

# Raising of PMP \*a in Bukar-Sadong Land Dayak and Rejang

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## 1 Introduction

This paper is a report on field work in progress on two Austronesian language groups: the Rejang, spoken in Bengkulu and South Sumatra Provinces of Indonesia; and the Bukar-Sadong dialects of Land Dayak (called Bidayūh /bidayəh/ [bidayih]) spoken in the Serian District, Sarawak, Malaysia.<sup>1</sup> Of particular interest is a change raising PMP \*-aC > -/əC/ in Bukar-Sadong, but not before a final velar: e.g. \*bulan > /burən/ ‘moon’ but \*anak > /anak/ ‘child’ in Tibakang, Məntu [məntu] (cf. Court 1967), and neighbouring dialects. This change is typologically interesting because a comparable change occurred in the Rejang language of Sumatra (Blust 1984; McGinn 1997). Other factors inviting comparison include: 30% shared vocabulary in the Swadesh 200-list; some unusual lexical and grammatical items; nasality features (pre-ploded final nasals, contrast between simple and ‘barred’ nasals prevocalically); and a few possibly shared phonological innovations such as the following.

- (1) CV:CV(C) > CVCV:(C) (both Sadong and Rejang are “oxytone” languages)
- (2) Loss of PMP \*qa- in trisyllables (ubiquitous in Borneo (Blust 1990:240))
- (3) Neutralization of PMP prepenultimate \*a (cf. Sad. prefixes /bi-, ti-/ = Rej. /bə-, tə-/)
- (4) Shared retention of PMP \*uy and comparable changes affecting the other diphthongs
- (5) Last-syllable (stressed) schwas reflecting PMP \*e except before \*-q: \*p-inzem > /minjəm/ ‘borrow’ in both languages; \*taneq > \*tanaq ‘earth’ in both languages.
- (6) PMP \*a > \*ə, e.g. \*mata > Sadong /batəh/, Rejang /matəy/ ‘eye’.
- (7) PMP \*-aC > Sadong -/əC/, Rejang -/əC/ except before velars;<sup>2</sup> e.g. \*tajan > Sadong /təjən/, Rejang /tajən/ ‘hand’; but \*anak > Sadong, Rejang /anak/ ‘child’.

<sup>1</sup> Abbreviations used are PAn = Proto Austronesian, PBS = Proto Bukar-Sadong, PMP = Proto Malayo=Polynesian, PR = Proto Rejang.

<sup>2</sup> I assume, following Blust (1990:223), that \*q was a back velar. Thus the environment “before velars” includes “before \*q”.

The question is whether such comparisons, especially (6) and (7), are due to chance, borrowing, or inheritance from a lower-order proto-language (subgroup). My paper will argue against chance (“drift”) to explain most or all of these comparisons, and argue for a mixed tree- and wave-theoretical account based on some early shared innovations followed chronologically by a few conspicuous borrowings. If accepted, the hypothesis places the pre-Rejangs in Borneo until around 1200 BP, when they migrated to their present location in Sumatra. On the basis of other changes not shown above (e.g. PMP \**l* > *r* in Sadong but not Rejang – and not all Bidayuh languages, either (see section 5.2 below) – I argue (a) that change (1) above occurred later than (2-7) and spread by borrowing; and (b) that (7) cannot reflect a shared innovation. The unusual nature of the conditioning in (7) suggests borrowing.

The paper is in three parts. Section 2 reviews relevant aspects of Rejang historical phonology based on Blust (1984) and McGinn (1997). Section 3 presents some previously proposed subgrouping hypotheses for Rejang and shows them to be untenable. Section 4 introduces new evidence that Rejang’s closest linguistic relationship might be the Land Dayak group in Western Borneo, and this is evaluated in section 5. Phonological, lexical, and grammatical evidence is presented that is consistent with a mixed tree- and wave-theoretical subgrouping hypothesis locating the Rejangs in Borneo prior to migrating to Sumatra around 1200 BP.

## 2 Aspects of Rejang Historical Phonology

### 2.1 Vocalic Change

Robert A. Blust (1984) has demonstrated that Rejang exhibits more changes in the vowels than any other known Austronesian language. The following chart illustrates 27 splits and 21 mergers of the original four PMP vowels reflected in the Musi dialect.

*a (9)	∅	a	ə	e	o	i	u	əa	əy			
*e (7)	∅	a	ə	e	o			əa		oa		
*i (5)			ə	e		i		əy		ea		
*u (6) 27	∅		ə		o		u			oa		əw

**Table 1. Rejang-Musi outcomes for PMP vowels:  
mergers = 27 (horizontal); splits = 21 (vertical) (Blust 1984)**

## 2.2 Fate of PMP \*a in Proto Rejang: 10 changes

Of the seven comparisons listed in the Introduction, the most important ones for subgrouping purposes involve PMP \*a. As Table 1 shows, this etymon underwent nine mergers in the history of Rejang. However, the number of changes is even greater, since some of the mergers (e.g. PMP \*a > /ə/) occurred in more than one environment (see 2.3). Eleven outcomes which affected PMP \*a directly are illustrated below.

Outcome 1: Prepenultimate neutralization: \*a > \*ə

PMP	Proto Rejang	
*balaja	*bəlaŋi	‘pot’
*salambaw	*sələmbəw	‘trap’
*maŋ-	*məŋ-	(verbal affix)
*maR-	*bə-	(verbal affix)

Outcomes 2-5: PMP Penult \*a > \*o, \*ä, \*u, \*i (root harmony)

PMP	Proto Rejang	Kebanagung	
2. *manuk	*monok	monok	‘chicken’
3. *laŋit	*ləŋät	leŋet	‘sky’
4. *sapu	*supu	supəw	‘broom’
5. *tali	*tili	tiləy	‘rope’

Outcomes 6-9: PMP ultimate \*-a > \*ə, \*i, \*o

PMP	Proto Rejang	Kebanagung	
6. *kita	*kitə	itə	‘we (incl.)’
*niʔe	*nə	nə	‘he/she’
7. *duha	*dui	dui	‘two’
*tua	*tui	tui	‘old’
8. *mata	*mati	matəy	‘eye’
*nana	*naŋi	naŋəy	‘fork of river’
9. *depa	*dəpo	dəpo	‘fathom’
*teka	*təko	təko	‘come’

Outcome 10: PMP \*a neutralized in ‘diphthongs’: \*aw, \*ay > \*əw, \*əy

PMP	Proto Rejang & Rejang	
*Danaw	danəw (Lebong)	‘lake’
*punay	punəy (Lebong)	‘dove’
compare		
*gatey	atəy (Lebong)	‘liver’
*hapuy	apuy (Rawas)	‘fire’
*kahiw	kiiw (Rawas)	‘wood’

Outcome 11: *\*-aC* > *\*-əC* except before velars

PMP	Proto Rejang Kebanagung		
<i>*bulan</i>	<i>*bulən</i>	<i>bulən</i>	‘moon’
<i>*quzan</i>	<i>*ujən</i>	<i>ujən</i>	‘rain’
<i>*tawad</i>	<i>*tawəh</i>	<i>tawəh</i>	‘haggle’
<i>*anak</i>	<i>*anak</i>	<i>anak</i>	‘child’
<i>*hisən</i>	<i>*isən</i>	<i>isən</i>	‘gills’
<i>*hasaq</i>	<i>*asaq</i>	<i>asah</i>	‘sharpen’

Outcome 12: PMP *\*a* reflected as /a/ in monosyllables and in etyma with schwa in the penult

PMP	Proto Rejang Kebanagung		
<i>*ba</i>	<i>*ba</i>	<i>ba</i>	(particle)
<i>*hekan</i>	<i>*kan</i>	<i>kan</i>	‘fish’
<i>*tebas</i>	<i>*təbas</i>	<i>təbas</i>	‘clear-cut’

### 2.3 Pre-Rejang word stress

In McGinn (1997, 1999) it was demonstrated that, given an appropriate (internal) reconstruction of certain pre-Rejang prosodic features, all changes that directly affected PMP *\*a* occurred in unstressed syllables. “Appropriate” in this context means that pre-Rejang’s stress system was virtually identical to that of contemporary Malay: stress was final when the penult was *\*e*, otherwise penultimate. Consider in this light the naturalness of Outcomes 1 and 6 in pre-Proto Rejang, whereby *\*a* neutralized in unstressed syllables (twice).

*\*bala:ŋa* > *\*bəla:ŋə* > ... ‘cooking pot’  
*\*ma:ta* > *\*mə:tə* > ... ‘eye’

Nowadays, however, in all contemporary Rejang dialects the stress falls uniformly upon the final syllable of the word. To account for the contemporary data, McGinn (1997) assumed that by the time of Proto Rejang, the stress had shifted, so that diphthongization and other changes affected (newly) stressed schwas from PMP *\*a*, whereas “root harmonization” affected (newly) destressed reflexes of *\*a*. These assumptions are illustrated below.

