



**A PHONOLOGICAL ANALYSIS OF
THREE CENTRAL KARENIC
LANGUAGES**

The members of the Committee approve the masters thesis of Sudrutai Arunsirot

Dr. Brian Migliazza
Supervising Professor

Brian Migliazza

A. Margie Doty

Margie M Doty

A. Karen Block

Karen Block

Prof. Dr. Somsong Burusphat

Somsong Burusphat

Assoc. Prof. Dr. Saranya Savetamalya

Saranya Savetamalya

Approval Date:

23 May 2023

Copyright © Sudrutai Arunsirot 2003

All Rights Reserved

PAYAP UNIVERSITY

**A PHONOLOGICAL ANALYSIS OF
THREE CENTRAL KARENIC
LANGUAGES**

by

Sudrutai Arunsirot

Presented to the Graduate School of Payap University
in Partial Fulfillment of the Requirements
for the Degree of

MASTER OF ARTS IN LINGUISTICS

PAYAP UNIVERSITY, CHIANG MAI, THAILAND

May 2003

RESUME

Name : Sudrutai Arunsirot

Address: 231 Moo1 Tambon Nongpheung, Amphur Sarapee, Chiang Mai
50140, THAILAND

Date of Birth: 26th November 1972

Place of Birth: Chiangmai, Thailand

Father Name: Subin Arunsirot Age: 70

Mother Name: Thongin Arunsirot Age: 68

Education: 1986 Dara Academy, Certificate of Mathayom 3
1990 Dara Academy, Certificate of Mathayom 6
1994 Payap University, Bachelor of Science, Computer Science.
2003 Payap University, Master of Arts, Linguistics.

ACKNOWLEDGMENTS

I would like to express my gratitude to Dr. Brian Migliazza, my supervisor, for his kindness, advice and tireless persistence in reading through drafts and offering useful comments. I would like to thank A. Margie Doty, for her valuable comments and suggestions. My grateful thanks go to A. Karen Block, my committee member.

I wish to thank Dr. Fraser Bennett for collecting the data. I would also like to thank A. Ken Manson for his invaluable advice to my work. I wish to thank Khun Marilyn and her husband for editing my English writing. My thanks also go to all my teachers at Payap University. They have provided me with a very good education.

In addition, I am grateful to my parents, Subin and Thongin Arunsirot, my elder brother, Suthep Arunsirot, my elder sister, Nattapa Sudajan, and my dogs, Hacker, Ke and Maem for their everlasting encouragement. I wish to extend a very special thanks to all of my friends, especially Noel Kya Hch, and Sukanya Kamjaisai, who offered not only the help but their warm friendship as well. Also for other people I haven't name here, I will always remember their love and care.

March, 2003

ABSTRACT

A PHONOLOGICAL STUDY OF THREE CENTRAL KARENIC LANGUAGES

Sudrutai Arunsirot

Payap University, Chiang Mai, 2003

Supervising Professor: Dr. Brian Migiazza

The purpose of this study is to analyze the phonological systems of Bwe, Geba 1 and Geba 2. This study uses phonological inventories and the distribution of phonological units in order to compare those languages.

Chapter one gives the historical and geographical backgrounds of each language. Chapter two presents the phonology of Bwe which consists of 23 consonant phonemes. The vowel system consists of 10 clear vowel phonemes and 9 breathy vowel phonemes. There are 4 tones in Bwe. Chapter three presents the phonology of Geba 1 which consists of 24 consonant phonemes. The vowel system consists of 10 clear vowel phonemes and 10 breathy vowel phonemes. There are 4 tones in Geba 1. Chapter five presents the phonology of Geba 2 which consists of 25 consonant phonemes. The vowel system consists of 10 clear vowel phonemes and 10 breathy vowel phonemes. There are 4 tones in Geba 2. Chapter six concludes that Bwe, Geba 1 and Geba 2 are genetically closely related to each other, which supports the subgrouping of these languages within the Central Karenic branch based on lexicostatistical evidence and the result from the comparison of phonology in chapter five. A computer software program called "Speech Manager" was used to make phonetic charts and to separate the consonant charts from the vowel charts.

