Verb Stem Alternation in Vaiphei

Jesse Prichard
Portland State University

Verbal Stem Alternation in Vaiphei

by

Jesse Andrew Prichard

A thesis submitted in partial fulfillment of the
requirements for the degree of

Master of Arts
in
Teaching English to Speakers of Other Languages

Thesis Committee:
Tucker Childs, Chair
Jennifer Mittelstaedt
Lynn Santelmann

Portland State University
2018

Abstract

This thesis describes the form and function of verb stem alternations (VSAs) in Vaiphei, a Kuki-Chin (KC) language belonging to the larger Tibeto-Burman branch of the Sino-Tibetan language family. In the existing literature on Vaiphei and Kuki-Chin verb stem alternations, there is no treatment of the form and function of Vaiphei verb stem alternations and how they may be used in classifying Vaiphei in the broader Northern Kuki-Chin language family. I document the form and function of Vaiphei verb stem alternations, showing how these compare to other Northern Kuki-Chin languages and where to classify Vaiphei in Northern Kuki-Chin.

Participants were selected based on their knowledge of Vaiphei and English and their access to the internet. These subjects participated by completing questionnaires translating English sentences into Vaiphei. Data was collected using Voice over Internet Protocol (VoIP) platforms such as Skype and WhatsApp.

Vaiphei VSAs showed a strong similarity to other Northern KC languages, with forms identical to VSAs in Sizang. Functions of VSAs were largely similar to other Northern KC languages, including valency changes, subordination, nominalizations, and subject focus. Grammaticalization of the verb *piak* 'to give' into a benefactive morpheme, however, shows an innovation in the Vaiphei VSA system.

Acknowledgements

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Vaiphei is a Tibeto-Burman language with about 39,000 speakers according to the most recent Census of India (2001). Most speakers live in or around Churachandpur District of Manipur, India, with other significant populations in nearby Assam, Nagaland, and Mizoram provinces. Vaiphei belongs to the Kuki-Chin (KC) family found in and around the Chittagong Hills of Eastern India, Western Myanmar and Bangladesh. "Kuki" and "Chin" are both exonyms referring to the same group, and the Kuki-Chin name is one of convenience. See Figure 1 for a map of the region.
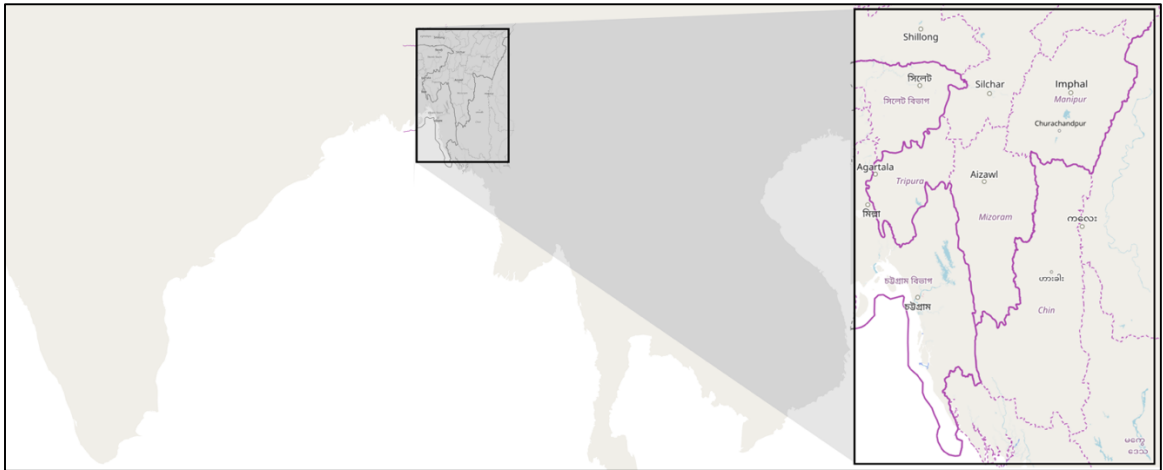
Figure 1 Map of Manipur, Mizoram and Chin State

Vaiphei, along with the rest of the Tibeto-Burman family is highly agglutinative, using post-verbal affixes to show agreement, voice, tense and aspect. One exception to this generalization is found in KC languages: many verbs have an additional stem (and a few have two) that are used in addition to the verbal affixes for signaling such contrasts. These additional verb forms are known as Verb Stem Alternations (VSAs); see the

example in (1) from Vaiphei (Suantak 2016). Please note the conventions for examples

that I will use throughout this thesis.[1]

(1)

	a.	**ne**	-in!		b.	**nek**	-sak	-in!
		eat.I-IMP				**eat.II**-CAUS-IMP		
		Eat!				Make him **eat**!		

VSAS in KC languages have many similarities to verb stem change in English.

Like English verbs, KC verbs have one, two or three distinct stems. These stems are not

phonologically predictable, but do follow a limited set of phonological patterns. These

verb stems are not used for only one function, but each stem may accomplish a variety of

functions. For a summary of VSA aspects from that are analogous to English

morphology, see Table 1.

---

[1] I use the following conventions for language examples. The first line is a phrase in orthography

recognized by the Vaiphei Literature Society. Morphologically bound elements are connected with a

hyphen. Examples taken from outside sources are copied faithfully and may vary from standard

orthography. The second is a morpheme by morpheme gloss. The third line is a free translation of the

phrase. Because of the focus on verb forms in this thesis, verbs will be highlighted by bolding. The verb

stem category will be given by Roman numerals after the verb. For more information, see Appendix A:

Abbreviations & Conventions.

Table 1

A comparison of verb morphology with English and KC verbs

Aspect of VSAs	Mizo example (Chhangte, 1993)	English example
Fusional Morphology	laa~làak	drink~drank~drunk
One, two or three stems	duʔ, laŋ~làn, ʈîî~ʈit~ʈiʔ	hit, think~thought, sink~sank~sunk
Not phonologically predictable	mhââ~mhaa, nââ~nat	bring~brought, sing~sang
Follow patterns	pèèk, laầk, tlààk	brought, sought, fought
Accomplish several functions	kâ-ʈhut-nà 'my seat' kâ-ʈhut-nhàn 'I sat upon it'	I have forgotten, it was forgotten, the forgotten

Below I review the traditional and recent approaches to the sub-classification of the KC language family, as well as the limited documentation of Vaiphei and its closest sister languages. I then review the research on VSAs and their cross-linguistic differences both formally and functionally and provide key definitions for this study. I conclude with an analysis of the theoretical historical background of VSAs.

Chapter 2: Literature Review

This chapter reviews the relevant research in order to establish a context for this study. I begin with a summary of the attempts to sub-classify the KC family and then discuss the documentation of the Vaiphei language. I conclude with a survey of relevant research on VSAs.

Sub-Classification of Kuki Chin

Researchers have made several attempts to classify the languages and subgroups of the KC family. Subclassifications began with the Linguistic Survey of India, listing Northern, Central and Southern Chin groups, as well as an Old Kukish subcategory of Central Chin (Grierson & Konow, 1903). David Bradley's classification of the Tibeto-Burman family lists three branches of Chin: Central, Northern and Southern (Bradley, 1997).

Unlike previous researchers, Peterson (2000) proposes a Peripheral Chin group, with Northern and Southern Chin as subdivisions in this category. VanBik (2009) defends this analysis in his reconstruction of Proto Kuki Chin by identifying the fortition of the phoneme /r/ -> /g/, an innovation shared by both Northern and Southern Chin languages. Contrastive features split this Peripheral group into Northern and Southern Chin, as in Figure 2.
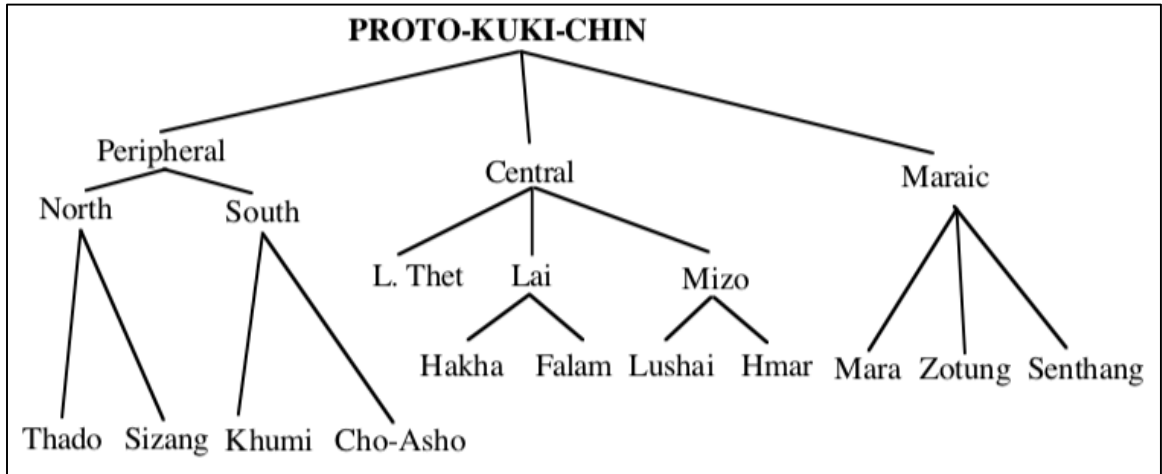
Figure 2 Ken Bik's Schema for Proto-Kuki-Chin (VanBik, 2009)

Within the Northern branch, VanBik proposes two subgroups on the basis of phonological innovations in Sizang. He labels these subgroups as Thadou and Sizang, as Figure 3 shows (VanBik, 2009). VanBik classifies Vaiphei under Sizang, although no sound change evidence to support this claim is presented.

Proto-Northern Chin	
Thado	**Sizang**
Tedim	Guite
Kuki	Nguite
Khuangsai	Siyin
Paite	Vaiphei
Vuite	Zo
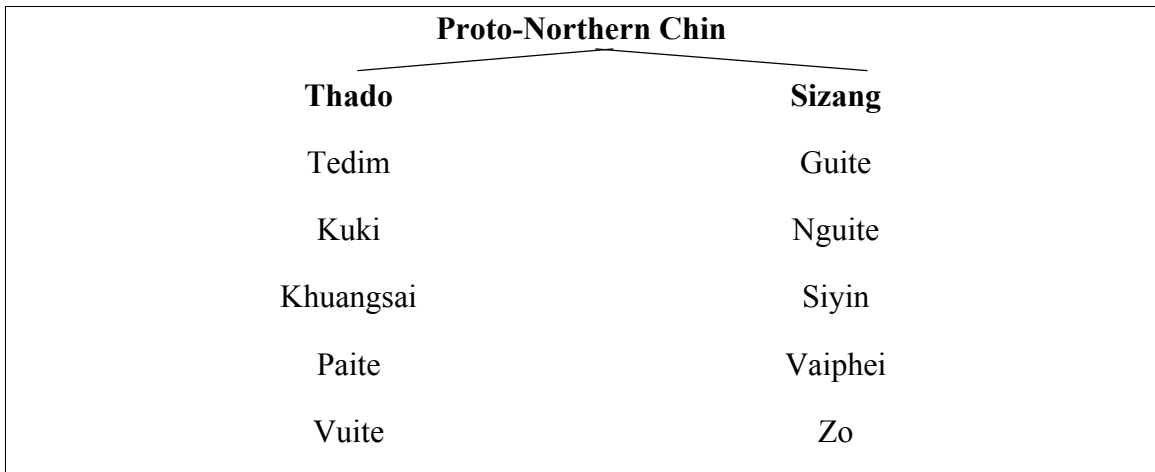
Figure 3 Ken VanBik's schema for the Northern Zo group (VanBik, 2009)

Button (2011) however does not follow Peterson's proposal of a Peripheral subgroup in his reconstruction of Proto-Northern Chin. Instead, Button suggests that PSC

(Proto Southern Chin) and PNC (Proto Northern Chin) independently split from PKC.

