn		k <sup>h</sup> om	k <sup>h</sup> om	k <sup>h</sup> om	k <sup>h</sup> om
47	root (tree)		ria.k <sup>h</sup> au?	ria.k <sup>h</sup> au?	ria.k <sup>h</sup> au?	ria.k <sup>h</sup> au?
48	leaf (tree)		laʔ.k <sup>h</sup> au?	laʔ.k <sup>h</sup> au?	laʔ.k <sup>h</sup> au?	laʔ.k <sup>h</sup> au?
49	flower		mak.ɲa	mak.ɲa	mak.ɲa	mak.ɲa
50	fruit (tree)		pliʔ.k <sup>h</sup> au?	pliʔ.k <sup>h</sup> au?	pliʔ.k <sup>h</sup> au?	pliʔ.k <sup>h</sup> au?
51	seed (tree)		sa.mah	sa.ma	sa.ma	sa.ma
52	grass (field/jungle)		rip	rip	rip	rip
53	bamboo plant (large)		num.ʔoʔ	num.ʔoʔ	num.ʔoʔ	num.ʔoʔ
54	bamboo shoot (edible)		p <sup>h</sup> oŋ	p <sup>h</sup> oŋ	p <sup>h</sup> oŋ	p <sup>h</sup> oŋ
55	mushroom		dih	dih	tih	tih
56	cane/rattan		vai	vai	vai	vai
57	kapok		klɔ	klɔ	klɔ	klɔ
58	sugarcane		mreʔ	mreʔ	mreʔ	mreʔ
59	betel nut		no data	tɔi	tɔi	tɔi
60	opium	p <sup>h</sup> in*	p <sup>h</sup> in	p <sup>h</sup> in	p <sup>h</sup> in	p <sup>h</sup> in
61	liquor		plai	plai	plai	plai
62	banana (fruit)		mɔi	mɔi	mɔi	mɔi
63	mango (fruit)	mak.moŋ*	mak.moŋ	mak.moŋ	mak.moŋ	mak.moŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
64	eggplant (fruit)	mak.k <sup>h</sup> ʎ*	mak.k <sup>h</sup> ʎ	mak.k <sup>h</sup> ʎ	mak.k <sup>h</sup> ʎ	mak.k <sup>h</sup> ʎ
65	soy bean	t <sup>h</sup> o.nau*	t <sup>h</sup> o.nau	t <sup>h</sup> o.nau	mak.sa.ʔuai	t <sup>h</sup> o.nau
66	ginger		sa.ciŋ	sa.ciŋ	sa.ciŋ	sa.ciŋ
67	garlic		mi.la.hɔ	mi.la.hɔ	mi.la.hɔ	mi.la.hɔ
68	corn		k <sup>h</sup> ʎ.klue	sa.klue	sa.klue	sa.klue
69	red pepper	mak.p <sup>h</sup> it*	mak.p <sup>h</sup> it.sa.krak	mak.p <sup>h</sup> it.sa.krak	mak.p <sup>h</sup> it	mak.p <sup>h</sup> it
70	dry (burned) field		prɛʔ.ma	prɛʔ.ma	ma	ma
71	wet rice field	na*	t <sup>h</sup> uŋ.na	na	na	na
72	paddy rice		ŋoʔ	ŋoʔ	ŋoʔ	ŋoʔ
73	rice seedling	ka*	prac.sa.ma	ka	ka	ka
74	to be ripe		t <sup>h</sup> uɯm	t <sup>h</sup> uɯm	t <sup>h</sup> uɯm	t <sup>h</sup> uɯm
75	pounded rice		la.kauʔ	la.kauʔ	la.kauʔ	la.kauʔ
76	cooked rice		ʔɣp	ʔɣp	ʔɣp	ʔɣp
77	to winnow (rice)		laŋ.ŋoʔ	t <sup>h</sup> iai.ŋoʔ	laŋ.ŋoʔ	t <sup>h</sup> iai.ŋoʔ
78	to dry (rice)		hok.ŋoʔ	hok.ŋoʔ	hok.ŋoʔ	hok.ŋoʔ
79	to pound (rice)		ɖa.ŋoʔ	ɖa.ŋoʔ	tɖa.ŋoʔ	tɖa.ŋoʔ
80	to grind		k <sup>h</sup> uɯt.ŋoʔ	lui	k <sup>h</sup> uɯt	k <sup>h</sup> uɯt.ŋoʔ
81	to cook (rice)		kɥe	rɔŋ	rɔŋ	rɔŋ
82	to boil (rice)		krym.la.luk	tuŋ	tuŋ	tuŋ
83	rice husk (powder)	kam*	kam	kam	kam	kam
84	salt		c <sup>h</sup> ih	c <sup>h</sup> ih	c <sup>h</sup> ih	c <sup>h</sup> ih

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
85	animal (tame/wild)	sat*	sat	sat	sat	sat
86	tiger		la.vai	la.vai	la.vai	la.vai
87	pangolin		sa.p <sup>h</sup> oʔ	sa.p <sup>h</sup> oʔ	p <sup>h</sup> oʔ	sa.p <sup>h</sup> oʔ
88	bear		krih	krih	krih	krih
89	barking deer		bue	bue	pue	pue
90	monkey		ro	ro	ro	ro
91	gibbon		la.joh	lo.lom	liŋ.lom	liŋ.lom
92	rabbit		paŋ.t <sup>h</sup> ai	paŋ.t <sup>h</sup> ai	paŋ.t <sup>h</sup> ai	paŋ.t <sup>h</sup> ai
93	porcupine		kue	kue	kue	kue
94	rat		k <sup>h</sup> aŋ	k <sup>h</sup> aŋ	k <sup>h</sup> aŋ	k <sup>h</sup> aŋ
95	dog		ʔoiʔ	ʔoiʔ	soʔ	ʔoiʔ
96	to bark		ro	ro	ro	ro
97	to bite		c <sup>h</sup> et	c <sup>h</sup> et	c <sup>h</sup> et	c <sup>h</sup> et
98	cat	miau*	miau	miau	miau	miau
99	pig		lik	lik	lik	lik
100	cow		mɔi	mɔi	mɔi	mɔi
101	milk (cow)		dɤi	dɤi	tɤi	tɤi
102	buffalo		krak	krak	krak	krak
103	horn (of buffalo)		ruŋ	ruŋ	ruŋ	ruŋ
104	tail		sa.taʔ	sa.taʔ	sa.taʔ	sa.taʔ
105	elephant	saŋ*	saŋ	saŋ	saŋ	saŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
106	elephant tusk	ŋa*	ŋa.saŋ	ŋa	ŋa.saŋ	ŋa.saŋ
107	bird		sim	sim	sim	sim
108	pigeon		tuk.du	tuk.du	ŋɔk.tu	no data
109	bird's nest		k <sup>h</sup> rɤk.sim	k <sup>h</sup> rɤk.sim	k <sup>h</sup> rɤk.sim	k <sup>h</sup> rɤk.sim
110	wing	bri?*	bri?	bri?	pri?	pri?
111	feather (body hair)		hak	hak	hak	hak
112	to fly		plu	plu	plu	plu
113	egg		tom	dhom	tom	tom
114	chicken		?ia	?ia	?ia	?ia
115	crest (of chicken or bird)		la.k <sup>h</sup> ue	la.k <sup>h</sup> ue	la.k <sup>h</sup> ue	la.k <sup>h</sup> ue
116	fish		ka?	ka?	ka?	ka?
117	snake		sa.?uŋ	sa.?uŋ	sa.?uŋ	sa.?uŋ
118	poison from snake (venom)		la.nai	la.nai	la.nai	no data
119	house lizard		cɤ.rɤn	cɤ.rɤn	cau.rɤn	sa.rɤn
120	turtle		ti.jɤŋ	ti.jɤŋ	tau.jɤŋ	tau.jɤŋ
121	crocodile		k <sup>h</sup> rɤ?	no data	no data	k <sup>h</sup> re
122	otter	mon*	mon	mon	mon	mon
123	frog		c <sup>h</sup> at	c <sup>h</sup> at	c <sup>h</sup> at	sa.pon
124	insect		no data	k <sup>h</sup> ɔŋ	rɔi	k <sup>h</sup> ɔŋ
125	spider	k <sup>h</sup> ɔŋ.kau*	k <sup>h</sup> ɔŋ.koŋ	k <sup>h</sup> ɔŋ.kau	k <sup>h</sup> ɔŋ.koŋ	k <sup>h</sup> ɔŋ.koŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
126	spider web	ɲa.k <sup>h</sup> uŋ.kau*	ɲa.k <sup>h</sup> uŋ.kau	ɲa.k <sup>h</sup> uŋ.kau	ɲa.k <sup>h</sup> uŋ.kau	ɲa.k <sup>h</sup> uŋ.kau
127	louse (head)		siʔ	siʔ	siʔ	siʔ
128	termite		ŋruŋ	ŋruŋ	ŋruŋ	ŋruŋ
129	ant	muc*	muc	muc	muc	muc
130	cockroach	pai.pu*	pai.pu	lai.lɣ	pai.pu	pai.pu
131	snail	hɔi*	hɔi	hɔi	hɔi	hɔi
132	mosquito		prɣŋ	prɣŋ	prɣŋ	prɣŋ
133	bee		hia	hia	hia	hia
134	fly		roi	roi	roi	roi
135	butterfly		p <sup>h</sup> ɔŋ.p <sup>h</sup> ɛt	p <sup>h</sup> ɔŋ.p <sup>h</sup> ɛt	p <sup>h</sup> ɔŋ.p <sup>h</sup> ɛt	p <sup>h</sup> ɔŋ.p <sup>h</sup> ɛt
136	scorpion	mɛŋ*	mɛŋ.ca.raŋ	mɛŋ.ca.raŋ	mɛŋ.ca.raŋ	mɛŋ.ca.raŋ
137	water leech		leʔ	leʔ	leʔ	leʔ
138	land leech		plom	plom	plom	plom
139	earthworm		k <sup>h</sup> ɔŋ.ŋɔ	k <sup>h</sup> ɔŋ.ŋɔ	k <sup>h</sup> ɔŋ.ŋɔ	k <sup>h</sup> ɔŋ.ŋɔ
140	head		p <sup>h</sup> aŋ.cen	p <sup>h</sup> aŋ.cen	p <sup>h</sup> aŋ.cen	p <sup>h</sup> aŋ.cen
141	face		raŋ	raŋ	raŋ	raŋ
142	brain		toŋ	toŋ	toŋ	toŋ
143	hair (head)		hak.ceŋ	hak.ceŋ	hak.ceŋ	hak.ceŋ
144	body hair		hak.du	hak.hiaʔ	hak.tu	no data
145	forehead		ceŋ.ŋai	ceŋ.ŋai	ceŋ.ŋai	ceŋ.ŋai
146	eyebrow		hak.ŋai.vaŋ	hak.ŋai.vaŋ	hak.ŋai.vaŋ	hak.ŋai.vaŋ



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
147	eye		ta.ɲai	ta.ɲai	ta.ɲai	ta.ɲai
148	eyelid		loʔ.ɲai	loʔ.ɲai	loʔ.ɲai	loʔ.ɲai
149	nose		ta.mɯi	ta.mɯi	ta.mɯi	ta.mɯi
150	cheek		na	na	na	na
151	ear		ta.jaʔ	ta.jaʔ	ta.jaʔ	ta.jaʔ
152	mouth		ta.tot	ta.tot	ta.tot	ta.tot
153	tongue		tak	tak	tak	tak
154	spit (noun)		mia	mia	mia	mia
155	tooth		rəŋ	rəŋ	rəŋ	rəŋ
156	gums		ɲih	ɲih	ɲih	ɲih
157	chin		kap	kap	kap	kap
158	beard	not*	not	not	not	not
159	to shave (beard)		k <sup>h</sup> rak	k <sup>h</sup> rak	k <sup>h</sup> rak	k <sup>h</sup> rak
160	neck		ŋək	ŋək	ŋək	ŋək
161	shoulder		mak.ma	mak.ma	mak.ma	mak.ma
162	back		saŋ.krəŋ	saŋ.krəŋ	saŋ.krəŋ	saŋ.krəŋ
163	belly		vet	vet	vet	vet
164	navel		sa.li	sa.li	sa.li	sa.li
165	heart		sa.rəm	sa.rəm	sa.rəm	sa.rəm
166	liver		vat	tom	tom	tom
167	intestines		sa.nən	sa.nən	sa.nən	sa.nən

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
168	arm		deʔ	deʔ	teʔ	teʔ
169	elbow	sək*	sək	sək	sək	sək
170	armpit		klec	klec	klec	klec
171	palm		t <sup>h</sup> ak.teʔ	dok.t <sup>h</sup> ak.teʔ	t <sup>h</sup> ak.teʔ	t <sup>h</sup> ak.teʔ
172	finger		cɛn.teʔ	kɔn.cɛn	cɛn.teʔ	kɔn.cɛn.teʔ
173	fingernail		mim	mim	mim	mim
174	leg		c <sup>h</sup> ɣŋ	c <sup>h</sup> ɣŋ	c <sup>h</sup> ɣŋ	saŋ.ŋoŋ
175	thigh		saŋ.vaŋ	saŋ.vaŋ	saŋ.vaŋ	saŋ.vaŋ
176	knee		mu.saŋ.ruŋ	mu.saŋ.ruŋ	mu.saŋ.ruŋ	mu.saŋ.ruŋ
177	calf		pliʔ.sa.ŋoŋ	pliʔ.sa.ŋoŋ	pliʔ.sa.ŋoŋ	pliʔ.sa.ŋoŋ
178	shin	na.c <sup>h</sup> ɛŋ*	na.c <sup>h</sup> ɛŋ	na.c <sup>h</sup> ɛŋ	na.c <sup>h</sup> ɛŋ	na.c <sup>h</sup> ɛŋ
179	heel		lɥeʔ	lɥeʔ	lɥeʔ	lɥeʔ
180	bone		sa.ʔaŋ	sa.ʔaŋ	sa.ʔaŋ	sa.ʔaŋ
181	joint		la.soŋ	la.soŋ	sa ŋaʔ c <sup>h</sup> u p <sup>h</sup> ɔʔ	no data
182	marrow		lɔn	lɔn	lɔn	lɔn
183	rib		saŋ.prak	saŋ.prak	saŋ.prak	sa.ʔaŋ.prak
184	meat/flesh (edible)		nɛc	nɛc	nɛc	nɛc
185	fat/grease		lɥe	lɥe	lɥe	lɥe
186	skin		loʔ	loʔ	loʔ	loʔ
187	blood		nam	nam	nam	nam
188	sweat		la.la	la.la	la.la	la.la

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
189	pus		lum	lum	lum	lum
190	excrement		ʔeŋ	ʔeŋ	ʔeŋ	ʔeŋ
191	urine		nɯm	nɯm	nɯm	nɯm
192	man		la.mɛʔ	la.mɛʔ	la.mɛʔ	la.mɛʔ
193	woman		la.pun	la.pun	la.pun	la.pun
194	person		ʔɛ.p <sup>h</sup> i	ʔɛ.p <sup>h</sup> i	ʔɛ.p <sup>h</sup> i	ʔɛ.p <sup>h</sup> i
195	father		kɣŋ	kɣŋ	kɣŋ	kɣŋ
196	mother		maʔ	maʔ	maʔ	maʔ
197	to be old (person)		k <sup>h</sup> uat	k <sup>h</sup> uat	k <sup>h</sup> uat	k <sup>h</sup> uat
198	child (young person)		kɔn	kɔn	kɔn	kɔn
199	son (one as own male child)		kɔn.la.mɛk	kɔn.la.mɛk	kɔn.la.mɛk	no data
200	son-in-law		ʔɛt	ʔɛt	ʔɛt	kɔn.k <sup>h</sup> re
201	husband		la.mɛʔ.ʔon	la.mɛʔ	la.mɛʔ.ʔon	la.mɛʔ
202	wife	p <sup>h</sup> ɣ.ŋaʔ*	p <sup>h</sup> ɣ.ŋaʔ	p <sup>h</sup> ɣ.ŋaʔ	p <sup>h</sup> ɣ.ŋaʔ	p <sup>h</sup> ɣ.ŋaʔ
203*	widow	maʔ.mai*	maʔ.mai	maʔ.mai	maʔ.mai	maʔ.mai
204	brother (elder of f)		ʔɔk	ʔɔk	ʔɔk	ʔɔk
205	brother (elder of m)		pauʔ	pauʔ	pauʔ	pauʔ
206	sister (elder of f)		ʔɔk	ʔɔk	ʔɔk	ʔɔk
207	sister (elder of m)		ʔɔk	ʔɔk	ʔɔk	ʔɔk
208	brother (younger of f)	ʔau*	ʔau	ʔau	ʔau	ʔau

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
209	brother (younger of m)		pau?	pau?	pau?	pau?
210	sister (younger of f)	ʔa*	ʔa	ʔa	ʔa	ʔa
211	sister (younger of m)		ma?	ma?	ma?	ma?
212	friend		p <sup>h</sup> ak.k <sup>h</sup> ɔ	k <sup>h</sup> ɔ	p <sup>h</sup> ak.k <sup>h</sup> ɔ	p <sup>h</sup> ak.k <sup>h</sup> ɔ
213	name	c <sup>h</sup> u*	c <sup>h</sup> u	c <sup>h</sup> u	c <sup>h</sup> u	c <sup>h</sup> u
214	village		jaŋ	jaŋ	jaŋ	jaŋ
215	road/path		kra?	kra?	kra?	kra?
216	boat	rɣ*	rɣ	rɣ	rɣ	rɣ
217	house		ja?	ja?	ja?	ja?
218	door		la.va?	la.va?	la.va?	la.va?
219	roof		pi.t <sup>h</sup> op.ja?	lop.sa.p <sup>h</sup> o	pi.t <sup>h</sup> op.ja?	pi.t <sup>h</sup> op.ja?
220	area under house		kruum.ja?	kruum.ja?	kruum.ja?	kruum.ja?
221	wall of house		dij	dij	tij	tij
222	sleeping area		naŋ.ʔit	taŋ.ʔit	naŋ.ʔit	naŋ.ʔit
223	mat		ɲri	ɲri	ɲri	ɲri
224	pillow	mɔn*	mɔn	mɔn	mɔn	mɔn
225	blanket		p <sup>h</sup> a.coŋ	p <sup>h</sup> a.coŋ	p <sup>h</sup> a.coŋ	p <sup>h</sup> a.coŋ
226	clothing		k <sup>h</sup> rɣŋ	k <sup>h</sup> rɣŋ	k <sup>h</sup> rɣŋ	k <sup>h</sup> rɣŋ
227	to weave (cloth)		taŋ	taŋ	taŋ	taŋ
228	to dye (cloth)		k <sup>h</sup> am	c <sup>h</sup> uk	c <sup>h</sup> uk	c <sup>h</sup> uk
229	sarong (male)	sin.tɔŋ*	sin.tɔŋ	loŋ.ci	sin.tɔŋ	sin.tɔŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
230	sarong (female)		tai	tai	tai	tai
231	trousers		k <sup>h</sup> raʔ	k <sup>h</sup> raʔ	k <sup>h</sup> raʔ	k <sup>h</sup> raʔ
232	to sew		c <sup>h</sup> en	c <sup>h</sup> en	c <sup>h</sup> en	c <sup>h</sup> en
233	needle		ɲeʔ	ɲeʔ	ɲeʔ	ɲeʔ
234	comb		sa.kah	sa.kah	sa.kah	sa.kah
235	ring		la.cɔp	la.cɔp	la.cɔp	la.cɔp
236	pot (cooking)		ʔɔ	ʔɔ	ʔɔ	ʔɔ
237	mortar (for peppers)		cɔʔ	cɔʔ	cɔʔ	cɔʔ
238	pestle (for peppers)		ɲriʔ	ɲriʔ	ɲriʔ	ɲriʔ
239	spoon	c <sup>h</sup> ɔ*	c <sup>h</sup> ɔ	c <sup>h</sup> ɔ	c <sup>h</sup> ɔ	c <sup>h</sup> ɔ
240	plate	p <sup>h</sup> an*	p <sup>h</sup> an	p <sup>h</sup> an	p <sup>h</sup> an	p <sup>h</sup> an
241	firewood		c <sup>h</sup> iʔ	c <sup>h</sup> iʔ	c <sup>h</sup> iʔ	c <sup>h</sup> iʔ
242	fire		ɲo	ɲo	ɲo	ɲo
243	to burn something		sau.ɲo	k <sup>h</sup> uit.ɲo	sau.ɲo	sau.ɲo
244	to extinguish (fire)		jɣt.ɲo	jɣt.ɲo	jɣt.ɲo	jɣt.ɲo
245	ashes		ɲoʔ	ɲoʔ	ɲoʔ	ɲoʔ
246	smoke		mɣt.ɲo	mɣt.ɲo	mɣt.ɲo	mɣt.ɲo
247	drum (musical instrument)	kɔŋ*	kɔŋ	kɔŋ	kɔŋ	kɔŋ
248	gong		klue	klue	klue	klue
249	bow		ʔak	ʔak	ʔak	ʔak

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
250	crossbow		mak	ʔak.t <sup>h</sup> ɛŋ	ʔak.t <sup>h</sup> ɛŋ	ʔak
251	arrow		ʔak.t <sup>h</sup> ɛŋ	t <sup>h</sup> ɛ	t <sup>h</sup> ɛ	t <sup>h</sup> ɛ
252	spear		p <sup>h</sup> iai	p <sup>h</sup> iai	p <sup>h</sup> iai	p <sup>h</sup> iai
253	knife/blade		vac	vac	vac	vac
254	to hear		mɔŋ	mɔŋ	mɔŋ	mɔŋ
255	to listen		ɲɛt	ɲɛt	ɲɛt	ɲɛt
256	to be smelly		sa.ʔue	sa.ʔue	sa.ʔue	sa.ʔue
257	to smell (sniff)		mɔŋ.sa.ʔue	mɔŋ.sa.ʔue	hɯt	mɔŋ.sa.ʔue
258	to see		joʔ	joʔ	joʔ	joʔ
259	to look at		tɔʔ	tɔʔ	tɔʔ	tɔʔ
260	to weep		jam	jam	jam	jam
261	to eat		ʔih	ʔih	ʔih	ʔih
262	to swallow		mlut	mlut	mlut	mlut
263	to be hungry		kla.vet	kla.vet	kla.vet	kla.vet
264	to be full (after eating)		sak	sak	sak	sak
265	to be thirsty		kla.vet.rom	kla.vet.rom	kla.vet.rom	kla.vet.rom
266	to drink		ɲɣʔ	ɲɣʔ	ɲɣʔ	ɲɣʔ
267	to be drunk (alcohol)		mau	mau.nɣ.plai	mau.nɣ.plai	mau.nɣ.plai
268	to vomit		hau	hau	hau	hau.vo.lɣ
269	to spit		p <sup>h</sup> et.mia	p <sup>h</sup> et	p <sup>h</sup> et	p <sup>h</sup> et.mia
270	to cough		mak	mak	mak	mak

