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## THE STRATA OF BAI

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### 1. Sound correspondences between Bai and Chinese

#### 1.1 Correspondences of tones

##### 1.1.1 the old layer (A1A2):

Ping	Shang	Qu	Ru
55(21)	33	21(33)	33=
42	33	21(33)	21=(33=)

##### 1.1.2 the recent layers:

B1:

Ping	Shang	Qu	Ru
33	21	55=	35
21=	21	55=	35

珊sē33 瑚xu21      準tsuē21 備pi55      白pa35 鶴xo35

B2:

Ping	Shang	Qu	Ru
55	21	33=	55
55	21	33=	55

朋phē55 友jo21      大ta33 家tca55      學cu55 問vā33

## 1.2 Correspondence of initial consonants (old layer)

MC	ala2	examples	notes
p	p	八 piq21      夫 po55	
ph	ph p	破 pho21      肺 phiq33 拍 po33	
b	p	皮 pe42      浮 pu42	b->v- in 婦 va33 is unknown
m	m/ŋ	明 ma42      墨 mə33 尾 ŋa33      萬 ŋua21	MCm->w- corresponds with ŋ-
t	t tɕ	冬 tō55      斗 tiə33 釘 tɕā21      點 tɕi33	tɕ in division 4
th	th tɕh	鐵 the33      碇 thā21 聽 tɕhā55      踢 tɕhā33	tɕh in division 4 Note: 天 xē55
d	t/tɕ	頭 tiə42      桃 ta42 地 tɕi21      疊 tɕa21	tɕ in division 4
n	n	南 na42      泥 ni42	
l	ɣ/v/j  f > l	力 ɣə21      柳 ɣə33 鹿 vu21 利 ji21      栗 ji21 六 fu33 老 lu33      禮 li33	these reflect OC r- in different vocalic environments.  六 fu33 'six' may reflect *hr-  these reflect MC l-; but note archaic vowel on 老 lu33 'old'
ts	ts tɕ	早 tsu33      增 tsā55 姊 tɕi33      醉 tɕy33	tɕ in division 3
tsh	tsh	草 tshu33      擦 tshe33	
dz	ts tɕ	絕 tse21      字 tsi21 匠 tɕō21      淨 tɕə21	tɕ in division 3
s	s ɕ	雪 sue33      細 se21 星 ɕā55      死 ɕi33	ɕ in division 3 and 4
z	j	象 jō42      松 jō42	
tr	t ts tɕ	豬 tɕ21      啄 to33 竹 tso33      中 tsō21 追 tɕi21	tɕ in division 3
trh	th tsh	撤 the33 撐 tsō21      抽 tsho55	
dr	ts tɕ	茶 tso42      蟲 tsu42 錘 tɕy42	tɕ in division 3
tsr	ts	裝 tsō55      眨 tsa33	
tsrh	tsh	草 tshu33      插 tshq33	
dzr	ts	豺 tsə42      鋤 tsu42	

sr	s ç x	沙 so55 虱 çī33 生 xā55	霜 sō55 殺 çq33	ç in division 3 ;but 殺 çq33 is division 2
tsy	ts tç	紙 tsa33 姪 tçi21	真 tsā55	tç in division 3 and 4
tsyh	tsh	尺 tsha33	臭 tshu21	
zy	ts z	舌 tse21 神 zā42	剩 zō21	
sy	s ç	手 si33 水 çy33	鼠 su33 少 ço33	ç in division 3 and 4
dzy	ts	石 tsq21	長 tsō42	
ny	n> ɲ > z	二 ne33 人 ɲi42 讓 zō21	二 ni21 耳 ɲi33 二 za21	二 ne33:2nd day of lunar month; 二 ni21:twenty; 二 za21:February
k	k	見 kē21	江 kō55	
kh	kh	起 khə33	牽 khē55	
g	k > tç	橋 ku42 旗 tçi42	騎 kə42 棋 tçi42	tç- in late loanwords
ng	ŋ	月 ŋuq33	五 ŋo33	
x	x	火 xue33	黑 xə33	
h	k Y u ŋ	湖 ko42 夏 yō21 活 ue21 黃 ŋo42	喉 ku42 合 yq21 滑 uq21	ŋ- before nasal finals
‘	0/ŋ	一 ji33 挖 uq33	烏 o55 溫 ŋue55	ŋ- before nasal finals
hj	v ŋ/ɲ	雲 vā42 圓 ŋue42	泳 ɲā42	
y	j/ɲ	夜 jo21 羊 ɲo42	油 jə42 用 ɲō21	j- before nasal finals

### 1.3 Correspondence of finals (old layer)

MC Final	Bai Final	Examples & Notes
-a	-o	大 to21 餓 ŋo21
-wa	-ue/-o > -ua	過 ko21 和 yo21 火 xue33 窠 khua21 -ue from OC*-ij. -ua in later loanwords.