Button defends his choice on the grounds of mutual intelligibility of Northern and Central

KC languages and the dissimilarity of Southern KC languages from Northern and

Central. Button uses both sound change as well as morphological comparison as evidence

for his reconstruction. Button also provides evidence for a split between Thadou and

Sizang: vocalic stress assignment. Button notes that diphthongs in KC languages differ

concerning which vowel receives the stress. In particular, Northern KC languages such as

Zo and Tedim stress the end of a vowel nucleus while Sizang and Thado place the stress

on the beginning of the diphthong. See Figure 4 for a spectrogram of the word "piang" in

Tedim and Sizang, where Tedim stresses the end of the diphthong and Sizang stresses the

beginning. Notice the length of the stressed vowel [a] in Tedim (.24s) on the left and

unstressed [ɐ] in Sizang (.12s) on the right. The shorter vowels in each language also

undergo a phonological change similar to reduced vowels in English, with [i] > [ɪ] in

Tedim and [a] > [ɐ] in Sizang.
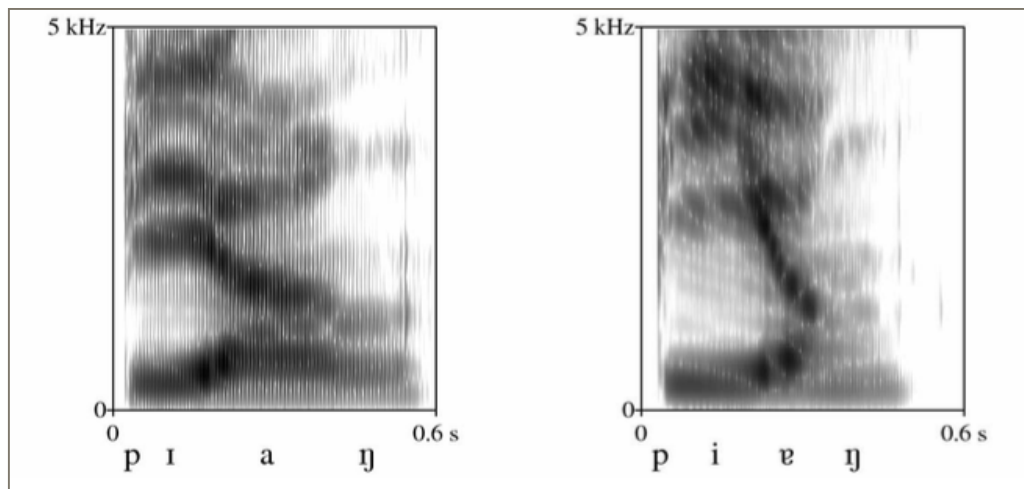
Figure 4 Spectrogram of piang in Tedim (left) and Sizang (right) (Button, 2011).

While further study into Vaiphei may not provide much insight into the existence of a Peripheral subgroup, a study of vocalic stress assignment in Vaiphei could provide shed light on Vaiphei's relation to other Northern KC languages.

Classification of Vaiphei relies on lexicography and documentation. However, few KC languages have received sufficient attention by researchers. Vaiphei is part of a long list of under-documented languages in this part of the world. In the next section, I detail the limited research done on Vaiphei and its closest relatives. Far more research needs to be done in order to fully document and analyze Vaiphei, much more than this thesis alone can cover.

Documentation of Vaiphei and Relatives

The first description of Vaiphei phonology and morphology is a thesis (Suantak, 2013) and is the most substantial work on Vaiphei to date. I had not seen her work, however, until after I began data collection for this present research. Nevertheless, the description of Vaiphei serves as an important work for an introduction to the present study.

Suantak's thesis describes Vaiphei as a Northern KC language. VanBik's Sizanic subgroup is not mentioned in Suantak's classification. The VSA forms described also match the forms attested for other Northern KC languages. Vaiphei Stem II forms are described as typically carrying low tone. One example, however, shows a Stem II verb carrying a falling tone in Vaiphei (Suantak, 2013). Suantak writes that VSAs occur for morphological, syntactic and pragmatic functions, but notes that a complete discussion of

these functions is "beyond the scope of this thesis" (Suantak, 2013). VSA functions in

Vaiphei are mostly described in terms of transitivity, where intransitive verbs use the

Stem II form when made transitive due to an increase in valency (Suantak, 2013).

Other published work on Vaiphei phonology (Suantak, 2010) provides important

information on Vaiphei tones and phonotactics, e.g. a notable lack of any rhotic

phonemes. This differs significantly from the Central Chin languages and is further

evidence for VanBik's classification of Vaiphei in the Northern group, which is

characterized by the /r/ -> /g/ fortition (VanBik, 2009). Table 2 displays the phonological

inventory of Vaiphei from Suantak (2010).

Table 2
Vaiphei Phonological Inventory (Suantak, 2010)

			Vowels			
	i iː				u uː	
		e eː		ɔ ɔː		
			a aː			
			Diphthongs			
	ai	ui		au	iu	
	ei	ɔi		eu	ɔu	
			Consonants			
p	b	t	d	k	g	ʔ
pʰ		tʰ		kʰ		
	m		n		ŋ	
		tʃ				
	v	s	z			h
			l			

A manuscript version of a workshop presentation compares VSA functions from Lai (Central KC), K'Cho (Southern KC) and Vaiphei (Bedell, Mang, Nawl & Suantak, 2013). Several examples of VSA functions cross-linguistically are described, although in the authors' own words, the presentation is far from comprehensive. Vaiphei VSA functions that are discussed include some nominalizations and clause subordination. In all three languages, VSAs accomplish pragmatic as well as syntactic functions, however the presentation notes that not all pragmatic functions are described.

Apart from Suantak's work, no other linguistic research is available on Vaiphei. The lack of scholarship in this language is unwarranted. Clearly, more documentation is needed to describe the language, as well as Vaiphei's place in the KC family.

Verb Stem Alternations

Tibeto-Burman languages are typically agglutinative, with KC languages being exceptional in one way: many verbs have alternate verb stems for grammatical distinctions. This phenomenon is most often referred to as Verb Stem Alternation (VSA). VSAs are phonological alternates (segmental, suprasegmental, or both) that occur in specific syntactic environments. VSAs are not suppletive; they are derived forms from affixes that are no longer productive. Because these affixes have mostly all attrited, the phonology of an alternate verb form is not entirely predictable, but can be categorized into a limited set of patterns.

A cross-linguistic analysis of VSAs in KC languages shows that all VSAs can be sorted into five segmental patterns (King, 2009). While all recorded verbs in KC

languages follow one of these five patterns, a verb may follow one pattern in one language while its cognate follows a different pattern in another language.

Syntactically, VSAs usually complement verbal affixes, but can also carry syntactic or pragmatic information on their own. Not all verbs in KC languages have alternate forms; most in fact are invariable. For the verbs which do alternate, all have an unmarked stem and one or two marked variants. The unmarked verb stem, commonly called Stem I, may occur without verbal affixes. Marked stems (Stem II and sometimes Stem III) occur in a specific subset of syntactic environments, e.g. subordinate clauses, certain nominalizations and valency changes. VSAs are obligatory in these environments in the language. Verbs with only one stem appear as invariant.

Cross linguistically, the syntactic environments which require Stem II are not identical. VSAs function variously to distinguish valency, subordination, nominalization and disambiguation in Wh- questions (King, 2009).

Below I will discuss the Phonology of VSAs, the Morphosyntax of VSAs, cross-linguistic comparision of KC VSAs as well as Historical Reconstruction of VSAs.

Phonology of VSAs

In every KC language, some verbs have two forms (or three) and others only have one. The formal differences between these different verb stems usually involve tone lowering, vowel shortening, or a change to the coda (Suantak, 2010). Stem II & III forms are believed to derive from Stem I forms due to the limited distribution of Stem II tones and codas (Hyman, 2007). While Stem II is derived from Stem I, Stem II forms are not

always phonologically predictable. See Table 3 for an example of two verbs from Thadou

with unpredictable alternations.

Table 3
Unpredictability of Stem II Forms in Thadou (Cover, 2010)

Stem I	Stem II	Coda Change	Gloss
sáang	*sàan*	/ŋ/ ~ /n/, tone change	to be tall
khàng	*khàq*	/ŋ/ ~ /k/	wake up

VSAs do follow a limited set of formal patterns, however. See Table 4 for one

pattern in Lai.

Table 4
Stop-Final Formal Patterns in Lai (Melnik, 1997)

Stem I	Stem II	Coda Change	Gloss
thep	*theʔ*	/p/ ~ /ʔ/	blink
luut	*luʔ*	/t/ ~ /ʔ/, vowel shortening	enter
faak	*faʔ*	/k/ ~ /ʔ/, vowel shortening	ache
fiʔ	*fiʔ*	Invariant	detest

Tonally, Stem I verbs may carry tones that Stem II does not. Typically, Stem II in

KC languages carries a low level tone (Hyman, 2007).

Morphosyntax of VSAs

Verb Stem Alternation has been defined as segmental or tonal alternations in a verb stem that signifies a functional distinction. As has been noted earlier, VSA is not used for a single category of function distinction (e.g. indicative/subjunctive) but for many types of functional distinctions. For this reason, most literature refers to these verb alternations as *Stem I* and *Stem II*. The exact function of VSA is uncertain:

> This alternation is arguably not linked in any straightforward way to a single parameter of variation such as tense, aspect, or transitivity. Instead the alternation appears to be conditioned by a number of lexical and constructional distinctions which may interact with each other. (VanBik, 2009)

I continue to use this terminology in this paper. However, I must consider King's cross-linguistic analysis of VSAs in five KC languages, which suggests altering the nomenclature of *stem I* and *stem II* verb stems to *agentive* and *non-agentive* verb stems (King, 2009). Similarly, *subjecthood* and *non-subjecthood* are used in a description of Thadou for Stem I and Stem II (Cover, 2010). To understand why I am choosing this more generic terminology, some explanation about the cross-linguistic variation of VSAs is required. The following section describes how verbs alternate and are used differently across the KC language family.

Clause subordination is a common use for VSA across the KC language family. This structural change causes the verb in a subordinate clause to alternate, as in (2) in Lai from Kathol &VanBik (2001):

(2)

Mangkio	nih	vok	a	**tsook**	tik-a
Mangkio	ERG	pig	3SG-	**buy.II**	when

When Mangkio **bought** the pig.

Mangkio	nih	vok	a	**tsoo**.
Mangkio	ERG	pig	3SG-	**buy.I**

Mangkio **bought** the pig.

VSAs also frequently signify a change in valency of the verb. Common valency changes in KC languages include causative and benefactive. See (3) for an example in K'Cho from Mang (2006). It should be noted, however, that not all KC languages use VSA in the same way.

(3)

a. A-k'hmó **ip** -ci.   b. Yóng noh a-k'hmó   m'**ih**-ci.

    child   **sleep.I**-NF   Yong   ERG child   CAUS-**sleep.II**-NF

    The child **sleeps/slept.**   Yong puts the child to **sleep**.

VSAs can be used to distinguish different types of nominalization. In Falam Chin, for example, verbs with agentive nominalization take one verb stem and process nominalization taking another. See (4) for examples from Falam, where verbs use Stem I as an agentive nominalization, but Stem II with a non-agentive nominalization.

(4)

a.	Mang	cu	mawtaw	**mawng**tu	a	si.
	Mang	ADV	vehicle	**drive.I**-NMLZ	3SG	DECL

'Mang is a **taxi/bus driver.**'

b.	A		**leh**dan	a	mawi.
	3SG.POSS		**play.II**-NMLZ	3SG	pretty.

His **playing** (style) is pretty.

Lastly, pragmatic reasons are another use of VSA. In some KC languages, VSAs occur in order to shift the focus of a transitive phrase from the subject to the object. This type of focus change has been called "agentive voice" in King (2009), however I will refer to this type of focus change as agentive focus. Other studies have mentioned pragmatic uses of VSA in KC languages (King, 2009 and Bedell, Mang, Nawl & Suantak, 2013) but no exhaustive list has been given.