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
271	to sneeze		mɔ̃i	mɔ̃i	mɔ̃i	mɔ̃i
272	to yawn		ŋap	ŋap	ŋap	ŋap
273	to breathe		tuec.p <sup>h</sup> om	tuec.p <sup>h</sup> om	tuec.p <sup>h</sup> om	tuec.p <sup>h</sup> om
274	to blow (on the fire)		baŋ	paŋ	paŋ	ma.ma.lɤ
275	to whistle		vɔ̃iʔ.vɔ̃iʔ	vɔ̃iʔ <sup>31</sup> vɔ̃iʔ <sup>31</sup>	vɔ̃iʔ.vɔ̃iʔ	vɔ̃iʔ.vɔ̃iʔ
276	to suck (milk)		p <sup>h</sup> ɤc	p <sup>h</sup> ɤc	p <sup>h</sup> ɤc	p <sup>h</sup> ɤc
277	to lick		liat	liat	liat	liat
278	to smile		no data	riŋ	riŋ	riŋ.tɔ̃i
279	to laugh		ɲai	ɲai	ɲai	ɲai
280	to speak		ʔɤh.la.ka	ʔɤh.la.ka	ʔɤh.la.ka	ʔɤh.la.ka
281	to tell about	lau*	lau	lau	lau	lau.ʔa.lɤ
282	to shout		rak	rak	rak	rak
283	to lie/fib		leʔ	leʔ	leʔ	leʔ.ʔa.nɤ
284	to sing		ʔɤh.k <sup>h</sup> uam	ʔɤh.la.mat	ʔɤh.k <sup>h</sup> uam	ʔɤh.mɔ̃
285	to think		son.ma.dɔ̃k	ɲet.sa.rom	k <sup>h</sup> re.ma.tok	son.tɔ̃k <sup>4</sup>
286	to know		joŋ.ŋɤ	joŋ	joŋ	joŋ
287	to forget		p <sup>h</sup> i	p <sup>h</sup> i	p <sup>h</sup> i	p <sup>h</sup> i
288	to choose		rɔ̃i	rɔ̃i	rɔ̃i	rɔ̃i
289	to love		la.mɔ̃e	ŋɔ̃ŋ	mɔ̃e	la.mɔ̃e
290	to hate	caŋ*	no data	caŋ.sa.rom	no data	no data
291	to be ashamed		k <sup>h</sup> ac	k <sup>h</sup> ac	k <sup>h</sup> ac	k <sup>h</sup> ac

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
292	to wait		koʔ	koʔ	koʔ	no data
293	to count		k <sup>h</sup> lap	k <sup>h</sup> lap	k <sup>h</sup> lap	k <sup>h</sup> lap
294	to be afraid		lat.ʔa.na	lat	lat.ʔa.na	lat.ʔa.na
295	to be angry		jɔk.sa.rɔm	jɔk.sa.rɔm	jɔk.sa.rɔm	jɔk.sa.rɔm
296	to sleep		ʔit	ʔit	ʔit	ʔit
297	to snore		ŋrɔk	ŋrɔk	ŋrɔk	ŋrɔk
298	to dream		la.moʔ	la.moʔ	la.moʔ	la.moʔ
299	to get up (from bed)		k <sup>h</sup> au.kʏn.ʔit	kau	k <sup>h</sup> au.kʏn.taŋ	no data
300	to be hurt (after hitting finger with hammer)		sauʔ	sauʔ	sauʔ	sauʔ
301	medicine		la.bai	la.pai	la.pai	la.pai
302	to be itchy		ŋaʔ	ŋaʔ	ŋaʔ	ŋaʔ
303	to scratch oneself		prac	prac	prac	prac
304	to shiver		la.k <sup>h</sup> o	la.k <sup>h</sup> o	la.k <sup>h</sup> o	la.k <sup>h</sup> o
305	to die		jum	jum	jum	jum
306	ghost		sa.ciaʔ	sa.ciaʔ	sa.ciaʔ	sa.ciaʔ
307	to sit (remain)		ŋɔm	ŋɔm	ŋɔm	ŋɔm
308	to stand (remain)		c <sup>h</sup> oŋ	c <sup>h</sup> oŋ	c <sup>h</sup> oŋ	c <sup>h</sup> oŋ
309	to kneel	k <sup>h</sup> up.k <sup>h</sup> rau*	k <sup>h</sup> up.k <sup>h</sup> rau	c <sup>h</sup> iʔ.ma.sa.ŋrɔŋ	c <sup>h</sup> iʔ	k <sup>h</sup> up.k <sup>h</sup> rau
310	to walk		hu.kraʔ	c <sup>h</sup> oŋ <sup>23</sup> kraʔ <sup>21</sup>	hu.kraʔ	hu <sup>42</sup> kraʔ <sup>31</sup>
311	to crawl on belly (like a		mɔ	mɔ	mɔ	mɔ



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
	snake)					
312	to go		hu	hu	hu	hu
313	to come		ʔiŋ	ʔiŋ	ʔiŋ	ʔiŋ
314	to return		mɛ.kɑ.c <sup>h</sup> eʔ	mɛ.ʔiŋ	mɛ.ʔiŋ	ʔiŋ.kɔp
315	to run		dɯŋ	dɯŋ	tɯŋ	tɯŋ
316	to ascend		haʔ	haʔ	haʔ	haʔ
317	to descend		lih	lih	lih	lih
318	to enter (house)		let	let	let	let
319	to go out / exit (house)		lih	lih	lih	no data
320	to push	cot*	cot	cot	cot	cot
321	to pull	tut*	tut	tut	tut	tut
322	to kick		t <sup>h</sup> iat	t <sup>h</sup> iat	t <sup>h</sup> iat	t <sup>h</sup> iat
323	to throw		la.vɤŋ	la.vɤŋ	la.vɤŋ	la.vɤŋ
324	to fall (from a height)		krec	krec	krec	krec
325	to swim		lue.rom	lue.rom	lue.rom	lue
326	to float	p <sup>h</sup> u*	p <sup>h</sup> u	p <sup>h</sup> u	p <sup>h</sup> u	p <sup>h</sup> u
327	to submerge something		com	com	com	com
328	to flow (river)		la.mam	lue.rom	la.mam	la.mam
329	to give		k <sup>h</sup> a	k <sup>h</sup> a	k <sup>h</sup> a	k <sup>h</sup> a
330	to tie (something)	mat*	mat	mat	mat	mat
331	to wipe		ʔɔt	ʔɔt	ʔɔt	ʔɔt

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
332	to rub/scrub		d̪a	t̪a	t̪a	t̪a
333	to wash (hands)		k <sup>h</sup> oc	k <sup>h</sup> oc	k <sup>h</sup> oc	k <sup>h</sup> oc
334	to wash (clothes)		t <sup>h</sup> ut	t <sup>h</sup> ut	t <sup>h</sup> ut	t <sup>h</sup> ut
335	to bathe		hɤm	k <sup>h</sup> oc	hɤm	hɤm
336	to hit/beat (with force)		t <sup>h</sup> iai	t <sup>h</sup> iai	t <sup>h</sup> iai	t <sup>h</sup> iai
337	to split		t <sup>h</sup> o	lo	t <sup>h</sup> o	t <sup>h</sup> o
338	to slice/saw	soi*	soi	soi	soi	soi
339	to cut (hair)		cip	cip	cip	cip
340	to stab		suat	suat	suat	suat
341	to plant		sum	sum	sum	sum
342	to dig (with a tool)		kaŋ	kaŋ	kaŋ	kaŋ
343	to bury (a corpse)	paŋ*	la.paŋ	la.paŋ	la.paŋ	la.paŋ
344	to work	kan*	juh.kan	juh.kan	juh.kan	juh
345	to play		raʔ	raʔ	raʔ	raʔ
346	to dance		ka	ka	ka	ka
347	to shoot (gun)	puŋ*	puŋ	puŋ	puŋ	puŋ
348	to hunt		kua	kua	kua	kua
349	to kill		plauʔ	plauʔ	plauʔ	plauʔ
350	to fight (hand-to-hand)		p <sup>h</sup> ip.p <sup>h</sup> oʔ	t <sup>h</sup> uk	p <sup>h</sup> ip.p <sup>h</sup> oʔ	p <sup>h</sup> ip.p <sup>h</sup> oʔ
351	to buy		la.ve	la.ve	la.ve	la.ve
352	to sell		c <sup>h</sup> ue	c <sup>h</sup> ue	c <sup>h</sup> ue	c <sup>h</sup> ue

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
353	to exchange		lai	lai	lai	lai
354	to pay		k <sup>h</sup> a.ŋɔi	k <sup>h</sup> a.ŋɔi	k <sup>h</sup> a.ŋɔi	k <sup>h</sup> a.ŋɔi
355	to steal		mraʔ	mraʔ	mraʔ	mraʔ
356	to hide oneself		moʔ	moʔ	moʔ	moʔ
357	one (person)		tɻ (kauʔ)	tɻ (kauʔ)	tɻ (kauʔ)	tɻ (kauʔ)
358	two (persons)		raʔ (kauʔ)	raʔ (kauʔ)	raʔ (kauʔ)	raʔ (kauʔ)
359	three (persons)		loi (kauʔ)	loi (kauʔ)	loi (kauʔ)	loi (kauʔ)
360	four (persons)		pon (kauʔ)	pon (kauʔ)	pon (kauʔ)	pon (kauʔ)
361	five (persons)		p <sup>h</sup> uan (kauʔ)	p <sup>h</sup> uan (kauʔ)	p <sup>h</sup> uan (kauʔ)	p <sup>h</sup> uan (kauʔ)
362	six (persons)		l̩ja (kauʔ)	l̩ja (kauʔ)	l̩ja (kauʔ)	l̩ja (kauʔ)
363	seven (persons)		ʔa.l̩ja (kauʔ)	ʔa.l̩ja (kauʔ)	ʔa.l̩ja (kauʔ)	ʔa.l̩ja (kauʔ)
364	eight (persons)		sa.teʔ (kauʔ)	sa.teʔ (kauʔ)	sa.teʔ (kauʔ)	sa.teʔ (kauʔ)
365	nine (persons)		sa.dim (kauʔ)	sa.dim (kauʔ)	sa.tim (kauʔ)	sa.tim (kauʔ)
366	classifier of persons (ten persons)		(kau) kauʔ	(kau) kauʔ	(kau) kauʔ	(kau) kauʔ
367	twenty (persons)		ra.kau (kauʔ)	ta.sau (kauʔ)	ra.kau (kauʔ)	ra (kauʔ)
368	hundred (persons)		ta.la.jah (kauʔ)	ta.pak (kauʔ)	ta.la.jah (kauʔ)	ta.la.jah (kauʔ)
369	thousand (persons)		tɻ.reŋ (kauʔ)	tɻ.reŋ (kauʔ)	tɻ.reŋ (kauʔ)	tɻ.reŋ (kauʔ)
370	to be many (people)		l̩ɣ	l̩ɣ	l̩ɣ	l̩ɣ
371	all		kom.ʔuc	kom.ʔuc	kom.ʔuc	kom.ʔuc
372	some (people)		brah	brah	prah	prah

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
373	to be few (people)		ʔiat	ʔiat	ʔiat	ʔiat
374	half (quantity)		tɣ.p <sup>h</sup> ak	tɣ.p <sup>h</sup> ak	tɣ.p <sup>h</sup> ak	tɣ.p <sup>h</sup> ak
375	to be big		t <sup>h</sup> ijɲ	t <sup>h</sup> ijɲ	t <sup>h</sup> ijɲ	t <sup>h</sup> ijɲ
376	to be small	ʔet*, jɛt*	ɲoc	ʔet	ɲoc	jɛt
377	to be long		laɲ	laɲ	laɲ	laɲ
378	to be short (length)	bət*	bət	bət	pət	pət
379	to be tall		laɲ	laɲ	laɲ	laɲ
380	to be short (height)		t <sup>h</sup> iam	t <sup>h</sup> iam	t <sup>h</sup> iam	t <sup>h</sup> iam
381	to be thick (thing)		p <sup>h</sup> u	p <sup>h</sup> u	p <sup>h</sup> u	p <sup>h</sup> u
382	to be thin (thing)		ri	ri	ri	ri
383	to be fat (person)		klɯɲ	klɯɲ	klɯɲ	klɯɲ
384	to be skinny (person)	jɔm*	jɔm	jɔm	jɔm	jɔm
385	to be wide/broad		vah	vah	vah	vua
386	to be narrow		la.hɔ?	la.hɔ?	la.hɔ?	la.hɔ?
387	to be deep		rau?	rau?	rau?	rau?
388	to be shallow		t <sup>h</sup> ɔ	ʔa.rau?	t <sup>h</sup> ɔ	t <sup>h</sup> ɔ
389	to be round	mon*	mon	mon	mon	lop
390	to be full (container)		nɣp	nɣp	nɣp	nɣp
391	right side		ka.doɲ	ka.doɲ	ka.tom	ka.toɲ
392	left side		ka.jɛ?	ka.jɛ?	ka.jɛ?	ka.jɛ?
393	to be straight (road)		rɣ	rɣ	rɣ	rɣ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
394	to be far (village many miles away)		sa.ŋai	sa.ŋai	sa.ŋai	sa.ŋai
395	to be near (village very near)		t <sup>h</sup> ɛ?	t <sup>h</sup> ɛ?	t <sup>h</sup> ɛ?	t <sup>h</sup> ɛ?
396	this		?in	?in	?in	?in
397	that		?an	?an	?an	?an
398	black		loŋ	loŋ	loŋ	loŋ
399	white		p <sup>h</sup> aŋ	p <sup>h</sup> aŋ	p <sup>h</sup> aŋ	p <sup>h</sup> aŋ
400	red		sa.kra?	sa.kra?	sa.kra?	sa.kra?
401	green		sa.ŋa	sa.ŋa	sa.ŋa	sa.ŋa
402	yellow	luŋ*	luŋ	luŋ	luŋ	luŋ
403	to be dirty (clothes)		?ue	?ue	?ue	?ue
404	to be new (things)		pɤ.k <sup>h</sup> rau?	k <sup>h</sup> rau?	k <sup>h</sup> rau?	pɤ.k <sup>h</sup> rau?
405	to be old (things)		pib.brum	brum	prum	bub.brum
406	to be dark (outside)		ve?	ve?	ve?	ve?
407	to shine (flashlight)		raŋ	raŋ	raŋ	raŋ
408	to be the same		ŋau	ŋau(p <sup>h</sup> oh)	ŋau(p <sup>h</sup> oh)	ŋau
409	to be sweet		dɛh	dɛh	tɛh	tɛh
410	to be sour		na?	na?	na?	na?
411	to be bitter		soŋ	soŋ	soŋ	soŋ
412	to be spicy		pre?	pre?	pre?	pre?

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
413	to be rotten		sa.ʔum	sa.ʔum	sa.ʔum	sa.ʔum
414	to be swollen		ʔuaih	ʔuaih	ʔuaih	ʔuaih
415	to be dry (rice)		kro	kro	kro	kro
416	to be wet (with water)		lɣn	lɣn	lɣn	lɣn
417	to be sharp		lɔm	lɔm	lɔm	lɔm
418	to be blunt		p <sup>h</sup> a	p <sup>h</sup> a	p <sup>h</sup> a	p <sup>h</sup> a
419	to be heavy		c <sup>h</sup> an	c <sup>h</sup> an	c <sup>h</sup> an	c <sup>h</sup> an
420	to be light		c <sup>h</sup> aŋ	c <sup>h</sup> aŋ	c <sup>h</sup> aŋ	c <sup>h</sup> aŋ
421	to be hard (rock)		kua	kua	kua	kua
422	to be soft (cotton)		pio	pio	pio	pio
423	to be smooth (road)		ɲu	ɲu	ɲu	mom
424	to be rough (road)		jɔk	kat	jɔk	jɔk
425	to be fast		p <sup>h</sup> ai	p <sup>h</sup> ai	p <sup>h</sup> ai	p <sup>h</sup> ai
426	to be slow		nɔ	nɔ	nɔ	nɔ
427	to be strong	rɛŋ*	t <sup>h</sup> iŋ.rɛŋ	t <sup>h</sup> iŋ.rɛŋ	t <sup>h</sup> iŋ.rɛŋ	t <sup>h</sup> iŋ.rɛŋ
428	to be weak	rɛŋ*	jet.rɛŋ	jet.rɛŋ	jet.rɛŋ	jet.rɛŋ
429	to be tired		rɣ	rɣ	rɣ	rɣ
430	to be ill, sick		sauʔ	sauʔ	sauʔ	no data
431	to be blind		sa.cɛt	sa.cɛt	sa.cɛt.ta.ŋai	sa.cɛt
432	to be deaf		lɣt	lɣt	lɣt	lɣt

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
433	to be bald		lɤm.ɕeŋ.ŋai	lɤm.ɕeŋ.ŋai	sa.ŋe.ɕeŋ.ŋai	lɤm.ɕeŋ.ŋai
434	to be good		mɔm	mɔm	mɔm	mɔm
435	to be bad		ʔa.mɔm	ɟɔk	ɟɔk	ʔa.mɤ
436	to be correct		man	man	mɤh	mɤh
437	to be wrong		kluc	kluc	kluc	kluc
438	when (past)		p <sup>h</sup> an.mo	p <sup>h</sup> an.mo	p <sup>h</sup> an.mo	p <sup>h</sup> an.mo
439	when (future)		p <sup>h</sup> an.mo	jam.mo	p <sup>h</sup> an.mo	p <sup>h</sup> an.mo
440	where		lɛm.mo	lɛm.mo	lɛm.mo	lɛm.mo
441	who		ma.p <sup>h</sup> i	ma.p <sup>h</sup> i	ma.p <sup>h</sup> i	ma.p <sup>h</sup> i
442	what		ma.p <sup>h</sup> u	ma.p <sup>h</sup> u	ma.p <sup>h</sup> u	ma.p <sup>h</sup> u
443	how many (persons)		ta.p <sup>h</sup> u.kau?	ta.p <sup>h</sup> u.kau?	ta.p <sup>h</sup> u.kau?	ta.p <sup>h</sup> u.kau?
444	I (1s)		ʔau?	ʔau?	ʔau?	ʔau?
445	you (2s)		me?	me?	me?	me?
446	he/she (3s)		ʔon	ʔon	ʔon	ma.ʔon
447	we (1p)		je?	je?	je?	ʔe?
448	you (2p)		bɛ?	bɛ?	pɛ?	pɛ?
449	they (3p)		c <sup>h</sup> ɛ?	c <sup>h</sup> ɛ?	c <sup>h</sup> ɛ?.ʔan	c <sup>h</sup> ɛ?.ʔan
450	to take		t <sup>h</sup> ue	t <sup>h</sup> ue	t <sup>h</sup> ue	t <sup>h</sup> ue
451	to put/place		ʔɤn	ʔɤn	ʔɤn	no data
452	to be lost or disappear		ŋrai	ŋrai	ŋrai	ŋrai
453	to bend		t <sup>h</sup> op	ŋɔk	ŋɔk	t <sup>h</sup> op

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
454	to lift	jɤk*	jɤk	jɤk	jɤk	jɤk
455	to do/make (something)		juh	juh	juh	juh
456	don't do it		p <sup>h</sup> iak.juh	c <sup>h</sup> ak.juh	p <sup>h</sup> iak.juh	pak.juh
457	to be difficult	ɲap*	ɲap	ɲap	ɲap	ɲap
458	to be easy		ja	ja	ja	ja
459	to be loose		mlo	mlo	mlo	mlo
460	to be tight	k <sup>h</sup> ap*	k <sup>h</sup> ap	k <sup>h</sup> ap	k <sup>h</sup> ap	no data
461	to set free, let go (animal)	ploi*	ploi	ploi	ploi	ploi
462	to squeeze		sa.kiat	sa.kiat	sa.kiat	sa.kiat
463	body		tu	du	tu	tu
464	eyelash		hak.ɲai	hak.ɲai	hak.ɲai	hak.ɲai
465	lip		loʔ.tot	loʔ.tot	loʔ.tot	kap
466	molar tooth		raŋ.som	ɲa	raŋ.k <sup>h</sup> ap	raŋ.soʔ
467	jaw		sa.ʔaŋ.kap	sa.ʔaŋ.kap	sa.ʔaŋ.kap	sa.ʔaŋ.kap
468	throat		ta.kraŋ	ta.kraŋ	ta.kraŋ	ta.kraŋ
469	voice box, larynx, Adam's apple	k <sup>h</sup> ɔk.hoi*	k <sup>h</sup> ɔk.hoi	k <sup>h</sup> ɔk.hoi	k <sup>h</sup> ɔk.hoi	no data
470	chest		la.nak	la.nak	la.nak	la.nak
471	breast		dɤi	dɤi	tɤi	tɤi
472	waist		ɲɔi	ɲɔi	ɲɔi	ɲɔi



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
473	umbilical cord		sa.li	sa.li	sa.li	sa.li
474	womb		ɲa.kɔn	la.hɣm	la.hɣm	ta.ɲa
475	buttock		sa.pa	sa.pa	sa.pa	sa.pa
476	wrist		ɲɔk.mle	ɲɔk.mle	ɲɔk.mle	ɲɔk.mle
477	fist		ta.muɹ	ta.muɹ	can.teʔ	ta.muɹ
478	thumb		ma.kɔn.teʔ	ma.kɔn.teʔ	ma.kɔn.teʔ	ma.kɔn.teʔ
479	knuckle (B-joint)		la.soŋ.can	la.soŋ.can	la.soŋ.can	la.soŋ.teʔ
480	hip		saŋ.ɲioŋ	sa.ʔaŋ.ta.kri	saŋ.ɲioŋ	no data
481	ankle		ɲɔk.saŋ.ɲɔŋ	ɲɔk.saŋ.ɲɔŋ	ɲɔk.saŋ.ɲɔŋ	ɲɔk.saŋ.ɲɔŋ
482	sole (of foot)		tʰak.cʰɣŋ	tʰak.cʰɣŋ	tʰak.cʰɣŋ	tʰak.cʰɣŋ
483	toe		kɔn.cɛn.cʰɣŋ	kɔn.cɛn.cʰɣŋ	kɔn.cɛn.cʰɣŋ	kɔn.cɛn.cʰɣŋ
484	bone marrow		lɔn.sa.ʔaŋ	lɔn.sa.ʔaŋ	lɔn.sa.ʔaŋ	lɔn.sa.ʔaŋ
485	skeleton		kɔŋ.sa.ʔaŋ	kɔŋ.sa.ʔaŋ	kɔŋ.sa.ʔaŋ	kɔŋ.sa.ʔaŋ
486	skull		sa.ʔaŋ.pʰaŋ.cɛŋ	sa.ʔaŋ.pʰaŋ.doŋ	sa.ʔaŋ.pʰaŋ.cɛŋ	sa.ʔaŋ.pʰaŋ.cɛŋ
487	breastbone		no data	sa.ʔaŋ.na.ʔɣk	sa.ʔaŋ.la.nak	no data
488	spine, backbone		sa.ʔaŋ.saŋ.krɔŋ	sa.ʔaŋ.saŋ.krɔŋ	sa.ʔaŋ.saŋ.krɔŋ	nɔn
489	kidney	mak.lam*	mak.lam	nau	mak.lam	mak.lam
490	lung		nɔu	nɔu	nɔu	nɔu
491	bladder		puŋ.puʔ	no data	puŋ.puʔ	puʔ
492	muscle		kɔn.kʰaŋ	no data	kɔn.kʰaŋ	kɔn.kʰaŋ
493	tendon		sa.nak	sa.nak	sa.nak.nam	ɲai

