A PHONOLOGICAL STUDY OF WA AT BAN SANTISUK MOO 19, TAMBOL PATUNG, MAE-CHAN DISTRICT, CHIENGRAI PROVINCE

WATTANA   TANTIWUTHIPAKORN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
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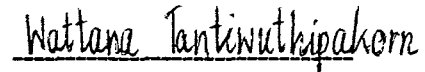FACULTY OF GRADUATE STUDIES
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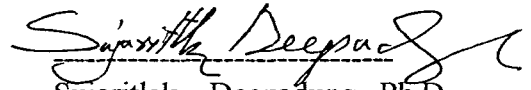1998
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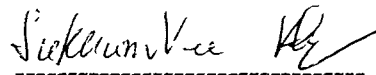
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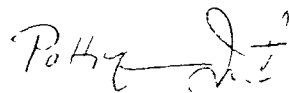
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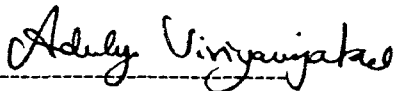Sujaritlak   Deepadung, Ph.D.

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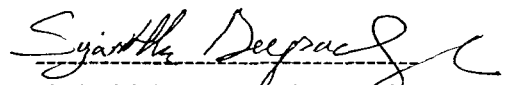
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The main objective of this thesis is to present a phonological study of Wa spoken at Ban Santisuk Moo 19. A phonological sketch of the phonemes, syllable, phonological word and intonation group is presented in a Tagmemic theory. The data of more than 1,000 words and some sentences were analyzed to provide a Wa phonology. The data was collected by interviewing informants who use Wa language in their daily life and also live in the village.

The results of the study reveal that the phonemes are composed of 27 Consonant phonemes :/p, p^h, ^mb, t, t^h, nd, c, c^h, k, k^h, ʔ, v, f, s, h, m, m̥, n, n̥, ɲ, ŋ, ŋ̊, l, l̥, r, r̥, j/, 9 single vowel phonemes : / i, e, ɛ, ɯ, ə, a, u, o, ɔ /, 11 diphthongs : / ia, iu, ɯi, ɯa, əi, ai, ao, ui, ua, oi, ɔi / and 2 triphthongs :
/ iau, uai /. There are four types of syllable : the major syllable, the minor syllable, the presyllable and the nasal syllable. The major and minor syllables can be either open or closed. The presyllable can only be an open syllable. The nasal syllable does not have the structure of a normal syllable because it is not composed of a consonant and vowel but only a consonant. The nasal syllable in this study is consisted of / m, n, ŋ /. There are three types of word : monosyllabic word, disyllabic word and trisyllabic word. Each word-type must be stressed strongly on the final syllable of word. There are two types of intonation groups : rising contour and mid level contour. The rising contour is used for commands and questions, both content and polar questions. The mid level contour is used for affirmative, negative and replied statements.

In this study, it should be noted that the voiceless alveolar fricative [s] which is found rarely in the final position in Waic language but occurred in Milne's short collection of Wa word still is retained finally in this dialect. This final consonant / s / corresponds to proto-Waic *_s.

    วิทยานิพนธ์ฉบับนี้ เป็นการศึกษาระบบเสียงของภาษาว้า มีจุดมุ่งหมายเพื่อศึกษา ระบบเสียงภาษาว้าที่บ้านสันติสุขหมู่ 19 ตำบลป่าตึง อำเภอแม่จัน จังหวัดเชียงราย ในเรื่องของ หน่วยเสียง พยางค์ การลงเสียงเน้น และทำนองเสียง โดยใช้ทฤษฎีแทคมีมิค (Tagmemic Theory) ในการวิจัย ผู้วิจัยได้เก็บรวบรวมข้อมูลโดยการสอบถามภาษาซึ่งใช้คำมากกว่า 1,000 คำ และประโยค จากผู้บอกภาษาหลักที่เกิดในรัฐว้าและอพยพเข้ามาอาศัยอยู่ในประเทศไทยที่ หมู่บ้านสันติสุขหมู่ที่19 และยังคงใช้ภาษาว้าในการสื่อสารในชีวิตประจำวันที่หมู่บ้านแห่งนี้ และตรวจสอบข้อมูลเพิ่มเติมกับผู้ช่วยผู้บอกภาษาหลัก

    ผลจากการศึกษาสรุปได้ดังนี้ หน่วยเสียงประกอบด้วยหน่วยเสียงพยัญชนะ 27 หน่วย เสียงได้แก่ / p, pʰ, ᵐb, t, tʰ, ⁿd, c, cʰ, k, kʰ, ʔ, v, f, s, h, m, m̥, n, n̥, ɲ, ŋ, ŋ̥, l, l̥, r, r̥, y̓ / หน่วยเสียงสระเดี่ยว 9 หน่วยเสียงได้แก่ / i, e, ɛ, ɯ, ə, a, u, o, ɔ / หน่วยเสียงสระประสม 2 ส่วน 11 หน่วยเสียงได้แก่ / ia, iu, ɯi, ɯa, əi, ai, ao, ui, ua, oi, ɔi / และสระประสม 3 ส่วน 2 หน่วยเสียงได้แก่ /iau, uai / พยางค์ มี4 แบบคือ พยางค์หลัก พยางค์รอง พยางค์หน้า และ พยางค์นาสิก โดยพยางค์หลักและพยางค์รองสามารถปรากฏเป็นได้ทั้งพยางค์ประเภทปิดและ พยางค์ประเภทเปิด พยางค์หน้าปรากฏได้ในพยางค์ประเภทเปิดอย่างเดียว และพยางค์นาสิกซึ่ง เป็นพยางค์ที่มีโครงสร้างพิเศษ คือ ประกอบด้วยหน่วยเสียงพยัญชนะเพียงอย่างเดียว โดยหน่วย เสียงพยัญชนะที่สามารถปรากฏในพยางค์นาสิกได้แก่ หน่วยเสียงพยัญชนะนาสิก /m̩ n̩ ŋ̩/ ลักษณะคำมี 3 ประเภท คือ คำพยางค์เดียว คำสองพยางค์ และคำสามพยางค์ โดยในคำแต่ละ ประเภทนั้นจะต้องได้รับการลงน้ำหนักเสียงที่หนักที่สุดในพยางค์สุดท้ายของคำ ทำนองเสียงมี สองลักษณะคือ ทำนองเสียงขึ้น และทำนองเสียงระดับ โดยทำนองเสียงขึ้นปรากฏในประโยค คำสั่งและประโยคคำถาม ส่วนทำนองเสียงระดับ ปรากฏในประโยคปฏิเสธ ประโยคบอกเล่า

    ผลการศึกษาพบว่าภาษาว้าบ้านสันติสุขหมู่ 19 มีลักษณะพิเศษที่พบได้น้อยมากในภาษา สาขาย่อยว้า กล่าวคือ เสียงพยัญชนะ / s / สามารถปรากฏในตำแหน่งท้ายคำ

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LIST OF ABBREVIATIONS AND SYMBOLS

C	=	Consonants
C1	=	Single initial consonant
C2	=	Final consonant
C3	=	Second member of consonant cluster
Ex.	=	Example
IPA.	=	International Phonetic Alphabet
N	=	Nasal consonants [m, n, ŋ]
S	=	Strong stress
Sec.	=	Section
Sub.	=	Sub-district
T.	=	Tambol
U	=	Unstress
V	=	Single vowel
VV	=	Diphthong
VVV	=	Triphthong
W	=	Weak stress
[']	=	Slightly aspirated consonant
[ˌ]	=	Syllabic marker
⌊.⌋	=	Syllable boundary
[ˈ]	=	Strongly stressed marker
[ˌ]	=	Weakly stressed marker
[ˋ]	=	Low level pitch
[ˆ]	=	High falling pitch
[ˊ]	=	High pitch
[˜]	=	Variant marker
[——╱]	=	The rising contour
[———•]	=	The mid level contour
[ ]	=	Phonetic Transcription
/ /	=	Phonemic Transcription
( )	=	Optional
x	=	Occurrence
	=	Non-occurrence

CHAPTER I

INTRODUCTION

1.1 Background of study

While staying at Ban Santikhiri Tambol Mae-Salong, Mae-Faluang district, Chieng Rai province during my field methods in Linguistics Course in March 1996, I heard from some villagers of Yunnanese village at Ban Santikhiri that there are Wa people living at Ban Santisuk Moo 19, Tambol Patung, Mae Chan district, Chieng Rai province. I got interested in this language, so I started searching for the research of the Wa to get some knowledge about the language. I found that there were just a few work on Wa in Thailand. Thus, I thought that I should definitely study the phonology of Wa language of this village.

1.2 The objective of the thesis

The objectives of the study are to describe the sound system of the Wa language spoken in Santisuk Moo 19, Tambol Patung, Mae Chan district, Chieng Rai province and to make phonological data available to scholars and others who are interested in this language.

1.3 Scope of the study

This study presents a phonological system of the Wa language spoken by Wa people at Ban Santisuk Moo 19, Tambol Patung, Mae Chan district, Chieng Rai province. It is organized as follows : the phonemes, the syllables, the phonological words and the intonation groups.

1.4 The descriptive approach

The phonological approach adopted in this study is Tagmemics, which is the study of phonology as a hierarchy of ranks. The four ranks in this study are the phonemes, the syllables, the phonological words and the intonation groups. Each rank is stated in terms of structure and function.

The example in this thesis will be written in phonemic transcription, except when the phonetic description of phonemes is being discussed, square bracket [ ] will be used for the phonetic description. When phonemic transcription needs to be distinguished : slash mark / / will be used.

1.5 General information on Wa

The Wa are people who live in the hilly region between the Salween and Mekong rivers. Wa were known as the head-hunted tribe in the past. They believed that if they could hunt human's head, their communities would have good crops and good lives. They also had the reputation of being the fierce people and of producing opium (Lebar and other 1964 : 129-132). They are one of the minority groups in Burma and China. Their places are located in Wa States; the East of Burma, and in Yunnan province of China. In Yunnan province, they live in Cangyuan, Ximeng, Lancang, Gengma, Menglian, Yongde, Shuangjiang, Zhenkang, Jingdong, Menghai, Puer and other counties (Zhi Zhi : 1983). At present time, some of the Wa can be found in ChiengRai Province in Thailand. They migrated from Wa States of Burma into Thai territory about 16 years ago.

According to my informants, The Wa people are called by many names. They call themselves "ʔəvɯaʔ", the Burmese call them "Lawa", the Thai call them "Wa" and Yunnanese Chinese call them "Lacia". They prefer to be called "ʔəvɯaʔ" than others. However, they like the name "Lawa" and "Wa" more than the name "Lacia".

From the various ethnic names, the two ethnonyms "Lawa" and "Wa" are nearly the same and their languages are precisely like each other (see 7.2 Remarks on Wa at Ban Santisuk Moo 19). Both names refer to people speaking Mon-Khmer language of Palaungic branch. Diffloth (1980) classified "Wa" and "Lawa" in Wa-Lawa group of Waic sub-branch in East-Palaungic of Palaungic branch (see 1.5.1 Language Affiliation). From Diffloth's subclassification within Waic, it was noticed that "Wa" and "Lawa" showed more affinity to each other than any other languages of Palaungic. Lebar (1964 : 120) stated that "Young (1961 : 65-68), basing his remarks on firsthand experience with both Wa and Lawa, sees a definite relationship between the two, but feels there can be only a very remote Mon-Khmer influence".

The name Wa will be used in this study because this term is name well-known in this area to the other people for a long time and because the name "ʔəvɯaʔ" is rather unknown to other people; it is used only by the Wa people themselves. Also, the name Lawa is used to refer to many other groups of people such as ; Nyahkur, Ugong, Lua and Lawa of Mae Sariang-Hot area, South-West of Chieng Mai.
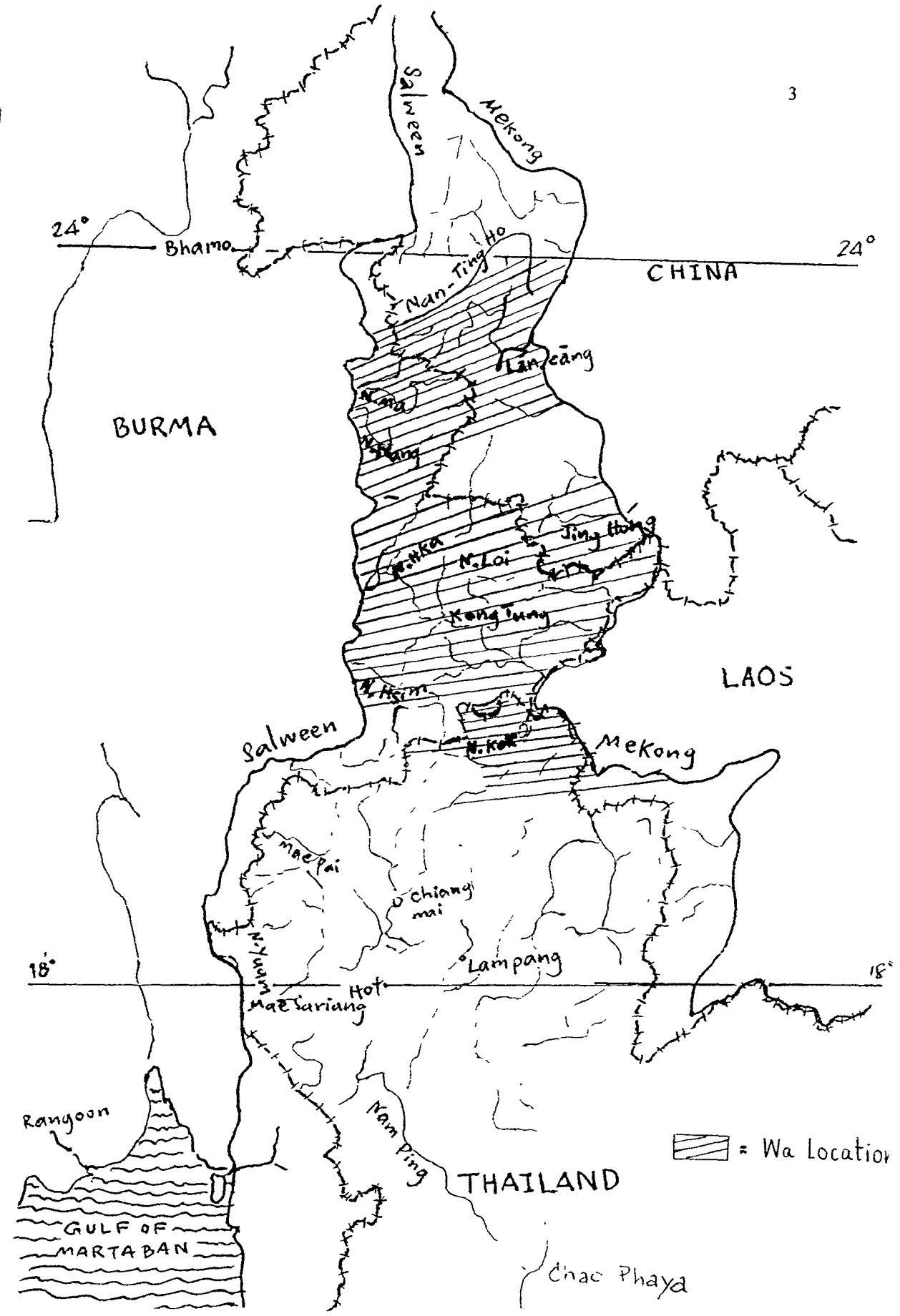
Figure 1: Location of Wa people (Adapted from Diffloth : 1980:5)

1.5.1 Language affiliation

Wa is an Austroasiatic language of the Mon-Khmer family. It belongs to the Palaungic branch (see figure 2) in the Waic sub-branch (see figure 3). The following figures show the position of Wa within the Palaungic branch and within the Waic sub-branch; according to Diffloth (1980).
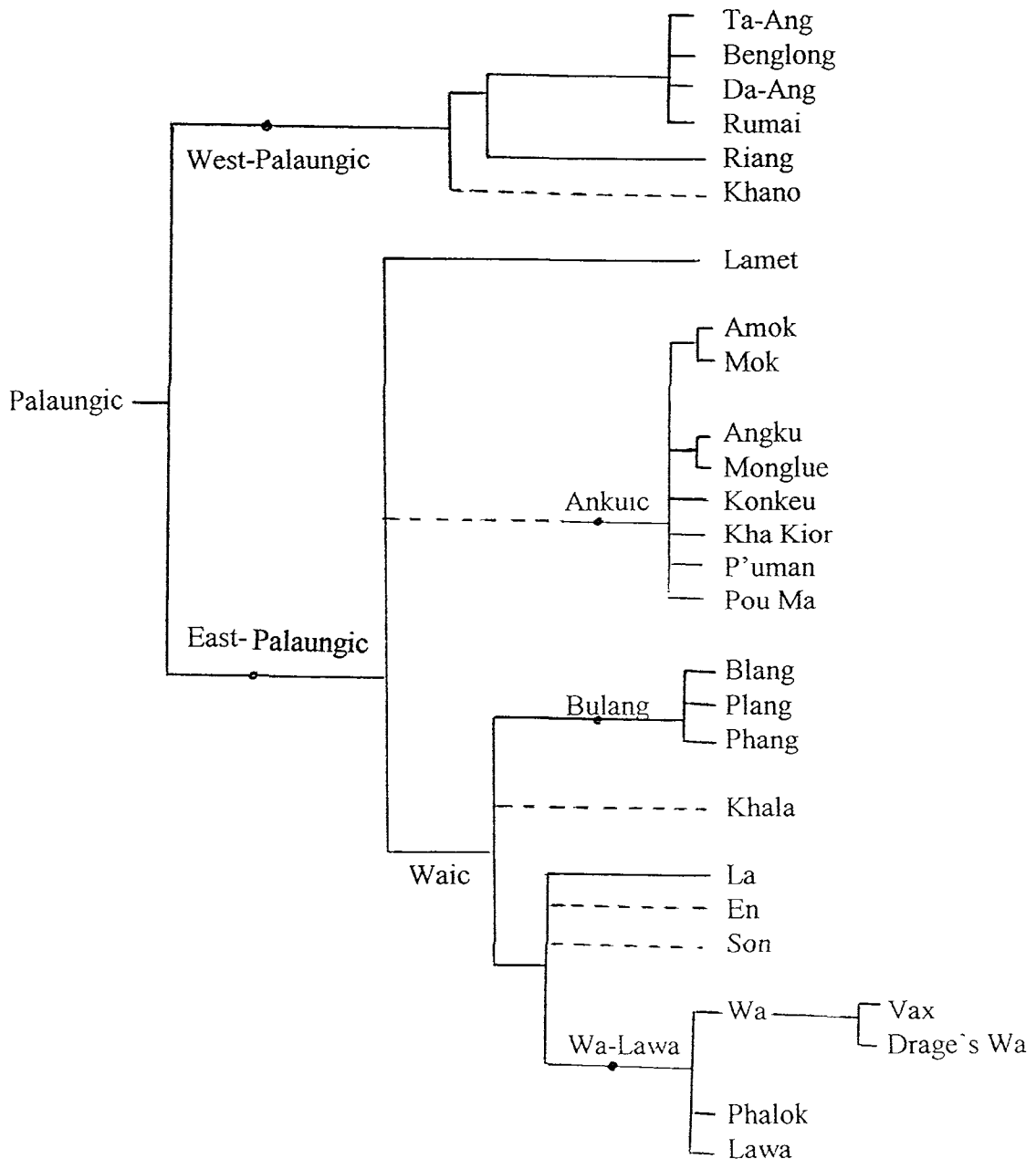
Figure 2 : The position of Wa in the Palaungic branch (Diffloth : 1980:13).
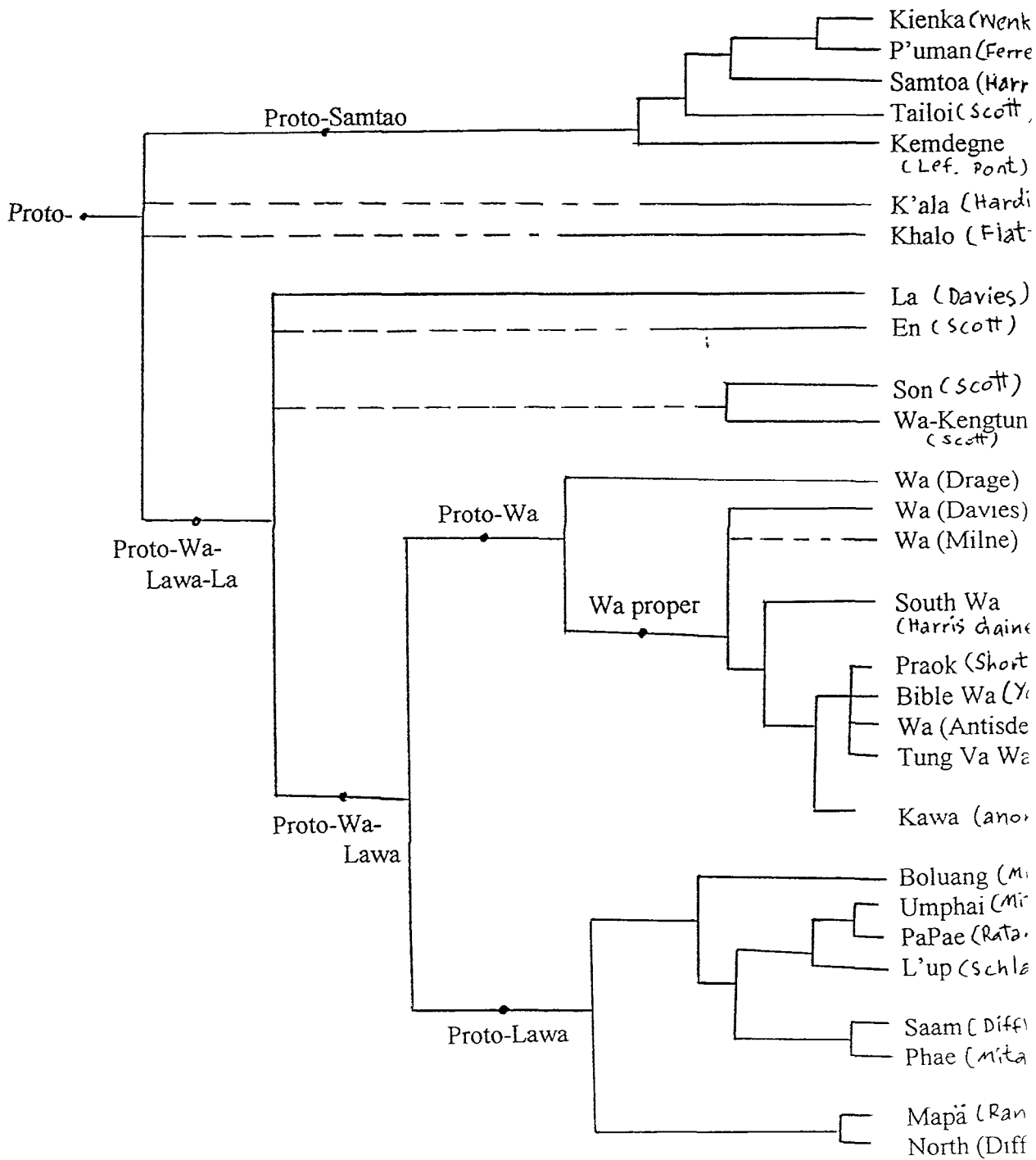
Figure 3 : The position of Wa in the Waic sub-branch (Diffloth : 1980:14)

1.5.2 Wa in Chieng Rai province

As I mentioned in 1.5 General information on Wa, there are Wa people living in Burma, China and Thailand. In Thailand they are found in Chieng Rai province.