Cross-linguistic Variations of VSAs

VSAs are a hallmark of KC languages and distinguish this branch from the rest of the Tibeto-Burman family (VanBik, 2009). Not surprisingly then, researchers have focused on VSAs in family: Central languages Lai (Melnik, 1997), Falam (Thuan, 2008), Mizo (Chhangte, 1993); southern language K'Cho (Mang, 2006) and northern languages Thadou (Cover, 2010), Teddim (Henderson, 1965) and Sizang (Stern, 1963).

VSAs differ in form from one language to another, as displayed in Table 5:

Table 5
Formal Differences in Stem Alternations (VanBik, 2009)

	Thado Kuki	Hakha Lai	Gloss
Stem I	tsôo	tsòo	buy
Stem II	tsô?	tsook	buy

Additionally, VSAs differ in function cross-linguistically. King shows that

Central KC languages show an increased tendency to alternate verbs in a number of

additional syntactic categories, while the two Northern KC languages use VSAs for a

more limited set of functions (see

Table 6 for a summary). King also attempts to generalize about the function of VSAs in

Falam Chin, noting that the primary reason of VSAs in Falam is to signal valency

changes (King, 2010).

Table 6

Function of VSAs in KC languages (King, 2009)

Context	Central Chin					Northern Chin	
	Lai			Mizo	Falam	Tiddim	Sizang
	INTR	ANT	ERG				
declarative	I	I	II	I	I	I	I
complement clause	I	I	II	I	I		
causative/benefactive		II		II	I/II	I/II	I/II
core argument indirect object				II	II		
subject question	I	I	II	I	I		
non-subject question	II	II	II	II	I/II		
subject relative	I	I	N/A	I	I		
non-subject relative	II	N/A	II	II	II	II	II
imperative		I		N/A	N/A		I
yes/no question		I		N/A	N/A		I
negation		I		N/A	N/A		
Type II Conditional		I		I	I		I
counterfactual/circumstantial				I	I		
Type I Conditional		II		II	II	II	II
adverbial subordinate		II		II	II	II	II
non-finite subordinate		II		II	II		
agentive nominalizations				I	I		
non-agentive nominalizations		II		II	II	II	II

Once again, this highlights the need for further study of VSAs in KC languages. A more complete table of VSA functions could reveal cross-linguistic patterns crucial to the further classification of the KC family.

Historical Reconstruction of VSA

Several historical scenarios have been suggested for the emergence of VSAs in Proto KC. As Chhangte points out, a small subset of verbs in KC languages actually have three forms, leading him to suggest two different formerly productive morphemes which have since become grammaticalized (Chhangte, 1993). This is supported by the unpredictable nature of VSAs, as seen in Table 7.

Table 7
Unpredictable Alternation in Falam Chin (King, 2010)

Nasal Alternation	/súaŋ/ ~ /sùan/ 'cook'
Vowel Shortening	/bàaŋ/ ~ /bâŋ/ 'tired'

Matisoff (2003) also suggests two distinct grammaticized morphemes, although his suggestions differ from those of Chhangte. King synthesizes their two suggestions into a third possible solution (see Table 8).

Table 8

Suggested Proto Tibeto-Burman Morphemes and Their Functions (King, 2009)

	S2	S3
Chhangte	nominalizing */-d/	valence-changing */-t/>*/-ʔ/
Matisoff	subordinating */-ʔ/	causative */-s/>*/-ʔ/
synthesis	**nominalizing */-t/**	**causative/benefactive */-s/>*/-ʔ/**

King's analysis benefits from a well-attested nominalizing morpheme */-t/* in

Proto-Tibeto-Burman. King adopted Matisoff's analysis of the causative morpheme */-s/*

over Chhangte's proposed */-t/* on the rationale that the two morphemes did not merge. It

appears that most KC languages did merge the two categories, choosing either the *(/-t/*

or the */-ʔ/* to represent both nominalization and causative (King 2009).

Also of note is the rare use of a nasal ~ stop alternation documented only in

Northern KC languages (King, 2009). However, King's analysis only includes two

Northern KC languages. More research is clearly needed to see if this is a shared

innovation of all Northern KC languages.

An analysis of VSAs across five KC languages, shows how further analysis is

hampered by the limited documentation of other languages (King, 2009). While Central

KC languages have received the most attention in the family, large gaps in the research

exist concerning Peripheral KC languages. The use of VSAs in Vaiphei has not yet been

analyzed. Further documentation and analysis of VSAs in Vaiphei is needed to be able to test King's observations about VSAs in other Northern Chin languages.

Research Questions

The goal of this study is to describe Vaiphei VSAs in order to compare them with VSAs of other languages in the family. The purpose of these comparisons is to better classify Vaiphei in the KC language family.

To these ends, I ask the following questions:

1. What VSA forms occur in Vaiphei?

2. What VSA functions occur in Vaiphei?

3. How do the VSA forms, functions, and form-function mapping differ from other KC languages?

4. Where do these findings locate Vaiphei in the KC language family?

Motivation for Study

The KC language family remains largely under-researched (Thuan (2008), King (2010)). Among the KC languages, the Central Chin languages are the most thoroughly studied. While researchers have called for increased documentation of K'Cho, Thadou, Lai and other KC languages, no such plea has been offered for Vaiphei. This neglect is not due to Vaiphei's unworthiness as a research subject but rather to the paucity of research.

Vaiphei has some research interest. Vaiphei may hold additional evidence of the Proto forms that gave rise to VSAs. As mentioned earlier, no consensus exists on the shape of the proposed proto forms. If King's synthesis of Chhangte and Matisoff's proposed forms is to be accepted, more data must be collected from a variety of KC languages to definitively confirm these reconstructions.

Classification Issues

A study of VSAs in Vaiphei provides much needed data in three areas of language classification. On a broad scale, documentation of Northern and Southern Chin languages provides insight to the proposed Peripheral Languages group. Secondly the focus on comparative morphology (specifically of VSAs) has not been used as a measure of language classification in the KC group, yet could certainly be used as such. Lastly, VanBik proposes Vaiphei as belonging to the Sizanic branch of Northern Chin (2009), but with no evidence given. A comparison of Vaiphei morphology may make a case for Vaiphei's subclassifications in Northern Chin. For reference, see *Figure 3* in the previous section.

Sub-classification of KC languages has also been the subject of debate. Peterson (2000) and VanBik (2009) have presented a compelling case for a Peripheral Chin group based on shared innovations between Northern and Southern Chin languages (see Figure 2 in the previous section for the proposed Peripheral Chin family tree). Vaiphei has been classified in the Northern Chin branch (Bareigts, 1981, Suantak, 2013 & VanBik, 2009).

With additional data collected in the Northern and Southern Chin languages, stronger

evidence for this proposed subgrouping may emerge.

Peterson (2000) justifies his proposal for the Peripheral Chin group on the basis of

both phonemic and morphosyntactic similarities in Northern and Southern Chin. Among

the morphosyntactic similarities, Peterson includes causative morphology. However, in

his analysis of this feature, he does not mention Verbal Stem Alternation (VSAs). This is

a puzzling exclusion, as the causative argument structure is one of the environments in

which Sizang and Teddim (both Northern Chin languages) utilize VSAs differently than

Lai, Falam and Mizo (Central Chin) (King, 2009). None of the classification literature on

the Chin languages take VSAs into account. Further documentation and comparison of

VSAs within this group could reveal that VSAs are a meaningful measure of genetic

relationship of KC languages.

Chapter 3: Methodology

To document and analyze VSAs in Vaiphei, I collected spoken data from six proficient Vaiphei speakers. Because of the explorative nature of this study, data collection and analysis has been in some sense an iterative process, as the questions were modified in the course of data collection. Data came from interviews in person and over Voice over Internet Protocol (VoIP) platforms such as Skype, Facebook Messenger and WhatsApp.

Participants

Participants in the study are all adult speakers and readers of at least English and Vaiphei. My local language consultant was born in Churachandpur, Manipur, India, but resides now in Portland, Oregon. While he is well connected in the Chin community, he is not aware of any other Vaiphei speakers in Oregon. Because of a limited selection of participants I could interview in person, additional participants were recruited from India through a snowball sampling process. Participants in India are five Vaiphei speakers from Churachandpur, Manipur, India, but reside in New Delhi for work or school. Vaiphei speakers in New Delhi have much greater access to a consistent internet connection, a necessity for this study, than do those residing in Manipur. I used VoIP for interviews with participants in India, recorded with QuickTime, a digital media program.

Instruments

Because of the limited research on Vaiphei, I conducted a pilot study with my local language consultant. First, I compiled a list of Vaiphei verbs and identified which verbs alternated and which did not. With this data collected, I then selected twelve verbs

in order to evaluate the different forms and functions of Vaiphei VSAs with my

participants. These twelve verbs were selected to highlight each verb form category

observed. These verb form categories aligned closely with those described by King

(2009): addition of final oral stop, velar to alveolar nasal alternation, final stop with

glottal stop alternation, glottalization of final sonorant and nasal to oral stop alternation.

Two from each category were selected, as well as two tri-stem verbs.[2]

Pilot Study Instruments

Interview materials were adapted from previous studies on VSAs in KC

languages. Specifically, I used verbs from KC language studies on Falam (King, 2010),

Sizang (Stern, 1967) and Mizo (1993). Verbs from other languages were included to aid

my language informant in the case of cognate forms. See *Figure 5* for an example of an

instrument from the pilot study.

English	Falam (Central)	Mizo (Central)	Vaiphei
talk	bia	bia ~ bìàk	
stand	ding	dîŋ ~ din ~ dìn	
cut	at	ààt ~ aʔ	
take	la	laa ~ lààk	

Figure 5 Sample Verb Chart Instrument for Pilot Study

---

[2] Note again that Suantak's thesis (2013) on Vaiphei phonology and morphology was not available to me

during the data collecting phase, much of it replicating what I found in my own study.

My language consultant translated 128 Vaiphei verbs which I used to create a

Vaiphei verb list[3]. My next task was to find which verbs alternate. In all recorded KC

languages, the benefactive function causes alternating verbs to use their marked stem. For

this reason, I selected 25 verbs from the verb list and constructed two sentences with each

verb: one in a simple declarative sentence and the second in a benefactive sentence. I also

constructed sentences with causative structure, since many KC languages (but not all) use

Stem II in causative phrases. See *Figure 6* for an example of the instrument used in this

section of the pilot study:

Vaiphei verb	English phrase	Vaiphei phrase
bot thek (to pull apart)	I pull apart.	
bot thek (to pull apart)	I pull apart for you.	
khang (to grow) *khang* (to grow)	I grow. You make me grow.	

Figure 6 Sample Verb Chart Instrument for Pilot Study

The purpose of this elicitation was to determine which verbs alternated and which did not

so that I could select a subset of alternating verbs for my data collection.

---

[3] The full verb list appears in Appendix D: Vaiphei Verb List.

Data Collection Instruments

        With a list of 25 Vaiphei verbs which exhibit VSA, I selected a subset of twelve

verbs. I selected these verbs to showcase each segmental pattern of VSA, as well as two

verbs that use three alternations. For each of the twelve verbs, I created 20 phrases in

English. I constructed each phrase to include a different syntactic structure in order to

determine which functions caused VSA. To determine which syntactic functions were

relevant to VSAs I used previous research as cited above (Mang, 2006; Kathol &

VanBik, 2001; Thuan, 2008; Stern, 1967; Chhangte, 1993; King, 2009; King, 2010).

Figure 10 contains an example of five phrases used.

English	Vaiphei
I take the book.	
You make me take the book. I take the book for you.	
Photographer (Picture taker).	
Camera (Picture taking device).	

Figure 7 Example of questionnaire for Vaiphei participants for the verb 'take' *laa/lak*

Procedures

Pilot Study Procedures

        My pilot study consisted of several interviews with my language consultant.

During the elicitation, I read the word or sentence in English and asked him to translate it.

In instances where my language consultant was unsure of the right translation or if there

were several options, I would offer the translation in Falam, Mizo and Sizang; my

language consultant would confirm or reject these verbs as Vaiphei or cognate forms. I

recorded the interviews with my language consultant on an Olympus Recording device at

44k sampling rate. In addition to audio recording, I wrote elicited answers using standard

Vaiphei spelling conventions and allowed my consultant to read the sentence to check for

errors.

