CHAPTER 5 COMPARISON OF PHONOLOGY OF BWE, GEBA 1, GEBA 2

5.1 Introduction

In this section, the previous studies of Central Karenic languages including Solnit (1986), Bryant (1993), Bennett (1997), Saw Lar Baa (2001) are compared with this research to show their similarities and differences in three Central Karenic languages.

Solnit (1986) describes the phonology and grammar of Eastern Kayah (Red Karen) The phonological description of the Eastern Kayah language is as follows:

The syllable structure is $(C_1)(C_2)^T(G)V$

C₁ is any consonant

C₂ is a liquid

G is a glide

V is a vowel

T is a tone

Consonant Phonemes: There are 21 single consonant phonemes, as follows:

	Labial	Dental	Alveolar Palatal	Retroflex	Velar	Glottal
VI. Unasp	р	t	c		k	(?)
Vl. Asp	p ^h	t ^h "	c ^h		k ^h	<u> </u>
Voiced	b	d	(j)			
Nasal	m	n			<u>_ŋ</u>	<u> </u>
Voiceless Fricative	Q	S				h
Voiced Continaunt	W	[(j)	r		

Table 80: Eastern Kayah consonant inventory (Solnit 1986: 14)

Vowel phonemes: There are 10 single vowels /i e ε Λ a ш γ u o o/.

Tones: There are 4 major tones and one marginal tone.

Mid tone

Low level tone

Low falling tone

High tone

High falling tone

Bryant (1993) gathered data from speakers of the Kyebogyi dialect area who have come to reside in Thailand. The phonological description of the Western Kayah Li language is as follows:

There are four syllable types in Western Kayah Li: V, CV, CCV and CCCV.

C is any consonant

V is a vowel

Bryant noted that the nucleus of the syllable can occur without consonantal margins, or it can be preceded by a consonant or a consonant cluster. Closed syllables are never found in Kayah, though glottals can occur after vowels. The CV syllable pattern is by far the most common.

Consonant Phonemes: There are 22 single consonant phonemes, as follows:

		Labial	Inter Dental	Alveolar	Alv retroflex	Alv Pal	Palatal	Velar	Glottal
	VI	р		t				k	
Plosive	Vl asp	ph		th				k ^h	
	Vd	b		d					
Affricate	VI					tš	X .]
	VI		θ		ş				h
Fricative	Vl asp			sh					-
	Vd	V		Z					
Nasal	Vd	m		n			Y	ŋ	
Тар				ŗ					
Laterai			-	1					
Approximant	vd	W				7	j		

Table 81: Western Kayah Li consonant inventory (Bryant 1993: 5)

Vowel phonemes: There are 9 single vowels.

	FRO	NT	CENT	RAL	BACK		
	Unrounded	Rounded	Unrounded	Rounded	Unrounded	Rounded	
Close	i		ə		ш	u	
Half-Close	е					0	
Half-Open	3					0	
Open			a				

Table 82: Western Kayah Li vowel inventory (Bryant 1993: 14)

All vowels can also be breathy. The following dipthongs /m^e/ are represented in the Western Kayah Li Language.

Tones: There are 4 tones in the Western Kayah Li language.

Low tone

Mid tone

Regular tone (no marking)

High tone

Saw Lar Baa (2001) studied the phonological description of Bwe 1, Bwe 2 and Gebah. The phonological description will be shown following a summary of each language. Saw Lar Baa noted that Bwe is spoken in northwestern Karen State, western Kayah State, and the adjoining areas of Shan State. There are two main divisions of Bwe: East and West Bwe.

According to Saw Lar Baa's analysis, the phonological description of the East Bwe language is as follows:

The syllable structure is CVT and CCVT

C is any consonant

V is a vowel

T is a tone

Saw Lar Baa described the onset of a major syllable in East Bwe as being composed of an initial consonant, an optional medial consonant (most commonly the labial approximant /w/, or the lateral /l/, or rarely the voiced velar fricative / x / or alveolar approximant /r/). The nucleus is composed of a vowel. The final aspect in the syllable structure is tone. Every major syllable carries a tone. The syllable is always open.

