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ABSTRACT

This paper attempts to discuss the different processes of word formation in contemporary Liangmai, a Tibeto-Burman language of the Kuki-Chin-Naga sub group (Bradley 1997). According to Census of India, 2011, the language is spoken by 49469 speakers in the state of Manipur and Nagaland, in the northeastern part of India. This paper discusses a detailed description of the word formation processes that are relevant in Liangmai, namely affixation, compounding and reduplication. Affixation consists of prefixing and suffixing. Infixing is not found in the language. The process of compounding is used extensively in word formation in Liangmai. Compound words in Liangmai can be categorized according to the semantic criteria into endocentric and exocentric compounds. The resultant compounds in the language are almost exclusively nominal. Reduplication is also a common word formation process in the language. Both complete and partial reduplication are used and reduplicated words indicate concepts like distributive, exclusive, plurality, etc. Like other TB languages of the region, Liangmai is an agglutinative language.

KEYWORDS

Word formation, Liangmai, Tibeto-Burman, Kuki-Chin-Naga, Affixation, Compounding, Reduplication

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1 Introduction

Liangmai (ISO 639-3: njn) is an ethno-linguistic term that stands for both the tribe and the language. Liangmai lives in a contiguous area of North Western Manipur and Southern part of Nagaland. Its population is predominantly concentrated in Tamei sub-division of Tamenglong in Manipur. A large chunk of its population is also found in Koubru Mountain range and Makuilongdi area in Senapati district of Manipur. In Nagaland some Liangmai villages are located in the Barak range under Tening Sub-Division of Peren district. Besides these, considerable populations of the speakers had migrated to urban areas like Imphal, Kohima and Dimapur. The total Liangmai population in Manipur as per the census of India 2011 was 47789. The nomenclature of Liangmai has been a complicated one and till recent, the people have had to go along with the wrong tag or false name given to them. In Manipur, the term Kacha Naga[1] was used to refer to Zeme and Liangmai. "The Linguistic Survey of India (1903-08) lists languages like Empeo, Kabui, Kwoireng, and Tamlu. These "paleonyms" have since been replaced by the "neonyms" Zeme, Nruanghmei, Liangmai and Phom respectively" (Matisoff 1996: xiii). The nomenclature of the Liangmai in Manipur was finally corrected in 2011. The Constitution (Scheduled Tribes) Order (Amendment) Bill[2] recognised Liangmai, Zeme, Rongmei and Puimei as separate tribes in Manipur. In Nagaland, Zeme and Liangmai are still jointly recognized as Zeliang.

Grierson (1903), in his Linguistic Survey of India, assigned each of the Naga language a definite place in the family of Tibeto-Burman languages. According to him, between Angami-Naga and the Bodo languages there is a group, which he calls the Naga-Bodo group, bridging over the difference between the characteristic features of the two forms of speech, and similarly, between Angami-Naga and the Kuki languages there is another group which he calls the Naga-Kuki group. The Naga-Bodo group consists of two main languages, viz., Mikir and Kachcha Naga. Subordinate languages closely akin to but not dialects, of, Kachcha Naga, are Kabui Naga and Khoirao Naga. He

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[1] It is believed to have been derived from the Angami word *'Ketsa'* which means 'thick forest'. The legend has it that an outsider came to Kohima in Nagaland and asked the locals pointing towards the Liangmai and Zeme inhabited area whether any people lived beyond the thick forest. The local people answered in affirmative saying that there are people living beyond the *'Ketsa'*. Since then outsiders referred to people living beyond the thick forest as 'Ketsa Naga'. Later the word got corrupted as 'Kacha Naga' or 'Kachcha Naga'.

[2] The Constitution (Scheduled Tribes) Order (Amendment) Bill, 2011. The Bill amended the Constitution (Scheduled Tribes) Order, 1950 to modify the list of the Scheduled Tribes in the states of Manipur and Arunachal Pradesh. It substituted Kacha Naga with Liangmai and Zeme in Manipur. For details see http://www.prsindia.org/billtrack/the-constitution-scheduled-tribe-order-amandment-bill-2011-2096/

did some work on 'Kachcha Naga' or 'Empeo' and 'Kabui or Kapwi'. The language of specimen that Grierson used for 'Kachcha Naga' is Zeme and for the 'Kabui' he used Rongmei. In this way Liangmai was missed out and no work was done on it. Interestingly, some vocabularies of Liangmai are found in Linguistic Survey of India Vol. III, Part II, page 480, listed under 'Kwoireng or Liyang'. Another important point to be clarified here is that 'Kwoireng' and 'Liyang' are not the same language. The language of the Kwoireng is certainly a form of Kuki-Chin; however Liyang is a Naga language closely related with Kacha Naga and Kabui. This distinction between Kwoireng and Liyang is rightly pointed out by Grierson (1903:462). The words used in the list are of Liyang (Liangmai).

In the classification of the TB languages of the Sino-Tibetan family, Liangmai is placed in the Naga-Bodo subgroup by Grierson-Konow (1903-1928). Benedict (1972) placed the Empeo and the Kabui under the Kuki-Naga group. The Naga-Kuki subgroup includes Sopvoma or Mao-Naga, Maram, Miyangkhang, Kwoireng or Liyang. Matisoff (1996:54) placed Liyang or Liangmai as a subtribe of Zeme, under west-kukish branch based on the work of Shafer[3]. Burling (2003:186-187) also puts Liangmai in Zeme group along with Mzieme (Zeme), Nruanghmei (Rongmei, Kabui), Puiron, Khoirao and Maram. In the classification of Tibeto-Burman language family of Bradley (1997) Liangmai comes under Zeliangrong[4], which falls under the Southern Naga of the Kuki-Chin-Naga. As mentioned earlier, Liangmai is not a Kukish language but a Naga language closely related to Zeme and Rongmei[5].

Research and scientific work in the language is minimal. Therefore, this paper is an attempt to bring Liangmai into the mainstream of linguistic discussion, especially the process of word formation. The data I used in the study are collected mainly from Tamenglong in Manipur. Being a native speaker of the language, I also rely on my knowledge of the language for data elicitation. The present study is more or less exploratory in nature. I have adopted a 'morpheme-based descriptive' model of word formation with an attempt to list all possible derivational affixes and as many morphemes as possible in compounding and reduplication.

