Tampuan phonology¹

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Introduction

Tampuan is a Mon-Khmer language spoken by approximately 24,000 people in Ratanakiri Province in northeast Cambodia (see map in Appendix I). Tampuans live by swidden farming in an area that extends east from the provincial capital Ban Lung to within 20 kilometers of the Vietnam border, and also south to the town of Lomphat on the Srepok River. In addition, an isolated pocket of 400 Tampuan speakers lives in Kachon near the town of Vouensai along the Sesan River 30 kilometers north of Ban Lung. Tampuans have close contact with their Brao/Krung neighbors to the north, the Kaco? to the northeast, the Lao and Khmer to the west, and especially the Jarai to the east.

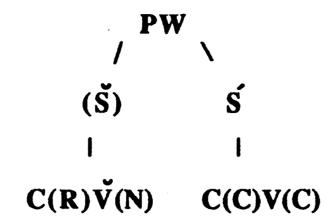
Tampuan has been classified as a language in the Central Bahnaric subgroup, most closely associated with Alak and Bahnar (Thomas 1979:183). There are three dialects of Tampuan, with the northern (Kachon) dialect showing the greatest degree of phonological and lexical difference, at least partially under Lao influence. But a word list comparing eastern and western Tampuan shows only a small percentage of variation. According to Tampuans, all of the dialects are mutually intelligible, even the Kachon dialect. The dialect chosen for study in this paper is the one spoken at Yak Laom commune near the town of Ban Lung, Ratanakiri Province.

Word and Syllable Structure

Like most Mon-Khmer languages, Tampuan is rich in both monosyllabic and disyllabic forms. The structure of the phonological word (PW) may be expressed schematically as follows:

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¹This research is the result of input from my many Tampuan friends and teachers, especially Mr. Way Tiang and Mr. Teu Kheer. I am especially indebted to Ken Gregerson for his invaluable input. The analysis and final version of this paper have benefited from his comments throughout, especially on matters of Bahnaric phonology, register, and diachronics. The errors that remain are, unfortunately, my own. Final thanks are due the linguist who has influenced me the most, Dale P. Crowley.



That is, the phonological word (PW) is composed of a main (tonic) syllable (\pm) optionally preceded by a pre- (atonic) syllable (\pm). Presyllables contain a consonant (C), an optional r (R), an unstressed vowel (V), and an optional final nasal, t or r (N). Main syllables contain an initial consonant or consonant cluster (CC), and a vowel or vowel sequence (V) optionally closed by a consonant.

The presyllable $C(R)\tilde{V}(N)$ - characterizes a range of possible weakly stressed syllables of the following sort:

<u>tə</u> t <u>e</u> ?	'different'	parper	'goat'
rəmeh	'firewood'	tra?o?	'spit up'
pantaw	'to build'	?nçən	'nine'
pəl?a:k	'armpit'	?mhmao	'stone'

Like other presyllables, syllabic nasal presyllables above are also construed here as no more than special cases of a canonical CVN- pattern, that is:



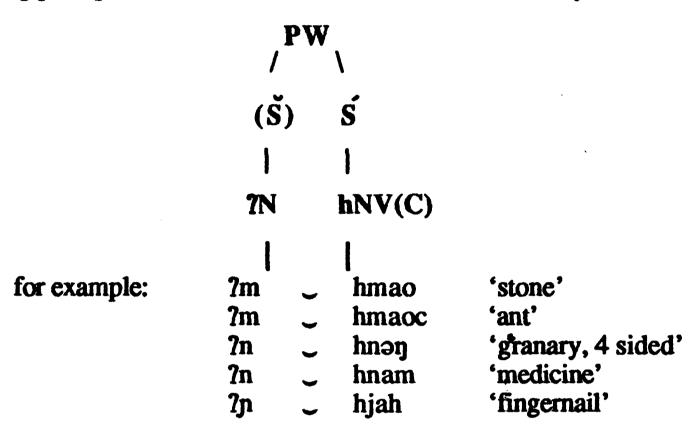
in which syllabic nasal presyllables are launched with glottal stop onsets (C = ?) and with VN manifested phonetically simply as a syllabic nasal (ie. VN > N). All such predictable N occurrences in presyllables are represented simply as m, n, p or n.