Minor syllables are always stressless, and never bear a distinctive tone. Minor syllables are composed of an initial consonant and a mid central vowel /ə/. The initial consonant of a minor syllable is generally a fortis unaspirated stop /p t k/, though initial /l/, /s/, and / d3 / are also found.

Consonant Phonemes

The inventory of East Bwe consonants is shown in Table 83.

		Labial	Dental	Alveolar	Postalv	Velar	Glottal
	fortis vl	р	ţ	t		k	?
Plosive	fortis asp	p ^h		į h		k ^h	
	lenis vd	ь		d		g	
Implesive	lenis vd	б		ď		1	
A CC * +	fortis vl				· tS		
Affricates	lenis vl				d3		
T	fortis vl			s s ^h	Si	(x)	h
Fricative	lenis vd			(z)	\	(Y)	
Ness	voiced	m		n		(ŋ)	
Nasal	voiceless	(ធ្នា)		(ů)			
Lateral				L			
Lateral	Fricative		_	4)		
Trill				(r)	7		
Approxima	int	w			j		

Table 83: East Bwe consonant inventory (Saw Lar Baa 2001: 40)

Vowel phonemes: The inventory of eastern Bwe vowels is shown in the following table.

	Front	Central	Back
	Unrounded	Unrounded	Rounded
Close	i	ш	u
M:4 A	е	ə	0
Mid	3		၁
Open		а	

Table 84: East Bwe vowel inventory (Saw Lar Baa 2001: 42)

Tones: According to Saw Lar Baa, East Bwe has five different pitches. There are also high falling and low falling tones, which co-occur with creaky voice quality. Tone in minor syllables is non-contrastive and realized as mid tone.

The phonological description of the western Bwe language is as follows:

The syllable structure is CVT, CCVT and CCVVT

C is any consonant

V is a vowel

T is tone

The syllable of West Bwe is composed of an initial consonant and an optional medial consonant, (most commonly the labial approximant /w/, the lateral /l/ or rarely the alveopalatal /r/ or alveolar approximant /j/.) When clusters are present, the initial consonant is usually a stop. The nucleus is composed of a vowel or a diphthong. The syllable is always open.

Minor syllables are always stressless, and never bear a distinctive tone. Minor syllables are composed of an initial consonant and a mid central vowel /ə/. The initial consonant of a minor syllable is generally a stop, though initial /l/ and /dʒ/ are also found.

Consonant Phonemes: The inventory of West Bwe consonants is shown in the following table.

		Labial	Dental	Alveolar	Postalv	Velar	Glottal
	fortisvl asp	p ^h		t ^h		k ^h	
Plosive	fortis vl	p	ţ	t		k	?
	lenis vd	b		d		g	
	lenis vd impl	б		ď			
Affricate	fortis vl	7			ιſ		
Ameate	lenis vl				dЗ		
17.147	fortis vl			(s)	si	Х	h
Fricative	lenis vd			(z)		γ,	
Nasal	······································	m		n		(ŋ)	
Leteral		1		1			
Approxima	nt	w		(r)	j		

Table 85: West Bwe consonant inventory (Saw Lar Baa 2001: 45)

Consonant clusters: Initial clusters (C_1C_2) noted in the western Bwe data are shown in the table below.

pw		bw	бw	ţw	đw	t ^h w	mw	nw	lw	jw	s ^j w	xw	kw	k ^h w	gw
рì	p ⁿ l	bi	βl	_									ki	k ^h l	gl
				ır, tr		.					4	1		kr	
рj		bj									6		/		

Table 86: West Bwe consonant clusters (Saw Lar Baa 2001: 47)

Vowel phonemes: There are 10 vowel phonemes. The western Bwe vowel inventory is shown in Table 87.