Data Collection Procedures

As part of the study proper, I interviewed participants over Skype, Facebook

Voice, or WhatsApp and recorded the interviews in QuickTime Version 10.4. In the

interviews I confirmed that the participant had read and understood the Consent Form

(see Appendix E) and told them that they could end the interview at any time. I then

began the interview by reading a phrase in English and asking the participant to translate

it into Vaiphei. At the end of each interview, I sent the written data to the participant and

asked for them to correct any errors in the transcription that they saw.

<div align="center">

Data Analysis

</div>

Data from the pilot revealed two syntactic environments that triggered verb stem

alternation. The verb stems were isolated and compared to see if any alternation occurred.

My pilot confirmed that, like other KC languages, declarative sentences required Stem I

of a verb while benefactive sentences required the Stem II form, as in (5):

(5)

a. Ka   **-bot**   -thek   -hi.   b.   Ka   -hung   **-boo**   thek   -piak   -hi.

           1SG-**pull.I**-apart-DECL   1SG-2.OBL-**pull.II**-apart-BEN-DECL

           I **pull** (it) apart.   I **pull** (it) apart for you.

I then used these two functions (declarative and benefactive) to determine which verbs possessed multiple forms and which did not. I reviewed the audio recordings for tonal alternations.

With a list of alternating verbs, I then was able to determine that Vaiphei verbs corresponded to the five segmental VSA patterns described by King (2009). I selected two verbs from each category for further study. As I gathered more data, I was able to include two more verbs for further study that exhibited three alternates.

With the data from the pilot analyzed and the questionnaire completed, I began collecting data from my participants. Data from participant questionnaires provided information as to both form and function of Verb Stem Alternation. I created a table that listed each participant's verb form choice with the function. When mapping from one participant did not conform with mapping from other participants, I flagged the data for further investigation. In some instances I collected more data with the participant in order to determine if another syntactic function caused the discrepancy. When participants provided more data or an alternative construction, I included both sentences in my data pool. I also asked my language consultant for guidance on some tricky forms and transcription. Even after this extended analysis, some data was still inconsistent. I discuss

this exceptional data in the results section.

I then compared Vaiphei to VSAs in Sizang, other Northern KC languages, and Central KC languages. I used this analysis to make claims about Vaiphei's classification in the KC language family.

Chapter 4: Results and Discussion

Here I will present my results in the order of their research questions. I start with VSA forms in Vaiphei, then continue with VSA functions in Vaiphei. I then compare Vaiphei VSAs to those with other languages. I use these comparisons to draw conclusions about the genealogy of Vaiphei. Finally, I discuss some of the difficulties and benefits of the research design used for this thesis.

Phonology of VSAs in Vaiphei

An analysis of the segmental alternations in Vaiphei shows many similarities to VSAs in other KC languages. Like VSAs in other KC languages, Vaiphei VSAs all involve a change to the rhyme of a syllable. The pattern used by each verb is not entirely predictable, and not all verbs alternate. For an example of this, see (6) and (7) where the rhyme of both verbs in Stem I (a. examples) is /aŋ/. However, Stem II in (6) shows a /ŋ/ coda change to /t/, while the velar coda in (7) changes to /n/.

(6)

a. Thu   ka   **-mang**   -hi.   b. Thu   ka   hung   **mat**   -piak -hi.

    Word   1SG-**obey.I**-DECL   Word   1SG-2.OBL-**obey.II**-BEN-DECL

        I **obey**.   I **obey** for you.

(7)

a. Ka   **khang**   -hi.   b.   Nang   lei   **khan**   -sak   -hi.

1SG-**grow.I**-DECL   2SG   1.OBJ-**grow.II**-CAUS-DECL

I **grow**.   You make me **grow**.

In (8) and (9), we also see the addition of [k] and [t] to the vowel coda /a/. These additions are unpredictable. Additionally, recall that Chhangte (1993) and Matisoff (2003) both hypothesized two underlying morphemes behind KC VSAs. This hypothesis accounts for the unpredictable nature of VSAs. Refer back to Table 7 and Table 8 for the hypothesized origins of VSAs.

(8)

a. Ka   **-la**   a   -hi.   b.   Nang   lei   **-lak**   -sak   -hi.

1SG-**take.I**   3SG-DECL   2SG   1.OBJ-**take.II**-CAUS-DECL

I take it.   You make me take.

(9)

a. Ka   **ba**   a   -hi.   b.   Ka   **bat**

1SG-**owe.I**   3SG-DECL   1.POSS   **owe.II**

I **owe** (something).   My **due**.

Each alternating verb consistently follows one of five patterns of segmental

change. These alternations roughly correspond to the five (or in some cases, four)

alternations observed in other KC languages. The five Vaiphei VSA patterns are

summarized in Table 9.

Table 9

Phonemic VSA patterns in Vaiphei

Alternation type	Vaiphei	English gloss
Addition of final oral stop	la ~ lak	to take
	pʰa ~ pʰat	to be good, kind
/ŋ/ ~ /n/	saŋ ~ san	to be tall
	hoŋ ~ hon	to open
Deletion of final stop with compensatory lengthening	kap ~ kaa	to cry
	tʰat ~ tʰaa	to kill
Vowel apophony	o:i ~ oi	to lull, rock (a baby)
	pia ~ pe	to give
Nasal ~ Oral Stop	en ~ et	to look at
	lum ~ lup	to lie down

Below I answer Research Question 1 by describing each of the five alternation

patterns in greater detail, as well as a special group of verbs that alternate between three

stems.

Final Oral Stop Epenthesis[4]

A common segmental alternation is the addition of a final oral stop. All KC

languages share this alternation pattern, and many verbs that follow this pattern are

cognates. The final stop is always /t/ or /k/. No verb stems were found that added a

bilabial stop. See (10) and (11) below for two examples of final oral stop epenthesis.

(10)

a. Kei   ka   **-pha**   a   -hi.   b. Nang   lei   **-phat**   -sak -hi.

   1SG   1SG-**good.I**   3SG-DECL   2SG   1.OBJ-**kind.II**-CAUS-DECL

            I am **kind**.   You make me **kind**.

(11)

a. Ka -kam   ka **-kaa** a -hi.   b. Ka -kam   ka -hung **-kap** -piak -hi.

   1.POSS-mouth 1SG-**open.I** 3SG-DECL   1.POSS-mouth   1SG-2.OBL-**open.II**-BEN-DECL

            I **open** my mouth.   I **open** my mouth for you.

---

[4] This phonological pattern may appear to be deletion at first glance. Many pieces of evidence support the

claim that this is indeed epenthesis, namely tone inventory of Stem II verbs, cross-linguistic comparison of

Stem II verbs, historical considerations of VSAs and the function of Stem II verbs. For an further analysis,

refer to appendix C.

Final Velar/Alveolar Nasal Alternation

Final Stem I velar nasals may become alveolars, as seen in (12) and (13). This alternation is not predictable, as final velar nasals in some verbs also alternate with non-nasal stops (see (18) and (19) below). This shift shows no obvious phonological conditioning once again.

(12)

a. Ka   **-sang**   -hi.   b.   Ei   **-san**   -sak   -hi.

   1SG-**tall.I**-DECL   1.OBJ-**tall.II**-CAUS-DECL

      I am **tall**.   It makes me **tall**.

(13)

a. Ka **-leng** -hi.   b.   Ka   -hung   **-len**   -piak   -hi.

   1SG-**fly.I**-DECL   1SG-2.OBL-**fly.II**-BEN-DECL

      I **fly**.   I **fly** for you.

Deletion of Final Oral Stop

A third alternation seems to be the opposite of the first. Verbs with a final oral stop may delete the stop and undergo compensatory vowel lengthening, as in (14) and (15) below.

(14)

a. Ka **-kap** a -hi.   b. Nang lei **-kaa** -sak -hi.

1SG-**cry.I**   3SG-DECL   2SG   2SG-**obey.II**-CAUS-DECL

I **cry**.   You make me **cry**.

(15)

a. Ka **-bot** -thek -hi.   b. Ka -hung **-boo** -thek -piak -hi.

1SG-**pull.I**-apart-DECL   1SG-2.OBL-**pull.II**-apart-BEN-DECL

I **pull** apart.   I **pull** (it) apart for you.

Vowel Shortening

Verbs with long vowels may undergo vowel shortening and two vowels may coalesce. This alternation is not predictable, with many instances of long vowels undergoing no change at all. See (16) for an example of vowel shortening and (17) for vowel coalescence.[5]

---

[5] Recall that Vaiphei uses the orthography <aw> to represent the phoneme /ɔː/. Refer to Appendix B for more on Vaiphei orthography.

(16)

a. Nau   ka   **-awi** -hi.   b. Nau   lei   **-oi**   -sak -hi.

Baby   1SG-**rock.I**-DECL   Baby 1.OBJ-**rock.II**-CAUS-DECL

I **rock** the baby.   You make me **rock** the baby.

(17)

a.   Ke'n   ka   **-pia**   -puai.   b.   **Pe**tu**.**

1SG=ERG   1SG-**give.I**-NEG   **give.III**-NMLZ

I don't **give**.   **Give**r.

Final Nasal-Oral Alternation

Nasal stops in the coda may also alternate with voiceless stops. Labial nasals may alternate with a labial voiceless stop as in (18).

(18)

a. Ka   **-lum** -hi.   b. Nang   lei   **-lup** -sak -hi.

1SG-**lie.I**-DECL   2SG   1.OBJ-**lie.II**-CAUS-DECL

I **lie** down.   You make me **lie** down.

While this alternation seems intuitive, others are not. Velar nasals do not alternate with

the velar stop, but rather with the alveolar stop as in (19). Alveolar nasals do not alternate

with stops.

(19)

a.   Thu   ka   **-mang**   -hi.   b.   Thu   ka   -hung   **-mat**   -piak   -hi.

Word   1SG-**obey.I**-DECL   Word   1SG-2.OBL-**obey.II**-BEN-DECL

I **obey** a word.   I **obey** a word for you.

Tri-Stem Verbs

A few verbs show three syntactically conditioned alternations, following two of

the five alternation patterns described above. A discussion of tri-stem verb functions

occurs in the next section (Section II) on the morphosyntax of VSAs. Stem II and Stem

III of tri-stem verbs have distinct functions. See Table 10 for an example of a tri-stem

verb in three environments.

Table 10
Tri-Stem verbs and ungrammatical form-function mapping

Vaiphei	**English**
La **pia** em? Khu'n a hung **piak?**	Do you **give** it? Who **gives**?
Petu	**Give**r.

Morphosyntax of VSAs

Verb stem alternations in Vaiphei are both syntactically and pragmatically conditioned. In this section I will answer research question II: What VSA functions occur in Vaiphei?

Verbs that alternate will use Stem I, the unmarked verb stem, in most cases. In Vaiphei Stem II is used to signify subordination, nominalization, pragmatic focus, and changes of valency. These different environments are shown by the verb *en* 'see' in Table 11.

Table 11

Syntactic and pragmatic conditioning of the Vaiphei verb en *'see.'*

Syntactic Category	Vaiphei	Stem	Gloss
Declarative	Ke'n nang ka hun **en** hi.	I	I **look** at you.
Negative	Ken nisa ka **en** pua'i.	I	I don't **look** at the sun.
Complement	Nisa ei **en** hi ti ka he'i.	I	I hear that he **looks** at the sun.
Causative	Leikhaibu lei **et** sak hi la.	II	You make me **look** at the book.
Benefactive	Zia limlak hi nang a ding ah ka **et** ahi.	II	I **look** at this picture for you.
Comitative	Zia leikhabu hi nang ka hun **et** pi ahi.	II	I **look** at this book with you.
Subject Q	Kua mawh nisa **en** chu?	I	Who **looks** at the sun?
Non-subject Q	Nisa chu bang tik pa a **et** a hem?	II	When does he **look** at the sun?
Yes/No Q	Nisa **en** sek em?	I	Do you **look** at the sun?
Relative Subject	Nisa **en** pa chu ka mu'i.	I	I saw the man who **looks** at the sun.
Relative Non-subject	Ka thil choi hi Cimte in a **et** chu hi.	II	I am holding what Cimte is **looking** at.
Imperative	Vak **en** tia!	I	**Look** at it!
Conditional I	Nisa chu ka **et** leh hausa ding ka hi.	II	If I **look** at the sun I will be rich.
Conditional II	Nisa chu **en** leng hausa tei ka hi.	I	If I **looked** at the sun, I would be rich.
Counterfactual	Nisa kha a la **en** hi ta leng, (a la) hausa mai ding chu ka hia.	I	If I had **looked** at the sun, I would have been rich.
Adverb subordinate	Nisa a **et** masang ah ken a ma ka mu a hi a pa'i.	II	I saw him before he **looked** at the sun.
Infinitive subordinate	Zia leikhabu hi ka **et** guat a hi.	II	I try to **look** at the book.
Nominalized (Agent)	**En**tu.	I	Looker (person).
Nominalized (Non-agent)	**Et**na.	II	Viewer (device).