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
494	vein		no data	sa.nak	no data	krɔŋ
495	breath		tuc.p <sup>h</sup> om	tuc.p <sup>h</sup> om	tuc.p <sup>h</sup> om	tuc.p <sup>h</sup> om
496	phlegm		k <sup>h</sup> lo	k <sup>h</sup> lo	k <sup>h</sup> lo	k <sup>h</sup> lo
497	nasal mucus, snot		ʔeŋ.mɯi	ʔeŋ.mɯi	ʔeŋ.mɯi	ʔeŋ.mɯi
498	earwax		ʔeŋ.jaʔ	ʔeŋ.jaʔ	ʔeŋ.jaʔ	ʔeŋ.jaʔ
499	tears (n)		rom.ŋai	rom.ŋai	rom.ŋai	rom.ŋai
500	bile, gall		c <sup>h</sup> in	c <sup>h</sup> in	c <sup>h</sup> in	c <sup>h</sup> in
501	blink		jap.ŋai	jap.ta.ŋai	jap.ŋai	jap.ŋai
502	wink (eye)		jap.ŋai.ta.p <sup>h</sup> at	jap.ŋai.la.p <sup>h</sup> at	jap.ŋai.la.p <sup>h</sup> at	jap.ŋai.la.p <sup>h</sup> at
503	blow nose		hu.mɯi	hu.mɯi	hu.mɯi	hu.mɯi
504	pant		tuc.p <sup>h</sup> om.t <sup>h</sup> iŋ	tuc.p <sup>h</sup> om.t <sup>h</sup> iŋ	tuc.p <sup>h</sup> om.t <sup>h</sup> iŋ	ɲa
505	belch		ʔɣʔ	ʔɣʔ	ʔɣʔ	ʔɣʔ
506	hiccough (n)	sa.lɣʔ*	sa.lɣʔ	sa.lɣʔ	sa.lɣʔ	sa.lɣʔ
507	groan (with pain)		ɲa	ɲa	ɲa	ɲa
508	grunt (from effort)		no data	no data	juŋ	juŋ
509	perspire, sweat (v)		lih.la.la	lih.la.la	lih.la.la	lih.la.la
510	bleed		t <sup>h</sup> ut.nam	t <sup>h</sup> ut.nam	t <sup>h</sup> ut.nam	t <sup>h</sup> ut.nam
511	(be) dizzy	mau*	mau	mau	mau	mau
512	faint		p <sup>h</sup> i.du	p <sup>h</sup> i.du	p <sup>h</sup> i.tu	rɣ
513	wake up (intr)		soh	soh	soh	soh
514	notice (v)		k <sup>h</sup> ɔn.to.rom	k <sup>h</sup> ɔn.to.rom	k <sup>h</sup> ɔn.to.rom	to.rom

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
515	feel (passive)		kʷt.sa.rom	k <sup>h</sup> am	no data	k <sup>h</sup> am
516	taste	c <sup>h</sup> im*	c <sup>h</sup> im	c <sup>h</sup> im	c <sup>h</sup> im	c <sup>h</sup> im
517	chew		p <sup>h</sup> am	p <sup>h</sup> am	p <sup>h</sup> am	c <sup>h</sup> et
518	choke		kriʔ.ma.sɛʔ	k <sup>h</sup> rɔk	krɔk	no data
519	lie down		ɲat.lɛ	laj	ɲat	laj
520	turn round (intr)		t <sup>h</sup> a	t <sup>h</sup> a	t <sup>h</sup> a	t <sup>h</sup> a
521	step (v)		sa.t <sup>h</sup> aŋ	sa.t <sup>h</sup> aŋ	sa.t <sup>h</sup> aŋ	sa.t <sup>h</sup> aŋ
522	stumble		sa.tɻ	sa.tɻ	sa.tɻ	sa.tɻ
523	limp		kɔ.sa.ke	kɔ.sa.ke	krɔc	kɔ.sa.ke
524	run		tɯŋ	dɯŋ	tɯŋ	tɯŋ
525	jump (v)		sa.viat	sa.viat	sa.viat	sa.viat
526	stamp (with foot)	jan*	jan	jan	sa.t <sup>h</sup> un	jan
527	trample		c <sup>h</sup> it	c <sup>h</sup> it	c <sup>h</sup> it	c <sup>h</sup> it
528	wave (hand as a greeting) (v)		vuc.vaj	vuc.vat	vuc.vat	vuc.vaj
529	indicate, point (as with the finger)	c <sup>h</sup> i*	c <sup>h</sup> i	c <sup>h</sup> i	c <sup>h</sup> i	c <sup>h</sup> i
530	clap (hands)		dop.dɛʔ	dop.dɛʔ	top.tɛʔ	top.tɛʔ
531	slap (v)	tap.na*	tap.na	tap.na	tap	top.na
532	straddle		ŋom.k <sup>h</sup> raŋ.k <sup>h</sup> ra	ŋom.k <sup>h</sup> raŋ.k <sup>h</sup> ra	ŋom.k <sup>h</sup> raŋ.k <sup>h</sup> ra	ŋom.k <sup>h</sup> raŋ.k <sup>h</sup> ra
533	lean against (intr)		t <sup>h</sup> ɔŋ	t <sup>h</sup> ɔŋ	t <sup>h</sup> ɔŋ	t <sup>h</sup> ɔŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
534	bow (as in greeting)		k <sup>h</sup> rup	k <sup>h</sup> rup	k <sup>h</sup> rup	k <sup>h</sup> rup
535	(be) seated		ŋɔm	ŋɔm	ŋɔm	ŋɔm
536	squat		ŋom.kom.jok.sa. rom	ŋom.kom.jok.sa. rom	ŋom.jok.com	ŋɔm.tek
537	(be) sleepy		ta.ŋai	ta.ŋai	sam.ʔit	ta.ŋai
538	rest		lauʔ	lauʔ	lauʔ	lauʔ
539	(be) awake, alert		soh	soh	soh	soh
540	wrinkle (on skin)		vit	vit	vit	vit
541	pimple		ma.duec	ma.tuec	ma.tuec	ma.tuec
542	hump (of hunchback) (B- of animal)		nɔk	nɔk	saŋ.krɔŋ.nɔk	nɔk
543	barren woman		luec.sa.ma	luec.sa.ma	luec.sa.ma	luec.sa.ma
544	blind person		sa.cɛt.ta.ŋai	sa.cɛt.ta.ŋai	sa.cɛt.ta.ŋai	sa.cɛt.ta.ŋai
545	deaf (mute) person		ŋɔʔ	ŋɔʔ	lɤt	ŋɔʔ
546	cripple (n)		pi.jɔk.pi.k <sup>h</sup> rɔi	p <sup>h</sup> i.jɔk.p <sup>h</sup> i.k <sup>h</sup> rɔi	p <sup>h</sup> i.jɔk.p <sup>h</sup> i.k <sup>h</sup> rɔi	p <sup>h</sup> i.jɔk.p <sup>h</sup> i.k <sup>h</sup> rɔi
547	dwarf		pi.tɛm.ʔiat	pi.tɛm.ʔiat	p <sup>h</sup> i.tek.tɛm	pi.tɛm.ʔiat
548	senile person		k <sup>h</sup> uat.ta.mɛ.ŋɔm	k <sup>h</sup> uat.ta.mɛ.ŋɔm	k <sup>h</sup> uat.ta.mɛ.ŋɔm	k <sup>h</sup> uat.ta.mɛ.ŋɔm
549	mad person		pi.jot	pi.jot	p <sup>h</sup> i.jot	p <sup>h</sup> i.jot
550	(be) healthy, (be) well		mraʔ	mraʔ	mraʔ	mraʔ
551	(be) sick, (be) ill		sauʔ	sauʔ	sauʔ	sauʔ
552	hurt oneself		no data	no data	no data	no data

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
553	heal (tr), cure (v)		pai	pai	pai	pai
554	get well, recover		və	və	və	və
555	revive		laŋ.c <sup>h</sup> o	laŋ.c <sup>h</sup> o	laŋ.c <sup>h</sup> o	laŋ.c <sup>h</sup> o
556	abscess		sau?.lɣm	sau?.lɣm	sau?.lɣm	sau?.lɣm
557	swelling		?uaih	?uaih	?uaih	?uaih
558	tumour		ni.nɛ	ni.nɛ	ni.nɛ	ni.nɛ
559	bruise (n)		rɔi.taŋ.sau?	rɔi.taŋ.sau?	rɔi.taŋ.sau?	rɔi.taŋ.sau?
560	burn (n)		rɔi.ha?.ŋo	rɔi.ha?.ŋo	rɔi.ha?.ŋo	rɔi.ha?.ŋo
561	goiter	neŋ*	neŋ	neŋ	neŋ	neŋ
562	wound, sore		taŋ.sau	taŋ.sau	taŋ.sau	taŋ.sau
563	scar		sa.mɾɿŋ	sa.mɾɿŋ	sa.mɾɿŋ	sa.mɾɿŋ
564	intestinal worm		k <sup>h</sup> ɔŋ	k <sup>h</sup> ɔŋ	tɿk	k <sup>h</sup> ɔŋ
565	illness, disease		?a.na	?a.na	?a.na	?a.na
566	elephantiasis		?a.na.c <sup>h</sup> ɛŋ.səŋ	?a.na.c <sup>h</sup> ɛŋ.səŋ	no data	no data
567	ringworm		naŋ	naŋ	naŋ	naŋ
568	leprosy		mɛŋ.k <sup>h</sup> en	mɛŋ.k <sup>h</sup> en	mɛŋ.k <sup>h</sup> en	mɛŋ.k <sup>h</sup> en
569	malaria (fever)		huc.sau?	huc.sau?	huc.sau?	huc.sau?
570	fever (not malaria)		kra?.sau?	kra?.sau?	kra?.sau?	kra?.sau?
571	stomachache, upset stomach		sau?.vet	sau?.vet	sau?.vet	sau?.vet
572	headache		sau?.cen	sau?.cen	sau?.cen	sau?.cen

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
573	diarrhea		hu.vet	hu.vet	hu.vet	hu.vet
574	scabies (the itch)		no data	no data	no data	no data
575	life		?a.sak	?a.sak	?a.sak	?a.sak
576	(be) alive		?im	?im	?im	?im
577	menstrual period		no data	no data	?a.lih.lɔm	no data
578	(be) pregnant		ɲe	ɲe	ɲe	ɲe
579	miscarriage		lot	lot	lot	lot
580	labour (n), birth pains		c <sup>h</sup> et.vet	c <sup>h</sup> et.vet	c <sup>h</sup> et.vet	c <sup>h</sup> et.vet
581	bear (child), give birth		kɔt.kɔn.ɲom	kɔt.kɔn	lih.kɔn.ɲom	kɔt.kɔn.ɲom
582	(be) born		kɔt	kɔt	kɔt	kɔt
583	(be) young		?iat	?iat	?iat	?iat
584	grow up		ro	ro	ro	ro
585	death		jum	jum	jum	jum
586	(be) dead		no data	no data	no data	no data
587	believe		ɲum	ɲum	ɲum	ɲum
588	hope (v)		ɲai.lɛ	ɲai	moŋ	ɲai
589	knowledge		tok.sa.rom	tok.sa.rom	tok.sa.rom	no data
590	wisdom	pin.ja*	?a.ɲan. pin.ja	?a.ɲan.pin.ja	?a.ɲan.pin.ja	?a.ɲan.pin.ja
591	(be) wise	pin.ja*	kue.pin.ja	kue.pin.ja	kue.pin.ja	kue.pin.ja
592	(be) intelligent		c <sup>h</sup> a	c <sup>h</sup> a	c <sup>h</sup> a	c <sup>h</sup> a
593	(be) stupid		p <sup>h</sup> iaŋ	p <sup>h</sup> iaŋ	p <sup>h</sup> iaŋ	p <sup>h</sup> iaŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
594	(be) confused		suk.sak	pium.piaŋ	suk.sak	suk.sak
595	learn	ren*	ren	ren	ren	ren
596	teach		sa.ŋau	sa.ŋau	sa.ŋau	sa.ŋau
597	show		biaʔ	biaʔ	piaʔ	piaʔ
598	remember		to.rom	to.rom	to.rom	to.rom
599	(be) happy, (be) joyful		bjo	bjo	pjo	pjo
600	rejoice		no data	no data	no data	no data
601	(be) sad		?iat.sa.rom	?iat.sa.rom	?iat.sa.rom	la.mɛŋ
602	sorrow (n)		la.mɛŋ	la.mɛŋ	la.mɛŋ	no data
603	shame (n)		k <sup>h</sup> ac	k <sup>h</sup> ac	k <sup>h</sup> ac	k <sup>h</sup> ac
604	pity (n)		li.ma	li.ma	li.ma	li.ma
605	fear (n)		lat	lat	lat	lat
606	frighten		ŋrɔŋ.lat	ŋrɔŋ.lat	ŋrɔŋ.lat	ŋrɔŋ.lat
607	startle, surprise		kuaŋ	kuaŋ	kuaŋ	kuaŋ
608	(be) proud		t <sup>h</sup> ue.sa.re	t <sup>h</sup> ue.sa.re	t <sup>h</sup> ue.sa.re	t <sup>h</sup> ue.sa.re
609	respect (v)		re.mat	re.mat	re.mat	re.mat
610	honour (v)		jɔk.jɔ	jɔk.jɔ	jɔk.jɔ	jɔk.jɔ
611	despise, disdain		?a.sɔm.p <sup>h</sup> on	?a.sɔm.p <sup>h</sup> on	?ia.?a.t <sup>h</sup> aŋ	no data
612	disgusting		mrai	mrai	mrai	mrai
613	want, desire (v)		sam.p <sup>h</sup> on	sam.p <sup>h</sup> on	sam.p <sup>h</sup> on	sam.p <sup>h</sup> on
614	decide		?ɣh.hoc	?ɣh.hoc	kre.sa.rom	hai.hoc

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
615	hesitate		ta.rɨŋ.sa.rom	ta.rɨŋ.sa.rom	ta.rɨŋ.sa.rom	ta.rɨŋ.sa.rom
616	abstain		sa.t <sup>hi</sup>	sa.t <sup>hi</sup>	k <sup>h</sup> am	sa.t <sup>hi</sup>
617	allow, permit		k <sup>h</sup> a.ʔa.kuaŋ	k <sup>h</sup> a.ʔa.kuaŋ	k <sup>h</sup> a.ʔa.kuaŋ	k <sup>h</sup> a.ʔa.kuaŋ
618	forbid		t <sup>h</sup> ap	t <sup>h</sup> ap	t <sup>h</sup> ap	t <sup>h</sup> ap
619	prevent		la.ko	la.ko	la.ko	la.ko
620	plan (n)		k <sup>h</sup> ruŋ	kra.k <sup>h</sup> ruŋ	k <sup>h</sup> ram	kra.k <sup>h</sup> ruŋ
621	try		k <sup>h</sup> at.sa.rom	k <sup>h</sup> at.sa.rom	k <sup>h</sup> at.sa.rom	k <sup>h</sup> at.sa.rom
622	succeed		ʔɔŋ.p <sup>h</sup> ɛ.lɤ	ʔɔŋ	ʔɔŋ	ʔɔŋ.p <sup>h</sup> ɛ.lɤ
623	fail		sum	sum	sum	sum
624	pretend		liŋ.ma	liŋ.ma	lim.ma	ta.reŋ
625	(be) kind		lim.ma.c <sup>h</sup> ip.p <sup>h</sup> om	lim.ma.c <sup>h</sup> ip.p <sup>h</sup> om	lim.ma.c <sup>h</sup> ip.p <sup>h</sup> om	lim.ma.c <sup>h</sup> ip.p <sup>h</sup> om
626	(be) generous		mɛ.ta	mɛ.ta	mom.sa.rom	mɛ.ta
627	(be) selfish		sa.p <sup>h</sup> ip	sa.p <sup>h</sup> it	sa.p <sup>h</sup> it	no data
628	(be) honest		rɤ.sa.rom	rɤ.sa.rom	rɤ.sa.rom	no data
629	(be) corrupt		lɤ.ʔa.c <sup>h</sup> aŋ	lɤ.ʔa.c <sup>h</sup> aŋ	lɤ.ʔa.c <sup>h</sup> aŋ	lɤ.ʔa.c <sup>h</sup> aŋ
630	(be) wicked		ŋɔk.sa.rom	ŋɔk.sa.rom	ŋɔk.sa.rom	ŋɔk.sa.rom
631	(be) fierce		tɔ.saʔ	tɔ.saʔ	thau tɔ.saʔ	tɔ.saʔ
632	(be) jealous		k <sup>h</sup> ɔi.p <sup>h</sup> i	k <sup>h</sup> ɔi.p <sup>h</sup> i	k <sup>h</sup> ɔi.p <sup>h</sup> i	k <sup>h</sup> ɔi.p <sup>h</sup> i
633	(be) shy		k <sup>h</sup> ac	k <sup>h</sup> ac	k <sup>h</sup> ac	k <sup>h</sup> ac
634	(be) courageous, (be) brave		vau	vau	vau	vau



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
635	coward		ʔa.vau.sa.rom	ʔa.vau.sa.rom	ʔa.vau.sa.rom	ʔa.vau.sa.rom
636	(be) curious		k <sup>h</sup> om.pɛʔ	k <sup>h</sup> om.pɛʔ	no data	k <sup>h</sup> om.pɛʔ
637	(be) eager, (be) zealous		pin.rom.pin.rɿ	pin.rom.pin.rɿh	pin.rom.pin.rɿh	t <sup>h</sup> ɿŋ.rom.t <sup>h</sup> ɿŋ.rɿh
638	(be) lazy	k <sup>h</sup> ran*	k <sup>h</sup> ran	k <sup>h</sup> ran	k <sup>h</sup> ran	k <sup>h</sup> ran
639	(be) patient		laŋ.sa.rom	laŋ.sa.rom	laŋ.sa.rom	laŋ.sa.rom
640	(be) impatient		pɔt.sa.rom	pɔt.sa.rom	pɔt.sa.rom	pɔt.sa.rom
641	(be) restless, (be) unsettled		ʔa.mom.sa.rom	ʔa.mom.sa.rom	ʔa.mom.sa.rom	ʔa.mom.sa.rom
642	(be) stubborn		kuaŋ.cen	kuaŋ.cen	kua.cen	kua.cen
643	reputation		kue.sa.re	kue.sa.re	kue.sa.re	kue.sa.re
644	hardship, distress		t <sup>h</sup> uk.k <sup>h</sup> a	t <sup>h</sup> uk.k <sup>h</sup> a	t <sup>h</sup> uk.k <sup>h</sup> a	t <sup>h</sup> uk.k <sup>h</sup> a
645	suffer		k <sup>h</sup> am.ta.ʔi	k <sup>h</sup> am.ta.ʔi	k <sup>h</sup> am.sauʔ	no data
646	obstruct		t <sup>h</sup> ap	t <sup>h</sup> ap	t <sup>h</sup> ap	t <sup>h</sup> ap
647	stumbling block, obstruction		no data	no data	t <sup>h</sup> ap.	no data
648	danger		mram.rom	mram.rom	p <sup>h</sup> ɛ.ʔan.ta.re	mram.rom
649	problem, trouble		ʔa.re	ʔa.re	ʔa.re	ʔa.re
650	self		cau.ʔau	cau.ʔau	cau.ʔau	cau.ʔau
651	white man		p <sup>h</sup> aŋ.ne	p <sup>h</sup> aŋ.ne	ʔiat.p <sup>h</sup> i.p <sup>h</sup> aŋ.ne	p <sup>h</sup> aŋ.ne
652	fetus		kɔn.ŋɛ	kɔn.ŋɛ	kɔn.ŋɛ	kɔn.ŋɛ
653	baby		kɔn.ŋɔm	kɔn.ŋɔm	kɔn.ŋɔm	kɔn.ŋɔm

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
654	twin		kɔn.prom	kɔn.prom	kɔn.prom	kʏt.prom
655	boy		kɔn.la.mɛʔ	kɔn.la.mɛʔ	kɔn.la.mɛʔ	kɔn.la.mɛʔ
656	girl		kɔn.la.pun	kɔn.la.pun	kɔn.la.pun	kɔn.la.pun
657	adult		p <sup>hi</sup> .t <sup>hi</sup> n.p <sup>hi</sup> .k <sup>h</sup> uat	p <sup>hi</sup> .t <sup>hi</sup> n.p <sup>hi</sup> .k <sup>h</sup> uat	p <sup>hi</sup> .t <sup>hi</sup> n.p <sup>hi</sup> .k <sup>h</sup> uat	p <sup>hi</sup> .t <sup>hi</sup> n.p <sup>hi</sup> .k <sup>h</sup> uat
658	young man	kɔn*	kɔn.ro	kɔn.ro	kɔn.ro	kɔn.ro
659	young woman	kɔn*	kɔn.sa.nau	kɔn.sa.nau	kɔn.sa.nau	kɔn.sa.nau
660	virgin	kɔn*	no data	no data	kɔn.sa.nau	no data
661	divorced man	mai*	ma.mai	ma.mai	ma.mai	ma.mai
662	divorced woman	mai*	kuɲ.mai	kuɲ.mai	kuɲ.mai	kuɲ.mai
663	old person		p <sup>hi</sup> .k <sup>h</sup> uat	p <sup>hi</sup> .k <sup>h</sup> uat	p <sup>hi</sup> .k <sup>h</sup> uat	p <sup>hi</sup> .k <sup>h</sup> uat
664	relative (by blood)		sue.mio	sue.mio	p <sup>h</sup> a.c <sup>h</sup> ʏ	sue.mio
665	ancestor		taʔ.len.ja.len	taʔ.len.ja.len	taʔ.len.ja.len	taʔ.len.ja.len
666	grandparent	taʔ.ja*	taʔ.ja	taʔ.ja	taʔ.ja	taʔ.ja
667	father's younger brother (uncle)		no data	no data	no data	no data
668	father's older brother (uncle)		no data	no data	no data	no data
669	mother's younger brother (uncle)		no data	no data	no data	no data
670	mother's older brother (uncle)		no data	no data	no data	no data