Tampuan forms with nasal presyllables may precede voiceless stop initials in the main syllable. Historically, they appear generally to correspond with PNB or other Bahnaric forms with presyllable shapes pa- or ha- or even ta-. Consider the following examples:

?ntoŋ ?nçən	'steal' 'nine'	cf. Bahnar: tatoŋ cf. PNB: *tačìn	PHrS: *latòŋ (Smith, 1972)
Incit	'ten'	cf. Hr: hajàt	
Intre	'pestle'	cf. PNB *adrèj	Khm: ?ŋrer
?nke:	'horn'	cf. PNB *paker	• "

These nasal presyllables, though somewhat reduced versions of the already metrically reduced syllables² implied by their comparative counterparts elsewhere in Bahnaric, still maintain a separate weak stress and are not to be construed merely as another cluster construction in the onset of the main syllable.

A further and special subset of syllabic nasal presyllables is that which occurs preceding preaspirated nasal initial consonants in the main syllable, i.e.:



These nasal presyllables preceding preaspirated main syllables appear to evolve historically from CV-NV through Ch-NV to ?N-hNV. Something like the following schematic scenario seems to account for contemporary Tampuan forms, taking ?mhmao 'stone' as a case study:

(i)	*ta n	ica	source form	(cf. PNB *tamo)
(ii)	ta	> tḥ	th mo:	syllabic reduced to aspiration (cf. Khmer thmo:)
(iii)	t	> ?	?h mo:	glottal replacement
(iv)	7ḥ	> ?Nḥ	7mh mor	epenthetic nasal copying of main syllable initial
(v)	?mḥ	> ?ḿh	?m hmao	nasal syllabification (> contemporary Tampuan)

Thus, beginning with a simple CV-NV shape reconstructed, for example, for Proto North Bahnaric (PNB) *tamo: (Smith 1972) the presyllable ta- is reduced to (ii) th-, retaining a modicum of syllabicity through the aspirated transition before nasal m- in thmo: (cf. Khmer thmo:). In (iii) the presyllable syllabicity is further reduced with the simplification of [t] to [?] and (iv) an exact point of articulation copy of the main syllable initial nasal is replicated in the presyllable, where in (v) as the only voiced segment in the syllable, that epenthetic nasal attracts the syllabification feature and the attested Tampuan form ?mhmao is achieved. Thus, these preaspirated

²Gregerson quips that these reduced atonic syllables help form disyllables that could be termed (with due apologies to Matisoff) paene-sesquisyllabic ("near syllabic and one half") words—perhaps a way station to monosyllabicity.

nasals actually reflect earlier plain main syllable nasals which had subsequently undergone special presyllable reductions. (Note that the schematic feature changes (i) through (v) may not necessarily all have been separate temporal stages historically.)

Tampuan Consonants

Figure 1 displays the 28 consonantal phonemes that occur syllable initially in Tampuan.

	Labial	Dental	Palatal	Velar	Glottal
Voiceless stops	p	t	С	k	?
Aspirates/Spirants	ph	th	Ç	$\mathbf{k}^{\mathbf{h}}$	h
Voiced, glottalized	7 b	?d	-		
stops					
Nasals	m	n	'n	ŋ	
Liquids	w	1, r	j		
Glottalized liquids	?w	71	? j		
Aspirated continuants	hm	hn, hl, hr	hn		

Figure 1. Tampuan initial consonants

In addition, Figure 2 shows the fifteen consonants that occur in syllable final position.

	Labial	Dental	Palatal	Velar	Glottal
Voiceless stops	p	t	C	k	?
Spirants			Ç		h
Nasals	m	n	'n	ŋ	
Liquids	w	1, r	j	· ·	

Figure 2. Tampuan final consonants

The consonants displayed in Figure 1 occur with certain phonetic details and limitations which we turn to next in our discussion.

Voiceless stops occur in labial, dental, palatal, velar and glottal positions. As a register effect it is worth observing that voiceless stops take allophonic variants that are somewhat more lax and just slightly aspirated preceding lax/breathy vowels (see further the vowel section below). This slight aspiration in consonants preceding lax register vowels is, of course, not unique to Tampuan, appearing in certain dialects of Khmu and in Chong (see for the latter Huffman, 1985:361).