Chieng Rai is a province in the North of Thailand. It is 829 kilometres from Bangkok. It is adjacent to Burma to the North and the West, to the South, it borders on Lampang and Phayao province. On its Western border is Chieng Mai and Burma; and on its Eastern border is Laos.

According to the report of the information office of Chieng Rai province, there are 16 districts and 2 sub-districts in Chieng Rai, they are : Muang, Mae-Sai, Mae-Chan, Mae Fa Luang, Mae-Suai, Wieng Pa Pao, Wieng Chai, Phan, Paa Daet, Thoeng, Chieng Khong, Chieng Saen, Wieng Kaen, Phaya Mengray, Mae Lao, Khun Tan, Wieng Chieng Rung Sub-district, Doi Luang Sub-district. There are the Wa people in Mae Fa Luang, Chieng Saen and Mae Chan districts.

According to my informants and Naraset (personal reference), the Wa people in Chieng Rai are in the following places:

1. Mae Fa Luang district

        at Ban Hauy Phung Moo 1
        at Ban Hauy Mao Moo 2
        at Ban Thoed Thai
        at Ban Santikhiri Moo 1

2. Chieng Saen district

        at Ban Mae Aep Moo 5
        at Ban Pha Tang

3. Mae Chan district

        at Ban Santisuk Moo 19

Burma

Laos

12

15

11

14

18

10

9

7

8

15

6

16

17

5

2

3

4

chieng Mai

1

Phayao

Lampang

↑
N

——— Region of District

········· Road

1 Wieng Pa Pao
2 Mae-Suai
3 Phan
4 Paa Daet
5 Thoeng
6 Mae Lao
7 Muang
8 Wieng chai
9 Chieng Rung Sub.
10 Mae chan
11 Chieng Saen
12 Mae Fa Luang
13 Mae Sai
14 Chieng Khong
15 Wieng Kaen
16 Phaya Mengray
17 Khun Tan
18 Doi Luang Sub.

Figure 4: Map of Chieng Rai province showing all districts
Source : The report of the information office of Chieng Rai province

1.5.3 Wa at Ban Santisuk Moo 19

Geographical features and historical background

Ban Santisuk Moo 19 is in Tambol Patung, Mae Chan district, Chieng Rai province. It is about 30 kilometers from Mae Chan district office and 60 kilometers from Muang district. It is surrounded by mountains and was officially named "Santisuk Moo 19" in 1981. The name "Santisuk" stands for the happiness and peace of the village.

Ban Santisuk Moo 19 consists of Wa, Yunnanese Chinese, Lahu and Akha who have intermarried into this village. The whole village is unofficially divided into 6 groups according to the location of the village. They are :

Group 1-2 are Yunnanese Chinese
Group 3 is Wa and some Lahu
Group 4-5 are Wa and some Akha
Group 6 is Lahu

All 6 groups were ordered consecutively from group 1 at the beginning of the village to group 6 at the end of the village, from the East to the West. Wa people live condensely in group 4 and 5. The Wa at Ban Santisuk Moo 19 migrated from many villages of the Wa States : "ʔajsəvaj" , "paŋkʰriam" , "ɹɔŋᵐbreʔ" , "pəcʰɯək" , "vaŋlɯɯn" ,"muŋsaj" and "jɔŋʔo". My informants came from "paŋkʰriam" village and lived in group 4.

According to the Tribal Research Institute, there are 9 hilltribe groups in Thailand : Karen, Hmong, Lahu, Yao, Akha, Lua, Thin, Lisu and Khmu. The people of these hilltribes who settle in Thailand before the year 1980 can get the ID card ,i.e, they are Thai (Lewis : 1984). According to my informants Wa at Ban Santisuk Moo 19 do not belong to any groups, so they are named "Lahu" by the officials and they can have the same privileges as the other hilltribe groups in Thailand.
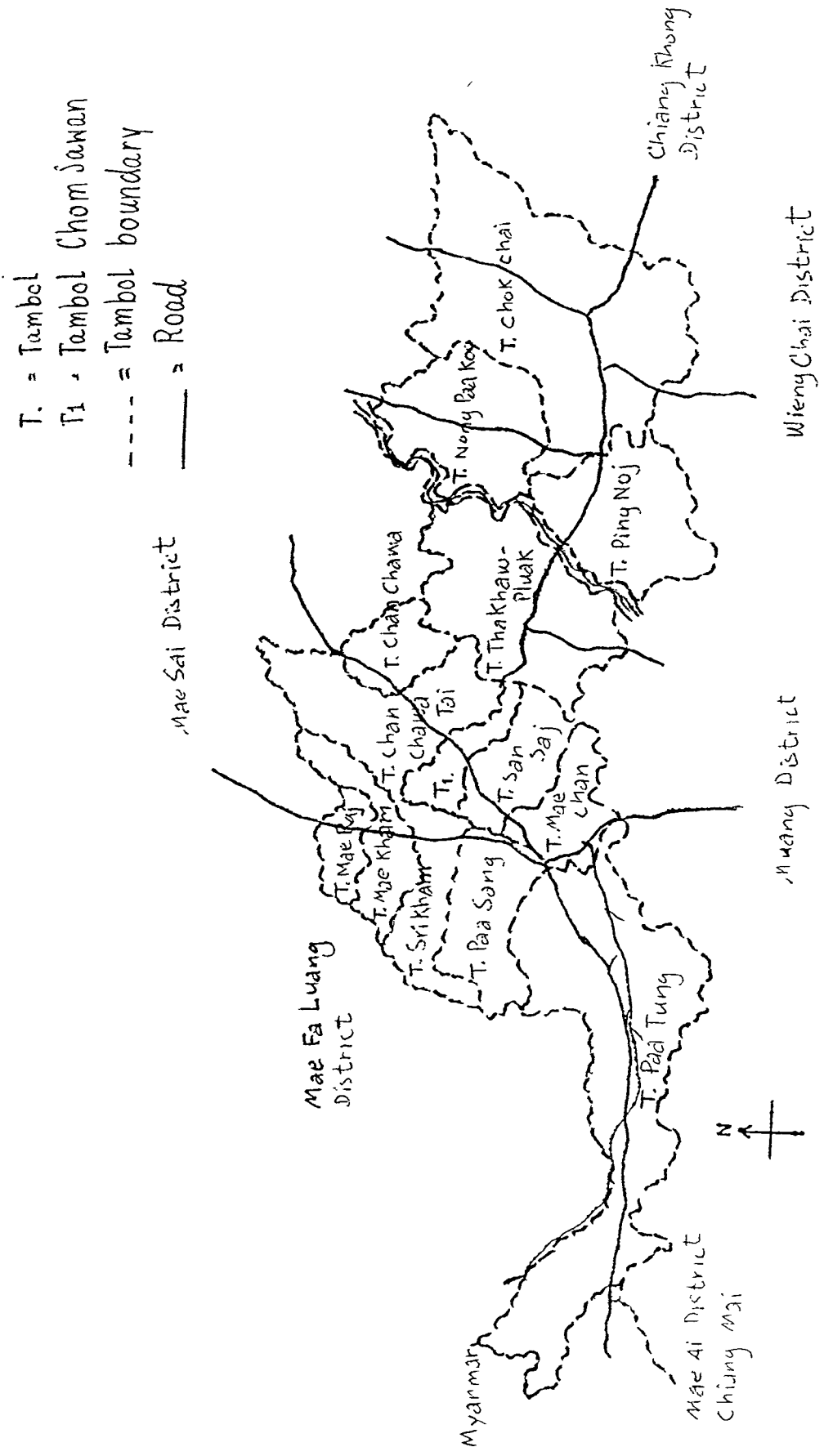
Figure 5: Map of Mae Chan district showing Tambol Patung
Source : The report of the information office of Mae-Chan district

Legend:

G. = Group
—— = Group boundary
—— = Road
□ = house
▥ = bridge
✝ = church
▤ = school

Mae Chan District

G. 1.

G. 2.

G. 3.

G. 6.

G. 4.

G. 5.

N

Fang District
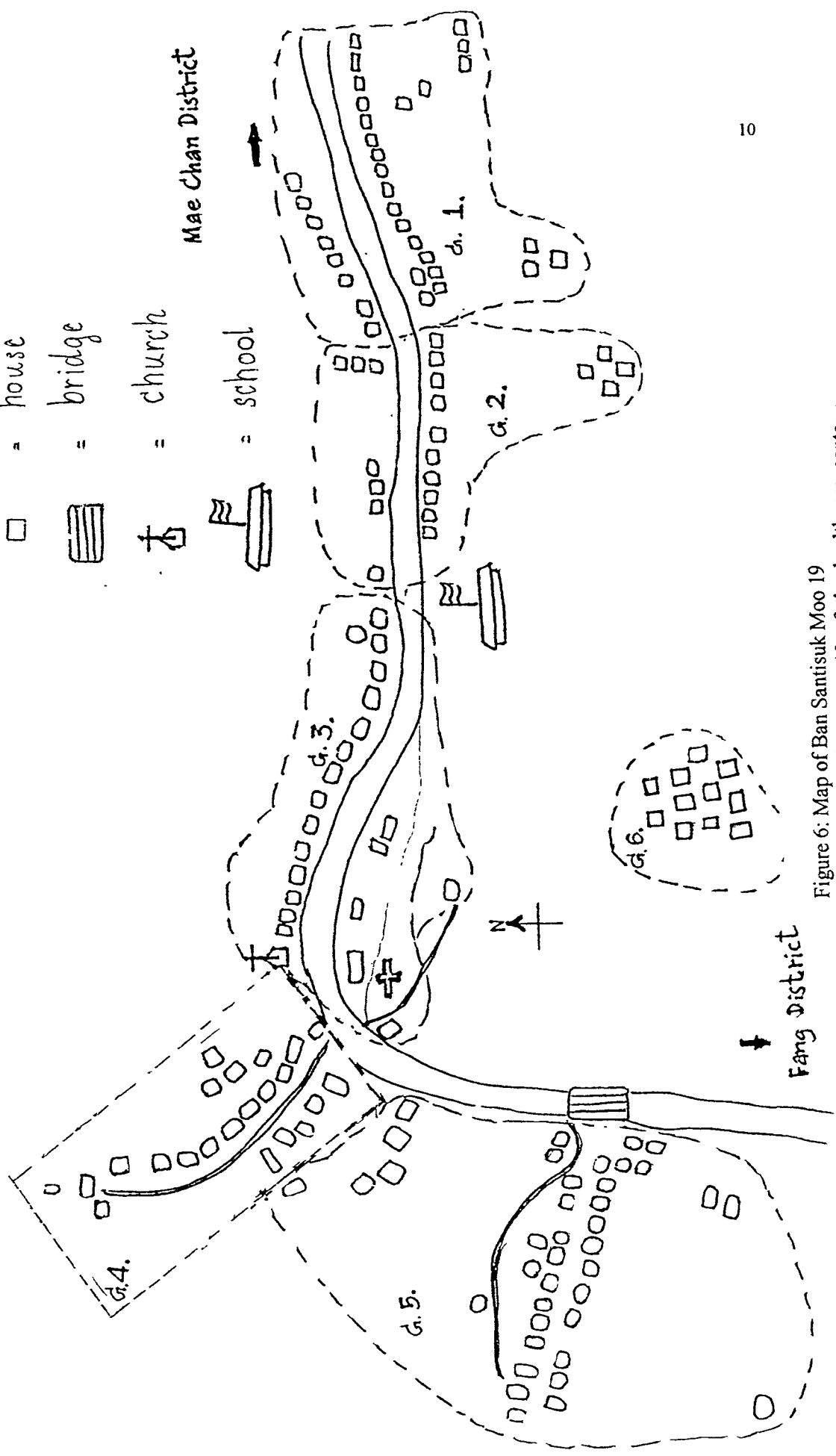
Figure 6: Map of Ban Santisuk Moo 19
(Adapted from map of Ban Santisuk Moo 19 of the healthcare centre)

Population

According to the healthcare center at Ban Santisuk Moo 19, the total population of this village is about 970, consisting of 508 males, 462 females. Most of them are Wa, Yunnanese Chinese, Lahu, some are Akha who have intermarried into the village. It is difficult to tell the real number of Wa population in this village because they are named "Lahu" in the official record, i.e., there is no Wa population in the official record. However, my informants told me that there are about 28 households of Wa people at Ban Santisuk Moo 19 (4-5).

Occupation

Most of the Wa at Ban Santisuk Moo 19 work in the field and raise pigs, but some are wage-earners. They grow corn, lichee, taro, etc, and they sell them to merchants who will come to get the produce at the village. Most of the incomes comes from pig-raising. For the young generation or teenagers, most of them are wage-earners. They go to work in Bangkok and other provinces, and send back the money to their families.

Wa and their daily lives

Wa at Ban Santisuk Moo 19, like other hilltribes, are very diligent and work hard in their fields which are mountainous area. They wake up very early in the morning and prepare themselves for their daily work. The house-wives prepare food for the families. They always have breakfast together before 8.00 a.m. After having breakfast, the children go to school and their parents prepare food for lunch and start to work. Some people feed pigs and then go to work in field and forest. They also bring home a lot of firewood from the forest every day. Coming back home about 5 p.m., they take a bath and have dinner. Then, some watch television program and some will go to see the neighbors. Sunday is their holiday they will not work; however, they usually go to church in the morning and relax in the afternoon.

Dwelling

The house of these Wa people are located on the slope of a hill. It is a one-storey house. Generally, we can notice that the house of these people are made of clay. The wall of the house are made of clay mixed with rice straw, using bamboo as a frame inside. The roof is made of lalang grass. There are one or two rooms in the house. A kitchen is beside the house. (Some houses have a lavatory near the houses).

Religion

All the Wa at Ban Santisuk Moo 19 are Christians while the other hilltribes are other religion; i.e., Yunnanese Chinese are Buddhists, Akha and Lahu believe in animism. However, my informants said that in the past

they were Buddhists and believed in spirits. When Chinese missionaries came to this village and made their living situation better, they became Christians. There is only one church in this village. On Sunday, they go to church to listen to the sermon by Chinese missionaries from Taiwan.

1.6 Researchs on the Wa language

The important articles are mentioned here to provide a basic overview of the study that has been done on the Wa language.

1. Captain G. Drage (1907). A Few Note On Wa.

Drage described the Wa culture in his article. He also recorded a lot of words and sentences in the Wa language. The transcription in this article is "based on the Hunterian system and Government rules for the transliteration of Burmese and Shan, modified by the author's own attempt to record words. unpronounceable by, or unusual to these systems"(Drage 1907 : 7) with no analysis.

2. Diffloth, Gerard(1980). The Wa language.

He presented the reconstruction of the proto-Waic sub-branch of Palaungic branch. His work was based on the six basic sources as follows :
1. Lawa
   - Boluang, Umphai and Ban Phae dialects from Mitani's 1972
   - The Northern and Ban Saam dialects from Diffloth
   - Ban Pa Pae dialect from Dr. Suriya Ratanakul's 1985
   - The Northern and the La?up dialects from Don Schlatter
2. Samtau from J. Harris and J. Gainey's 1976
3. South Wa from Diffloth (J. Gainey provided Diffloth with copies of tape.)
4. Bible Wa from the American Baptist Mission translations of John and Matthew (Young : 1934, 1935)
5. Kawa in China from several pamphlets in Kawa (anon : 1958, 1959a, b, 1960,a, b, c, d, e)
6. Drage's Wa

and also on some other minor sources (see detail in Diffloth 1980 . 8-13). The proto-Waic that he reconstructed is presented briefly below.

-Phoneme
   1. Consonant phonemes
      1.1 The final consonant system of proto-Waic can be reconstructed as follows:
         *p   *t   *c   *k   *?

*m   *n   *ɲ   *ŋ

*r   *s   *h

*w   *l   *y

1.2 The initial consonant system of the proto-Waic can be reconstructed as follows:
-Simple initials

*p   *t   *c   *k   *ʔ

*b   *d   *j   *g

*m   *n   *ɲ   *ŋ

*r   *s   *h

*w   *l   *y

-Initial clusters

*pl   *pr   *kl   *kɾ

*bl   *br   *gl   *gɾ

-Complex initials
    A. preaspirated sonorants

*ʰm   *ʰn   *ʰɲ   *ʰŋ

*ʰw   *ʰy

       *ʰl

       *ʰr

B. preglottalised sonorants

*ʔm   *ʔn   *ʔɲ   *ʔŋ

       *ʔr

       *ʔl

*ʔw   *ʔy

C. complex initials starting with a liquid

*rʔ   *lʔ

2. Vowel phonemes

The vowel phonemes system of proto-Waic can be reconstructed as follows:

*i   *ɨ   *e   *ɛ   *a   *ɤ   *o   *ɐ   *ɔ

3. Zhou Zhizhi and Yan Qixiang (1983). Approaching the consonantism of ancient Wa from the phonological correspondence among the dialects of contemporary Wa.

They proposed the consonant reconstruction of the Wa language by comparing the three dialects of the Wa. The three dialects for the reconstruction are A-wa, Parauk and Wa. They stated that the important characteristics of the three dialects concerned gave the following features to the ancient Wa : namely,

A-Wa composed of plentiful consonants, no tense versus lax, fewer vowels.

Parauk consisted of plentiful consonants, tense versus lax exists, a lot of vowels.

Wa consisted of fewer consonants, tense versus lax exists, a lot of vowels.

Consequently, he concluded that the features of Ancient Wa should consist of considerably more consonants, no tense versus lax in its vocalism and fewer vowels.

4. Suriya Ratanakul and Lakhana Daoratanahong (1985). The Phonology of Lawa.

They proposed the phonology of Lawa spoken at Ban Papae, Amphoe Mae-Sariang, MaeHongson province. The Lawa phonology presented is as follows :

-The phonemes : there are consonant and vowel phonemes.

There are 37 consonant phonemes : /p, pʰ, b, ᵐb, t, tʰ, ⁿd, c,cʰ, j, ɲc, ʔj, k, kʰ,ŋg, ʔ, m, hm, ʔm, n, hm, ʔn, ɲ, hɲ, ʔɲ, ŋ, hŋ, ʔŋ, f, v, s, ɤ, ʔɤ, h, l, hl, ʔl / all of them can occur initially ; 10 consonant phonemes can occur finally : / p, t, c, k, ʔ, h, m, n, ɲ, ŋ / and 2 consonant phonemes can be consonant clusters : / l, j /.

There are 10 simple vowels : / i, e, ɛ, ɨ, w, ə, a, u, o, ɔ / , 14 complex vowels : / iə, ɨə, uə, əi, əɨ, əo, ɛɔ, ai, aɨ, ao, ui, ɔi, oi, ɔɛ / and 1 triphthong : /aiɛ/.

- The syllable :
There are 2 types of syllable in this dialect ; they are open syllables and closed syllables. The structure of an open syllable is c (c) v (v) (v). The structure of a closed syllable is c (c) v (v) (v) c.
- The stress group :
There are 2 types of word in this dialect : monosyllabic words and disyllabic words. Each word must be stressed. There are also three types of stress : stressed syllable, weakly stressed syllable and unstressed syllable.

- Intonation
There are 2 types of intonation in this dialect : rising intonation and mid-level intonation. The intonation in this dialect is phonemic.

CHAPTER II

METHODOLOGY

The study has been designed as a phonological study. The method of studying is to interview the Wa people who use Wa language in their daily lives. The methodology of this study can be divided into steps as follows :

2.1 Preparation

2.1.1 Surveying the research area and all the written records

I surveyed the Chieng Rai province with special emphasis on Tambol Patung; i.e., about its geography and history from the report of the information office at Chieng Rai province. Then, I started investigating published and unpublished documents on the Wa language to get some general ideas such as language, culture, history and etc. in order to make myself acquainted with the people and the language. After that, on November 18-24, 1996, my friends and I went to Ban Santisuk Moo 19 to make our first visit of Wa people. There, I were informed that there were Wa people lived in group 4-5 (see sec. 1.5.3). I found them, then I started to elicit some preliminary data by using 300 basic vocabularies of South-East Asia wordlist.