The syntactic environments listed above show that Stem II marks subordination, changes in valency, nominalization, and pragmatic focus. Below I will detail each of these functions, beginning with subordination.

Subordination

Vaiphei uses VSAs to indicate the subordination of a clause. The verb in the subordinate clause appears in Stem II and the marker *chu* or *git* is used in place of the usual declarative marker *hi*. See below where relativizing the clause with the verb "give" (*pia*) in (20) results in the epenthesis of [k] at the end of the verb.

(20)

a. Ama   -chu   apple   a   **-piak**   ma'n   ka   -mù'i.

    3SG   DEM   apple   3SG-**give.II**   before=LOC   1SG-see.I=DECL

    I saw him before he **gave** the apples away.

b. Apple   -te   -chu   ka   -mu   ma'n   a   **-pia**'i.

    Apple-PL-DEM   1SG-see.II   before=LOC   3SG-**give.I**=DECL

    He **gave** the apples away before I saw him.

Valency Changes

Some verbal affixes signal a change in valency, i.e., a change in the number of verbal arguments. Two common valency-changing constructions are causative and benefactive. These change the valency of the verb by adding a causer or a benefactee.

Suffixes mark both of these changes: *-sak* for causative and *-piak* for benefactive, with a change in the verb stem as in (21).

(21)

a.   Ama   mi   **pha**   a   -hi.   b.   Lei   **-phat** -sak -hi.

3SG   person **kind.I**   3SG-DECL   1.OBJ-**kind.II**-CAUS-DECL

He is a **kind** person.   You make me **kind**.

The reflexive particle *ki* features a third instance of valency change: the repetition of the subject. The reflexive syntactic category was not elicited, however two samples appeared in the data. These examples are shown below in (22) and (23). Both examples show how valency changes in an imperative statement by adding the reflexive argument.

(22)

La!   Ki**lak**   -ah!

Take.I   REFL-**take.II**-IMP

Take (it)!   **Take** (it yourself!)

(23)

Vokcha   -chu   **that**   -ah!   Vokcha   -chu   nang   ki**thaa**   -ah!

Pig-DEM   **kill.I**-IMP   Pig-DEM   you   REFL-**kill.II**-IMP

Kill the pig!   **Kill** the pig (yourself)!

Nominalizations

While subordination and valency changes are functions marked by VSAs, in this section I will discuss how VSAs mark verbal nouns. Vaiphei has several productive nominalizing suffixes, the most common of which are *-tu* (agentive) and *-na* (locative). All alternating verbs use Stem II with the locative[6] nominalizer, as in (24) below:

(24)

oina	lim**lak**na	**et**na
soothe.II.NMLZ	picture.**take.II.**NMLZ	**view.II.**NMLZ
Rocker (Cradle)	Camera	**View**er (Binoculars)

However, most verbs use Stem I for the agentive nominalizer, as in (25):

(25)

awitu	lim**la**tu	**en**tu
soothe.I.NMLZ	picture.**take.I.**NMLZ	**View.I.**NMLZ
Soother	Photographer	**View**er

As mentioned in discussing Table 8 of the previous section, some verbs alternate between three stems. For this small set of verbs, the third form is used only for

---

[6] *-na* is usually a locative morpheme, but may also act as an instrument nominalizer as well.

nominalizations. Verbs with three stems will use Stem III for agentive nominalizations,

as in (26). Note that like other alternative verbs, tri-stem verbs still use Stem II for

locative nominalizations.

(26)

a.   Ka   **pia**'i.   b.   **piak**na   c.   **pe**tu

     1SG-**give.I**-DECL   give.**II**-LOC   Give.**III**-NMLZ

          I **give**.   Place of **giving**   **Give**r

Note that Stem II is never used with the agentive nominalized -*tu*. The unique nature of

agentive nominalizations is explained in the next section on subject focus.

Agentive Focus

    Vaiphei verb forms are also conditioned by the focus of the sentence. Usually

Stem I indicates a focus on the agent or subject of the sentence, while Stem II indicates

an object, oblique, or patient focus. This agentive focus manifests itself in many ways,

both syntactic and pragmatic. In this section I will discuss agentive focus in Relative

clauses, Wh- questions, Yes/No Questions, as well as the pragmatic use of agentive

focus.

    Verbs in relative clauses may appear in Stem II if the relative pronoun is the

object or patient of the verb in the relative clause. See (27) for an example, where the

verb in the relative clause "what Sam looks at" takes the Stem II form.

(27)

Ka	-choi	-hi	Malsawm	-in	a	**-et**	chu	-hi.

1SG-hold.I-DECL   Malsawm-ERG   3SG-**look.II**   DEM-DECL

I hold what Malsawm **looks** at.

When the relative pronoun is the subject or agent of a relative clause, the verb in the
relative clause remains in Stem I as in (28). Note that the location of the relative clause in
the independent clause does not affect VSAs.

(28)

a.   Nisa   **en**   pa   chu'n   kei   ei   -mu'i.

Sun   **look.I**   man   REL=ERG   I   1.OBJ-see.I=DECL

The man who **looks** at the sun saw me.

b.   Nisa   **en**   pa   chu   ka   -mu'i.

Sun   **look.I**   man   REL   1SG-see.I=DECL

I saw the man who **looks** at the sun.

Similar to verbs in relative clauses, verbs in wh- questions alternate to show non-
subject focus. When the question is about the subject or agent of the question phrase,
Stem I is used, as in (29).

(29)

Kua	a	-hem	kawtkhak	**hawng**	-kha?
Who	3SG-Q		door	**open.I**-DEM	

Who **opened** the door?

However, when the question is about the object of the question, Stem II is used as in (30):

(30)

Bang	a	-hem	a	**-hawn**	-chu?
What	3SG-Q			3SG-**open.II**-DEM	

What did he **open**?

Agentive relative clauses and wh- questions are both examples of the syntactic use of VSAs for agentive focus. Nominalizations, as discussed in the previous section, may also exhibit an agentive focus, with the agentive suffix -*tu* attaching only to Stem I verbs.

Vaiphei VSAs occur in what appear to be identical environments. In these cases, VSAs are used for pragmatic functions. One common example of VSAs used for pragmatic function is in transitive sentences. In many transitive sentences, the verb may appear in either Stem I or Stem II in phrases that are otherwise nearly identical as in (30), (32) and (33).

(31)

La	**-la**	em?		Nang	**lak**	a	-hem?

2SG-**take.I**   Q   2SG   **take.II**   3SG-Q

Do you **take** (it)?   Do you **take** (it)?

(32)

Ke'n   ka   **-la** -puai.   Kei   **lak**   a'i   -puai.

1SG=ERG   1SG-**take.I**-NEG   1SG   **take.II**   3SG=DECL-NEG

I don't **take** it.   I don't **take** it.

(33)

Kua   a   -hem   a   **-la?**   Kua   **lak**   a   -hem?

Who   3SG-Q   3SG-**take.I**   Who   **take.II**   3SG-Q

Who **took** it?   Who **took** it?

One function of this VSA in these transitive sentences is to shift the focus from the subject to the object. When the verb in a transitive sentence appears in Stem I, the focus of the sentence is on the subject. When a VSA occurs and the verb appears in Stem II, the focus is on the object of the sentence. This is apparent in (34) and (35), which are similar statements answering two different questions.

(34)

Malsawm	-in	la	-pen	dum	a	**-la**'i.

Malsawm-ERG		2SG.POSS-pen		blue.I	3SG-take.I=DECL

Malsawm **took** your blue pen. (Answers the question, "Who took my blue pen?")

(35)

Malsawm	-in	a	**-lak**	la	-pen	dum	kha	a	-hi.

Malsawm-ERG	3SG-**take.II**	2SG.POSS-pen		blue.I	DEM	3SG-DECL

Malsawm **took** your blue *pen*. (Answers the question "What did Malsawm take?")

I was able to identify this pragmatic function from near identical sentences in my data that differed only in the verb stem used. Other pragmatic functions may be posited for VSAs in Vaiphei as well. Given the scope of this thesis, only this pragmatic function could be described. Pragmatic functions such as this may explain many of the inconsistencies in the data, given that little context was given for the elicitation of each sentence. In the next section, I discuss some of these inconsistencies and offer some possible explanations for them.

Special Cases

While most participants used the same verb form for each function, some data do not conform to the general patterns. In some cases, further analysis revealed a clear cause for the data inconsistencies, while in other cases the reason for the non-conforming data is unknown.

Possible explanations for the non-conforming data include: instrument errors, unknown pragmatic functions, pronoun and affix optionality, participant error or misinterpretations due to ambiguity in the questionnaire. Below I list some of the types of non-conforming data and some possible explanations.

Instrument errors. I selected some stimulus verbs that did not directly translate into Vaiphei, and the elicited responses consequently did not use the expected verb. The verb *la* "take" cannot be used to say "take the pig" because a pig is too large and a different verb must be used. The verb *hong* "to open" can be used for the phrase "open the door", but not for "open your mouth," which uses the verb *ka* instead.

For most of these errors, I was able to re-elicit the sentence with an adapted questionnaire. However, not all participants were available to complete the revised questionnaire. Because of this, there are some gaps in the data. One example is below in (36) , where my questionnaire elicited the sentence "He was tall before I saw him," instead of "I saw him before he was tall." In this example, I was attempting to elicit the verb *sang* "to be tall" in an adverbial subordinate clause, but mistakenly elicited the verb *mu* "to see" in the adverbial clause. See example (37) for the same type of error, but with the verb *kap* "to cry."

(36)

Ke'n	kala -**mu**	masang -ah	ama -hi	ala -**sang**	a -hi	tai
1SG=ERG	1SG-PST-**see.II**	before-LOC	3SG-DECL	3SG-PST-**tall.I**	3SG-DECL	yet

He was **tall** before I **saw** him.

(37)

Ke'n	kala **-mu**	masang ah	ama -hi	ala -**kap**	a -hi	tai
1SG=ERG	1SG-PST-**see.II**	before-LOC	3SG-DECL	3SG-PST-**cry.I**	3SG-DECL	yet

He **cried** before I **saw** him.

Unknown pragmatic functions. Suantak et al (2013) identifies some VSA functions for pragmatic reasons, but notes that a comprehensive list of pragmatic focus would be a significant undertaking. Some unexpected VSAs in my data may be due to some of these undescribed pragmatic functions. These pragmatic functions are difficult to identify outside of context, and my data collection methods precluded me from identifying many pragmatic functions of VSAs.

Pronoun and affix optionality. VSAs in Vaiphei are often dependent on specific morphemes, such as the agent nominalizer –*tu*, and the benefactive and causative affixes –*piak* and –*sak*. Some of the data are missing these morphemes, and instead use other constructions to create benefactivity or causativity. See (37) below for an example of a benefactive sentence where the benefactivity is created lexically instead of grammatically with the benefactive morpheme.

(38)

Nang	-a	ding	-ah	kei	ka	**-kap**	-hi.

2SG-GEN	for-LOC	1SG	1SG-**cry.I**-DECL

I **cry** for you.