2 Structure of Liangmai Word

To understand the word-formation processes in Liangmai, it is important to first understand the structure of Liangmai words. The open classes in Liangmai are Nouns and Verbs. There are two types of roots, free and bound. Most nouns in the language are free roots, for instance, *kʰam* 'door', *əriak* 'book', *naimik* 'sun' etc. However, there are nominal bound roots as well. Bound roots can be broadly classified as nominal bound roots and verbal bound roots. Kinship terms, body parts, etc. can be categorized as nominal bound roots because it needs one of the personal prefixes to give its complete meaning. All the verbal roots are bound. The rational argument for categorizing the bound roots as nouns and verbs is that the nominal bound roots remains as noun even after adding affixes. On the contrary, verbal roots are all action related roots.

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[3] See Shafer, Robert. 1966-67/1974. Introduction to Sino-Tibetan ["IST"]. Part I, 1966; Part II, 1967. Otto Harrassowitz. Wiesbaden [1974: Chapters 25-end.]
[4] It is a composite name built from the first syllable of the three tribes: Zeme, Liangmai and Rongmei. They are believed to be descendants of a common ancestor, with common origin, ethnic, cultural and linguistic affinity. People of these three tribes dearly embrace themselves as one in social-political realm even though they are separately recognized as different tribes. Their languages shared many cognate words; however, they are not mutually intelligible.
[5] See Sreedhar, P.C. 1981.

Verbs are morphologically distinct from nouns. The Liangmai verb is the most complex morphologically among the word classes in terms of the number of possible affixes on a verb root. Verb takes causative prefix, the prohibitive suffixes, adverbial suffixes and inflectional suffixes like tense, aspect and mood marker. A particular verb may contain multiple affixes. Thus the morphological structure of Liangmai is agglutinating. Liangmai verb morphology does not indicate number, person, gender, or pronominal agreement between the verb and its arguments.

3 Word formation processes in Liangmai

Liangmai words can be morphologically simplex or complex. Simplex word is an independent word which can stand on its own and consist of one free morpheme. Complex word consists of at least two morphemes. In the following sections I discuss the major types of complex word formation processes in Liangmai, namely affixation, compounding and reduplication.

3.1 Affixation

3.1.1 The Prefix *kə-*

There is no distinct category of adjective in Liangmai as 'long' or 'good' in English. The native TB pattern is, for the most part, to express property concepts as nouns (when modifying) or as stative verbs (when predicating) (Grunow-Hårsta 2011: 102). Similarly in Liangmai a modifying adjectival is derived by affixation of a prefix *kə-* to a verbal noun. For example, the adjectival *kəwibo* 'good' is derived from the root *wibo* 'be good': thus, *kəwibo* mai 'a good man' where *mai* is man. This prefix functions in a similar way as the attributive derivational prefix *ə-*, which is used to derive adjectives from verbs in Meiteilon (Chelliah 1997: 86, Singh 2000: 114) and an attributive prefix *a-* which frequently showed up on the head noun in adjective constructions in Karbi (Konnerth 2011:121). The basic function of this *kə-* in Liangmai is appearing before the modifying nouns; therefore we could argue that *kə-* may be called an attributive in Liangmai. It is to be noted here that the nominalizer *-bo* is added to the adjectival form. It is observed that addition of *kə-* without the nominalizer *-bo* at the end is not considered to be a complete form (of adjectival) in Liangmai. However, *kə-* and *-bo* cannot be treated as circumfixal since *-bo* is the general nominalizer in Liangmai and occur in all kinds of nominalized constructions whereas *kə-* occur only with the noun it modifies. Thus, we have the underlying structure;

1. ATT + [Root + NZR]> Adjectival

(a).	kə + wi+bo	>	kəwibo	'good'
(b).	kə + sa+bo	>	kəsabo	'bad'
(c).	kə + kú+bo	>	kəkúbo	'tall'
(d).	kə + na+bo	>	kənàbo	'short/near'
(e).	kə + dí+bo	>	kədíbo	'big'
(f).	kə + siam+bo	>	kəsiambo	'small'
(g).	kə + tʰeŋ+bo	>	kətʰeŋbo	'long'
(h).	kə + dun+bo	>	kədunbo	'short'
(i).	kə + hum+bo	>	kəhumbo	'sweet'

(j).	kə + kʰa+bo	>	kəkʰabo	'bitter'
(k).	kə + tán+bo	>	kətánbo	'strong'
(l).	kə + nù+bo	>	kənùbo	'weak/soft'
(m).	kə + rai+bo	>	kəraibo	'first'
(n).	kə + nàm+bo	>	kənambo	'last'
(o).	kə + tsəriubo	>	kətsəriubo	'anxious'
(p).	kə + mətʰábo	>	kəmətʰábo	'happy'

Adjectivals may precede or follow the nouns they modify, as seen in 2 (a) and (b).

2. (a). tebol-riga   kədíbo   əriak   bam-e
        table-POST   big   book   exist-DECL
        'There is a big book on the table.'

    (b). tebol-riga   əriak   kədíbo bam-e
        table-POST   book   big   exist-DECL
        'There is a big book on the table.'

In this language the attributive prefix *kə-* can be attached to both monosyllabic and polysyllabic base unlike other TB languages like Meiteilon, where formation of adjective by adding the attributive prefix *ə-* is possible only with monosyllabic root (Singh 2000:115).

3. (a). kə + tsəriubo | > | kətsəriubo | 'anxious'
    (b). kə + mətʰábo | > | kəmətʰábo | 'happy'
    (c). kə + məkebo | > | kəməkebo | 'lazy'
    (d). kə + tánbo | > | kətánbo | 'strong/hard'
    (e). kə + núbo | > | kənúbo | 'soft/weak'

However, if the polysyllabic bases are compounds, the prefix *kə-* is not used.

4. (a). *kə + ŋou + wi + bo   >   *kəŋouwibo 'beautiful'
        ATT + see + good + NZR

    (b). *kə + tsùn + wi + bo   >   *kətsùnwibo 'happy'
        ATT + mind + good + NZR

5. (a) ŋou + wi + bo   >   ŋouwibo 'beautiful'
        see + good + NZR

    (b) tsùn + wi + bo   >   tsùnwibo 'happy'
        mind + good + NZR

In example (5), *ŋou* 'see', *tsùn* 'mind' and *wi* 'good' are different verb roots and the compound word *ŋouwi* 'be beautiful' and *tsùnwi* 'be happy' are derived from these roots and adding the nominalizer *-bo* to the compound formed the adjectival *ŋouwibo* 'beautiful' and *tsùnwibo* 'happy'.