บทคัดย่อ

การวิเคราะห์ระบบเสียงของภาษากะเหรี่ยงตอนกลาง 3 ภาษา

โดย สุดฤทัย อรุณศิริโรจน์

มหาวิทยาลัยพายัพ จังหวัดเชียงใหม่ พ.ศ. ๒๕๕๖

อาจารย์ผู้ควบคุมวิทยานิพนธ์ : ดร. Brian Migliazza

วิทยานิพนธ์ฉบับนี้มีวัตถุประสงค์ในการวิเคราะห์ระบบเสียงของภาษาบวย, กะปอกลุ่มที่ 1 และ กะปอกลุ่มที่ 2 โดยเปรียบเทียบระบบเสียงของภาษาทั้งสามภาษา ได้แก่ระบบพยัญชนะ, ระบบสระ และระบบวรรณยุกต์ ในบทที่ 1 ได้กล่าวถึงประวัติความเป็นมาและลักษณะภูมิศาสตร์ของแต่ละภาษา บทที่ 2 นำเสนอระบบเสียงของภาษาบวย ซึ่งประกอบด้วยพยัญชนะ 23 ตัว สระ 19 ตัวและวรรณยุกต์ 4 ตัว บทที่ 3 นำเสนอระบบเสียงของภาษากะปอกลุ่มที่ 1 ซึ่งประกอบด้วยพยัญชนะ 24 ตัว สระ 20 ตัวและวรรณยุกต์ 4 ตัว บทที่ 4 นำเสนอระบบเสียงของภาษากะปอกลุ่มที่ 2 ซึ่งประกอบด้วยพยัญชนะ 25 ตัว สระ 20 ตัวและวรรณยุกต์ 4 ตัว บทที่ 6 สรุประบบเสียงทั้งสามภาษามีความคล้ายคลึงกัน ซึ่งดูได้จากการเปรียบเทียบในบทที่ 5 ซึ่งในการวิเคราะห์ระบบเสียงในวิทยานิพนธ์ฉบับนี้ ได้ใช้โปรแกรมชื่อ “Speech Manager” ในการสร้างแผนภูมิพยัญชนะ และสระ

TABLE OF CONTENTS

ACKNOWLEDGMENTS	v
ABSTRACT	vi
LIST OF FIGURES	xiii
LIST OF TABLES	xiv
LIST OF ABBREVIATIONS AND SYMBOLS	xx
CHAPTER 1 INTRODUCTION.....	1
1.1 Historical, Cultural, and Geographic Background of Karen	1
1.1.1 Overview.....	1
1.1.2 General Information on the Karen.....	2
1.1.3 Geographical Location.....	2
1.1.4 Population	5
1.1.5 Linguistic Classification of Karen and Subgroups.....	11
1.1.6 General Ethnography	15
1.1.7 Agriculture	15
1.2 Literature Review.....	16
1.2.1 Phonology of Central Karenic languages	16
1.2.1.1 Eastern and Western Kayah.....	16
1.2.1.2 The Central Karenic Languages	19
1.2.1.2.1 Eastern Bwe	20
1.2.1.2.2 Western Bwe	22
1.2.1.3 Geba	24
1.2.2 Phonology of Northern Karenic language	27
1.2.2.1 Kayan (Padaung).....	27
1.2.2.2 The phonology of Kayan (Padaung)	27
1.2.3 Sgaw Karen in Moulmein and other Karen dialects.....	29
1.2.3.1 Pho (Pwo).....	29

12.3.2 Palachi	31
1.3 The Goal of the study	33
1.4 The Scope of the study	34
1.5 The Benefits of the study	34
1.6 Methodology	34
CHAPTER 2 THE PHONOLOGY OF BWE	39
2.1 Introduction	39
2.1 Phonemes	39
2.2.1 Bwe Consonant Phonemes	39
2.2.1.1 Consonant Phoneme Contrasts	43
2.2.1.2 Consonant Cluster	49
2.2.2 Bwe Vowel Phonemes	52
2.2.2.1 Co-occurrence Charts	54
2.2.2.2 Vowel Phoneme Contrasts	57
2.2.3 Bwe Tones	62
2.2.3.1 Co-occurrence Charts	64
2.2.3.2 Tone Contrasts	68
2.2.3.3 Allotones	68
2.3 Syllable Structure	69
2.3.1 Major Syllables	69
2.3.2 Minor Syllables	74
2.4 Conclusion	76
2.4.1 Phonemes	76
2.4.2 Syllable Structure	77