Nearly all of the verb forms and functions listed above are comparable to forms and functions in other KC languages. In the next section, I will compare forms and functions of Vaiphei VSAs to VSAs in other KC languages.

Comparative VSAs

In this section, I will answer Research Question 3: How do the VSA forms, functions and form-function mapping differ from other KC languages? I will start by comparing VSA forms by looking again at the phonology of Vaiphei VSAs and VSAs attested in other KC languages. Next I will compare the morphosyntactic and pragmatic functions of VSAs in Vaiphei and other KC languages. Finally, I will discuss how the form/function mapping of VSAs in Vaiphei differs from other KC languages.

Comparative Phonology of VSAs

Segmental VSAs in Vaiphei correspond closely to those recorded in other Northern Chin languages such as Sizang (Stern, 1967), Teddim (Henderson, 1965), Thadou (Cover, 2010). The VSAs also mostly correspond with VSAs in Central, Southern and Maraic languages such as Falam, Mizo, Lai, Daai and K'Cho. The categories for VSAs in KC languages developed by King (2009) allow comparison with

other KC languages as shown in Table 12. The nasal-stop alternation present in other

Northern Chin languages is also present in Vaiphei. Additionally, glottal stops are not

realized in verb stem alternations in Vaiphei (but are still present in the phonological

inventory). Sizang shares this innovation, with glottal stops existing in Sizang's

phonology but absent in VSA forms. While both languages share this feature, deletion of

glottal stop is a common phonological innovation, and could have happened

independently in the two languages. As such, it is not strong evidence for a Sizanic sub-

branch.

Table 12

Cross-linguistic summary of VSA patterns from King (2009)with Vaiphei data

		Central			Northern		
Alternation Type	**English**	**Mizo**	**Lai**	**Falam**	**Tiddim**	**Sizang**	**Vaiphei**
1) Addition of final oral stop	to give	pee~peek	pee~peek	pe~pek		pia~piak	pia~piak
	to sing	sa~sak			saa~sak		
2) /ŋ/~/n/	to cook		ʧuaŋ~ ʧuan	suaŋ~ suan			
	to be tall				saaŋ~ saan	saaŋ~ saan	saŋ~san
3) final stop ~ glottal stop	to kill	that~thaʔ	that~thaʔ	that~thaʔ	that~thaʔ	that~thaa	that~thaa
4) glottalization of final sonorant	to see	hmuu~ hmuʔ	hmuu~ hmuʔ	hmuu~ hmuʔ	muu~ muʔ	muu	muu
	to rock (a baby)						ɣːi~oi
5) nasal ~ stop	to look at				en~et	en~et	en~et

Comparative Morphosyntax and Pragmatics of VSAs

In an analysis of VSA functions in KC languages, King concludes that agentive vs. non-agentive focus is a central distinction for VSAs (King, 2009). In many instances, this is true for Vaiphei as well. However, some oblique-focused structures do not conform to King's analysis, if we follow her reasoning that questioned elements are the focus of the sentence. While the languages attested in King (2009) use Stem II for oblique wh- questions, some obliques in Vaiphei used Stem I as in (39) below.

(39)

a.   Apple   bang   tik   -in   a   -hung   **-pia**   -em?

      apple   what   time-LOC   3SG-2SG.OBJ-**give.I**-Q

                    When did he give you an apple?

b.   Bang   tik   -ah   **pha**   a   -hem?

      What   time-LOC   **kind.I**   3SG-Q

                    When was he kind?

One additional attested aspect of VSAs in KC languages is irrealis (King, 2009). King suggests that the two particles which mean "if" in KC languages may be used contrastively to describe situations that are either likely or unlikely. With the conditional particle used for unlikely situations, King observed that verbs which would ordinarily be in Stem II appeared in Stem I instead. King calls this "irrealis mood" (King, 2009).

Vaiphei has two categories of conditional particples as well that follow King's observation of VSA neutralization. One conditional morpheme *leh* is used for possible situations and may be used with Stem I or Stem II as in (40) and (41) below.

(40)

Kei	**sang**	-leh	hausa	-ding	ka	-hi.
1SG	**tall.I**-if		rich-FUT		1SG-DECL	

If I am **tall**, I will be rich.

(41)

Ka	**-phat**	-leh	hausa	-ding	ka	-hi.
1SG-**good.II**-if			rich-FUT		1SG-DECL	

If I am **good**, I will be rich.

The other category of conditional morphemes *leng/le* is used for situations which will likely not happen or are impossible. Verbs in these conditional clauses always appear with Stem I. In these instances, it appears that VSA is neutralized by irrealis voice. No examples in the data combing *leng* with Stem II. See (42) and (43) which use Stem I when used with *leng*. Note as well the similarities between (41) and (42).

(42)

Ala	**-pha**	-leng	hausa	-ding	ka	-hi.

3SG-PST**-good.I**-if.1SG   rich-FUT   1SG-DECL

If I were **good**, I would be rich.

(43)

A	-thuguk	-chu	**hia**	-leng	hausa	-ding	ka	-hi.

3SG.POSS-secret-DEM   **know.I**-if   rich-FUT   1SG-DECL

If I **knew** the secret, I would be rich.

Vaiphei VSA functions generally match those attested in King (2009), namely, to mark valency changes, subordination, nominalization and agentive focus. In the next section, I will compare form/function mapping of Vaiphei VSAs to those of other KC languages.

Form/Function Mapping of VSAs

Recall that Northern Chin languages are divergent in their causative/benefactive morphology. While Central Chin languages use two distinct verbal affixes to mark causative and benefactive verbs, Northern Chin languages such as Teddim, Sizang and Thadou use only one verbal affix for both benefactive and causative functions. VSAs in these Northern Chin languages disambiguate between causatives and benefactives. In Sizang, Thadou and Teddim, causative verbs use Stem I and benefactive verbs use Stem II, whereas in Central Chin languages, both causative and benefactive verbs take Stem II.

Vaiphei, however, exhibits a further innovation. Rather than using Stem I to differentiate Causative and Benefactive verbs, Vaiphei utilized the verb *piak* "give" as a benefactive verbal affix. Vaiphei is unique among Northern Chin languages to use Stem II for both Causative and Benefactive. See Table 13 for a cross-linguistic comparison of Causative and Benefactive affixes and the VSAs that accompany them.

Table 13
Comparison of Causative and Benefactive Morphemes in Central and Northern Chin Languages. Data from King (2009) except Vaiphei data.

	Central Chin			Northern Chin		
	Mizo	**Lai**	**Falam**	**Tiddim**	**Sizang**	**Vaiphei**
Causative	tur (II)	ter (II)	ter (I)	sak (I)	sak (I)	sak (II)
Benefactive	sak (II)	sak (II)	sak (II)	sak (II)	sak (II)	piak (II)

This form, function and mapping comparison sheds important light on the genealogy of Vaiphei. In the next section, I will explore the implications of my findings on Vaiphei's location in the KC language family.

Genealogy of Vaiphei

In this section, I answer Research Question 4: Where do these findings locate Vaiphei in the KC language family? Vaiphei has been classified as a Northern Chin language (VanBik (2009) and Suantak, (2010)). The basis for this classifications is shared

innovations of sound change rules, such as the fortition of /r/ to /g/ shared with other

Northern Chin languages (Peterson, 2000). My data supports this claim on the basis of

other shared innovations: namely, the nasal-oral stop alternation and the use of the

causative morpheme -*sak,* both of which have been documented only in Northern Chin

languages.

Vaiphei, however, shows some innovations distinguishing it from other Northern

Chin languages, as in utilizing the verb *piak* 'give' as a benefactive morpheme -*piak.*

Additionally, Vaiphei verbs consistently use Stem II (as opposed to Stem I in other

Northern KC languages) when paired with the causative morpheme -*sak*, such as in (44).

(44)

Lei	**-dawt**	-sak	-hi.

1SG.OBJ-**ask.II**-CAUS-DECL

You make me **ask** the question.

The timeline for this innovation and the differences in Stem choice between

Vaiphei and in other languages can be explained. First, PNC dropped the causative affix

*-ter and utilized the benefactive suffix **-sak* for both functions. Next, Vaiphei innovated

the verb *piak* 'to give.II' into a benefactive suffix, disambiguating causative from

benefactive. Other Northern KC languages began using Stem I for causative and Stem II

for benefactive. See Table 14 for my proposed timeline of the two affixes.

Table 14 *Proposed timeline of causative and benefactive affix innovation (left to right)*

	PKC		**PNKC**	**Other Northern**
Causative	II.*-ter		II.*-sak	I.-sak
Benefactive	II.*-sak		II.*-sak	II.-sak

Central	**Vaiphei**
II.-ter/-tur	II.-sak
II.-sak	II.-piak
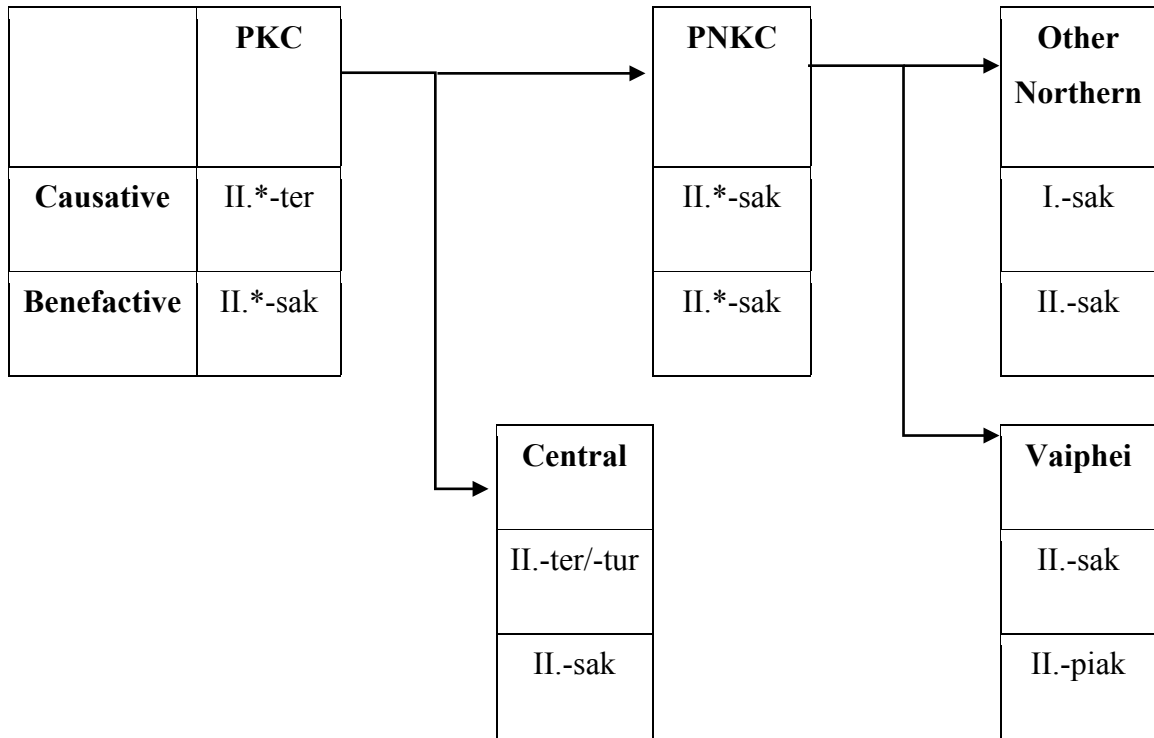
This scenario may suggest an early divergence of Vaiphei from other Northern Chin languages, as all other attested Northern KC languages use Stem I for Causative.

The phonology of Vaiphei VSAs shows evidence for a Sizanic subgroup in the Northern Chin languages family. Glottal stops are present in the Vaiphei phonological inventory, such as the particle *leh* /leʔ/ "if", yet are absent in all five forms of Vaiphei VSAs. Sizang shares this innovation (the attrition of final /ʔ/ in VSAs), while Teddim and Thadou do not. This phonological innovation is seen clearly in cognate verbs, such as *that/thaa* 'to kill' in Table 15. While this may be interpreted as a shared innovation of Sizang and Vaiphei, it must be noted that this sort of innovation (the attrition of final glottal stops) is extremely common and may have happened independently in both

languages. As such, this innovation should not be considered strong evidence for a

Sizanic sub-branch, but certainly suggests it.

