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MELANAU LANGUAGE ANCIENT CONSONANT PHONEME

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Abstract

This article discusses on the effort to reconstruct the ancient consonant phoneme form of a language assumed to exist in Sarawak which is called the Ancient Melanau Language (BMLP). BMLP reconstruction was conducted using the qualitative comparative method. This qualitative comparative method begins with the determination of cognate words, the construction of correspondence paradigm, searching for phonemic recurrence, and ends with the determination of the ancient phonemes of the language. When the ancient phonemes in each correspondence paradigm are obtained, then all at once the ancient morphemes for the correspondence paradigm are also obtained. Thirteen Melanau variants (VM) in Sarawak were used as the basis of this comparison, namely, Bintulu (BT), Balingian (BLGN), Mukah (MKH), Oya (OA), Igan (IGN), Dalat (DLT), Matu (MT), Daro (DO), Medong (MDG), UD River (UD River), Rajang (RJG), Kanowit (KNWT) and Tanjong (TJG). The study result proved that the reconstructed BMLP has 18 ancient phonemes namely, four voiceless plosive consonants of *p, *t, *k and *ʔ, three voiced plosive consonants of *b, *d and *g, a voiced affricate consonant *dʒ, two voiceless fricative consonants *s and *h, four nasal consonants *m, *n, *ɲ and ɳ, a trill voiced consonant *r, a lateral voiced consonant *l and two semi-vowel consonants *w and *j. This low-level reconstruction study has directly pioneered the effort to reconstruct the BMLP on a higher level that is, comparing the BMLP with the Ancient Polynesian Malay language (PMP).

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Keywords

reconstruction, comparative method, Melanau variants, phoneme, consonant

MELANAU LANGUAGE ANCIENT CONSONANT PHONEME**Resumen**

Este artículo pretende reconstruir los antiguos fonemas consonantes de una lengua que se supone que existió en Sarawak, llamado antiguo melanau (BMLP). La reconstrucción del BMLP se realizó utilizando el método de comparación cualitativa. Este método comienza con la determinación de palabras afines, la construcción del paradigma correspondiente, la búsqueda de recurrencia fonémica y termina con la determinación de los antiguos fonemas de la lengua. Cuando estos se obtienen en cada paradigma de correspondencia, también se obtienen todos los morfemas antiguos para el paradigma correspondiente. Se han utilizado trece variantes del melanau (VM) en Sarawak como base de esta comparación, a saber, bintulu (BT), balingian (BLGN), mukah (MKH), oya (OA), igan (IGN), dalat (DLT), matu (MT), daro (DO), medong (ODM), UD River (UD River), rajang (RJG), kanowit (KNWT) y tanjong (TJG). El resultado del estudio demostró que el BMLP reconstruido tiene 18 fonemas antiguos, a saber, cuatro consonantes oclusivas sordas (*p, *t, *k y *ʔ), tres consonantes oclusivas sonoras (*b, *d y *g), una consonante africada sonora (*dʒ), dos consonantes fricativas sordas (*s y *h), cuatro consonantes nasales (*m, *n, *ɲ y *ŋ), una consonante vibrante sonora (*r), una consonante lateral sonora (*l) y dos consonantes semivocales (*w y *j). Este estudio de reconstrucción de bajo nivel ha sido pionero en el esfuerzo por reconstruir el BMLP en un nivel superior, es decir, comparando el BMLP con la lengua de la antigua Polinesia Malaya (PMP).

Palabras clave

reconstrucción, método comparativo, variantes del Melanau, fonema, consonante

1. Introduction

Sarawak is one of the largest state in Malaysia which has an area of about 124,449 Km². Currently, Sarawak state can accommodate a large number of population approximately amounted to 2,471,140 people and has 750 kilometers of beaches along the Northwest coast of the island of Borneo ([www://en.wikipedia.org/wiki/Sarawak](http://en.wikipedia.org/wiki/Sarawak)). Sarawak is inhabited by various tribes. Each of these tribes inhabits certain areas in Sarawak. According to Omar (1975: 14-17), the Melanau people occupied places between Cape Kedorong and Kuala Rejang. Harrison (1959: 57) said that among the native people, the Punan people is still living in the jungle and practices the itinerant

system. They lived in the area around Balui, Tinjar River, Baram, and Turoh in the Fourth Division, as well as in Ulu Belait. The Kayan and Kenyah Tribes lived in the valleys of Batang Kayan, Batang Baram and Batang Rejang. The Kelabit tribe was mostly residing on the hilly areas in rural district (North of Baram River). The Bisaya tribe lived at the Limbang riverbanks near the border of Brunei. Meanwhile, the Murut tribe occupied the areas of Baram River, Rejang and Limbang. Each tribe had its own language (see Hupe 1896).

The Melanau language belongs to the Austronesia language. The Melanau people in Sarawak live in several different areas but speak the same language that is the Melanau language (King 1978). According to King (1978), in 1960 there were about 44000 Melanau people, and about $\frac{1}{4}$ of them are still pagan, the rest are Muslim except for a small number who are Roman Catholic Christian. In general, the main settlement of the Melanau community in Sarawak is divided into three groups. The first group consists of the Middle group namely, those living around the Igan, Oya and Mukah rivers. The second group is the South group, who live around the Rejang River, from Rejang to Matu. The third group is the North group who live around Balingian to Bintulu. The distribution of these groups was based on the differences in terms of their speech and settlement patterns (Clayre 1970). Their settlement are based at river confluents, close to coastal areas such as Bintulu, Mukah, Matu, and Igan which are the fertile belt. In addition, there were other smaller village clusters and mostly were located from the sixth's division of the Rajang district until the comparatively rural district settlement such as Dalat, Medong, Kut, Narub, Balingian, and Tatau.