2.1.2 Selecting the informants

To choose native speakers of Wa as informants, the criteria were set up as follows:

1. The informants should be Wa migrated from ˙paŋkʰriam˙ village of Wa States and lived at Ban Santisuk Moo 19 in group 4. As mentioned earlier, Ban Santisuk Moo 19 at the present time is inhabited by Wa people from different villages of Wa State. There consequently is a slightly different way of speaking but they can communicate intelligibly. Most of the Wa people at Ban Santisuk Moo19 migrated from ˙paŋkhriam˙ village, about 9 households, so I decided to choose Wa people migrated from ˙paŋkʰriam˙ village as my informants.

2. The informants must have a complete set of articulators so that they can pronounce the sounds clearly and fluently.

3. The informants must know the Thai language, but must use the Wa language in their daily life.

4. The informants must have enough time to work with me.

5. The informants age must be over 25 so they have sufficient experience in their own language.

2.1.3 Selecting the lists of data for interview

The sample of background knowledge questions was based on the following materials :

1. Basic vocabularies of South-East Asia wordlist.

2. Aiding materials such as pictures or real objects.

3. Outline of some basic sentences.

The words that were collected from the above resulted in more than 1,000 words. I analized all words to get a rough sketch of its language as a phonological hierarchy. The four ranks in this study are the phoneme, the syllable, the phonological word and the intonation group.

2.2 Field work

2.2.1 The data collection

Collecting data. On the 13th of December 1996, I again went to Ban Santisuk Moo 19 and chose the language helpers (see sec.2.2.2) for interviewing data. It took me one month staying there collecting data. To elicit data, I used the following procedures :

i I prepared to interview the language helpers, both Thai vocabularies and aiding materials such as pictures or real objects.

ii I requested them to pronounce each Wa word at least three times or more for difficult words. Each word would then be pronounced by me till my accent was accepted by my informants then I transcribed them immediately in phonetic symbols based on those of the International Phonetic Alphabets (I.P.A.).

iii I rechecked the transcribed words with my informants by pronouncing them.

iv I recorded all data on the tape recorder.

The medium used during the interview was standard Thai and Yunnanese Chinese. From the 2nd of February 1997 to the 8th of March 1997, I collected more data. I rechecked all words, which had been catergorized by rhyming according to the vowels and final consonants, and tape-recorded all of them.

2.2.2 The source of data

The data used in this study were collected at Ban Santisuk Moo 19, Tambol Patueng, Mae Chan district, Chieng Rai province and were based on the speech of :

1. Mrs. Nahae, my main informant. She is 39 years old. She was born and got married with a Wa man at ˈpaŋkʰriamˈ village of Wa States before migrating into Thailand about 16 years ago. At first, she stayed at Ban Hua-Maekham for a few years, after that she and her family moved to Ban Santisuk Moo 19(4). She is a housewife and also works in the field. She can speak Thai a little but cannot read or write Thai. She speaks Yunnanese Chinese fluently.

2. Mr. Cati, the assistant informant. He is 29 years old. He also was born at ˈpaŋkʰriamˈ village and migrated to Thailand at the same time as Mrs. Nahae. He just got married with an Akha woman during my second visit to this village. He used to work in Bangkok for one year. He told me that he would not go to work again in Bangkok. Now, he works in the field growing corn and lychee. He did not go to school so formerly he can neither read nor write Thai ; however, at present time he started to study both reading and writing Thai at the church (there is a Thai missionarie who got married with a Taiwan missionarie, she teaches Thai at the church).He can speak both Thai and Yunnanese Chinese. I rechecked the collected data with him.

2.2.3 The recording of data

I recorded all the prepared wordlist in the field notebook and also on cassettes. The data were transcribed immediately in phonetic symbols based on those of the International Phonetic Alphabets (I.P.A.)after interviewing and being accepted by my informants

2.3 The data analysis

The analysis of the data follows the phonological hierarchy of the Tagmemic school, which has set up four levels : the intonation group, the phonological word, the syllable and the phonemes (as in figure ꝗ-). The units of each rank have a structure stated in terms of units of the rank below (except for the lowest, the phoneme) and have function in the structure of the rank above (except for the highest, the intonation group). In this study the phonology will be described from the lowest rank to the highest rank.
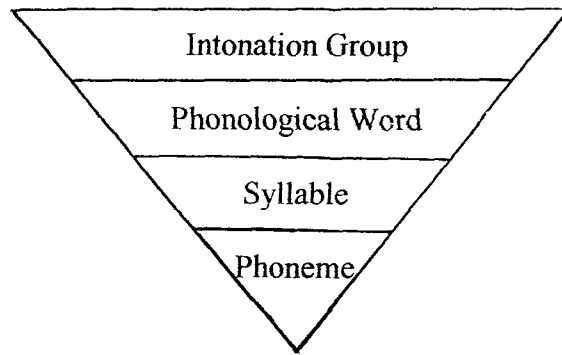
Figure 7 : The phonological hierarchy

CHAPTER III

PHONEMES

3.1 General definition

The phoneme rank is defined as the rank whose units function in the syllable. It is the lowest rank of the phonological hierarchy so it has no statable structure , but its phonetic form in various contexts may be described.

According to their functions in the syllable, the phonemes of Wa at Ban Santisuk Moo19 are divided into two classes : consonants and vowels. There is no tone phoneme in this language, but there are non-contrastive word pitch that can be described in phonetic forms (see 5.3).

3.2 Consonant phonemes

Consonant phonemes usually function as syllable nucleus in the nasal syllable and as syllable periphery in the presyllable , minor syllable and major syllable. There are 27 consonant phonemes of Wa spoken at Ban Santisuk Moo 19 : / p , pʰ , ᵐb , t , tʰ , ⁿd , c , cʰ , k , kʰ , ʔ , v , f , s , h , m , m̥ , n , n̥ , ɲ , ŋ , ŋ̥ , l , l̥ , r , r̥ , j /.

These consonants can be divided into 3 sub-classes in terms of their distribution in the syllables :

3.2.1 Consonant sub-class 1 (C1)

This consonant sub-class 1 functions in syllable initial position and consists of all the consonants.
Ex.

/pon/	['pon]	"four"
/pʰɯs/	['pʰɯ̂s]	"to throw"
/teʔ/	['téʔ]	"hand"
/tʰem/	['tʰem]	"short"
/kap/	['kâp' ~ 'kâp˺]	"chin"
/kʰic/	['kʰîc' ~ 'kʰîc˺]	"shy"
/cos/	['côs]	"to tamp"

/cʰiuʔ/	[ˈcʰîuʔ]	"old"
/ᵐbias/	[ˈᵐbîas]	"to saw" , "a saw"
/ⁿdak/	[ˈⁿdâk' ~ ᵐdâk˺]	"tongue"
/ʔo/	[ˈʔoː]	"elder sister"
/vic/	[ˈvîc' ~ ˈvîc˺]	"knife"
/faʔ/	[ˈhwáʔ ~ ˈfáʔ]	"monkey"
/sim/	[ˈsim]	"bird"
/hac/	[ˈhâc' ~ ˈhâc˺]	"hair"
/mus/	[ˈmûs]	"to love"
/m̥oŋ/	[ˈhmoŋ]	"to listen"
/neɲ/	[ˈneɲ]	"to carry in one' s arm"
/n̥eŋ/	[ˈhneŋ]	"mother' s friend"
/ɲɯs/	[ˈɲɯ̂s]	"to laugh"
/ŋu/	[ˈŋûː]	"intestinal worm"
/ŋ̊e/	[ˈhŋê:]	"pregnant"
/luai/	[ˈluai]	"three"
/l̥at/	[ˈhlât' ~ ˈhlât˺]	"to fear"
/ris/	[ˈrîs]	"root of tree"
/r̥uc/	[ˈhrûc' ~ ˈhrûc˺]	"to draw" , "to pull"
/jək/	[ˈjə̂k' ~ ˈjə̂k˺]	"lock"

3.2.2 Consonant sub-class 2 (C2)

This consonant sub-class 2 functions in syllable final position and consists of / p , t, c , k , ʔ , s , h , m , n , ɲ , ŋ /.

Ex.

/ŋkʰep/	[ŋ̩.ˈkʰêp' ~ ŋ̩.ˈkʰêp˺]	"scissors"
/ʔot/	[ˈʔôt' ~ ˈʔôt˺]	"to stay"
/tec/	[ˈtêc' ~ ˈtêc˺]	"debt"
/vɯak/	[ˈvɯ̂ak' ~ ˈvɯâk˺]	"worm"
/ləʔ/	[ˈlə̂ʔ]	"to bebroken , to be lost"
/vis/	[ˈvîs]	"to break"
/ⁿdoh/	[ˈⁿdóh]	"to leak"
/həm/	[ˈhə̂m]	"to take a bath"

/ɲin/	['ɲin]	"one kind of ant"
/siɲ/	['siɲ]	"cooked"
/toŋ/	['toŋ]	"to grill"

3.2.3 Consonant sub-class 3 (C3)

This consonant sub-class 3 functions as the second member of consonant clusters in syllable initial position and consist of / l , r /. The consonants that can precede / l , r / are / p , pʰ , k , kʰ , ᵐb /.

Ex.

/prus/	['prûs]	"flower"
/ploŋ/	['ploŋ]	"lalang grass"
/pʰres/	['pʰrês]	"spear"
/pʰlui/	['pʰluɨ]	"necklace"
/kroh/	['króh]	"dry"
/klɔŋ/	['klɔŋ]	"brook"
/kʰrit/	['kʰrît' ~ 'kʰrît']	"to grate"
/kʰlap/	['kʰlâp' ~ 'kʰlâp']	"to clap"
/ᵐblɔŋ/	['ᵐblɔŋ]	"tube"
/ᵐbroŋ/	['ᵐbroŋ]	"horse"

3.3 The consonant phoneme chart

Wa spoken at Ban Santisuk Moo 19 has 27 consonant phonemes as shown in the following table :

Table 1 : The consonant phoneme chart of Wa spoken at
Ban Santisuk Moo 19

Position of Articulation / Manner of Articulation	bilabial	labio-Dental	alveolar	palatal	velar	glottal
Stop	p p^h ^mb		t t^h nd	c c^h	k k^h	ʔ
Fricative		f v	s			h
Nasal	m̥ m		n̥ n	ɲ	ŋ̊ ŋ	
Lateral			l̥ l			
Trill			r̥ r			
Semi-vowel				j		

The initial consonants : / p^h, t^h , c^h , k^h , ^mb , nd , m̥ , n̥ , ŋ̊ , l̥, r̥ / are treated as units (c) not sequences (cc) because there is no initial cluster(ccc) according to the basic syllable patterns [c (c) v (v) (c)].

3.3.1 Formational statement of consonants

All consonant phonemes in Wa are produced with pulmonic egressive airstream mechanism.

/p/ a voiceless unaspirated bilabial stop. It has three allophones : [p] , [p'] and [p˺].

[p] is a voiceless unaspirated bilabial stop. It occurs syllable initially.

[p'] a voiceless slightly aspirated bilabial stop occurs syllable finally in free variation with [p˺] a voiceless unreleased bilabial stop.

Ex.

/pu/	['pûː]	"betel leaves"
/pac/	['pâc' ~ 'pâc˺]	"to scrape"
/niap/	['nîap' ~ 'nîap˺]	"to fold the trouser's leg"
/siap/	['sîap' ~ 'sîap˺]	"to repair"

/pʰ/ a voiceless aspirated bilabial stop. It is realised as [pʰ] a voiceless aspirated bilabial stop and occurs syllable initially.

Ex.

/pʰom/	['pʰom]	"to pity"
/pʰɯs/	['pʰɯ̂s]	"to throw"
/pʰiam/	['pʰiam]	"to chew"

/ᵐb/ a voiced bilabial prenasalized stop. It is realised as [ᵐb] a voiced bilabial prenasalized stop and occurs syllable initially.

Ex.

/ᵐbe/	['ᵐbêː]	"bed"
/ᵐbiu/	['ᵐbîːu]	"gourd"
/ᵐbroŋ/	['ᵐbroŋ]	"horse"

/t/ a voiceless unaspirated alveolar stop. It has three allophones : [t] , [t'] and [t˺].

[t] is a voiceless unaspirated alveolar stop. It occurs syllable initially.

[t'] a voiceless slightly aspirated alveolar stop occurs syllable finally in free variation with [t˺] a voiceless unreleased alveolar stop.

Ex.

/tis/	['tîs]	"mushroom"
/tai?/	['tâi?]	"vegetable"
/fiat /	['hwîat' ~ 'fîat˺]	"to punish"
/?uat /	['?ûat' ~ '?ûat˺]	"to wipe one's face"

/tʰ/ a voiceless aspirated alveolar stop. It is realised as [tʰ] a voiceless aspirated alveolar stop and occurs syllable initially.

Ex.

/tʰe/	['tʰêː]	"arrow"
/tʰem/	['tʰem]	"short"
/tʰɔŋ/	['tʰɔŋ]	"bag"

/ⁿd/ a voiced alveolar prenasalized stop. It is realised as [ⁿd] a voiced alveolar prenasalized stop and occurs syllable initially.

Ex.

/ⁿdoŋ/	[ⁿdoŋ]	"head"
/ⁿdok/	[ⁿdôk' ~ ⁿdôk˺]	"to recite"
/ⁿdap/	[ⁿdâp' ~ ⁿdâp˺]	"flat"

/c/ a voiceless unaspirated palatal stop. It has three allophones : [c], [c'] and [c˺].

[c] is a voiceless unaspirated palatal stop. It occurs syllable initially.

[c'] a voiceless slightly aspirated palatal stop occurs syllable finally in free variation with [c˺] a voiceless unreleased palatal stop.

Ex.

/cias/	['cîas]	"to tear"
/cɔp/	['cɔ̂p' ~ 'cɔ̂p˺]	"to wear"
/kʰoc/	['kʰôc' ~ 'kʰôc˺]	"to wash one' s face"
/kʰuc/	['kʰûc' ~ 'kʰûc˺]	"to extract"

/cʰ/ a voiceless aspirated palatal stop. It is realised as [cʰ] a voiceless aspirated palatal stop and occurs syllable initially.

Ex.

/cʰic/	['cʰîc' ~ 'cʰîc˺]	"to trample"
/cʰoŋ/	['cʰoŋ]	"classifier of clothes"
/cʰaoʔ/	['cʰâoʔ]	"light"

/k/ a voiceless unaspirated velar stop. It has three allophones : [k] , [kʼ] and [k˺].

[k] is a voiceless unaspirated velar stop. It occurs syllable initially.

[kʼ] a voiceless slightly aspirated velar stop occurs syllable finally in free variation with [k˺] a voiceless unreleased velar stop.

Ex.

/kɔk/	[ˈkɔ̂kʼ ~ ˈkɔ̂k˺]	"glass"
/kak/	[ˈkâkʼ ~ ˈkâk˺]	"branch"
/kə/	[ˈkə̂ː] -	"wind"

/kʰ/ a voiceless aspirated velar stop. It is realised as [kʰ] a voiceless aspirated velar stop and occurs syllable initially.

Ex.

/kʰom/	[ˈkʰom]	"tight"
/kʰiap/	[ˈkʰîapʼ ~ ˈkʰîap˺]	"shoes"
/kʰis/	[ˈkʰîs]	"to cut slightly"

/ʔ/ a glottal stop. It is realised as [ʔ] a glottal stop. It occurs syllable initially and finally.

Ex.

/ʔia/	[ˈʔiːa]	"chicken"
/ʔak/	[ˈʔâkʼ ~ ˈʔâk˺]	"bow"
/veʔ/	[ˈvéʔ]	"left"

/v/ a voiced labio-dental fricative. It is realised as [v] a voiced labio-dental fricative and occurs syllable initially.

Ex.

/vɛh/	[ˈvɛ́h]	"to chip , to be broken (teeth)"
/vian/	[ˈvian]	"to bind, a bundle"
/vi/	[ˈvîː]	"to borrow"

/f/ is a voiceless labio-dental fricative. It is realised as [f] a voiceless labio-dental fricative which occurs in free varition initally with [hw] a voiceless bilabial semi-vowel.

Ex.

/faʔ/	[ˈhwáʔ ~ ˈfáʔ]	"monkey"
/fia/	[ˈhwiːa ~ ˈfiːa]	"naked"
/fe/	[ˈhwêː ~ ˈfêː]	"to wander"

/s/ a voiceless alveolar fricative. It is realised as [s] a voiceless alveolar fricative. It occurs syllable initially and finally.

Ex.

/saiʔ/	[ˈsâiʔ]	"sick"
/sɔm/	[ˈsɔm]	"to eat"
/pis/	[ˈpîs]	"to swipe"
/ʔəris/	[ʔə̂ˈrîs ~ ʔə̂ˈrîs]	"tortoise"

/h/ a voiceless glottal fricative. It is realised as [h] a voiceless glottal fricative. It occurs syllable initially and finally.

Ex.

/hac/	[ˈhâc' ~ ˈhâc˺]	"hair"
/hon/	[ˈhon]	"a lot of"
/koh/	[ˈkóh]	"to collect"
/leh/	[ˈléh]	"the little finger"

/m/ a voiced bilabial nasal. It has two allophones : [m] and [m̩]
[m] is a voiced bilabial nasal. It occurs syllable initially and finally.
[m̩] is a voiced bilabial syllabic nasal. It occupies the first syllable of disyllabic word and functions as a syllable.

Ex.

/mus/	[ˈmûs]	"to love"
/məc/	[ˈmə̂c˺~ ˈmə̂c']	"ant"
/ŋɔm/	[ˈŋɔm]	"to wait"

/siam/	['siam]	"Shan people"
/mpʰaiʔ/	[m̥̩.'pʰâiʔ]	"acharcoal brazier"
/mpʰla/	[m̥̩.'pʰlaː]	"to untie hair"

/m̥/ a voiceless bilabial nasal. It is realised as [hm] a voiceless bilabia nasal and occurs syllable initially.

Ex.

/m̥am/	['hmâm]	"garbage"
/m̥ɯ/	['hmɯː]	"to keep in mouth"
/m̥oŋ/	['hmoŋ]	"to listen"

/n/ a voiced alveolar nasal. It has two allophones : [n] and [n̩]
[n] is a voiced alveolar nasal. It occurs syllable initially and finally.
[n̩] is a voiced alveolar syllabic nasal. It occupies the first syllable o disyllabic word and functions as a syllable.

Ex.

/num/	['nûm]	"year"
/nu/	['nûː]	"difficult"
/tʰun/	['tʰûn]	"to be relative"
/man/	['mân]	"fabric"
/ntʰɔŋ/	[n̩.'tʰɔŋ]	"jail"
/ncʰuac/	[n̩.'cʰûac' ~ n̩.'cʰûac˺]	"to whistle"

/n̥/ a voiceless alveolar nasal. It is realised as [hn] a voiceless alveola nasal and occurs syllable initially.

Ex.

| /n̥eŋ/ | ['hneŋ] | "mother's friend" |
| /n̥am/ | ['hnam] | "blood" |

/ɲ/ a voiced palatal nasal. It is realised as [ɲ] a voiced palatal nasa It occurs syllable initially and finally.

Ex.

/ɲɯʔ/	[ˈɲɯ́ʔ]	"to drink"
/ɲum/	[ˈɲûm]	"delicious"
/kreɲ/	[ˈkreɲ]	"paramour"
/ləɲ/	[ˈlə̂ɲ]	"to pretend"

/ŋ/ a voiced velar nasal has two allophones : [ŋ] and [ŋ̩]

[ŋ] is a voiced velar nasal. It occurs syllable initially and finally.

[ŋ̩] is a voiced velar syllabic nasal. It occupies the first syllable of disyllabic word and functions as a syllable.

Ex.

/ŋen/	[ˈŋen]	"short"
/ŋo/	[ˈŋoː]	"fire"
/toŋ/	[ˈtoŋ]	"to grill"
/ŋkon/	[ŋ̩.ˈkon]	"thumb"
/ŋkian/	[ŋ̩.ˈkian]	"finger"

/ŋ̥/ a voiceless velar nasal. It is realised as [hŋ] a voiceless velar nasal and occurs syllable initially.

Ex.

/ŋ̥e/	[ˈhŋêː]	"pregnant"
/ŋ̥ia/	[ˈhŋiːa]	"dog's mother"
/ŋ̥em/	[ˈhŋem]	"nail"

/l/ a voiced alveolar lateral. It is realised as [l] a voiced alveolar lateral. It occurs syllable initially and as the second element of the consonant cluster.

Ex.

/laŋ/	[ˈlâŋ]	"long"
/let/	[ˈlêt' ~ ˈlêt̚]	"to lick"
/luai/	[ˈluːai]	"three"
/kʰlɔk/	[ˈkʰlɔ̂k' ~ ˈkʰlɔ̂k̚]	"dimple"
/kʰlap/	[ˈkʰlâp' ~ ˈkʰlâp̚]	"to clap"

/l̥/ a voiceless alveolar lateral. It is realised as [hl] a voiceless alveolar lateral and occurs syllable initially.

Ex

| /l̥at/ | ['hlât' ~ 'hlât˺] | "to fear" |
| /l̥oŋ/ | ['hloŋ] | "tasteless rice" |

/r/ a voiced alveolar trill. It is realised as [r] a voiced alveolar trill. It occurs syllable initially and as the second element of the consonant cluster.

Ex.

/ruc/	['rûc' ~ 'rûc˺]	"black bird"
/ru/	['rû:]	"the top of leaves"
/praoʔ/	['prâoʔ]	"to lie on one side"
/pʰroʔ/	['pʰróʔ]	"blanket"

/r̥/ a voiceless alveolar trill. It is realised as [hr] a voiceless alveolar trill and occurs syllable initially.