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
671	mother's younger sister (aunt)		no data	no data	no data	no data
672	mother's older sister (aunt)		no data	no data	no data	no data
673	father's younger sister (aunt)		no data	no data	no data	no data
674	father's older sister (aunt)		no data	no data	no data	no data
675	cousin (from father's side)		no data	no data	kɔn.p <sup>h</sup> ɔʔ.kɔn.ʔet	no data
676	firstborn(male)		kɔn.num	kɔn.num	kɔn.num	kɔn.num
677	descendant		pan.mɔʔ.pan.ʔan	pan.mɔʔ.pan.ʔan	kɔn.sauʔ.kɔn.siauʔ	no data
678	son		kɔn.la.mɛʔ	kɔn.la.mɛʔ	kɔn.la.mɛʔ	leŋ.c <sup>h</sup> o.leŋ.p <sup>h</sup> an
679	daughter		kɔn.la.pun	kɔn.la.pun	kɔn.la.pun	kɔn.la.pun
680	grandchild		kɔn.sauʔ	kɔn.sauʔ	kɔn.sauʔ	kɔn.sauʔ
681	nephew		kɔn.p <sup>h</sup> a	kɔn.p <sup>h</sup> a	kɔn.p <sup>h</sup> a.la.mɛʔ	kɔn.p <sup>h</sup> a
682	niece		kɔn.p <sup>h</sup> a	kɔn.p <sup>h</sup> a	kɔn.p <sup>h</sup> a.la.pun	kɔn.p <sup>h</sup> a
683	name	c <sup>h</sup> u*	c <sup>h</sup> u	c <sup>h</sup> u	c <sup>h</sup> u	c <sup>h</sup> u
684	in-law, relative by marriage		no data	no data	p <sup>h</sup> aiʔ. c <sup>h</sup> u.p <sup>h</sup> aiʔ	no data
685	father-in-law (male)		bauʔ	bauʔ	pauʔ	pauʔ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
686	mother-in-law (male)		maʔ	maʔ	maʔ	maʔ
687	brother-in-law (own side)		ʔet	ʔet	ʔet	ʔet
688	sister-in-law		naŋ.p <sup>h</sup> au	naŋ.p <sup>h</sup> au	naŋ.p <sup>h</sup> au	naŋ.p <sup>h</sup> au
689	daughter-in-law		ʔo	ʔo	ʔo	ʔo
690	widower		kuŋ.mai	kuŋ.mai	kuŋ.mai	kuŋ.mai
691	orphan		kɔn.dɤe	kɔn.tɤe	kɔn.tɤe	kɔn.tɤe
692	fiancé (betrothed boyfriend)		lak.soŋ	lak.soŋ	lak.soŋ	no data
693	fiancée (betrothed girlfriend)		no data	no data	lak.soŋ	no data
694	boyfriend		ŋɔŋ.na.p <sup>h</sup> o	ŋɔŋ.na.p <sup>h</sup> o	sa.nau	ŋɔŋ.na.p <sup>h</sup> o
695	girlfriend		ŋɔŋ.na.p <sup>h</sup> o	ŋɔŋ.na.p <sup>h</sup> o	sa.nau	ŋɔŋ.na.p <sup>h</sup> o
696	tribe, ethnic group		mioʔ.p <sup>h</sup> i	mioʔ.p <sup>h</sup> i	mioʔ.p <sup>h</sup> i	mioʔ.p <sup>h</sup> i
697	clan		k <sup>h</sup> ɣ	k <sup>h</sup> ɣ	no data	k <sup>h</sup> a
698	family		kɔn.ta.ŋa	kɔn.ta.ŋa	p <sup>h</sup> i.ŋaʔ.p <sup>h</sup> i.ma	kɔn.ta.ŋa
699	neighbour		ŋa.t <sup>h</sup> ɛ.p <sup>h</sup> o	ŋa.t <sup>h</sup> ɛ.p <sup>h</sup> o	ŋa.t <sup>h</sup> ɛ.p <sup>h</sup> o	ŋa.t <sup>h</sup> ɛ.p <sup>h</sup> o
700	acquaintance		p <sup>h</sup> i.jut.p <sup>h</sup> i.joŋ	p <sup>h</sup> i.jut.p <sup>h</sup> i.joŋ	p <sup>h</sup> i.joŋ.p <sup>h</sup> ɔt	no data
701	host		cau.ŋa	cau.ŋa	cau.ŋa	cau.ŋa
702	guest, visitor	c <sup>h</sup> ɛk*	c <sup>h</sup> ɛk	c <sup>h</sup> ɛk	c <sup>h</sup> ɛk	c <sup>h</sup> ɛk
703	stranger (unknown)		ʔa.c <sup>h</sup> aʔ.joʔ	ʔa.c <sup>h</sup> aʔ.joʔ	ʔa.c <sup>h</sup> aʔ.joʔ	ʔa.c <sup>h</sup> aʔ.joʔ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
	person)					
704	enemy		ran.su	ran.su	ran.su	ran.su
705	traitor		loi.ka.ti	loi.ka.ti	loi.ka.ti	loi.ka.ti
706	thief		p <sup>h</sup> i.mra	p <sup>h</sup> i.mra	p <sup>h</sup> i.mra	p <sup>h</sup> i.mra
707	guide (n)		va.kra?	va.kra?	lau.kra?	va.kra?
708	messenger		p <sup>h</sup> on.la.ka	p <sup>h</sup> on.la.ka	p <sup>h</sup> on.la.ka	no data
709	crowd		p <sup>h</sup> uŋ	p <sup>h</sup> uŋ	p <sup>h</sup> uŋ	p <sup>h</sup> uŋ
710	chief, headman		ta.ɕɛ	ta.ɕɛ	ta.ɕɛ	ta.c <sup>h</sup> ɛp
711	elder		p <sup>h</sup> i.t <sup>h</sup> iŋ	p <sup>h</sup> i.t <sup>h</sup> iŋ	p <sup>h</sup> i.t <sup>h</sup> iŋ	no data
712	master	cau*	cau	cau	cau	cau
713	slave		mai.sa.la	mai.sa.la	mai.sa.la	mai.sa.la
714	farmer		juh.na.juh.ma	juh.na.juh.ma	juh.na.juh.ma	juh.na.juh.ma
715	fisherman		tam.ŋa	tam.ŋa	p <sup>h</sup> i.t <sup>h</sup> ue.ka	tam.ŋa
716	hunter		mo.sɣ	mo.sɣ	mo.sɣ	mo.sɣ
717	blacksmith	c <sup>h</sup> aŋ.lek*	c <sup>h</sup> aŋ.lek	c <sup>h</sup> aŋ.lek	p <sup>h</sup> i.juh.c <sup>h</sup> aŋ.lek	c <sup>h</sup> aŋ.lek
718	potter		ji.juh.ʔo	ji.juh.ʔo	p <sup>h</sup> i.juh.ʔo	no data
719	weaver		ciʔ.taŋ	ciʔ.taŋ	p <sup>h</sup> i.juh.taŋ	cau.taŋ
720	butcher (n)		cip.plauʔ.sat	cip.plauʔ.sat	cip.plauʔ.sat	cip.plauʔ.sat
721	carpenter		lak.sa.ma	lak.sa.ma	lak.sa.ma	lak.sa.ma
722	trader		cau.le	cau.le	cau.le	cau.le
723	seller		cau.c <sup>h</sup> ue	cau.c <sup>h</sup> ue	cau.c <sup>h</sup> ue	cau.c <sup>h</sup> ue

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
724	teacher		sa.ra	sa.ra	sa.ra	sa.ra
725	monk	p <sup>h</sup> aʔ*	p <sup>h</sup> aʔ	p <sup>h</sup> aʔ	p <sup>h</sup> aʔ	p <sup>h</sup> aʔ
726	nun		ʔɔk.k <sup>h</sup> au	ʔɔk.k <sup>h</sup> au	ʔɔk.k <sup>h</sup> au	no data
727	novice (male)		cau	cau	cau	cau
728	(domestic) servant		no data	no data	no data	no data
729	beggar		p <sup>h</sup> i.jua	p <sup>h</sup> i.jua	p <sup>h</sup> i.jua	p <sup>h</sup> i.jua
730	soldier		luuk.suuk	luuk.suuk	luk.suuk	luuk.suuk
731	prostitute		mɛ.ma.lam	mɛ.ma.lam	ma.la.pun.k <sup>h</sup> au?	mɛ.ma.lam
732	midwife, sage		no data	no data	no data	no data
733	medicine man, traditional healer		sa.ra.la.pai	sa.ra.la.pai	sa.ra.la.pai	sa.ra.la.pai
734	fetish priest		no data	no data	ta.mɔh	no data
735	sorcerer (male)		p <sup>h</sup> ri	p <sup>h</sup> ri	p <sup>h</sup> ri	p <sup>h</sup> ri
736	witch (female)		ma.p <sup>h</sup> ri	ma.p <sup>h</sup> ri	ma.p <sup>h</sup> ri	ma.p <sup>h</sup> ri
737	fortune teller		cau.sa.ra.t <sup>h</sup> at.teʔ	cau.sa.ra.t <sup>h</sup> at.teʔ	cau.sa.ra.t <sup>h</sup> at.teʔ	cau.sa.ra.t <sup>h</sup> at.teʔ
738	meet, encounter		dum.p <sup>h</sup> o	dum.p <sup>h</sup> o	tum.p <sup>h</sup> o	tum.p <sup>h</sup> o
739	accompany		c <sup>h</sup> ɔm.p <sup>h</sup> a.k <sup>h</sup> ɔ	c <sup>h</sup> ɔm.p <sup>h</sup> a.k <sup>h</sup> ɔ	c <sup>h</sup> ɔm.p <sup>h</sup> a.k <sup>h</sup> ɔ	c <sup>h</sup> ɔm.p <sup>h</sup> a.k <sup>h</sup> ɔ
740	(be) together		ma.mo	ma.mɔ	hɔt.p <sup>h</sup> oʔ	ma.mɔ
741	assemble, meet together		k <sup>h</sup> op.p <sup>h</sup> ɔk	k <sup>h</sup> op.p <sup>h</sup> ɔk	k <sup>h</sup> op.p <sup>h</sup> ɔk	tum <sup>31</sup> p <sup>h</sup> o <sup>23</sup>
742	invite		kok	kok	kok	kok
743	(be) alone		cau	cau	cau	cau

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
744	abandon		nah.ha.na	nah.ha.na	nah.ha.na	nah.ha.na
745	flee, run away from		mra.la.duun	mra.la.duun	mra.la.tuun	mra.la.tuun
746	drive away		hɔ.lih	hɔ.lih	hɔ.lih	hɔ.lih
747	avoid		ŋɾɛ	sa.t <sup>h</sup> i	rɛ	sa.t <sup>h</sup> i
748	imitate		ʃɿŋ	ʃɿŋ	ʃɿŋ	no data
749	admire		t <sup>h</sup> iŋ.ʔa.t <sup>h</sup> aŋ	t <sup>h</sup> iŋ.ʔa.t <sup>h</sup> aŋ	t <sup>h</sup> iŋ.ʔa.t <sup>h</sup> aŋ	t <sup>h</sup> iŋ.ʔa.t <sup>h</sup> aŋ
750	language		c <sup>h</sup> uŋ.la.ka	c <sup>h</sup> uŋ.la.ka	la.ka.ʔɿ	t <sup>h</sup> uŋ.la.ka
751	word		la.ka.la.mɔi	la.ka.la.mɔi	la.ka.la.mɔi	la.ka.mɔn
752	meaning (n)		ka.to	ka.to	ka.to	ka.to
753	say		ʔɿh	ʔɿh	ʔɿh	ʔɿh
754	scold		c <sup>h</sup> oʔ	c <sup>h</sup> oʔ	c <sup>h</sup> oʔ	c <sup>h</sup> oʔ
755	voice	seŋ*	seŋ	seŋ	seŋ	seŋ
756	whisper (v)		k <sup>h</sup> ɔi.la.ʔɿh	k <sup>h</sup> ɔi.la.ʔɿ	la.siap	k <sup>h</sup> ɔi.la.ʔɿ
757	mumble		set.dɿ.dot	set.dɿ.dot	sauʔ.ŋɔi.tot	set.tɿ.tot
758	stutter		kle	kle	kle	kle
759	(be) eloquent		ʔɿh.p <sup>h</sup> ai	ʔɿh.p <sup>h</sup> ai	ʔɿh.p <sup>h</sup> ai	ʔɿh.p <sup>h</sup> ai
760	(be) silent		ŋɛ	ŋɛ	ŋɛ	ŋɛ
761	write (v)		tɛm.lai	tɛm.lai	tɛm.lai	tɛm.lai
762	greet (v.)		no data	no data	no data	la.ka.la.mui
763	call (someone)		kok	kok	kok	kok
764	say goodbye, take leave		k <sup>h</sup> au.jiŋ.ʔɔ	k <sup>h</sup> au.jiŋ.ʔɔ	k <sup>h</sup> au.jiŋ.ʔɔ	no data

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
	of					
765	announce		bun	bun	pun	pun
766	announcement		tom.sa.t <sup>h</sup> aŋ	tom.sa.t <sup>h</sup> aŋ	tom.sa.t <sup>h</sup> aŋ	sa.t <sup>h</sup> aŋ.tom
767	news		sa.t <sup>h</sup> aŋ	sa.t <sup>h</sup> aŋ	sa.t <sup>h</sup> aŋ	sa.t <sup>h</sup> aŋ
768	explain		saŋ.laŋ	saŋ.laŋ	saŋ.laŋ	saŋ.laŋ
769	advise		k <sup>h</sup> ah.pin.ja	k <sup>h</sup> ah.pin.ja	k <sup>h</sup> ah.kra?.c <sup>h</sup> ε	k <sup>h</sup> ah.pin.ja
770	gossip (v)		k <sup>h</sup> rac.krɔŋ.ʔon	k <sup>h</sup> rac.krɔŋ.ʔon	k <sup>h</sup> rac.krɔŋ.ʔon	k <sup>h</sup> rac.krɔŋ.ʔon
771	ask, request		la.məi	la.məi	la.məi	la.məi
772	thank		kue.ʔa.c <sup>h</sup> o	kue.ʔa.c <sup>h</sup> o	kue.ʔa.c <sup>h</sup> o	kue.ʔa.c <sup>h</sup> o
773	promise (n)		ka.ti	ka.ti	ka.ti	ka.ti
774	oath		no data	no data	ka.ti	no data
775	swear		dɤŋ	tɤŋ	tɤŋ	tɤŋ
776	insult (v)		ʔa.suaŋ	ʔa.suaŋ	ʔa.suaŋ	ʔa.suaŋ
777	insult (n)		no data	kra?.ʔa.suaŋ	kra?.ʔa.suaŋ	no data
778	slander (v)		lɛ?	lɛ?	lɛ?	lɛ?
779	threaten		lɔk	lɔk	lɔk	lɔk
780	argue		sa.t <sup>h</sup> a	sa.t <sup>h</sup> a	t <sup>h</sup> eŋ	sa.t <sup>h</sup> a
781	argument		sa.t <sup>h</sup> a.p <sup>h</sup> o	sa.t <sup>h</sup> a.p <sup>h</sup> o	t <sup>h</sup> eŋ	sa.t <sup>h</sup> a.p <sup>h</sup> o
782	grumble, complain		no data	la.kak.rɤh	sau?.ŋɔi.tot	sɔk.p <sup>h</sup> ε
783	contradict		k <sup>h</sup> at.p <sup>h</sup> ok	k <sup>h</sup> at.p <sup>h</sup> ok	k <sup>h</sup> at.p <sup>h</sup> ok	no data
784	accuse		dek.dɤ	dek.ka.lɤ	tek	tek



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
785	deny		t <sup>h</sup> ej	t <sup>h</sup> ej	t <sup>h</sup> ej	t <sup>h</sup> ej
786	admit (to a wrong)		k <sup>h</sup> am	k <sup>h</sup> am	k <sup>h</sup> am	k <sup>h</sup> am
787	agree		p <sup>h</sup> rɔm	p <sup>h</sup> rɔm	p <sup>h</sup> rɔm	p <sup>h</sup> rɔm
788	agreement		p <sup>h</sup> rɔm.p <sup>h</sup> o	p <sup>h</sup> rɔm.p <sup>h</sup> o	p <sup>h</sup> rɔm.p <sup>h</sup> o	p <sup>h</sup> rɔm.p <sup>h</sup> o
789	persuade		du.lɣ	du.lɣ	tu	teʔ
790	praise (n)		miok	miok	ʔup	miok
791	bless, praise (someone)		no data	pɾet.mom	pɾet.mom	plot.mom
792	congratulate		t <sup>h</sup> ue.ʔa.rɔŋ	t <sup>h</sup> ue.ʔa.rɔŋ	t <sup>h</sup> ue.ʔa.rɔŋ	t <sup>h</sup> ue.ʔa.rɔŋ
793	boast, brag		t <sup>h</sup> ue.sa.re	t <sup>h</sup> ue.sa.re	t <sup>h</sup> ue.sa.re	t <sup>h</sup> ue.sa.re
794	story(tale)		bɯn	bɯn	pɯn	pɯn
795	proverb		la.ka.bɯn	la.ka.bɯn	la.ka.jep.lɛp	la.ka.pɯn
796	speech, discourse		la.ka.ʔa.miŋ	la.ka.ʔa.miŋ	la.ka.ʔa.miŋ	la.ka.ʔa.miŋ
797	account (report) (n)		cɣ.raŋ.mɣ	cɣ.raŋ.mɣ	cɣ.raŋ.mɣ	cɣ.raŋ.mɣ
798	embrace, hug (v)		sa.k <sup>h</sup> op	sa.k <sup>h</sup> op	sa.k <sup>h</sup> op	sa.k <sup>h</sup> op
799	caress (v)		no data	no data	no data	no data
800	kiss (v)		hwt	hwt	hwt	hwt
801	nurse, suckle (baby)		lum.la	lum.la	lum.la	lum.la
802	tickle (v)		cɣŋ.ŋɔi	cɣŋ.ŋɔi	cɣŋ.ŋɔi	cɣŋ.ŋɔi
803	spank (child)		t <sup>h</sup> iai	t <sup>h</sup> iai	t <sup>h</sup> iai	t <sup>h</sup> iai
804	whip (n)		k <sup>h</sup> auʔ.t <sup>h</sup> iai	k <sup>h</sup> auʔ.t <sup>h</sup> iai	k <sup>h</sup> auʔ.t <sup>h</sup> iai	k <sup>h</sup> auʔ.t <sup>h</sup> iai
805	help	c <sup>h</sup> ɔi*	c <sup>h</sup> ɔi	c <sup>h</sup> ɔi	c <sup>h</sup> ɔi	c <sup>h</sup> ɔi

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
806	protect		mun.hom	mun.hom	mun.hom	mun.hom
807	look after		tɔʔ.sa.tʰɔ.ʔan	tɔʔ.sa.tʰɔ.ʔan	tɔʔ.sa.tʰɔ.ʔan	tɔʔ.sa.tʰɔ.ʔan
808	bring up (a child)		lum.la	lum.la	lum.la	lum.la
809	rule over, dominate		ʔup.kʰaŋ	ʔup.kʰaŋ	ʔup.kʰaŋ	ʔup.kʰaŋ
810	order (someone to do something)		cʰau	cʰau	cʰau	cʰau
811	command (n)		kʰa.ʔa.miŋ	kʰa.ʔa.miŋ	kʰa.ʔa.miŋ	kʰa.ʔa.miŋ
812	duty, obligation		kraʔ.bin	kraʔ.bin	kraʔ.pin	kraʔ.pin
813	send (someone to do something)		dau	tau	tau	tau
814	serve		bin.kan	bin.kan	pin.kan	pin.kan
815	lead, guide (v)		va.kan	va.kan	va.kan	va.kan
816	follow		cʰɔm	cʰɔm	cʰɔm	cʰɔm
817	obey		ŋet.kraʔ.ʔɤh	ŋet.kraʔ.ʔɤ	ŋet.kraʔ.ʔɤ	ŋet.kraʔ.ʔɤ
818	please		juh.kuŋ.juh.ʔa. cʰo	juh.kuŋ.juh.ʔa. cʰo	juh.kuŋ.juh.ʔa. cʰo	juh.kuŋ.ʔa.cʰo
819	annoy		kau	kau	kau	kau
820	deceive		sɛc	sɛc	sɛc	sɛc
821	quarrel		tʰeŋ	tʰeŋ	tʰeŋ	tʰeŋ
822	take revenge		pɔk	pɔk	pɔk	pɔk
823	resolve, settle (dispute)		pʰi.saŋ.laŋ	pʰi.saŋ.laŋ	pʰi.saŋ.laŋ	pʰɛ.saŋ.laŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
824	intercede, mediate		ʔʌh.taŋ	ʔʌh.taŋ	ʔʌh.taŋ	ʔʌh.taŋ
825	compromise		sa.p <sup>h</sup> ɔ	sa.p <sup>h</sup> ɔ	sa.p <sup>h</sup> ɔ	sa.p <sup>h</sup> ɔ
826	appease, pacify		ʔʌh.mom	ʔʌh.mom	ʔʌh.mom	ʔʌh.mom
827	judge (v)		k <sup>h</sup> rʌŋ	k <sup>h</sup> rʌŋ	p <sup>h</sup> iat	k <sup>h</sup> rʌŋ
828	law		ta.ra	ta.ra	ta.ra	ta.ra
829	(be) fair, just		ta.ra.p <sup>h</sup> reŋ	ta.ra.p <sup>h</sup> reŋ	ta.ra.p <sup>h</sup> reŋ	ta.ra.p <sup>h</sup> reŋ
830	(be) guilty		kue.ʔa.p <sup>h</sup> iat	kue.ʔa.p <sup>h</sup> iat	kue.ʔa.p <sup>h</sup> iat	kue.ʔa.p <sup>h</sup> iat
831	(be) innocent		ʔa.kue.ʔa.p <sup>h</sup> iat	ʔa.kue.ʔa.p <sup>h</sup> iat	ʔa.kue.ʔa.p <sup>h</sup> iat	ʔa.kue.ʔa.p <sup>h</sup> iat
832	punish		k <sup>h</sup> a.ʔa.p <sup>h</sup> iat	k <sup>h</sup> a.ʔa.p <sup>h</sup> iat	k <sup>h</sup> a.ʔa.p <sup>h</sup> iat	k <sup>h</sup> a.ʔa.p <sup>h</sup> iat
833	to fine		k <sup>h</sup> a.tam	k <sup>h</sup> a.tam	k <sup>h</sup> a.tam	k <sup>h</sup> a.tam
834	penalty, punishment		ʔa.p <sup>h</sup> iat.dam	ʔa.p <sup>h</sup> iat.dam	ʔa.p <sup>h</sup> iat.tam	ʔa.p <sup>h</sup> iat.tam
835	dwell		ʔot	ʔot	ʔot	ʔot
836	inhabitant, resident		ci.ʔot.ci.kue	ci.ʔot.ci.kue	ci.ʔot.ci.kue	ci.ʔot.ci.kue
837	country dweller		kɔn.ka.k <sup>h</sup> ɔŋ	kɔn.ka.k <sup>h</sup> ɔŋ	kɔn.ka.k <sup>h</sup> ɔŋ	kɔn.ka.k <sup>h</sup> ɔŋ
838	move away		t <sup>h</sup> ip	t <sup>h</sup> ip	t <sup>h</sup> ip	t <sup>h</sup> ip
839	country, ethnic area		ʔʌŋ	ʔʌŋ	ʔʌŋ	ʔʌŋ
840	frontier (of ethnic area) [border]		mʌh.ʔʌŋ	mʌh.ʔʌŋ	mʌh.ʔʌŋ	mʌh.ʔʌŋ
841	town, city		mioʔ	mioʔ	mioʔ	mioʔ
842	market (n)		laj	laj	laj	laj
843	wear clothes		c <sup>h</sup> ʌp.sa.p <sup>h</sup> ek	c <sup>h</sup> ʌp.sa.p <sup>h</sup> ek	c <sup>h</sup> ʌp.sa.p <sup>h</sup> ek	c <sup>h</sup> ʌp.sa.p <sup>h</sup> ek

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
844	dress (v)		c <sup>h</sup> ɣp	c <sup>h</sup> ɣp	c <sup>h</sup> ɣp	no data
845	undress		lɔ	lɔ	lɔ	lɔ
846	hat	mɔk*	mɔk	mɔk	mɔk	mɔk
847	loincloth		k <sup>h</sup> laʔ.pit	k <sup>h</sup> laʔ.pit	k <sup>h</sup> laʔ.pit	k <sup>h</sup> laʔ.pit
848	baby sling		la.loh.la.lum	la.loh.la.lum	naʔ	la.loh.la.lum
849	shoe, sandal		cep	cep	cep	cep
850	bead		t <sup>h</sup> ak.t <sup>h</sup> ɛn	t <sup>h</sup> ɔk.t <sup>h</sup> ɛn	t <sup>h</sup> ɔk.t <sup>h</sup> ɛn	t <sup>h</sup> ɔk.t <sup>h</sup> ɛn
851	string, thread (beads) (v)	mak.nap*	mak.nap	mak.nap	mak.nap	mak.nap
852	bracelet		mre	mre	mre	mre
853	necklace		p <sup>h</sup> rɔi	p <sup>h</sup> rɔi	p <sup>h</sup> rɔi	p <sup>h</sup> rɔi
854	ankle ring, bangle		sa.k <sup>h</sup> un	sa.k <sup>h</sup> un	sa.k <sup>h</sup> un	sa.k <sup>h</sup> un
855	earring		pɣ	bɣ	pɣ	pɣ
856	pierce (ears)		dɔ.ta.jak	dɔ.ta.jak	tɔ	tɔ.ta.jak
857	plait, braid (hair)		taj.hak	taj.hak	taj.hak	taj.hak
858	tattoo(s)		sam.mɣk	sam.mɣk	sam.mɣk	sam.mɣk
859	cane, walking stick		k <sup>h</sup> auʔ.c <sup>h</sup> i	k <sup>h</sup> auʔ.c <sup>h</sup> i	k <sup>h</sup> auʔ.c <sup>h</sup> i	k <sup>h</sup> auʔ.c <sup>h</sup> i
860	apply (ointment), besmear	ta*	ta	ta	ta	ta
861	razor		plek.da	plek.ta	plek.ta	plek.ta
862	tooth stick, toothbrush		mai.si	mai.si	mai.si	mai.c <sup>h</sup> i
863	food		kraʔ.ʔih	kraʔ.ʔih.kraʔ.p <sup>h</sup> ra	kraʔ.ʔih.kraʔ.p <sup>h</sup> ra	kraʔ.ʔih.kraʔ.p <sup>h</sup> ra