- p occurs phonetically as a voiceless bilabial stop, and is unreleased syllable finally, as in the following forms: paij 'to cook (rice)'; pap 'to see'; tapaip 'to pity'.
- occurs phonetically as a voiceless dental stop, and is unreleased in syllable final position, as in *taor* 'ear'; *trot* 'push'; *totair* 'light, daytime'; *tor* 'to connect'.

- k occurs phonetically as a voiceless velar stop that is unreleased in syllable final position. It is exemplified in the following forms: kəman [kəmain] 'wife'; çək 'hair'; kar 'fish'.
- is a voiceless palatal stop. In final position, /c/ is unreleased and conditions a phonetic j-glide from the preceding vowel. This consonant is exemplified by these forms: caik 'to walk'; cair 'a place'; pec[pejc] 'to like, want'.
- is a velar stop that occurs in syllable initial or final position, as exemplified by ?asm 'sweet'; ?es '3rd person singular'; kəto? 'number specifier for objects'.

Aspirates occur in labial, dental, and velar positions, while spirants occur in palatal and glottal positions. Aspirates and spirants rarely precede lax register vowels. These fully aspirated stops are not to be confused with weakly aspirated voiceless stops referred to earlier that occur as allophonic variants before lax register vowels. Tampuan aspirates and spirants are described individually as follows:

- ph is a voiceless bilabial aspirated stop that occurs as in the forms p^h arm 'blood'; p^h lam 'variety, kind'; phap 'book'; pher 'unhusked rice'.
- th is an aspirated voiceless dental stop exemplified as in the forms $t^h \varepsilon ?$ 'small'; $t^h o k$ 'difficult'; $t^h u n$ 'season'.
- is a palatal spirant that varies from $[\varsigma]\sim[\varsigma^h]\sim[s]$ as an onset in a main syllable. Like other palatals, in syllable final position it conditions a predictable phonetic j-glide from the preceding vowel. The consonant ς rarely precedes lax vowels, and is exemplified in forms such as: ς aim 'bird'; ρ anou ς [ρ anou $\dot{\varsigma}$ ['person'; ς a ς avar 'child'; ς or 'dog'.
- kh is a voiceless velar aspirated stop, occurring in forms such as: $k^h laom$ 'to blow'; $k^h \partial j$ 'to be accustomed to'; $k^h wear$ 'to drill'.
- h is a glottal spirant that can occur either syllable initially or finally, as in: hai 'to watch'; keh 'already'; hian 'to learn'; hour 'to flow'.

Voiced stops are found only in labial and dental positions and are slightly glottalized or prevoiced. They only rarely precede lax register vowels and are described individually as follows:

- occurs as a voiced glottalized stop as in these forms: bo beet 'a little'; boro: 'to sell'; blind'.
- is a voiced dental glottalized stop as exemplified in [?]dar 'sun, day'; [?]darl 'shallow'; [?]n [?]der 'they' third person plural, definite.

Nasals occur in the labial, dental, palatal, and velar positions before both tense register and lax register vowels, and are described and exemplified as follows:

- m is a voiced nasal continuant as in the following forms: maon [maon] 'one'; kəmak 'man, male'; lam 'to go'; məir 'garden, farm'.
- n occurs as a dental nasal continuant as exemplified by noh 'there'; pontarw 'to build'; pin 'we, first person/plural'; nan 'to look for'; pronuk 'a pile'.
- is a palatal nasal continuant. In syllable final position, it conditions the usual palatal j-glide from the preceding vowel. This consonant is exemplified in the following forms: na: 'what?'; ?an [?ajn] 'I, first person singular'; ?ənu?

'life, age'.

is a velar nasal continuant, as in the following forms: nar 'work' (n.); Ŋ kəlŋaːc [kəlŋaːc] 'afternoon'; pətaŋ 'instead of, for'; ŋaːw 'forest cat'.

Liquids appear in labial, dental, and palatal positions, and can occur with either tense or lax vowels. They are described individually as follows:

is a voiced, labial approximant that occurs in such forms as these: wac W [waic] 'abdomen'; towan 'between, intervening space'; narw 'new'.

is a voiced dental lateral approximant that is exemplified as in the following 1

forms: lan 'from'; lalon 'to rub briskly'; ?dal 'to punch, hit'.

is a dental retroflex which is normally flapped, but in careful articulation is r sometimes trilled. Word finally it is always trilled. It is exemplified as follows: rah 'to tell'; rerait 'to tremble, shiver'; kra? 'old, aged'; hour 'to flow'.

j is a palatal approximant and occurs as in these forms: jox [jox c] 'wrong'; laij 'continually, throughout'; jah 'although'.