PMP	pre-Rejang	Proto Rejang Kebanagung	
<i>*mata</i>	<i>*ma:tə</i> > <i>*matə:</i>	<i>*mati:</i>	<i>matəy</i> ‘eye’
<i>*talih</i>	<i>*ta:li</i> > <i>*tali:</i>	<i>*tili:</i>	<i>tiləy</i> ‘rope’

The complete derivation of the word for ‘eye’ illustrates a series of changes whose ordering is reconstructible from internal evidence, including conspicuous “archaic residues” in the language which, according to McGinn (1997), are actually systematic and not true exceptions. Consider the following data.

Outcome PMP pre-RejangProto Rejang Kebanagung

6	<i>*kita</i> <i>*niʔa</i>	<i>*kitə</i> <i>*niʔə</i>	<i>*itə</i> <i>*nə</i>	<i>itə</i> <i>nə</i>	‘we (incl.)’ ‘he/she/it’
7	<i>*duha</i> <i>*tua</i>	<i>*du:ə</i> <i>*du:ə</i>	<i>*dui:</i> <i>*tui:</i>	<i>dui:</i> <i>tui:</i>	‘two’ ‘old’
8	<i>*mata</i> <i>*nana</i>	<i>*ma:tə</i> <i>*na:nə</i>	<i>*mati:</i> <i>*nani:</i>	<i>matə:y</i> <i>nanə:y</i>	‘eye’ ‘fork of river’
9	<i>*depa</i> <i>*teka</i>	<i>*dəpa:</i> <i>*təka:</i>	<i>*dəpo:</i> <i>*təko:</i>	<i>dəpo:</i> <i>təko:</i>	‘fathom’ ‘come’
12a	<i>*ba</i> ---	<i>*ba</i> <i>*bi</i>	<i>*ba</i> <i>*bi</i>	<i>ba</i> <i>bi</i>	(particle) (particle)
12b	<i>*hekan</i> <i>*daqan</i>	<i>*kan</i> <i>*dan</i>	<i>*kan</i> <i>*dan</i>	<i>kan</i> <i>dan</i>	‘fish’ ‘branch’

**Table 2: Sample derivation: Kebanagung əy from \*-a in word for ‘eye’**

As Table 2 illustrates, pronouns were affected by Outcome 6; content words with *\*u* in the penult were affected by Outcome 7 (two changes, including Outcome 6); the ‘elsewhere’ set underwent Outcome 8, which is the most complex, subsuming Outcomes 6, 7, and 8. Finally, none of these outcomes is reflected in two other classes of etyma: (a) when the penult was PMP *\*e* (presumed to be schwa), *\*-a* resisted neutralization and eventually changed to /o/ (Outcome 9); and finally (b) in monosyllables *\*-a* was unaffected (reflected as *-/a/*).

McGinn (1997) explained all of these outcomes by first reconstructing aspects of pre-Rejang metrical structure, and then deriving the attested vowels in an array of stressed and unstressed syllables. In particular, neutralization of *\*-a* (Outcome 6) affected unstressed syllables, and all other changes affected stressed syllables. Finally, monosyllables by definition are “unfooted”, and hence lack metrical structure. As Outcome 12 indicates, the unfootedness of monosyllables seems to have played a role not only in the history of PMP *\*-a*, but also of *\*-aC* in Rejang.

## 2.4 Rejang and Bukar-Sadong-Bidayuh

The above examples provide sufficient background to commence the comparative part of this paper. Clearly, any language outside the Rejang area that exhibits some or all of the richness and subtlety of the above system of rules merits further examination as a possible subgrouping partner with Rejang. To begin with, consider the following formula summarizing the conditions under which PMP *\*a* underwent neutralization in pre-Rejang. (Readers interested mainly in the comparative analysis are urged to skip the next section and turn directly to section 4.)

*\*a* > *\*ə* / V:C\_(C[-velar])#

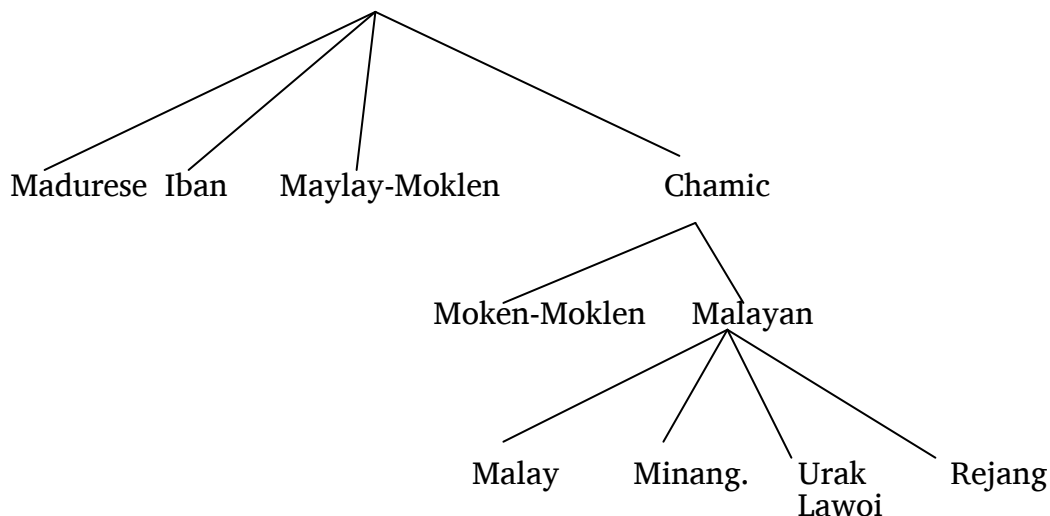
pre-Rejang		Kebanagung	
<i>*ma:ta</i>	> <i>*ma:tə</i> ...	<i>matə:y</i>	‘eye’
<i>*da:naw</i>	> <i>*da:nəw</i>	<i>danə:e</i>	‘lake’
<i>*tawad</i>	> <i>*ta:wəh</i>	<i>tawə:h</i>	‘haggle’

\*anak > \*a:nak ana:k 'child'

### 3 Rejang historical phonology: In search of an interpretation

There are at least two “uses” for historical phonology: to provide data for the study of sound change, and to contribute to language classification. In the previous section we outlined a few of the more interesting sound changes in Rejang. In this section, all previously proposed subgrouping hypotheses for Rejang (none of them satisfactory) are reviewed.

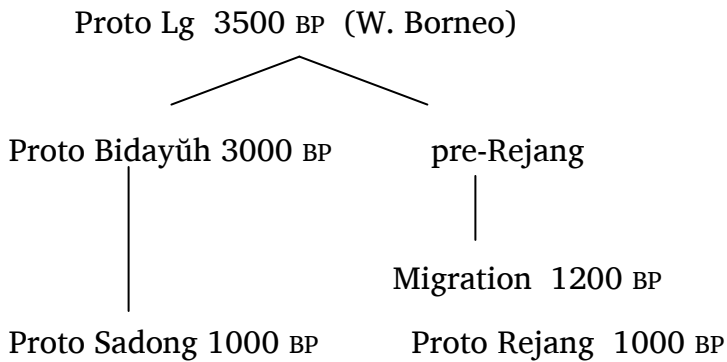
Blust (1981) attempted to classify Rejang together with Malay, Sundanese, and Maloh on the basis of shared exceptional vocabulary, in particular, the numerals ‘seven’, ‘eight’, and ‘nine’, which are clearly uninherited (borrowed) in all four languages; moreover, all correspond closely with Malay *tujuh*, *delapan*, *sembilan*, e.g. Rejang-Musi /tojoa?/ ‘seven’, /lapən/ ‘eight’, /səmilən/ ‘nine’. Merritt Ruhlen (1987) used the same evidence to include Rejang under Chamic and Malayan, and coordinate with Malay, Minangkabau, and Urak Lawoi.



More recently, however, Adelaar (1991) and Blust (1992) argued against any close relationship between Rejang and Malay. In fact, Rejang shares none of the diagnostics (apart from numerals 7, 8 and 9) with Malay, Acehnese, and the Chamic languages. For example, in Rejang, word-initial PMP \*w- exhibits not weakening to zero (sometimes /h/) as in Malay (*h*)ari ‘day’, air ‘water’, but rather strengthening to /b/-, as in Rejang-Musi /biləy/ ‘day’, /bioa/ ‘water’. Blust concluded that Rejang’s numerals 7, 8 and 9 must be borrowings from Malay, thus leaving Rejang unclassified, with no known close relatives. McGinn (1999) attempted to account for a number of morpho-phonological comparisons involving Rejang, Malay, and Mukah Melanau. However, subsequent field work in Sarawak failed to support a subgrouping hypothesis. As matters now stand, therefore, the position of Rejang is unknown, apart from the fact that it belongs in the PMP subgroup of the Austronesian family.

## **4 In search of the homeland of the Rejangs**

In the remainder of this paper, I introduce evidence suggesting that early Rejang evolved in Borneo and might possibly be grouped as a coordinate member of a subgroup that includes the Land Dayak languages. The following is a general outline of the hypothesis.



The major piece of evidence for this idea, and what drew me to study the Bidayüh, involves the fate of PMP *\*a* in final syllables in Bukar-Sadong dialects. The Bukar-Sadong dialects are spoken in numerous villages along the Sadong river in the First District, Sarawak, Malaysia, in and to the north of the city of Serian.