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
864	oil		l̥e	l̥e	l̥e	l̥e
865	soup, broth		rom.tau?	rom.tau?	rom.tau?	rom.tau?
866	flour		ŋo?.ka.la	ŋo?.ka.la	ŋo?.ka.la	ŋo?.ka.la
867	breakfast		sɔm.sa?	sɔm.sa?	sɔm.sa?	sɔm.sa?
868	lunch		sɔm.sa.ɲi	sɔm.sa.ɲi	sɔm.sa.ɲi	sɔm.sa.ɲi
869	evening meal		sɔm.p <sup>h</sup> o	sɔm.p <sup>h</sup> o	sɔm.p <sup>h</sup> o	sɔm.p <sup>h</sup> o
870	feast		p <sup>h</sup> ɔi.ʔi?.p <sup>h</sup> ɔi.p <sup>h</sup> ra?	p <sup>h</sup> ɔi.ʔi?.p <sup>h</sup> ɔi.p <sup>h</sup> ra?	p <sup>h</sup> ɔi.ʔi?.p <sup>h</sup> ɔi.p <sup>h</sup> ra	p <sup>h</sup> ɔi.ʔi?.p <sup>h</sup> ɔi.p <sup>h</sup> ra
871	leftovers		pi.hau	pi.hau	pi.hau	pi.hau
872	spoil (food) (intr)		sa.ʔue.na	sa.ʔue.na	sa.ʔum	sa.ʔue.na
873	milk (n)		nam.nom	nam.nom	rom.thɣi	nam.nom
874	beer (traditional)		plai.na	plai.na	plai.na	plai.na
875	rice wine		plai	plai	plai	plai
876	prepare (food to cook)		k <sup>h</sup> ruŋ.sɔm	k <sup>h</sup> ruŋ.sɔm	k <sup>h</sup> ruŋ.sɔm	k <sup>h</sup> ruŋ.sɔm
877	cut (tr) (wood/fish)		krip	krip	krip.taip.k <sup>h</sup> o	krip
878	cut open (fruit)		c <sup>h</sup> ai	c <sup>h</sup> ai	c <sup>h</sup> a	c <sup>h</sup> ɛ
879	slice		c <sup>h</sup> a.r̥i.r̥i	c <sup>h</sup> a.r̥i.r̥i	c <sup>h</sup> a.r̥i	c <sup>h</sup> a.r̥i.r̥i
880	peel (v)		c <sup>h</sup> a.lo?	c <sup>h</sup> a.lo?	c <sup>h</sup> a.lo?	c <sup>h</sup> a.lo?
881	mix (v)		lɔ	lɔ	lɔ	lɔ
882	stir		klau	klau	klau	klau
883	strain (food) (v)		ta.rɔŋ	ta.rɔŋ	ta.rɔŋ	ta.rɔŋ
884	pluck (feathers)		tuec	tuec	tuec	tuec

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
885	roast		k <sup>h</sup> o.k <sup>h</sup> re	k <sup>h</sup> o.k <sup>h</sup> re	k <sup>h</sup> o.k <sup>h</sup> re	k <sup>h</sup> o.k <sup>h</sup> re
886	fry	c <sup>h</sup> uun*	c <sup>h</sup> uun	c <sup>h</sup> uun	c <sup>h</sup> uun	c <sup>h</sup> uun
887	bake (in ashes)		p <sup>h</sup> oʔ	p <sup>h</sup> oʔ	p <sup>h</sup> oʔ	p <sup>h</sup> oʔ
888	(be) smoked		sa.toʔ.mɤt.ŋo	sa.toʔ.mɤt.ŋo	sa.toʔ.mɤt.ŋo	sa.toʔ.mɤt.ŋo
889	ferment (alcohol) (v)		k <sup>h</sup> am.cɔ	k <sup>h</sup> am.cɔ	k <sup>h</sup> am.cɔ	kam.cɔ
890	cooking pot (earthenware)		ʔɤn	ʔɤn	ʔɤn	ʔɤn
891	pot (for water)		ʔɤn.rom	ʔɤn.rom	ʔɤn.rom	ʔɤn.rom
892	ladle		k <sup>h</sup> uŋ.p <sup>h</sup> raʔ	lɔk.t <sup>h</sup> o	k <sup>h</sup> uŋ.p <sup>h</sup> raʔ	k <sup>h</sup> uŋ.p <sup>h</sup> raʔ
893	cooking stone		c <sup>h</sup> eŋ	c <sup>h</sup> eŋ	c <sup>h</sup> eŋ	c <sup>h</sup> eŋ
894	bowl		p <sup>h</sup> an.mom	p <sup>h</sup> an.mom	p <sup>h</sup> an.mom	p <sup>h</sup> an.mom
895	cup	kɔk*	kɔk	kɔk	kɔk	kɔk.rom
896	chopsticks	t <sup>h</sup> u*	t <sup>h</sup> u	t <sup>h</sup> u	t <sup>h</sup> u	t <sup>h</sup> u
897	bag		pauʔ	pauʔ	pauʔ	pauʔ
898	box		dɤk	dɤk	tɤk	tɤk
899	basket		ʔaŋ.c <sup>h</sup> a	ʔaŋ.c <sup>h</sup> a	ʔaŋ.c <sup>h</sup> a	ʔaŋ.c <sup>h</sup> a
900	bucket, pail		puŋ	puŋ	puŋ	puŋ
901	bottle		diŋ	diŋ	tiŋ	tiŋ
902	stopper, plug		lak.t <sup>h</sup> oʔ	lak.t <sup>h</sup> oʔ	lak.t <sup>h</sup> oʔ	lak.t <sup>h</sup> oʔ
903	handle		sop.deʔ	sop.teʔ	sop.teʔ	sop.teʔ
904	pour		c <sup>h</sup> ɛ	c <sup>h</sup> ɛ	c <sup>h</sup> ɛ	c <sup>h</sup> ɛ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
905	spill (liquid) (tr)		b̥ɯc	b̥ɯc	p̥ɯc	p̥ɯc
906	take out (from container)		t <sup>h</sup> ue.lih	t <sup>h</sup> ue.lih	t <sup>h</sup> ue.lih	t <sup>h</sup> ue.lih
907	fill		nɤk	nɤk	nɤk	nɤk
908	(be) empty		ŋa.ŋa	ŋa.ŋa	ŋa.ŋa	ŋa.ŋa
909	(be) open [blossom]		bruuc	bruuc	pruʔ	plonɣ
910	open (tr)		b̥au	b̥au	p̥au	p̥au
911	close, shut (tr)		sonɣ.la.vak	sonɣ	sonɣ	sonɣ.la.vak
912	stand up		no data	c <sup>h</sup> onɣ	c <sup>h</sup> onɣ	c <sup>h</sup> onɣ
913	cover (v)		t <sup>h</sup> ɔp	t <sup>h</sup> ɔp	t <sup>h</sup> ɔp	t <sup>h</sup> ɔp
914	uncover		b̥au	p̥au	p̥au	p̥au
915	store (up)		lonɣ	rɔm	lonɣ	lonɣ
916	bundle (n)		bua	bua	p̥ua	p̥ua
917	heap (n)	kɔŋ*	kɔŋ	kɔŋ	kɔŋ	kɔŋ
918	heap up (v)	kɔŋ*	kɔŋ.la.ʔɤn	kɔŋ.la.ʔɤn	kɔŋ.la.ʔɤn	kɔŋ.la.ʔɤn
919	wrap up (v)		niap	niap	niap	niap
920	unwrap (v)		p <sup>h</sup> re	p <sup>h</sup> re	p <sup>h</sup> re	p <sup>h</sup> re
921	pack (v)		lonɣ	no data	lonɣ	lonɣ
922	strap (n)		ban	no data	p <sup>h</sup> ɔc	pan
923	rope		mauʔ	mauʔ	mauʔ	mauʔ
924	knot (n)		dɔk.don	tok.ton	k <sup>h</sup> ot.k <sup>h</sup> iat	tok.ton
925	fasten, bind (load)	mat*	mat	mat	mat	mat

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
926	untie		no data	no data	jah	no data
927	tighten (tr)	rat*	rat	rat	rat	rat
928	(be) tight	k <sup>h</sup> ap*	k <sup>h</sup> ap	k <sup>h</sup> ap	k <sup>h</sup> ap	k <sup>h</sup> ap
929	loosen		plɔi.mro	plɔi.mro	plɔi.mro	plɔi.mro
930	hut (in the field)		ɲa.dɤ	ɲa.dɤ	ɲa.tɤ	ɲa.tɤ
931	window		ho.lɛŋ	ho.lɛŋ	ho.lɛŋ	ho.lɛŋ
932	beam, rafter		k <sup>h</sup> au.hɔi.k <sup>h</sup> rɤŋ	k <sup>h</sup> au.hɔi.k <sup>h</sup> rɤŋ	k <sup>h</sup> au.hɔi.k <sup>h</sup> rɤŋ	k <sup>h</sup> au.hɔi.k <sup>h</sup> rɤŋ
933	floor		ka.mɯi	ka.mɯi	ka.mɯi	ka.mɯi
934	room		c <sup>h</sup> ɔŋ	c <sup>h</sup> ɔŋ	c <sup>h</sup> ɔŋ	c <sup>h</sup> ɔŋ
935	bedroom		c <sup>h</sup> ɔŋ.ʔit	c <sup>h</sup> ɔŋ.ʔit	c <sup>h</sup> ɔŋ.ʔit	c <sup>h</sup> ɔŋ.ʔit
936	kitchen		sum.p <sup>h</sup> raʔ	sum.p <sup>h</sup> raʔ	sum.p <sup>h</sup> raʔ	sɛŋ.p <sup>h</sup> raʔ
937	sitting room		ka.lɔi	ka.lɔi	ka.lɔi	ka.lɔi
938	kitchen		no data	no data	no data	no data
939	fence (n)		lɔŋ	lɔŋ	lɔŋ	lɔŋ
940	fence in (v)		lɔŋ.la.ʔɤn	juh.lɔŋ	lɔŋ.la.ʔɤn	lɔŋ.la.ʔɤn
941	granary (to store rice)		krau	krau	krau	krau
942	well (n)		rom.k <sup>h</sup> um	rom.k <sup>h</sup> um	rom.k <sup>h</sup> um	rom.k <sup>h</sup> um
943	bathing place		naŋ.hɤm	naŋ.hɤm	naŋ.hɤm	naŋ.hɤm
944	latrine, toilet		t <sup>h</sup> aŋ.ʔɛn	t <sup>h</sup> aŋ.ʔɛn	t <sup>h</sup> aŋ.ʔɛn	t <sup>h</sup> aŋ.ʔɛn
945	garbage dump		ɲɔk.ɲɛ	ŋɔk.ɲɛt	ɲɤk.ɲɤ	ɲɤk.ɲɤ
946	garden		va	va	va	va



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
947	shelter (n)		taŋ.ʔot	taŋ.ʔot	taŋ.ʔot	taŋ.ʔot
948	build		juh.ŋa	juh.ŋa	juh.ŋa	juh.ŋa
949	thatch (n)		plonŋ	plonŋ	plonŋ	plonŋ
950	plaster (n)		no data	no data	no data	no data
951	to paint (v)		la.pai.ta	la.pai.ta	la.pai.ta	la.pai.ta
952	ladder		pɔŋ	pɔŋ	pɔŋ	pɔŋ
953	chair	taŋ*	taŋ	taŋ.ŋɔm	taŋ	taŋ
954	table	taŋ*	taŋ	taŋ	si.laŋ	taŋ
955	lamp		kok.ŋo	kok.ŋo	kok.ŋo	kok.ŋo
956	fan (n)		pan.ku	pan.ku	jiɸ	pan.ku
957	bell		hiŋ	hiŋ	hiŋ	hiŋ
958	ring (bell) (v)		let.hiŋ	let.hiŋ	let.hiŋ	let.hiŋ
959	act, do		juh	juh	juh	juh
960	work (n)	kan*	kan	kan	kan	kan
961	mend, repair		pre	pre	pre	pre
962	forge (n)		piaʔ.sau	piaʔ.sau	piaʔ.sau	piaʔ.sau
963	hammer	k <sup>h</sup> ɔn*	k <sup>h</sup> ɔn	k <sup>h</sup> ɔn	k <sup>h</sup> ɔn.tok	k <sup>h</sup> ɔn
964	anvil		no data	no data	na.t <sup>h</sup> an	no data
965	bellows		pionŋ	lɔt	pionŋ	pionŋ
966	lump (clay, mud)		tɛʔ.buɸ	tɛʔ.puɸ	tɛʔ.puɸ	tɛʔ.puɸ
967	mould (pottery)		no data	no data	no data	sa.mɸ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
968	potter's kiln		tak.tau.ʔɔ	tak.tau.ʔɔ	no data	tak.tau.ʔɔ
969	wood		nɛ.k <sup>h</sup> au	nɛ.k <sup>h</sup> au	siak.k <sup>h</sup> auʔ	nɛ.k <sup>h</sup> au
970	cut down (tree)		k <sup>h</sup> o.k <sup>h</sup> ue	k <sup>h</sup> o.k <sup>h</sup> ue	k <sup>h</sup> o.k <sup>h</sup> ue	k <sup>h</sup> o.k <sup>h</sup> ue
971	log		t <sup>h</sup> um.k <sup>h</sup> auʔ	t <sup>h</sup> um.k <sup>h</sup> auʔ	t <sup>h</sup> um.k <sup>h</sup> auʔ	t <sup>h</sup> um.k <sup>h</sup> auʔ
972	hollow out (log)		k <sup>h</sup> auʔ.dauʔ.doʔ	k <sup>h</sup> auʔ.dauʔ.doʔ	k <sup>h</sup> auʔ.tauʔ.toʔ	k <sup>h</sup> auʔ.tauʔ.toʔ
973	axe		k <sup>h</sup> un.moŋ	k <sup>h</sup> un.moŋ	k <sup>h</sup> ɔn.moŋ	ta.mat
974	saw (n)	lek.lɣ*	lek.lɣ	lek.lɣ	lek.lɣ	lek.lɣ
975	plank (n)	pɛn*	pɛn.k <sup>h</sup> auʔ	pɛn.k <sup>h</sup> auʔ	pɛn.k <sup>h</sup> auʔ	pɛn.k <sup>h</sup> auʔ
976	knot (in wood)		ŋai.k <sup>h</sup> auʔ	ŋai.k <sup>h</sup> auʔ	ŋai.k <sup>h</sup> auʔ	ŋai.k <sup>h</sup> auʔ
977	splinter, sliver (n)		pɔt.k <sup>h</sup> auʔ.pɔt.ʔoʔ	pɔt.k <sup>h</sup> auʔ.pɔt.ʔoʔ	pɔt.k <sup>h</sup> auʔ.pɔt.ʔoʔ	pɔt.k <sup>h</sup> auʔ.pɔt.ʔoʔ
978	chisel (n)		la.set	la.set	la.set	la.set
979	nail (n)	ʃam*	ʃam	ʃam	ʃam	ʃam
980	thread (n)		krɣi	krɣi	krɣi	krɣi
981	hem (n)		mop.map	mop.map	mop.miap	mop.map
982	pocket		hau.sa.p <sup>h</sup> ɛ	hau.sa.p <sup>h</sup> ɛ	hau.sa.p <sup>h</sup> ɛ	hau.sa.p <sup>h</sup> ɛ
983	(be) torn		jɔk.jɔi	jɔk.jɔi	ɲa	jɔk.jɔi
984	cloth		man	man	man	man
985	rag		k <sup>h</sup> rɣŋ.jɔk	k <sup>h</sup> rɣŋ.jɔk	k <sup>h</sup> rɣŋ.jɔk	k <sup>h</sup> rɣŋ.jɔk
986	broom	ɲu*	ɲu	ɲu	ɲu	ɲu
987	sweep		bi	bi	pih	pih
988	polish		sa.p <sup>h</sup> u	sa.p <sup>h</sup> u	sa.p <sup>h</sup> u	sa.p <sup>h</sup> u

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
989	draw water		tuut.rom	tuut.rom	c <sup>h</sup> in.rom	tuut.rom
990	fetch (firewood)		ton.c <sup>h</sup> i?	ton.c <sup>h</sup> i?	ton.c <sup>h</sup> i?	ton.c <sup>h</sup> i?
991	rubbish		no data	no data	no data	no data
992	cultivate, farm (v)		sum	sum	sum	sum
993	fertile soil		k <sup>h</sup> un	k <sup>h</sup> un	k <sup>h</sup> un	k <sup>h</sup> un
994	(be) barren (of land)		ṇṇu.lɤk	ṇṇu.lɤk	ṇṇu.lɤk	ṇṇu.lɤk
995	clear (land for planting)		soh.ma	soh.ma	soh.ma	soh.ma
996	weed (v)		kum	kum	kum	kum
997	hoe (v)		kum.nɤ.k <sup>h</sup> ɔ	kum.nɤ.k <sup>h</sup> ɔ	kum.nɤ.k <sup>h</sup> ɔ	kum.nɤ.k <sup>h</sup> ɔ
998	hoe (n)	k <sup>h</sup> ɔ*	k <sup>h</sup> ɔ	k <sup>h</sup> ɔ	k <sup>h</sup> ɔ	k <sup>h</sup> ɔ
999	sickle		c <sup>h</sup> au	c <sup>h</sup> au	c <sup>h</sup> au	c <sup>h</sup> au
1000	machete, cutlass		la.ŋoŋ	la.ŋoŋ	la.ŋoŋ	la.ŋoŋ
1001	harvest season		k <sup>h</sup> au?.vɔk.ŋo?	k <sup>h</sup> au?.vɔk.ŋo?	k <sup>h</sup> au?.vɔk.ŋo?	k <sup>h</sup> au?.vɔk.ŋo?
1002	harvest (rice) (v)		vɔk.ŋo?	vɔk.ŋo?	vɔk.ŋo?	vɔk.ŋo?
1003	pick, pluck (fruit)		bɔ	bɔ	pɔ	pɔ
1004	harvest, collect (honey from hive)		jah.hia	jah.hia	jah.hia	jah.hia
1005	threshing-floor		t <sup>h</sup> ɛ.na	t <sup>h</sup> ɛ.na	t <sup>h</sup> ɛ.na	t <sup>h</sup> ɛ.na
1006	thresh, beat (grain)		t <sup>h</sup> iai.ŋo?	t <sup>h</sup> iaj.ŋo?	t <sup>h</sup> iah.ŋo?	t <sup>h</sup> iaj.ŋo?
1007	winnow (n)		laŋ.ŋo?	laŋ.ŋo?	laŋ.ŋo?	laŋ.ŋo?
1008	husk (corn) (v)		k <sup>h</sup> rwut.ŋo?	k <sup>h</sup> rwut.ŋo?	tah.ŋo?	k <sup>h</sup> rwut.ŋo?