-ae	-o> -a	沙tso42茶tso42馬ma33 -o from OC*-a.
-jae	-o	夜jo21.
-wae	-o> -ua	花xo55寡kua33 -ua in later loanwords
-u	-o> -u	湖ko42五ŋc33土thu33苦khu33 -o from OC*-a. vowel -o is earlier than -u, but initial k- in 壺ku42 is earlier than γ- in 狐yo42
-jo	-e> -ə -u	豬te21女nə33鼠su33
-ju	-o/ -u > -i	夫po55斧pu33樹tsi21 -o from OC*-a. -u from OC*-o.
-oj	-ǝ/-ə/-iə	猜tsǝ21台tiə42來γə35 -ǝ from OC *-eng. -ə/-iə from OC*-i. -ə becomes -iə when it comes after T-: 台tiə42. 來γə35 T!
-eaj	-ə> -a	豺tsə42皆ka42 -ə from OC*-i 皆ka42 T!
-eai	-a	崖ŋa42
-jojH	-iq	肺phiq33吠piq21
-ej	-ē/-e> -i	西sē55洗sē33細se21禮li33第ti21 -ē in 洗sē33西sē55 from OC*-il. -i in later loanwords.
-woj	-ue	對tue21退thue21
-wajH	-uq/-ue	蛻thue21外ŋuq33
-weajH	-uq/-ue	壞kuq21, kue21
-waej	-uq	話xuq33
-jwejH	-uq/-ue	歲suq33,sue33
-je	-ə/-e> -i -a	皮pe42騎kə42支tsi21紙tse33 -ə after K- and ny-, -e after P-
-ij	-e/-i> -a	二ne33 二ni21 二za21 四ɕi33 指tse33
-i	-ə -i/-i -a	忌kə21起khə33子tsi33旗tɕi42 -ə in 忌kə21起khə33 from OC*-i. -i likely to be the later loanwords considering that the palatalization of k- has already happened in 旗tɕi42.
-jwe	-y	嘴tɕy33髓ɕy33

-wij	-y/-ua	醉tɕy33 櫃kua21
-jwij	-y /-a/-ua	尾ŋa33 鬼kua33 水ɕy33
-aw	-u/-a> -o	草 tshu33 , 毛 ma42, 灶 tso21 腦 no33 -u in 草 tshu33, 槽 tsu42 from OC *-u -a in 毛 ma42, 高 ka55 from OC *-aw
-aew	-u	膠ku55 飽pu33
-jew	-u/-o	橋ku42 笑so21
-uw	-u> -ə/-iə	喉ku42 豆 tiə33 漏yə21 -u in 喉ku42, 擣 yu42 is earlier than -ə/-iə. -ə becomes -iə after T-.
-juw	-ə/-u> -ə/-i	牛 ŋə42 舊kə21 臭tshu21, 浮pu42 九tɕə33 手si33 -ə in 牛 ŋə42, 舊kə21 from OC *-i -u in 臭tshu21, 浮pu42 from OC *-u *-u>-juw corresponds to -ə and to -i after s- both later loanwords, 九tɕə33, 手si33
-om	-a	南na42 -a in 南na42 from OC *-om
-op	-a	踏tə21 合yɑ21 -a in 合yɑ21 from OC *-op
-am	-ã	膽tã33 擔tã21
-ap	-a -a	塔thɑ33 塌tha33 -a in 塔thɑ33 from OC *-op
-eam	-ã	減kã33 -ã in 減kã33 from OC *-om
-eap	-a -a	眨tsɑ33 插tshɑ33 -a in 插tshɑ33 from OC*-op
-aep	-a -a	甲ka33 壓jɑ33
-jem	-i -ẽ	鎌ji42 染zẽ33 later
-em	-ĩ	點tɕĩ33
-ep	-a -a	疊tɕɑ21 夾ka21
-im	-ĩ -ĩ	飲ĩ33 心ɕĩ55
-ip	-a	十tsɑ21
-an	-ã/-a > -ã	滿ma33 漢xã21 -ã becomes -a after nasal initials -ã in later loanwords
-at	-e -a	擦tshɛ33 達tɑ21

-ean	-ue -ã -ã	間kã55 眼ŋue33 -ue in 眼ŋue33 from OC*-in
-eat	-q/-iq/-uq	拔 piq21 結 kuq33 殺 çq33 -q becomes -iq after P-, -uq after K-.
-aen	-ã	板 pã33
-jen	-e/-ẽ -i/-ĩ	淺 tçhĩ33 錢 tse42 面 mi21. 錢 tse42 shows irregular loss of nasality. ĩ becomes -ĩ after nasal initials, 面 mi21.
-jet	-e	舌 tse21
-jon	-ẽ -ua	飯 pẽ33 萬 ŋua21
-en	-ẽ/-iã	見 kẽ21 扁 piã33 -ẽ becomes -iã after P- 扁 piã33.
-et	-e -uq	鐵 the33 跌 tua33
-wan	-uẽ/-ue -uã/-a	換 xuẽ33 亂 nue33 -uẽ becomes -ue after nasal initials, 亂 nue33.
-wat	-ue -uq	脫 thuq33 活 ue21
-weat	-uq	挖 uq33 滑 uq21
-jwen	-uẽ/-ue	卷 tçuẽ21 圓 ŋue42 -uẽ becomes -ue after nasal initials, 圓 ŋue42.
-jwet	-e -ue -uq	雪 sue33 絕 tse33 說 suq33
-jwot	-uq	月 ŋuq33
-wen	-uã	犬 khuã33
-wet	-e	缺 khe33 -e in 缺 khe33 from OC*-et
-in	-ĩ/-i> -ã	信 çĩ21 銀 ŋi42 真 tsã55 -ĩ becomes -i after nasal initials, 銀 ŋi42. -ã in later loanwords, 真 tsã55.
-it	-i	栗 ji21 七 tçi33
-jin	-ĩ	近 tçi33
-jit	-i	一 ji33
-won	-uẽ/-ue/-e	滾 kuẽ21 溫 ŋue55 門 me42 -uẽ becomes -ue after nasal initials 溫 ŋue55, -e after m- 門 me42.
-wot	-uq	骨 kuq33
-win	-ue	輪 lue42