#### 4.1 Data and analysis

Recently I spent seven weeks in Sarawak and three weeks in Sumatra collecting data based on two lists. The first was a word-finder list consisting of 300 PMP etyma and 107 additional terms, all presented with Malay equivalents (useful for eliciting from bilingual speakers); the second consisted of 200 sentences developed by Amran Halim from the Swadesh 200-wordlist, presented in the form of full sentences (in Malay for elicitation purposes). For example, the meaning ALL (English *all*) was elicited by asking for a translation of the Malay sentence *Semua manok kami mati* ('All our chickens have died'). The 407-word finderlist and the 200-sentence list were recorded for the Tibakang, Tapü, Bedüp, Mujat and Ranchan dialects of Sadong and the Lebong, Kebanagung and Rawas dialects of Rejang. I had previously collected data based on the same lists for two other Rejang dialects, namely, Lebong Musi and Pasisir. The Appendix displays over 200 reconstructed Proto Rejang forms (based on five dialects) alongside a similar number of Proto Bukar-Sadong forms. All comparisons shown in the remainder of this paper are based on the reconstructed protolanguages; attested forms represent contemporary dialects.

#### 4.2 Summary of PMP last-syllable *\*a* Raising in pre-Rejang

Before beginning the comparative part of the paper, consider again the following formula, which represents three of the earliest changes affecting the historical phonology of pre-Rejang.

$$\begin{array}{l} \text{PMP} > \text{pre-Rejang} \\ *a > *ə / V:C\_([C[-\text{velar}]))\# \end{array}$$

#### 4.3 PMP last-syllable *\*a* Raising in pre-Bukar-Sadong

What is interesting in the context of this paper is that the set of pre-Rejang changes shown by the formula in 4.2 *almost* works for reconstructed pre-Bukar-Sadong as well. Consider the following set of changes, to be described in full in this section.

- PMP > pre-Bukar-Sadong
- \*a > \*ə / V:C \_ #
  - \*a > \*ʌ / V:C \_ C[-velar]#
  - \*-aw > \*əw . . . > u  
\*-ay > \*əy . . . > i

The next display illustrates the range of changes represented above which will be described in detail in this section.

	PMP	pre-Bukar-Sadong	Tibakang	Section discussed
a.	*duha	*du:ə	duə:h ‘two’	4.3.1
b.	*Danaw	*da:nəw	danu: ‘lake’	4.3.2
	*punay	*pu:nəy	puni: ‘dove’	
c.	*taŋan	*ta:ŋʌn	tʌŋʌ:n ‘hand’	4.3.3
	*hepat	*u:mɔʌt	umɔʌ:t ‘four’	

To help explain all of these changes, I assume that pre-Bukar-Sadong (like pre-Rejang) had a Malay-type stress system: i.e. *the accent fell on the ultimate when the penult was schwa; otherwise on the penult*. Another assumption is that all contemporary Bukar-Sadong dialects have ultimate stress, again like Rejang; certainly, all those which have been investigated show this pattern.

#### 4.3.1 Neutralization of PMP word-final \*a in open final syllables

Both languages show evidence of early neutralization of PMP \*-a in open final syllables.

PMP	Pre-Rejang	Pre-Sadong	Tibakang	
*duha	*du:ə	*du:ə	duə:h	‘two’
*mata	*ma:tə	*ma:tə	batə:h	‘stone’
*naŋa	*na:ŋə	*na:ŋə	naŋə:h	‘fork of river’
*limə	*li:mə	*li:mə	limə:h	‘five’
*ni?a	*ni:ʔə	*ni:ʔə	niʔə:h	‘he/she’

#### 4.3.2 Neutralization of PMP word-final \*-a in pre-Bukar-Sadong diphthongs

Both languages show evidence that \*a raised to \*ə in PMP \*aw and \*ay.

PMP	Pre-Bukar-Sadong	Proto Rejang & Rejang	Proto Bukar-Sadong & Tibakang	
*Danaw	*danəw	danəw (Lebong)	danu	‘lake’
*punay	*punəy	punəy (Lebong)	puni	‘dove’
*qatey	*atəy	atəy (Lebong)	ati	‘liver’

<i>*hapuy</i>	<i>*apuy</i>	<i>apuy</i>	(Rawas)	<i>apuy</i>	‘fire’
<i>*kahiw</i>	<i>*kaiw</i>	<i>kiwi</i>	(Rawas)	<i>kayu</i>	‘wood’

### 4.3.3 Raising of PMP \*a in closed final syllables “except before velars”

The data in this section is what first drew my attention to the comparison of Rejang and Bidayuh.

PMP	Rejang (Kebanagung)	Bukar-Sadong (Tibakang)	Gloss
<i>*bulan</i>	<i>bulə:n</i>	<i>burΛ:tn</i>	‘moon’
<i>*quzan</i>	<i>ujə:n</i>	<i>ujΛ:tn</i>	‘rain’
<i>*tawaD</i>	<i>tawə:h</i>	<i>tawΛ:r</i>	‘haggle’
<i>*anak</i>	<i>ana:k</i>	<i>ana:k</i>	‘child’
<i>*hisaj</i>	<i>isa:ŋ</i>	<i>insa:kŋ</i>	‘gills’
<i>*hasaq</i>	<i>asah</i>	<i>ŋ-asaʔ</i>	‘sharpen’

This comparison offers the strongest evidence of a greater-than-chance relationship between Rejang and Bukar-Sadong. (See 5.2.2)

## 4.4 More phonological evidence

In addition to the above evidence for relating Rejang and Bukar-Sadong dialects, consider the following phonological comparisons. Many of these types of changes are common elsewhere in the Austronesian family, and therefore may seem to have little subgrouping value, as would certainly be the case if each were evaluated individually. In the aggregate, however, they seem to add up, if not to a fully verified subgroup, at least to an indication that the Rejangs originated in Borneo (rather than, say, Taiwan, the Philippines, Sulawesi, Sumatra, or the Malay peninsula), for almost all of the resultant features are particularly widespread in Borneo.

Rejang and Bukar-Sadong	Widespread in Borneo	Shared by Malay
<i>*qa-</i> > $\emptyset$ in trisyllables	YES	NO
<i>*Ca-</i> > <i>*Cə-</i> in trisyllables	YES	YES
<i>*-q</i> > <i>*-ʔ</i>	YES	NO
<i>*z</i> > <i>*j</i> (except Rejang <i>d-</i> in ‘road’ and ‘needle’)	YES	YES
<i>*-mb-</i> , <i>-nd-</i> > <i>-m<sup>b</sup>-</i> , <i>-n<sup>d</sup>-</i> (“barred nasals”)	YES	NO
<i>*-m</i> , <i>*-n</i> > <i>-<sup>b</sup>m</i> , <i>-<sup>d</sup>n</i> (pre-stopped nasals)	YES	NO
Stress shifted to final syllable	YES	NO

## 4.5. Grammatical comparisons

In addition to the phonological evidence just reviewed, there are a few grammatical comparisons that point in the same direction. Owing to the paucity

of inflections in either language, the grammatical comparisons involve grammatical function words. (Rejang has only two inflections, the infixes *-/ən/*, *-/əm/-*, both inherited from PAN/PMP; Bukar-Sadong has only *-/in/-* corresponding to Rejang *-/ən/-* in both form and meaning.) Possibly shared changes include the following three:

- (1) Suffixes are unknown in both Rejang and Bukar-Sadong.
- (2) Case distinctions in the pronouns are virtually non-existent (shared with Malay).
- (3) Similarities among the following grammatical function words may be significant. (Note: the symbol ~Rawas means ‘all Rejang dialects except Rawas’.)

Bukar-Sadong-Tibakang	Rejang dialects	Malay	Gloss
<i>aŋ</i>	<i>taŋ</i> Rawas	<i>di</i>	‘at’
<i>kaiʔ</i>	<i>coa</i> ~Rawas	<i>tidak</i>	‘not’
<i>api</i>	<i>ipə</i> ~Rawas	<i>mana</i>	‘where?’
<i>kudu</i>	<i>kədəw</i> all	<i>berapa</i>	‘how many?’
<i>mbəh</i>	<i>bi</i> all	<i>sudah</i>	‘already’
<i>kelek</i>	<i>kəlak</i> all	<i>mau, hendak</i>	‘want’
<i>boh, mah</i>	<i>ba</i> all	<i>-lah</i>	‘imperative particle’

Two caveats are in order with respect to the list of function words, however. First, apart from PMP *\*ba* (imperative particle), the PMP etyma for these words have not been reconstructed, so it is not really known at present whether the data represent shared innovations or simple retentions. Second, it must also be acknowledged that the similarities are merely impressionistic. Whether these comparisons will eventually prove valid must await the results of future research.

#### 4.6 Lexical comparisons

Finally, a few apparently shared irregularities turned up during the search for shared cognates. Consider the following data.