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1009	domesticate, tame		၂၉	၂၉	၂၉	၂၉
1010	herd (cattle, sheep) (n)		ᵖᵃᵤᵏ.ᵐᵃi	ᵖᵃᵤᵏ.ᵐᵃi	ᵖᵃᵤᵏ	ᵖᵃᵤᵏ.ᵐᵃi
1011	herd, tend (cattle, sheep) (v)		လၢᵏ.ᵐᵃi.လၢᵏ.ᵏᵣᵃ?	လၢᵏ.ᵐᵃi.လၢᵏ.ᵏᵣᵃ?	လၢᵏ.ᵐᵃi.လၢᵏ.ᵏᵣᵃ?	လၢᵏ.ᵐᵃi.လၢᵏ.ᵏᵣᵃ?
1012	cattle pen	ᵏᵃᵃᵏ*	ᵏᵃᵃᵏ.ᵐᵃi	ᵏᵃᵃᵏ.ᵐᵃi	ᵏᵃᵃᵏ.ᵐᵃi	ᵏᵃᵃᵏ.ᵐᵃi
1013	tether (sheep, goats) (v)		mat	mat	mat	mat
1014	feed (animals)		ᵏᵃ.ᵣiᵖ	ᵏᵃ.ᵣiᵖ	ʔᵃi	ᵏᵃ.ᵣiᵖ
1015	castrate		sɛh	sɛh	sɛh	sɛh
1016	stalk (v)		ᵉᵃᵃ	ᵉᵃᵃ	ᵉᵃᵃ	ᵉᵃᵃ
1017	chase (v)		ᵉᵃᵃᵐ.hu	ᵉᵃᵃᵐ.hu	ᵉᵃᵃᵐ	ᵉᵃᵃᵐ.hu
1018	footprint (human)	ᵣᵃi*	ᵣᵃi	ᵣᵃi	ᵣᵃi	ᵣᵃi
1019	poison (on arrow)		la.nai	la.nai	la.nai	la.nai
1020	head of arrow		no data	no data	si	si
1021	quiver (n)		ᵏᵃᵏ.ᵗᵃɛ	ᵏᵃᵏ.ᵗᵃɛ	ᵏᵃᵏ.ᵗᵃɛ	ᵏᵃᵏ.ᵗᵃɛ
1022	birdlime (adhesive to catch birds)		ᵎᵃ?	ᵎᵃ?	ᵎᵃ?	ᵎᵃ?
1023	trap (n)		ᵏᵃ	ᵏᵃ	ᵏᵃ	ᵏᵃ
1024	set (trap)		ᵗᵃᵏ.ᵏᵃ	ᵗᵃᵏ.ᵏᵃ	ᵗᵃᵏ.ᵏᵃ	ᵗᵃᵏ.ᵏᵃ
1025	trap (animal) (v)		ᵏᵣi?	ᵏᵣi?	ᵏᵣi?	ᵏᵣi?
1026	evade		ᵏlɔt	ᵏlɔt	ᵏlɔt	ᵏlɔt
1027	escape		ᵏlɔt.ᵏᵃlɔt	ᵏlɔt.ᵏᵃlɔt	ᵏlɔt.ᵏᵃlɔt	ᵏlɔt.ᵏᵃlɔt

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1028	wound (animal)		taŋ.sau?	taŋ.sau?	taŋ.sau?	taŋ.sau?
1029	skin (animal) (v)		lɔk.lo?	lɔk.loh	lɔk.loh	lɔk.loh
1030	fish (v)		mut.ka?	mut.ka?	mut.ka?	mut.ka?
1031	fish dam		nɔŋ.ka?.nɔŋ.rom	nɔŋ.rom	nɔŋ.ka?	nɔŋ.rom
1032	fishing net		mɔŋ	mɔŋ	mɔŋ.ka?	mɔŋ
1033	fishing line		muŋ.met	muŋ.met	muŋ.met	muŋ.met
1034	fishhook	mit*	mit	mit	mit	mit
1035	bait		nɛ.met	kra?.ʔi?.ka?	pi.ʔɔi	ja.met
1036	have, possess		kue	kue	kue	kue
1037	need (v)		lɔ	lɔ	lɔ	lɔ
1038	get, obtain		p <sup>h</sup> on	p <sup>h</sup> on	p <sup>h</sup> on	p <sup>h</sup> on
1039	belongings		ʔup.k <sup>h</sup> ruŋ	ʔup.k <sup>h</sup> ruŋ	no data	ʔup.k <sup>h</sup> ruŋ
1040	owner		cau.ʔup	cau.ʔup	cau	cau.ʔup
1041	rich man		cip.mi	cip.mi	cip.mi	sa.t <sup>h</sup> e
1042	poor man		p <sup>h</sup> i.p <sup>h</sup> lan	p <sup>h</sup> i.p <sup>h</sup> lan	p <sup>h</sup> lan	p <sup>h</sup> i.p <sup>h</sup> lan
1043	(be) rich		lue.mi	lue.mi	puec.mi	cɛm.mi
1044	to be poor		p <sup>h</sup> lan	p <sup>h</sup> lan	p <sup>h</sup> lan	p <sup>h</sup> lan
1045	money		mɤ	mɤ	mɤ	mɤ
1046	(be) scarce		c <sup>h</sup> a	c <sup>h</sup> a	c <sup>h</sup> a	c <sup>h</sup> a
1047	(be) expensive		ŋɔi	ŋɔi	ŋɔi	ŋɔi
1048	(be) inexpensive		ja	ja	ja	ja

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1049	price		t <sup>h</sup> iŋ.ʔa.p <sup>h</sup> o	t <sup>h</sup> iŋ.ʔa.p <sup>h</sup> o	ʔa.p <sup>h</sup> o	t <sup>h</sup> iŋ.ʔa.p <sup>h</sup> o
1050	haggle, negotiate a price		no data	sit	set	c <sup>h</sup> ɛt <sup>23</sup>
1051	payment	la.k <sup>h</sup> a*	la.k <sup>h</sup> a	la.k <sup>h</sup> a	la.k <sup>h</sup> a	la.k <sup>h</sup> a
1052	gift		k <sup>h</sup> ɔŋ.p <sup>h</sup> ak	k <sup>h</sup> ɔŋ.p <sup>h</sup> ak	k <sup>h</sup> ɔŋ.p <sup>h</sup> ak	k <sup>h</sup> ɔŋ.p <sup>h</sup> ak
1053	hire (v)		vai	vai	vai	vai
1054	beg (for money)		jua.la.ʔi	jua.la.ʔi	jua.la.ʔi	jua.la.ʔi
1055	borrow		rom.k <sup>h</sup> um	rom.k <sup>h</sup> um	rom	rom.k <sup>h</sup> um
1056	lend		rom.ma.k <sup>h</sup> a	rom.ma.k <sup>h</sup> a	rom.k <sup>h</sup> a	vai
1057	debt		rom	rom	rom	rom
1058	offer (v)		no data	no data	no data	no data
1059	accept, receive		k <sup>h</sup> am	k <sup>h</sup> am	k <sup>h</sup> am	k <sup>h</sup> am
1060	refuse		t <sup>h</sup> eŋ	t <sup>h</sup> eŋ	t <sup>h</sup> eŋ	t <sup>h</sup> eŋ
1061	tax (n)		k <sup>h</sup> ɔn	k <sup>h</sup> ɔn	k <sup>h</sup> ɔn	k <sup>h</sup> ɔn
1062	tribute		no data	no data	no data	no data
1063	inheritance		kuŋ	kuŋ	kuŋ	kuŋ
1064	inherit		k <sup>h</sup> am.kuŋ	k <sup>h</sup> am.kuŋ	kuŋ	k <sup>h</sup> am.kuŋ
1065	journey, trip (n)		li.kra?	li.kra?	li.kra?	li.kra?
1066	bicycle		lɔʔ.jen	lɔʔ.jen	lau.jen	lɔʔ.jen
1067	travel, go on a trip (v)		hu.c <sup>h</sup> ɛ	hu.c <sup>h</sup> ɛ	hu.c <sup>h</sup> ɛ	hu.c <sup>h</sup> ɛ
1068	traveler		p <sup>h</sup> i.li.kra?	p <sup>h</sup> i.li.kra?	p <sup>h</sup> i.li.kra?	p <sup>h</sup> i.li.kra?
1069	driver		p <sup>h</sup> i.ban.k <sup>h</sup> a?	p <sup>h</sup> i.ban.k <sup>h</sup> a?	p <sup>h</sup> i.pan.ka	p <sup>h</sup> i.pan.ka

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1070	passenger		no data	ci.prək.ka	ci.prək.ka	no data
1071	wander		loŋ.laŋ.kraʔ	loŋ.laŋ.kraʔ	loŋ.laŋ.kraʔ	loŋ.laŋ.kraʔ
1072	(be) lost		ŋrai.kraʔ	ŋrai.kraʔ	ŋrai.kraʔ	ŋrai.kraʔ
1073	fork (in path)		la.kak.kraʔ	la.kak.kraʔ	la.kak.kraʔ	la.kak.kraʔ
1074	crossroads, intersection		la.kum.kraʔ	la.kum.kraʔ	sa.kum.kraʔ	sa.kum.kraʔ
1075	cross (river)		t <sup>h</sup> aŋ	t <sup>h</sup> aŋ	t <sup>h</sup> aŋ.rom	t <sup>h</sup> aŋ
1076	paddle (n)		sa.vaʔ	sa.vaʔ	sa.vaʔ	sa.vaʔ
1077	paddle (v)	vai*	vai	vai	vai	vai
1078	bale out (canoe, boat)		k <sup>h</sup> iaʔ.k <sup>h</sup> ruŋ	k <sup>h</sup> iaʔ.k <sup>h</sup> ruŋ	k <sup>h</sup> iaʔ.k <sup>h</sup> ruŋ	k <sup>h</sup> iaʔ.k <sup>h</sup> ruŋ
1079	capsize		krup.rɣ	krup.rɣ	krup.rɣ	krup.rɣ
1080	bring		t <sup>h</sup> ue.ʔiŋ	t <sup>h</sup> ue.ʔiŋ	t <sup>h</sup> ue.ʔiŋ	t <sup>h</sup> ue.ʔiŋ
1081	send (something to someone)		dau	tau	tau	tau
1082	carry (in arms)		ton	ton	ton	ton
1083	carry (child) on back		p <sup>h</sup> oʔ	p <sup>h</sup> oʔ	p <sup>h</sup> oʔ	p <sup>h</sup> o <sup>23</sup>
1084	carry on head		pɰi	pɰi	pɰi	pɰi
1085	load, burden (n)		klom	klom	klom	klom
1086	load (v)		t <sup>h</sup> ɣ	t <sup>h</sup> ɣ	t <sup>h</sup> ɣ	t <sup>h</sup> ɣ
1087	unload		k <sup>h</sup> iaʔ	k <sup>h</sup> iaʔ	k <sup>h</sup> iaʔ	plɔi
1088	war		naŋ	naŋ	naŋ	naŋ
1089	peace		hai.jet.jan	hai.jet.jan	hai.jet.jan	hai.jet.jan

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1090	army		luuk.suuk	luuk.suuk	t <sup>h</sup> ap	luuk.suuk
1091	spy (n)		cum.t <sup>h</sup> ɔk	cum.t <sup>h</sup> ɔk	jum.t <sup>h</sup> ɔk	cum.t <sup>h</sup> ɔk
1092	spy (v), spy on		cum.t <sup>h</sup> ɔk.lɤ	cum.t <sup>h</sup> ɔk.lɤ	ju.jum.t <sup>h</sup> ɔk	cum.t <sup>h</sup> ɔk.lɤ
1093	sword		vac.laŋ	vac.laŋ	laŋ.karŋ	vac.laŋ
1094	gun	nat*	nat	nat	nat	nat
1095	shield (n)		no data	no data	no data	no data
1096	conquer, defeat		p <sup>h</sup> ɛ	p <sup>h</sup> ɛ	p <sup>h</sup> ɛ	p <sup>h</sup> ɛ
1097	(be) defeated		sum	sum	sum	sum
1098	prisoner, captive		ci.let.t <sup>h</sup> oŋ	ci.let.t <sup>h</sup> oŋ	p <sup>h</sup> i.let.t <sup>h</sup> oŋ	?on.pi.mut
1099	plunder (a town)		ŋrum	ŋrum	ŋrum	ŋrum
1100	slave		kɔn.?ot	kɔn.?ot	kɔn.?ot	kɔn.?ot
1101	music		mon.sɛŋ	mon.sɛŋ	sɛŋ	mon.su
1102	song	k <sup>h</sup> uam*	k <sup>h</sup> uam	k <sup>h</sup> uam	k <sup>h</sup> uam	k <sup>h</sup> uam
1103	hum (v)		?ɤh.la.man	?ɤ.la.man	?ɤ.la.man	?ɤ.la.man
1104	dance (n)		ka	ka	ka	ka
1105	big(gest) drum		kɔŋ	kɔŋ	kɔŋ	kɔŋ
1106	flute	bi*	bi	bi	pi	pi
1107	harp		diŋ	diŋ	tiŋ	tiŋ
1108	horn (musical instrument)		no data	no data	no data	no data
1109	play instrument	let*	let	let	let	let



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1110	blow (horn)		baŋ	baŋ	paŋ	paŋ
1111	draw (picture)		sɔi	sɔi	sɔi	sɔi
1112	decorate		k <sup>h</sup> re?	k <sup>h</sup> re?	k <sup>h</sup> re?	k <sup>h</sup> re?
1113	carve		k <sup>h</sup> ɔk	k <sup>h</sup> ɔk	k <sup>h</sup> ɔk	k <sup>h</sup> ɔk
1114	game		k <sup>h</sup> ruŋ.rak	k <sup>h</sup> ruŋ.rak	rak	k <sup>h</sup> ruŋ.rak
1115	tobacco pipe		mɔ	mɔ	mɔ	mɔ
1116	tobacco	ŋa*	ŋa	ŋa	ŋa	ŋa
1117	awe, reverence (for God)		ro.se.ro.mat	ro.se.ro.mat	ro.se.ro.mat	ro.se.ro.mat
1118	God (supreme being)	p <sup>h</sup> ra*	p <sup>h</sup> ra	p <sup>h</sup> ra	p <sup>h</sup> ra	p <sup>h</sup> ra
1119	demon, evil spirit		no data	no data	no data	no data
1120	ghost (visible apparition)		sa.ca?	sa.ca?	sa.ca?	sa.ca?
1121	soul, spirit (of living person)		sa.rom	sa.rom	sa.rom	sa.rom
1122	spirit (of dead person) (invisible)		no data	no data	k <sup>h</sup> uan	k <sup>h</sup> uan.ŋau
1123	pray		jua.ʔa.c <sup>h</sup> o	jua.ʔa.c <sup>h</sup> o	jua.ʔa.c <sup>h</sup> o	jua.ʔa.c <sup>h</sup> o
1124	blessing		kau.mom	kau.mom	kra?.mom	kau.mom
1125	divine, prophesy (v)		no data	kra?.kruŋ.kra? pɔŋ	hɔ	nam.met.nam.pɔŋ
1126	prophecy (n)		no data	no data	hɔ	nam.met.nam.pɔŋ
1127	vision (supernatural)		kra?.moŋ.kra?.jo?	kra?.moŋ.kra?.jo?	kra?.moŋ.kra?.jo?	kra?.moŋ.kra?.jo?

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1128	omen		nam.miʔ	nam.miʔ	nam.miʔ	nam.miʔ
1129	witchcraft		kraʔ.plɔi	kraʔ.plɔi	kraʔ.plɔi	kraʔ.plɔi
1130	bewitch, cast spell		kraʔ.lu.kraʔ.plɔi	kraʔ.lu.kraʔ.plɔi	kraʔ.plɔi	kraʔ.prɔ.kraʔ.plɔi
1131	curse (v)		dʌŋ.lɤ	dʌŋ.lɤ	tɤŋ	tɤŋ
1132	curse (n)		no data	no data	no data	no data
1133	poison (n)		no data	no data	la.nai	no data
1134	poison (a person) (v)		no data	no data	no data	no data
1135	amulet, charm, fetish		lak.pʰɔi	lak.pʰɔi	lak.pʰɔi	lak.pʰɔi
1136	protect by charm		no data	no data	no data	no data
1137	mask (n)		moʔ.raŋ	moʔ.raŋ	moʔ.raŋ	moʔ.raŋ
1138	(be) taboo		no data	no data	no data	no data
1139	exorcise		hoh.lih	hoh.lih	hoh.lih	hoh.lih
1140	sacrifice		kap	kap	kap	kap
1141	tradition, custom		tʰuŋ.ma.nɛ	tʰuŋ.ma.nɛ	tʰuŋ.ma.nɛ	tʰuŋ.ma.nɛ
1142	feast (n)		pʰɔi	pʰɔi	pʰɔi	pʰɔi
1143	naming ceremony (baby)	taŋ.cʰu*	taŋ.cʰu	taŋ.cʰu	taŋ.cʰu	taŋ.cʰu
1144	marry		pɔŋ	pɔŋ	pɔŋ	pɔŋ
1145	(be) engaged, (be) betrothed		mai	mai	mai	mai
1146	brideprice (for bride's family)		krɔŋ.la.pun	krɔŋ.la.pun	krɔŋ.la.pun	krɔŋ.la.pun

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1147	wedding (ceremony)		p <sup>h</sup> ɔi.pɔŋ	p <sup>h</sup> ɔi.pɔŋ	p <sup>h</sup> ɔi.pɔŋ	p <sup>h</sup> ɔi.pɔŋ
1148	bride		mun.k <sup>h</sup> rau	mun.k <sup>h</sup> rau	mun.k <sup>h</sup> rau	mun.k <sup>h</sup> rau
1149	groom		k <sup>h</sup> re.k <sup>h</sup> rau	k <sup>h</sup> re.k <sup>h</sup> rau	k <sup>h</sup> re.k <sup>h</sup> rau	k <sup>h</sup> re.k <sup>h</sup> rau
1150	adultery		la.ɲa	la.ɲa	la.ɲa	la.ɲa
1151	divorce (v)		dik.p <sup>h</sup> o	dik.p <sup>h</sup> o	tik.p <sup>h</sup> o	tik.p <sup>h</sup> o
1152	funeral (at occasion of death)		paŋ.c <sup>h</sup> o	baŋ <sup>31</sup> c <sup>h</sup> o <sup>21</sup>	paŋ.c <sup>h</sup> o	paŋ.c <sup>h</sup> o
1153	mourning		?iat.rom	?iat.rom	?iat.rom	?iat <sup>31</sup> rom <sup>33</sup>
1154	condole, comfort (v)		hu.jɔ	hu.jɔ	hu.jɔ	hu.jɔ
1155	corpse	lɔŋ*	lɔŋ	lɔŋ	lɔŋ	lɔŋ
1156	grave		tau.la.muɯc	tau.la.muɯc	tau.la.muɯc	tau.la.muɯc
1157	cemetery		pa.hio	pa.hio	pa.hio	pa.hio
1158	bull (male cow)		soh.mɔi	soh.mɔi	soh.mɔi	soh.mɔi
1159	cow (female)		ma?.mɔi	ma?.mɔi	ma?.mɔi	ma?.mɔi
1160	heifer (young cow not had a calf)		c <sup>h</sup> ɛŋ.mɔi	c <sup>h</sup> ɛŋ.mɔi	c <sup>h</sup> ɛŋ.mɔi	c <sup>h</sup> ɛŋ.mɔi
1161	steer (castrated male cow)		mɔi.seh	mɔi.seh	mɔi.seh	mɔi.seh
1162	calf		kɔn.pɛ?	kɔn.bɛ?	kɔn.pɛ?	kɔn.pɛ?
1163	herd (of cattle) [group of cattle]		p <sup>h</sup> uŋ.mɔi	p <sup>h</sup> uŋ.mɔi	p <sup>h</sup> uŋ.mɔi	p <sup>h</sup> uŋ.mɔi

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1164	goat	bɛʔ*	bɛʔ	bɛʔ	pɛʔ	pɛʔ
1165	he-goat, billy		mɤŋ.bɛʔ	mɤŋ.bɛʔ	mɤŋ.pɛʔ	nɤŋ.pɛʔ
1166	she-goat, nanny goat		maʔ.bɛʔ	maʔ.bɛʔ	maʔ.pɛʔ	maʔ.pɛʔ
1167	kid (child goat)		kɔn.bɛʔ	kɔn.bɛʔ	kɔn.pɛʔ	kɔn.pɛʔ
1168	sheep		no data	no data	no data	no data
1169	ram		no data	no data	no data	no data
1170	ewe		no data	no data	no data	no data
1171	lamb		no data	no data	no data	no data
1172	flock (of sheep, goats)		no data	no data	no data	no data
1173	rooster (cock)		la.mɛ.ʔia	la.mɛ.ʔia	la.mɛ.ʔia	la.mɛ.ʔia
1174	hen		ma.ʔia	ma.ʔia	ma.ʔia	ma.ʔia
1175	chick		kɔn.ʔia	kɔn.ʔia	kɔn.ʔia	kɔn.ʔia
1176	turkey		no data	no data	no data	no data
1177	guinea fowl		no data	no data	no data	no data
1178	horse		mɔŋ	mɔŋ	mɔŋ	mɔŋ
1179	stallion (male horse)		mɛŋ.mɔŋ	mɛŋ.mɔŋ	mɛŋ.mɔŋ	mɛŋ.mɔŋ
1180	mare (female horse)		ma.mɔŋ	ma.mɔŋ	ma.mɔŋ	ma.mɔŋ
1181	colt		kɔn.mɔŋ	kɔn.mɔŋ	kɔn.mɔŋ	kɔn.mɔŋ
1182	boar (male pig)		lik.ŋah	lik.ŋah	lik.ŋah	lik.ŋah
1183	sow (female pig)		ma.lik	ma.lik	ma.lik	ma.lik
1184	piglet		kɔn.lik	kɔn.lik	kɔn.lik	kɔn.lik

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1185	pup		no data	no data	no data	no data
1186	kitten		kɔn.miau	kɔn.miau	kɔn.miau	kɔn.miau
1187	hippopotamus		no data	no data	no data	no data
1188	rhinoceros		no data	no data	no data	no data
1189	warthog		p <sup>h</sup> rai	p <sup>h</sup> rai	p <sup>h</sup> rai	p <sup>h</sup> rai
1190	jackal		soʔ.jɔt	soʔ.jɔt	soʔ.jɔt	soʔ.jɔt
1191	shrew		k <sup>h</sup> aŋ	k <sup>h</sup> aŋ	k <sup>h</sup> aŋ	k <sup>h</sup> aŋ
1192	mole		bɣi	bɣi	pɣi	pɣi
1193	mongoose		klun	klun	klun	klun
1194	squirrel		lai	lai	lai	lai
1195	bat		mlak	mlak	mlak	mlak
1196	wild cat	sua*	sua	sua	sua	sua
1197	leopard		la.vai	la.vai	la.vai	la.vai
1198	lion		caŋ.si	caŋ.si	ra.cak.si	caŋ.si
1199	hoof		t <sup>h</sup> ak.c <sup>h</sup> uŋ.mroŋ	t <sup>h</sup> ak.c <sup>h</sup> uŋ.mroŋ	t <sup>h</sup> ak.c <sup>h</sup> uŋ.mroŋ	t <sup>h</sup> ak.c <sup>h</sup> uŋ.mroŋ
1200	mane (of horse)		sa.k <sup>h</sup> u.mroŋ	sa.k <sup>h</sup> u.mroŋ	sa.k <sup>h</sup> u.mroŋ	sa.k <sup>h</sup> u.mroŋ
1201	elephant's trunk		ŋoŋ.saŋ	ŋoŋ.saŋ	ŋoŋ.saŋ	ŋoŋ.saŋ
1202	den, lair, hole		no data	no data	no data	no data
1203	bare, show (teeth)		ŋa.la.vai	ŋa.la.vai	la.vai.ŋa	ŋa.la.vai
1204	growl		no data	no data	1203	ŋa.la.vai
1205	ruminant, chew cud		p <sup>h</sup> am	p <sup>h</sup> am	p <sup>h</sup> am.mɔi.p <sup>h</sup> am.kr	p <sup>h</sup> am.mɔi.p <sup>h</sup> am.kr

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
					aʔ	aʔ
1206	crow		sim.lak	sim.lak	sim.lak	sim.lak
1207	dove		sim.duk.du	sim.duk.du	t <sup>h</sup> uk.t <sup>h</sup> u	sim.tuk.tu
1208	parrot		sim.lɣ	sim.lɣ	sim.lɣ	sim.lɣ
1209	heron		no data	no data	no data	no data
1210	kingfisher		no data	no data	no data	no data
1211	hornbill		no data	no data	no data	no data
1212	stork (marabou)		no data	no data	no data	no data
1213	owl		plɔk.plɔh	plɔk.plɔh	plɔk.plɔh	plɔk.plɔh
1214	eagle		no data	no data	klaŋ	no data
1215	vulture		klaŋ.taʔ	klaŋ.taʔ	klaŋ.taʔ	klaŋ.taʔ
1216	beak, bill		ta.tot.sim	ta.tot.sim	ta.tot.sim	ta.tot.sim
1217	comb (of rooster)		no data	no data	la.k <sup>h</sup> ue	no data
1218	crop (of bird)		nij.k <sup>h</sup> ɔ	nij.k <sup>h</sup> ɔ	nij.k <sup>h</sup> ɔ	k <sup>h</sup> ɔ.hɔi
1219	gizzard		t <sup>h</sup> u	t <sup>h</sup> u	t <sup>h</sup> u	t <sup>h</sup> u
1220	claw		mim	mim	mim	mim
1221	eggshell		k <sup>h</sup> ok.tom.ʔia	k <sup>h</sup> ok.tom.ʔia	k <sup>h</sup> ok.tom.ʔia	k <sup>h</sup> ok.tom.ʔia
1222	yolk (of egg)		lɔn.tom	lɔn.tom	lɔn.tom	lɔn.tom
1223	flock (of birds)		p <sup>h</sup> uŋ.sim	p <sup>h</sup> uŋ.sim	p <sup>h</sup> uŋ.sim	p <sup>h</sup> uŋ.sim
1224	dive		sa.vait	sa.vait	nam.rom	jaŋ.sa.viat.rom
1225	soar		plu.ha.ka.laŋ	plu.ha.ka.laŋ	plu.ha.ka.laŋ	plu.ha.ka.laŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1226	land (v), alight		plu.li.ka.se	plu.li.ka.se	plu.li.ka.se	plu.li.ka.se
1227	perch		lau?.lɿ	lau?.lɿ	lau?	lau?.lɿ
1228	flap the wings		k <sup>h</sup> ri	k <sup>h</sup> ri	k <sup>h</sup> ri.pruit	k <sup>h</sup> ri
1229	cackle (as of chicken)		seŋ.rak.sim	seŋ.rak.sim	?u.ta.luŋ.?ut	?u.ka.luŋ.?ut
1230	crow (as a rooster) (v)		?o?.?ia	?o?.?ia	?o?.?ia	?o?.?ia
1231	peck (tr)		dot.?ia	dot.?ia	tot.?ia	tot.?ia
1232	lay (eggs)		tom.?ia	tom.?ia	tom.?ia	tom.?ia
1233	incubate, set (on eggs)		num.tom	num.tom	num.tom	num.tom
1234	hatch		t <sup>h</sup> ue.kɔn	t <sup>h</sup> ue.kɔn	t <sup>h</sup> o	t <sup>h</sup> o.kɔn
1235	catfish		pa.luk	pa.luk	no data	pa.luk
1236	mudfish (lives in the mud during dry season)		no data	no data	no data	no data
1237	eel		k <sup>h</sup> laŋ	k <sup>h</sup> laŋ	k <sup>h</sup> laŋ	k <sup>h</sup> laŋ
1238	fish bone		sa.?aŋ.ka?	sa.?aŋ.ka?	sa.?aŋ.ka?	sa.?aŋ.ka?
1239	fish-scale		ket.ka?	ket.ka?	ket.ka?	ket.ka?
1240	gill		no data	no data	no data	no data
1241	fin		kun.ka?	kun.ka?	kun.ka?	kun.ka?
1242	crab		dam	tam	tam	tam
1243	shrimp	kuŋ*	kuŋ	kuŋ	kuŋ	kuŋ
1244	clam		no data	no data	no data	no data
1245	spitting cobra		no data	no data	no data	no data