Ex.

/r̥uc/	['hrûc' ~ 'hrûc˺]	"to draw ,to pull"
/r̥u/	['hrû:]	"yellow"
/r̥aŋ/	['hrâŋ]	"teeth"

/j/ a voiced palatal semi-vowel. It is realised as [j] a voiced palatal semi-vowel and occurs syllable initially.

To conform the basic syllable pattern, the phoneme /j/ is interpreted as a consonant phoneme /j/ in the syllable-initial position but in the syllable-final position, it is interpreted as a vowel phoneme /i/.

Ex.

| /jɯm/ | ['jɯm] | "to cry" |
| /jəp/ | ['jəp' ~ 'jəp˺] | "classifier of clothes" |

3.3.2 Consonant phoneme contrast

All consonants described above are phonemically contrastive in Wa language. The suspect pairs of consonants which are contrastive are shown below together with some examples :

/p/   –   /pʰ/

/preʔ/	"son"
/pʰreʔ/	"by one self"
/pu/	"betel leaves"
/pʰu/	"thick"

/p/   –   /ᵐb/

/prom/	"twin"
/ᵐbrom/	"a water leech"
/piu/	"to hang"
/ᵐbiu/	"gourd"

/pʰ/   –   /ᵐb/

/pʰiɲ/	"white"
/ᵐbriɲ/	"one kind of bird"

/ᵐb/   –   /m/

/ᵐbai/	"bored"
/mai/	"a nevus"

/t/   /tʰ/

/tɔŋ/	"to fry"
/tʰɔŋ/	"bag"
/tuk/	"to lead by hand"
/tʰuk/	"to knock"
/tom/	"right"
/tʰom/	"to make a bed"

/t/   /ⁿd/

/toh/   "sunlight"

/ⁿdoh/   "to leak"

/tus/   "to pick with the beak"

/ⁿdus/   "part of gun"

/tʰ/   –   /ⁿd/

/tʰɔŋ/   "bag"

/ⁿdɔŋ/   "valley"

/tʰom/   "to make a bed"

/ⁿdom/   "to steep"

/ⁿd/   –   /n/

/ⁿdoŋ/   "vegetable's root"

/noŋ/   "in"

/ⁿd/   –   /s/

/ⁿdok/   "to recite"

/sok/   "seed"

/ⁿd/   –   /l/

/ⁿdip/   "cookies"

/lip/   "West"

/c/   –   /cʰ/

/coŋ/   "umbrella"

/cʰoŋ/   "classier of clothes"

/ciʔ/   "flesh(baby language)"

/cʰiʔ/   "to hew"

/c/   –   /ʔ/

/hac/   "hair"

/haʔ/   "to burn"

/k/   –   /kʰ/

/koc/   "hot"

/kʰoc/   "to wash one's face"

/kuat / "cold"

/kʰuat/ "old-age"

/kʰ/ – /h/ /ʔ/

/kʰaoʔ/ "tree"

/haoʔ/ "to go"

/ʔaoʔ/ "to believe"

/f/ – /v/

/fe/ "to wander"

/ve/ "one kind of vegetable"

/faʔ/ "monkey"

/veʔ/ "left"

/f/ – /h/ /ŋ/

/fiə/ "naked"

/hiə/ "bee"

/ŋiə/ "saliva"

/n/ – /ŋ/

/no/ "expensive"

/ŋo/ "fire, class. of firewood"

/nom/ "bamboo root"

/ŋom/ "wheel"

/m/ – /n/ /ɲ/ /ŋ/

/moŋ/ "to cook in bamboo"

/noŋ/ "in"

/ɲoŋ/ "to know"

/ŋoŋ/ "in front of"

/ɲ/ – /j/

/ɲum/ "delicious (sweet)"

/jum/ "to die"

/ɲu/   "one kind of bird"

/ju/   "to glissade"

/m/ – /m̥/ – /h/

/mɯ/   "to keep in mouth"

/m̥ɯ/   "money"

/moŋ/   "to cook in bamboo"

/m̥oŋ/   "to listen"

/hoŋ/   "insect"

/n/ – /n̥/

/num/   "year"

/nɯm/   "urine"

/n̥am/   "blood"

/ŋ/ – /ŋ̥/

/ŋe/   "pregnant"

/ŋ̥e/   "to cut in one piece"

/ŋem/   "fermented bamboo shoot"

/ŋ̥em/   "nail"

/l/ – /l̥/

/leʔ/   "to shatter"

/l̥eʔ/   "rain"

/lok/   "the seventh son"

/l̥ok/   "boiled"

/r/ – /r̥/

/ru/   "the top of leaves"

/r̥u/   "yellow"

/ruc/   "black bird"

/r̥uc/   "to draw , to pull"

/l/   /r/

/lui/   "to swim"

/rui/   "a fly"

/p/   /m/

/ŋup/   "morning"

/ŋum/   "to sit"

/top/   "one kind of measurement"

/tom/   "right"

/t/   −   /s/

/cʰut/   "to pick garbage"

/cʰus/   "one kind of ant"

/prut/   "a fin"

/prɯs/   "flower"

/c/   −   /k/

/kʰuc/   "to extract"

/kʰɯk/   "to hang basket on head"

/c/   −   /ɲ/   /ŋ/

/pac/   "to scratch."

/paɲ/   "to blow"

/paŋ/   "stock"

/k/   −   /ʔ/

/tɔk/   "to bite(insect)"

/tɔʔ/   "to give"

/k/   −   /h/

/tʰɯak/   "to powder"

/tʰɯah/   "supine"

/k/   /ŋ/

	/hok/	"to expose(to the weather)"
	/hoŋ/	"insect"
/ʔ/ – /h/		
	/vɯaʔ/	"to take"
	/vɯah/	"wide"
/m/ – /n/		
	/ʔɔm/	"to brood"
	/ʔɔn/	"to wear"
/ɲ/ – /n/		
	/kreɲ/	"a paramour"
	/kren/	"acidulous"
/m/ – /ŋ/		
	/lɔm/	"to close (flower)"
	/lɔŋ/	"coffin"
/n/ – /ŋ/		
	/kian/	"pigtail"
	/kiaŋ/	"tamarind"
	/pan/	"to arrive"
	/paŋ/	"stock"
/l/ – /r/		
	/klep/	"to carry on the shoulder"
	/krep/	"East"
	/plak/	"half, classifier of thing"
	/prak/	"to lean"

3.4 Vowel phonemes

Vowel phonemes usually function as syllable nucleus in the presyllable, minor syllable and major syllable. There are 9 single vowel phonemes :
/i , e , ɛ , a , ɔ , o, u , ɯ , ə /, 11 diphthongs : /ia , iu , ɯi , ɯa , əi , ai , ao , ui , ua , oi , ɔi / and 2 triphthongs / iau , uai /.

These vowel phonemes can be divided according to their occurrences into 3 sub-classes :

3.4.1 Vowel sub-class 1 (V1)

This vowel sub-class 1 functions as a single vowel and consists of / i, e, ɛ, ɯ, ə, a, u, o, ɔ /.

Ex.

/pʰi/	['pʰîː]	"to forget"
/ŋe/	['ŋêː]	"to cut into one piece"
/pɛ/	['pêː]	"cunt"
/mɯ/	['mɯː]	"money"
/pə/	['pə̂ː]	"orange (color)"
/ra/	['raː]	"two"
/pʰu/	['pʰûː]	"thick"
/to/	['toː]	"to run"
/ŋɔ/	['ŋɔ̂ː]	"angry"

3.4.2 Vowel sub-class 2 (V2)

This vowel sub-class 2 functions as the second member of the diphthongs and consists of / i, a, u, o /.

Ex.

/mɯi/	['mɯːi]	"cow"
/jɯa/	['jɯːa]	"easy"
/ⁿdiu/	[ⁿdîːu]	"flashlight"
/kao/	['kâːo]	"ten"

3.4.3 Vowel sub-class 3 (V3)

This vowel sub-class 3 functions as the third member of the triphthongs and consists of / i, u /.

Ex.

/mpʰiau/	[m̩.'pʰiːau]	"face"

/luai/	['luːai]	"three"
/kuai/	['kuːai]	"one kind of rice"
/mpʰiau/	[m̩.'pʰiːau]	"face"

3.5 The vowel phoneme chart

WA spoken at Ban Santisuk Moo 19 has 9 single vowel phonemes, 11 diphthongs and 2 triphthongs as shown in the following table :

Table 2 : The vowel phoneme chart of Wa at Santisuk Moo 19

Parts of tongue Position of Lips Levels of tongue	front central unrounded		Back Rounded
High	i	ɯ	u
Mid	e	ə	o
Low	ɛ	a	ɔ

Table 3 : The diphthongs and triphthongs chart of Wa at Ban Santisuk Moo 19

Parts of tongue Position of Lips Levels of tongue	front central unrounded		Back Rounded
High	ia iu iau	ɯi ɯa	ui ua uai
Mid		əi	oi
Low		ai ao	ɔi

3.5.1 Formational statements of vowels

In this language , there are no phonemic contrasts between short and long vowels. The long vowels occur in open syllables except in presyllables, and the short vowels occur in closed syllables; therefore, the vowel length is predictable.

- Single vowels

/i/ a high front unrounded vowel. It is realised as [i] a high front unrounded vowel. It occurs in open syllables and before all the final consonants except / k /.

Ex.

/ᵐbri/	[ˈᵐbrîː]	"dirty"
/sip/	[ˈsîpʼ ~ ˈsîp˺]	"to nibble"
/kʰrit/	[ˈkʰrît' ~ ˈkʰrît˺]	"to grate"
/cʰic/	[ˈcʰîc' ~ ˈcʰîc˺]	"to trample"
/tʰiʔ/	[ˈtʰîʔ]	"one"
/sim/	[ˈsim]	"bird"
/pʰiɲ/	[ˈpʰiɲ]	"white"
/tʰiŋ/	[ˈtʰiŋ]	"big"
/vih/	[ˈvíh]	"bowels"
/kris/	[ˈkrîs]	"lion"

/e/ a mid front unrounded vowel. It is realised as [e] a mid front unrounded vowel. It occurs in open syllables and before all the final consonants.

Ex.

/fe/	[ˈhwêː ~ fêː]	"to wander"
/ŋkrep/	[ŋ̩.ˈkrêpʼ ~ ŋ̩.ˈkrêp˺]	"scissors"
/tʰet/	[ˈtʰêtʼ ~ ˈtʰêt˺]	"to flip"
/vec/	[ˈvêcʼ ~ ˈvêc˺]	"liver"
/tɯttek/	[ˌtɯtʼ.ˈtêkʼ ~ ˌtɯt˺.ˈtêk˺]	"to squash"
/seʔ/	[ˈséʔ]	"louse"
/ʔem/	[ˈʔem]	"unripe"
/kren/	[ˈkren]	"acidulous"

/keɲ/	[ˈkeɲ]	"hundred"
/pailɛŋ/	[ˌpaːi.lêŋ]	"circle"
/klɛh/	[ˈklɛ́h]	"to feel stiff"
/lɛs/	[ˈlɛ̂s]	"six"

/ɛ/ a low front unrounded vowel. It is realised as [ɛ] a low front unrounded vowel. It occurs in open syllables and before the final consonants / t , ʔ , h , m /.

Ex.

/tɛ/	[ˈtɛ̂ː]	"sweet"
/kətɛt/	[kə̀.ˈtɛ̂tʼ ~ kà.ˈtɛ̂t˺]	"sound of chicken"
/ʔɛm/	[ˈʔɛm]	"rice husk"
/plɛh/	[ˈplɛ́h]	"red"
/nɛʔ/	[ˈnɛ́ʔ]	"umbrella"

/ɯ/ a high central unrounded vowel. It is realised as [ɯ] a high central unrounded vowel. It occurs in open syllables and before all the final consonants except / p , ŋ /.

Ex.

/cʰɯ/	[ˈcʰɯː]	"elbow"
/sənɯt/	[sə̀.ˈnɯ̂tʼ ~ sà.ˈnɯ̂t˺]	"gun"
/mɯc/	[ˈmɯ̂cʼ ~ ˈmɯ̂c˺]	"to swallow"
/tɯk/	[ˈtɯ̂kʼ ~ ˈtɯ̂k˺]	"wardrobe"
/ɲɯʔ/	[ˈɲɯ́ʔ]	"to drink"
/jɯm/	[ˈjɯm]	"to cry"
/jɯn/	[ˈjɯn]	"to massage"
/mɯɲ/	[ˈmɯɲ]	"to eat very much"
/mɯs/	[ˈmɯ̂s]	"nose"
/ŋɯh/	[ˈŋɯ́h]	"to nod"

/ə/ a mid central unrounded vowel. It is realised as [ə] a mid central unrounded vowel. It occurs in open syllables and before all the final consonants except /s/.

Ex.

/hə/	['hə̂ː]	"satchel"
/jəp/	['jə̂p' ~ 'jə̂p˺]	"classifier of clothes"
/krəc/	['krə̂c' ~ 'krə̂c˺]	"to fall"
/ʔəʔ/	['ʔə́ʔ]	"I"
/həm/	['hə̂m]	"to take a bath"
/pʰən/	['pʰə̂n]	"table"
/ɲuɲən/	[ˌɲun.'ɲə̂n]	"to rub eye"
/jək/	['jə̂k' ~ 'jə̂k˺]	"lock"
/pʰəŋ/	['pʰə̂ŋ]	"enamelled basin"
/rəh/	['rə́h]	"tense"
/mət/	['mə̂t' ~ 'mə̂t˺]	"smoke"

/a/ a low central unrounded vowel. It is realised as [a] a low central unrounded vowel. It occurs in open syllables and before all the final consonants.

Ex.

/səŋa/	[sə̂.'ŋaː ~ sâ.'ŋaː]	"blue"
/sərap/	[sə̂.'râp' ~ sâ.'râp˺]	"pebble"
/krat/	['krât' ~ 'krât˺]	"plastic"
/r̥ac/	['hrâc' ~ 'hrâc˺]	"to abort"
/sak/	['sâk' ~ 'sâk˺]	"to be full"
/kaʔ/	['káʔ]	"fish"
/jah/	['jáh]	"to blossom"
/ras/	['râs]	"foot"
/kam/	['kâm]	"rice bran"
/pan/	['pân]	"to arrive"
/kaɲ/	['kâɲ]	"rice field"
/ʔaŋ/	['ʔâŋ]	"negetive marker"

/u/ a high back rounded vowel. It is realised as [u] a high back rounded vowel. It occurs in open syllables and before all the final consonants.

Ex.

/mu/	['mûː]	"to crawl"
/sup/	['sûp' ~ 'sûp˺]	"cigarette"
/luc/	['lûc' ~ 'lûc˺]	"to pull a nail"
/miulut/	[ˌmiːu.'lût ~ ˌmiːu.'lût˺]	"acne"
/luk/	['lûk' ~ 'lûk˺]	"sty"
/luʔ/	['lúʔ]	"inedible shell"
/jum/	['jûm]	"to die"
/mun/	['mûn]	"powder"
/muɲ/	['mûɲ]	"a top"
/vuŋ/	['vûŋ]	"corn"
/ŋus/	['ŋûs]	"proud , price"
/juh/	['júh]	"to make , to construct"

/o/ a mid back rounded vowel. It is realised as [o] a mid back rounded vowel. It occurs in open syllables and before all the final consonants except / ɲ /.

Ex.

/no/	['noː]	"expensive"
/ʔop/	['ʔôp' ~ 'ʔôp˺]	"cooked rice"
/tot/	['tôt' ~ 'tôt˺]	"to smoke"
/joc/	['jôc' ~ 'jôc˺]	"to be drunk"
/sok/	['sôk' ~ 'sôk˺]	"seed"
/soʔ/	['sóʔ]	"dog"
/ʔom/	['ʔom]	"water"
/pon/	['pon]	"four"
/noŋ/	['noŋ]	"in"
/toh/	['tóh]	"sunlight"
/cos/	['côs]	"to tamp"

/ɔ/ a low back rounded vowel. It is realised as [ɔ] a low back rounded vowel. It occurs in open syllables and before all the final consonants except / c , ɲ /.

Ex.

/klɔ/	['klɔ̂ː]	"Northern Thai people"
/cɔp/	['cɔ̂p' ~ 'cɔ̂pˀ]	"to wear"
/hɔt/	['hɔ̂t' ~ 'hɔ̂tˀ]	"to kiss"
/tɔk/	['tɔ̂k' ~ 'tɔ̂kˀ]	"to bite (insect)"
/tɔʔ/	['tɔ́ʔ]	"to give"
/sɔm/	['sɔm]	"to eat"
/ŋkʰɔn/	[ŋ̩.'kʰɔn]	"fertilizer"
/prɔŋ/	['prɔŋ]	"soot"
/ŋɔh/	['ŋɔ́h]	"to stamp down"
/tɔs/	['tɔ̂s]	"breasts"

- Diphthongs
The reasons for treating the final [u] and [i] as sequences of diphthongs are as follows :

1. The basic syllable pattern of this language is [c (c) v (v) (c)] ;i.e., there is no final consonant clusters. To conform with the syllable pattern, the final [u] and [i] should be treated as sequences of diphthongs.
Ex.

['lǐuk]	/liuk/	not	/liwk/	"pig"
['sâiʔ]	/saiʔ/	not	/sajʔ/	"sick"

2. Each vowel can occur independently in a syllable.
3. There is no voiced bilabial semi-vowel phoneme [w] in the consonant system. To assign a new phoneme to the phonological system does not seem to be economical.

/ia/ a diphthong which begins at the position of high front unrounded vowel [i] and moves downward to the position of the low central unrounded vowel [a]. It is realised as [ia] a diphthong which begins at the position of high front unrounded vowel [i] and moves downward to the position of the low central unrounded vowel [a]. It occurs in open syllables and before all the final consonants except / ɲ /

Ex.

/kia/	[ˈkiːa]	"to look"
/liap/	[ˈlîap' ~ ˈlîap˺]	"web"
/ʔiat/	[ˈʔîat' ~ ˈʔîat˺]	"small"
/ʔiac/	[ˈʔîac' ~ ˈʔîac˺]	"to sleep"
/liak/	[ˈlîak' ~ ˈlîak˺]	"to turn"
/pʰiaʔ/	[ˈpʰîaʔ]	"to throw"
/pʰiam/	[ˈpʰiam]	"to chew"
/kian/	[ˈkian]	"pigtail"
/ɲiaŋ/	[ˈɲiaŋ]	"cupboard"
/sias/	[ˈsîas]	"to cut into two"
/ʔiah/	[ˈʔiah]	"this"

/iu/ a diphthong which begins at the position of high front unrounded vowel [i] and moves backward to the position of the high back rounded vowel [u]. It is realised as [iu] a diphthong which begins at the position of high front unrounded vowel [i] and moves backward to the position of the high back rounded vowel [u]. It occurs in an open syllable and before the final consonants / k , ʔ /.

Ex.

/səkiu/	[sə̂.ˈkîːu ~ sâ.ˈkîːu]	"intestiness"
/kʰiuʔ/	[ˈkʰîuʔ]	"to vomit"
/liuk/	[ˈlîuk˺ ~ ˈlîuk']	"pig"

/ɯi/ a diphthong which begins at the position of the high central unrounded vowel [ɯ] and moves frontward to the position of the high front unrounded vowel [i]. It is realised as [ɯi] a diphthong which begins at the position of the high central unrounded vowel [ɯ] and moves frontward to the position of the high front unrounded vowel [i]. It occurs in open syllables.

Ex.

/mɯi/	[ˈmɯːi]	"cow"
/pʰɯi/	[ˈpʰɯːi]	"who"
/cʰɯaʔpʰɯi/	[ˌcʰɯaʔ.ˈpʰɯːi]	"monk"

/ɯa/ a diphthong which begins at the position of high central unrounded vowel [ɯ] and moves downward to the position of the low central unrounded vowel [a]. It is realised as [ɯa] a diphthong which begins at the position of high central unrounded vowel [ɯ] and moves downward to the position of the low central unrounded vowel [a]. It occurs in open syllables and before all the final consonants except / p , c , s , m /.

Ex.

/səŋɯa/	[sə̀.ˈŋɯːa ~ sà.ˈŋɯːa]	"green"
/pʰrɯat/	[ˈpʰrɰ̂at' ~ ˈpʰrɰ̂at˺]	"trap"
/ᵐblɯak/	[ˈᵐblɰ̂ak' ~ ᵐblɰ̂ak˺]	"bat"
/ŋɯaʔ/	[ˈŋɰ́aʔ]	"to itch"
/jɯah/	[ˈjɰ́ah]	"to carry"
/mɯaɲ/	[ˈmɯaɲ]	"toy"
/kʰɯaŋ/	[ˈkʰɯaŋ]	"rat"
/ʔənɯan/	[ʔə̀.ˈnɯan ~ ʔà.ˈnɯan]	"the only child"

/əi/ a diphthong which begins at the position of the mid central unrounded vowel [ə] and moves upward to the position of the high front unrounded vowel [i]. It is realised as [əi] a diphthong which begins at the position of the mid central unrounded vowel [ə] and moves upward to the position of the high front unrounded vowel [i]. It occurs in open syllables.

Ex.

/ʔəi/	[ˈʔəːi]	"to raise animal"
/kəi/	[ˈkəːi]	"stech"
/məi/	[ˈməːi]	"the third personal pronoun"

/ai/ a diphthong which begins at the position of low central unrounded vowel [a] moves upward to the position of high front unrounded vowel [i]. It is realised as [ai] a diphthong which begins at the position of low central unrounded vowel [a] moves upward to the position of high front unrounded vowel [i]. It occurs in open syllables and before the final consonants / c , ʔ , h /.

Ex.