	<u> </u>		D = =1-
	Front	Central	Back
	Unrounded	Unrounded	Rounded
	i		u
High		Y	Ū
	e	ə	0
Mid	ε	Y	0
Low		a	

Table 87: West Bwe vowel inventory (Saw Lar Baa 2001: 47)

Tones: There are five level tones in western Bwe.

The phonological description of the Geba language is as follows:

The syllable structure is CVT, CCVT and CCVVT

The syllable of Geba is composed of an obligatory consonant followed by an optional medial consonant. The nucleus can be any vowel. As for diphthongs, they are rare and occur in only borrowed words. Tone T maps over vocalic elements.

Minor syllables are composed of an initial consonant and a central mid-open vowel $/ \ominus /$. $/ \ominus /$ is present only in minor syllables. The initial consonant is typically a stop; however, the lateral /l/, and the voiceless lenis affricate /d/3/ also appear as the initial consonant of minor syllables.

Consonant Phonemes: The inventory of Geba consonants is shown in Table 88.

		Labial	Dental	Alveolar	Postalv	Velar	Glottal
	fortis vl asp	ph		th		k	
Plosive	fortis vl	р	ţ	1		k	?
	lenis vd	ь		ď		(g)	
Implosive	lenis vd	В		ď	/		
	fortis vl				ŧζ		
Affricate	lenis vi				(dg)		
	fortis vl asp			s ^h			
Fricative	lenis vl			S	2	(x)	h
	lenis vd					γ	(ĥ)
Nasal	voiced	m		n		(ŋ)	
INASAI	voiceless	(m)		(<u>n</u>)			
Trill	<u> </u>	V		(r)			
Approxima	ant	w		1	J		
Lateral Fri	cative			4			

Table 88: Geba consonant inventory (Saw Lar Baa 2001: 50)

Consonant clusters: Initial culsters (C₁C₂) attested in the Geba language are shown in table 89.

pw		bw	бw	tw	thw	ıw	mw	nw	lw	sw		xw	kw	k ^h w		hw
pl	p ^h !	bl	61					-					kl	k ^b !	gl	
pr	<u> </u>			tr	t ^h r	<u> </u>				sr			kr			
											s _p x	!				

Table 89: Geba consonant clusters (Saw Lar Baa 2001; 51)

Vowel phonemes: The Geba vowel inventory is shown in Table 90.

	Front	Central	Back
	Unrounded	Unrounded	Rounded
High	i	ш	u
	e	ə	0
Mid	ε		၁
Low		2	

Table 90: Geba vowel inventory (Saw Lar Baa 2001: 52)

Tones: There are only three level tones in Geba: high tone, mid tone and low tone.

Fraser Bennett (1997) studied the phonology of Western Kayah Li. He noted that there are 20 consonant phonemes in Kayah Li. He noted that Kayah Li has three series of stops: aspirated, voiceless unaspirated, and voiced. It lacks palatal and velar voiced stops. In addition, Kayah Li has a series of nasals, an alveolar fricative, two liquids and two glides, in addition to the glottal stop? and glottal fricative h.

	Labiai	Alveolar	Palatal	Velar	Glottal
Aspirated stops	ph	t ^h	sh	k ^h	
Clear stops	p	t	tç	k	, 7
Voiced stops	b	d			
Nasals	m	n		ŋ	
Voiceless fricatives		S		"	h
Approximants	w	l,r	j		

Table 91: Kayah Li consonant inventory (Fraser Bennett 1997: 3)

Fraser listed nine simple vowels and six diphthongs as follows.

	Front	Back	Back
		Unrounded	Rounded
High	i	ξ(I	u
Mid	е	Υ	0
Low	ε	a	5

Diphthongs			
ie	ur	υo	
ia	ui	ue	

Table 92: Kayah Li vowel phonemes (Fraser Bennett 1997: 4)

Fraser Bennett reported that Kayah Li has three level tones: high, mid and low. A high rising, glottalized tone exists in a small number of words, probably less than twenty.