According to Morris (1989), the Melanau name is spelled in many ways and in the past it has been used by the people living in the southwest coast of Brunei. In a map that was published in Italy in 1595, the word Malano has clearly been drawn along the beach that connects to the Oya river, Mukah and Balingan. However, people who lived in the area said that they never called themselves Melanau and that the word is a Malay word from Brunei (Morris 1989). Before 1950, Melanau was spelled as 'Malano' that was clearly drawn on a map along the Oya river, Mukah and Balingian. According to Leach (1950: 53), the Melanau tribe was placed in the category of 'para-malay' which were divided into two namely, the Segan people consists of the Melanau Bintulu, originated

from the Penan and Kajang people clusters and were not nomadic. Meanwhile, the Liko who is the Melanau Oya-Mukah is a branch of the Kanowit cluster. According to Morris (1989), the Melanau people have been calling themselves as *a likou*, meaning people who live in the river or part of it. *A-likou Uya* refers to all the people who lived at the Oya River and *a-likou Medong* refers to the residents of Medong village. People who came from Brunei are called Melanau.

2. Research area

The study area is certainly beyond the limit of local geography. Accordingly, the selected study area is the coastal area which covers an area of the southern coastline to the northern coastline including the south-west, the Rejang delta, Matu, Daro, Igan, Oya, Dalat, Balingian, Bintulu, along the Rejang River, Kanowit and Tanjong. In actual fact, in the above-mentioned areas exist dozens of Melanau Variant (VM), however, for this study, the researchers only studied thirteen VMs which are considered to represent the majority of VM in the area. In addition, time constraint faced by the researchers had caused only 13 VMs were chosen.

The Melanau variant areas studied were as follows: Mukah (MKH), Balingian (BLGN), Oya (OA), Igan (IGN), Dalat (DLT), Matu (MT), Daro (DO), Rajang (RJG), Medong (MDG), Ud River (SG UD), Kanowit (NWT), Tanjong (TJG) and Bintulu (BT). In addition, the location of this area is separated from each other due to the coastline, from south to north, the river and the jungle. The following maps show the position of all studied VMs.

3. Study Approach

There are five important terminologies that should be understood before the reconstruction method is applied to the descendant language (see also Nothofer 1975, Campbell 2001 & Hasrah *et al.* 2013). The five terminologies are:

- i. Ancient language; which is the hypothetical language that is considered to have passed down the descendant languages that were compared.

ii. A language family; languages that are related to each other and these languages are derived from the same ancient language.

iii. Cognate word; words that have similar form and meaning with other words in a different language, but the different languages were descended from the same source of ancient language.

iv. Sound correspondence; a paradigm set of sound cognate words that have been collected from the descendant language. Crowley (1992: 93) defined sound correspondence as "... each set of sounds that appears to be descended from the same original sound".

v. Reflex, ancient form or element that existed in the descendant languages.

The reconstruction method of an ancient language has the following criteria (Crowley 1992, Campbell 2001, Ringe & Eska 2013, Hasrah *et al.* 2014, and Aman *et al.* 2015):

- i. Specifies the cognate words from the descendant language that was used as comparison language.
- ii. Arranging correspondence paradigm or a set of correspondences from the sets of sounds that has been arranged.
- iii. Searching for sound recurrence or repetition from the whole data.
- iv. When recurrence exists, then the equivalence paradigm or correspondence reaches the validity level.
- v. Determine the proto-phoneme from the correspondence paradigm that has reached the validity level.

The determination of ancient phonemes that exists in the correspondence paradigm has a few criteria. These criteria have been discussed in previous writings (see Aman 2008: 29 & Aman *et al.* 2015: 195).

4. Analysis of findings

BMLP phoneme that are discussed in this paper is the result of the reconstruction of phonemes that have been made to the thirteen VMs covering different local

geographic locations namely, Mukah (MKH), Matu (MT), Dalat (DLT), Igan (IGN), Oya (OA), Balingian (BLGN), Daro (DO), Bintulu (BT), Medong (MDG), Sungai Ud (SG UD), Rajang (RJG), Kanowit (KNWT) and Tanjong (TJG). Therefore, as a result of the reconstruction that has been made, a total number of BMLP phonemes inventory and distribution that are consonants can be displayed in the description that follows. BMLP phonemes distribution shows the existence of phonemes and BMLP phonemes' sound based on their position either in the beginning, middle/between vowels or end of a word positions.

Based on the comparison of sound correspondence and the result of the reconstruction of 13 VMs show that BMLP, which had descended 13 VMs, has 18 ancient consonant phonemes. From 18 consonants, further details of the description is based on the method of articulation of the explosive/plosive, eruption/affricate, friction/fricative, nasal/nasal, vibrant/trill, lateral/lateral and semi-vowel consonants. Table 1 shows the inventory of consonants that exist in BMLP.

Place of Articulation Manner of Articulation		Bilabial	Alveolar	Palatal	Velar	Voice Box
Explosive /plosive	Voiceless	*p	*t		*k	*ʔ
	Voiced	*b	*d		*g	
Eruption/ Affricate	Voiceless					
	Voiced			*dʒ		
Friction/F ricative	Voiceless		*s			*h
	Voiced					
Nasal/ Nasal	Voiceless		*n	*ɲ	*ŋ	
	Voiced	*m				
Vibrant/T rill	Voiceless		*r			
	Voiced					
Lateral/La teral	Voiceless		*l			
	Voiced					
Semi - Vowel	Voiceless			*j		
	Voiced	*w				

Table 1. BMLP Consonant inventory

Table 2 shows that the BMLP phonemes consist of four voiceless plosive consonants of *p, *t, *k and *ʔ, three plosive consonants *b, *d and *g, a voiced affricate consonant *dʒ, two voiceless fricative consonants *s, *h, four nasal consonants *m, *n, *ɲ and *ŋ, a voiced trill consonant *r, a voiced lateral consonant *l and two semi-vowel consonants *w and *j. The following description illustrates the existence of these phonemes.

3.1 Reconstruction of BMLP *p, *t, *k and *ʔ

BMLP has four voiceless explosion/plosive consonants of *p, *t, *k and *ʔ (see also study by Shahidi *et al.* 2012). The BMLP *p consonant is present in all word's positions at the beginning, middle/between vowels and at the end of words and BMLP *p was directly descended in 13 VMs. Table 2 illustrates an example of the reflex of BMLP *p in 13 VMs that have been examined.