CHAPTER 3 THE PHONOLOGY OF GEBA 1	79
3.1 Introduction.....	79
3.2 Phonemes.....	79
3.2.1 Geba 1 Consonant Phonemes.....	79
3.2.1.1 Consonant Phoneme Contrasts	84
3.2.1.2 Allophones.....	85
3.2.1.3 Consonant Clusters	91
3.2.2 Geba 1 Vowel Phonemes.....	94
3.2.2.1 Co-occurrence Charts.....	95
3.2.2.2 Vowel Phoneme Contrasts	98
3.2.2.3 Allophones.....	99
3.2.3 Geba 1 Tones.....	103
3.2.3.1 Co-occurrence Charts.....	104
3.2.3.2 Tone Contrasts.....	109
3.2.3.3 Allotones	110
3.3 Syllable Structure.....	110
3.3.1 Major Syllables.....	111
3.3.2 Minor Syllables	114
3.4 Conclusion	116
3.4.1 Phonemes	117
3.4.2 Syllable Structure.....	118
CHAPTER 4 THE PHONOLOGY OF GEBA 2	119
4.1 Introduction.....	119
4.2 Phonemes.....	119
4.2.1 Geba 2 Consonant Phonemes.....	119
4.2.1.1 Consonant Phoneme Contrasts	123
4.2.1.2 Consonant Cluster.....	129

4.2.2 Geba 2 Vowel Phonemes	132
4.2.2.1 Co-occurrence Charts.....	133
4.2.2.2 Vowel Phoneme Contrasts	136
4.2.3 Geba 2 Tones.....	140
4.2.3.1 Co-occurrence Charts.....	141
4.2.3.2 Tone Contrasts.....	146
4.3 Syllable Structure.....	146
4.3.1 Major Syllables.....	146
4.3.2 Minor Syllables	149
4.4 Conclusion.....	150
4.4.1 Phonemes	151
4.4.2 Syllable Structure	152
CHAPTER 5 COMPARISON OF PHONOLOGY OF BWE, GEBA 1, GEBA 2	153
5.1 Introduction.....	153
5.2 Bwe, Geba 1 and Geba 2 consonant comparison.....	162
5.3 Bwe, Geba 1 and Geba 2 vowel comparison.....	164
5.4 Bwe, Geba 1 and Geba 2 tone comparison	167
5.5 Bwe, Geba 1 and Geba 2 syllable structure comparison.....	168
CHAPTER 6 CONCLUSION.....	170
6.1 Summary.....	170
6.1.1 Bwe.....	170
6.1.1.1 Phonemes.....	170
6.1.1.2 Syllable Structure.....	172

6.1.2 Geba 1	172
6.1.2.1 Phonemes.....	173
6.1.2.2 Syllable Structure.....	174
6.1.3 Geba 2.....	175
6.1.3.1 Phonemes.....	175
6.1.3.2 Syllable Structure.....	176
6.2 Comparison of phonology of Bwe, Geba 1, Geba 2	177
6.3 Problem in the study.....	178
6.4 Further Study	178
APPENDIX A - Wordlists	180
APPENDIX B - Geographical Names	193
BIBLIOGRAPHY.....	194