Prefixing *kə-* to these compounds is not possible as seen in (4) above. In words like *ŋouwibo* 'beautiful', *kə-* prefix is not utilized.

There is, however, an exceptional case where the prefix *kə-* is used with some non-stative verbs to derived nouns. When occurring with some non-stative verbs, the prefix *kə-* functions like the nominalizing velar prefix *kV-* in Karbi (Konnerth 2011:121). The *kV-* prefix in Karbi is productive in deriving nouns from verbs but in Liangmai this strategy is not fully productive and cannot be used to derive nouns from all verbs. Some examples are shown below.

6.   (a).   tiu 'eat'   kə-tiu 'things to eat (food, eatables)'
         (b).   sak 'drink'   kə-sak 'things to drink (drinks)'
         (c).   tat 'walk'   kə-tát 'journey, mission'

3.1.2   *The Prefix pə-*

The prefix *pə-* is the third person marker in Liangmai. In this language, this prefix can be used with inalienable nouns like body parts, kinship terms, etc.

7.   (a).   pui   'mother'   pəpui   'his/her mother'
         (b).   piú   'father'   pəpiú   'his/her father'
         (c).   ben   'hand'   pəben   'his/her hand'
         (d).   pi   'head'   pəpi   'his/her head'
         (e).   ki   'house'   pəki   'his/her house'
         (f).   lu   'field'   pəlu   'his/her field'

Moreover, it also functions as a nominalizing prefix when used with stative verb roots and the resulting words denote abstract entity.

8.   (a).   tʰeŋ   'be long'   pə-tʰeŋ 'length (or the degree of longness)'
         (b).   dí   'be big'   pə-dí   'breadth (or the degree of bigness)'
         (c).   suk   'be deep'   pə-súk 'depth (or the degree of deepness)'
         (d).   kú   'be high/tall'   pə-kú   'height (or the degree of highness)'
         (e).   rit   'be heavy'   pə-rit   'weight (or the degree of heaviness)'

The sentence examples 9 (a) and (b) show the use of *pə-* in the derivation of nouns from stative verb roots.

9.
(a).   pui-piú-gu   luŋsiat pə-súk   mədat   ŋam-lak-e
      mother-father-GEN   love   3P-deep   measure   able-NEG-DECL
      'The depth of parent's love cannot be measured.'

(b).   wí   təsiŋ-baŋ-gu   pə-kú   mədat-lo
      that   wood-CLA-GEN   3P-high   measure-IMP
      'Measure the height of that tree.'

This *pə-* in Liangmai also functions as a nominalizing prefix when attached to any action oriented roots; it indicates 'the manner of', or 'the way of' performing the action.

10.	(a).	tat	'walk'	pə-tát	'the way of his/her walking'
	(b).	zi	'sleep'	pə-zi	'the way of his/her sleeping'
	(c).	tiu	'eat'	pə-tiu	'the way of his/her eating'
	(d).	sak	'drink'	pə-sak	'the way of his/her drinking'
	(e).	ken	'read'	pə-ken	'the way of his/her reading'
	(f).	pak	'run'	pə-pak	'the way of his/her running'
	(g).	pʰui	'look'	pə-pʰui	'the way of his/her looking'
	(h).	pí	'give'	pə-pí	'the way of his/her giving'
	(i).	rao	'write'	pə-rao	'the way of his/her writing
	(j).	sai	'die'	pə-sai	'the way of his/her death'

3.1.3 *The Prefix pí-*

In Liangmai, prefix *pí-* can occur with all verb stems. There is much evidence that in Tibeto-Burman languages the verb 'give' undergoes a common grammatical process to form a benefactive and causative (Matisoff 1989: 40-45, 2003: 219). In meiteilon, the lexicalized meaning for *-pí* falls somewhere between a benefactive and a causative (Chelliah 1997: 213). Similarly, *pí-* is prefixed to the verbal stems to form causative in Liangmai.

11.	(a).	sak	'drink'	pí-sak	'feed/ cause to drink'
	(b).	tiu	'eat'	pí-tiu	'feed/cause to eat'
	(c).	pak	'run'	pí-pak	'cause to run'
	(d).	tat	'walk'	pí-tat	'cause to walk'
	(e).	zi	'sleep'	pí-zi	'cause to sleep'
	(f).	taó	'sit'	pí-taó	'cause to sit'
	(g).	ken	'read'	pí-ken	'cause to read'
	(h).	tsap	'stand'	pí-tsap	'cause to stand'

12.
(a). rina-niu ŋena-tu dui pí-sak-e
rina.3FS-AGT baby-ACC milk CAUS-drink DECL
'Rina feed the baby (with milk)'

(b). oja-niu əriakna-duŋ-tu əriak ken-si-mak zeŋniu
teacher-AGT student-PL-ACC book read-know-NEG CONJ
pí-tsap-kʰai-e
CAUS-stand-put-DECL
'The teacher punished the students (by making them stand) because they didn't learn their lesson'

This prefix *pí-* can also be used with a permissive function as shown in 13.

13.   i-niu   pə-tu   pí-tat   mide
          I.1PS-AGT   3PS-ACC   CAUS-go   PERF
          'I have let him go'

3.1.4 *The nominalizer suffix –bo*

Nominalizations are a common phenomenon in Tibeto-Burman languages and they are highly productive. In these languages, like Meiteilon, even the stative verb can be nominalized (Singh 2000: 171). In Liangmai, all the verbal roots[6] can be nominalized by suffixing –*bo* and can function in a number of ways.

14.   **Action Verbal Roots**

(a).   tiu+bo   >   tiu-bo
       eat+NZR   'to eat'
(b).   sak+bo   >   sak-bo
       drink+NZR   'to drink
(c).   pí+bo   >   pí-bo
       give+NZR   'to give'
(d).   dap+bo   >   dap-bo
       beat+NZR   'to beat'
(e).   tat+bo   >   tat-bo
       go+NZR   'to go'
(f).   kap+bo   >   kap-bo
       cry+NZR   'to cry'
(g).   pak+bo   >   pak-bo
       run+NZR   'to run'
(h).   ken+bo   >   ken-bo
       Read+NZR   'to read'

15.   **Process Verbal Roots**

(a).   kai+bo   >   kai-bo
       fall+NZR   'to fall'
(b).   lén+bo   >   lén-bo
       fly+NZR   'to fly'
(c).   məten+bo   >   məten-bo
       float+NZR   'to float'
(d).   məziŋ+bo   >   məziŋ-bo
       climb+NZR   'to climb'

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[6] All the action, process and stative roots are bound roots.