BMLP Consonant	Position Distribution	Examples of BMLP *p Reflex in 13 VMs
*p	Beginning of a word	BMLP *pədih 'pain' > MKH, DLT, IGN, MDG, SG UD and KNWT [pədih]; MT, DO and BT [pədəs]; OA [pəatʔ]; BLGN --; RJG --; TJG --.
	Middle of words/ Between Vowels	BMLP *apuj 'fire' > MKH, MT, DLT, IGN, BLGN, MDG, SG UD, KNWT and TJG [apuj]; DO [apoj]; BT --; RJG [apue].
	End of a Word	BMLP *tudip 'live' > MKH, DLT, IGN, OA, MDG and SG UD [tudip]; MT, DO, RJG, KNWT and TJG [mudip]; BLGN [murip]; BT [muɐp].

Table 2. Reflex of BMLP *p in 13 VMs

BMLP *t consonant is present in all positions of word, at the beginning, middle/between vowels and at the end of words and was directly descended in the VM. However, some of the data found show that in the beginning position, a sporadically word changes has occurred in some VMs when BMLP *t- > [ɲ]- in BT and [k]- in MDG (see examples in bold in Table 5), while other data remain as [t]- in this position. Accordingly, changes also occurred sporadically at the end of words in some of the data

found when BMLP *-t > -[l] in IGN and [d] in OA, MDG and SG UD (see examples in bold in Table 5), while other data remain as [t-] in this position. This shows that the BMLP *t were directly descended in 13 VMs. The existence of BMLP *t in 13 VMs can be described in Table 3.

BMLP Consonant	Distribution Position	Examples of BMLP *t Reflex in 13 VMs
*t	Beginning of a Word	<p>BMLP *tulaŋ ‘bone’ > MT, DLT, OA, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG [tulaŋ]; MKH [tuleaŋ]; IGN [tule].</p> <p>BMLP *tudip ‘live’ > MKH, DLT, IGN, OA, MDG and SG UD [tudip]; MT, DO, RJG, KNWT and TJG [mudip]; BLGN [murip]; BT [мυεp].</p> <p>BMLP *təlaw ‘we’ > MKH, IGN, OA and BLGN [təlaw]; MT, DLT and DO [təlo]; BT [niləw]; MDG [kələw]; SG UD and RJG [tələw]; KNWT --; TJG --.</p>
	Middle of Word/ Between Vowels	<p>BMLP *tutək ‘cut’ > MKH, MT, MDG, SG UD and RJG [tutək]; DLT [tutak]; IGN [matak]; OA and BLGN [tutag]; DO [tutəq]; BT --; KNWT--; TJG [nətak].</p>
	End of a Word	<p>BMLP *subut ‘bite’ > MKH, DLT, IGN, OA, BLGN, DO, MDG and SG UD [subut]; MT [subot]; BT [ɲubot]; RJG --; KNWT --; TJG --.</p> <p>BMLP *mubət ‘tie’ >; MT, DLT and DO [mubət]; MKH--; IGN [mubəl]; OA, MDG and SG UD [mubəd]; BLGN --; BT --; RJG --; KNWT --; TJG --.</p>

Table 3. BMLP Reflex *t in 13 VMs

BMLP *k consonant is present at all word’s position and were directly descended into the VM. However, at the end of the word’s position changes have occurred sporadically in some VMs when BMLP *-k > -[ʔ] in MT, DO, RJG, MDG and TJG, -[g] in OA and BLGN and -∅ in KNWT (This change is not a phonemic, but a dispute phonetic) while other data remain as /k/ (only applies to BMLP data *Manok ‘birds’, ‘cut’ and BMLP *təŋgok ‘neck’). Reflex BMLP *k in thirteen VMs can be seen in Table 4.

BMLP Consonant	Distribution Position	Examples of BMLP *k Reflex in 13 VMs
*k	Beginning of a Word	BMLP *kəman ‘eat’ > MKH, MT, DLT, IGN, OA, BLGN, DO, MDG, SG UD and RJG [kəman]; BT --; KNWT and TJG [kəməɔ̃].
	Middle of Word/Between Vowels	BMLP *kukut ‘dig’ > MKH, MT, DLT, IGN, OA, BLGN, DO, MDG and SG UD [kukut]; BT [kukot]; RJG [kukuət], KNWT [məkut]; TJG --.
	End of a Word	<p>BMLP *manok ‘bird’ > MT, DLT, IGN, BT, MDG, SG UD and KNWT [manok]; MKH [manuak]; OA, BLGN [manuk]; DO [manoʔ]; RJG [manuoʔ]; TJG [manuʔ].</p> <p>BMLP *tutək ‘cut’ > MKH, MT, DO, MDG, SG UD, and RJG [tutək]; DLT [tutak]; IGN [matak]; OA and BLGN [tutag]; BT --; KNWT --; TJG [nətək].</p> <p>BMLP *təŋgok ‘neck’ > MKH, OA and BLGN [təŋgok]; MT and TJG [təŋuʔ]; DLT --; IGN [təŋok]; DO [təŋguʔ]; BT--; MDG [təŋoʔ]; SG UD --; RJG [təŋueʔ]; KNWT [təŋɔ̃].</p>

Table 4. BMLP Reflex *k in 13 VMs

BMLP *ʔ consonant is only present at the middle/between vowels and at the end of words positions. Although said to be directly descended in all VMs, there were some data on the middle position of words that showed sporadic innovation in some VMs when BMLP *-ʔ- > -[w]- in DO, -Ø- in MKH, MT, DLT, IGN, OA, DO, TJG, MDG and SG UD and -[j]- in DO (examples in bold in Table 7 reflect this innovation in some VMs) while other data remain as -[ʔ] in this position. Accordingly, the end of a word position also shows that sporadic innovations have occurred in several VMs when BMLP *-ʔ > -[k] of the MKH, MT, DLT and BLGN (see examples in bold in Table 5), while other data remain as -[ʔ] in this position. Table 5 describes examples of BMLP *ʔ reflection in thirteen VMs data that have been studied.