/plai/	['plaːi]	"liquor"
/taiʔ/	['tâiʔ]	"vegetable , food"
/m̥aic/	['hmâic' ~ 'hmâic˺]	"sand"
/taih/	['táih]	"to pound"

/ao/ a diphthong which begins at the position of low central unrounded vowel [a] moves upward to the position of mid back rounded vowel [o]. It is realised as [ao] a diphthong which begins at the position of low central unrounded vowel [a] moves upward to the position of mid back rounded vowel [o]. It occurs in open syllable and before the final consonants / k , ʔ , h , ŋ /.

Ex.

/cao/	['câːo]	"it"
/ŋaok/	['ŋâok' ~ 'ŋâok˺]	"to cough"
/cʰaoʔ/	['cʰâoʔ]	"light"
/ŋkraoh/	[ŋ̩.'kráoh]	"to dance"
/kaoŋ/	['kaoŋ]	"to dig"

/ui/ a diphthong which begins at the position of high back rounded vowel [u] and moves frontward to the position of high front unrounded vowel [i]. It is realised as [ui] a diphthong which begins at the position of high back rounded vowel [u] and moves frontward to the position of high front unrounded vowel [i]. It occurs in open syllables.

Ex.

/kʰui/	['kʰûːi]	"slow"
/pʰlui/	['pʰlûːi]	"necklace"
/rui/	['rûːi]	"a fly"

/ua/ a diphthong which begins at the position of the high back rounded vowel [u] and moves downward to the position of the low central unrounded vowel [a]. It is realised as [ua] a diphthong which begins at the position of the high back rounded vowel [u] and moves downward to the position of the

low central unrounded vowel [a]. It occurs in open syllables and before all the final consonants except / p , k , ʔ , m , ŋ , ɲ /.

Ex.

/pʰua/	['pʰuːa]	"should not"
/kuat/	['kûat' ~ 'kûatˀ]	"cold (weather)"
/ncʰuac/	[n̩̊.'cʰûac' ~ n̩̊.'cʰûacˀ]	"to whistle"
/kuan/	['kuan]	"child"
/ʔuah/	['ʔúah]	"that"
/tuas/	['tûas]	"to cut strongly"

/oi/ a diphthong which begins at the position of mid back rounded vowel [o] and moves upward to the position of high front unrounded vowel [i]. It is realised as [oi] a diphthong which begins at the position of mid back rounded vowel [o] and moves upward to the position of high front unrounded vowel [i]. It occurs in open syllables.

Ex.

/ʔoi/	['ʔoːi]	"son-in-law"
/koi/	['koːi]	"to have"
/ⁿdoi/	['ⁿdoːi]	"orphan"

/ɔi/ a diphthong which begins at the position of the low back rounded vowel [ɔ] and moves upward to the position of the high front unrounded vowel [i]. It is realised as [ɔi] a diphthong which begins at the position of the low back rounded vowel [ɔ] and moves upward to the position of the high front unrounded vowel [i]. It occurs in open syllables.

Ex.

/mɔi/	['mɔːi]	"axe"
/ⁿdɔi/	['ⁿdɔːi]	"to squeeze"
/ŋkɔi/	[ŋ̩.kɔːi]	"slope of hill"

- triphthongs

The sequences of three vowels : [iau] and [uai] are interpreted as triphthongs because [ia] and [ua] have been already interpreted as [vv]. Moreover, [u] and [i] which occur in syllable-final position are interpreted as [v] according to the basic pattern. Therefore, in this case, the sequences of

three vowels should be interpreted as [vvv] and this will give a consistency in interpreting and effect with a new CV pattern : C (C) V (V) (V) (C).

/iau/ a triphthong which begins at the position of the high front unrounded vowel [i], moves downward to the position of the low central unrounded vowel [a] and then move upward to the position of the high back rounded vowel [u]. It is realised as [iau] a triphthong which begins at the position of the high front unrounded vowel [i], moves downward to the position of the low central unrounded vowel [a] and then move upward to the position of the high back rounded vowel [u]. It occurs in open syllables.

Ex.

/mpʰiau/	[m̥.'pʰiːau]	"face"
/miau/	['miːau]	"cat"
/tʰiau/	['tʰiːau]	"to dance"

/uai/ a triphthong which begins at the position of the high back rounded [u], move downward to the position of the low central unrounded vowel [a] and then moves upward to the position of the high front unrounded vowel [i]. It is realised as [uai] a triphthong which begins at the position of the high back rounded [u], move downward to the position of the low central unrounded vowel [a] and then moves upward to the position of the high front unrounded vowel [i]. It occurs in open syllables.

Ex.

/kuai/	['kuːai]	"one kind of rice"
/ŋuai/	['ŋuːai]	"thirty"
/mpʰuai/	[m̥.'pʰuːai]	"to turn on"

3.5.2 Vowel phoneme contrast

The suspect pairs of vowels are contrastive as shown below together with some example :

/i/   –   /e/

/lih/	"to fruit"
/leh/	"a little finger"
/vih/	"bowel"
/veh/	"to call at"

/e/		/ɛ/		
	/veh/			"to call at"
	/vɛh/			"to chip"
	/seh/			"South"
	/sɛh/			"to sterilize"

/i/	–	/e/		/ɛ/	
	/vi/				"to borrow"
	/ve/				"one kind of vegetable"
	/vɛ/				"to stir"

/ɛ/	–	/a/	
	/ʔɛm/		"rice husk"
	/ʔam/		"the third daughter"

/a/	–	/ɔ/	
	/taʔ/		"grandfather"
	/tɔʔ/		"to give"
	/mam/		"to blow off (wind)"
	/mɔm/		"to sit in wait"

/ɔ/	–	/u/	
	/vɔk/		"to bend"
	/vuk/		"to hook"

/u/		/o/	
	/nu/		"difficult"
	/no/		"expensive"
	/ʔuʔ/		"to crow"
	/ʔoʔ/		"a pole for carrying loads across something"

/o/		/ɯ/	
	/loʔ/		"speech"
	/lɯʔ/		"to be broken"

/tʰom/   "to make a bed"

/tʰɯm/   "ripe"

/o/   -   /oi/

/po/   "hammer"

/poi/   "to dance (with hand)"

/ʔo/   "mother's sister"

/ʔoi/   "son-in-law"

/ɯ/   -   /ə/

/mɯc/   "to swallow"

/məc/   "ant"

/pʰɯh/   "milk"

/pʰəh/   "to beat (clothes)"

/ə/   -   /əi/

/kə/   "wind"

/kəi/   "stetch"

/klə/   "todpole"

/kləi/   "to comb hair up with hand"

/a/   -   /ai/

/kaʔ/   "fish"

/kaiʔ/   "tight"

/a/   –   /ao/

/taʔ/   "grandfather"

/taoʔ/   "vapor"

/hak/   "skin"

/haok/   "to climb"

/i/   –   /ia/

/ʔi/   "the second daughter"

/ʔia/   "chicken"

/kip/   "to cut strongly"

/kiap/   "chopsticks"

/i/   –   /iu/

    /cʰiʔ/   "to hew"

    /cʰiuʔ/   "old (thing)"

/u/   –   /iu/

    /luʔ/   "inedible shell"

    /liuʔ/   "out"

    /luk/   "sty"

    /liuk/   "pig"

/ɯ/   -   /ui/

    /ɲɯ/   "to glissade"

    /ɲui/   "waist"

    /rɯ/   "the top leaves"

    /rui/   "a fly"

/ia/   –   /ɯa/

    /liak/   "to turn face"

    /lɯak/   "pimple"

/iu/   -   /iau/

    /mpʰiu/   "fat"

    /mpʰiau/   "face"

/ɯi/   -   /əi/

    /mɯi/   "cow"

    /məi/   "the third personal pronoun"

/ai/   -   /ao/

    /tai/   "skirt"

    /tao/   "bottle"

    /mai/   "nevus"

    /mao/   "classifier of thing"

/ao/   –   /iu/

    /kʰaoʔ/   "tree"

    /kʰiuʔ/   "to vomit"

/ua/	-	/ɯa/	
/pʰruat/			"one kind of fruit"
/pʰrɯat/			"trap"

/ua/	-	/uai/	
/l̥ua/			"to be loose"
/luai/			"three"

/oi/	-	/ui/	
/koi/			"to have"
/kui/			"Lahu"
/ʔoi/			"son-in-law"
/ʔui/			"the seventh daughter"

/oi/	-	/ɔi/	
/ⁿdoi/			"orphan"
/ⁿdɔi/			"to squeeze"

/iau/	-	/uai/	
/mpʰiau/			"face"
/mpʰuai/			"to turn on"
/kukiau/			"guava"
/kuai/			"one kind of rice"

CHAPTER IV

SYLLABLE

4.1 General definition

The syllable rank is defined as the rank whose units have a structure described in terms of phonemes and function in the phonological word. In the Wa language of Ban Santisuk Moo 19 the syllables are consonant boundary syllables which can be either open or closed syllables with either single vowels, diphthongs or triphthongs.

4.2 Syllable structure

The structure of the syllable is described in terms of a nucleus consisting of single vowels (V) , diphthongs (VV) , triphthongs (VVV) or syllabic nasal (N˙) and a periphery consisting of one to two consonants (C).

There are four types of syllable : the major syllable , the minor syllable, the presyllable and the nasal syllable.

4.2.1 The major syllable

The major syllable is defined as a syllable which always takes strong stress [']. It can be either closed syllable or open syllable. Its structure is : [' C (C) V (V) (V) (C)]. Full occurrence of this structure never occurs.

According to the data, nine different sub-types of a major syllable are found as follows :

a. sub-type A : ['CV]

Ex.

/pe/	['pêː]	"mango"
/ᵐbə/	['ᵐbâ̤ː]	"ear-ring"
/ra/	['raː]	"two"
/vi/	['vîː]	"to borrow"

b. sub-type B : ['CCV]

Ex.

/ᵐbri/	['ᵐbrîː]	"dirty"

/klə/	[ˈklə̂ː]	"tadpole"
/kre/	[ˈkrê ː]	"anus"

c. sub-type C : [ˈ CVV]
Ex.

/ᵐbia/	[ˈᵐbiːa]	"a flat basket"
/jɯa/	[ˈjɯːa]	"easy"
/l̥ua/	[ˈhluːa]	"loosen"

d. sub-type D : [ˈ CCVV]
Ex.

/pria/	[ˈpriːa]	"rabbit"
/plai/	[ˈplâːi]	"liquor"
/səproi/	[sə̂ˈproːi]	"dust"

e. sub-type E : [ˈ CVVV]
Ex.

/miau/	[ˈmiːau]	"cat"
/luai/	[ˈluːai]	"three"
/kuai/	[ˈkuːai]	"one kind of rice"

f. sub-type F : [ˈ CVC]
Ex.

/tom/	[ˈtom]	"right"
/mɯc/	[ˈmɯ̂c' ~ ˈmɯ̂c˺]	"to swallow"
/ŋeɲ/	[ˈŋeɲ]	"short (measure)"

g. sub-type G : [ˈ CCVC]
Ex.

/pʰroʔ/	[ˈpʰróʔ]	"blanket"
/ᵐbleɲ/	[ˈᵐbleɲ]	"big leech"
/klec/	[ˈklêc' ~ ˈklêc˺]	"armpit"

h. sub-type H : [ˈ CVVC]
Ex.

/ŋiuʔ/	[ˈŋîuʔ]	"the sixth son"
/paoh/	[ˈpáoh]	"to turn on"

/ɲuat/	[ˈɲûat' ~ ˈɲûat˺]	"to suck"

       i. sub-type I : [ˈ CCVVC]

Ex.

/kruas/	[ˈkrûas]	"to shake off"
/kʰlɯak/	[ˈkʰlɯ̂ak' ~ ˈkʰlɯ̂ak˺]	"to cut hair (men)"
/prao?/	[ˈprâo?]	"to line on one side"

4.2.2 Minor syllable

The minor syllable is defined as a syllable which takes weak stress. It occurs as the penultimate syllable in the disyllabic word (see sec. 5.2.2.2) and on the first syllable or second syllable of the trisyllabic word (see sec. 5.2.3.1 and 5.2.3.2). It can be either open or closed syllables. Its structure is [ˌ C (C) V (V) (C)]. Full occurrence of this structure never occur.

There are five sub-types of the minor syllable as the following :

a. sub-type A : Its structure is [ˌ CV].
Ex.

/vuvi/	[ˌvuː.ˈvîː]	"lazy"
/ruhɔ/	[ˌruː.ˈhɔ̂ː]	"garlic"
/pijɔŋ/	[ˌpiː.ˈjɔŋ]	"strange"
/səkʰijuk/	[sə̂.ˌkʰiː.ˈjûk˺ ~ sâ.ˌkʰiː.ˈjûk']	"classifier of banana"

b. sub-type B : Its structure is [ˌ CCV].
Ex.

/krukre/	[ˌkruː.ˈkrêː]	"narrow"

c. sub-type C : Its structure is [ˌ CVV].
Ex.

/tuasətɔŋ/	[ˌtuːa.sə̂.ˈtɔŋ ~ ˌtuːa.sâ.ˈtɔŋ]	"shrimp"
/miulut/	[ˌmiːu.ˈlût' ~ ˌmiːu.ˈlût˺]	"acne"

d. sub-type D : Its structure is [ˌ CVC].
Ex.

/pʰuŋpʰɯaŋ/	[ˌpʰuŋ.'pʰɯaŋ]	"butterfly"
/ɲinliat/	[ˌɲin.'lîatˀ ~ ˌɲin.'lîatˀ']	"uvula"
/ʔomhah/	[ˌʔom.'háh]	"color"

e. sub-type E : Its structure is [ˌ CCVC].
Ex.

| /prɔŋprɔh/ | [ˌprɔŋ.'prɔ́h] | "to lie down" |
| /prɔskətʰɯa/ | [ˌpros.kə̀.'tʰɯːa ~ ˌpros.kà.'tʰɯːa] | "pink" |

3.2.3 The presyllable

The presyllable is defined as a syllable which takes /ə/ or /a/ vowels with the phonetic realisation [Cə] and is unstressed. The vowels /ə/ and /a/ in this dialect are free variation in the presyllable. It can precede the major syllables or minor syllable in both disyllabic and trisyllabic words. It can only be an open syllable. Its structure is : [Cə].

Ex.

/kətom/	[kə̀.'tom ~ kà.'tom]	"egg"
/pəʔɔ/	[pə̀.'ʔɔ̂ː ~ pà.'ʔɔ̂ː]	"dumb"
/kəsuas/	[kə̀.'sûas ~ kà.'sûas]	"charcoal"
/ʔəpac/	[ʔə̀.'pâcˀ ~ ʔà.'pâcˀ]	"bridge"
/səvuk/	[sə̀.'vûkˀ ~ sà.'vûkˀ]	"sickle"
/tuasətɔŋ/	[ˌtuːa.sə̀.'tɔŋ ~ ˌtuːa.sà.'tɔŋ]	"shrimp"
/səkʰijuk/	[sə̀.ˌkʰiː.'jûkˀ ~ sà.ˌkʰiː.'jûkˀ']	"classifier of banana"

3.2.4 The nasal syllable

The nasal syllable is defined as a syllable which is formed by the nasal syllabics. It always occurs as a presyllable in the disyllabic and trisyllabic words (see sec. 5.2.2.1 and 5.2.3.2) and is unstressed. Its structure is N. The [N] is the nasal syllabics which can be a bilabial [m̩] , an alveolar [n̩] , or a velar [ŋ̍].

Ex.

/mpʰraŋ/	[m̩.'pʰrâŋ]	"spade"
/ncʰec/	[n̩.'cʰêcˀ ~ n̩.cʰêc']	"chisel"
/ŋcaok/	[ŋ̍.'câokˀ ~ ŋ̍.'câokˀ]	"spoon"

Table 4 . The co-occurrence of single initial consonants and vowels

	i	e	ɛ	ɯ	ə	a	u	o	ɔ	ia	iu	ɯi	ɯa	əi	ai	ao	ɯı	ua	oi	ɔⁱ	iau	uai
p	x	x	x	x	x	x	x	x		x	x				x	x	ʏ	x	x			
pʰ	x	x		x	x	x	x	x	x	x	x	x	x		x			x			x	x
ᵐb	x	x			x	x	x	x	x	x	x				x		x	x	x	x		
t	x	x	x	x		x	x	x	x	x			x		x	x		x				
tʰ	x	x		x	x	x	x	x	x	x			x		x		x	x			x	
ⁿd	x	x				x	x	x	x		x		x					x	x	x		
c	x	x	x			x	x	x	x	x						x			x			
cʰ	x	x		x	x	x	x	x		x	x		x		x	x		x				
k	x	x	x	x	ʏ	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x
kʰ	x	x		x	x	x	x	x	x	x	x		x			x	x	x			x	
ʔ	x	x	x		x	x	x	x	x	x				x	x	x	x	x	x			
v	x	x	x	x		x	x	x	x	ẋ			x									
f		x				x		x		x												
s	x	x	x	x		x	x	x	x	x		x			x			x				
h	x	x			x	x	x	x	x	x			x		x	x		x				
m	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	
m̥				x	x	x		x	X						x							
n		x	x	x	x	x	x	x	x	x			x		x	x						
n̥		x			x			x								x						
ɲ	x	x		x	x	x	x	x		x							x	x				
ŋ	x	x		x		x	x	x	x	x	x		x		x	x	x	x		x		x
ŋ̊		x			x		x	x		x				x								
l	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x				x
l̥		x				x	x	x	x									x				
r	x	x		x	x	x	x	x	x	x			x		x	x	x	x				
r̥	x	x				x	x		x	x	x											
j	x	x		x	x	x	x	x	x				x		x							

The co-occurrence of single initial consonants and vowels as shown in table 4 can be summarized as follow :

1. All consonant phonemes can occur initially.

2. All vowel phonemes can occur after the single initial consonants.

3. / k, m / are the single initial consonants that have the widest distribution with the vowel phonemes.

4. /f/ is the single initial consonant that has the narrowest distribution with the vowel phonemes.

5. /e, a/ are the vowel phonemes that have the widest distribution with the single initial consonants.

6. /uai , ɯi , ɔi/ are the vowel phonemes that have the narrowest distribution with the single initial consonants.

Table 5 : The co-occurrence of consonant clusters

	l	r
p	x	x
p^h	x	x
^mb	x	x
k	x	x
k^h	x	x

The co-ocurrence of the consonant clusters as shown in table 5 can be summarized that only the initial consonants / p, p^h, ^mb , k, k^h / can occur with the consonant clusters / l, r /.

Table 6 : The co-occurrence of initial consonant clusters and vowels

	i	e	ɛ	ɯ	ə	a	u	o	ɔ	ia	iu	ɯi	ɯa	əi	ai	ao	ui	ua	oi	ɔi
pl		x	x		x	x		x			x				x					
pr		x	x	x	x	x	x	x	x	x						x			x	
pʰl	x				x	x											x			
pʰr	x	x		x		x		x					x					x		
ᵐbl		x			x	x			x				x					x		
ᵐbr	x	x	x	x		x		x	x											
kl		x	x		x	x	x	x	x						x					
kr	x	x			x	x	x	x	x	x	x				x	x				
kʰl	x					x		x	x					x						
kʰr	x	x		x	x	x	x				x									

The co-occurrence of initial consonant clusters and vowels as shown in table 6 can be summarized as follow :

    1. There are four vowel phonemes / ɯi , ɔi, iau , uai / that never occur
with the consonant clusters.

    2. / a / is a vowel phoneme that can occur with all the consonant clusters.

    3. /əi , ɯi, oi/ are the vowel phonemes that have the narrowest distribution with the consonant clusters.

    4. /pr, kr/ are the consonant clusters that have the widest distribution with the vowel phonemes.

    5. /pʰl/ is the consonant cluster that has the narrowest distribution with the vowel phonemes.

Table 7 : The co-occurrence of vowels and final consonants

	i	e	ɛ	ɯ	ə	a	u	o	ɔ	ia	ɯ	ɯi	ɯa	əi	ai	ao	ui	ua	oi	ɔi	ɯau	uai
p	x	x			x	x	x	x	x	x												
t	x	x	x	x	x	x	x	x	x	x			x					x				
c	x	x		x	x	x	x	x	x	x					x			x				
k		x		x	x	x	x	x	x	x	x		x			x						
ʔ	x	x	x	x	x	x	x	x	x	x	x		x		x	x						
s	x	x		x		x	x	x	x	x								x				
h	x	x	x	x	x	x	x	x	x	x			x		x	x		x				
m	x	x	x	x	x	x	x	x	x	x												
n	x	x		x	x	x	x	x	x	x			x					x				
ɲ	x	x		x	x	x	x						x									
ŋ	x	x		x	x	x	x	x	x	x			x			x						

The co-occurrence of vowels and final consonants as shown in table 7 can be summarized as follow ·

1 The consonants / p , t , c , k , ʔ , s , h , m , n , ɲ , ŋ / can occur finally.

2. All vowel phonemes can occur with the final consonants except / ui, oi , ɯi , əi , ɔi , iau , uai /.

3 /e, a, u/ are the vowel phonemes that can occur with all the final consonants

4 /iu/ is the vowel phoneme that has the narrowest distribution with the final consonants.

5 / ʔ , h / are the final consonant phonemes that have the widest distribution with the vowel phonemes.

6 /ɲ/ is the final consonant phoneme that has the narrowest distribution with the vowel phonemes.

4.3 Function

A syllable functions in the phonological word. There are two main classes of syllables in terms of their function in the phonological word : a nuclear stressed syllable and a peripheral unstressed or weakly stressed syllable.

4.3.1 Nuclear syllable

This class of syllable is stressed, and functions as the nucleus of the phonological word. Its occurrence is obligatory in the final position. Syllable of this class can be closed and open. This syllable class is called a "major syllable".

Ex.