5.2 Bwe, Geba 1 and Geba 2 consonant comparison

In Geba 1, there are 27 raw consonant phones. After analyzing the data, it was determined that there are two consonants that have allophonic variant (as in section 3.2.1.2). From the phonological rules and the frequency counts in Table 47, [x] is allophone of the phoneme /h/, [G] is allophone of the phoneme /j/. So there are 25 consonant phonemes in Geba 1 as follows: /ph, th, kh, p, t, j, k, s, ?, b, d, sh, f^h , M, θ , h, te, teh, m, n, f^h , r, w, j, l/.

The following table displays the consonant phones of each dialect. Note that the table below indicates phonetic similarities among phonemes.

	Bwe	Geba 1	Geba 2
Bilabial	p ^h (24)	p ^h (25)	p ^h (35)
	p (35)	p (35)	p (33)
	b (39)	b (42)	b (30)
	m (82)	m (47)	m (57)
Labial-Velar	m (5)	w (8)	A\(10)
	w (21)	w (15)	w (15)
Dental	θ (75)	θ (50)	θ (57)
	th (41)	t ^h (45)	th (27)
	t (66)	1 (74)	ı (63)
	d (41)	d (45)	d (42)
Alveolar	s ^h (1)	sh (48)	sh (29)
		s (29)	s (10)
	n (37)	n (27)	n (34)
	ŧ (1)	1 (10)	
Alveolar	1 (77)	1 (58)	l (64)
	r(1)	r (2)	r (7)
Post-alveolar	J ^h (25)	∫ ^h (7)	∫ ^h (13)
			z (8)
Alveolo-Palatal		tç ^h (1)	te ^h (15)
	t¢ (17)	t¢ (1)	tc (13)
	j (17)	j (20)	j (12)
Palatal	c (21)	-	c (11)
	j (4)	յ (3)	
Velar	k ^h (47)	k ^h (47)	k ^h (33)
	k (53)	k (59)	k (45)
Glottal	? (42)	? (32)	? (32)
	h (23)	h (21)	h (20)

Table 93: Consonant comparison of Bwe, Geba 1 and Geba 2 and frequency counts

In this study, we conclude that the Central Karenic languages include 25 different consonant sounds. As the above table shows, not all the language have all 25 phonological units. Bwe lacks a voiceless alveolar fricative. Geba 2 has a voiced alveolo-palatal fricative. Bwe lack an aspirated alveolo-palatal affricate and a voiced alveolo-palatal fricative. Bwe and Geba 2 both have a voiceless palatal plosive, that Geba 1 lacks...

Comparing the inventories of Bwe, Geba 1 and Geba 2 with the consonant phonemes of Western Kayah Li by Fraser Bennett, Eastern Kayah Li by Solnit, Western Kayah Li by Bryant, and Eastern and Western Bwe and Geba by Saw Lar Baa, it was determined that the inventories of Bwe, Geba 1 and Geba 2 compared with Western Kayah Li are quite similar. The Western Kayah Li lacks a voiceless labial-velar fricative, a voiceless dental fricative, an alveolar lateral fricative, an aspirated post alveolar fricative, an aspirated alveolo-palatal affricate and a voiceless palatal plosive. Bwe, Geba 1 and Geba 2 lack a voiced velar nasal.

5.3 Bwe, Geba 1 and Geba 2 vowel comparison

In the Bwe word lists there are 22 single vowel phones and 1 diphthong. Bwe vowel phones function as the syllable nucleus. All vowels can also be breathy except /tu/, and / ∞ /. There are two single vowels and one diphthong that occurs with nasalization , as follows, / \tilde{e} /, / \tilde{g} /, and / \tilde{a} i/. From Table 30, / \tilde{c} , \tilde{g} , tu, \tilde{g} i / are very low in frequency and have been assigned to residue. Even though there are only two examples of / \tilde{g} /, they will be included in this study, since they maintain a symmetry of similarity to other languages. So there are 10 clear vowel phonemes and 9 breathy vowel phonemes in the Bwe word list as follows: / \tilde{g} , $\tilde{g$

In this study Gabe 1 has 23 single vowel phones. All vowels can also be breathy. There are two single vowels which are occur with nasalization as follows /ē/, and /ō/. It is noted that there is one vowel that has allophonic variants (as in section 3.2.2.2). From the phonological rules and the frequency counts, /ē, ō/ are very low

frequency and have been assigned to residue. Even though there are only two examples of /a/, this study will include them, since it maintains a symmetry of similarity to other languages. So there are 10 clear vowel phonemes and 10 breathy vowel phonemes in the Geba 1 word lists.