Glottalized liquids are articulated with a simultaneous glottalization of the consonant. They rarely occur with lax/breathy vowels:

?w is a glottalized labial approximant that occurs in forms such as: ⁷wai 'to reside, still'; 'wa? 'to brush'. There is only a single occurrence in syllable final position, naw? 'again'.

η occurs as a glottalized lateral, which in the northern dialect has the variant ⁷d, a glottalized voiced dental stop. It is exemplified in these forms: 7107 'to

know'; ?lom 'wood'.

?j is a glottalized palatal approximant that is exemplified in forms such as: [?]jou? 'to be afraid'; [?]jəm 'to borrow'; [?]jut 'to wipe'.

Pre-aspirated (voiceless onset) continuants occur in labial, dental, and palatal positions, only with tense register vowels in forms such as the following:

occurs as a preaspirated (voiceless onset) liquid, and is exemplified hl or ll

by hla: 'leaf'; kəhla:p 'wing'.

is a preaspirated (voiceless onset) dental trill as in the following hr or rr forms: hre: 'rattan'; hro:c [hroic] 'to strip off, pull out'; kəhrəi 'red'.

is a preaspirated (voiceless onset) labial nasal found in such forms as: hm or mm ?m hmao 'rock, stone'; ?m hmo:j 'guest'.

occurs as a preaspirated (voiceless onset) dental nasal as in the hn or nn following examples: ?n hnam 'medicine'; ?n hnal~?n hal 'to recognize'.

occurs in a limited set of forms such as 2n hnah 'fingernail'. hp or pp

Tampuan Vowels

Tampuan, like a number of other Bahnaric languages,³ possesses a prosodic

³Tampuan thus diverges from the non-register nature of the Bahnar language itself, a sister Central Bahnaric language.

opposition between phonological words that are clearer and tenser versus those that are breathier and laxer in pronunciation (Smith, 1972). In this kind of phonological system, certain vowel positions and trajectories tend to be associated with one or the other of the tense versus lax prosodies or registers (Henderson, 1952). Native speakers of Tampuan are aware of this contrast, and sometimes refer to it using the terms than 'taut' for words spoken with a tenser voice quality, and thour 'loose' for those spoken with a lax/breathy voice quality.

Figure 3 represents all Tampuan vowel types in a conventional matrix based on vowel height and advancement. It further distinguishes vowels pronounced with a lax/breathy phonation quality from those with a clearer one. Lax/breathy vowels are marked in Figure 3 with the usual IPA subscripted double dots, thus breathy a is distinguished from clear vowel a. Such voice quality contrasts occur in nearly every region of the vowel chart: high, mid, low, front, center, back. It will be further observed that lax vowels in general are of a closer variety—that is, higher tongue height—than their clear vowel counterparts. Vowels also occur in long and short varieties, though not for each vowel category, for example, lax vowels j, j, and u for which no tense counterparts have yet been recorded (a dash in Figure 3 indicates these and other holes in the pattern). Vowels in bold in Figure 3 are lax/breathy while those in grey are tense/clear. For a statistical account of Tampuan vowels, see Appendix II.⁴

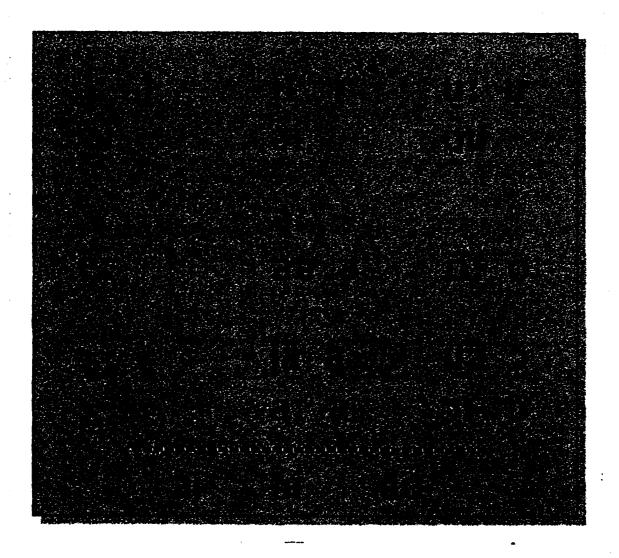


Figure 3. Tampuan vowels

⁴Tampuan agrees in general with Proto-North Bahnaric in having a significant majority of tense vowels over lax vowels in a dictionary count, 65/35 percent for Bahnaric as compared to 74/26 percent for Tampuan (Smith, 1972:15).