/ɲuj/	['ɲûj]	"waist"
/səʔuɲ/	[sə̀.'ʔûɲ ~ sà.'ʔûɲ]	"snake"
/ntʰuŋ/	[n̩̥.'tʰûŋ]	"pond"
/taŋkraʔ/	[ˌtaŋ.'kráʔ]	"road"

4.3.2 Peripheral syllable

This syllable functions as the periphery in the phonological word and always occupies the first or second position of disyllabic words or trisyllabic words. The peripheral syllable can be divided into two sub-classes : a weakly stressed peripheral syllable and an unstressed peripheral syllable.

4.3.2.1 Weakly stressed peripheral syllable

Syllables in this sub-class are both closed and open type. This class may be called a "minor syllable".
Ex.

| /vəŋcaŋ/ | [ˌvəŋ.'câŋ] | "mosquito net" |

/kɔŋmu/	[ˌkɔŋ.'mûː]	"pagonda"
/miulut/	[ˌmiːu.'lût' ~ ˌmiːu.'lûtˀ]	"acne"
/kukiau/	[ˌkuː.'kiːau]	"guava"

4.3.2.2 Unstressed peripheral syllable

This sub-class may be further divided into : an unstressed nasal syllable and an unstressed presyllable.

A. Unstressed nasal syllable
Phonemically , syllabic nasal [m̩ , n̩ , ŋ̩] are the allophones of the nasal phonemes / m , n , ŋ /.

A nasal syllable does not have the structure of a normal syllable because it is not composed of a consonant and a vowel but only a consonant.
Ex.

/mpʰaiʔ/	[m̩.'pʰâiʔ]	"charcoal brazier"
/ntʰok/	[n̩.'tʰôk' ~ n̩.'tʰôkˀ]	"blind"
/ŋkaŋ/	[ŋ̩.'kâŋ]	"coat button"

B. Unstressed presyllable
Syllables of this type are always of the open type with the vowels / ə , a/.
Ex.

/səʔoi/	[sə̀.'ʔoːi ~ sà.'ʔoːi]	"smell"
/kəʔom/	[kə̀.'ʔom ~ kà.'ʔom]	"cloud , fog"
/ʔəhom/	[ʔə̀.'hom ~ ʔà.'hom]	"heart"

CHAPTER V

THE PHONOLOGICAL WORD

5.1 General definition

The phonological word is defined as the rank of the phonological hierarchy between the intonation group and the syllable. It has a structure stated in terms of syllable and functions in the intonation group. The phonological word in Wa of Ban Santisuk Moo 19 has only one main (strong) stress. That is, a strong stressed syllable shows the end of a phonological word. Thus a phonological word in this study may be called a stress group as well.

5.2 Word structure

In term of stress, the stress group in this language can be divided into three types : Monosyllabic word, Disyllabic word and Trisyllabic word.

The syllabic pattern of Wa at Ban Santisuk Moo 19 is basically monosyllabic word. There are a small number of disyllabic words and an even rarer number of trisyllabic words.

5.2.1 Monosyllabic word

Monosyllabic word is a word with only one syllable. This syllable carries the strong stress. Its structure is : [' s].

Ex.

/ɲɯ/	[ˈɲɯː]	"to rub"
/plə/	[ˈplə̂ː]	"to blow fire"
/pʰua/	[ˈpʰuːa]	"should not"
/kʰuat/	[ˈkʰûatʼ ~ ˈkʰûat˺]	"old age"
/məc/	[ˈmə̂cʼ ~ ˈmə̂c˺]	"ant"
/plak/	[ˈplâkʼ ~ ˈplâk˺]	"half, side,classifier"
/pria/	[ˈpriːa]	"rabbit"

/pʰruat/ ['pʰrûat' ~ 'pʰrûat˺] "one kind of fruit"

5.2.2 Disyllabic word

Disyllabic word is a word with two syllables. It can be classified according to its structure into 2 sub-types.

5.2.2.1 Disyllabic word sub-type A

This sub-type is composed of presyllable [Cə] or nasal syllable [N̩] taking the unstress on the first syllable and follows by major syllable taking strong stress is on the final syllable. Its structure is : [u 's].

Ex.

/kəmuat/	[kə̀.'mûat' ~ kà.'mûat˺]	"weevil"
/səma/	[sə̀.'maː ~ sà.'maː]	"to pickle"
/ʔəliap/	[ʔə̀.'lîap' ~ ʔà.'lîap˺]	"middle"
/ʔərɯt/	[ʔə̀.'rɯ̂t' ~ ʔà.'rɯ̂t˺]	"excretions from skin"
/səŋɯa/	[sə̀.'ŋɯːa ~ sà.'ŋɯːa]	"green"
/səkru/	[sə̀.'krûː ~ sà.'krûː]	"river"
/səkrak/	[sə̀.'krâk' ~ sà.'krâk˺]	"red"
/mpʰiau/	[m̩̀.'pʰiːau]	"face"
/ntʰai/	[n̩.'tʰâːi]	"plow"
/ŋkrac/	[ŋ̩.'krâc' ~ ŋ̩.'krâc˺]	"pineapple"
/ŋkʰu/	[ŋ̩.'kʰûː]	"brain"

5.2.2.2 Disyllabic word sub-type B

This sub-type is composed of minor syllable taking a weak stress and follows by major syllable taking strong stress. Its structure is : [ˌw 's]

Ex.

/pupia/	[ˌpuː.'piːa]	"to stagger"
/krukre/	[ˌkruː.'krêː]	"narrow"
/puŋpui/	[ˌpuŋ.'pûːi]	"to sway"
/prɔŋprɔh/	[ˌprɔŋ.'prɔ́h]	"to lie down"

/ɲinliat/   [ɲin.'lîat' ~ ˌɲin.'lîat˺]   "uvula"

5.2.3 Trisyllabic word

Trisyllabic word is a word with three syllables. These three syllables has only one meaning which cannot be further divided. I found only few trisyllabic words in Wa. According to the structure, they can be divided into two sub-types.

5.2.3.1 Trisyllabic word sub-type A

This sub-type is consisted of a minor syllable taking weak stress, a presyllable taking the unstress and followed by a major syllable taking strong stress. The structure of this trisyllabic word is : [ˌw u. 's]

It should be noted that the presyllable does not occur as the preceding syllable in this sub-type of trisyllabic word, but it occurs as penultimate syllable (between the minor syllable and the major syllable). This occurrence of the presyllable were found in two trisyllabic words from my data.

Ex.

/proskətʰɯa/   [ˌpros.kə̀.'tʰɯːa ~ ˌpros.kà.'tʰɯːa]   "pink"

/tuasətɔŋ/   [ˌtuːa.sə̀.'tɔŋ ~ ˌtuːa.sà.'tɔŋ]   "shrimp"

5.2.3.2 Trisyllabic word sub-type B

This sub-type consists of presyllable or nasal syllable taking the unstress, minor syllable taking the weak stress and major syllable taking the strong stress. Its structure is : [u. ˌw 's].

Ex.

/səkʰijuk/   [sə̀.ˌkʰiː.'jûkˀ~ sà.ˌkʰiː.'jûkˀ]   "classifier of banana"

/ʔəkaoʔsaʔ/   [ʔə̀.ˌkaoʔ.'sáʔ ~ ʔà.ˌkaoʔ.'sáʔ]   "the day before yesterday"

/ŋkʰijuŋ/   [ŋ̩.ˌkʰiː.'jûŋ]   "chair, pillow"

The stress group in Wa at Ban Santisuk Moo 19 has only one strong stress on the peak of the monosyllabic word and on the last syllable of the disyllabic and trisyllabic words. And also, there are the weak stress on the minor syllable or the unstress on the presyllable and the nasal syllable that can occur everywhere except the end of words in the disyllabic and trisyllabic word.

Stress in Wa at Ban Santisuk Moo 19 is predictable; therefore, it is not marked in phonemic writing. However, it was described in its phonetic

form. The strong stress is symbolized by [s] and is marked by [']. The weak stress is symbolized [w] and is marked by [ˌ]. The unstress is symbolized by [u] and has no marker [ ]. The syllable boundary is marked by [.]. All markers are in front of the syllables.

5.3 Word pitch

There are four types of non-contrastive word pitch in Wa language spoken at Ban Santisuk Moo 19, Tambol Patung, Mae-Chan district, Chieng Rai province : the low level pitch, the mid level pitch, the high falling pitch and the high level pitch. The pitch in this dialect is conditioned by vowels and the final consonants of the syllable as the followings :

5.3.1 The low level pitch

The low level pitch occurs on the syllable as follows :
- the major syllable carrying the vowel /i/ with final consonant /ʔ/
- the nasal syllable and the presyllable
It is marked by [`] above the vowel in my phonetic transcription.

Ex.

/tʰiʔ/	['tʰìʔ]	"one"
/ciʔ/	['cìʔ]	"flesh(baby language)"
/ŋkrai/	[ŋ̩.'krâːi]	"to disappear"
/ŋfes/	[ŋ̩.'fês ~ ŋ̩.'hwês]	"chopstick"
/ləmaiʔ/	[là.'mâiʔ ~ là.'mâiʔ]	"sugar cane"

5.3.2 The mid level pitch

The mid level pitch occurs on the syllable as follows :
- the open major syllable carrying the following vowels /ɯ, a, o, ia, ɯa, ua, oi, ɯi, ɔi, iau, uai /

- the closed major syllable carrying the vowels /i, e, ɛ, ɯ, o, ɔ, ia, ɯa, ua, ao/ with all voiced consonants
- the minor syllable
It has no marker in my phonetic transcription.

Ex.

/sətʰɯ/	[sə̀.'tʰɯː ~ sà.'tʰɯː]	"pole"

/ᵐba/	[ˈᵐbaː]	"the top of thigh"
/po/	[ˈpoː]	"hammer"
/kia/	[ˈkiːa]	"to look at"
/ŋkʰɯa/	[ŋ̍.ˈkʰɯːa]	"box"
/pʰua/	[ˈpʰuːa]	"should not"
/ⁿdɔi/	[ˈⁿdɔːi]	"to squeeze"
/koi/	[ˈkoːi]	"to have"
/ŋuai/	[ˈŋuːai]	"thirty"
/miau/	[ˈmiːau]	"cat"
/krem/	[ˈkrem]	"to scratch"
/ʔɛm/	[ˈʔɛm]	"rice husk"
/mɯɲ/	[ˈmɯɲ]	"to eat very much"
/noŋ/	[ˈnoŋ]	"in"
/mian/	[ˈmian]	"to press"
/ʔəpʰɯaŋ/	[ʔə̀.ˈpʰɯaŋ ~ ʔà.ˈpʰɯaŋ]	"gong"
/taoŋ/	[ˈtaoŋ]	"to trap"
/siɲ/	[ˈsiɲ]	"cooked"
/lutlɛt/	[ˌlut˺.ˈlêt˺ ~ ˌlut˺.ˈlêt˺]	"one kind of cricket"

5.3.3 The high falling pitch

The high falling pitch occurs on the syllable as follows :
- the open major syllable carrying the vowels /i, e, ɛ, ə, u, ɔ, iu,

ai, ao, ui, əi /
- the closed major syllable carrying all vowels with the final consonants /p, t, c, k, s/

- the closed major syllable carrying the vowels /ai, ao, iu/ with the final consonants /ʔ/

- the closed major syllable carrying the vowels / ə, a, u / with the voiced final consonants
It is marked by [ˆ] above the vowels in my phonetic transcriptions.

Ex.

/ri/	[ˈrîː]	"to go down"
/səke/	[sə̀.ˈkê: ~ sà.ˈkê:]	"hair's decoration"

/tɛ/	['tɛ̂ː]	"sweet"
/səpə/	[sə̀.'pə̂ː ~ sà.'pə̂ː]	"to comb hair by hand"
/pu/	['pûː]	"betel leaves"
/klɔ/	['klɔ̂ː]	"Northern Thai"
/tai/	['tâːi]	"skirt"
/tao/	['tâːo]	"bottle"
/kəi/	['kə̂ːi]	"stetch"
/səkiu/	[sə̀.'kîːu ~ sà.'kîːu]	"intestiness"
/ŋup/	['ŋûpˀ ~ 'ŋûp˺]	"morning"
/kʰiat/	['kʰîatˀ ~ 'kʰîat˺]	"fan"
/ncʰec/	[n̩.'cʰêcˀ ~ n̩.'cʰêc˺]	"chisel"
/mɯk/	['mɯ̂kˀ ~ 'mɯ̂k˺]	"to chop"
/ᵐblas/	['ᵐblâs]	"to untie"
/laiʔ/	['lâiʔ]	"to relax"
/taoʔ/	['tâoʔ]	"vapour"
/səmiuʔ/	[sə̀.'mîuʔ ~ sà.'mîuʔ]	"stone"
/kəɲ/	['kə̂ɲ]	"mother' s elder brother"
/man/	['mân]	"fabric"
/tʰuŋ/	['tʰûŋ]	"bronze"

5.3.4 The high pitch

The high pitch occurs on the closed major syllable as follows :
- the closed major syllable carrying all the vowels with the final consonant /h/

- the closed major syllable carrying the vowels /e, ɛ, ɯ, ə, a, u, o, ia, ɯa/ with the final consonant /ʔ/

It is marked by [´] above the vowels in my phonetic transcription.

Ex.

/kʰih/	['kʰíh]	"to give birth"
/ŋkleh/	[ŋ̩.'kléh]	"to feel stiff"
/pɛh/	['pɛ́h]	"to pick fruit from tree"
/ŋɯh/	['ŋɯ́h]	"to nod"

/rəh/	[ˈrə́h]	"tense"
/prah/	[ˈpráh]	"to divorce"
/kruh/	[ˈkrúh]	"classifier of fire"
/səʔoh/	[sə̀.ˈʔóh ~ sà.ˈʔóh]	"to dry"
/ᵐbrɔh/	[ˈᵐbrɔ́h]	"to split (hand)"
/jɯah/	[ˈjɯ́ah]	"to carry"
/ʔuah/	[ˈʔúah]	"there"
/ləʔaih/	[lə̀.ˈʔáih ~ là.ˈʔáih]	"sweat"
/pauh/	[ˈpáuh]	"to turn on"
/seʔ/	[ˈséʔ]	"louse"
/ʔɛʔ/	[ˈʔɛ́ʔ]	"to take (medicine)"
/ɲɯʔ/	[ˈɲɯ́ʔ]	"to drink"
/cʰəʔ/	[ˈcʰə́ʔ]	"wet"
/ᵐbraʔ/	[ˈᵐbráʔ]	"to expert"
/pʰuʔ/	[ˈpʰúʔ]	"father' s younger sister"
/moʔ/	[ˈmóʔ]	"to hide"
/pʰiaʔ/	[ˈpʰíaʔ]	"to throw (a top)"
/ʔəvɯaʔ/	[ʔə̀.ˈvɯ́aʔ ~ ʔà.ˈvɯ́aʔ]	"Wa, door"

CHAPTER VI

THE INTONATION GROUP

6.1 General definition

The intonation group is the unit of the highest rank of the phonolog presented here, so its function in higher units is not discussed. The structure o the intonation group is stated in terms of the phonological word.

6.2 Types of intonation

Within the intonation group in Wa at Ban Santisuk Moo 19, Tambo Patung, Mae-Chan district, Chieng Rai province, there are two types of th intonation contour : the rising contour and the mid level contour. These tw types of contour are characterized by the pitch on the last syllable of th utterance in the group.

6.2.1 The rising contour

The rising contour is used for commands and questions, both content and polar (Yes/No) question. It is phonetically represented by a littl higher pitch of the final syllable. This is phonetically marked by [——————⟋]

6.2.1.1 Commands

The statement of command in Wa at Ban Santisuk Moo 19 is generally marked by a command marker /pʰui/ "prohibit" which can occu before a main verb in a sentence. Sometimes there is no marker in th command statement. From the structure, this command statement is like aɪ affirmative sentence. The only thing that can be considered as differenc between these two types of the sentence is the intonation. If that sentence ha a rising contour, it is a command statement but if it has a mid level contour it is an affirmative statement.

Ex.

[pʰuːi   haoʔ]
  don't   go
"Don't go"

[ʔaːliŋ   haoʔ   ʔiac]
  ʔaling   go   sleep
"ʔaling goes to sleep"

[ʔaːliŋ   pʰuːi   ʔɔh]
  ʔaling   don't   speak
"ʔaling doesn't speak"

[ʔaːliŋ   haoʔ   kəʔih]
  ʔaling   go   here
"ʔaling comes here"

[pʰuːi   paoh]
  don't   open
"Don't open"

[ʔaːliŋ   cʰoŋ]
  ʔaling   stand
"ʔaling stands up"

6.2.1.2 Questions

-Polar questions

A polar question in Wa usually has no polar question marker, i.e., its structure is just like an affirmative statement but with one major difference, a subject of a sentence occurs finally. Sometime, a polar question can have a marker /ləh/ which occurs in final position of a statement.

Ex.

Question : [ʔot   noŋ   ɲiaʔ   naːnuː]
                  to stay   in   houseNanu
                  "Is Nanu in house.?"

Response : [ʔot   naːnuː   noŋ   ɲiaʔ]
                  to stay Nanu   in   house
                  "Yes, Nanu is in house."

Question : [sɔm   sɔm   meʔ   caʔtiː]
                    eat   eat   you   Cati
                  "Do you want to eat Catı?."

Response : In affirmative statement

                  [sɔm   sɔm]
                      eat   eat
                "Yes, I want to eat."

            : In negation

                  [ʔaŋ   sɔm]
                      not   eat
                "No, I don't want to eat."

[‾sak]
to be full
"No, I am full."

Question : [ɲum‾ ləh ⌐╯
delicious Q.M.
"Is it delicious.?"

Response : [‾ɲum]
delicious
"Yes, it is delicious."

- Content questions

The content question markers in Wa are the followings :

/pʰɔh/	"what"	/təmiuʔ/	"where"
/ləmiuʔ/	"when"	/mɛʔmiuʔ/	"how much, how many"
/lɔkpɔh/	"how"	/pʰɯi/	"who"

A content question must have a content question marker. All markers occur finally in the sentence except the question marker / pʰɯi/ "who" which occurs initially in the sentence.

Ex.

[juh ʔaːliŋ kʰeɲ pʰɔh]
to do ʔaling job what
"What does ʔaling do.?"

[juh meʔ kʰeɲ təmiuʔ]
to do you job where
"Where does he work.?"

[sam ˌ meʔ hoc ləmiuʔ]
will you to arrive when
"When will he arrive.?"

[cok meʔ cah mɛʔmiuʔ]
to buy you clothe how much
"How much does the clothe costs.?"

[pʰɯːi paʔ ʔot noŋ ɲiaʔ ʔih]
who person stay in house this
"Who stays in this house?"

6.2.2 The mid level contour

The mid level contour is used for affirmative statements, negative statements and reply (see 6.2.1.2 polar questions). It is phonetically represented by the mid level of the pitch of the final syllable. This is phonetically marked by [————].

5.2.2.1 Affirmative statements

[ʔot meʔ tiat tiat]
to stay you there there
"He is over there."

[haoʔ ʔaːliŋ noŋ maː]
to go ʔaliŋ in field

"ʔaling goes to the field."

[haiʔ hoc sɔm ʔəʔ ʔəp]
already to to eat I cooked rice
"I ate rice already."

[haiʔ   hoc   sɔtaiʔ   ʔɔʔ cah]
  already to   wash   I   clothes
         " I washed clothes already."

6.2.2.2 Negative statements

The negative marker in Wa is /ʔaŋ/ "not". The marker /ʔaŋ/ can occur before subject or verb of the sentence.

[ʔaŋ   taiʔ   ɲum]
  not   food   delicious
"Food is not delicious."

[ʔaŋ   pʰɯːi   ʔot   noŋ   ɲiaʔ]
  not   person to stay in   house
  "No one is in house."

[sɘŋeʔ   ʔih   ʔaŋ   juʔ   caʔtiː]
  day   this   not   see   Cati
  "Today, (I) don't see Cati."

[ʔaŋ   sɔm]
  not   to eat
"(I) don't to eat."

The intonation group in this study is predictable from the type of sentence ; that is , in the commanded and questioned sentences are the rising-contour ; in the affirmative, negative and replied sentences are the mid-level contour.

CHAPTER VII

CONCLUSION AND SUGGESTIONS
FOR FURTHER STUDIES

7.1 Conclusion

The phonology of Ban Santisuk Moo 19, Tambol Patung, Mae-Chan District, Chieng Rai Province, consists of the following features:

7.1.1 The phonemes

7.1.1.1 The consonant phonemes

There are twenty-seven consonant phonemes. They are / p , p^h , ^mb , t , t^h , nd , c , c^h , k , k^h , ʔ , v , f , s , h , m , m̥ , n , n̥ , ɲ , ŋ , ŋ̥ , l , l̥ , r , r̥ , j /.

7.1.1.2 The vowel phonemes

There are nine single vowel phonemes : / i , e , ɛ , ɯ , ə , a , u , o , ɔ /, eleven diphthongs : / ia , iu , ɯi , ɯa , əi , ai , ao , ui , ua , oi , ɔi / and two triphthongs : / iau , uai /.

7.1.2 The syllable

There are four types of syllable in this dialect. They are the major syllable, the minor syllable, the presyllable and the nasal syllable.

7.1.3 The phonological word

There are three types of the phonological word in this study. They are monosyllabic word, disyllabic word and trisyllabic word.

There are three types of stress : strong stress [s], weak stress[w] and unstress [u].

7.1.4 The intonation group

There are two types of the intonation group, i.e., the rising contour and the mid level contour.

The rising contour is used for commands and questions, both content and polar questions.

The mid level contour is used for affirmative statements, negative statements and replied statements.

7.2 Remarks on Wa at Ban Santisuk Moo 19

As the author mentioned that Wa is nearly the same Lawa (see 1.5 General information on Wa); i.e., it can be noticed from their vocabularies showing that these two languages are almost the same, but there are some significant phonological differences that were described below.