PAYYAP UNIVERSITY

LIST OF FIGURES

Figure 1. Map showing the distribution of Karens in the North of Thailand.	3
Figure 2. Map showing the location of Karen Populations.	6
Figure 3. Map showing the location of Bwe and Geba.....	8
Figure 4. Map showing the location of Bwe 1 and Bwe 2.....	9
Figure 5. Map showing the location of Geba.....	10
Figure 6. Alternate places of Karenic languages within Sino-Tibetan	11
Figure 7. The Sino-Tibetan language stock	12
Figure 8. Karenic language relationship	13
Figure 9. Karenic language relationships.....	14
Figure 10. The data flow diagram in consonant phonological analysis.....	36
Figure 11. The data flow diagram in vowel phonological analysis	37
Figure 12. The data flow diagram in tone phonological analysis	38
Figure 13. The structure of minor syllables in Bwe.....	74
Figure 14. The structure of minor syllables in Geba 1	115
Figure 15. The structure of minor syllables in Geba 2	149

LIST OF TABLES

Table 1. The population of Karen in four major groups in Thailand.....	5
Table 2. The population of Karen.....	7
Table 3. Eastern Kayah consonant inventory.....	17
Table 4. Western Kayah Li consonant inventory.....	18
Table 5. Western Kayah Li vowel inventory.....	19
Table 6. East Bwe consonant inventory.....	21
Table 7. East Bwe vowel inventory.....	21
Table 8. West Bwe consonant inventory.....	23
Table 9. West Bwe consonant clusters.....	23
Table 10. West Bwe vowel inventory.....	24
Table 11. Geba consonant inventory.....	25
Table 12. Geba consonant clusters.....	25
Table 13. Geba vowel inventory.....	26
Table 14. Kayan(Padaung) consonant inventory.....	28
Table 15. Kayan (Padaung) vowel inventory.....	28
Table 16. Pho consonant inventory.....	29
Table 17. Moulmein Pho, and Bassein Pho vowel inventories.....	30
Table 18. Moulmein Pho, and Bassein Pho vowel inventories.....	30
Table 19. Palachi consonant inventory.....	31
Table 20. Palachi consonant inventory.....	32

Table 21. Palachi consonant inventory	32
Table 22. Palachi vowel inventory.....	33
Table 23. Palachi vowel inventory.....	33
Table 24. Raw consonant phone chart in Bwe and frequency counts	40
Table 25. The frequency of consonants in Bwe words.....	41
Table 26. Consonant phoneme chart in Bwe and frequency counts.....	45
Table 27. Co-occurrence of the first consonant, second consonant and third consonant in the consonant cluster of Bwe	51
Table 28. East Bwe vowel inventory	52
Table 29. West Bwe vowel inventory.....	52
Table 30. Raw vowel phone chart in Bwe and frequency counts.....	53
Table 31. The initial element and vowel in Bwe	54
Table 32. The medial element and vowel in Bwe.....	55
Table 33. Vowels in major syllables with no onset in Bwe and frequency counts.....	57
Table 34. Vowel phoneme chart in Bwe and frequency counts	59
Table 35. Raw tone chart in Bwe and frequency counts.....	62
Table 36. Phonemic tone chart in Bwe and frequency counts.....	63
Table 37. The co-occurrence of initial/medial consonants and tones in Bwe	65
Table 38. The co-occurrence of vowels and tones in Bwe	67
Table 39. The co-occurrence of consonants and vowels of major syllables in Bwe ...	70
Table 40. The initial, second and third elements of major syllables in Bwe	72
Table 41. The initial elements of minor syllables in Bwe	75

Table 42. Consonant phoneme chart in Bwe and frequency counts	76
Table 43. Vowel phoneme chart in Bwe and frequency counts	77
Table 44. Phonemic tone chart in Bwe	77
Table 45. Geba consonant inventory.....	80
Table 46. Raw consonant phone chart in Geba 1 and frequency counts	81
Table 47. The frequency of consonants in Geba 1 words.....	82
Table 48. Consonant phoneme chart in Geba 1 and frequency counts	86
Table 49. Co-occurrence of the first consonant, and second consonant in consonant clusters in Geba 1	93
Table 50. Geba vowel inventory.....	94
Table 51. Raw vowel phone chart in Geba 1 and frequency counts.....	94
Table 52. The initial element and vowel in Geba 1	95
Table 53. The medial element and vowel in Geba 1	96
Table 54. Vowel phoneme chart in Geba 1 and frequency counts	100
Table 55. Raw tone chart in Geba 1 and frequency counts	104
Table 56. The co-occurrence of initial/medial consonants and tones in Geba 1	105
Table 57. The co-occurrence of vowels and tones in Geba 1	106
Table 58. Phonemic tone chart in Geba 1 and frequency counts.....	108
Table 59. The co-occurrence of consonants and vowels of major syllables in Geba 1	112
Table 60. Consonant phoneme chart in Geba 1 and frequency counts.....	117
Table 61. Vowel phoneme chart in Geba 1 and frequency counts	117