16. **Stative Verbal Roots**

(a). wi+bo   >   wibo
      good+NZR   'be good'
(b). sa+bo   >   sabo
      bad+NZR   'be bad'
(c). kú+bo   >   kúbo
      tall+NZR   'be tall'
(d). na+bo   >   nabo
      near+NZR   'be near'
(e). dí+bo   >   díbo
      big+NZR   'be big'
(f). siam+bo   >   siambo
      small+NZR   'be small'
(g). tʰeŋbo   >   tʰeŋbo
      long+NZR   'be long'
(h). dun+bo   >   dunbo
      short+NZR   'be short'

In addition to its normal function of deriving nominal forms from their corresponding verbal roots, this suffix *-bo* is also used in relativization (17.a.) and gerund constructions (17.b.).

17.   (a).   i-niu   danai   liubo   əriak   si   wi-e
             1PS-AGT   yesterday buy-NZR   book   DET   good-DECL
             'The book I bought yesterday is good'

      (b).   zao   sakbo   tsəpúm-leŋ   wi-mak-e
             wine   drink-NZR   body-POST   good-NEG-DECL
             'Drinking wine is not good for body' (Lit: Drinking is injurious to health).

3.1.5 Agentive nominalizer –mai

In Liangmai, nouns and verbs can be nominalized by the agentive nominalizer *-mai*, to derive an agentive noun. This nominalizer is derived from the noun *tsəmai* meaning 'man or person'. Its function is similar with the Mongsen Ao agentive nominalizer *-eɹ* (Coupe 2007: 263). This derivation usually denote either a type of agent or a referent whose habitual activity is characterized by the meaning denoted by the nominal base in the case of nominalization of noun (literally: the one who has to do with noun) as in (18 a and b). In the case of nominalization of verbal base it denotes the meaning 'the one who VERBs' as in (18 c,d,e and f). This type of nominalization is restricted to nouns with human referents.

18.   (a).   nam-mai
             village-man
             'Villager' (Lit.: the one in or from village)

(b). tsəri-mai
war-man
'Warrior'

(c). ken-mai
read-man
'Reader'

(d). mətʰen-mai
play-man
'Player'

(e). kamsat-mai
kill-mai
'Killer'

(f). əlaŋ-mai
cook-man
'Chef/cook'

3.1.6 Derivation of manner adverbials

Adverbs in Liangmai are mostly derived by suffixing *-ziu* to the corresponding stative verbs as below in (19).

19. (a). mətʰá 'happy'   mətʰá-ziu 'happily'
    (b). kəlaŋ 'quick'   kəlaŋ-ziu 'quickly'
    (c). wi 'good'   wi-ziu 'safely'
    (d). məke 'lazy'   məke-ziu 'lazily'
    (e). məla 'easy'   məla-ziu 'easily'
    (f). lúŋsa 'love'   lúŋsa-ziu 'lovingly'
    (g). məsen 'like'   məsen-ziu 'with lots of attraction'
    (h). məriŋ 'hate'   məriŋ-ziu 'with lots of hatred'
    (i). si 'know'   si-ziu 'knowingly'
    (k). tsəriu 'tire'   tsəriu-ziu 'with lots of suffering'
    (l). tán 'strong/loud'   tán-ziu 'loudly'

The use of *-ziu* are exemplified in the sentences below.

20. (a). pə   tsəki kəlaŋziu   tat   mide
         s/he.3S   house quick.Adv go   PERF
         'S/he quickly went home.'

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(b).　　tina　　　　　　tsəlui　tánziu　　　　tʰiù-bam-e
　　　　tina.3S　　　　　song　loud.Adv　　　sing-PROG-DECL
　　　　'Tina is singing loudly.'

(c).　　pə-liu　　　　　　deli　wiziu　　　taŋ　de
　　　　they.3PL　　　　　delhi　good.Adv　　reach　PERF
　　　　'They have reached Delhi safely.'

A solitary case of forming adverbial with a suffix *-na* is found with the verb *koi* 'slow'. The regular adverbial suffix *-ziu* cannot be attached to this root.

21.　　(a).　　tiŋ　　koina　　　　riu-bam-e
　　　　　　　rain　　slow.Adv　　fall-PROG-DECL
　　　　　　　'It is raining slowly/ the rain is falling slowly.'

　　　　(b).　　tsəŋam koina　　　　kam-lo
　　　　　　　work　slow.Adv　　　do-IMP
　　　　　　　'Do the work slowly.'

22.　　(a)*.　tiŋ　　koi-ziu　　　riu-bam-e
　　　　　　　rain　　slow.Adv　　fall-PROG-DECL
　　　　　　　'It is raining slowly/ the rain is falling slowly.'

　　　　(b)*.　tsəŋam koi-ziu　　　kam-lo
　　　　　　　work　slow.Adv　　　do-IMP
　　　　　　　'Do the work slowly.'

3.2 *Compounding*

Compounding in Liangmai is highly productive. It is understood to be the process where new words are formed by at least two bases which can occur elsewhere as independent words. In Liangmai, compound words are formed by combination of one free form and one bound root. So it represents a grammatical device by which complex words are formed from smaller units that function independently in any other circumstances. Compound words in Liangmai can be subdivided according to the form class of the resultant compounds i.e., the resultant compounds may be a nominal, adjectival etc. It may also be categorized according to the semantic criteria into endocentric and exocentric compounds.

3.2.1 *Endocentric Compound*

Compounds which have a head are called endocentric compound. The head of the compound is that root which determines the category of, or is the main referent of the compound. Most of the compound words of Liangmai are endocentric in nature, where one of the constituent elements functions as the head of that compound. For instance, *kəbui-dui* 'milk' is an endocentric compound consisting of two elements, namely *kəbui* 'cow' and *dui* 'water'. In this compound *dui* 'water/milk' functions as the head and *kəbui* 'cow' functions as the attribute of *dui* 'water'.

Endocentric compounds are divided into right-headed endocentric compounds and left-headed endocentric compounds.