-wit	-a	出 tsha33
-jun	-ã/ -ua	雲 vā42 燻 ŋua21 雲 seems to be a loanword of the early period, but the exact correspondence is not clear.
-ang	-o/-õ	藏 tsõ42 糖 to42 糖 to42 shows irregular loss of nasality .
-ak	-o> -uq	惡 o33 托 thuq33 -uq in later loanwords
-jang	-õ/-o > -a	長 tsõ42 羊 ŋo42 漲 tsã33 -õ becomes -o after nasal initials, 羊 ŋo42. -a in later loanwords 漲 tsã33 .
-jak	-o	腳 ko33
-wang	-o	黃 ŋo42
-aewng	-õ	江 kõ55
-aewk	-o -u	角 ko33 角 ku33 角 ko33 is horn, 角 ku33 is corner.
-ong	-ã	層 tsã42
-ok	-ə/-iə	黑 xə33 得 tiə33 -ə becomes -iə after T- 得 tiə33 .
-ing	-ã > -ã	剩 zã21 扔 zã42 -ã in later loanwords 扔 zã42.
-ik	-ə	力 ɣə21
-aeng	-ã/-a -õ -uã	硬 ŋa21 打 tã33 撐 tsõ21 坑 khuã21
-aek	-a -ə -o	白 pa21 學 ɣə21 拍 po33
-eak	-a -ua	隔 ka33 冊 tshua33 origin of hekou medial -u- in 冊 tshua33 is unknown
-jaeng	-ã/-a/-ia/-a	病 pã21 鳴 ma42 ,but 命 mia21 迎 ŋa42 -ã becomes -a after nasal initials 鳴 ma42 ,but 命 mia21.
-jeng	-a/-ã > -ã	正 tsa55 姓 çã21 淨 tçã21 -ã in later loanwords .
-jek	-o > -a/-a	赤 tsha33 石 tso21 -o in 石 tso21 from OC*-ak
-eng	-ã/-iã/-ia/-ã	星 çã55 瓶 piã42 釘 tçã21(V) 釘 tçã55(N) -ã becomes -iã after P-, and -iã becomes -ia after nasal initials
-ek	-a	踢 tçha33
-jwaeng	-o	兄 ŋo55
-uwng	-õ/-õ	銅 tõ42



-uwk	-u -o	穀 ko33 鹿 vu21 -u in 鹿 vu21 from OC*-ok
-owng	-o	膿 no42
-owk	-ə	毒 tə21
-juwng	-u/-ə> -ō	中 tsō21(V) 蟲 tsu42 夢 mə21 -u in 蟲 tsu42 from OC *-uŋ -ə in 夢 mə21 from OC *-iŋ
-juwk	-o	竹 tsō33
-jowng	-o/-ō	松 jō42 用 jo21 -ō in 用 jo21 becomes -o after nasal initials.
-jowk	-o	屬 tsō21

## 2. Tone correspondences between Bai and PL

### 2.1 PL tone 1

- Bai tone /33/

gloss	TBL	Proto-Loloish (Bradley)	Bai
rain	10	*r-ywa <sup>1</sup>	va <sub>33</sub> , za <sub>33</sub>
have	1764, 1766, 1775	*jang <sup>1</sup>	tsi <sub>33</sub>
tooth	137	*ʔ-cway <sup>1</sup>	tsō <sub>33</sub>

In addition, Bai tone /33/ occurs in four words with tense vowels which have final stops in Chinese and may be Chinese loans (食 \*zyik 'to eat; food'; 腳 \*kjak 'foot'; 角 \*kaewk 'horn'; 日 \*njit 'sun'):

gloss	TBL	Proto-Loloish (Bradley)	Bai
pig feed	459	*dza <sup>1</sup>	tsa <sub>33</sub>
foot, ankle	103-104	*kre <sup>1</sup>	ko <sub>33</sub>
horn	263	*kro <sup>1</sup>	ko <sub>33</sub>
sun	2	*(?)-ne <sup>1</sup>	ni <sub>33</sub>

'Foot', 'horn' and 'sun' show the expected correspondences for late A-layer Chinese forms. ~~They have been treated as direct Chinese loanwords into Bai.~~ If tsa<sub>33</sub> 'pig feed' is a direct Chinese loanword into Bai (old layer), the Bai mid tone is irregular (expect tone /21/). If Bai did not inherit these forms from TB, the fact of the tone correspondnce with PL tone 1 needs to be explained. Note that the PL form \*dza<sup>1</sup> cannot be a genetic cognate of Chinese 食 \*zyik 'to eat', which reflects an OC lateral root initial (with prefixed m-, as first proposed by Schuessler: OC \*<sup>b</sup>m-lik).

- Bai tone /21/

gloss	TBL	Proto-Loloish (Bradley)	Bai
I	928	*C-nga <sup>1</sup>	ŋo <sub>21</sub>
thou	931	*nang <sup>1</sup>	no <sub>21</sub>
water (<tears)	158	*re <sup>1</sup>	ji <sub>21</sub>
this	942	*no <sup>1</sup> 'that' (near)	no <sub>21</sub>

These examples have sonorant initials, prefixed and non.