In Geba 2, there are 27 vowel phones including one diphthong. All vowels can be breathy. There are two single vowels which occur with nasalization as follows, / i/, and /ā/. Two single vowels occur with both breathiness and nasalization: /ii/ and /ā/. In this study one diphthong /ie/ was found. From Table 30, /tti, ā, ā, i, ii, ie/ are very low in frequency and have been assigned to residue. Even though there are two examples of /a/, in this study, it will be included since it keeps a symmetry of similarity to other languages. So there are 10 clear vowel phonemes and 10 breathy vowel phonemes in the Geba 2 word lists.

The following table displays the vowel comparison of Bwe, Geba 1 and Geba 2 which are Central Karenic languages.

	Bwe	Geba 1	Geba 2
	i (79)	i (77)	i (96)
	.j (9)	j,(13)	.j (23)
-	ı (29)	1 (25)	1 (23)
-	.(2)	ī (9)	ı (13)
	e (30)	e (45)	e (23)
	e (23)	g (31)	<u>e</u> (18)
front	ε (94)	ε (100)	ε (93)
	<u>e</u> (89)	ε (61)	<u>ε</u> (53)
	a (140)	a (109)	a (98)
	a (38)	a (47)	a (49)
	œ (2)	œ (4)	œ (14)
		œ (3)	œ (4)

Table 94: Vowel comparison of Bwe, Geba 1 and Geba 2 and frequency counts

	Bwe	Geba 1	Geba 2
	ల్ల (2)	ə (1)	ð (1)
Central	ə (44)	ə (38)	ə (8)
Back	u (68)	u (50)	u (58)
	ա (39)	ụ (30)	<u>ų</u> (38)
	o (86)	o (87)	o (63)
	ი (22)	o (18)	ი (12)
	o (83)	p (66)	o (66)
	ე (21)	ე (22)	ე (16)

Table 94: Vowel comparison of Bwe, Geba 1 and Geba 2 and frequency counts

From this study, it can be concluded that Central Karenic languages include 10 different vowel positions, but 20 different vowel phonemes. The above table shows that all the languages have all 20 phonological units. All vowels can be breathy except /e/ in Bwc. Generally, the phonetic vowel inventories of Bwe, Geba 1 and Geba 2 are similar.

Comparing the inventories of Bwe, Geba 1 and Geba 2 with the vowel phonemes of Western Kayah Li by Fraser Bennett, Eastern Kayah Li by Solnit, Western Kayah Li by Bryant, and Eastern and Western Bwe and Geba by Saw Lar Baa. It was found that the inventories of Bwe, Geba 1 and Geba 2 and Western Kayah Li (which was analyzed by Bryant) are quite similar. Bryant noted that there are 9 single vowels in Western Kayah Li / i, ɛ, e, a, w, u, o, o/. All vowels can also be breathy. The Western Kayah Li lacks an unrounded near-close front vowel and a rounded open-mid front vowel. Bwe and Geba 2 have a few examples of /w/. Geba 1 lacks an unrounded close back vowel. So in this study /w/ could has been assigned to residue.

5.4 Bwe, Geba 1 and Geba 2 tone comparison

In the Bwe word lists, there are 10 tones. From Table 35, only mid and high tones had very high frequency counts, and low tone had a medium occurrence. Half-high rising tone had a low occurrence but this study will retain it since it maintains a symmetry of similarity to other languages. The other 6 tones are very low in frequency and have been assigned to residue based on the frequency counts and phonetic similarities. This study concludes that there are 4 tones in Bwe.