3.2.1.1 Right-headed Compounds

Generally, in the right-headed compounds, the constituent elements are of nominal bases. In the case of right-headed noun + noun compound the first root modifies the second root as shown in examples below. The resulting meaning of noun + noun compound is always a noun.

23. (a). əriak + ki (book + house)   >   əriak-ki 'school'
    (b). tsəpiu + ki (medicine + house)   >   tsəpiu-ki 'hospital'
    (c). tsəbaŋ + ki (slave + house)   >   tsəbaŋ-ki 'prison'
    (d). məkʰui + dui (bee + water)   >   məkʰui-dui 'honey'
    (e). mik + dui (eye + water)   >   mik-dui 'tears'
    (f). tsəgan + li (curry + pot)   >   tsəgan-li 'curry pot'
    (g). kətsa + li (tea + pot)   >   kətsa-li 'teapot/kettle'
    (h). mai + meŋ (man + image)   >   mai-meŋ 'picture'
    (i). zóu + piaŋ (wine + cup)   >   zóu-piaŋ 'wine cup'
    (j). məluaŋ + tuan (hill + top)   >   məluaŋ-tuan 'top of a hill'
    (k). tsəwaŋ + dî (king + land)   >   tsəwaŋ-di 'kingdom'

Right-headed nominal compounds such as noun + verb compounds are also used in Liangmai. In such compounds the first root is the patient of the second root, i.e., the first root modifies the second root. However, in such cases the verbal root which functions as the head of the compound is to be assumed as a verbal noun whose nominalizing suffix *-bo* has been deleted during the process of compounding.

24. (a). lat + rian (language + fix)   >   lat-rian 'promise/vow'
    (b). pi + run (head + wear)   >   pi-run 'cap'
    (c). mik + run (eye + wear)   >   mik-run 'spectacle'
    (d). ben + pa (hand + flat)   >   ben-pa 'palm'
    (e). pʰi + pan (foot + kick)   >   pʰi-pan 'foothold'
    (f). pʰi + tʰuap (foot + cover)   >   pʰi-tʰuap 'shoe'
    (g). zeŋ + pʰi (day + earn)   >   zeŋ-pʰi 'wage'

3.2.1.2 Left-headed Compounds

In the left-headed compounds the second root modifies the first root. The constituent element of such compound in Liangmai is usually nominal root and verbal root. Left-headed noun-verb compounds in Liangmai demonstrate a modified modifier order of constituents in which a noun stem is the head. The resulting compound is always a noun.

25. (a). puat + rit (thing + be heavy)   >   puat-rit 'burden'
    (b). dui + dí (water + be big)   >   dui-di 'flood'
    (c). kaŋ + di (group/gang + be big)   >   kaŋ-di 'multitude'
    (d). muaŋ + ziu (cloud + gathering)   >   muaŋ-ziu 'mist'

(e).	nam + dí (village + be big)	>	nam-dí 'city/town'
(f).	təsiŋ + pek (wood + be flat)	>	təsiŋ-pek 'plank/board'
(g).	dui + lúm (water + be warm)	>	dui-lúm 'warm/boil water'
(h).	ben + siam (hand + to make)	>	ben-siam 'handicraft'

There are some compound verbal bases formed by combination of nominal roots and verbal roots in Liangmai. Such type of compound may be regarded as involving a process of 'noun incorporation'.

26.	(a).	lùŋ + tsəriu (heart + be tire)	>	lùŋ-tsəriu 'to worry'
	(b).	tədui + pʰum (water + be submerge)	>	tədui-pʰum 'to baptize'
	(c).	tədui + kʰiu (water + wash)	>	tədui-kʰiu 'to take bath'
	(d).	əzai + zek (pond + to climb)	>	əzai-zek 'to swim'

3.2.2 Exocentric Compound

In exocentric compounds the constituent elements does not function as the head of the compound. In other words compounds without head are known as 'exocentric compounds'. In Liangmai exocentric compounds are not as numerous as endocentric. Some examples of exocentric compounds are as follows:

27.	(a).	naimik + pui (sun + way)	>	naimik-pui 'day'
	(b).	tsəra + ga (deity + crab)	>	tsəra-ga 'scorpion'
	(c).	lúŋ + sa (live + be bad)	>	lúŋ-sa 'poor'
	(d).	lúŋ + wi (live + be good)	>	lúŋ-wi 'rich'

3.2.3 Co-ordinate Compound

Another type of compounds found in Liangmai other than endocentric and exocentric is the co-ordinate or conjunctive compounds. In these types of compounds there is no semantic head. It consists of two roots that are identical, interrelated, or opposite in meaning. In co-ordinate compounds the constituent elements are generally noun. These types of compound are used in normal discourse as well as in formal literature to signify broader semantic types apart from their actual normal semantics. They are known as Dvandva compounds in traditional Indian grammar (Kachru 2006).

28.	(a).	poú + pé grandfather + grandmother	>	poú-pé 'ancestor'
	(b).	tsəheŋ + tsəŋiu sword + spear	>	tsəheŋ-tsəŋiu 'weapons'
	(c).	tíŋ + kadí sky + land	>	tíŋ-kadí 'universe'
	(d).	tíŋ + nai sky + sun	>	tíŋ-nai 'climate'
	(e).	pui + piú mother + father	>	pui-piú 'parent'

(f).	tsəki + tsəlu	>	tsəki-tsəlu 'property'
	house + field		
(g).	tei + tsəgan	>	tei-tsəgan 'food'
	rice + curry		
(h).	tsəlu + tsəram	>	tsəlu-tsəram 'property'
	field + land		
(i).	kətiu + kəsak	>	kətiu-kəsak 'food'
	food + drink		

3.3   Reduplication

It is a process whereby new words are created by partially or fully repeating a constituent word. Sometimes the constituent word is paired with a rhyming word. It is also often referred to as echo-word formation (Abbi, 1992). This word formation process is common in Liangmai like the other TB languages of the region. The process is generally employed with self-evident symbolism, to indicate such concepts as distribution, plurality, repetition, customary activity, increase in size, added intensity, continuance, etc.

There are two main types of reduplication, viz., complete and partial reduplication. In complete reduplication, the whole form of the constituent word is repeated without any changes whereas in partial reduplication an expression is repeated partially or paired with rhyming word. We shall discuss various types of reduplication in Liangmai in the following section.