- Bai tone /55/:

gloss	TBL	Proto-Loloish (Bradley)	Bai
yell	1368	*ku <sup>1</sup>	ko <sub>55</sub>
cat	291	*ni <sup>1</sup>	ni <sub>55</sub>
fly	1318	*b-yam <sup>1</sup>	fa <sub>55</sub>
name	687	*ʔ-m(y)ing <sup>1</sup>	mia <sup>55</sup>

- Finally, there is one clear example of a word with s- prefix plus nasal initial. It has tone /42/ in Bai:

gloss	TBL	Proto-Loloish (Bradley)	Bai
nose	80	*s-na <sup>1</sup>	ne <sub>42</sub>

## 2.2 PL tone 2

There are two main correspondences, to Bai tone /42/ and Bai tone /55/.

- Bai tone /42/:

gloss	TBL	Proto-Loloish (Bradley)	Bai
tiger	304	*k-la <sup>2</sup>	lo <sub>42</sub>
sky (<dawn)	1671	*mo <sup>2</sup>	ma <sub>42</sub>
speech, words	651	*dang <sup>2</sup>	tõ <sub>42</sub>
soft	1035	*C-nu <sup>2</sup>	no <sub>42</sub>
head (<nose)	80	*u <sup>2</sup>	vu <sub>42</sub>
earring	484	*k-wang <sup>2</sup>	kõ <sub>42</sub>

- Bai tone /55/:

gloss	TBL	Proto-Loloish (Bradley)	Bai
fish	351	*nga <sup>2</sup>	ŋo <sub>55</sub>
pine torch	388	*C-mi <sup>2</sup> ('fire')	me <sub>55</sub>

cooked rice	440	*hang <sup>2</sup>	XQ <sub>55</sub>
hard, laborious	1095	*s-ra <sup>2</sup>	SO <sub>55</sub>
urine	152	*ʃi <sup>2</sup>	sa <sub>55</sub>

- in addition there is a minor correspondence to Bai tone /33/:

gloss	TBL	Proto-Loloish (Bradley)	Bai
earth	40	*tsa <sup>2</sup>	sa <sub>33</sub>
die	1089	*ʃe <sup>2</sup>	ʃi <sub>33</sub>
blood	129	*swe <sup>2</sup>	su <sub>33</sub>

However this correspondence is doubtful because 'die' shows the correspondences of a Chinese loanword (死 \*sijX 'to die', old A layer)

'division of labor' between Bai tones /42/ and /55/ corresponding to PL tone 2: fricative onsets occur in tone /55/, stop onsets occur in tone /42/. Sonorants, whether prefixed or not, go either way. This is similar to Lahu: in Lahu, the PL tone 2 corresponds to Lahu tone 4 (low level) when the initial is reconstructed as glottalized or fricative, and to Lahu tone 1 with plain stops (voiced or voiceless), prenasalized stops, plain sonorants, and most instances of voiced prefix ('C-') plus sonorant initials. Bai tone /42/ is similar to Lahu tone 1: both serve for plain stops, plain sonorants and sonorants with voiced prefixes; while Bai tone /55/ is similar to Lahu tone 4: both serve for fricative onsets (we have no secure examples of Bai words corresponding to PL tone-2 words with glottalized onsets), and for some words with voiced prefix ('C-') plus sonorant initials. In Lahu such words are few. Bradley's example for this category is the word for 'fire', PL \*C-mi<sup>2</sup>, Lahu mi<sup>4</sup>. It is particularly noteworthy that in Bai too, the word for 'fire' behaves as though it had a glottalized or fricative initial. The main difference relates to the word 'fish', reconstructed with a plain sonorant onset in PL, which evolves regularly to tone 1 in Lahu, but 'irregularly' to tone /55/ in Bai.

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### 2.3 PL tone 3

Tone 3 is the least common of PL unchecked tones. Two examples can be cited, both with Bai tone /33/:

gloss	TBL	Proto-Loloish (Bradley)	Bai
mother	219	*ma <sup>3</sup>	mo <sub>33</sub>
to dance	1677	*ga <sup>3</sup>	ko <sub>33</sub>

### 2.4 PL tone H

- Bai tone /21/

gloss	TBL	Proto-Loloish (Bradley)	Bai
eye (<tears)	79/158	*C-myak <sup>H</sup> 'eye'	mi <sub>21</sub>

expensive 1054 \*kak<sup>H</sup> ka<sub>21</sub>

- Bai tone /33/

gloss	TBL	Proto-Loloish (Bradley)	Bai
pierce through	1222	*m-tsap <sup>H</sup>	tɕhã <sub>33</sub>
untie, undo	1600	*k-luat <sup>H</sup> 'free'	luã <sub>33</sub>

### 2.5 PL tone L

Our only secure comparison is the following:

gloss	TBL	Proto-Loloish (Bradley)	Bai
enough	1349	*lok <sup>L</sup>	lu <sub>55</sub>

Uncertain whether the following is a Chinese loan or inherited.

gloss	TBL	Proto-Loloish (Bradley)	Bai
kill	1602	*C-sat <sup>L</sup>	ɕã <sub>33</sub>

If a Chinese loan, the palatal initial is irreg. (s- expected).