PMP	Bukar-Sadong Tibakang	Rejang Rawas	Malay	Gloss
<i>*bali</i>	<i>jaji</i>	<i>jijəy</i> < PR <i>*jaji</i>	<i>jadi</i>	‘become’
<i>*kutu</i>	<i>gutu</i>	<i>gutəw</i>	<i>kutu</i>	‘head louse’
<i>*tuqelan</i>	<i>tərətŋ</i> ‘Adam’s apple’	<i>tələn</i>	<i>tulaŋ</i>	‘bone’
<i>*tisuk</i>	(Mujat <i>-ujak</i> )	<i>tujah</i>	<i>tikam</i>	‘to stab’
<i>*(7-8-9)</i>	(borrowed)	(borrowed)	(borrowed)	‘7, 8, 9’
<i>*pitu</i>	<i>ijuʔ</i>	<i>tojoh</i>	<i>tujuh</i>	‘seven’
<i>*walu</i>	<i>mahi</i>	<i>lapən</i>	<i>dələpan</i>	‘eight’
<i>*siwa</i>	<i>piriʔi</i>	<i>səmilən</i>	<i>səmbilan</i>	‘nine’

Shared forms from unknown sources are potentially significant as evidence of early shared borrowings. Thus Tibakang */jaji/* corresponds well with Rawas */jijəy/* < PR *\*jaji* in form and meaning; so also */gutu/* = */gutəw/* from PMP *\*kutu* (although *\*k-* > */g/-* is widespread in Western Austronesia). The third form, Bukar-Sadong-Mujat */tərətŋ/* ‘Adam’s apple’ corresponds with Rejang */tələn/* ‘bone’, but, if these are cognates, the Tibakang Mujat form has

undergone a semantic shift. The words for ‘stab’ and ‘seven’ are obviously borrowed in both languages, with a strong resemblance in form and meaning. Finally, the numerals ‘seven’, ‘eight’ and ‘nine’ are obviously borrowed in both languages: ‘seven’ probably from Malay; ‘eight’ and ‘nine’ from different sources; yet in both languages it is striking that just these three numerals are borrowings.

## 5 Lexicostatistics and Glottochronology

Although the case for a Rejang-Bidayüh subgroup is far from proven, it is nonetheless helpful to consider some of the consequences that would follow from the assumption that the hypothesis is true. It is in this spirit that I propose to explore some further evidence based on lexicostatistics and glottochronology. Although discredited if taken as exact sciences, these two methods nevertheless constitute useful tools for the extraction of two kinds of information from a body of data: the one to quantify relative linguistic “distance” between two or more languages; the other to assign tentative dates to language splits. Among the standard caveats, it is perhaps also necessary to point out that the two methods are interdependent in the sense that the relative distance between, say, languages A, B, and C remains constant no matter what dates are assigned. For example the relative distance between languages A, B, C is the same no matter if  $t = 1,000$  years or  $10,000$  years. Thus there is no contradiction in adjusting the value of  $t$  in order to conform to other lines of evidence, such as archaeological evidence, and even cultural evidence – whether the speakers tend more to linguistic conservatism or the reverse, leading to widespread rapid borrowing.

### 5.1 Rejang and Bukar-Sadong

Given this much as introduction to the use of statistical methods in historical phonology, consider the following table:

	% shared homosemantic cognates	( $r = 84\%$ )
Rejang dialects:	70 - 94%	= 1000 years
Sadong dialects:	70 - 88% (Topping 1990)	= 1000 years
Bidayüh dialects w/ Lara'	33 - 36% (Kroeger 1998)	= 3000 years
Tibakang and Kebanagung: (Sadong) (Rejang)	30 % (my field work)	= 3500 years

**Table 3: Cognate Percentages With Tentative Dates**

There are three observations to be made about Table 3. First, the maximum spread within Rejang dialects and within Bukar-Sadong dialects is about the same – around 70% shared basic vocabulary (McGinn field work conducted in 2000 & 2001; cf. Topping 1990). Second, the maximum separation within the entire Bidayüh group, which includes the Lara' language of West Kalimantan, is

33-36% (Kroeger 1998). Third, Rejang's nearest cousin is unknown, unless indeed this turns out to be the Bidayüh group itself.

Next, for concreteness, it has been useful to assign relative dates to these figures (with the usual caveats). When  $r$  (assumed rate of replacement of basic vocabulary per thousand years) = 84%, then 70% shared basic vocabulary = 1,000 years and 30% shared basic vocabulary = 3,500 years. Therefore, both Proto Rejang and Proto Bukar-Sadong began their dialect splits 1,000 years ago, and Proto Bidayüh began splitting into different languages around 3,500 years ago. The lowest-order proto-language containing both pre-Bidayüh and pre-Rejang began separating earlier than 3500 years ago.

## 5.2 Problems

The statistical evidence introduced above is consistent with a subgrouping hypothesis for Rejang and Bidayüh, but problems remain. Here I will mention what I consider to be the two most serious objections to the hypothesis. First, the change  $*l > /r/$  affected Bukar-Sadong dialects but not Rejang. Second, the Bukar-Sadong version of PMP  $*a$  Raising ( $*a > ə / *\_C\#$  except before velars) – which so temptingly resembles the Rejang version – is (apparently) not found in any other Bidayüh dialects. Taken together, these two facts undermine any supposed subgroup at the level of Proto Rejang and Proto Bidayüh. The case would be permanently closed if  $*l > /r/$  were assumed to be diagnostic for membership in the Bidayüh language group, but as we shall see in the next section, any such conclusion would be incorrect. Nevertheless, it is probable that  $*l > /r/$  preceded PMP  $*a$  Raising in Bukar-Sadong, and if so, the Rejang version of PMP  $*a$  Raising cannot be a shared innovation with Bukar-Sadong. These two objections notwithstanding, there still exists one more possible scenario open for uniting these two languages at some level lower than PMP.

### 5.2.1 How widespread was PMP $*l > /r/$ in Bidayüh?

As mentioned,  $/r/$  from PMP  $*l$  is reflected in Bukar-Sadong and many other Bidayüh languages, but not in Rejang. The crucial point, however, is that this change is likewise not attested in some other Bidayüh languages, a number of which regularly show PMP  $*l$  as  $/l/$  (e.g. Grogo, Sau, Milikin). Consider, the Grogo forms below taken from Ray (1913).

PMP	Proto Bidayüh 3000 BP	Bidayüh-Grogo (Ray 1913)	Proto Bukar-Sadong 1000 BP	GLOSS
$*laŋit$	$*laŋit$	$laŋit$	$*raŋit$	'sky'
$*laud$	$*laud$	$laud$	$*laut$ (irregular $l$ -)	'sea'
$*silun$	$*silun$	$silun$	$*siruh$ (irregular $-h$ )	'fingernail/claw'
$*tuqelaN$	$*tulaŋ$	$tulaŋ$	$*turaŋ$	'bone'
$*talih$	$*talih$	$toli$	$*tarih$	'rope'
$*bulan$	$*bulan$	$bulan$	$*burən$	'moon'

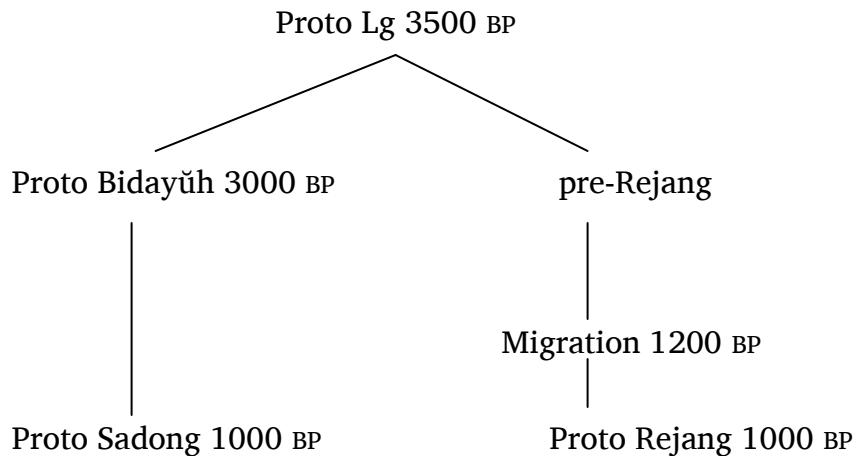
On this the evidence,  $*l > /r/$  cannot be assigned to Proto Bidayüh.

### 5.2.2 PMP \*a Raising in Bukar-Sadong and Rejang (revisited)

Let us again consider the comparative data of PMP \*-aC Raising shown in section 4.3.3 above. As far as I know, the Bukar-Sadong version of PMP \*-aC Raising is not found in other Bidayŭh dialects, in contrast to \*l > /r/ which is fairly widespread. It follows that \*l > /r/ must have preceded \*a Raising in Bukar-Sadong; and therefore no version of \*a Raising can possibly be assigned to any subgroup containing Proto Rejang and Proto Bukar-Sadong as members. Our most interesting comparison, therefore, must be due to borrowing (language contact) or chance (phonetic drift). But the likelihood of chance must be considered extremely low given the unusual nature of the conditioning (\*-aC underwent raising “except before velars”) in exactly these two languages. Therefore, I shall argue for borrowing as the more likely explanation.

### 5.2.3 ‘Saving the hypothesis’

If the hypothesis is to stand up against the two objections mentioned in 5.2, then the only way to save the hypothesis is to introduce a ‘mixed’ theory based on an orderly application of tree-theory and wave-theory assumptions. The following display outlines the temporal and geographical requirements of the revised hypothesis.