3.3.1 Complete Reduplication

The following section discusses the complete reduplicated structure of noun, adjective, adverb, verb and wh-question in Liangmai.

3.3.1.1 Noun

Nominal and pronominal reduplication are common in Liangmai. In this type of reduplication the entire noun phrase is usually reduplicated instead of the bare nominal roots. Semantically either the plurality of the subject or the distributive nature of the subject is signaled by such type of reduplication. Abbi (1990) has also noted that "all TB languages reduplicate the nouns for 'distributive' or 'exclusive' meanings". Consider example 30 (a) for distributive meaning of reduplication, 30 (b) for exclusiveness and 30 (c) for plurality.

29.	(a).	nam-nam (village-village)
	(b).	pəkia-pəkia (piece-piece)
	(c).	pəbam-pəbam (3PS.place-3PS.place)
	(d).	pədi-pədi (3PS.land-3PS.land)
	(e).	pəki-pəki (3PS.house-3PS.house)
	(f).	pəram-pəram (3PS.village-3PS.village)
	(g).	pətseŋ-pətseŋ (3PS.religion-3PS.religion)
	(h).	kikʰun-kikʰun (family-family)

As they occur in sentences:

30.   (a).   pə   nam-nam-ga   tsəlat   din-tat-e
                     3PS village-village-PP   language   say-go DECL
                     'He goes village to village to preach/speak.'

          (b).   pəki-pəki   məlan mide
                     3PS-house-3PS-house   return PERF
                     'They have return to their own respective homes.'

          (c).   pəkia-pəkia   dimkʰai-lo
                     piece-piece   cut-IMP
                     'Cut (it) into pieces.'

3.3.1.2 Verb: Stative

In stative verb reduplication the first is a base while the repeated form is a nominalized structure, i.e. *-bo* is added to the repeated utterance. The reduplicated form gives an adjectival meaning. This reduplication indicates the concept of selecting a certain entity to be experienced or performed and gives the meaning of exclusiveness.

31.   (a).   tam   tam   'different'
                     be different   be different

          (b).   tan   tan   'strong'
                     be strong   be strong

          (c).   wi   wi   'good'
                     be good   be good

          (d).   siam   siam   'small'
                     be small   be small

          (e).   dí   dí   'big'
                     be big   be big

          (f).   tʰeŋ   tʰeŋ   'long'
                     be long   be long

          (g).   heŋ   heŋ   'red'
                     be red   be red

Their occurrences in sentence are as follows:

32.   (a).   təsiŋ-taŋ   tʰeŋ-tʰeŋbo   luwaŋ-lo
                     wood-CLA   long-long.NZR   bring-IMP
                     'Bring (only) long sticks.'

(b). naŋ   tsəpʰai liu sai   dí-díbo   kəda-lo
      you   shawl buy COND big-big.NZR choose-IMP
      'If you buy shawl choose only big ones.'

(c). tan-tanbo   mai-tu   məsen-e
      strong-strong.NZR   man-DAT   like-DECL
      'Only the strong ones are preferred.'

3.3.1.3 Verb: Dynamic

The repetition of dynamic verb implies that an action is performed more than once. Reduplicated verbs show adverbial sense when used in sentence. It also denotes emphasis of a certain proportion.

33.   (a). tat-tat   'walk continuously'
            walk-walk

      (b). ruan-ruan   'roam aimlessly'
            roam-roam

      (c). tiu-tiu   'eat heavily'
            eat-eat

      (d). nui-nui   'laugh heartily'
            laugh-laugh

      (e). mpou-mpou   'talk continuously'
            talk-talk

Their occurrences in sentences are as follows:

34.   (a). pə   tat-tat   lu   tsəriu mide
            s/he.3S   walk-walk   COND   tire   PERF
            'As he walks continuously he became tired or he walk and walk he became tired.'

      (b). hai   kumbo   lat   din-din-mak-e
            DEM   like.NZR   word   say-say-NEG-DECL
            'Don't say (again) such kind of word.'

3.3.1.4 Adverb

Adverbs of 'manner' are more common in their reduplicated forms than any other adverbs. Constructions such as Gangte *tək tək*; kabui *kətom kətom*; Meithei *thu-nə thu-nə*, meaning

'hurriedly/fast' are attested in all TB languages (Abbi 1990). Similarly Liangmai have constructions like *kəlaŋ kəlaŋ* 'fast'; *tuhoi tuhoi* 'now/instantly' etc.

35. (a). tuhoi-tuhoi   tsəki-lam   tat-su-lo
          now-now   house-LOC   go-start-IMP
          'Go home this very moment or go home instantly.'

     (b). pə   zaó   kəlaŋ-kəlaŋ-ziu   sak-e
          s/he.3S   wine   fast-fast-Adv   drink-DECL
          'S/he drinks wine hurriedly.'

The same pattern of repetition is found with adverbs derived from verbs. When such adverb is duplicated, the verb root and the adverbial *-ziu* is repeated. These reduplicated verbal adverb signals an aspectual category of simultaneity. It precedes the main verb in the word order.

36. (a). pə   skul   kapziu-kapziu   tat   mide
          s/he.3S   school cry.Adv.cry.Adv   go   PERF
          'S/he goes to school crying.'

     (b). ben   ziziu-ziziu   pʰon   mpou-bam-e
          ben.3FS   sleep.Adv-sleep.Adv   phone   talk-PROG-DECL
          'Ben is lying on the bed and talking on the phone.'

3.3.2 Partial Reduplication

Partial reduplication means duplicating only a part of base word. It may also refer to the paired construction in which the second word is not an exact repetition of the first but is similar or related to the first word. There are many examples of partial reduplication in Liangmai where the initial morpheme is lost or dropped in the repeated utterance (37 a-f) and repetition of similar but not exact word as the first (37 g-k) as shown in the following:

37. (a). pakak- kak   'occasional'
          middle-RED

     (b). pakʰen-kʰen   'doing things at one's own will without approval'
          3P.will-RED

     (c). parai-rai   'scatter/drizzle'
          shred-RED

     (d). mariu-riu   'hungry'
          hungry-RED

     (e). tsəriu-riu   'tired'
          tire-RED

(f). məza-za   'feeling of dearness'
       dear-RED

(g). tatpat-tatgut   'walking to and fro/move around'
       go.out-go.in

(h). pʰuŋkʰaŋ-pʰuŋkum   'carrying up and down/carry around'
       carry.up-carry.down

(i). tatkʰaŋ-tatkum   'walking up and down/move around'
       go.up-go.down

(j). lepat-legut   'opening in and out'
       open.out-open.in

(k). dinkʰaŋ-dinkum   'saying up and down'
       say.up-say.down

As they occur in sentences:

38.   (a).   pə   zaó   pakak-kak   sak-e
               s/he.3S   wine   middle-RED   drink-DECL
               'S/he drinks wine occasionally.'