BMLP Consonant	Distribution Position	Examples of BMLP *ʔ Reflex in 13 VMs
*ʔ	Beginning of a Word	-
	Middle of Word/Between Vowels	<p>BMLP *taʔaw ‘know’ > MKH, DLT, IGN, BLGN, MDG, RJG, KNWT and TJG [taʔaw]; MT [taʔo]; OA and DO [taʔɔ̃]; BT [taʔuʔ]; SG UD [taʔəw].</p> <p>BMLP *daʔun ‘leaf’ > MKH, MT, DLT, OA, BLGN, MDG, SG UD, RJG and KNWT [daʔun]; IGN [duʔun]; DO [dawun]; BT --; TJG [du:n].</p> <p>BMLP *daʔan ‘branch’ > MKH, DLT, IGN, OA, BLGN, SG UD,</p>

		<p>RJG, KNWT and TJG [daʔan]; MT --; DO [dan]; BT --; MDG [da:n].</p> <p>BMLP *guʔun 'jungle' >; DO [guʔun]; OA, MDG and SG UD [gu:n]; MKH, DLT dan IGN [gun]; MT [gu]; BLGN --; BT --; RJG --; KNWT --; TJG --.</p> <p>BMLP *dʒaʔit 'sew' > MKH, DLT, IGN, OA, BLGN, MDG and SG UD [dʒaʔit]; MT [dʒait]; DO [dʒajit]; BT [dʒaʔet]; RJG [dʒaʔiət]; KNWT --; TJG --.</p>
	End of a Word	<p>BMLP *tanaʔ 'soil' > MKH, MT, DLT, IGN, OA, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG [tanaʔ].</p> <p>BMLP *səgaʔ 'near' > IGN, OA, MDG, SG UD, RJG, KNWT and TJG [səgaʔ]; MKH, MT and DLT [səgak]; BLGN --; DO --; BT --.</p> <p>BMLP *daraʔ 'blood' > MT and TJG [daraʔ]; MKH, DLT, IGN and OA [daʔ]; MDG and SG UD [da:ʔ]; BLGN [dahak]; DO [dayaʔ]; BT [ʁaʔ]; RJG and KNWT [daraʔ].</p>

Table 5. BMLP Reflex *ʔ in 13 VMs

3.2 Reconstruction of BMLP *b, *d and *g

BMLP has three voiced plosive consonants which are *b, *d, *g. BMLP *b bilabial voiced plosive consonant is only present in the beginning and middle positions of words and was directly descended into all the VMs. Although directly descended in all the VMs, in some of the data it was found that innovations occurred when BMLP *b- > [v]- in the BLGN and BT and Ø- in MKH and OA in the beginning position of words. Accordingly, in the middle position of words, a few changes occurred in a few VMs when MLP *-b- > -[v]- in the BLGN, BT and KNWT. It is quite obvious that BMLP *b as [v] changes on both positions in a number of VMs only happened sporadically, while other data remain as a /b/ (only applies to six data that is six bold BMLP data *buok 'hair', BMLP *bərat 'heavy', BMLP *bulaj 'left', BMLP *bəlabaw 'rat', and BMLP *Dabaw 'ash' as shown in Table 6). Examples of BMLP *b reflex in 13 VMs are shown in Table 6.

BMLP Consonant	Distribution Position	Examples of BMLP *b Reflex in 13 VMs
*b	Beginning of a word	<p>BMLP *bulan 'moon' > MKH, MT, DLT, IGN, OA, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG VM [bulan].</p> <p>BMLP *buwaʔ 'fruit' > MKH, OA, BLGN, DO, MDG, SG UD, RJG, KNWT and TJG [buwaʔ]; MT, DLT and IGN [buaʔ], BT --.</p> <p>BMLP *buok 'hair' > MT and OA [buok]; MKH [buak]; DO, DLT, IGN, MDG and SG UD [bok]; BLGN [vuok]; BT [boʔ]; RJG [buəʔ]; KNWT and TJG [buʔ].</p>

		<p>BMLP *bərat ‘heavy’ > TJG [bərat]; MKH, DLT, IGN, OA, MDG and SG UD [ba:t]; MT and DO [bəyat]; BLGN [bahat]; BT [va:t]; RJG and KNWT [bərat].</p> <p>BMLP *bulaj ‘left’ > MT, DLT, IGN, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG [bulaj]; MKH [ulaj]; OA [ulaj].</p>
	Middle of Word/Between Vowels	<p>BMLP *tubu? ‘grow’ > MKH; MT, DLT, IGN, OA, DO, MDG and SG UD [tubu?]; BLGN --; BT --; KNWT --; TJG --.</p> <p>BMLP *bəlabaw ‘mice’ > MT, DLT, DO, MDG, RJG, KNWT and TJG [bəlabaw]; MKH--; IGN--; BLGN [valavaw]; BT --; SG UD --.</p> <p>BMLP *dabaw ‘ash’ > MKH; MT and DO [dabo]; DLT [dabow]; IGN [daba]; OA [dabɔ]; BLGN [davow]; BT [avəw]; MDG, SG UD RJG and TJG [dabəw]; KNWT [davəw].</p>
	End of Words	-

Table 6. BMLP *b Reflex in 13 VMs

BMLP *d consonant is present at the beginning, middle/between vowels and end positions of words and were directly descended in the VM. Although it was directly descended in all the VM, there were a few data showing that sporadic innovations have occurred at the beginning of a word when BMLP *d- > [Ø]- and [ɸ] in the VM BT, [ɲ-] in BT, [n]- the MKH and MT, and [l]- in OA, BLGN, BT and the MDG, while other data remain as [d] in all VM. Meanwhile, in the middle of a word position, the sporadic innovation also occurs in the BT and BLGN VM when BMLP *d > [d] and [ɸ] in BT became [r] in BLGN and BT (see example data in bold in Table 7), while other data remain as [d]. BMLP Reflex *d in all VMs can be seen in Table 7.