The final display below indicates in more detail the set of assumptions consistent with the hypothesis.

#### A Plausible Sequence of Events

before 3500 BP	Shared innovations defining pre-Rejang and pre-Bidayŭh subgroup (e.g. *-a > *-ə)
3500 BP	Language split into pre-Rejang and Proto Bidayŭh
<u>3500-1200 BP</u>	<u>Pre-Rejang in contact with pre-Sadong in Sarawak</u>
1500 –1200 BP	1. *-V:CaC[-velar] > *-V:CəC spread by borrowing 2. Final syllable stress spread by borrowing 3. *l > /r/ in Sadong (did not spread to Rejang)
<u>1200 BP</u>	<u>Proto Rejang migration</u>

Rejang:	<u>*ə from *a merged with /ə/</u>
Sadong:	<u>*ə from *a became new (7th) vowel</u>
1000 BP	Rejang dialect split
	Bukar-Sadong dialect split

## 6 Epilogue: a role for ‘shared retentions’ in language classification

It is widely assumed that only shared innovations are relevant for subgrouping, and that shared retentions have no subgrouping value. This assumption has served as a guiding principle in this paper up to this point. A moment’s reflection, however, should be enough to convince anyone that this principle has no real theoretical status. At best it is a caveat advising students of language not to waste their time looking for subgrouping hypotheses in unlikely places. But consider the matter theoretically. Assume the case of a subgrouping hypothesis that is well established on the basis of a reasonable number of shared innovations, e.g. Maanyan and Malagasy (Dahl 1951). It almost goes without saying that any Maanyan and Malagasy cognates that are assumed to be inherited from the protolanguage “directly” (without change) would be expected to be just as regular in their vacuous development as are the shared innovations in their altered development. And indeed, in practice such retentions are always regarded as backgrounded information in relation to the set of innovations, and for this reason their status is easily overlooked. What these retentions actually do theoretically (which is not usually noted) is, first, to bear witness against alternative hypotheses, and second, to add positive weight to (the preponderance of) the standard evidence in favour of the hypothesis. This holds true despite the fact that, in the simplest cases, no alternative hypotheses are under consideration, and the added weight is not needed.

But what about the more difficult cases, where such additional evidence might actually perform useful work? Such cases can and do arise, I suggest, in attempts to establish subgrouping hypotheses for isolated language groups like the Rejang. In such cases, there may be a legitimate use of evidence from shared retentions. When such evidence is examined, and considered alongside other evidence, it can help to refute a false hypothesis; and by the same token, it can add weight in support of a hypothesis.

Consider the following three classes of retentions that are found scattered among many Austronesian languages, including Proto Rejang and Proto Bidayūh.

- (a) PMP diphthong *\*uy* inherited as /uy/ in all known Rejang and Bidayūh dialects.
- (b) PMP infix *\*-in-* ‘past tense’ inherited as *-/in/-* (Bidayūh) and *-/ən-* (Rejang) – reanalyzed as the passive morpheme
- (c) PMP *\*-eC* inherited as *\*-əC* except before *\*-q*, where *\*-eq* > *\*-aq*: e.g. PMP *\*asəp* ‘smoke’ > PR, PBS *\*asəp* ‘smoke’ alongside PMP *\*taneq* > PR *\*tanaq* (not *\*\*tanəq*), PBS *\*tanah* (not *\*\*tanəh*) ‘earth’. (This retention is also found in Jakarta Malay.)

The question to be asked is: Can retention facts such as these, admittedly a distraction during the *initial* stages of research, nonetheless be useful at some point in the later stages of research, i.e. to *support* or *refute* an as yet unproven subgrouping hypothesis? I suggest that such facts can and should be brought to

bear in cases like the hypothesis of this paper, which does have other facts to recommend it – facts that may be insufficient in number and quality to establish the hypothesis once and for all.

Consider a possible alternative hypothesis that situates Proto Rejang within some other reasonably established subgroup, such as Proto Malayic (Adelaar 1992). Clearly, two of the three retention facts mentioned above, namely that Rejang retains PMP *\*uy* (as /uy/) and the infix *\*-in-* (as *-/ən/-*), do not favor any close Rejang-Malayic link; rather, Rejang and Malay must have split well before the Malayic group underwent certain changes in the relevant etyma. Then what about the retention of *\*-eC* as /əC/ except before *\*-q*, where *\*e* > /a/? This retention is shared not only by Rejang and Bidayuh, but also by at least one Malay dialect: Jakarta Malay. But since we already know that Malay does not belong in a lower-order subgroup close with Rejang, this particular comparison can be safely ignored. But the conclusion does not apply with the same force in the comparison of Rejang and Bidayuh. It may not be totally vacuous to consider positively, in relation to the hypothesis of this paper, that Rejang and Bidayuh have preserved all three of these features of PAn/PMP (mostly) unchanged for at least 5000 years, against the hundreds (or perhaps thousands) of changes that affected neighbouring subgroups, and indeed, against all of the possible changes that could have occurred, but did not.

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### **Appendix: Proto Rejang and Proto Bukar-Sadong Reconstructions**

The reconstructed forms presented below are based on five Rejang dialects and five Bukar-Sadong dialects; data were collected by the author using Malay equivalents for elicitation purposes. For example, bi-lingual speakers were presented with a Malay form (e.g. *tangan* 'hand') and asked to produce the Rejang or Bukar-Sadong equivalent, which was duly taped and transcribed by the author. Rejang data were obtained in April 2001 for Rawas, Lebong, and Kebanagung; Musi and Pasisir data are from McGinn (1997). Bukar-Sadong data were obtained in December 2000 and April 2001. Unfortunately, space limitations do not permit displaying the data of all ten dialects surveyed. Included are the reconstructed protolanguages with one example from a

contemporary dialect. Unless marked otherwise, the Rejang data are from the Rawas dialect, and the Bukar-Sadong data are from Tibakang. PMP forms are taken without modification from Robert A. Blust's online Austronesian Comparative Dictionary (n.d.), an invaluable resource which is hereby gratefully acknowledged.

Phonetic notes: 1. Rejang Rawas /ä/ = low fronted vowel contrasting with low back /a/. 2. In all contemporary dialects below (both languages), nasal phonemes represented orthographically as /mb/, /nd/, /nj/, and /Ng/ are distinguished acoustically from plain nasals /m/, /n/, etc., in that whereas the latter are followed by nasalized vowels, the former are followed by oral vowels. See Scott (1964) for a description of Sadong nasal phonemes; see Coady and McGinn (1983) for the corresponding Rejang nasal phonemes.

PMP	1. *anay	2. *aŋin	3. *anak
PR	*anəy	*aŋin	*anak
PBS	*ani dbl. *riŋga	*mahu	*anak
Rawas	makak (Keb. anəe-anəe)	aŋin	anak
Tibakang	ani ani	aŋin (Mujat mahu)	anak
GLOSS	TERMITE	WIND	CHILD
PMP	4. *ajeŋ	5. *arep	6. *hasaq
PR	*ahaŋ (irreg. *e > a)	*ahəp	*asaq
PBS	*buhə	*ar[ə,ʌ]p	*ŋ-asa?, *[n,ŋ]-ulik
Rawas	aʔaŋ	ndak (Keb. ahəp)	asah
Tibakang	bahan apuy (Mujat buhə)	arəp	midʌn (Mujat ŋasa?)
GLOSS	CHARCOAL	HOPE	SHARPEN
PMP	7. *asep	8. *qatep	9. *qatey
PR	*asəp	*atəp	*atəy
PBS	*asəp	*iraw	*ati
Rawas	asəp	atəp	atuy
Tibakang	asəp	irʌw	ati
GLOSS	SMOKE	ROOF	LIVER
PMP	10. *hawak,*tubuq	11. *bahu	12. *bales
PR	*awak	*bau	*baləs
PBS	*tibu?	*sikəh	*baləs
Rawas	kəw	baəw	baləs
Tibakang	tibu?	səkəh	maləs

GLOSS	BODY	ODOR	REPLY
PMP	13. *uRat'vein;root'	14. *bapa-q	15. *bataŋ
PR	*balət	*bapak	*bataŋ
PBS	*uhʌt	*amaŋ	*bataŋ
Rawas	bania/akəa (Keb. balət)	bapak	bataŋ
Tibakang	uhʌt	amaŋ	təŋən kayuh (Mujat bʌtaŋ)
GLOSS	ROOT	FATHER	TREE TRUNK
PMP	16. *bibiR	17. *baniŋ	18. *babaq
PR	*bibiR;MOUTH *mus dbl. *ŋus	*beneŋ	*baq
PBS	*bibih	*kura?	*sagu?
Rawas	ŋus,bibia	labəy~ku?aw	pi-bah
Kebanagung	bebea 'lower lip'	beneŋ	bah
Tibakang	bibih	kura?	sagə?
GLOSS	LIPS	TORTOISE	BELOW
PMP	19. *balik	20. *baqeRu	21. *binehiq
PR	*bäläk	*bəlu	*biniq
PBS	*mari[ŋ,?]'pulang'	*ba[?,0]uh	*bini?
Rawas	bäläk	bələw	bənäh
Tibakang	balik, mari?	bauh	bene?
GLOSS	RETURN	NEW	SEED
PMP	22. *bener	23. *benaqi	24. *beReqat
PR	*bənəh	*bənəy	*bənəg dbl. bəhət
PBS	*mənə[?,0]	n.c.	*bahat
Rawas	bənəa	bənuy	bənəg
Tibakang	mənə	kirasik	bahat
GLOSS	CORRECT	SAND	HEAVY
PMP	25. *beRuk	26. *bitiqis	27. *betul
PR	*bəhuk	*bətis dbl. kākäl	*bətul dbl. bənəh
PBS	*baruk dbl. *ʌluk	*bites	*bʌtul