         (b).   tiŋriu   parai-rai-bam-e
               rain   shred-RED-PROG-DECL
               'It is drizzling.'

         (c).   pə   tatpat-tatgut   ŋamlak   mide
               3PS   go.out-go.in   able-NEG   PERF
               'S/he cannot move around anymore.'

         (d).   kʰam   lepat-legut   tu/du-lo
               door   open.out-open.in   PROH-IMP
               'Don't keep opening and closing the door.'

3.3.3 Ideophones

Ideophones are words that represent an idea in sound. It often represents a vivid impression of certain sensations or sensory perceptions like sound, movement, shape, or action. Doke[7] defined ideophone as "A vivid representation of an idea in sound. A word, often onomatopoeic, which describes a predicate, qualificative or adverb in respect to manner, colour, sound, smell, action, state or intensity." This phenomenon is also often referred to as expressives, chiming, onomatopoeia etc.

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[7] Doke, Bantu Linguistics Terminology, 1935, p. 118. Source: Internet.

Ideophones are common in many of the world's languages and often takes a variety of forms which serve different purposes. Haokip (2014:71-71) list a number ideophones in Thadou which he simply refer to as 'reduplicative adverbs'. Chelliah (1997:282-284) also compiled a list of ideophones in meiteilon. In Liangmai, some examples are provided in Raguibou (2014:212-216) where it was referred to as expressive, onomatopoeia and imitative. The actual number of ideophones in Liangmai may run into hundreds and I have compiled a list of some ideophones in Liangmai (see Appendix 1) from my data with some sentence examples. Like the Thadou reduplicated adverbs, Liangmai ideophones can have multiple meanings. The precise shade of meaning conveyed by the reduplication depends on the context. It may be noted here that ideophone occur post-verbally in Liangmai.

39.   (a).   wi-lam   tsəmi tao   tsan-tsan-bam-e
              there-LOC   fire   burn   IDEO-PROG-DECL
              'A fire is burning brightly there.'

      (b).   tʰainai-ra   tîŋ   ben   ka-ka de
              today-DEF   sky   bright IDEO PERF
              'The sky is clear (and bright) today.'

      (c).   tiŋriu   go-go-bam-e
              rain   IDEO-PROG-DECL
              'It is raining heavily.'

      (d).   tsəgan-niú   zonmai-duŋ   kəsianki-ga   diam-diam-bam-e
              curry-CLA   seller-PL   market-LOC IDEO-PROG-DECL
              'The vegetable sellers are noisily doing their businesses in the market.'

      (e).   tsəgan rim   hun-hun   pat   de
              curry smell IDEO   DIR   PERF
              'The aroma of the curry is out.' (Lit. We can smell the curry)

      (f).   tsuam biu   tuŋ-tuŋ-bam-e
              drum beat   IDEO-PROG-DECL
              '(someone is) beating the drum loudly.'

3.3.4 *Double Reduplication of Directional*

     Liangmai has directional markers like *pat* 'outward movement', *gut* 'inward movement', *kum* 'downward movement' and *kʰaŋ* 'upward movement'. More than one of these markers can be used in a reduplicated form in Liangmai as exemplified in the following.

40.   (a).   namai-duŋ   tsəki-ga   patpat-gutgut-bam-e
              child-PL   house-LOC   out.out-in.in-PROG-DECL
              'The children are moving in and out at the house.'

      (b).   sipʰai-duŋ   mpui-ga   kʰaŋkʰaŋ-kumkum-bam-e

soldier-PL   road-LOC   up.up-down.down-PROG-DECL
'The soldiers are moving up and down in the road.'

This double reduplication of directional expressed the intensity of the action.

4   Conclusions

This paper discusses the word formation processes in Liangmai. The results reveal that Liangmai complex words are formed by affixation, compounding and reduplication. Liangmai has a derivational prefix *kə-* which is used to derive modifying or attributive adjectivals from verbal nouns. Unlike other TB languages like Meiteilon, where formation of adjective by prefixing attributive *ə-* is possible only with monosyllabic root, the prefix *kə-* in Liangmai can be attached to both monosyllabic and polysyllabic stative verb. However, it cannot be attached to compounds like *ŋouwibo* 'beautiful' and *tsunwibo* 'happy'. Predicate adjectivals takes the form of stative verbs. In addition, this prefix *kə-* is used to derive nominals from some non-stative verb roots and in this strategy it functions like the nominalizing velar prefix *kV-* in Karbi. The *kV-* prefix in Karbi as nominalizer is productive but in Liangmai using *kə-* as a nominalizing prefix is limited. The prefix *pə-* has two functions in Liangmai: first, when attached to nominal bound roots like kinship terms, body parts and inalienable nouns it gives the reading of 3P. Secondly, it functions as a nominalizing prefix when it occurs with stative and dynamic verb roots. Manipuri also has a similar prefix *mə-*, whose function is both a nominalizing prefix and a third person pronominal marker. In nominalizing by *mə-*, context plays a significant role and is prefixed to action verb alone. For example, *mə-tʰək* 'the mode of his drinking', *mə-pa* 'the mode of his reading'. It cannot be attached to stative verbal roots like *caw* 'big' or *pik* 'small', **mə-caw* or **mə-pik*. On the contrary, Liangmai *pə-* can be attached to both stative and dynamic verb like, *pə-sak* 'the nature or mode of his drinking', and *pə-di* 'breadth or degree of bigness'. Three types of compounding base on semantic criteria are found in the language, namely, endocentric, exocentric and co-ordinate compounds. Endocentric compounds are more common than exocentric compounds in the language. Liangmai also exhibits noun + verb compound which functions as verbal base. Reduplication is classed into complete or full and partial reduplication. Reduplication in Liangmai generally indicates concepts like distribution, plurality, simultaneity, exclusiveness etc.