BMLP Consonant	Distribution position	Examples of BMLP *d Reflex in 13 VM
*d	Beginning of a word	<p>BMLP *dəbu ‘ash’ > MT, DLT, DO and RJG [dəbu]; MKH and BLGN [dabo]; IGN and OA [dəbo]; BT [dabuə?]; MDG, SG UD, KNWT and TJG [dabəw].</p> <p>BMLP *danaw ‘lake’ > MKH, MT DLT, IGN OA BLGN, DO, MDG, RJG, KNWT and TJG [danaw]; BT --; SG UD --.</p> <p>BMLP *dabaw ‘ash’ > MKH; MT and DO [dabo]; DLT [dabow]; IGN [daba]; OA [dabɔ]; BLGN [davow]; BT [avəw]; MDG, SG UD RJG and TJG [dabəw]; KNWT [davəw].</p> <p>BMLP *daʔun ‘leaf’ > MKH, MT, DLT, OA, BLGN, MDG, SG UD, RJG and KNWT [daʔun]; IGN [duʔun]; DO [dawun]; BT [ɸaon]; TJG [du:n].</p> <p>BMLP *dipa ‘snake’ > MKH, DLT, IGN, OA, BLGN, MDG and SG UD [dipa]; MT, DO and RJG [dipah]; BT [ɲipa]; KNWT --; TJG --.</p>

		BMLP *dipih 'thin' > DLT, IGN, SG UD, KNWT and TJG [dipih]; MKH [nipih]; MT [nipis]; BLGN [lipeh]; BT [lipeəs]; OA and MDG [lipih]; DO and RJG [dipis].
	Middle of Words/Between Vowels	<p>BMLP *pədih 'pain' > MKH, DLT, IGN, MDG, SG UD and KNWT [pədih]; MT, DO and BT [pədəs]; OA [pədi?]; BLGN --; RJG --; TJG [pədih].</p> <p>BMLP *gadoŋ 'green' > MT, DLT, OA, DO, MDG, SG UD, KNWT and TJG [gadoŋ]; MKH [gaduan]; IGN [gada:ŋ]; BLGN and RJG [gaduon]; BT [gadoŋ].</p> <p>BMLP *tudip 'live' > MKH, DLT, IGN, OA, MDG and SG UD [tudip]; MT, DO, RJG, KNWT and TJG [mudip]; BLGN [murip]; BT [muɣɛp].</p> <p>BMP *ɲadan 'name' > MKH, MT, DLT, IGN, OA, DO, MDG, SG UD, KNWT and TJG [ɲadan]; BT [ɲaran]; BLGN [ɲaran]; RJG [ɲadan].</p>
	End of Words	BMLP *mədud 'afraid' > DLT, IGN, OA, DO DG and SG UD [mədud]; MKH --; MT [mədod]; BLGN --; BT --; RJG --; KNWT --; TJG --.

Table 7. BMLP*d Reflex in 13 VM

BMLP Consonant *g is only present at the beginning and middle positions of the word. It is quite obvious that BMLP *g was directly descended in all the VMs. Although said to be directly descended in VM, at the between vowels position, it shows that a sporadic innovation has occurred when the BMLP *g > [ŋ] in the VM IGN and other data remain as /g/ (only applies to data BMLP *dagən 'inside'). BMLP *g reflex in 13 VMs can be seen in Table 8.

BMLP Consonant	Position Distribution	Examples of BMLP *g Reflex in 13 VMs
*g	Beginning of a word	<p>BMLP *gadoŋ 'green' > MT, DLT, OA, DO, MDG, SG UD, KNWT and TJG [gadoŋ]; MKH [gaduan]; IGN [gada:ŋ]; BLGN and RJG [gaduon]; BT [gadoŋ].</p> <p>BMLP *guʔun 'jungle' > DO [guʔun]; OA, MDG and SG UD [gu:n]; MKH, DLT and IGN [gun]; MT [gu]; BLGN --; BT --; RJG --; KNWT --; TJG --.</p>
	Middle of a Word/Between Vowels	<p>BMLP *dagən 'inside' > MKH, DLT, OA, MDG and SG UD [dagən]; MT --; IGN [daŋən]; BLGN --; DO --; BT --; RJG --; KNWT --; TJG --.</p> <p>BMLP *səgaʔ 'near' > IGN, OA, MDG, SG UD, RJG, KNWT and TJG [səgaʔ]; MKH, MT and DLT [səgak]; BLGN --; DO --; BT --.</p>
	End of a word	-

Table 8. BMLP Reflex *g in 13 VMs

3.3 Reconstruction of BMLP *d₃

BMLP has only one voiced explosive consonant of the hard palate of *d₃. BMLP *d₃ voiced consonant is only present at the beginning and middle positions of words. Data also showed that at the beginning and middle positions of words, the presence of BMLP *d₃ were directly descended in all VMs. Table 9 shows the BMLP reflex of *d₃ in 13 VMs.

BMLP Consonant	Distribution Position	Examples of BMLP *d ₃ Reflex in 13 VMs
*d ₃	Beginning of a Word	BMLP *d ₃ atu? ‘fall’ > MT, DLT and MDG [d ₃ atu?]; MKH --; IGN --; OA --; BLGN [d ₃ atok]; DO [d ₃ ato?]; BT SG UD [d ₃ atuo?]; SG UD [d ₃ atuə?]; KNWT --; TJG --. BMLP *d ₃ a?at ‘bad’ > MKH, DLT, IGN and OA [d ₃ a?at]; MT [d ₃ æt]; BLGN --; DO [d ₃ at]; BT [d ₃ a?əs]; MDG and SG UD [d ₃ a?æt]; RJG [d ₃ æ:t]; KNWT [d ₃ e?e?]; TJG [d ₃ e?et].
	Middle of a word/Between Vowels	BMLP *səd ₃ ok ‘cold’ > MT, OA and DO [səd ₃ ok]; MKH [səd ₃ ok]; DLT --; IGN --; BLGN --; BT [səd ₃ ok]; MDG --; SG UD --; RJG [səd ₃ oək]; KNWT --; TJG --. BMLP *tad ₃ uh ‘needle’ > MDG and SG UD [tad ₃ uh]; MKH, IGN, OA and BLGN [tad ₃ oh]; MT --; DLT [tud ₃ oh]; DO --; BT [tad ₃ u]; RJG --; KNWT --; TJG --.
	End of a Word	-

Table 9. BMLP *d₃ reflex in 13 VMs

3.4 Reconstruction of BMLP *s and *h

BMLP has two voiceless fricative consonants which are *s and *h. BMLP *s alveolar voiceless friction is present at the beginning of a word and between vowels, BMLP *s reflex remains as [s] in all VMs. Although BMLP *s remains as [s] in all VMs at the beginning and the middle position of the word, some data showed that changes have occurred sporadically in some VMs when BMLP *s- > [tʃ]- in DLT at the beginning position and at the middle of a word’s position, BMLP *s- > -[p]- in BT and become [-Ø-] and -[tʃ]- in DLT, while other data remain as /s/ in both positions in all VMs (see data examples in bold in Table 10). BMLP *s reflex in 13 VMs can be seen in Table 10.