Table 62. Phonemic tone chart in Geba 1	118
Table 63. Raw consonant phone chart in Geba 2 and frequency counts	120
Table 64. The frequency of consonants in Geba2 words.....	121
Table 65. Consonant phoneme chart in Geba 2 and frequency counts.....	125
Table 66. Co-occurrence of the first consonant and second consonant in consonant clusters in Geba 2	131
Table 67. Raw vowel phone chart in Geba 2 and frequency counts.....	132
Table 68. The initial element and vowel in Geba 2	133
Table 69. The medial element and vowel in Geba 2.....	134
Table 70. Vowels in major syllables with no onset in Geba 2 and frequency counts	136
Table 71. Vowel phoneme chart in Geba 2 and frequency counts	137
Table 72. Raw tone chart in Geba 2 and frequency counts	141
Table 73. The co-occurrence of initial/medial consonants and tones in Geba 2	141
Table 74. The co-occurrence of vowels and tones in Geba 2	143
Table 75. Phonemic tone chart in Geba 2 and frequency counts.....	144
Table 76. The co-occurrence of consonants and vowels of major syllables in Geba 2.....	147
Table 77. Consonant phoneme chart in Geba 2 and frequency counts.....	151
Table 78. Vowel phoneme chart in Geba 2 and frequency counts	152
Table 79. Phonemic tone chart in Geba 2.....	152
Table 80. Eastern Kayah consonant inventory.....	153

Table 81. Western Kayah Li consonant inventory.....	155
Table 82. Western Kayah Li vowel inventory.....	155
Table 83. East Bwe consonant inventory.....	157
Table 84. East Bwe vowel inventory.....	157
Table 85. West Bwe consonant inventory.....	158
Table 86. West Bwe consonant clusters.....	159
Table 87. West Bwe vowel inventory.....	159
Table 88. Geba consonant inventory.....	160
Table 89. Geba consonant clusters.....	161
Table 90. Geba vowel inventory.....	161
Table 91. Kayah Li consonant inventory.....	161
Table 92. Kayah Li vowel phonemes.....	162
Table 93. Consonant comparison of Bwe, Geba 1 and Geba 2 and frequency counts.....	163
Table 94. Vowel comparison of Bwe, Geba 1 and Geba 2 and frequency counts.....	165
Table 95. Tone comparison of Bwe, Geba 1 and Geba 2 and frequency counts.....	167
Table 96. Consonant phoneme chart in Bwe and frequency counts.....	171
Table 97. Vowel phoneme chart in Bwe and frequency counts.....	171
Table 98. Phonemic tone chart in Bwe and frequency counts.....	172
Table 99. Consonant phoneme chart in Geba 1 and frequency counts.....	173

Table 100. Vowel phoneme chart in Geba 1 and frequency counts173
Table 101. Phonemic tone chart in Geba 1 and frequency counts.....174
Table 102. Consonant phoneme chart in Geba 2 and frequency counts175
Table 103. Vowel phoneme chart in Geba 2 and frequency counts176
Table 104. Phonemic tone chart in Geba 2 and frequency counts.....176

PAYYAP UNIVERSITY

LIST OF ABBREVIATIONS AND SYMBOLS

C	Consonant
C ₁	Initial Consonant
C ₂	Second member of consonant cluster
C ₃	Final consonant
V	Vowel
vd.	Voiced
vl.	Voiceless
[]	Phonetic transcription
/ /	Phonemic transcription
[..]	Breathy voice
[.]	Syllable boundary
T	Tone
l	Low Tone
↑	Mid Tone
↑	High Tone
↑̎	Half-High Rising Tone