Liangmai makes use of large number of affixes in its grammar. However, most of the affixes are associated with inflectional system. Some affixes involve in derivational process are presented in the paper. Apart from affixation, the process of compounding is used extensively in word-formation. In some cases, as in causative *pí-* 'give' and agentive *-mai* 'person/man', the distinction between roots and affixes is not very sharp. Therefore, it is possible to assume that both the process of compounding and affixation may have developed from one single process of word-formation, most probably the process of compounding. Another interesting characteristic of Liangmai word-formation is that, it is primarily concerned with the category of nouns. As evident from the study (see example 26), very few verbal bases can be regarded as a result of word-formation process in Liangmai. This paper is a preliminary exposition of word formation processes in Liangmai. My findings and results are rudimentary and are better considered as a cue rather than a conclusion. Several problems still remain unresolved and further research need to be done, which I would like to call to the attention of interested scholars.

ABBREVIATIONS

1P	First Person	DIR	Directional
2P	Second Person	F	Feminine
3P	Third Person	GEN	Genitive
AGT	Agentive	IDEO	Ideophone
ACC	Accusative	IMP	Imperative
Adj.	Adjective	LOC	Locative
Adv.	Adverb	NEG	Negative/Negation
ATT	Attributive	NZR	Nominalizer
CAUS	Causative	PERF	Perfective
CLA	Classifier	POST	Postposition
COND	Conditional	PL	Plural
CONJ	Conjunction	PROG	Progressive
DAT	Dative	PROH	Prohibition
DECL	Declarative	Prf.	Prefix
DEF	Definitive	RED	Reduplication
DEM	Demonstrative	S	Singular
DET	Determiner		

REFERENCES

Abbi, Anvita. (1990). Reduplication in Tibeto-Burman Languages of South Asia. *Southeast Asian Studies. Vol. 28. No.2* (pp. 171-181)

Abbi, Anvita. (1992). *Reduplication in South Asian languages: An areal typology and historical study.* New Delhi: Allied Publishers Ltd.

Benedict, P.K. (1972). *Sino-Tibetan: A conspectus.* Cambridge University Press.

Bradley, David. (1997). Tibeto-Burman languages and classification. In David Bradley (ed). *Papers in Southeast Asian Linguistics 14: Tibeto-Burman languages of the Himalayas* (pp. 1-72). Canberra: Australian National University.

Burling, Robbins. (2003). The Tibeto-Burman Languages of Northeastern India. In G. Thurgood and R J Lapolla (eds.), *Sino-Tibetan languages* (pp. 169-192). London/ New York: Routledge.

Chelliah, Shobhana L. (1997). *A grammar of Meithei.* Berlin: Mouton de Gruyter.

Coupe, A.R. (2007). *A grammar of Mongsen Ao.* Berlin/New York: Mouton de Gruyter.

Crystal, David. (1991). *A dictionary of Linguistics and Phonetics.* Blackwell: Oxford.

Grierson, George A. (1903). *Linguistic survey of India, Tibeto Burman family, Bodo–Naga and Kachin groups.* Vol.III, Part II. Calcutta.

Grunow-Hårsta, Karen (2011). Adjectives and adjectivals in Magar. *Himalayan Linguistics. Vol. 10 (1):* 101-126

Haokip, Pauthang. (2014). Word formation in Thadou. *Himalayan Linguistics,Vol. 13 (1):* 58-82.

Kacharu, Yamuna. (2006). *Hindi grammar.* John Benjamins Publishing Co. Vol. 12.

Katamba, Francis. (1993). *Morphology.* London: Macmillan Press Ltd.

Konnerth, Linda. (2011). Functions of nominalization in Karbi. In Gwendolyn Hyslop, Stephen Morey, and Mark W. Post (eds.) *North East Indian Linguistics. Vol. 3* (pp. 120-134). New Delhi: Foundation/ Cambridge University Press, India.

Matisoff, James A. (1996). *Languages and dialects of Tibeto–Burman.* STEDT Monograph Series No. 2. Berkeley: University of California.

Matisoff, James A. (1989). Areal and Universal Dimensions of Grammaticalization in Lahu. In Elizabeth Traugott and Brend Heine (eds.) *Approaches to grammaticalization II* (pp. 1-79). Amsterdam and Philadelphia: John Benjamins.

Matisoff, James A. (2003). Lahu. In G. Thurgood and R J Lapolla (eds.) *Sino–Tibetan languages* (pp. 208-221). London/ New York: Routledge.

Raguibou, I.D. (2014). Reduplication in Liangmai. *Language in India, Vol. 14:4,* 211-224.

Singh, C. Yashawanta. (2000). *Manipuri grammar.* New Delhi. Rajesh Publications.

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APPENDIX

IDEOPHONES IN LIANGMAI

(a). tsan-tsan	describes the flashing of light like torch or light bulb
(b). pʰiŋ-pʰiŋ	describes the glow as in well-polished metal or furniture
(c). ka-ka	describes the brightness like the sun or the sky
(d). priŋ-riŋ	use to describe glittering thing
(e). plik-lik	describes a shiny thing like bald head
(f). go-go	describes a sound as in the pattering of rainfall.
(g). siu-siu	describes a sound as in wind or storm
(h). ri-ri	describes a gentle breeze
(i). diam-diam	describes a noise like in crowded market or frying
(j). hun-hun	describes a smell
(k). zit-zit	describes a fast movement
(l). noi-noi	describes softness or melting of a thing like cotton and rubber when burned.
(m). kak-kak	describes hardness
(n). kiŋ-kiŋ	describes loud noise as in microphone
(o). nap-nap	describes stickiness as in tar, glue etc.
(p). niaŋ-niaŋ	describes powdery or crushed state of a thing
(q). pʰoi-pʰoi	describes softness as in ripe or rotten fruits
(r). riŋ-riŋ	describes an oily shine like animal fats
(s). gun-gun	describes a noise like a murmur
(t). kluŋ-luŋ	describes a sound like a thunder
(u). ŋuŋ-ŋuŋ	describes a sound like in crying or mourning
(v). pʰlat-lat	describes a sound like in boiling water
(w). tuŋ-tuŋ	describes a loud sound like beating drum or gunfire
(x). kʰa (bitter) zik-zik	sense of taste to describe bitterness
(y). hum (sweet) tun-tun	sense of taste to describe sweetness or saltiness
(z). kʰiaŋ (sour) tiaŋ-tiaŋ	sense of taste to describe sourness.