BMLP Consonant	Position Distribution	Examples of BMLP *s reflex in 13 VMs
*s	Beginning of a word	<p>BMLP *susəw ‘breast’ > MKH, MT, DLT, IGN, OA, BLGN, DO, MDG, SG UD and RJG [susəw]; BT --; KNWT and TJG [sɔ].</p> <p>BMLP *sapaw ‘roof’ > MKH, DLT, IGN, OA, BLGN, BT, MDG, SG UD, RJG, KNWT and TJG [sapaw]; MT --; DO --.</p> <p>BMLP *sak ‘red’ > MT, MDG and SG UD [sak]; MKH --; DLT [tʃak]; IGN [sek]; BLGN --; DO, RJG and KNWT [saʔ]; BT --; TJG --.</p>
	Middle of Word /Between Vowels	<p>BMLP *lasuʔ ‘hot’ > MDG, SG UD, RJG, KNWT and TJG [lasuʔ]; MKH, MT, DLT and OA [lasut]; IGN [lasuk]; BLGN [lasok]; DO [rasuʔ]; BT --.</p> <p>BMLP *susap ‘suck’ > MKH, IGN, OA and BLGN [susap]; MT, DO, MDG and SG UD [susəp]; DLT [sueəp]; BT [sueəp]; RJG [sisəp]; KNWT --; TJG [nisip].</p> <p>BMLP *asow ‘dog’ > MKH and IGN [asow]; MT, OA BLGN and DO [aso]; DLT [atʃo]; BT, MDG, SG UD, RJG, KNWT and TJG [asəw].</p>
	End of a Word	-

Table 10. BMLP *s reflex in 13 VMs

The second consonant which shows its presence in 13 VMs that has been compared was the voiceless friction/fricative faringal /h/. The emergence of this consonant between vowels and at the end of words position before silence shows a regular correspondences in some VMs. The existence of a regular correspondence in some VMs enables BMLP *h to be reconstructed in both positions. The examples in Table 13 show that at the middle of a word position, BMLP *h remains in some VMs, but the BMLP *h has experienced innovations in a few VMs which are *-h- > -Ø- in DLT, OA, MDG and SG UD, -[ɣ]- in the DO, -[r]- in MT and -[ʀ]- in RJG (there is only one data, which is ‘swimming’ of the reconstructed 200 data indicates the presence of BMLP *h in the middle position of words).

Accordingly, despite the presence of BMP *h consonant at the end of words before silence show a regular correspondence in several VMs, some of the data obtained also show that BMLP *h consonant being dropped at the end position of words in the MKH, LGN, DLT, IGN, OA, MDG and SG UD VMs occurring sporadically to some data and other data remain as /h/. Table 11 shows the BMLP *h reflex in 13 VMs.

BMLP Consonant	Distribution Position	Examples of BMLP *h Reflex in 13 VMs
*h	Beginning of a Word	-
	Middle of a word/Between Vowels	BMLP *tuhun 'swimming' > IGN [tuhun]; MKH --; MT turun ; DLT [tun]; OA, MDG and SG UD [tu:n]; BLGN [tohon]; DO [tuɣun] ; BT --; RJG [tuɾun] ; KNWT --; TJG --.
	End of a Word	BMLP *duduh 'clap' > DLT, IGN, OA, MDG, SG UD KNWT and TJG [duduh]; MT and DO [liduh]; MKH [dudoh]; BLGN --; BT --; RJG [liduəh]. BMLP *sijah 'salt' > MT, DLT, IGN, OA, DO, MDG SG UD, RJG, KNWT and TJG [sijah]; MKH and BLGN[sija] ; BT --. BMLP *butah 'back' > MT; DO and RJG [butah]; MKH, DLT, IGN, OA, MDG and SG UD [buta] ; BLGN --; BT --, KNWT --; TJG.

Table 11. BMLP *h reflex in 13 VMs

3.5 Reconstruction of BMLP *m, *n, *ɲ and *ŋ

BMLP has four nasal consonants, namely *m *n *ɲ and *ŋ. Bilabial nasal consonant /m/ was reconstructed at the BMLP level as *m. The reconstruction is set as such since the consonant shows a regular correspondence in all the VMs. The regular correspondence shows that the BMLP *m consonant was directly descended at the beginning, between vowels and at the end positions of words in all VMs as [m]. BMLP *m reflex in 13 VMs is as shown in Table 12.

BMLP Consonants	Distribution Position	Examples of BMLP *m Reflex in 13 VMs
* m	Beginning of a Word	BMLP *mun 'fog' > MT, DLT, IGN, OA, DO, MDG, SG UD, RJG, KNWT and TJG [mun]; MKH --; BLGN --; BT --. BMLP *mamak 'dirty' > MKH, DLT, IGN, OA and BLGN [mamak]; MT --; DO --, BT [miəʔ]; MDG, SG UD, KNWT and TJG [mamaʔ]; RJG --.
	Middle of a Word/Between Vowels	BMLP *kəman 'eat' > MKH, MT, DLT, IGN, OA, BLGN, DO, MDG, SG UD and RJG [kəman]; BT--; KNWT and TJG [kəmə].
	End of a Word	BMLP *biləm 'black' > MKH, MT, DLT, IGN, OA, DO, MDG, SG UD, RJG, KNWT and TJG [biləm]; BLGN --; BT --; BMLP *maləm 'night' > MKH, MT, DLT, OA, BLGN, DO, MDG, SG UD, KNWT and TJG [maləm]; IGN [malaəm]; BT --; RJG --.

Table 12. BMLP *m Reflex in 13 VMs

The second nasal consonant is the bilabial nasal /n/ that has been reconstructed at the BMLP level as *n. This reconstruction is set as such since it shows regular correspondences in all the VMs. The regular correspondence shows that BMLP *n consonant was directly descended at the beginning, between vowels and at the end positions of words in all VMs as [n]. BMLP *n reflex in all 13 VMs can be seen in Table 13.