## 3. The vocabulary

### 3.1 A Swadesh-100 word list

#	gloss	Bai	B1	B2	A -late	A -early	TB	uncertain	blend
1.	I	ŋo <sub>21</sub>					+		
2.	you (sg.)	no <sub>21</sub>					+		
3.	we	ŋa <sub>55</sub>					+		
4.	this	no <sub>21</sub>					+		
5.	that	mə <sub>55</sub> tã <sub>33</sub>						+	
6.	who	a <sub>21</sub> to <sub>21</sub> a <sub>21</sub> ma <sub>21</sub> ji <sub>21</sub>			+		+		+
7.	what	a <sub>55</sub> xã <sub>21</sub> a <sub>55</sub> sa <sub>21</sub>						+	+
8.	not	a <sub>33</sub> ~ ja <sub>33</sub>					+		
9.	all	tsa <sub>35</sub> ka <sub>42</sub> tsɿ <sub>33</sub> tɕhã <sub>55</sub> ka <sub>42</sub> tsɿ <sub>33</sub>		+				+	+
10.	many	tɕi <sub>55</sub>						+	
11.	one	a <sub>21</sub>					+		
12.	two	kõ <sub>33</sub>					+		
13.	big	to <sub>21</sub>				+			

14.	long	tsō <sub>42</sub>				+			
15.	small	se <sub>21</sub>					+		
16.	woman	ɲə <sub>33</sub> ɲi <sub>21</sub>				+			
17.	man	tsi <sub>33</sub> ɲi <sub>21</sub>				+			
18.	human (n)	ɲi <sub>21</sub> kã <sub>55</sub>				+			
19.	fish	ŋo <sub>55</sub>						+	
20.	bird	tɕi <sub>55</sub> kə <sub>55</sub> u <sub>55</sub> tsɔ <sub>33</sub>					+		+
21.	dog	khuã <sub>33</sub>				+			
22.	louse	ɕi <sub>33</sub>							+
23.	tree	tsi <sub>21</sub>				+			
24.	seed	tsō <sub>33</sub> tsi <sub>33</sub>					+		
25.	leaf	se <sub>33</sub>							+
26.	root	tsi <sub>21</sub> tɕe <sub>33</sub>							+
27.	bark (of tree)	not listed							
28.	skin	pe <sub>42</sub>						+	
29.	flesh	ka <sub>42</sub>						+	
30.	blood	suɔ <sub>33</sub>						+	
31.	bone	kuɔ <sub>33</sub> tiə <sub>42</sub>					+		
32.	fat (n.)	tsa <sub>55</sub>						+	
33.	egg	sẽ <sub>21</sub>							+
34.	horn	ko <sub>33</sub>							+
35.	tail	ŋa <sub>33</sub> tu <sub>55</sub>					+	+	+
36.	feather	ma <sub>42</sub>						+	
37.	hair (of head)	tiə <sub>42</sub> ma <sub>55</sub>		+					
38.	head	tiə <sub>42</sub> po <sub>42</sub>					+		+
39.	ear	ɲi <sub>33</sub> tiə <sub>42</sub> kuã <sub>55</sub>					+		+
40.	eye	ŋue <sub>33</sub>					+		
41.	nose	vu <sub>42</sub> tiə <sub>42</sub> ne <sub>42</sub>						++	+
42.	mouth	tsɔ <sub>33</sub> (teeth ?) kua <sub>55</sub>						+	+
43.	tongue	tse <sub>21</sub>						+	
44.	tooth	tsɔ <sub>33</sub> pa <sub>33</sub>						+	
45.	claw	tsua <sub>21</sub> tsi <sub>33</sub>		+					
46.	foot	ko <sub>33</sub>							+
47.	knee	kua <sub>33</sub> tiə <sub>42</sub> ka <sub>33</sub>					+		+
48.	hand	si <sub>33</sub>					+		
49.	neck	ku <sub>21</sub> mi <sub>21</sub> tsa <sub>33</sub>							+
50.	belly	fu <sub>33</sub>					+		

51.	breast(s)	pɔ <sub>21</sub> tɕi <sub>33</sub>					+		
52.	heart	ɕi <sub>55</sub>					+		
53.	liver	kã <sub>55</sub>					+		
54.	drink	ã <sub>33</sub>					+		
55.	eat	jə <sub>33</sub>							+
56.	bite	ŋɔ <sub>33</sub>						+	
57.	hear	tɕhã <sub>55</sub> tiə <sub>33</sub>					+		
58.	see	ã <sub>33</sub> kɛ̃ <sub>21</sub> (ã <sub>33</sub> ='watch')					+		+
59.	know	sɛ̃ <sub>33</sub>							+
60.	sleep (vb.)	tshã <sub>33</sub> (s.w. as 'lie' # 67)							+
61.	die	ɕi <sub>33</sub>							+
62.	kill	ɕɔ <sub>33</sub>							+
63.	swim	ɲã <sub>42</sub> ɕy <sub>33</sub>				+			
64.	fly (vb.)	fa <sub>55</sub>							+
65.	walk	pɛ <sub>33</sub>							+
66.	come	ɣə <sub>35</sub>					+		
67.	lie (recline)	tshã <sub>33</sub>							+
68.	sit	ku <sub>21</sub>				+			
69.	stand	tsi <sub>21</sub>							+
70.	give	zi <sub>21</sub>							+
71.	say	suɔ <sub>33</sub>					+		
72.	sun	ɲi <sub>33</sub> phi <sub>21</sub>					+		+
73.	moon	mi <sub>55</sub> ŋuɔ <sub>33</sub>					++		
74.	star	ɕã <sub>55</sub>					+		
75.	water	ɕy <sub>33</sub>					+		
76.	rain (n.)	za <sub>33</sub> ɕy <sub>33</sub> va <sub>33</sub> ɕy <sub>33</sub>						+	+
77.	stone	tsɔ <sub>21</sub> khue <sub>55</sub>	+			⊕			
78.	sand	sɔ <sub>55</sub> tsi <sub>55</sub>					+		
79.	earth	thu <sub>33</sub> sa <sub>33</sub>	† sɔ <sub>33</sub>			† thu <sub>33</sub>			
80.	cloud	vã <sub>42</sub>					+		
81.	smoke	ɲi <sub>55</sub> tsi <sub>33</sub>					+		
82.	fire	xue <sub>33</sub>						+	
83.	ash(es)	tɕi <sub>55</sub> su <sub>55</sub> (plant ash)							+
84.	burn (intr.)	ɲə <sub>55</sub> khə <sub>33</sub> xu <sub>55</sub> khə <sub>33</sub>						+	+
85.	path	thu <sub>33</sub> ('road')				+			