Table 15 *Cognate verb "to kill" in four Northern KC languages*

	Teddim	**Thadou**	**Sizang**	**Vaiphei**
kill.I	that	that	that	that
kill.II	thaʔ	thaʔ	thaa	thaa

Other Evidence for a Sizanic Sub-Branch

This study revealed additional phonological evidence pointing to the existence of

a Sizanic sub-branch. This phonological evidence is apparent in Vaiphei verbs and is not

directly related to VSA. When synthesized with comparative studies completed by Button

(2011) and VanBik (2009), Vaiphei data provides some insight into the Sizanic sub-

branch.

The location of stress in diphthongs is distinctive between different KC

languages. Button (2011) notes this, naming this phenomenon "contrastive syllable

weight." The vocalic stress in diphthongs of the cognate *pia* in Vaiphei matches that of

Sizang and Thadou, but not that of Zo and Teddim. While not truly relevant to VSAs, this

may be phonological evidence for a Sizanic sub-branch in Northern KC. However, it

must be noted that this sub-branch would not be the same as the Sizanic sub-branch

identified by VanBik, as Thadou was not listed under Sizanic, and Sizang was classified

as Sizanic by VanBik (2009).

Also of note is that none of the phonological innovations that VanBik uses to

justify his Sizanic branch are present in Vaiphei. In particular, Vaiphei retains /g/ where

Sizang does not as in (45), and there is no rhotic split like Sizang exhibits (*/r/ -> /ŋ/ or

/l/). This is evidence against the inclusion of Vaiphei in the Sizanic subgroup.

(45)

a.   **Vaiphei**   b.   **Thado**   c.   **Sizang**

Gul   ama   -leh   -ama   ki**that**.   gul   ngul

Snake   3SG-and-3SG   REFL-kill.II   snake   snake

The snake **killed** itself.

`   Based on the evidence referenced above, my conclusion is that the Sizanic sub-

branch of Northern KC as proposed by VanBik (2009) does not exist. While VSA

phonology is identical in Sizang and Vaiphei (and distinct from other attested Northern

KC languages), the innovations that Sizang and Vaiphei have are common phonological

innovations and don't provide strong evidence for a Sizanic sub-branch. Other

phonological innovations used to justify a Sizanic sub-branch (e.g., a rhotic split; /g/

phoneme) are not present in Vaiphei, thus providing counterevidence to a Sizanic sub-

branch. At this point, not enough data has been collected to suggest an alternative sub-

grouping under the Northern KC language branch.

Limitations of the Study

While VoIP platforms allowed me to gather data that I would not have been otherwise able to collect while in the United States, my study was not without its difficulties related to data collection. Initially, I had planned participant interviews over Skype to be recorded with QuickTime. However, many of my participants were not users of Skype and requested to use WhatsApp. The two different platforms resulted in poor quality recordings for some of my interviews.

Later, in order to facilitate the needs of my participants and to record better quality data, the questionnaire was sent to participants who then sent me a recorded audio message as well as written data. This method was more effective in many ways. However, because of the lack of instant feedback that an interview provides, some miscommunications may have occurred in translation that I was unable to correct.

Some potential participants who may have been beneficial to this study were unreachable because of their lack of internet access. While Vaiphei is mostly spoken in Manipur, many of my participants were students located elsewhere in India who had better access to the internet. This may have caused me to collect a non-representative sample of Vaiphei speakers.

Over the course of my data collection, I noticed an error in my questionnaire. This was corrected for future participants, and I attempted to contact previous participants to elicit the correct sentence. Not all participants were available after their initial interview. Additionally, not every participant questionnaire was identical. In many cases, this was

due to the different types of verbs elicited. For instance, I did not attempt to elicit

ditransitive or anti-passive phrases with intransitive or stative verbs such as *sang* 'be

tall." On occasion, some participants used a different verb than the verb I was attempting

to elicit. This required me to ask why the other verb had been chosen and if the sentence

could be rephrased with the verb in question. For example, my questionnaire for the verb

la 'take' initially included the phrase "I hear that he takes the pig." My participant

informed me that *la* would not be used with a large animal like a pig. For the rest of the

questionnaire, I used the word "book" instead."

Lastly, some of the data I elicited prompted me to research further into some

phrases. In this case, some participants completed follow up questionnaires to provide

more data that was not necessary for other verbs. This was often due to the semantic

nature of a particular verb, and often provided even more insight into VSAs in Vaiphei.

For instance, one participant used the reflexive structure for the imperative phrase "Take

it!" After analysis, I noticed that they had translated the phrase "Take it for yourself!" I

re-elicited the phrase with the participant without the reflexive particle. I was able to note

then that reflective statements cause VSA, and added that to the findings of my study.

These are all possible challenges to the validity of my study. However, as I noted

above, many of the differences in the questionnaire were necessary because of the verb in

question. In addition, wherever I re-elicited a sentence, both forms of the sentence are

included in the data.

Study Design Discussion

This study provides an example of an uncommon study design in language documentation. Usually, some amount of travel is involved in field linguistics, even if the researcher is a native speaker of the object language. For this study, I was able to collect data from participants remotely. I had my share of difficulties, including internet delays, time zone calculations and technology problems. Nevertheless, I completed my study while avoiding many of the hazards of typical field research, such as costly airfare and lodging, technology problems in the field and a narrow time window for data collection. While the advent of the internet has put many minority languages at risk, this study is a positive illustration of how the internet may be used in the documentation of these languages. As the internet spreads to more remote regions, similar studies to mine may also help in the preservation and revitalization of vulnerable dialects and languages such as those in Manipur.

Chapter 5: Conclusion

Summary

Vaiphei VSAs, like those of other KC languages, are not phonologically predictable, but do follow a limited set of segmental and tonal patterns that mirror those of other KC languages. I identified five segmental patterns in Vaiphei VSAs. The nature of these phonological patterns support the theory that VSAs emerged from two separate proto affixes, as suggested by Chhangte (1993), Matisoff (2003) and King (2009).

Vaiphei uses VSAs to perform a variety of functions. While every VSA in Vaiphei cannot be limited to a single function, the functions performed may be categorized into valency changes, subordination, nominalization and agency focus. Irrealis may sometimes neutralize VSA, causing some subordinate clauses to use Stem I instead of Stem II as expected.

The functions of VSA in Vaiphei are not identical with those of other KC languages. Most notably, Vaiphei uses the marked verb stem (Stem II) for causative unlike other Northern KC languages and has grammaticalized the verb *piak* to mark benefactive. Using Stem II to mark both causative and benefactive is a feature of Central KC languages; Vaiphei is the only Northern KC language to use Stem II for causative constructions. Analysis of the morphemes "sak" and "piak" explains the unique nature of Vaiphei valency altering functions.

While Vaiphei VSAs differ functionally from other Northern KC languages in this case, Vaiphei verb stem forms match phonological patterns found in Northern Chin

languages. While Vaiphei and Sizang share identical VSA patterns, this is only weak

evidence for VanBik's proposed Sizanic sub-branch, as the single shared innovation

(deletion of final [?]) is common enough to be likely incidental.

Though this study focuses on comparative VSA morphology, other phonological

evidence gathered incidentally points to further evidence against Vaiphei's inclusion in

the Sizanic branch. VanBik (2009) notes that Sizang underwent two rhotic sound

changes:

> In some cases, PKC initial *r- became l- in Sizang. Taken together, the
>
> data...show that it is not possible to predict when PKC initial *r- became Sizang
>
> initial l-, and when it became ŋ-.

However, Vaiphei does not follow either of these sound changes, as evidenced by the

cardinal numbers recorded in Suantak (2013) and the word *gul* "snake" in example (45).

While not definitive proof, these are some signs that Vaiphei does not belong in the

Sizanic subbranch as VanBik suggests.

Research into Vaiphei VSAs has provided insight into the KC language family as

a whole. While I drafted this thesis as an exploration of Vaiphei, it has become a

confirmatory study of Suantak's basic description of Vaiphei. In doing so, I have

provided further documentation of an under-documented language and hope that it

elevates the status of Vaiphei and stimulates further study.

This research provides another example of benefactive grammaticalization in the

Vaiphei benefactive morpheme *–piak* from the verb 'give.', a unique innovation in the

KC family (although a similar grammaticalization occurs in Lahu, another TB language (Heine & Kuteva, 2002)). Some evidence for a Sizanic branch was found, as well as some possible counterevidence. Most importantly, this study provides a jumping-off point for further research into the existence or non-existence of a Sizanic subgroup of Northern KC.

While difficult at times, the methodology used in this study provides an example of field linguistic data collected over VoIP platforms. This study may serve as an example for other studies of minority languages in areas with internet access. The remote study of Vaiphei over the internet shows the new possibilities researchers now have for language documentation and description.

Further Directions

By comparing VSAs in Vaiphei to VSAs in other Northern KC languages, I found evidence for a Sizanic sub-branch including both Vaiphei and Sizang. To complement my comparative morphology study, further research should find phonological and syntactic evidence to either confirm or reject the Sizanic sub-branch hypothesis.

VanBik's proposed Sizanic sub-branch of Northern KC also includes other languages: Guite, Nguite and Zo. Data from these languages would help to determine their inclusion in (and existence of) a Sizanic sub-branch. Any comparative phonology and morphology could shed light on this subgroup, but of particular interest are VSA and vocalic stress as Button (2011) draws attention to.

Finally, more data from Northern KC languages should be gathered on VSAs. In the Manipur area in particular, language contact between Central Chin languages from Hmar and Mizo may cause innovations attributable to borrowings. The evidence is unclear. Additionally, the benefactive morpheme innovation of *piak* 'give' in Vaiphei is suggestive that more morphological innovations may be occurring in other Northern Chin languages. Many of these languages still remain undescribed.

References

Bareigts, A. (1981). *Les Lautu: contribution à l'étude de l'organisation sociale d'une ethnie chin de Haute-Birmanie*. Paris: Centre National de la Recherche Scientifique, *SELAF*.

Bedell, G., Mang, K.S., Nawl, R.S. & Suantak, K. (2013, August*). The morphosyntax of verb stem alternation*. Presentation presented at 46th International Conference on Sino-Tibetan Languages and Linguistics, Dartmouth College, Hanover, New Hampshire.

Bradley, D. (1997). Tibeto-Burman languages and classification. In D. Bradley (Ed.), *Papers in Southeast Asian Linguistics No. 14: Tibeto-Burman Languages of the Himalayas*, 14, 1-72. Pacific Linguistics, the Australian National University..

Button, C. (2011). *Proto northern chin*. STEDT. University of California, Berkeley.

Chhangte, L. (1993). *Mizo syntax* (Doctoral dissertation). University of Oregon.

Cover, R. (2010). The syntax and semantics of stem 1 and stem 2 in Thadou-Kuki. University of Ohio.

Grierson, G. (1903). Specimens of the KC and Burma groups. In G. Grierson (Ed.), *Linguistic survey of India: Tibeto-Burman family*. Office of the superintendent of government printing, India.

Heine, B., & Kuteva, T. (2002). *World lexicon of grammaticalization*. Cambridge

University Press.

Henderson, E. (1965). *Tiddim Chin: a descriptive analysis of two texts*. London Oriental

Series #15. London: Oxford University Press.

Hyman, L. (2007). Kuki-Thaadow: an African tone system in southeast asia. University

of California, Berkeley.

Kathol, A. & VanBik, K. (2001). The syntax of verbal stem alternations in Lai.

University of California, Berkeley.

King, D. (2009). Structural and pragmatic functions of KC verbal stem alternations.

Journal of the Southeast Asian Linguistics Society, 1, 141-157.

King, D. (2010). *Voice and valence-altering operations in Falam Chin: A role and

reference grammar approach* (Doctoral dissertation). University of Texas at

Arlington.