BMLP Consonant	Distribution Position	Examples of BMLP *n Reflex in 13 VMs
*n	Beginning of a Word	BMLP *naj 'sand' > MKH, MT, DLT, OA, BLGN, DO, MDG, SG UD, KNWT and TJG [naj]; IGN --; BT --; RJG --.
	Middle of a Word/Between Vowels	BMLP *tana? 'soil' > MKH, MT, DLT, IGN, OA, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG [tana?]. BMLP *manok 'bird' > MT, DLT, IGN, BT, MDG, SG UD and KNWT [manok]; MKH [manuak]; OA, BLGN [manuk]; DO [mano?]; RJG [manuo?]; TJG [manu?].
	End of a Word	BMLP *da?an 'branch' > MKH, DLT, IGN, OA, BLGN, SG UD, RJG, KNWT and TJG [da?an]; MT --; DO [dan]; BT --; MDG [da:n]. BMLP *da?un 'leaf' > MKH, MT, DLT, OA, BLGN, MDG, SG UD, RJG and KNWT [da?un]; IGN [du?un]; DO [dawun]; BT --; TJG [du:n].

Table 13. BMLP *n reflex in 13 VMs

The next nasal consonants is the palatal nasal /ɲ/ which was reconstructed at BMLP level as *ɲ. Consonant BMLP *ɲ only exists at the beginning and the middle positions of words. BMLP *ɲ was directly descended at the beginning and the middle positions of words in all VMs as [ɲ]. Although it was directly descended, there were data showing that the OA VM has experienced sporadic innovation when BMLP *ɲ > [j]- at the beginning of a word position (only applies to a single data and other data remain as [ɲ]). Examples of BMLP *ɲ reflex in 13 VMs can be seen in Table 14.

BMLP Consonant	Distribution Position	Examples of BMLP *ŋ Reflex in 13 VMs
*ŋ	Beginning of a Word	BMLP *ŋi:n ‘it’ > MDG [ŋi:n]; DLT and SG UD [ŋin]; IGN [ŋən]; BLGN, KNWT and TJG [ŋa]; OA [jin] ; MKH --; MT --; DO --; BT --; RJG --. BMLP *ŋipən ‘teeth’ > MKH, MT, DLT, IGN, OA, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG [ŋipən].
	Middle of a Word/Between Vowels	BMLP *maŋit ‘sharp’ > MKH, MT, DLT, IGN, OA, BLGN, DO, MDG, SG UD, RJG, KNWT and TJG [maŋit]; BT [maŋet].
	End of a Word	-

Table 14. BMLP *ø reflex in 13 VMs

The fourth or final nasal consonant is the soft palate nasal /ŋ/ reconstructed at the BMLP level as *ŋ. The reconstruction is set as such since it shows regular correspondences in all VMs. The regular correspondence shows that BMLP *ŋ was directly descended which occupied all words’ positions namely, the beginning, between vowels and at the end in all VMs as [ŋ]. However, in BLGN and RJG there exist sporadic changes that have occurred in some data found when BMP *ŋ- > [ŋ-] is at the beginning position of words in both VMs (examples of this innovation only occur sporadically in a single data out of 200 data that have been reconstructed that is BMLP *ŋadan ‘name’), while other data remain as [ŋ] in all the VMs. Examples of BMLP *ŋ reflex in 13 VMs can be seen in Table 15.

BMLP Consonant	Distribution Position	Examples of BMLP *ŋ Reflex in 13 VMs
*ŋ	Beginning of a Word	BMLP *ŋadan ‘name’ > MKH, MT, DLT, IGN, OA, DO, MDG, SG UD, KNWT and TJG [ŋadan]; BT [ŋaran]; BLGN [ŋaran] ; RJG [ŋadan] .
	Middle of a Word/Between Vowels	BMLP *teliŋa ‘ear’ > OA, BLGN and BT [teliŋa]; MKH, DLT, IGN, MDG and SG UD [liŋa]; MT, DO and RJG [iŋah]; KNWT and TJG [teliŋan]. BMLP *laŋit ‘Langit’ > MKH, MT, DLT, OA, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG [laŋit]; IGN [laŋiət].
	End of a Word	BMLP *tutəŋ ‘drink’ > MKH, MT, OA, DO, MDG, SG UD and RJG [tutəŋ]; DLT, IGN and BLGN [tutaŋ]; BT --; KNWT --; TJG --. BMLP *atəŋ ‘correct’ > DLT, IGN, OA, MDG, SG UD and RJG [atəŋ]; MKH --; MT --, BLGN --; BT --; KNWT --; TJG --.

Table 15. BMLP *N Reflex in 13 VMs

3.6 Reconstruction of BMLP *r

The BMLP *r voiced alveolar trill consonant is present at the middle position of a word and was directly descended in a few VMs. The result of the correspondence paradigm towards the data that have been made, the middle of the word position shows that an orderly innovation has taken place in some VMs when BMLP *-r- > -[ɣ]- in DO -[ʀ]- in RJG and KNWT, and -[h]- in MKH and OA. In addition, the sporadic innovation also occurs in some VMs when BMP *-r- > -[ɣ]- in DLT and IGN, -[ʁ]- in the MDG, SG UD and BT, -[ʀ]- in the MDG and SG UD and [h] in MT and BLGN while other VMs remain as -[r]- (see data examples in bold in Table 16). Table 16 shows examples of the BMP *r reflex in 13 VMs.

BMP Consonant	Distribution Position	Examples of BMLP *r Reflex in 13 VMs
* r	Beginning of a Word	-
	Middle of a Word/Between Vowels	<p>BMP *daraʔ ‘blood’ > MT and TJG [daraʔ]; MKH, DLT, IGN and OA [daʔ]; MDG and SG UD [da:ʔ]; BLGN [dahak]; DO [dayaʔ]; BT[ʁaʔ]; RJG and KNWT [daraʔ].</p> <p>BMP *marət ‘narrow’ > MT and TJG [marət]; DLT, IGN and DO [mayət]; MKH --; OA --; BLGN --; BT --; MDG --; SG UD [maʁət]; RJG --; KNWT --.</p> <p>BMP *aməraw ‘woman’ > BLGN [aməraw]; MKH and OA [amahaw]; MT [təməho]; DLT [amaya]; IGN [aməɣaw]; DO [aməyo]; BT --; MDG, RJG and KNWT [məɾəw]; SG UD [amarəw]; TJG [məɾəw].</p>
	End of a Word	-

Table 16. BMP *r reflex in 13 VMs

3.7 Reconstruction of BMLP *l

The voiced alveolar lateral consonant /l/ reconstructed at BMLP level as *l is only present at the beginning and middle positions of words. BMLP consonant *l was directly descended in all VMs as [l] at the beginning and middle positions of words. Although /l/ is said to be directly descended from BMLP, there were data showing that sporadic innovations have occurred when the BMLP *l > [d-] in BT and [r-] in DO at the beginning position of words (this only applies to BMLP data law ‘day’ and *lasuʔ ‘hot’),

while other data remain as [l] in the VM. Examples of BMLP *l in 13 VMs can be seen in Table 17.