86.	mountain	su <sub>21</sub>					+		
87.	red	tsha <sub>33</sub>					+		
88.	green	lu <sub>33</sub>					+		
89.	yellow	ŋo <sub>42</sub>					+		
90.	white	pa <sub>21</sub>					+		
91.	black	xə <sub>33</sub>					+		
92.	night	jo <sub>21</sub>						+	
93.	hot	ə <sub>21</sub> ə <sub>21</sub> ŋi <sub>33</sub>							+
							+		+
94.	cold	ka <sub>42</sub> (weather) kə <sub>55</sub> (water)							+
									+
95.	full	ma <sub>33</sub>						+	
96.	new	çi <sub>55</sub>						+	
97.	good	ɕo <sub>21</sub>							+
98.	round	ŋue <sub>42</sub>						+	
99.	dry	kã <sub>55</sub>						+	
100.	name	mia <sub>55</sub>							+
total			5		54		24	36	6
%			4		45		30	20	

### 3.2 notes

- I. If this reflects either of the Chinese 1sg. pronouns 吾 or 我, initial ŋ- indicates A layer, but tone B layer. Entirely regular as a reflex of PL \*C-nga<sup>1</sup>: PL \*ng- goes to Bai ŋ- (fish); PL rhyme -a goes to Bai /o/ after grave initials (fish, tiger, mother, dance).
- thou. Irregular vowel and/or tone as a reflex of any of the n- initialled Chinese 2nd person pronouns :汝, 你, 乃. Regular as a reflex of PL \*nang<sup>1</sup>, compare PL \*dang<sup>1</sup> 'speech, words', Bai tō<sub>42</sub> 'id.'. Nasal vowels are regularly denasalized in Bai after nasal initials.
- we. Conceivably a reflex of 我, a 2pl. pronoun in OC, but vowel corr. is unparalleled and Bai tone /55/ is irreg. corresponding to Chinese Rising tone. Enters into a PL tone-2 correspondence with Wuding ŋu<sub>11</sub> and Sani ŋə<sub>33</sub> 'id.', therefore the word is probably Loloish.
- this. Not a Chinese form. Evidently identical with PL \*no<sup>1</sup> 'that (near)'.  
5. that. Not a Chinese form. Origin unknown. Connection to Cuona Menba mo<sub>35</sub> 'that' (near)?
- who. The first form is not Chinese. It resembles PL \*ʔəsu<sup>1</sup> 'who', but the segmental corr. (in particular PL \*s- : Bai t-) are so far unparalleled. The second form is a blend of a Loloish form comparable to Sani ə<sub>31</sub> mɕ<sup>33</sup> 'who' and the Chinese word for 'human being' 人, q.v.
- what. Neither form is Chinese. The second form resembles Weishan Yi ə<sub>55</sub> tsə<sub>55</sub> id. and other words of same meaning in Naxi, Hani and Jinuo.