Rawas	buʔuk	käkäl (Keb. bätis)	bənəa
Tibakang	kara? (Mujat ᵕluk)	betes	mənə
GLOSS	MONKEY, APE	CALF OF LEG	TRUE, CORRECT

PMP	28. *bahi	29. *qalejaw,*waRi	30. *biluk
PR	*bey	*bili	*(b)ilok
PBS	*sueʔ	*andu	
Rawas	anaʔ səlawəy	biləy	belok
Tibakang	sueʔ icək	andu	nyimpaŋ
GLOSS	CHILD	DAY	TURN

PMP	31. *baRani	32. *wahiR	33. *bituqin
PR	*bini	*biol	*bitaŋ
PBS	*pʌgʌn	*umon	*bintəʔ
Rawas	binəy	biol	bitaŋ
Tibakang	pʌgʌn	omon	bintəʔ
GLOSS	BRAVE	WATER	STAR

PMP	34. *buaq	35. *bunuq	36. *buqaya
PR	*buaq	*unuq	*buəy
PBS	*buaʔ	*kabəs	*bu[0,ʔ]ʌy
Rawas	buah-buah	onoh	mouy
Tibakang	buaʔ	kinabəs	buʌy
GLOSS	FRUIT	KILL	CROCODILE

PMP	37. *bukid	38 *bulan	39. *bulat	40. *bulu
PR	*tebə dbl. *bukit	*bulən	*bulət	*bulaw
PBS	*d[a,ʌ]rəd	*burʌn	*burŭŋ	*buruh
Rawas	təbaw	bulən	bulət	buləw
Tibakang	kajuh'hill'	burʌn	bərəŋ	buruh
GLOSS	HILL	MOON	ROUND	FEATHER

PMP	41. *buŋa	41. *buhek	42. *buRuk
PR	*buŋi	*buk	*buhuk, dbl. *kidek
PBS	*buŋa[0,ʔ]irreg.	*buruh	*madam.
Rawas	buŋəy	buk	kedek 'bad person'

Tibakang	buṅa	buruh	madam
GLOSS	FLOWER	HEAD HAIR	UGLY; WORN OUT
PMP	43. *batu	44. *(d)aRaḡ	45. *lalej
PR	*butu	*dalaḡ	*daləj
PBS	*batuh	*d[a,ʌ]yaʔ	*narəd
Rawas	butəw	dalah	dalət
Tibakang	batuh	dʌyaʔ	turaʔ (Mujat narʌd)
GLOSS	STONE	BLOOD	HOUSEFLY
PMP	46. *zalan	47. *daqan	48. *Danaw
PR	*dalən	*dan	*danew
PBS	*jʌrʌn	*daʔan	*danu
Rawas	dalən	dan	daniw
Tibakang	jʌrʌn	daʔan	danu
GLOSS	PATH,ROAD	BRANCH	LAKE
PMP	49. *dahun	50. *dilaḡ	51. *debu
PR	*daun	*dilaḡ	*dəbu
PBS	*daʔun	*jile[h,ʔ]	*dʌbu
Rawas	daun	lidah	dəbəw
Tibakang	dawəʔ	jelah	dʌbu
GLOSS	LEAF	TONGUE	DUST
PMP	52. *zaRum	53. *dapuR	54. *Duha
PR	*dolom	*dopol	*dui
PBS	*jarum		*duəh
Rawas	dolom	dopol	duəy (Keb. dui)
Tibakang	jarum	abuh	duəh
GLOSS	NEEDLE	KITCHEN	TWO
PMP	55. *dukut,*udu	56.	57.
PR	*dukut	*das	*dahət
PBS	*uduh	sʌmbu	*dayəh.
Rawas	dukut	das	daʔət

Tibakang	uduh	sambu	dayəh
GLOSS	GRASS	(ON) TOP	INLAND
PMP	58. *deRes	59. *hiket	60. *Rakit
PR	*dəhəs*	*äkät	*häkäät
PBS	*dərəs	*kabət	*lantij
Rawas	dəʔəs	äkät	äkät (Keb. heket)
Tibakang	dərəs	kabət	lantij
GLOSS	SWIFT CURRENT	TO TIE	RAFT
PMP	61. *qiliR	62. *ipen	63. *isep
PR	*IliR	*äpäñ	*äsäp
PBS	*sabaʔ dbl. *mamʌñ	*jipəh/jip[u,ə]n	*sihəp
Rawas	pilot	äpäñ	(ŋ)äsäp
Tibakang	mamʌñ 'flow'	jipəh	nyəhəp
GLOSS	DOWNSTREAM	TOOTH	SUCK
PMP	64. *embun	65. *enem	66. *gatel
PR	*əmbun;awan	*num	*gatal (irreg. *e > a)
PBS	*ambun/*ramañ	*ənəm	*gatəl
Rawas	mbun / awən	num	gatal
Tibakang	ramañ	ənəm	gatəl
GLOSS	CLOUD	SIX	ITCH
PMP	67. *gilap	68. *genep	69. *quDip
PR	*gələp(spor. *i > ə)	*gənəp	*idup
PBS		*gənəp	*m-udip
Rawas	n.d.	gənəp	idup
Tibakang	klap-klip (borr.)	gənəp	mudip
GLOSS	FLASH	COMPLETE	ALIVE
PMP	70. *ikuR	71.	72.
PR	*ikoR	*quq	*rimbə
PBS	*uŋkuy	*johoʔ	*tu[ʔ,0]an
Rawas	ikuʔ (borr.Palembang)	jaoh (Keb. hoah)	imbaw
Tibakang	uŋkuy	johoʔ	nuan

GLOSS	TAIL	FAR	FOREST
PMP	73.	74. *hisəŋ	75. *isi
PR	*indok	*isaŋ	*isi
PBS	*[a,i]ndə	*suʔop dbl. *saʔap	*isih dbl. *abih
Rawas	indok	isaŋ	isəy
Tibakang	andə	soʔop (Mujat saʔap)	isih (Mujat abih)
GLOSS	MOTHER	GILLS	CONTENTS
PMP	76. *kita	77. *qituŋ	78.rejaŋ (name)
PR	*(k)itə	*ituŋ	*tun həjaŋ ‘Rejangs’
PBS	*kitaʔ	*itoŋ dbl. *iyəp	
Rawas	kitə	rikin (borr.English)	mərəjaŋ ‘migrate’
Tibakang	kitaʔ	niəp	(suŋi) rɔjaŋ ‘Rejang river’
GLOSS	1PL INCL	COUNT	REJANG
PMP	79. *zari	80. *kabut	81. *kaka-q
PR	*jihi	*kabut	*kakak
PBS	*buaʔ tɔŋʌn		*umbuʔ
Rawas	jiʔəy	kabut	kakak
Tibakang	buaʔ tɔŋʌn	kabus	umbuʔ
GLOSS	FINGER	FOG	ELD.SIBLING
PMP	82. *hikan	83. *ka-wanan	84. *kasaw
PR	*kan	*kanən	*kasəw
PBS	*ekeʔ,*lauk	*[0,n]taʔuh	*kasu
Rawas	kan	kanən	kasiw
Tibakang	ekeʔ	taʔuh	kasu
GLOSS	FISH	RIGHTSIDE	RAFTER
PMP	85. *kami	86. *kawil	87. *kawit
PR	*kami	*kawil	*kait
PBS	*ami[ʔ,0]	*mintiʔ	*kaʔit
Rawas	kämäy	paciŋ (Keb. keweə)	kait
Tibakang	ami	mintiʔ	kaʔit

GLOSS	1 PLEXCL	TO FISH	HOOK
PMP	88. *kutkut	89. *kempu	90. *keRiŋ
PR	*gahut	*kəpu	*kəhiŋ
PBS	*g[a,ʌ]yʌs	*suŋkuh	*b[a,ʌ,ə]dəʔ
Rawas	kaut	kəpəw	kiʔiŋ
Tibakang	gʌyʌs	suŋkuh	badəʔ
GLOSS	SCRATCH	GRANDCHILD	DRY
PMP	91. *esak/*tanek	92. *tawa	93. *kilat
PR	*k-əsak	*tawi	*kilət
PBS	*n-anək	*nʌtʌw	*kilʌt
Rawas	k-esak	tawəy	kilət
Tibakang	ʌsak	nʌtʌw	kilʌt
GLOSS	COOK	LAUGH	LIGHTNING
PMP	94. *kahiw	95. *kahu	96. *kamu
PR	*kiiw	*kau	*kumu
PBS	*kayuh	*amu[ʔ]	*amuʔ
Rawas	kiiw	kabən (Keb. ko)	kuməw
Tibakang	kayuh	amuʔ	amuʔ
GLOSS	WOOD	2SG.	2SG./2PL
PMP	97. *kena	98. *kutu	99. *asu
PR	*kəno	*gutu	*kuyuk
PBS	*udog	*gutu	*kasuŋ
Rawas	kənaw (Keb. kəno)	gutəw	kucak (Keb. kuyuk)
Tibakang	odog	gutu	kasuŋ
GLOSS	STRIKE	LOUSE	DOG
PMP	100. *laŋaw	101. *lahud	102. *lawaq
PR	*laŋəw	*laut	*la[w,b]aq
PBS	*rʌŋu	*laʔut	*kʌkaʔ
Rawas	laŋiw	laut	ləlabah
Tibakang	turaʔ dʌbiru	laut	apək
GLOSS	HORSEFLY	SEA	SPIDER