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1246	puff adder		no data	no data	no data	no data
1247	python		no data	no data	no data	no data
1248	green mamba [viper]		no data	no data	no data	no data
1249	chameleon		ʔai.kot.kɤe	ʔai.kot. kɤe	ʔai.kot. kɤe	ʔai.koŋ. kɤe
1250	gecko		no data	no data	no data	lai.lɤt
1251	monitor lizard		no data	no data	cau.rɤn	no data
1252	toad		sa.pɔn	sa.pɔn	sa.pɔn	c <sup>h</sup> at
1253	shell (of turtle)		loʔ.tau.jɤŋ	loʔ.tau.jɤŋ	loʔ.tau.jɤŋ	loʔ.tau.jɤŋ
1254	slither (snake)		no data	no data	no data	no data
1255	hiss		no data	no data	no data	no data
1256	flea		tiap.soʔ	tiap.soʔ	tiap.soʔ	tiap.soʔ
1257	bedbug		huŋ	huŋ	huŋ	huŋ
1258	maggot (in rotten meat)		ɲɤiʔ	ɲɤiʔ <sup>31</sup>	ɲɤiʔ	ɲeʔ
1259	ant		mɤiʔ	mɤiʔ	mɤiʔ	mɤiʔ
1260	army ant, soldier ant		no data	no data	no data	no data
1261	flying ant		mɤiʔ.pluh	mɤiʔ.plu	mɤiʔ.plu	mɤiʔ.plu
1262	dung beetle		cu.ci	cu.ci	cu.ci	cu.ci
1263	grasshopper		t <sup>h</sup> oŋ.t <sup>h</sup> oʔ	t <sup>h</sup> oŋ.t <sup>h</sup> oʔ	t <sup>h</sup> ɔk.t <sup>h</sup> oʔ	t <sup>h</sup> oŋ.t <sup>h</sup> oʔ
1264	cricket		t <sup>h</sup> ɔn	t <sup>h</sup> ɔn	t <sup>h</sup> ɔn	no data
1265	locust		cak.k <sup>h</sup> io	cak.k <sup>h</sup> io	cak.k <sup>h</sup> io	cak.k <sup>h</sup> io
1266	praying mantis		no data	no data	no data	no data



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1267	caterpillar		k <sup>h</sup> ɔŋ	k <sup>h</sup> ɔŋ	k <sup>h</sup> ɔŋ	k <sup>h</sup> ɔŋ
1268	centipede		siʔ.sa.ʔuŋ	siʔ.sa.ʔuŋ	siʔ.sa.ʔuŋ	siʔ.sa.ʔuŋ
1269	millipede		mak.sa.ciaʔ	mak.sa.ciaʔ	mak.sa.ciaʔ	mak.sa.ciaʔ
1270	dragonfly		ʔai.k <sup>h</sup> o.k <sup>h</sup> re	ʔai.k <sup>h</sup> o.k <sup>h</sup> re	ʔai.k <sup>h</sup> o.k <sup>h</sup> re	ʔai.k <sup>h</sup> o.k <sup>h</sup> re
1271	moth		p <sup>h</sup> u.tɔi	p <sup>h</sup> u <sup>21</sup> tɔi <sup>31</sup>	p <sup>h</sup> u.tɔi	no data
1272	antenna		nok.cian	nok.cian	nok.cian	no data
1273	sting (v)		huc.hia	huc.hia	hia.huc	huc.hia
1274	stinger dard		no data	no data	la.ɲɛc	no data
1275	cocoon		no data	no data	no data	no data
1276	termite hill		ŋruŋ	ŋruŋ	ŋruŋ	ŋruŋ
1277	beehive		ɲa.hia	ɲa.hia	ɲa.hia	ɲa.hia
1278	beeswax		ɲo	ɲo	ɲo	ɲo
1279	honey		rom.hia	rom.hia	rom.hia	rom.hia
1280	swarm(n)		p <sup>h</sup> uŋ.hia	p <sup>h</sup> uŋ.hia	p <sup>h</sup> uŋ.hia	p <sup>h</sup> uŋ.hia
1281	teak tree		no data	no data	no data	no data
1282	fig tree		no data	no data	num.ta.plak	no data
1283	tamarind tree		num.mak.c <sup>h</sup> aŋ	num.mak.c <sup>h</sup> aŋ	num.mak.c <sup>h</sup> aŋ	num.mak.k <sup>h</sup> iaŋ
1284	oil palm		num.ʔoŋ.si	num.ʔoŋ.si	num.ʔoŋ.si	num.ʔoŋ.si
1285	coconut palm		num.mak.pauʔ	num.mak.pauʔ	num.mak.pauʔ	no data
1286	bush		nau.jum	nau.jum	nau.jum	nau.jum
1287	weeds		num.rip	num.rip	num.rip	nau.rip

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1288	trunk (of tree)		no data	no data	num.k <sup>h</sup> au?	no data
1289	sap		p <sup>h</sup> ri.k <sup>h</sup> au?	p <sup>h</sup> ri.k <sup>h</sup> au?	p <sup>h</sup> ri.k <sup>h</sup> au?	p <sup>h</sup> ri.k <sup>h</sup> au?
1290	stump		ŋu.k <sup>h</sup> au?	ŋu.k <sup>h</sup> au?	ŋu.k <sup>h</sup> au?	ŋu.k <sup>h</sup> au?
1291	bulb, tuber		pli?.k <sup>h</sup> au?	pli?.k <sup>h</sup> au?	pli?.k <sup>h</sup> au?	pli?.k <sup>h</sup> au?
1292	stem, stalk (of corn, millet, etc.)		no data	no data	k <sup>h</sup> aŋ.sa.klue	no data
1293	silk, hair (of corn)		mɔi.sa.klue	mɔi.sa.klue	mɔi.sa.klue	mɔi.sa.klue
1294	blade (of grass)		no data	no data	no data	no data
1295	bud		plɔŋ	plɔŋ	plɔŋ	plɔŋ
1296	shoot (new plant)		kɔi.sa.ma	kɔi.sa.ma	kɔi.sa.ma	kɔi.sa.ma
1297	vine		juum	juum	juum	juum
1298	tendrill		tɛ.mau	tɛ.mau	sa.tɛ.mau	tɛ.mau
1299	juice	mak*	rom.mak	rom.mak	rom.mak	rom.mak
1300	regime/hand (of bananas)		sa.ka?.mɔi	sa.ka?.mɔi	sa.ka?.mɔi	sa.ka?.mɔi
1301	corn cob		sa.klue	sa.klue	luk.sa.klue	sa.klue
1302	kernel (of corn, maize)		sa.ma	sa.ma	mɔi	sa.ma
1303	skin (of fruit)		lo?	lo?	lo?	lo?.mak.ŋon
1304	shell (of groundnut)		lo?.t <sup>h</sup> o.lin	lo?.t <sup>h</sup> o.lin	lo?.t <sup>h</sup> o.lin	lo?.t <sup>h</sup> o.lin
1305	corn husk (n)		lo?.sa.klue	lo?.sa.klue	lo?.sa.klue	lo?.sa.klue
1306	chaff		met.ŋo?	met.ŋo?	kam.mra?	met.ŋo?

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1307	lemon	mak*	mak.vuh	mak.vuh	no data	mak.vuh
1308	orange	mak*	mak.cɔk	mak.cɔk	mak.cɔk	mak.cɔk
1309	papaya	mak*	mak.p <sup>h</sup> ɔ	mak.p <sup>h</sup> ɔ	saŋ.p <sup>h</sup> ɔ.ton	mak.p <sup>h</sup> ɔ
1310	pineapple	mak*	mak.ceŋ	mak.c <sup>h</sup> ɛŋ	mak.ceŋ	mak.ceŋ
1311	guava	mak*	mak.ka	mak.ka	mak.ka	mak.ka
1312	avocado		no data	no data	no data	no data
1313	fig		no data	no data	mak.ta.plak	no data
1314	jackfruit (fruit)	mak*	mak.laŋ	mak.laŋ	mak.laŋ	mak.laŋ
1315	tomato	mak*	mak.k <sup>h</sup> ʎ.som	mak.k <sup>h</sup> ʎ.som	mak.k <sup>h</sup> ʎ.som	mak.k <sup>h</sup> ʎ.som
1316	onion		mi.mo.leŋ	mi.mo.leŋ	mi.sa.krak	mi.mo.leŋ
1317	okra		no data	no data	no data	no data
1318	cocoyam, taro		krau?	krau?	krau?	krau?
1319	yam		hon	hon	hon	hon
1320	sweet potato	mak.saŋ.p <sup>h</sup> ɔ*	mak.saŋ.p <sup>h</sup> ɔ	mak.saŋ.p <sup>h</sup> ɔ	saŋ.p <sup>h</sup> ɔ	mak.saŋ.p <sup>h</sup> ɔ
1321	potato		jaŋ.jue	jaŋ.jue	jaŋ.jue	jaŋ.jue
1322	groundnut, peanut		t <sup>h</sup> o.lin	t <sup>h</sup> o.lin	t <sup>h</sup> o.lin	t <sup>h</sup> o.lin
1323	sesame seed	ŋa*	ŋa?	ŋa	ŋa	ŋa
1324	coffee	ka.p <sup>h</sup> i*	ka.p <sup>h</sup> i	ka.p <sup>h</sup> i	ka.p <sup>h</sup> i	ka.p <sup>h</sup> i
1325	tea		rom.c <sup>h</sup> a	rom.c <sup>h</sup> a	rom.c <sup>h</sup> a	rom.c <sup>h</sup> a
1326	rubber		no data	no data	no data	no data
1327	cotton		t <sup>h</sup> ai	t <sup>h</sup> ai	t <sup>h</sup> ai	t <sup>h</sup> ai

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1328	grow (of plants)		t <sup>h</sup> in.num	t <sup>h</sup> in.num	t <sup>h</sup> in.num	t <sup>h</sup> in.num
1329	sprout (v)		p <sup>h</sup> lɿŋ	p <sup>h</sup> lɿŋ	p <sup>h</sup> lɿŋ	p <sup>h</sup> lɿŋ
1330	(be) unripe		kɔŋ.sa.ŋa	kɔŋ.sa.ŋa	k <sup>h</sup> ɔn.sa.ŋa	k <sup>h</sup> ɔn.sa.ŋa
1331	(be) shrivelled, (be) wrinkled (fruit)		no data	no data	vit	vit
1332	wither (plant)		kro	kro	kro	kro
1333	blight (n)		no data	no data	no data	no data
1334	world		kɿ.p <sup>h</sup> aŋ.hak.tɛ?	kɿ.p <sup>h</sup> aŋ.hak.tɛ?	kɿ.p <sup>h</sup> aŋ.hak.tɛ?	kɿ.p <sup>h</sup> aŋ.hak.tɛ?
1335	place		nan.ʔot	nan.ʔot	taŋ.ʔot	nan.ʔot
1336	desert		no data	no data	no data	no data
1337	ground, land		hak.tɛ?	hak.tɛ?	hak.tɛ?	hak.tɛ?
1338	summit, highest point		p <sup>h</sup> aŋ.mɔ	p <sup>h</sup> aŋ.mɔ	p <sup>h</sup> aŋ.mɔ	p <sup>h</sup> aŋ.mɔ
1339	cliff		huuk	huuk	huuk	huuk
1340	valley		no data	no data	no data	no data
1341	ditch		roŋ	roŋ	k <sup>h</sup> roŋ	k <sup>h</sup> roŋ
1342	hole		tau.dɔ	tau.tɔ	tau.tɔ	tau.tɔ
1343	crevice		t <sup>h</sup> o	t <sup>h</sup> o	t <sup>h</sup> o	t <sup>h</sup> o
1344	gravel		mac	mac	sa.mɔʔ.ŋɔc	mit
1345	clay		no data	no data	tɛʔ.pɿ	no data
1346	copper		t <sup>h</sup> ɔŋ.sa.kra?	t <sup>h</sup> ɔŋ.sa.kra?	no data	t <sup>h</sup> ɔŋ.sa.kra?
1347	rust (n)		ʔih.rɔ	ʔih.rɔ	ʔih.rɔ	ʔih.rɔ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1348	lake		noŋ	noŋ	noŋ	no data
1349	marsh		no data	no data	no data	no data
1350	spring		no data	no data	no data	no data
1351	waterfall		tat.rom	tat.rom	rom.kʷi.kep.tat	tat.rom
1352	current (river, stream)		ŋɔt.rom	ŋɔt.rom	no data	ŋɔt.rom
1353	riverbed (dry)		no data	no data	no data	no data
1354	river bank		t <sup>h</sup> iap.ŋɔt	t <sup>h</sup> iap.ŋɔt	t <sup>h</sup> iap.ŋɔt	t <sup>h</sup> iap.ŋɔt
1355	bridge		la.pak	la.pak	la.pak	la.pak
1356	island		c <sup>h</sup> ɔk.rom	c <sup>h</sup> ɔk.rom	kun.rom	c <sup>h</sup> ɔk.rom
1357	beach		no data	no data	no data	no data
1358	wave		sai.rom	sai.rom	sai.rom	sai.rom
1359	bubble		no data	no data	pop.rom	pop
1360	foam		no data	no data	no data	pop
1361	slime (organic)		no data	no data	no data	no data
1362	flame		dɔk.ŋo	dɔk.ŋo	tɔk.ŋo	tɔk.ŋo
1363	candle	t <sup>h</sup> en*	t <sup>h</sup> en	t <sup>h</sup> en	t <sup>h</sup> en	t <sup>h</sup> en
1364	spark		sa.t <sup>h</sup> ɔn.ŋo	sa.t <sup>h</sup> ɔn.ŋo	sa.t <sup>h</sup> ɔn.ŋo	sa.t <sup>h</sup> ɔn.ŋo
1365	fireplace		muuk.ŋo	muuk.ŋo	piaʔ	muuk.ŋo
1366	charcoal		suaih	suaih	suaih	suaih
1367	air (breathed)		no data	no data	ku	no data
1368	full moon		paŋ.c <sup>h</sup> iʔ	baŋ.c <sup>h</sup> i	paŋ.c <sup>h</sup> i	paŋ.c <sup>h</sup> i

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1369	new moon		hak.c <sup>h</sup> i?	hak.c <sup>h</sup> i?	hak.c <sup>h</sup> i?	hak.c <sup>h</sup> i?
1370	eclipse (moon)		mat.c <sup>h</sup> i?	mat.c <sup>h</sup> i?	mat.c <sup>h</sup> i?	mat.c <sup>h</sup> i?
1371	shooting star, meteor		no data	no data	no data	no data
1372	noise, sound (n)	seŋ*	seŋ	seŋ	seŋ	seŋ
1373	drizzle		leʔ.p <sup>h</sup> rɔi.p <sup>h</sup> rɔi	leʔ.p <sup>h</sup> rɔi.p <sup>h</sup> rɔi	leʔ.p <sup>h</sup> rɔi.p <sup>h</sup> rɔi	leʔ.p <sup>h</sup> rɔi.p <sup>h</sup> rɔi
1374	hail		leʔ	leʔ	pre	pre
1375	flood (n)		t <sup>h</sup> iŋ.rom	t <sup>h</sup> iŋ.rom	t <sup>h</sup> om.rom	t <sup>h</sup> iŋ.rom
1376	drought, famine		no data	no data	leŋ.la.jaʔ	leŋ.la.jaʔ
1377	season		k <sup>h</sup> rau	k <sup>h</sup> rau	k <sup>h</sup> rau	k <sup>h</sup> rau
1378	rainy season		k <sup>h</sup> rau.leʔ	k <sup>h</sup> rau.leʔ	k <sup>h</sup> rau.leʔ	k <sup>h</sup> rau.leʔ
1379	hot weather [hot season]		k <sup>h</sup> rau.haʔ	k <sup>h</sup> rau.haʔ	k <sup>h</sup> rau.haʔ	k <sup>h</sup> rau.haʔ
1380	cold weather [cold season]		k <sup>h</sup> rau.k <sup>h</sup> uŋ	k <sup>h</sup> rau.k <sup>h</sup> uŋ	k <sup>h</sup> rau.k <sup>h</sup> uŋ	k <sup>h</sup> rau.k <sup>h</sup> uŋ
1381	light		raŋ	raŋ	raŋ	raŋ
1382	sunshine		raŋ.sa.pi	raŋ.sa.pi	raŋ.sa.pi	raŋ.sa.pi
1383	moonlight		raŋ.c <sup>h</sup> i?	raŋ.c <sup>h</sup> i?	raŋ.c <sup>h</sup> i?	raŋ.c <sup>h</sup> i?
1384	shadow		no data	no data	pue	no data
1385	darkness		veʔ	veʔ	veʔ	veʔ
1386	time		krauʔ	k <sup>h</sup> rauʔ	k <sup>h</sup> rau	k <sup>h</sup> rau
1387	now		ciaŋ.nai	ciaŋ.nai	ciaŋ.nai	ciaŋ.nai
1388	before		c <sup>h</sup> eʔ	c <sup>h</sup> eʔ	c <sup>h</sup> eʔ	c <sup>h</sup> eʔ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1389	after		kʏt.c <sup>h</sup> eʔ	kʏt.c <sup>h</sup> e	kʏt.c <sup>h</sup> e	kʏt.c <sup>h</sup> e
1390	early		c <sup>h</sup> au.c <sup>h</sup> au	c <sup>h</sup> au.c <sup>h</sup> au	c <sup>h</sup> au.c <sup>h</sup> au	c <sup>h</sup> au.c <sup>h</sup> au
1391	late		kʏt.c <sup>h</sup> eʔ	kʏt.c <sup>h</sup> eʔ	kʏt.c <sup>h</sup> eʔ	kʏt.c <sup>h</sup> eʔ
1392	once		ta.c <sup>h</sup> ʏŋ	tʃ.c <sup>h</sup> ʏŋ	tʃ.c <sup>h</sup> ʏŋ	tʃ.c <sup>h</sup> ʏŋ
1393	again		p <sup>h</sup> oʔ.ta.c <sup>h</sup> ʏŋ	p <sup>h</sup> oʔ.tʃ.c <sup>h</sup> ʏŋ	p <sup>h</sup> oʔ.tʃ.c <sup>h</sup> ʏŋ	p <sup>h</sup> oʔ.tʃ.c <sup>h</sup> ʏŋ
1394	sometimes		ta.c <sup>h</sup> ʏŋ.ta.p <sup>h</sup> u	tʃ.c <sup>h</sup> ʏŋ.tʃ.p <sup>h</sup> u	tʃ.c <sup>h</sup> ʏŋ.tʃ.p <sup>h</sup> u	tʃ.c <sup>h</sup> ʏŋ.tʃ.p <sup>h</sup> u
1395	often		ruŋ.ruŋ.ta.c <sup>h</sup> ʏŋ	ruŋ.ruŋ.tʃ.c <sup>h</sup> ʏŋ	ruŋ.ruŋ.tʃ.c <sup>h</sup> ʏŋ	ruŋ.ruŋ.tʃ.c <sup>h</sup> ʏŋ
1396	usually		no data	no data	praʔ.prah	praʔ.prah
1397	always		se.se	se.se	se.se	se.se
1398	never		p <sup>h</sup> an.moʔ.k <sup>h</sup> ɔ	p <sup>h</sup> an.moʔ.k <sup>h</sup> ɔ	no data	p <sup>h</sup> an.moʔ.ʔu.k <sup>h</sup> ɔ
1399	spend time, pass time		ʔot.la.mʏn	ʔot.la.mʏn	ʔot.la.mʏn	ʔot.la.mʏn
1400	month		c <sup>h</sup> iʔ	c <sup>h</sup> iʔ	c <sup>h</sup> iʔ	c <sup>h</sup> iʔ
1401	today		ʔiŋ.ŋɛ	ʔiŋ.ŋɛ	ʔiŋ.ŋɛ	ʔiŋ.ŋɛ
1402	day before yesterday		ka.kau	ka.kau	ka.kau	ka.kau
1403	day after tomorrow		c <sup>h</sup> eʔ.p <sup>h</sup> an.sak	c <sup>h</sup> eʔ.p <sup>h</sup> an.sak	c <sup>h</sup> eʔ.p <sup>h</sup> an.sak	c <sup>h</sup> eʔ.p <sup>h</sup> an.sak
1404	olden times		ka.ʔin	ka.ʔin	ka.ʔin	ka.ʔin
1405	dawn (before sunrise)		mon.lian	mon.lian	mon.lian	mon.lian
1406	sunrise		tut.sa.ŋiʔ	t <sup>h</sup> ut.sa.ŋiʔ	t <sup>h</sup> ut.sa.ŋiʔ	t <sup>h</sup> ut.sa.ŋiʔ
1407	afternoon		c <sup>h</sup> oŋ.sa.ŋiʔ	c <sup>h</sup> oŋ.sa.ŋiʔ	loŋ.kʏ.la	loŋ.kʏ.la
1408	sunset		let.sa.ŋiʔ	let.sa.ŋiʔ	let.sa.ŋiʔ	let.sa.ŋiʔ
1409	dusk, twilight (after		dɔt.plɔŋ	tɔt.plɔŋ	plɔt.plɔŋ	plɔt.plɔŋ