8. not. The two forms are (free ?) variants. Neither is Chinese. With  $a_{33}$ , compare the general Jingpo negation  $a_{31}$ , and phonetically similar forms of same meaning in Yi (Zhao Yansun 1982: 165).
9. all. The first word means 'everything', and the second 'all, the whole'. The glosses imply a difference of +count vs. -count. In the second word, the Chinese morphemes 全 and 子 are recognizable in the first and last syllables. The middle syllable has not been identified.
10. many. Not identified.
11. one. Not Chinese. A TB cognate set for this item was first established by Zhao 1982: Taoping Qiang  $a_{31}$ , Aka (= Hrusso)  $a$ , both 'one'; Xixia  $a$  'one of a pair'.
12. two. Not Chinese. The connection to Jingpo  $la_{55}$   $khon_{51}$  'two' was first observed by Zhao 1982. Add Sulung (NW Arunachal Pradesh, a "central TB" language according to Bradley's classification)  $aku_{\eta}$  'second' (Aduk Tayeng 1990)<sup>1</sup>, Rengma (eastern Naga)  $kon_{\eta}$ -hu '2' and Phun (Burmic)  $nai$ - $ko_{\eta}$ , this last apparently compounded with the Chinese word.
13. big. cf. 大 MC  $daH$ .
14. long. cf. 長 MC  $drjang$
15. small. cf. 細 MC  $sejH$
16. woman. cf. 女 MC  $nrjoX V!$
17. man. cf. 子 MC  $tsiX$
18. human. cf. 人間 MC  $nyin\ kean$  'human being(s)'. Cf. Korean  $yin\ kan$  'id.'
19. fish. This conceivably reflects 魚 MC  $ngjo$  but if so the initial and tone clash (tone indicates B2 layer, initial A layer). Regular as a Loloish form. See # 1 'I'.
20. bird. Only the last syllable has been identified. Cf. 雀 MC  $tsjak$  'bird'.
21. dog. Cf. 犬 MC  $khwenX$
22. louse. Cf. 虱 MC  $srit$ . However note TB  $srik$  'louse'; the Bai word enters into a tone 1 correspondence with other Loloish lgs: Wuding Yi  $\zeta_{e11}$ , Sani  $\zeta_{I33}$ , Hani  $\zeta_{E55}$ , Lahu  $\zeta_{e33}$ , Jinuo  $\zeta_{e44}$ , Naxi  $\zeta_{u33}$ , Gazhuo  $\zeta_{E33}$  'id.'
23. tree. Cf. 樹 MC  $dzyuH$ .
24. seed. Cf. 種 MC  $trjuwngX$ .
25. leaf. Not identified.
26. root. 'tree', q.v. (#23) + unidentified element.
27. bark (of tree). not listed in TBL.
28. skin. Cf. 皮 MC  $bje$ .
29. flesh. Not Chinese. Enters in a T2 correspondence with Wuding  $xu_{33}$ , Sani  $xv_{11}$ , Jinuo  $k\grave{a}_{33}$  'id.'
30. blood. The final and tone corresp. to 血 MC  $xwet$  are reg. in the old layer but the initial corr. is irreg. Initial and tone correspondences with PL  $*swe^2$  'blood' better supported.
31. bone. Cf. 骨 MC  $kwot$ .
32. fat. Not Chinese. Enters into a tone 1 corr. with WB  $tshi^2$  'id.'
33. egg. Not identified.
34. horn. Uncertain if TB or Chinese.

<sup>1</sup> I am indebted to F. Jacquesson for bringing the Sulung datum to my attention.



- 35.tail. A Chinese-TB blend. For the first syll., cf. 尾 MC mjijX. Correspondences surprising but regular ! (cp. 萬 MC mjonH, Bai ŋua<sub>21</sub>). The second syll. is a TB word, cp. Sani tu<sub>31</sub>, Lahu tu<sub>33</sub>, Jinuo to<sub>44</sub>.
- 36.feather. Cf. 毛 MC maw. Recent loan (B1).
- 37.hair (of head). Cf. 毛 MC maw. ~~Early loan.~~ Recent loan (B2)
- 38.head. The first syll. is 頭 MC duw 'head'. The second is not Chinese, perhaps = TB \*(d-)bu 'head'.
- 39.ear. The first syll. is 耳 MC nyiX 'ear'. The second is 頭 MC duw as a noun suffix. The last syll. is unidentified, yet does not appear relatable to a TB word.
- 40.eye. Cf. 眼 MC ngreanX. Note that the PL word \*C-myak<sup>H</sup> 'eye' survives as mi<sub>21</sub> (note the fron vowel supporting a PL origin over a Chinese origin in 目 MC mjuwk) in the Bai compound for 'tears'.
- 41.nose. A TB word, cf. PL \*s-na<sup>1</sup>.
- 42.mouth. The first syll. may be the TB word for 'tooth', q.v. (#44). The second syll. is unidentified.
- 43.tongue. Cf. 舌 MC zyaeH
- 44.tooth. Cp. PL \*ʔ-cway<sup>1</sup> 'tooth'. The second syll. is unidentified.
- 45.claw. Cf. 爪 MC tsraewX, Mand. zhua<sup>3</sup>. A modern loan.
- 46.foot. Uncertain if TB or Chinese.
- 47.knee. The first syll. must mean 'leg' and is unidentified. The second syll. is 頭 MC duw, a noun suffix. The last syll. is 甲 MC kaep or 蓋 kaejH < -ps 'cover, lid'.
- 48.hand. Cf. 手 syuwX.
- 49.neck.. Not Chinese. Unidentified.
- 50.belly. Cf. 肚 duX.
- 51.breast(s). A TB word, compare Wuding a<sub>55</sub> p<sub>Q2</sub> 'id.'
- 52.heart. Cf. 心 MC sim.
- 53.liver. Cf. 肝 MC kan.
- 54.drink. Cf. 飲 MC ʔimX.
- 55.eat. Not identified.
- 56.bite. Cf. 咬 MC \*ngaewX but the tense vowel is irreg.
- 57.hear. Cf. 聽得 MC theng tok.
- 58.see. The first syll. is a verb meaning 'watch' (TBL #1093). It is unidentified. The second = 見 MC kenH.
- 59.know. This is unidentified. Conceivably = PL si<sup>2</sup> but if so the nasality is unexplained.
- 60.sleep. Same word as 'lie' q.v. (#67).
- 61.die. Regular both as 死 MC sijX and PL \*ʃi<sup>2</sup>. Uncertain whether TB or Chinese.
- 62.kill. Uncertain which of PL C-sat<sup>L</sup> or 殺 sreat. If the latter, the Bai initial palatal is irreg.
- 63.swim. Cf. 遊水 yuw sywijX.
- 64.fly. If this is 飛 MC pjij, the tone indicates a B1 loanword, but then the vowel corr. is irreg. Since the Bai word enters in a T1 corr. with Hani pu<sub>55</sub>, Lahu po<sub>31</sub>, Jinuo prɛ<sub>42</sub>, Naxi bi<sub>21</sub>, Gazhuo phɤ<sub>31</sub>, it is better regarded as = PL \*b-yam<sup>1</sup> 'to fly'.
- 65.walk. Not Chinese. A Tai origin has been suggested but this is better regarded as = PL \*p-re<sup>2</sup> 'run'.
- 66.come. Cf. 來 MMC loj. An early loan, earlier than the change of \*r- to l-.
- 67.lie. Unidentified.