The phonological data on Wa language is from the writer's own analysis in Chapter III to Chapter VI.

The reference data of Lawa used in this study were taken from "The Phonology of Lawa" in Southeast Asian Linguistic Studies presented to Andre-G. Haudricourt, 1985 by Suriya Ratanakul and Lakkhana Dao Ratanahong. This is Lawa spoken at Ban Papae, Amphoe Mae-Sariang, Mae Hongson province; The north of Thailand (see 1.6 Researchs on the Wa language).

The phonological comparison of Wa and Lawa reflects the characteristics of these two languages as follows :

Phonemes : regarding consonant and vowel phonemes

- Consonant phonemes : there are 27 consonant phonemes in Wa at Ban Santisuk Moo 19, but 37 consonant phonemes in Lawa at Ban Papae. The evident differences are as follows :

1. There are no preglottalised and some prenasalized consonants / ʔj, ʔm, ʔn, ʔɲ, ʔŋ, ʔɣ, ʔl, ɲc, ᵑg / in Wa but occur in Lawa.
2. There is no a voiced velar fricative / ɣ / in Wa but occurs in Lawa.
3. There are voiced stops / b, j / in Lawa but none in Wa.
4. There is a voiced alveolar trill / r / in Wa but none in Lawa.
5. In Wa, the consonants as a second member of consonant cluster are / l, r / but are / l, j / in Lawa.
6. The final consonants /p, t, c, k, ʔ, s, h, m, n, ɲ, ŋ / can occur in Wa while all of these final consonants except / s / can occur in Lawa. The final consonant [s] is found rarely in the Waic language but it occurs in Wa at Ban Santisuk Moo 19. This final consonant /s/ corresponds to proto-Waic *_s.
7. The voiceless bilabial semi-vowel [hw] is still found to be free variation of the voiceless labio-dental fricative [f] in the initial position in Wa while [hw] never occurs in Lawa; only [f] is found in Lawa.

- Vowel phonemes : there are 9 single vowels, 11 diphthongs and 2

triphthongs in Wa : / i, e, ε, ɯ, ə, a, u, o, ɔ, ia, iu, ɯi, ɯa, əi, ai, ao, ui, ua, oi, ɔi, iau, uai / but there are 10 single vowels, 14 complex vowels and a triphthong in Lawa : / i, e, ε, ɨ, w, ə, a, u, o, ɔ, iə, ɨə, uə, əi, əɨ, əo, εɔ, ai, aɨ, ao, ui, oi, ɔi, ɔε, aiε /.

The syllable : the syllable structure of both languages is similar. It is C (C) V (V) (V) (C). In addition, the syllabic nasals / m, n, ŋ / which function as a nasal syllable occur in Wa but none in Lawa.

The phonological word : there are 3 types of word in Wa : monosyllabic word, disyllabic word and only five trisyllabic words. However, there are 2 types of word in Lawa : monosyllabic word and disyllabic word.

The intonation group : in both languages, there are 2 types of intonation : the *rising contour* and the *mid-level contour*. In Lawa, the intonation is phonemic; however, it is non-phonemic in Wa.

Comparison of the two languages, Wa and Lawa, shows that they are similar.

7.3 Suggestions for further study

For further study, some interesting points are :

7.3.1 Due to the study of Wa phonology, other topic that should continue researching is Wa syntax.

7.3.2 According to chapter I : Introduction (see 1.5.3 Wa at Ban Santisuk Moo 19), there are various hilltribes in this village such as Wa, Yunnanese Chinese, Lahu and Akha. They must contact one another so a study of the multilingualism of the Wa people is an interesting point.

7.3.3 There are many phonological studies of the various languages in Waic sub-branch; therefore, a comparative study of all these analyses should be done.

BIBLIOGRAPHY

Diffloth, Gerard. "Austro-Asiatic Languages," Encyclopaedia Britannica. pp. 480-484. 1973

_____. Proto Waic and the Effects of Register on Vowel Gliding. Monograph submitted to the 10th International Conference on Sino-Tibetan Languages and Linguistics, Oct.14-16,1977. Georgetown. 107p. 1977.

_____. The Wa Languages. Linguistics of the Tibeto-Burman Area. Vol.5,2. University of California, Berkeley. 1980.

Drage, G. "A Few Notes on Wa" The Journal of the Royal Asiatic Society. 1908.

Lebar, Frank.M, and others. Ethnic Groups of Mainland Southeast Asia. New-Haven Conn : Human Relations Area Files. 1964.

Lewis, Paul and Lewis, Elaine. Peoples of the Golden Triangle : Six Tribes in Thailand. Thames and Hudson, London. 1984.

Mitani, Yasuyuki. "Problems in the Classification of Palaungic." Paper presented at Second International Conference on Austroasiatic Linguistics. 1978.

Parkin, Robert. A Guide to Austroasiatic Speakers and Their Languages. University of Hawaii Press Honolulu. 1954.

Paulsen, Debbie. "Phonology of Plang" Payap University Working Papers in Linguistics Focus on Phonology, Vol1. Payap University Graduate Linguistics Department, Chiang Mai, Thailand. 1996.

Ratanakul, Suriya and Dao Ratanahong, Lakkhana. "The Phonology of Lawa", published in Southeast Asian Linguistic Studies presented to Andre-G. Haudricourt, Bangkok, 1985.

Saihoo, Patya. "The Lawa" Report on the Hill Tribes of Northern Thailand. Seato Research Fellow. 1962-63.

Scott, J. George and J.P. Hardiman. Gazetter of Upper Burma and The Shan States. Part I. Vol.1. Government Printing : Rangoon. 1900.

Thomas, David D. A Survey of the Needs for Scripture Translation among the Hill Tribes of Northern Southeast Asia, and some of helps and hindrance toward the Accomplishment of that Goai. M.A. Thesis. Columbia Bible College. 1954.

Zhou Zhizhi and Yan Qixiang. "Approaching the Consonantism of Ancient Wa from the Phonological Correspondence among the Dialects of Contemporary Wa. "Yuyan Yanjiu, No.1. Institute of Nationality Studies Chinese Academy of Social Science, Beijing. 1983.

จังหวัดเชียงราย, สำนักงาน. เชียงรายเหนือสุดแดนสยามประตูสู่สี่เหลี่ยมเศรษฐกิจ : ข้อมูลสรุป เกี่ยวกับจังหวัดเชียงราย. 2538

จิตร ภูมิศักดิ์. ความเป็นมาของคำสยาม ไทย ลาว และขอม และลักษณะทางสังคมของชื่อชน ชาติ. มูลนิธิโครงการตำราสังคมศาสตร์และมนุษยศาสตร์ สมาคมสังคมศาสตร์แห่ง ประเทศไทย, กรุงเทพมหานคร. พิมพ์ครั้งที่1. 2519.

สมทรง บุรุษพัฒน์. สรวิทยา : การวิเคราะห์ระบบเสียง. สถาบันวิจัยภาษาและวัฒนธรรมเพื่อ พัฒนาชนบท. มหาวิทยาลัยมหิดล, 2536.

สุริยา รัตนกุล. "ละว้าและลัวะ." ภาษาและวัฒนธรรม. ปีที่4 , เล่มที่1. หน้า 56-78. 2527.

_____ และลักขณา ดาวรัตนหงษ์. พจนานุกรมไทย-ละว้า. สถาบันวิจัยภาษาและ วัฒนธรรมเพื่อพัฒนาชนบท. มหาวิทยาลัยมหิดล, 2530.

_____, รองศาสตราจารย์ ดร. คุณหญิง. นานาภาษาในเอเชียอาคเนย์. เล่มที่ 1 ภาคที่ 1. ภาษาตระกูลออสโตรเอเชียติกและตระกูลจีน-ทิเบต. กรุงเทพมหานคร : สถาบันวิจัย ภาษาและวัฒนธรรมเพื่อพัฒนาชนบท. มหาวิทยาลัยมหิดล,2531.

สอ เสถบุตร. พจนานุกรมไทย-อังกฤษ. กรุงเทพมหานคร : ไทยวัฒนาพานิช จำกัด, 2532.

สอ เสถบุตร. พจนานุกรมอังกฤษ-ไทย. กรุงเทพมหานคร : ไทยวัฒนาพานิช จำกัด, 2536.

อมร ทวีศักดิ์. <u>สัทศาสตร์</u>. สถาบันวิจัยภาษาและวัฒนธรรมเพื่อพัฒนาชนบท. มหาวิทยาลัย
        มหิดล, 2535.

อำเภอแม่จัน. <u>บรรยายสรุปอำเภอแม่จัน จังหวัดเชียงราย.</u>

APPENDIX

WORD LIST

The entries word lists are listed according to the following orders :

1. The initial consonants are arranged in the following order :
/ p , pʰ , ᵐb , t , tʰ , ⁿd , c , cʰ , k , kʰ , ʔ , v , f , s , h , m , m̥ ,
n , n̥ , ɲ , ŋ , ŋ̊ , l , l̥ , r , r̥ , j /.

2. The final consonants are ordered as follows : / p , t , c , k , ʔ,
s , h , m , n , ɲ , ŋ /.

3 The vowels are ordered as follows : / i , e , ɛ , ɯ , ə , a , u , o
, ɔ , ia, iu , ɯi , ɯa , əi , ai , ao , ui , ua , oi , ɔi , iau , uai /.

4. The entries with open syllables are before entries with closed syllables.

/p/

/pijuk/	"to tie"
/pijɔŋ/	"stranger"
/pis/	"to sweep"
/pe/	"mango"
/pet/	"duck"
/pleʔ/	"child , fruit"
/preʔ/	"spicy"
/pɛ/	"cunt"
/pɛh/	"to pick fruit"
/plɛh/	"red-orange"
/pɛm/	"string bag"
/prɛm/	"old"
/prɯk/	"to fill water"
/pə/	"orange (color)"
/pəpɯ/	"to fly"
/pəcʰo/	"greedy"
/pəʔɔ/	"dumb"
/pəvok/	"amputated leg"
/pəsah/	"tomorrow"
/pəjuʔ/	"rich"
/plə/	"to blow fire"
/pəc/	"to slough"
/prəh/	"faithful"
/pac /	"to scratch"
/pak/	"edge"
/plak/	"classifier of thing esp. in one side"
/prak/	"to lean"

/prah/	"to divorce"
/pan/	"to stay"
/paɲ/	"to blow"
/paŋ/	"stock"
/paŋmu/	"weaver"
/praŋ/	"mosquito"
/pu/	"betel leaves"
/pupia/	"to stagger"
/prut/	"fin"
/pruc/	"wing"
/puspias/	"to swipe"
/pun/	"female"
/puŋ/	"water container"
/puŋpui/	"to sway"
/prɯs/	"flower"
/po/	"mallet"
/potaih/	"mortar"
/prok/	"to boil"
/proskətʰɯa/	"pink"
/prom/	"twin"
/pon/	"four"
/plɔŋ/	"lalang grass"
/plɔŋ ŋəi/	"lemongrass"
/pos/	"to jump"
/pɔŋpɔh/	"noisy"
/prɔŋ/	"soot"
/prɔŋprɔh/	"to lie down"
/pria/	"rabbit"
/priat/	"grass"

/pias/	"to cut into piece"
/piu/	"to hang"
/pliu/	"to relinquish"
/pailiu/	"circle"
/plai/	"liquor"
/paoʔ/	"father's younger brother"
/praoʔ/	"to lie on one side"
/paoh/	"to turn on"
/pua/	"to borrow"
/pruas/	"to flip"
/poi/	"to dance(with hand)"

/pʰ/

/pʰi/	"to forget"
/pʰiʔec/	"the same lineage"
/pʰiɲiaʔ/	"cousin"
/pʰiris/	"one kind of grass"
/pʰriʔ/	"giant"
/pʰlis/	"short knife"
/pʰiɲ/	"white"
/pʰrec/	"one kind of ant"
/pʰeʔ/	"goat"
/pʰreʔ/	"by one self"
/pʰres/	"spear"
/pʰeh/	"to disgorge"

/pʰɯ/	"evening"
/pʰɯt/	"spade"
/pʰɯc/	"to slice"
/pʰɯk/	"mucus"
/pʰɯs/	"bubble"
/pʰrɯs/	"many color"
/pʰɯh/	"milk"
/pʰəh/	"to beat clothes"
/pʰən/	"table"
/pʰəŋ/	"basin"
/pʰləŋ/	*"root of bamboo"*
/pʰak/	"to bush"
/pʰakprɛ/	"web of hand or foot"
/pʰaŋ/	"plate"
/pʰu/	"thick"
/pʰuk/	"to cut"
/pʰuʔ/	"father's younger sister"
/pʰun/	"time"
/pʰuŋpʰɯaŋ/	"butterfly"
/pʰoʔ/	"to tie child on mother's back"
/pʰroʔ/	"blanket"
/pʰom/	"to pity"
/pʰoh/	"what"
/pʰɔp/	"to gather with both hand"
/pʰɔn/	"plate"
/pʰiaʔ/	"to throw"

/pʰiam/	"to chew"
/pʰiu/	"one kind of bean"
/pʰɯi/	"who"
/pʰrɯat/	"trap"
/pʰɯak/	"to split a piece of bamboo"
/pʰrɯaʔ/	"to feed child"
/pʰlui/	"necklace"
/pʰua/	"should not"
/pʰruat/	"one kind of fruit"
/pʰuan/	"five"

/ᵐb/

/ᵐbri/	"dirty"
/ᵐbriɲ/	"one kind of bird"
/ᵐbe/	"bed"
/ᵐbre/	"to cook"
/ᵐbreʔ/	"calf"
/ᵐbes/	"broom"
/ᵐbleɲ/	"big leech"
/ᵐbrɛh/	"to stick tongue out"
/ᵐbrɯs/	"spider"
/ᵐbə/	"ear-ring"
/ᵐbləc/	"to pretend"
/ᵐbləh/	"Wa dessert"
/ᵐba/	"the top of thigh"

/ᵐblak/	"to cut into two"
/ᵐbaʔ/	" tick"
/ᵐbraʔ/	"fast"
/ᵐblaʔ/	"part of ax"
/ᵐblas/	"to unwrap"
/ᵐblan/	"to overflow"
/ᵐbo/	"to pulverize"
/ᵐboʔ/	"to fill"
/ᵐbrom/	"water leech"
/ᵐbroŋ/	"horse"
/ᵐbrɔʔ/	"wound"
/ᵐbɔh/	"to cry (animal)"
/ᵐbrɔh/	"to peel(skin)"
/ᵐbɔŋ/	"to step up"
/ᵐblɔŋ/	"tube"
/ᵐbia/	"flat basket"
/ᵐbias/	"sew"
/ᵐbiam/	"hip"
/ᵐbiu/	"gourd"
/ᵐblɯak/	"bat"
/ᵐbai/	"to bore"
/ᵐbui/	"fittable"
/ᵐbluan/	"to take in mouth"
/ᵐboi/	"tree's shadow"
/ᵐbɔi/	"to swing"

/t/

/tis/	"mushroom"
/tec/	"debt"
/teʔ/	"hand"
/teɲ/	"to throw a top"
/tɛ/	"sweet"
/tɯttek/	"to rub clothes"
/tɯk/	"wardrobe"
/təvut/	"minute"
/təmiu/	"where"
/tənum/	"anthill"
/təŋa/	"twenty"
/taʔ/	"grandfather"
/taɲ/	"to weave"
/taŋkraʔ/	"road"
/taŋskit/	"outdoor"
/tuk/	"to lead (by hand)"
/tus/	"to peck at"
/to/	"to run"
/top/	"classifier of measurement (wah)"
/tot/	"to smoke"
/tok/	"to start a fire"
/tom/	"right"
/toŋ/	"to grill"
/toh/	"sunlight"
/tɔk/	"to sting"
/tɔʔ/	"to give"

/tɔs/	"breast"
/tɔm/	"liver"
/tɔŋ/	"to fry"
/tiak/	"to discard"
/tai/	"skirt"
/taiʔ/	"vegetable"
/taih/	"to pound"
/tao/	"bottle"
/taoʔ/	"vapor"
/taoŋ/	"to trap"
/tuasətɔŋ/	"shrimp"
/tuas/	"to cut strongly"

/tʰ/

/tʰijuŋ/	"mother's elder sister"
/tʰiʔ/	*"one"*
/tʰiŋ/	"big"
/tʰe/	"arrow"
/tʰet/	"to flip"
/tʰeh/	"to seep"
/tʰem/	"short"
/tʰɯm/	"ripe"
/tʰəʔ/	"tried"
/tʰu/	"hill"
/tʰup/	"to bash"
/tʰuk/	"to knock"
/tʰukkʰaʔ/	"difficult"

/tʰun/	"to be relative"
/tʰuŋ/	"brass"
/tʰottʰit/	"to kick"
/tʰok/	"big bowl"
/tʰoʔ/	"pod"
/tʰom/	"to make a bed"
/tʰoŋtʰəi/	"ghost"
/tʰɔŋ/	"bag"
/tʰɯak/	"to roast"
/tʰɯah/	"supine"
/tʰai/	"Thai"
/tʰui/	"to keep"
/tʰiau/	"to dance"

$$/^nd/$$

/ⁿdip/	"cookies"
/ⁿdeʔ/	"door handle"
/ⁿdap/	"flat"
/ⁿdak/	"tongue"
/ⁿdaʔ/	"to pour water"
/ⁿdus/	"part of gun"
/ⁿdoc/	"lips"
/ⁿdok/	"to recite"
/ⁿdoh/	"to leak"
/ⁿdom/	"to soak"
/ⁿdoŋ/	"root of plant"
/ⁿdɔ/	"slope"
/ⁿdɔŋ/	"valley"

/ⁿdiu/	"flashlight"
/ⁿdɯat/	"to spurt"
/ⁿdoi/	"orphan"
/ⁿdɔi/	"to squeeze"
/ⁿdua/	"to crawl up"
/ⁿduac/	"to massage"

/c/

/ci?/	"flesh (baby language)"
/cec/	"to pinch"
/cɛh/	"to scatch"
/cak/	"deer"
/cah/	"clothes"
/caŋ/	"to hire"
/cuceh/	"water drop"
/cukluk/	"rounded tomato"
/cot/	"to push"
/co?/	"to put"
/coŋ/	"parasal"
/coɲloŋ/	"to cast"
/cos/	"to tamp"
/cɔp/	"to wear"
/cɔp te?/	"glove"
/cɔp kɯat/	"sweter"
/cɔp ŋkian/	"ring"
/cɔs/	"to cut hair (men's style)"
/ciat/	"the tenth son"

/cias/	"to tear"
/cao/	"it"
/coi/	"to turn"

$$/c^h/$$

/c^{h}i/	"the index finger"
/c^{h}ic/	"to trample"
/c^{h}i?/	"to hew"
/c^{h}im/	"to taste"
/c^{h}en/	"heavy"
/c^{h}eɲ/	"to stitch"
/c^{h}ɯ/	"elbow"
/c^{h}ɯs/	"to skewer"
/c^{h}ɯm/	"bean"
/c^{h}ə?/	"wet"
/c^{h}a/	"poor"
/c^{h}aŋ/	"young (chicken)"
/c^{h}u/	"to do well"
/c^{h}ut/	"to pick up"
/c^{h}us/	"one kind of ant"
/c^{h}uŋ/	"to go up"
/c^{h}oŋ/	"classifier of clothes"
/c^{h}iap/	"to blink"
/c^{h}iaŋ/	"small cup-shaped cymbals"
/c^{h}iu/	"bad"
/c^{h}iu?/	"old"
/c^{h}ɯa?/	"to be left dangling"

/cʰɯaʔpʰɯi/   "monk"

/cʰaoʔ/   "light"

/k/

/kip/	"to cut off"
/kris/	"lion"
/kesaʔ/	"next"
/kre/	"anus"
/krep/	"East"
/kɬep/	"to carry on shoulder"
/kɬec/	"armpit"
/krec/	"classifier of corn"
/kreʔ/	"testicle"
/krem/	"to scratch"
/kren/	"acidulous"
/keɲ/	"hundred"
/kɬeɲ/	"to sharpen"
/kreɲ/	"paramour"
/kɛ/	"of"
/kɬɛh/	"to perform"
/kɯt/	"to be stuck"
/kə/	"wind"
/kətɛt/	"cackle"
/kətai/	"hole"
/kətam/	"crab"
/kətom/	"egg"
/kətɔŋ/	"oven"

/kətʰi/	"cotton"
/kətʰiŋ/	"navel"
/kətʰu/	"belly"
/kətʰɯak/	"sole"
/kətʰɯah/	"to roll"
/kətʰuas/	"fire fragment"
/kəʔih/	"here"
/kəʔaɲ/	"hornet"
/kəʔom/	"cloud, fog"
/kəsɔŋ/	"Job's tears"
/kəsuas/	"charcoal"
/kəməʔ/	"scurf"
/kəma/	"sky"
/kəmɯat/	"abscess"
/kəmuat/	"weevil"
/kənum/	"to thunder"
/kənom/	"gum"
/kənɯah/	"lazy"
/kəjop/	"to lift eyebrow"
/kəjɔŋ/	"bamboo basket"
/klə/	"tadpole"
/krəc/	"to fall"
/kləh/	"classifier of fire"
/kəɲ/	"mother's elder brother"
/kap/	"chin"
/kat/	"thorn"
/krat/	"plastic"
/kak/	"branch"
/krak/	"buffalo"