PMP	103. *laŋit	104. *lain	105. *lebiq
PR	*läŋät	*leyn	*ləbiq
PBS	*raŋit	*bukən	*lΛbih
Rawas	läŋät	lain~landuman	ləbäh
Tibakang	raŋit	bəkən	lΛbih
GLOSS	SKY	OTHER	EXCESS
PMP	106. *lem	107. *lima	108. *lesuŋ
PR	*(pi)lem	*lemo	*ləsuŋ
PBS	*u[0,?]ah	*riməh	*risoŋ
Rawas	piləm~oləm	ləmaw	ləsuŋ
Tibakang	tərəp	riməh	risoŋ
GLOSS	INSIDE	FIVE	MORTAR
PMP	109. *libeR	110. *laRiw > *laRi	111. *beRey
PR	*libəh	*lili	*ləy
PBS	*libər	*buhu[?,0]	*jug[o,Λ]n
Rawas	libəa	liley	luy
Tibakang	kahi (Mujat lambΛr)	buhu	nyogon
GLOSS	WIDE	RUN	GIVE
PMP	112. *basəq (*ləcəq)	113. *qali-metaq	114.
PR	*ləcaq	*litaq	*luaq
PBS	*bisa? dbl. *lca?	*mata?dbl. *mutək	*[b,m]ada? dbl.
Rawas	ləcah	litah	*ŋancak
Tibakang	ra?us (Mujat bisa?)	mΛta?	titah
GLOSS	SOAKED	LEECH	ŋancak
PMP	115. *lurus	116. *mama-q	117. *mata
PR	*luhus	*mamak	*mati
PBS	*bujog	*ambah	*matəh
Rawas	lu?us	wak (Keb. mamak)	mati
Tibakang	bojog	biradik kawΛn	batəh (Mujat mΛtəh)
GLOSS	STRAIGHT	MO.BRO.	EYE

PMP	118. *matey	119. *embun	120. *um-inem
PR	*matəy	*-mbəm	*mänäm / *mbuk biol
PBS	*kabəs	*salak dbl. *sahu	*nyihəp
Rawas	matuy	nəmbəm	mbuk biol
Tibakang	kabəs	nyalak	nyəhəp
GLOSS	DIE	BURN	DRINK

PMP	121. *ma-iRaq	122. *mi-hepi	123. *emis
PR	*milaq,*abaŋ(borr.)	*mipi	*mis
PBS	*calak	*pi[a,ʌ]məh	*sidi?
Rawas	abaŋ	mipəy	mis
Tibakang	cʌlak	piaməh	sidi?
GLOSS	RED	DREAM	SWEET

PMP	124. *manuk	125. *ma-anyud	126. *um-utaq
PR	*monok*	*monot	*mutaq
PBS	*siok	*mamʌn	*ŋ-ute? (/e/ irreg.)
Rawas	monok	anyut (Keb. monot)	mutah
Tibakang	siok	mamʌn	ŋute?
GLOSS	CHICKEN	DRIFT	VOMIT

PMP	127.	128. *nahik	129. *ni-a
PR	*nak, *taŋ, *lə	*näk	*nə
PBS	*aŋ dbl. *dʌ	*nyumak,dbl. *[g,ŋ]atuh	*ni?əh ~ *nəh
Rawas	taŋ ~ lə	kə-näk	nə
Tibakang	dʌ	nyumak	nəh
GLOSS	AT	CLIMB	3SG.POSS

PMP	130. *niuR	131. *nipis	132. *ni-hu
PR	*nioR	*mipis	*nu
PBS	*buntʌn	*lide?	*amu?
Rawas	nioa	məlipis	kabən
Tibakang	buntʌn	lede?	amu
GLOSS	COCONUT	THIN	2SG.POSS

PMP	133. *ñawa	134. *ñamuk	135. *huluR
PR	*nyabi	*nyomok	*uluh
PBS	*asəŋ, *nyawa	*piruŋgʌt	*pi-tuhun
Rawas	nyabəy	nyomok	ulua
Tibakang	nyʌwʌy	piruŋgʌt	nulur
GLOSS	SOUL	MOSQUITO	TO LOWER; EXTEND S.T.

PMP	136. *qulej	137. *qapuR	138. *hapuy
PR	*uləj	*kapuh	*upuy
PBS	*urəd	*binyuh	*apuy
Rawas	ulət (Keb. olog)	upua	upuy
Tibakang	ərəd	binyuh	apuy
GLOSS	CATERPILLAR	CHALK,LIME	FIRE

PMP	139. *qutek	140. *Ratus	141.
PR	*u:tək > *utək > uta:k	*hotos	*p-adaq
PBS	*[i,ə]ntək	*ratus	*s-ʌnda?
Rawas	utak	otos	p-adah
Tibakang	əntək	ratus	sʌnda?
GLOSS	BRAIN	HUNDRED	SAY

PMP	142. *pajey	143. *panas ‘hot’ *hapejes ‘spicy’	144. *panaw
PR	*paəy	*panəs	*panəw
PBS	*pʌdi	*pʌrʌs	*panu
Rawas	pay	panəs	paniw
Tibakang	pʌdi	pʌrʌs	panu
GLOSS	RICEPLANT	HOT(HEAT)	WALK

PMP	145. *panzan	146. *hepat	147. *pataq
PR	*panjaŋ	pat	*patiq
PBS	*ambuh	*umpʌt	*p[a,ʌ]ta?
Rawas	panjaŋ	pat	patāh~paŋəa
Tibakang	ambuh	umpʌt	pata?

GLOSS	LONG	FOUR	BREAK
PMP	148. *pahak	149. *piliq	150. *paqit
PR	*pahak	*(p)iliq	*pät
PBS	*sindək	*milih	*paʔit
Rawas	kədət (M paʔaʔ)	päläh / mutia	pät
Tibakang	sindək	milih	paʔit
GLOSS	NEAR	CHOOSE	BITTER
PMP	151. *qapeju	152. *pegeŋ	153. *palaqepaq
PR	*pəgu, *ahəy-ahəy	*goŋ	*pələpaq
PBS	*puduh	*[t,m]agəh	*kilapa[ʔ,h,0]
Rawas	pəgəw	goŋ	pələpah
Tibakang	puduh	magəh	kilapa buntan
GLOSS	GALL	HOLD	PALM FROND
PMP	154. *penuq	155. *peRes	156. *p-inzem
PR	*pənuq	*pehes	*injəm(contrast*ipen)
PBS	*punoʔ	*pərəs	*m-inj[ə,ʌ]m
Rawas	pənoh	nəcit	injəm
Tibakang	ponoʔ	pərəs	minjʌm
GLOSS	FULL	SQUEEZE	BORROW
PMP	157. *pisaw	158. *puluq	159. *punay
PR	*pisəw	*puluq	*punəy
PBS	*piso[0,ʔ]	*puruʔ	*puni
Rawas	pisiw	poloh	punuy
Tibakang	piso	siməhəŋ	puni
		duəh puruʔ'twenty'	
GLOSS	KNIFE	TEN	DOVE
PMP	160. *pandak	161. *pusej	162. *puket
PR	*pəndak~pədak*	*pusej	*pukət
PBS	*kidəg	*pasid	*puk[ə,ʌ]t
Rawas	pədak	pusət	pokot
Tibakang	kədəg	pasid	jarin

GLOSS	SHORT	NAVEL	DRAGNET
PMP	163. *pulut	164. *puqun	165. *putiq *budaq 'foam'
PR	*jala, *pulut	*pun, *bataŋ	*putiq
PBS	*purut db. putək	*puʔun	*budaʔ dbl. *mupoʔ
Rawas	pulut	bataŋ	putäh
Tibakang	purut	puʔun kayuh	budaʔ
GLOSS	BIRDLIME	TREE	WHITE
PMP	166.	167. *kizep	168. *silun
PR	*sahəp	*-kijəp	*səlon
PBS	*ur[ə,ʌ]s	*kisəpdbl. *buləp	*siruh
Rawas	saʔep	goa~kədip	kukəw
Tibakang	urəs	kisəp	siruh
GLOSS	TO LITTER	BLINK	FINGERNAIL/CLAW
PMP	169. *ma-Ruqanay	170. *sempit/*kepit	171. *silu
PR	*manəy	*səpit	*silu
PBS	*dari[0,ʔ]	*sʌmpit	
Rawas	sə-manuy	səpit	siləw
Tibakang	dari-dari	sampit	sasəh
GLOSS	MALE	NARROW	RHEUMATIC PAIN
PMP	172. *qasiRa	173. *sintak	174. *sabuŋ
PR	*sili	*sitak	*sobonŋ
PBS	*guloʔ		*sabuŋ, *taŋkoʔ
Rawas	gaʔem (borr.Malay)	sitaʔ	sobonŋ, nyobonŋ
Tibakang	goloʔ	nyintak	nyabuŋ siok
GLOSS	SALT	JERK	COCKFIGHT
PMP	175. *surat	176. *sapu	177. *susu
PR	*suhət	*supu	*susu
PBS	*surʌt	*sapu, *-adus	*sisonŋ
Rawas	suʔət	supew	kajut 'milk' puan 'nipple'