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
	sunset)					
1410	daytime		sa.ni?	sa.ni?	sa.ni?	sa.ni?
1411	thing		k <sup>h</sup> rɿŋ.ma.krai	k <sup>h</sup> rɿŋ.ma.krai	k <sup>h</sup> rɿŋ.ma.krai	k <sup>h</sup> rɿŋ.ma.krai
1412	piece		but.but.k <sup>h</sup> at.k <sup>h</sup> at	but.but.k <sup>h</sup> at.k <sup>h</sup> at	put <sup>42</sup> put <sup>42</sup> k <sup>h</sup> at.k <sup>h</sup> at	put <sup>42</sup> put <sup>42</sup> k <sup>h</sup> at.k <sup>h</sup> at
1413	top		ka.laŋ	ka.laŋ	ka.laŋ	ka.laŋ
1414	bottom		ka.t <sup>h</sup> iam	ka.t <sup>h</sup> iam	ka.t <sup>h</sup> iam	ka.t <sup>h</sup> iam
1415	front (of something)		ka.ŋai	ka.ŋai	ka.ŋai	ka.ŋai
1416	back (of something)		ka.c <sup>h</sup> ɛ?	ka.c <sup>h</sup> ɛ?	ka.c <sup>h</sup> ɛ?	ka.c <sup>h</sup> ɛ?
1417	side (of something)		t <sup>h</sup> iap	t <sup>h</sup> iap	t <sup>h</sup> iap	t <sup>h</sup> iap
1418	middle		plaŋ.pleŋ	plɔŋ.pleŋ	plɔŋ.pleŋ	plɔŋ.pleŋ
1419	edge (n)		sa.plap	sa.plap	sa.plap	sa.plap
1420	point (n)		c <sup>h</sup> ot	c <sup>h</sup> ot	c <sup>h</sup> ot	c <sup>h</sup> ot
1421	bump (n)		no data	no data	no data	no data
1422	spot (n)		no data	no data	koi?	no data
1423	move (intr)	luan*	luan	luan	t <sup>h</sup> o?.k <sup>h</sup> u	luan
1424	movement		no data	no data	no data	no data
1425	go		no data	no data	hu	no data
1426	approach (v)		no data	no data	sut.t <sup>h</sup> ɛi?	c <sup>h</sup> ɔ
1427	arrive		no data	no data	hoc	no data
1428	remain, stay		no data	no data	krɿt	krɿt
1429	leave (place)		no data	no data	lih	tik



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1430	go round, detour		no data	no data	rɛ	no data
1431	come (or go) out, exit (v)		no data	no data	luan	no data
1432	ascend, go up		no data	no data	no data	no data
1433	descend, go down		no data	no data	no data	no data
1434	swing (v), go back and forth		pɤk.si.jɤŋ	pɤk.si.jɤŋ	vut.vat	pɤk.si.jɤŋ
1435	slide		sa.lɔ	sa.lɔ	si.lɔ	sa.lɔ
1436	roll		luŋ.liŋ	luŋ.liŋ	luŋ.liŋ	luŋ.liŋ
1437	spread (disease, fire)		sa.tʰɤ	sa.tʰɤ	sa.tʰɤ	sa.tɤ
1438	burst		tʰo	tʰo	tʰo	tʰo
1439	speed (n)		no data	no data	no data	no data
1440	hasten, hurry		la.net	la.net	la.net	la.net
1441	snatch, seize		tʰue.pʰai.pʰai	tʰue.pʰai.pʰai	tʰue.pʰai.pʰai	tʰue.pʰai.pʰai
1442	catch (object in air)		mut	mut	mut	mut
1443	pick up		pɔh.pli?	pɔh.pli?	sa.cʰɔt	pɔh.pli?
1444	hold		sop	sop	sop	sop
1445	lower (tr)		kʰiɔ	kʰiɔ	kʰiɔ	kʰiɔ
1446	drop (tr)	plɔi*	plɔi	plɔi	plɔi.kɤc	plɔi
1447	knock down, knock over (an object)		tʰiai	tʰiai	cot	tʰiai
1448	turn over (tr)		no data	no data	tʰak.ra?	no data

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1449	drag	tʉt*	tʉt	duʉt	tʉt	tʉt
1450	steer (v)		no data	no data	no data	no data
1451	overtake, pass (tr)		klɔt	klɔt	k <sup>h</sup> lɔt	k <sup>h</sup> lɔt
1452	surround	vɛt*	vɛt	vɛt	vɛt	vɛt
1453	twist		vɔt.vat.mau	vɔt.vat.mau	vɔt.viat	vɔt.vɛt.mau
1454	fold (v)		la.niap	la.niap	la.niap	la.niap
1455	coil (rope) (v)		p <sup>h</sup> ok.p <sup>h</sup> ek.mau	p <sup>h</sup> ok.p <sup>h</sup> ek.mau	p <sup>h</sup> ok.p <sup>h</sup> ek	p <sup>h</sup> ok.p <sup>h</sup> ek.mau
1456	hang up	hɔi*	hɔi	hɔi	hɔi	hɔi
1457	spread out (maize) (tr)		rɣ.ra	rɣ.ra	rɣ.ra	rɣ.ra
1458	stretch	ɲʉt*	ɲʉt	ɲʉt	ɲʉt	ɲʉt
1459	bump (v), knock against		no data	hu.sa.ta	hu.sa.ta	hu.tap
1460	scrape (v)		no data	k <sup>h</sup> ut	k <sup>h</sup> ut	k <sup>h</sup> ut
1461	scratch (v)		no data	brac	prac	prac
1462	pierce		no data	toʔ.ti.jak	toh	toʔ.ta.jak
1463	tear (tr)		no data	ɲai	ɲa	ɲai
1464	strip off (bark)		no data	no data	c <sup>h</sup> a.loʔ	no data
1465	shake (tr)		no data	krai	krai	krai
1466	crush (tr)		no data	k <sup>h</sup> ʉt	k <sup>h</sup> ʉt	k <sup>h</sup> ʉt
1467	create, make		no data	juh	juh	juh
1468	alter, change (tr)		no data	lai	lai	lai
1469	break (tr)		ɲrec	ɲrec	ɲrec	ɲrec

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1470	destroy, spoil		no data	la.la.tik	la.la.tik	lat.la.tik
1471	join, put together		no data	swɔp	swɔp	swɔp
1472	accumulate		no data	kɔŋ	kɔŋ	kɔŋ
1473	gather		no data	c <sup>h</sup> u.ʔet.p <sup>h</sup> i	c <sup>h</sup> uʔ	c <sup>h</sup> u.ʔet.p <sup>h</sup> i
1474	divide, separate (tr)		no data	ŋɔi	ŋɔi	ŋɔi
1475	scatter (tr)		no data	no data	no data	no data
1476	throw away, get rid of		no data	la.vuɯn.la.tik	la.vuɯn.tik	la.vuɯn.la.tik
1477	put, place, set		no data	ʔɯn	t <sup>h</sup> ue.ʔɯn	ʔɯn
1478	leave (something somewhere)		no data	no data	ʔɯn.ta.niʔ	no data
1479	keep, save		sa.t <sup>h</sup> ɔk.la.ʔɯŋ	sa.t <sup>h</sup> ɔk.la.ʔɯŋ	sa.t <sup>h</sup> ɔk.la.ʔɯŋ	sa.t <sup>h</sup> ɔk.la.ʔɯŋ
1480	hide (tr)		moʔ.la.ʔɯŋ	moʔ.la.ʔɯŋ	moʔ	moʔ.la.ʔɯŋ
1481	lose (tr)		no data	ŋrai	juh.ŋrai	ŋrai
1482	look for		no data	no data	sɔk	sɔk
1483	find		no data	no data	joʔ	joʔ
1484	blow (of wind) (v)		no data	paŋ.kuɯ	paŋ.kuɯ	paŋ.kuɯ
1485	blow down		no data	no data	no data	no data
1486	blow away (intr)		no data	plu.van	plu	plu.la.van
1487	fan (v)		no data	jip	jip	jip
1488	drip		no data	ro	ro	ro
1489	leak (v)		no data	ro	ro	ro

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1490	sprinkle		no data	p <sup>h</sup> ret.rom	p <sup>h</sup> ret.rom	p <sup>h</sup> au?.rom
1491	smear (tr)	ta*	no data	ta	t <sup>h</sup> ɔk	ta
1492	dip		no data	com	prɤc	com
1493	soak	c <sup>h</sup> ɛ*	no data	c <sup>h</sup> ɛ	t <sup>h</sup> ɛ.rom	c <sup>h</sup> ɛ
1494	wring out		no data	no data	sa.cia?	no data
1495	shine		raŋ	raŋ	raŋ	raŋ
1496	fade		raŋ.ci.muŋ.ci.ma ŋ	raŋ.ci.muŋ.ci.ma ŋ	raŋ.ci.muŋ.ci.maŋ	raŋ.ci.muŋ.ci.maŋ
1497	light (fire) (v)		di.ŋo	di.ŋo	ti.ŋo	ti.ŋo
1498	burn (intr), blaze		no data	sa.k <sup>h</sup> uŋ	sa.k <sup>h</sup> uŋ	no data
1499	melt (intr)		c <sup>h</sup> ɣm	c <sup>h</sup> ɣm	c <sup>h</sup> ɣm	c <sup>h</sup> ɣm
1500	singe		prau	prau	haŋ.ŋo	prau
1501	begin		dɛ	dɛ	tɛ	tɛ
1502	beginning		no data	no data	no data	no data
1503	continue, resume		la.sup	la.sup	sup	la.sup
1504	end (n)		ŋɔit	ŋɔit	ŋɔit	ŋɔit
1505	cease, stop		no data	no data	kut	no data
1506	finish, complete (v)		no data	no data	hɔc	no data
1507	(be) high		no data	no data	laŋ	no data
1508	(be) low		no data	no data	tem	no data
1509	lengthen		no data	no data	ɲet	no data

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1510	shorten		no data	no data	pət	no data
1511	widen		no data	no data	juh.t <sup>h</sup> iŋ	no data
1512	deepen		no data	no data	juh.krau?	no data
1513	(be) flat		kla	kla	kla	kla
1514	flatten		k <sup>h</sup> ri	k <sup>h</sup> ri	k <sup>h</sup> ri	k <sup>h</sup> ri
1515	(be) hollow		no data	no data	pau	no data
1516	swell (intr)		no data	no data	ʔuai	no data
1517	straighten		rɣ	rɣ	rɣ	rɣ
1518	(be) crooked		ŋɔʔ.ŋɛk	ŋɔʔ.ŋɛk	ŋɔʔ	ŋɔʔ.ŋɛk
1519	weight	nam.nak*	nam.nak	nam.nak	c <sup>h</sup> an	nam.nak
1520	sharpen (knife)		kleŋ	kleŋ	kleŋ	kleŋ
1521	sharpen, bring to point (arrow)		c <sup>h</sup> ɔit	c <sup>h</sup> ɔit	c <sup>h</sup> ɔit	c <sup>h</sup> ɔit
1522	make smooth		no data	no data	no data	no data
1523	harden		juh.mra?	juh.mra?	juh.mra?	juh.mra?
1524	soften		juh.pio	juh.pio	juh.pio	juh.pio
1525	(be) slippery		ɲu	ɲu	ɲu	ɲu
1526	(be) sticky		cap	cap	p <sup>h</sup> it	sa.p <sup>h</sup> it
1527	colour		ʔa.rɔŋ	ʔa.rɔŋ	pi	ʔa.rɔŋ
1528	(be) blue		bi.sɔm	bi.sɔm	pi.sɔm	pi.sɔm
1529	(be) brown		bi.kam	bi.kam	pi.kam	pi.kam

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1530	(be) dark (colour)		bi.loŋ	bi.loŋ	pi.loŋ	pi.loŋ
1531	(be) light (colour)		p <sup>h</sup> ʏt	p <sup>h</sup> ʏt	p <sup>h</sup> ʏt	p <sup>h</sup> ʏt
1532	taste (n)		sa.ŋɛ	sa.ŋɛ	sa.ŋɛ	sa.ŋɛ
1533	(be) salty	c <sup>h</sup> em*	c <sup>h</sup> em	c <sup>h</sup> em	c <sup>h</sup> em	c <sup>h</sup> em
1534	odour, smell (n)	hɔm*	hɔm	hɔm	hɔm	hɔm
1535	stink, smell (bad)		sa.ʔue	sa.ʔue	sa.ʔue	sa.ʔue
1536	(be) able (to)		no data	no data	p <sup>h</sup> on.juh.leh	no data
1537	strength		no data	no data	kue.rɛŋ	no data
1538	(be) great, (be) powerful		kue.ʔa.ja	kue.ʔa.ja	kue.ʔa.ja	kue.ʔa.ja
1539	splendour, glory		sa.mak.sa.mɣ	sa.mak.sa.mɣ	sa.mak.sa.mɣ	sa.mak.sa.mɣ
1540	truth		man.ja.ta.ra	man.ja.ta.ra	man.ja.ta.ra	man.ja.ta.ra
1541	(be) beautiful		mɔm	mɔm	mɔm.ran	mɔm
1542	handsome		mɔm.la.met	mɔm.la.met	mɔm	no data
1543	(be) ugly		jɔk.du	jɔk	jɔk	jɔk
1544	(be) clean		sa.ŋɔm.sa.ŋai	sa.ŋɔm.sa.ŋai	sa.ŋɔm.sa.ŋai	sa.ŋɔm.sa.ŋai
1545	(be) important		t <sup>h</sup> ij.ʔa.je	t <sup>h</sup> ij.ʔa.je	t <sup>h</sup> ij.ʔa.re	t <sup>h</sup> ij.ʔa.je
1546	(be) amusing, funny		ŋom.ta.ŋai	ŋom.la.ŋai	ŋom.ŋai	ŋom.ta.ŋai
1547	eleven (11)		kau.te	kau.te	kau.te	kau.te
1548	twelve (12)		kau.ra	kau.ra	kau.ra	kau.ra
1549	thirteen (13)		kau.loi	kau.loi	kau.loi	kau.loi
1550	fourteen (14)		kau.pon	kau.pon	kau.pon	kau.pon

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1551	fifteen (15)		kau.p <sup>h</sup> uan	kau.p <sup>h</sup> uan	kau.p <sup>h</sup> uan	kau.p <sup>h</sup> uan
1552	sixteen (16)		kau.l̩a	kau.l̩a	kau.l̩a	kau.l̩a
1553	seventeen (17)		kau.ʔa.l̩a	kau.ʔa.l̩a	kau.ʔa.l̩a	kau.ʔa.l̩a
1554	eighteen (18)		kau.sa.teʔ	kau.sa.teʔ	kau.sa.teʔ	kau.sa.teʔ
1555	nineteen (19)		kau.sa.dim	kau.sa.dim	kau.sa.tim	kau.sa.tim
1556	twenty-one (21)		ra.kau.te	ra.kau.t <sup>h</sup> e	ra.kau.t <sup>h</sup> e	ra.kau.t <sup>h</sup> e
1557	twenty-two (22)		ra.kau.ra	ra.kau.ra	ra.kau.ra	ra.kau.ra
1558	twenty-three (23)		ra.kau.l̩i	ra.kau.l̩i	ra.kau.l̩i	ra.kau.l̩i
1559	twenty-four (24)		ra.kau.pun	ra.kau.pun	ra.kau.pun	ra.kau.pun
1560	twenty-five (25)		ra.kau.p <sup>h</sup> uan	ra.kau.p <sup>h</sup> uan	ra.kau.p <sup>h</sup> uan	ra.kau.p <sup>h</sup> uan
1561	twenty-six (26)		ra.kau.l̩a	ra.kau.l̩a	ra.kau.l̩a	ra.kau.l̩a
1562	twenty-seven (27)		ra.kau.ʔa.l̩a	ra.kau.ʔa.l̩a	ra.kau.ʔa.l̩a	ra.kau.ʔa.l̩a
1563	twenty-eight (28)		ra.kau.sa.teʔ	ra.kau.sa.teʔ	ra.kau.sa.teʔ	ra.kau.sa.teʔ
1564	twenty-nine (29)		ra.kau.sa.dim	ra.kau.sa.dim	ra.kau.sa.tim	ra.kau.sa.tim
1565	thirty (30)		loi.kau	loi.kau	loi.kau	loi.kau
1566	forty (40)		pun.kau	pun.kau	pun.kau	pun.kau
1567	fifty (50)		p <sup>h</sup> uan.kau	p <sup>h</sup> uan.kau	p <sup>h</sup> uan.kau	p <sup>h</sup> uan.kau
1568	sixty (60)		l̩a.kau	l̩a.kau	l̩a.kau	l̩a.kau
1569	seventy (70)		ʔa.l̩a.kau	ʔa.l̩a.kau	ʔa.l̩a.kau	ʔa.l̩a.kau
1570	eighty (80)		sa.te.kau	sa.te.kau	sa.te.kau	sa.te.kau
1571	ninety (90)		sa.dim.kau	sa.dim.kau	sa.tim.kau	sa.tim.kau

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1572	two hundred (200)		ra.rɤ.jah	ra.rɤ.ja	ra.rɤ.ja	ra.rɤ.ja
1573	five hundred (500)		p <sup>h</sup> uan.rɤ.jah	p <sup>h</sup> uan.rɤ.ja	p <sup>h</sup> uan.rɤ.ja	p <sup>h</sup> uan.rɤ.ja
1574	two thousand (2000)		ra.rɤŋ	ra.rɤŋ	ra.rɤŋ	ra.rɤŋ
1575	(be) first		nam.pat.t <sup>h</sup> e	nam.pat.t <sup>h</sup> e	nam.pat.t <sup>h</sup> e	nam.pat.t <sup>h</sup> e
1576	(be) second		nam.pat.rah	nam.pat.rah	nam.pat.rah	nam.pat.rah
1577	(be) third		nam.pat.roi	ŋɔi.p <sup>h</sup> reŋ	nam.pat.roi	nam.pat.roi
1578	(be) last		nɤ.rim	no data	nɤ.rim	nɤ.rim
1579	add		pɔŋ	p <sup>h</sup> ɔŋ	p <sup>h</sup> ɔŋ	p <sup>h</sup> ɔŋ
1580	subtract, take away		nɯk	nɯk	nɯk	nɯk
1581	multiply/increase (intr)		la.la.hu	la.la.hu	no data	no data
1582	divided/decrease (intr)		jɔm	jɔm	no data	no data
1583	arrange		no data	no data	plan	no data
1584	(be) equal		ŋɔi.p <sup>h</sup> reŋ	ŋɔi.p <sup>h</sup> reŋ	p <sup>h</sup> reŋ	ŋɔi.p <sup>h</sup> reŋ
1585	(be) abundant		no data	no data	lɤŋ	lɤŋ
1586	enough		k <sup>h</sup> up	k <sup>h</sup> up	k <sup>h</sup> up	lɤŋ.k <sup>h</sup> up
1587	lack (v)		no data	no data	c <sup>h</sup> ut	no data
1588	(be) used up		ʔuc.jip	ʔuc.jip	ʔuc.jip	ʔuc.jip
1589	everybody		k <sup>h</sup> u.kauʔ	k <sup>h</sup> u.kauʔ	k <sup>h</sup> u.kauʔ	k <sup>h</sup> u.kauʔ
1590	everything		k <sup>h</sup> u.ŋrɤ	k <sup>h</sup> u.ŋrɤ	k <sup>h</sup> u.ŋrɤ	k <sup>h</sup> u.ŋrɤ
1591	somebody		tɤ.kau.kau	tɤ.kau.kau	tɤ.kau.kau	tɤ.kau.kau
1592	something		tɤ.mu.mu	tɤ.mu.mu	tɤ.mu.mu	tɤ.mu.mu



No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1593	everywhere		k <sup>h</sup> u.t <sup>h</sup> i	k <sup>h</sup> u.t <sup>h</sup> i	k <sup>h</sup> u.t <sup>h</sup> i	k <sup>h</sup> u.t <sup>h</sup> i
1594	nobody		?a.ma.mo	?a.ma.mo	?a.ma.mo	?a.ma.mo
1595	nothing		?a.ma.p <sup>h</sup> u	?a.ma.p <sup>h</sup> u	?a.ma.p <sup>h</sup> u	?a.ma.p <sup>h</sup> u
1596	here		tuj.ʔiŋ	tuj.ʔiŋ	tuj.ʔiŋ	tuj.ʔiŋ
1597	there		tuj.ʔan	tuj.ʔan	tuj.ʔan	tuj.ʔan
1598	up		ka.laŋ	ka.laŋ	ka.lɤŋ	ka.laŋ
1599	down		ka.t <sup>h</sup> iam	ka.t <sup>h</sup> iam	ka.sɛ	ka.t <sup>h</sup> iam
1600	forward (direction)		no data	no data	ka.ŋai	no data
1601	backward (direction)		no data	no data	ka.c <sup>h</sup> ɛʔ	no data
1602	over, above		ka.ka.daŋ	ka.ka.daŋ	ka.ka.taŋ	ka.ka.taŋ
1603	under, below		ka.seh	ka.seh	ka.seh	ka.seh.taŋ
1604	in front of, before		no data	no data	no data	no data
1605	behind		no data	no data	no data	no data
1606	beside		no data	no data	no data	no data
1607	inside		ka.nau	ka.nau	ka.nau	ka.nau
1608	outside		ka.p <sup>h</sup> re	ka.p <sup>h</sup> re	ka.p <sup>h</sup> re	ka.p <sup>h</sup> re
1609	between		sa.naʔ	sa.naʔ	sa.naʔ	sa.naʔ
1610	towards		no data	no data	no data	no data
1611	away from		no data	no data	no data	no data
1612	with		ma.mo	ma.mo	ma.mo	ma.mo
1613	other (men)		no data	no data	no data	no data

No	English Gloss	Loan Words	Namt Yoke	Loi Yang	Pang Wan	Pan Tang
1614	which (one)?		pi?.mo	pi?.mo	pi?.mo	mɣ <sup>42</sup>
1615	why?		juh.k <sup>h</sup> u.p <sup>h</sup> u	juh.k <sup>h</sup> u.p <sup>h</sup> u	juh.k <sup>h</sup> u.p <sup>h</sup> u	juh.k <sup>h</sup> u.p <sup>h</sup> u
1616	how?		juh.p <sup>h</sup> u	juh.p <sup>h</sup> u	juh.p <sup>h</sup> u	no data
1617	and		kom	kom	kom	kom
1618	if		ŋau.c <sup>h</sup> au.?an	ŋau.c <sup>h</sup> au.?an	ŋau.c <sup>h</sup> au.?an	ŋau.c <sup>h</sup> au.?an
1619	but		ma.juh.nɔ?	ma.ju.nɔ?	ma.ju.nɔ?	ma.ju.nɔ?
1620	so		k <sup>h</sup> ɔp.?an	k <sup>h</sup> ɔp.?an	k <sup>h</sup> ɔp.?an	k <sup>h</sup> ɔp.?an
1621	because		juh.haŋ.p <sup>h</sup> u	juh.haŋ.p <sup>h</sup> u	juh.haŋ.p <sup>h</sup> u	juh.haŋ.p <sup>h</sup> u
1622	perhaps		no data	no data	no data	no data
1623	really, truly		man.man	man.man	man.man	man.man
1624	well (adv)		mɔm.mɔm.p <sup>h</sup> a	mɔm.mɔm.p <sup>h</sup> a	mɔm.mɔm.p <sup>h</sup> a.p <sup>h</sup> a	mɔm.mɔm.p <sup>h</sup> a.p <sup>h</sup> a
1625	poorly		jɔk.ma.k <sup>h</sup> roi	jɔk.ma.k <sup>h</sup> roi	jɔk.jɔk.kroi.k <sup>h</sup> roi	jɔk.jɔk.kroi.k <sup>h</sup> roi
1626	only		tɣ.mu.ti	tɣ.mu.ti	tɣ.mu.ti	tɣ.mu.ti
1627	yes		mɣ	mɣ	mɣ	mɣ
1628	no		?a.mɣ	?a.mɣ	?a.mɣ	?a.mɣ.p <sup>h</sup> u

Notes:

1. This word list contains a lot of loan words from Shan, a Tai language which were borrowed into Meung Yum, these loan words are presented in a column and also marked with asterisk -\*. In some cases of multisyllabic words part of words are borrowed from Shan e.g. #69 some loan words may be phonologically adapted in order to fit in Meung Yum phonology.

2. The word list consists of 1,628 words. Some words are repeated twice and some words have either no such word in Meung Yum or the speakers do not know the words. All of these are indicated as “no data”.

## RESUME

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