In Geba 1, 14 tones were found in the data. From Table 55, only mid and high tones had a very high frequency counts, and low tone and half-high rising tone had medium occurrences. The other 10 tones are very low in frequency and have been assigned to residue based on the frequency counts and phonetic similarities. This study concluded that there are 4 tones in Geba 1.

In Geba 2, 7 tones were found in the data. From Table 75, only mid and high tones had a very high frequency counts, and the low tone had a medium occurrence. Half-high rising tone had a low occurrence. This study will retain it since it shows a symmetry of similarity to other languages. The other 3 tones are very low frequency and have been assigned to residue based on the frequency counts and phonetic similarities. This study concludes that there are 4 tones in Geba 2.

The following table displays the tone comparison of Bwe, Geba 1 and Geba 2 which are Central Karenic languages.

	Bwe	Geba 1	Geba 2
Low	J (60)	J (55)	J (52)
Mid	l (547)	1 (523)	1 (555)
High	1 (203)	1 (104)	٦ (187)
Half-High rising	17 (15)	11 (46)	11(1)

Table 95: Tone comparison of Bwe, Geba 1 and Geba 2 and frequency counts

This study concludes that the Central Karenic languages include 4 different tones. The above table shows that all these language have all 4 phonological units, although Bwe and Geba 2 had very low frequencies of the half-high rising tone. This study proposes that the half-high rising tone has almost died out in Bwe and Geba 2.

The tones of Bwe, Geba 1 and Geba 2 and the tones of Western Kayah Li are quite similar. Bryant describes 4 tones in Western Kayah Li: low tone, mid tone, regular tone (no marking), and high tone. Bennett found 3 tones in Western Kayah Li: low tone, mid tone and high tone. He noted that a high rising, glottalized tone exisits in a small number of words, probably less than twenty. Bwe, Geba 1 and Geba 2 have 4 tones: low tone, mid tone, high tone and half-high rising tone.

5.5 Bwe, Geba 1 and Geba 2 syllable structure comparison

Bryant claims that there are four syllable types in Western Kayah Li: V, CV, CCV, CCV. The nucleus of the syllable can occur without consonantal margins, or it can be preceded by a consonant or a consonant cluster. Closed syllables are never found in Kayah Li. Solnit analyses the syllable structure of Eastern Kayah Li in the same way as Bryant. He agrees that the four syllable types are V, CV, CCV, and CCCV.

According to Saw Lar Baa's analysis of East Bwe, West Bwe and Geba, the syllable structures are divided up into 2 types: major structure and minor structure. The major syllable carries a tone, but the minor syllable does not. The major syllables in East Bwe are composed of an initial consonant and an optional medial consonant. The nucleus is composed of a vowel. The final aspect in the syllable structure is tone. West Bwe and Geba have the same syllable structures: CVT, CCVT and CCVVT. The major syllables of West Bwe and Geba are composed of an initial consonant and an optional medial consonant. The nucleues is composed of a vowel or diphthong. They carry tone in the final aspect. The minor syllables in West Bwe and Geba are always stressless, and never bear a distinctive tone. The minor syllables are composed of an initial consonant and a vowel.

Bennett also studied the phonology of Western Kayah Li. He determined 2 types of syllable structures. Saw Lar Baa agrees with him. The major syllable carries a tone, but the minor syllable does not.

Bwe, Geba 1 and Geba 2 structures are quite similar. These languages distinguished between major syllables and minor syllables as Saw Lar Baa and Bennett's analysis of syllable structure. The major syllable of these languages is always open, without any coda. Onsets are not required. The initial consonant may be followed by one consonant. This study it was concluded that the CV syllable pattern is by far the most common in Central Karenic languages.

In the minor syllable structure of Bwe, Geba 1 and Geba 2, the schematic structure is (C)V. Onsets are not required. Minor syllables with onsets generally have a /ə/nucleus. Onsetless minor syllables always have /a/nucleus.