Tibakang	surʌt	nyapu	sisoŋ
GLOSS	WRITE	BROOM	MILK/BREAST
PMP	178. *tazem	179. *tales	180. *taneq
PR	*tajəm	*taləs	*tanaq
PBS	*rʌjaʔ	*tanaʔ	*tanaq
Rawas	tajəm	keladəy (borr.)	tanah
Tibakang	rʌjaʔ	-	tanaʔ
GLOSS	SHARP	TARO	EARTH
PMP	181. *tanem	182. *tajan	183. *taqun
PR	*tanəm	*tajən	*taun
PBS	*puruh(cf.273)	*tʌŋʌn	*sʌwaʔ
Rawas	tanəm	tajən	ton
Tibakang	puruh	tʌŋʌn	sʌwa
GLOSS	TO PLANT	HAND	YEAR
PMP	184. *tawaD	185. *teka	186. *tuqelaŋ
PR	*tawəh (K)	*təko	*təlan
PBS	*tawʌr	*mʌndəg	*turaŋ
Rawas	tawəa cf. libəa	təkaw	təlan
Tibakang	tawʌr	mʌndəg	turaŋ
GLOSS	HAGGLE	COME	tʌrʌn ‘adam’s apple’ BONE
PMP	187. *telu	188. *tinaqi’stomach’	189. *qateluR
PR	*təlu	*tənəy	*tənol
PBS	*taruh	*naʔih dbl. *putuŋ	*[0,n]tuloʔ
Rawas	tələw	tənuy	tənoa ~ tənol
Tibakang	taruh	naʔih cf. *tʌni	toloʔ
GLOSS	THREE	‘intestines’ STOMACH	EGG
PMP	190. *deŋeR	191. *tanda	192. *takebas
PR	*təŋoa, *tihuk(seeEAR)	*tandə	*təbas
PBS	*diŋah	*tanda dbl. *indih	*tʌbʌs dbl. *nʌhuʔ

Rawas	tiʔuk	tandə	təbas
Tibakang	kidiŋah	tanda	nʌhuʔ / tʌbʌs
GLOSS	HEAR	MARK, SIGN	CLEAR-CUT
PMP	193. *tebaŋ	194. *tektek	195. *tiDuR
PR	*təbaŋ	*tətək	*tiduR (K tiduh)
PBS	*tabəŋ	*kapəg	*buʔəs
Rawas	təbaŋ	tətək	tidua
Tibakang	tabəŋ	kapəg	bəʔəs
GLOSS	FELL (TREE)	CHOP, HACK	SLEEP
PMP	196. *taqi	197. *tikam	198.
PR	*təy	*tikəm dbl. *tujaq	*tihuk
PBS	*t[a,ʌ]kiʔ		*kapiŋ
Rawas	tuy	tujah	tiʔuk
Tibakang	takiʔ	naŋkʌt / nabək	
Mujat	kapiŋ	ŋ-ujak	
GLOSS	FECES	TO STAB	EAR
PMP	199. *tirus	200. *talih	201. *timba
PR	*tirus	*tili	*timbo
PBS		*tarih	*timb[a,ʌw]
Rawas	cituŋ	tiləy	timbaw
Tibakang	tiruk	tarih	timba~timbʌw
GLOSS	TAPERING	ROPE	WELL-PAIL
PMP	202. *timeRaq	203. *timbang	204. *tupelak
PR	*timaq	*timbang	*tulak
PBS	*timah (borr.Ml.)	*timbang	
Rawas	timah	nimbak	tulak
Tibakang	timah	nimbak	numbuk
GLOSS	TIN	TOSHOOT	REJECT
PMP	205. *hiup	206. *tuzuq	207. *tuŋked
PR	*t-iup	*tujuq	*tokot
PBS		*ijuʔ(cog.)	*tuŋkət, *siŋkuhud

Rawas	tiup	tojoh	tokot
Tibakang	ŋompo	iju?	tujkət
GLOSS	BLOW	SEVEN	CANE, STAFF
PMP	208. *tupul	209. *tuqah	210. *tutup
PR	*tupul	*tui	*tutup, *təkəp
PBS	*tajə	*tuʔuh	*tutu[0,p]
Rawas	topol	tuəy (Keb. tui)	tutup
Tibakang	tajə	tuʔuh	tutu
GLOSS	DULL, BLUNT	OLD	TO CLOSE
PMP	211. *TukTuk	212. *qubi	213. *quDaŋ
PR	*tutuk	*ubi	*udaŋ
PBS	*ŋumpah	*banduŋ	*andaŋ
Rawas	tutuk	ubəy	udaŋ
Tibakang	ŋəmpəh	banduŋ	andaŋ
GLOSS	POUND RICE	YAM	SHRIMP
PMP	214. *quzan	215. *aku	216. *qulu
PR	*ujən	*uku	*ulu
PBS	*ujʌn	*aku?	*baʔak'head'200:68
Rawas	ujən	kəw	uləw
Tibakang	ujʌn	aku	baʔak
GLOSS	RAIN	1S PRONOUN	HEAD
PMP	217. *Rumaq	218. *busuk	219. *qayam
PR	*humaq	*(b)usuk	*yam(-yam)
PBS	*ramin	*sikəh	*rubi
Rawas	umah	busuk	mainan
Tibakang	ramin	səkəh	birubi
GLOSS	HOUSE	ROTTEN	TOY
PMP	220. *walu	221. *siwa	222.
PR	*dəlapən	*səmilən	*cua, *laŋ
PBS	*mahi	*piriʔi	*kai? dbl. kadə?

Rawas	lapən	səmilən	laŋ
Tibakang	mahi	piri?I	kai?
GLOSS	EIGHT	NINE	NOT
PMP	223.		
PR	*iso, *bukən		
PBS	*bukən		
Rawas	bukən hynm. ‘chicken paunch’		
Tibakang	bəkən		
GLOSS	NOT A		
PMP	224. *ati	225. *-	226. *-
PR	*ati	*daŋ, jibaq	*may
PBS	*bayuh	*aba?	*ndəg
Rawas	əlum	jibah	may
Tibakang	bayuh	aba?	ndəg
GLOSS	NOT YET	DON’T	TO
PMP	227. *-	228. *-	229. *-
PR	*nak	*di	*(p)iyə
PBS	*dʌ dbl. *aŋ	*a?ih	*ati?
Rawas	taŋ ~ lə	dəy	iyə
Tibakang	dʌ	a?ih	ati?
GLOSS	AT	THERE	HERE
PMP	230. *ŋajan	231. *tahiŋ/zaŋit	232. *buka’
PR	*gän	*mə-ndät	*buka?
PBS	*gʌŋʌŋ	*ji?it	*buka?
Rawas	gän	mə-ndät	bukak [buka?]
Tibakang	gʌŋʌŋ	nyi?it	buka?
GLOSS	NAME	SEW	TO OPEN
PMP	233. *nipay dbl. hulaR	234. *ma-Raya	235. *ma-kapal
PR	*nipi	*li	*kʌpa[0,?]
PBS	*nipəh dbl. *ulʌr	*rayəh dbl. bahas	
Rawas	ular /r/ voiceless	ləy	kəbəl

Tibakang	nyipəh	rayəh	kʌpa
GLOSS	SNAKE	BIG	THICK
PMP	236. *si-ia	237. *si-ida	238. *apa/anu
PR	si	*si, *tobo ʔə	*jano dbl. *igän
PBS	*inya siʔen	*balainya	*anih
Rawas	səy	si ~ tobo ʔə	igän
Tibakang	inya seʔe	inya seʔen	anih
GLOSS	HE/HE	THEY	WHAT?
PMP	239. *i-sai	240. *kua/kuja	
PR	*api dbl. *sapo (?)		
PBS	*asih	*muŋ anih	
Rawas	(s)apaw~apəy (hon.)	ci inan caʔəy nə ~ cinan caʔəy nə (Leb. awəy ipə)	
Tibakang	asih	muŋ anih	
GLOSS	WHO?	HOW?	
PMP	241. *esa/isa	242. *balanak	243. *balaŋa
PR	*do	*bəlanak	*bəlaŋi
PBS	*indi?	*bi[r,0]anak	*b[a,i]laŋa?(-l- irreg.)
Rawas	daw (M do)	bəlanak	bəlaŋəy
Tibakang	indi?	baranak	balaŋa?
GLOSS	ONE	MULLETFISH	CLAYPOT