- 68.sit. Cf. 踞 MC kjoH 'to sit'.
- 69.stand. Unidentified. Perhaps 直 drik 'straight' but if so phonologically irreg. as well as semantically distant.
- 70.give. Unidentified. Perhaps 賜 sjeH 'give' but if so phonologically irreg.
- 71.say. Cf. 說 MC sywet.
- 72.sun. The first syll. is either 日 MC nyit or PL \*(?)-ne<sup>1</sup>. The second syll. is unidentified.
- 73.moon. Cf. 明月 mjaeng ngjwot.
- 74.star. Cf. 星 MC seng.
- 75.water. Cf. 水 MC sywijX.
- 76.rain. Both forms include 'water' (cf. above, # 75) as their second syll. za<sub>33</sub> in the 1st form is should be compared with PL \*r-ywa<sup>1</sup>, and va<sub>33</sub> in the second, with an unprefix variant of the same. A comparison with 雨 MC hjo is OK with the initial and tone, but Bai /a/ corresponding to this rhyme (and to the OC 魚 rhyme cat.) is unparalleled.
- 77.stone. The 1st syll. is 石 MC dzyek. The second appears to be an irreg. form of 塊 MC kwhejH in the B1 layer (tense vowel expected), added to the first syll. at a recent date.
- 78.sand. Cf. 沙子 MC srae tsiX.
- 79.earth. Cf. 土沙 MC thuX srae.
- 80.cloud. Not a TB word. Cf. 雲 MC hjun.
- 81.smoke. The first syll is 煙子 MC ?en tsiX.
- 82.fire. Cf. 火 MC xwaX. This word belongs to the OC -ij rhyme, and the Bai word appears to reflect this old vocalism. The TB word for 'fire' (PL \*C-mi<sup>2</sup>) survives as me<sub>55</sub> in the word for 'pine torches'.
- 83.ashes. The Bai term means 'plant ashes'. Not a Chinese term.
- 84.burn. The second syllable in the two forms is identified as 起 MC khiX 'begin to'. The first syllable in each form must carry the lexical meaning 'to burn', but the etyma have not been identified, either in Chinese (燃 MC nyen 'to burn' can hardly correspond to Bai nə<sub>55</sub>).
- 85.path. The meaning is 'road'. Cf. 途 MC du. Starostin (1994) identified the Bai word as 道 which relies on a highly marginal correspondence MC d- : Bai th-.
- 86.mountain. Not a Chinese word (山 MC srean cannot correspond). The word is to be compared with Hani tʃv<sub>31</sub>, Naxi dzy<sub>21</sub> 'id.'.
- 87.red. Cf. 赤 MC tshyek.
- 88.green. Cf. 綠 MC ljowk.
- 89.yellow. 黃 MC hwang. This must have followed the evolution wɔŋ > wō > ŋwo > ŋo (through w- > ŋ- in syllables with nasal endings, a regular change, cp. 溫 MC \*?won, Bai ŋue<sub>55</sub> 'lukewarm', cf. also 'round' # 98 below.
- 90.white. Cf. 白 MC baek
- 91.black. Cf. 黑 MC xok
- 92.night. Cf. 夜 MC yaeH
- 93.hot. The first word is not Chinese. Perhaps = WB ok 'id'. The second word is a blend of the first syllable and 熱 MC nyet.
- 94.cold. Neither form is easily compared with Chinese words (such as 涼 MC ljang, a form with velar prefix in OC), especially in view of the nonnasal vowels in Bai.

The second form could be compared with PL \*C-grak<sup>H</sup>, although Bai tone /55/ in PL checked syllables appears to correspond to PL tone L.

- 95.full.Cf. 滿 MC manX.
- 96.new. Cf. 新 MC sin.
- 97.good. Unidentified.
- 98.round. Cf. 圓 MC hjwen. See # 89 above on the corr. of initials.
- 99.dry. Cf. 乾 MC kan.
- 100.name. Corresponds with PL \*ʔ-m(y)in<sup>1</sup> rather than with Chinese 名 MC mjieng: tone correspondence would indicate B layer, but final contradicts this.

#### 4. The Bai numerals

1.	ji <sub>33</sub> , ji <sub>35</sub>	a <sub>21</sub>
2.	ni <sub>33</sub>	kõ <sub>33</sub>
3.		sã <sub>55</sub>
4.		ci <sub>33</sub>
5.		ŋo <sub>33</sub>
6.		fu <sub>33</sub>
7.		tci <sub>33</sub>
8.		piã <sub>33</sub>
9.		tca <sub>33</sub>
10.		tσα <sub>21</sub>

shaded cells : Bai numerals of Chinese origin  
 clear cells : Bai numerals of TB origin

Xu Lin and Zhao Yansun (*Bai Yu Jianzhi*. 1984: 24sq) discuss the uses of the Bai numerals for '1' and '2': only a<sub>21</sub> and kō<sub>33</sub> are used in counting things less than 10 in number. The corresponding Chinese numerals are essentially limited to numbers above 10.