Mang, K. (2006). *A syntactic and pragmatic description of verb stem alternation in

K'Cho, a Chin language* (Master's thesis). Payap University, Chiang Mai,

Thailand.

Matisoff, J. A. (2003). Handbook of Proto-Tibeto-Burman: system and philosophy of

Sino-Tibetan construction (Vol 135). University of California Press.

Melnik, N. (1997). Verbal alternations in Lai. *Linguistics of the Tibeto-Burman Area, 20*(2), 163-172.

Peterson, D. A. (2000). On the status of the Southern Chin subgroup. In *33rd International Conference on Sino-Tibetan Languages and Linguistics*, Bangkok, Thailand (79-98).

Sarangthem, B., & Madhubala, P. (2011). A brief introduction to the sound system of Sizang, a KC language. *Language in India*, *11*(4).

Simons, Gary F. and Charles D. Fennig (eds). 2017. *Ethnologue, Languages of the World, Twentieth edition.* Dallas, Texas. SIL International. Online version http://www.ethnologue.com

Stern, Theodore. (1963). A provisional sketch of Sizang Chin. *Asia Minor, 10,* 222-278.

Suantak, K. (2010). Some aspects of Vaiphei phonology: A Tibeto-Burman language of Manipur. In J. War, S. K. Singh, S. A. Lyngdoh & B. Khyriem (Eds.), *Tibeto-Burman Linguistics of North-East India* (175-182). Guwahati: EBH Publishers.

Suantak, K. (2013). *Vaiphei phonology and morphology.* (Master's thesis). North-Eastern Hill University, Shillong, India.

Thuan, K. (2008). *A phonological description of Falam* (Master's thesis). Payap University, Chiang Mai, Thailand.

VanBik, K. (2009). *Proto-KC: a reconstructed ancestor of the KC languages*. Sino-

Tibetan Etymological Dictionary and Thesaurus Project, Department of

Linguistics research unit, University of California, Berkeley.

Appendices

Appendix A: Conventions and Abbreviations

In this study, I used abbreviations from the Leipzig Glossing Rules in my morpheme glosses in examples. Because of the focus on Verb Stem Alternations, I typed Vaiphei verbs stems in bold along with their morpheme gloss and free translation. Verb Stem is indicated with Roman numerals after a period. While this differs from the Leipzig Glossing Rules, this is the common convention in most KC language literature. The list of abbreviations is as follows:

1 first person	INTR intransitive
2 second person	LOC locative
3 third person	NEG negation, negative
ADV adverb(ial)	NMLZ nominalizer/nominalization
ANTP antipassive	OBJ object
BEN benefactive	OBL oblique
CAUS causative	PL plural
COND conditional	POSS possessive
DECL declarative	PST past
DEM demonstrative	Q question particle/marker
ERG ergative	REFL reflexive
FUT future	REL relative
GEN genitive	SG singular
IMP imperative	TOP topic

Appendix B: Vaiphei Orthography

Vaiphei orthography possesses a small number of conventions that may not be intuitive

to outside readers. Those relevant to this thesis are described below.

Apostrophes represent a contraction, not a glottal stop, ejective or accent. These

are used similarly in English, and most often contract the ergative marker *in* and the

sentence final particle *hi*.

a.   Kei   in   b.   Ke'n

    I   ERG   I=ERG

a.   Pia   a   hi   b.   Pia'i

    Give.I   3SG   DECL   Give.I=DECL

The letter "h" at the end of a syllable represents a glottal stop /ʔ/. Elsewhere, it is

used either as the voiceless glottal fricative /h/ or as part of a digraph.

ah	/aʔ/
tha	/tʰa/
pha	/pʰa/
kha	/xa/ ~ /kxa/
cha	/ʧa/

<aw>is a monophthong "o" sound, [ɔː], not a diphthong [ow] or [aw].

Appendix C: Deletion or Epenthesis

Most descriptions of VSAs in KC languages include an epenthesis rule. This rule is non-predictable, and VSAs that follow the epenthesis pattern receive either a /t/ or /k/ final stop. This may instead appear to be a deletion rule rather than epenthesis, however several pieces of evidence support the theory that the verb stems without final stops are underlying and that the stems with final stops are derived.

The first piece of evidence is the function of Stem I verbs. As noted in Hyman & Haokip, 2003, Stem II verbs are the derived forms of Stem I verbs. Verbs such as *pia/piak* and *hia/hiat* reserve the stop-final forms for Stem II functions.

Secondly, Stem II verbs possess a smaller phonemic inventory than Stem I verbs. To further prove the point, the tone inventory of Stem I verbs is varied while Stem II verbs almost universally carry low tone. The smaller phonemic inventories in Stem II verbs is strong evidence that these are the derived forms.

Researchers have theorized that the genesis of VSA in KC languages stems from postverbal affixing morphemes. Researchers Chhangte (1993), Matisoff (2003) and King (2009) have all proposed two proto-morphemes as the genesis of VSAs (see Table 8). While some verbs retain all three forms, cross-linguistic analysis has shown that most language only retained one derived form and discarded the other. This may explain why two different and unpredictable final stops /t/ and /k/ may both appear for the same epenthesis rule.

Appendix D: Vaiphei Verb List

English (from King, 2010)	Vaiphei
resist	`nang, dou
weep, cry	**kap**
good, kind	**pha**
grow	khang
tear	bot thek
ask	**dawng**
make liquid flow out through a pipe	luang
crazy, mad	ngol
salt	chi
burn	kang
open (mouth)	kaa
cut	aat
rock (a baby), lull	**awi**
obey (word)	thu-mang
trap, stuck	awk
exempt (doesn't have to work)	awl, chawl
open	**hong**
owe, due	bat
dirty	nien
dismiss, stop	pêl
tired	gîm
hang	khai
speak, talk, worship	pau, bia
start working at a farm –place has to do with cultivation-	lo kun
strong	hat

borrow, lend	khel, baa (money)
rest	kichawl
imitate	enton **(en=look)**
stay (animals stay in one place eating for several days), enjoy	cheng
plant, sow	phu, tu (seed)
remember	he na alai **(hia=know)**
barren (animate)	ching
eat something small (berry, sunflower seed, grain of rice)	chip
bite (snake)	chu
pick up (small things with fingers)	zen
be different, differentiate	ki bang lo
covet	eng
receive	dong
stab	dawt, sun (pierce)
wax (the moon on the first day it appears)	thathak
throw	sep
stand, straight	ding
love	hepi, ngai, lungsia
advance to fight (like two fighting animals, wresting men)	zuan
visit whole area, make the rounds	fang
suck, kiss	chawp
chew/suck (sugar cane only)	chep (straw)
clear	thiang
turn	hei
skin (animal), remove (a roof)	hawk
search, look for, get (for someone), find	hawl
herd (gather animals in a group)	hawn

far	gamla
give, lend	khel
use	mang
massage	mek
see, show	mu
reject	nol
wait	ngak
laugh	nui
blow (wind)	hang
tie	khet, hen (larger)
deliver (a baby)	hing (begat) nau ne
wipe, clean off (something dirty)	not, not hul (dry) not
put on, dress	ak, cheng (for pants)
hate	mudaa
finish	**zo**
come up	hung tou
cover	sit (for a pot), khu
lie down	lie down
sleep	ipmu, imu (imut
arrest, catch	man
shoot	kap
break (in pieces), shatter	kek
hold	dol (fit), choi
hatched	keu
bitter	kha
draw water	khai
prop up (leg), place something straight and long across two	khang

become solid, solidify, congeal	khal
full	dim
nail, beat with hammer	khen
break, snap	bong
put on (headwear, umbrella)	khuk
expensive	mantam
shiver, tremble	ki thing
broken	kiak (shattered)
call	ko
take	**la**
dig	chou
play	ki hel
cultivate, plow	kal
lick	liak
rich	hausa, neizou
flow	luang
obey	thu mang
recollect dream	mang (dream)
shave	met
sick	na (pain) dam lo
have	nei
enjoy, joyful	nuam (enjoyable,
live	hing
blossom	pak
carry on back	pua
have a hole, understand	hom (to have a hole)
give	**pia, pe**

worry	lung gim, kham
proclaim, reveal, declare	puang
carry (on head or shoulders)	pua
come to surface	ki lap
increase	pung
carry	pua
come	hung
insert	thun
serve	hom
steal	gu
think	ngai tua
repay	thuk, dit
come down	hung suk
scoop	suak
hot	sà
sing	sa, sak
borrow	khel
up high, tall	**sàng**
receive	sàng
cook	huan
kill, slay	**that, thaa**

Appendix E: Consent Forms

Portland State University

Consent to Participate in Research

Verb Stem Alternation in Vaiphei

1.28.2016

You are being asked to participate in a research study that is being done by Jesse Prichard, a Masters student in the Department of Applied Linguistics at Portland State University in Portland, Oregon. This research is studying Verb Stem Alternations in the Vaiphei language.

You are being asked to participate in this study because you are a Vaiphei speaker.

This form will explain the research study, and will also explain the possible risks as well as the possible benefits to you. We encourage you to talk with your family and friends before you decide to take part in this research study. If you have any questions, please ask one of the study investigators.

What will happen if I decide to participate?

If you agree to participate, the following things will happen:

I, Jesse Prichard, will contact you to choose a convenient time to set up an interview on Skype. I will then ask you to translate simple sentences from English to Vaiphei. I will digitally record these interviews. After transcribing and analyzing them, I will send you my preliminary findings.

How long will I be in this study?

Participation in this study will take no more than two hours over a period of two weeks.

What are the risks or side effects of being in this study?

There are risks of stress, emotional distress, inconvenience and possible loss of privacy and confidentiality associated with participating in a research study.

This study will take some of your time.

To safeguard your privacy, elicited sentences will focus on hypothetical characters or situations. The digital recordings of your interviews will be stored for three years; at your request, I will erase your recorded interviews.

Neither the study itself, nor your participation or non-participation, will impact your your relationship with any religious institution or faith.

For more information about risks and discomforts, ask the investigator.

What are the benefits to being in this study?

The benefits of being in this study include advancing the status of Vaiphei, assisting other researchers interested in studying Vaiphei, and documenting the language for future learners.

How will my information be kept confidential?

We will take measures to protect the security of all your personal information, but we cannot guarantee confidentiality of all study data. Your name and other identifiers will not be used in the study. However, your interviews may be presented in the research in

written form. The digital copies of your interviews will be kept in a locked cabinet, and

access will only be given to them from the Institutional Review Board. Your name will

not be used in any published reports about this study.

Will I be paid for taking part in this study?

No.

Can I stop being in the study once I begin?

Your participation in this study is completely voluntary. You have the right to choose not

to participate or to withdraw your participation at any point in this study without penalty

or loss of benefits to which you are otherwise entitled.

Whom can I call with questions or complaints about this study?

If you have any questions, concerns or complaints at any time about the research study,

Jesse Prichard, or his/her associates will be glad to answer them at 509.869.1534 or

jprich2@pdx.edu

Whom can I call with questions about my rights as a research participant?

If you have questions regarding your rights as a research participant, you may call the

PSU Office for Research Integrity at (503) 725-2227 or 1(877) 480-4400. The ORI is the

office that supports the PSU Institutional Review Board (IRB). The IRB is a group of

people from PSU and the community who provide independent oversight of safety and

ethical issues related to research involving human participants. For more information,

you may also access the IRB website at

https://sites.google.com/a/pdx.edu/research/integrity.

CONSENT

You are making a decision whether to participate in this study. Your signature below

indicates that you have read the information provided (or the information was read to

you). By signing this consent form, you are not waiving any of your legal rights as a

research participant.

You have had an opportunity to ask questions and all questions have been answered to

your satisfaction. By signing this consent form, you agree to participate in this study. A

copy of this consent form will be provided to you.

_____   _____   _____

_____   _____   ___

Name of Adult Subject   Signature of Adult Subject

                                                              Date

(type)   (type)

INVESTIGATOR SIGNATURE

This research study has been explained to the participant and all of his/her questions have been answered. The participant understands the information described in this consent form and freely consents to participate.

_____

Name of Investigator/ Research Team Member (type)