BMLP Consonant	Distribution position	Examples of BMLP *l Reflex in 13 VMs
*l	Beginning of a Word	BMLP *laŋit 'sky' > MKH, MT, DLT, OA, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG [laŋit]; IGN [laŋiət]. BMLP *labi? 'come' > MT, DLT, IGN, OA, DO, MDG, SG UD and TJG [labi?]; MKH --; BLGN --; BT --; RJG [labiə?]; KNWT [labɛ?]. BMLP *law 'day' > MKH, MT, DLT, IGN, OA, BLGN, DO, MDG, SG UD, RJG, KNWT and TJG law; BT [daw] . BMLP *lasu? 'hot' > MDG, SG UD, RJG, KNWT and TJG [lasu?]; MKH, MT, DLT and OA [lasut]; IGN [lasuk]; BLGN [lasok]; DO [rasu?] ; BT --.
	Middle of a Word/Between Vowels	BMLP *biləm 'black' > MKH, MT, DLT, IGN, OA, DO, MDG, SG UD, RJG, KNWT and TJG [biləm]; BLGN --; BT --. BMLP *bulaj 'left' > MT, DLT, IGN, BLGN, DO, BT, MDG, SG UD, RJG, KNWT and TJG [bulaj]; MKH and OA [ulaj].
	End of a Word	-

Table 17. VM BMLP *l Reflex in 13 VMs

3.8 Reconstruction of BMLP *w and *j

BMLP has two voiced semi-vowel consonants namely, bilabial semi-vowel consonant *w and palatal semi-vowel consonant *j. The voiced bilabial semi-vowel consonant BMLP *w is only present at between vowels and at the end of words positions to consolidate to form a diphthong and was directly descended in all VMs. Although directly descended in all the VMs, at this point there was also data indicating BMP *-w- > -[b]- in the VM BT. This means that VM BT has experienced sporadic innovations involving a single data, while other data remain as -/w/- in other VM BT (see example in Table 18). BMP *w reflex in 13 VMs are shown in Table 18.

BMLP Consonant	Distribution Position	Examples of BMLP *w Reflex in 13 VMs
*w	Beginning of a Word	-
	Middle of a Word/Between Vowels	BMLP *sawah 'wife' > MT, DLT and DO [sawah]; MKH, IGN, OA, BLGN, BT, MDG, SG UD and RJG [sawa]; KNWT and TJG [sawan].

		BMLP *awan ‘cloud’ > MKH, MT, IGN, OA, BT, MDG, RJG and KNWT [awan]; DLT --; BLGN --; DO --; SG UD --; TJG --. BMLP *bawaj ‘going up’ > MKH, DLT, IGN, OA, BLGN, MDG and SG UD [bawaj]; MT --; DO --; BT [babaj] ; RJG --; KNWT --; TJG --.
	End of a Word	-

Table 18. BMLP *w reflex in 13 VMs

The second semi-vowel consonant is the voiced palatal consonant BMLP *j which is only present at the middle and at the end of words, more towards a consolidation to form a diphthong. The presence of BMLP *j in the middle position of a word was directly descended in all VMs except in the VM BT. In this position, all the data that have been reconstructed, show that regular innovation has occurred in VM BT when MLP * -j- > -[z]- in VM BT, while other VM remain -/j/- (examples in bold in Table 19 illustrates this innovation). BMLP *j reflex in 13 VMs are as shown in Table 19.

BMLP Consonant	Distribution Position	Examples of Reflex BMLP *j in 13 VMs
*j	Beginning of a Word	-
	Middle of a Word/Between Vowels	BMLP *sijah ‘salt’ > MT, DLT, IGN, OA, DO, MDG, SG UD, RJG, KNWT and TJG [sijah]; MKH and BLGN [sija]; BT --. BMLP *ajaŋ ‘big’ > DLT, BLGN and DO [ajaŋ]; MKH --, IGN--, OA --; MT, MDG, SG UD and RJG [aʃəŋ] BT [azəŋ] ; KNWT and TJG [ajɔ]. BMLP *mijak ‘shy’ > MKH, MT, DLT and IGN [mijak]; OA and BLGN [minak]; DO [mijaʔ]; BT [məzak] ; MDG and SG UD [mijaʔ]; RJG, KNWT and TJG [mija]. BMLP *kajo ‘wood’ > MKH, MT, DLT, IGN and BLGN [kajo]; OA and DO [kajɔ]; BT [kazəw] ; MDG and SG UD [kajəw]; RJG, KNWT and TJG [kajaw].
	End of a Word	-

Table 19. BMLP *j reflex in 13 VMs

4. Conclusion

Overall, this chapter has discussed on the reconstruction of BMLP based on a comparison that has been made on thirteen VMs namely, MKH VM, MT, DLT, IGN, OA,

BLGN, DO, BT, MDG, SG UD, RJG, NWT and TJG. The result of the comparison made can be regarded as quite challenging and it was found that there were a clear and unclear phonetics contrast. However, this situation is not an obstacle to rebuild its parent language which is BMLP. Reconstructions made on thirteen VMs have produced an inventory of BMLP consonant phonemes. Based on the description that has been discussed in this study, the final result of the reconstruction has shown that BMLP has 18 consonants, consists of four voiceless plosive consonant *p, *t, *k, *ʔ, three voiced plosive consonants *b, *d, *g, a voiceless consonant *dʒ, two voiceless fricative consonants *s, *h, four nasal consonants *m, *n, *ɲ, *ŋ, one voiced trill consonant *r, one voiced lateral consonant *l and two semi-vowels consonants of *w *j. As a result of the reconstruction of the ancient BMLP phonemes that has been made, some forms of ancient BMLP were also obtained and enables the next reconstruction of lexical BMLP which will be discussed in a next article.

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