/kaʔ/	"fish"
/kraʔ/	"direction"
/kah/	"to untie"
/kam/	"chaff"
/kaɲeʔ/	"needle"
/kaɲ/	"paddy field"
/kukiau/	"guava"
/krukre/	"narrow"
/klup/	"to pour"
/kluc/	"unfit"
/kuk/	"to hang"
/kuskis/	"to shove"
/kɯm/	"strip of bamboo"
/kop/	"to shovel"
/koc/	"hot"
/kok/	"to call"
/kroʔ/	"to shoot"
/koh/	"to collect"
/kroh/	"to dry"
/kom/	"and"
/krom/	"to lug"
/kloŋ/	"bowl"
/klɔ/	"Northern Thai people"
/kɔk/	"water container"
/krɔm/	"boiled rice"
/kɔŋmu/	"pagoda"
/klɔŋ/	"brook"
/kia/	"to look at"
/kiap/	"to nip"

/kian/	"pigtail"
/kiaŋ/	"tamarind"
/kriaŋ/	"to spin"
/kəi/	"thread"
/kɫəi/	"to push hair"
/kai?/	"classifier of human, root plant"
/krai/	"drum"
/kao/	"ten"
/krao?/	"taro"
/kaoŋ/	"to dig"
/kraoŋ/	"throat"
/kui/	"Lahu"
/kɯat/	"cold (weather)"
/kruas/	"to shake off"
/kuan/	"child"
/kuan caŋ/	"to marry"
/koi/	"to have"
/kuai/	"one kind of rice"

/kʰ/

/kʰlip/	"to cut"
/kʰrit/	"to grate"
/kʰic/	"shy"
/kʰis/	"to peel"
/kʰispʰɯa?/	"Adam's apple"
/kʰih/	"to give a birth"

/kʰe/	"polluted water"
/kʰre/	"rosary"
/kʰet/	"to bite"
/kʰeʔ/	"moon, month, firewood"
/kʰɯm/	"to winnow"
/kʰrɯm/	"one kind of legumes"
/kʰəmun/	"bread"
/kʰrəh/	"to crash"
/kʰrəŋ/	"to keep"
/kʰlap/	"to clap"
/kʰlaʔ/	"pants"
/kʰah/	"to torture"
/kʰrut/	"to pull"
/kʰuc/	"to extract"
/kʰuk/	"to buckle"
/kʰoc/	"to wash face"
/kʰok/	"to itch"
/kʰoh/	"to knock door"
/kʰom/	"tight"
/kʰon/	"one kind of plant"
/kʰlɔk/	"dimple"
/kʰiap/	"shoes"
/kʰliap/	"classifier of flower, orange"
/kʰiat/	"fan"
/kʰiuʔ/	"to vomit"
/kʰɯa/	"to wrap"
/kʰlɯak/	"to cut hair"

/kʰɯaŋ/   "rat"

/kʰui/   "slow"

/kʰuat/   "old-aged"

/kʰuaʔ/   "tree"

/ʔ/

/ʔi/   "the second daughter"

/ʔijuk/   "to lift"

/ʔip/   "the fifth daughter"

/ʔim/   "alive"

/ʔec/   "elder brother"

/ʔeʔ/   "they"

/ʔem/   "unripe"

/ʔeɲ/   *dung*

/ʔɛʔ/   "to eat medicine"

/ʔɛm/   "husked rice"

/ʔəpac/   "bridge"

/ʔəpaɲ/   "to inter"

/ʔəpon/   "forty"

/ʔəpʰɯt/   "spade"

/ʔəpʰɯc/   "sticky rice"

/ʔəpʰɯaŋ/   "gong"

/ʔətah/   "medicine , drug"

/ʔətʰen/   "to pick together"

/ʔəke/   "cucumber"

/ʔəkɯc/   "to tickle"

/ʔəkah/	"to talk"
/ʔəkaoʔsaʔ/	"the day before yesterday"
/ʔəkʰɯc/	"angry"
/ʔəkʰa/	"Akha"
/ʔəkʰlaʔ/	"to attach"
/ʔəkʰu/	"to shake"
/ʔəvi/	"tiger"
/ʔəvu/	"to gossip"
/ʔəvut/	"spleen"
/ʔəvom/	"cross"
/ʔəvɯaʔ/	"door, Wa"
/ʔəvɯaʔ kuan/	"window"
/ʔəhec/	"tube"
/ʔəhom/	"heart"
/ʔəhaok/	"a pod of corn"
/ʔəmeʔ/	"male, husband"
/ʔəmah/	"to quarrel"
/ʔəmuk/	"foe"
/ʔəmiuʔ/	"to dream"
/ʔənɯan/	"the only child"
/ʔəɲuŋ/	"mermaid"
/ʔəŋi/	"food particle among the teeth"
/ʔəŋut/	"violet"
/ʔəŋɯaʔ/	"sesame"
/ʔəles/	"seven"
/ʔəleɲ/	"smooth"
/ʔəliap/	"middle"
/ʔərip/	"grass"

/ʔəris/	"tortoise"
/ʔəre/	"forehead"
/ʔərɯt/	"excretions from skin"
/ʔərə/	"boat"
/ʔərup/	"fish net"
/ʔərum/	"to hug"
/ʔərun/	"to trim"
/ʔəriaŋ/	"cassia"
/ʔərai/	"far"
/ʔəjit/	"to screw"
/ʔəjuʔ/	"robber"
/ʔəjuŋ/	"rainbow"
/ʔəʔ/	"I"
/ʔən/	"to intend"
/ʔak/	"bow"
/ʔam/	"the third daughter"
/ʔuʔ/	"to crow"
/ʔuŋ/	"to bow head"
/ʔo/	"mother's younger sister"
/ʔop/	"cooked rice"
/ʔot/	"to stay"
/ʔok/	"the eighth daughter"
/ʔoʔ/	"a pole for carrying loads across something"
/ʔom/	"water"
/ʔomhah/	"color"

/ʔoŋ/	"daughter in law"
/ʔɔt/	"silent"
/ʔɔm/	"to brood"
/ʔɔn/	"to wear"
/ʔia/	"chicken"
/ʔiat/	"small"
/ʔiac/	"to sleep"
/ʔiah/	"this"
/ʔiaŋ/	"to come back"
/ʔəi/	"to raise animal"
/ʔai/	"the first son"
/ʔao/	"to like"
/ʔaoʔ/	"to believe"
/ʔui/	"the seventh daughter"
/ʔuat/	"to scrub face"
/ʔuah/	"that"
/ʔoi/	"son in law"

/v/

/vi/	"to borrow"
/vis/	"to break"
/vih/	"bowel"
/ve/	"one kind of vegetable"
/vec/	"liver"
/veʔ/	"left"
/veh/	"to call at"

/vɛ/	"to stir"
/vɛh/	"to chip, to be broken (teeth)"
/vəkvɯn/	"to bend leg"
/vəŋcaŋ/	"mosquito net"
/vutvat/	"to shake"
/vut/	"to cross"
/vuk/	"to hook"
/vuŋ/	"corn"
/voŋvot/	"to rock cradle"
/vɔk/	"curve"
/vian/	"to tie, classifier"
/vɯak/	"worm"
/vɯah/	"wide"

/f/

/fe/	"to wander"
/fofe/	"greedy"
/fa/	"sock"
/fap/	"to yawn"
/fat/	"to thrash"
/fak/	"to turn face up"
/faʔ/	"monkey"
/faŋ/	"to open"
/fiak/	"dark"

/s/

/sip/	"to nibble"
/sim/	"bird"
/simʔuɲ/	"star"
/siɲ/	"cooked"
/se/	"the ninth son"
/set/	"to cut into slice"
/seʔ/	"louse"
/seh/	"South"
/ses/	"to write"
/sɛh/	"to sterilize"
/sɯʔŋuk/	"neck"
/səpə/	"to comb"
/səpaʔ/	"cheek"
/ səpao/	"cement"
/səplaŋ/	"shoulder"
/səproi/	"dust"
/səpʰiap/	"fit"
/səpuan/	"frog"
/səteʔ/	"eight"
/sətɛm/	"nine"
/sətaʔ/	"tail"
/sətun/	"to shove away with the foot"
/sətaiʔ/	"to wash clothes"
/sətʰe/	"nail"
/sətʰeh/	"to excite"
/sətʰɯ/	"pole"

/sətʰu/	"grasshopper"
/sətʰuʔ/	"shaft"
/sətʰuŋ/	"to lean"
/səke/	"hair decoration"
/səkat/	"comb"
/səkrak/	"red"
/səkaʔ/	"to mix"
/səkah/	"intelligent"
/səkup/	"to roll hair"
/səkʰet/	"to freeze"
/səkru/	"river"
/səkrun/	"to kneel"
/səkiap/	"chopstick"
/səkiaŋ/	"ginger"
/səkiu/	"intestines"
/səkʰijuk/	"classifier of banana"
/səkʰoŋ/	"earthen jar"
/səʔaŋ/	"skeleton"
/səʔuɲ/	"snake"
/səʔoh/	"to dry"
/səʔom/	"rotten"
/səʔoi/	"smell"
/səvat/	"to punish"
/səvuk/	"sickle"
/səviak/	"skew"
/səma/	"to pickle"
/səmiuʔ/	"stone"
/sənɯt/	"gun"
/sənu/	"teenager"

/sənɯak/	"blood vessel"
/səŋeʔ/	"sun, day, shell"
/səŋa/	"blue"
/səŋiu/	"yellow"
/səŋɯa/	"green"
/səlɯ/	"to steal a glance"
/səlɯaŋ/	"mirror"
/səre/	"gold"
/sərɯt/	"to breath in"
/sərəɲ/	"disgusting"
/səra/	"teacher"
/sərap/	"pebble"
/sərɔk/	"drainage"
/səraoʔ/	"new"
/sac/	"grandchild"
/sak/	"to have enough"
/sam/	"the third son"
/samkrəc/	"skew-eyed"
/samʔao/	"to want"
/saŋ/	"elephant"
/su/	"key"
/sup/	"cigarette"
/sok/	"seed"
/soʔ/	"dog"
/som/	"night"
/soŋ/	"salt"
/sɔ/	"to wake"
/sɔt/	"to throw (spear)"
/sɔm/	"to eat"
/sɔmtɔm/	"to gaggle"

/siap/	"to repair"
/siat/	"animal's bowel"
/sias/	"to cleave"
/siam/	"Shan people"
/sɯi/	"straight"
/sai/	"the fourth son"
/saiʔ/	"sick"
/suat/	"to inject"

/h/

/hə/	"bag"
/həm/	"to take a bath"
/hac/	"hair"
/hak/	"skin"
/haʔ/	"to burn"
/haɲ/	"auxiliary verb"
/huŋ/	"one kind of vegetable"
/hoc/	"to arrive"
/hok/	"to expose to (the weather)"
/hon/	"a lot of"
/hoŋ/	"one kind of insect"
/hɔ/	"Yunnanese chinese"
/hɔt/	"to kiss"
/hia/	"bee"
/hiat/	"to measure"

/hai/	"past tense marker"
/haoʔ/	"to go"
/haok/	"to climb"

/m/

/mprɯs/	"old cobwebs"
/mpʰec/	"phelgm"
/mpʰla/	"to untie hair"
/mpʰaɲ/	"breeze"
/mpʰraŋ/	"spade"
/mpʰuk/	"dipper"
/mpʰok/	"to ride"
/mpʰom/	"to breath out"
/mpʰɔŋ/	"fragrance"
/mpʰrias/	"to blow the candle"
/mpʰiu/	"adipose tissue"
/mpʰai/	"steel for grilling"
/mpʰaiʔ/	"cooking stove"
/mpʰiau/	"face"
/mpʰuai/	"to turn on (electricity)"
/mi/	"widow"
/mec/	"the eighth son"
/meʔ/	"he, she"
/mɯ/	"money"

/mɯɯt/	"interest"
/mɯɯc/	"to swallow"
/mɯɯk/	"to chop"
/mɯɯs/	"nose"
/mɯɯɲ/	"to eat very much"
/məkrɯɯn/	"spicy"
/mət/	"smoke"
/məc/	"ant"
/ma/	"farm"
/mat/	"scar"
/mak/	"title name of fruit, vegetable"
/mam/	"to blow"
/man/	"fabric"
/maɲ/	"to ask"
/maŋkʰəʔ/	"to enjoy"
/mu/	"to crawl"
/mus/	"to love"
/mun/	"powder"
/muɲ/	"a top"
/moʔ/	"to hide"
/mom/	"good"
/mom sənu/	"beautiful, handsome"
/mon/	"Khmu"
/moŋ/	"to cook in bamboo"
/mɔk/	"to sit"
/mɔh/	"yes"
/mɔm/	"to sit"

/mian/	"to press"
/miu/	"Hmong"
/miulut/	"acne"
/mɯi/	"cow"
/mɯaʔ/	"mother"
/mɯaɲ/	"toy"
/mai/	"nevus"
/maoʔ/	"string, rope"
/muat/	"Wa boiled rice"
/moi/	"hammer"
/mɔi/	"ax"
/miau/	"cat"

/m̥/

/m̥ɯ/	"to keep in mouth"
/m̥ət/	"to catch"
/m̥aʔ/	"small insect"
/m̥am/	"garbage"
/m̥om/	"good, fresh, clean"
/m̥oŋ/	"to listen"
/m̥ɔk/	"hat"
/m̥aic/	"sand"

/n/

/ntʰeʔ/	"close"
/ntʰup/	"cassette"
/ntʰut/	"to sheer"
/ntʰuŋ/	" pond"
/ntʰop/	"cover"
/ntʰok/	"blind"
/ntʰɔŋ/	"jail"
/ntʰiat/	"to budge"
/ntʰɯak/	"pan"
/ntʰɯah/	"inch"
/ntʰɯaŋ/	"to march"
/ntʰai/	"beam"
/ncʰec/	"chisel"
/ncʰeʔ/	"chopping block"
/ncʰias/	"tree scraps"
/ncʰuac/	"to whistle"
/neʔ/	"meat"
/neɲ/	"to carry in arm"
/nɛʔ/	"umbrella"
/nɯm/	"urine"
/nəɲ/	"father"
/num/	"year"
/nun/	"jackfruit"
/no/	"expensive"
/nom/	"rhizome of bamaoo"
/noŋ/	"in"
/nɔʔ/	"final particle"

/niap/   "to fold trouser
                                            leg"

/nɯaʔ/   "sour"

/nai/   "to spill"

/nao/   "lemon"

/naoʔ/   "chest"

/ŋ̊/

/ ŋ̊e/   "comfortable"

/ŋ̊eŋ/   "mother's friend"

/ŋ̊am/   "blood"

/ŋ̊aŋ/   "to hang on
                                            neck"

/ ŋ̊ɔŋ/   "to lull"

/ɲ/

/ɲi/   "the second son"

/ɲin/   "one kind of ant"

/ɲinliat/   "uvula"

/ɲeɲ/   "filament"

/ɲɯ/   "to rub skin"

/ɲɯʔ/   "to drink"

/ɲɯs/   "to laugh"

/ɲat/   "to stretch leg"

/ɲaʔ/   "grandmother"

/ɲu/   "to glissade"

/ɲuʔ/   "to fell into a

	trap"
/ɲum/	"delicious, sweet"
/ɲum ʔot/	"happy"
/ɲunɲəɲ/	"to rub eye"
/ɲiaʔ/	"house"
/ɲiaʔ ʔeɲ/	"rest room"
/ɲiaŋ/	"cupboard"
/ɲui/	"waist"
/ɲuat/	"to suck"

/ŋ/

/ŋkeʔ/	"to catch"
/ŋkeʔ ʔəhom/	"patient"
/ŋkles/	"seventy"
/ŋkleh/	"to feel stiff"
/ŋkrac/	"pineapple"
/ŋklaʔ/	"wedge"
/ŋkaŋ/	"button"
/ŋkru/	"belt"
/ŋklup/	"to overturn"
/ŋkrum/	"friend"
/ŋkroc/	"heel"
/ŋkon/	"thumb"
/ŋkrɔk/	"to snore"
/ŋkrɔm/	"below"
/ŋkrɔŋ/	"pen"
/ŋkian/	"finger"
/ŋkrai/	"to disappear"

/ŋkaoʔ/	"milled rice"
/ŋkraoh/	"to jump"
/ŋkaoʔ/	"milled rice"
/ŋkuan/	"small knife"
/ŋkriuʔ/	"to retech, to belch"
/ŋkʰijuŋ/	"chair, pillow"
/ŋkʰrep/	"scissors"
/ŋkʰɯs/	"mouth"
/ŋkʰrɯn/	"to feel numb"
/ŋkʰrəŋ/	"screen"
/ŋkʰrac/	"to fall down (soil)"
/ŋkʰak/	"to spit"
/ŋkʰu/	"brain" -
/ŋkʰup/	"scale of fish"
/ŋkʰruc/	"trigger"
/ŋkʰus/	"to topple"
/ŋkʰuŋ/	"mountain"
/ŋkʰon/	"cow"
/ŋkʰɔn/	"fertilizer"
/ŋkʰɯa/	"box"
/ŋkʰɯaŋ/	"sheath"
/ŋkʰui/	"cockscomb"
/ŋkʰruat/	"zipper"
/ŋkʰriuk/	"changkol"
/ŋcʰih/	"to lull (a child) to sleep"
/ŋcʰem/	"to think"
/ŋcʰu/	"epoch"
/ŋcʰum/	"to plant"

/ŋcʰop/	"to clutch"
/ŋcʰoc/	"oval"
/ŋcʰoŋ/	"to close"
/ŋcʰai/	"a witch doctor"
/ŋfes/	"chopstick"
/ŋjɔt/	"to turn off"
/ŋcaok/	"spoon"
/ŋi/	"orange (fruit)"
/ŋe/	"to cut in one piece"
/ŋem/	"pickle bamboo"
/ŋeɲ/	*short*
/ŋɯh/	"to nod"
/ŋu/	"intestinal worm"
/ŋup/	"morning"
/ŋus/	"price, proud"
/ŋum/	"to sit"
/ŋo/	"fire, classifier of firewood"
/ŋom/	"wheel"
/ŋoŋ/	"in front of"
/ŋɔh/	"to stamp down"
/ŋɔm/	"to wait"
/ŋia/	"saliva"
/ŋiu?/	"the sixth son"
/ŋɯa?/	"to itch"
/ŋai/	"eye"
/ŋao/	"sword"
/ŋaok/	"to cough"
/ŋaoŋ/	"to wash rice"

/ŋui/	"the fifth son"
/ŋɔi/	"destination"
/ŋuai/	"thirty"

/ŋ̥/

/ŋ̥e/	"pregnant"
/ŋ̥em/	"nail"
/ŋ̥a/	"to please"
/ŋ̥oʔ/	"husked rice"
/ŋ̥ia/	"dog mother"
/ŋ̥iak/	"fish smell"
/ŋ̥əi/	"fragrant"

/l/

/li/	"book"
/lisɔ/	"Lisu"
/lip/	"West"
/let/	"to lick"
/les/	"six"
/leh/	"the little finger"
/lɯʔ/	"to be broken, to be lost"
/lɯm/	"small boil"
/ləʔih/	"today"
/ləʔak/	"crow"
/ləʔuk/	"flame"

/ləʔuʔ/	"to crow"
/ləʔaih/	"sweat"
/ləmaiʔ/	"sugar cane"
/ləɲ/	"to pretend"
/laŋ/	"long"
/laumiŋ/	"Burmese"
/luli/	"naughty"
/lutlɛt/	"one kind of cricket"
/luk/	"sty"
/luksɯk/	"soldier"
/lukliak/	"stubborn"
/luʔ/	"inedible shell"
/lus/	"to shove"
/luŋ/	"flea"
/lok/	"the seventh son"
/loklak/	"to fold"
/loʔ/	"speech"
/lom/	"sharp"
/loŋ/	"black"
/lɔli/	"car"
/lɔktʰoh/	"ladle"
/lɔkpʰɔ/	"how"
/lɔm/	"to close (flower)"
/lɔŋ/	"cuffin"
/liak/	"to turn"
/liuk/	"pig"
/liuʔ/	"out"
/lɯɯ/	"one kind of bird"

/lɯak/	"knob"
/lai/	"rat (in forest)"
/laic/	"to keep (in jail)"
/laiʔ/	"to relax"
/lui/	"to swim"
/luai/	"three"

/l̥/

/l̥eʔ/	"rain"
/l̥at/	"to fear"
/l̥ak/	"joke"
/l̥aʔ/	"leaf"
/l̥uŋliaŋ/	"restless eyes"
/l̥ok/	"boiled"
/l̥oʔ/	"bark"
/l̥oŋ/	"tasteless rice"
/l̥ɔŋ/	"to pave"
/l̥ua/	"loosen"
/l̥aoŋ/	"tall, North, above"

/r/

| /ri/ | "to step down" |
| /ris/ | "root" |

/rəh/	"tense"
/ra/	"two"
/ras/	"foot"
/ru/	"top of leaves"
/ruc/	"one kind of bird"
/rus/	"heartwood of tree"
/ruŋ/	"horn"
/rok/	"to split"
/rokᵐbuan/	"to vow"
/rokruan/	"curled (hair)"
/ruhɔ/	"garlic"
/rian/	"industrious"
/rɯak/	"to sing (bird)"
/rɯaŋ/	"light (noun)"
/rui/	"a fly"

/r̥/

/r̥e/	"thin"
/r̥ac/	"to abort"
/r̥aŋ/	"tooth"
/r̥uc/	"to pull, to draw"
/r̥ɔt/	"noisy"
/r̥iam/	"steel"
/r̥iu/	"to bark"

/j/

/jeʔ/	"the first daughter"
/jɯɯm/	"to cry"
/jɯɯn/	"to massage"
/jəp/	"classifier of clothes"
/jək/	"padlock"
/jah/	"to blossom"
/jaŋ/	"Karen"
/ju/	"to glissade"
/juh/	"to do, make, construct"
/juh taiʔ/	"to cook"
/jum/	"to die"
/jum pʰi/	"unconscious"
/juŋjaŋ/	"to shake tree"
/joc/	"to be drunk"
/jɯɯa/	"easy"

BIOGRAPHY

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