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The vowels displayed in Figure 3 occur with certain phonetic details and limitations as described below.

Lax Register Vowels

The following vowels form a class of lax and slightly breathy syllabics that stand in contrast to the tense register set of vowels.

- is the highest, most fronted vowel in Tampuan and is lax/breathy, as exemplified in these forms: tit to have'; prit forest' ?ŋʔim 'lean against'; pit 'mat'.
- is a high centralized vowel pronounced with lax/breathy articulation and occurs in forms such as these: circ 'light in weight'; kəntirl 'heel'; kəmlir 'morning'; pir? 'father'.
- is a high back rounded vowel pronounced with lax/breathy articulation, as in: ?ndy 'with, along with'; təŋhyt 'inhale'; py 'they, 3rd p.pl. indefinite'; plyn 'to tell a lie'.
- is a long mid central vowel that has a slight lax/breathy articulation. It is exemplified in the forms: məi? 'mother'; dəil 'also'; khəiŋ 'thing, ingredient'; khəik 'fail to do'.
- is a long, lax/breathy vowel in the low front position that occurs in a limited number of forms such as these: krei 'bed'; ?ntrei 'pestle'.
- is a lax/breathy diphthong in the low central position, though its breathiness is substantially muted following velars. In the Lomphat district to the south, Tampuans pronounce this vowel as is. It is exemplified in the following forms: tisk 'water'; pisr 'two'; totisn 'to roast'; tis 'duck'.
- ца [µ3] is a lax/breathy high back diphthong that occurs as in the following examples: kµэŋ 'gong'; ?ntrµэl 'after'; tµэт 'stuck'; pµэj 'to follow'.
- is a short high front lax vowel that occurs as the variant [i] before velars, and [i] elsewhere, as exemplified in these words: pih 'snake'; pin 'we' inclusive; kənti? 'center, middle'; cit 'ten'.
- is a short high mid vowel that always occurs with a lax/breathy articulation, as in: pir 'mouth'; kəntin 'hide from view'; til 'until, arriving'.
- is a short rounded high back vowel that is lax/breathy in articulation, as exemplified in the forms: rəkul 'knee'; plu? 'feverish'; cru? 'deep'.
- is a lax fronted mid vowel that occurs in a limited set of forms such as: kleh 'exhausted'; ?nteh 'below'; kəteh 'short in height'; təte? 'different'.
- is a short lax vowel that is sometimes slightly diphthongized as [3]. The following are examples: prah 'god'; prətam 'five'; təlap 'accustomed to'; kjam 'near'.
- is the lowest, most backed of the lax vowels, and is exemplified by the forms: tak 'monkey'; pap 'to see'; ka? 'cooking pot'; ?ntal 'roof'.

Tense Register Vowels

The following vowels are articulated with a modal or clear to tense phonation setting and are contrastive as a group with the lax register syllabics described earlier.

- is a high fronted diphthong that varies phonetically as [əi] ~ [ʌi] ~ [oi) depending on the dialect. It is exemplified in the forms: həi 'house'; məi 'older sibling'; məir 'swidden field'; prəit 'banana'.
- is a mid to high central diphthong that occurs in a rather limited set of forms such as: *boik 'dirty, bad'; ?oik 'angry'.
- ou is a mid to high back diphthong, exemplified by koum 'to wait'; mouh 'nose'; tour 'trade, exchange'; rəlou 'to rest'.
- es is a mid long vowel that occurs mostly in loan words from Lao, as in keny 'clever'; pathest 'country, nation'; herp 'box'; khest 'province'.
- is a low front long vowel that occurs with a lowered onset in open syllables [\varepsilon], and a lowered off-glide in closed syllables [\varepsilon] ~ [\varepsilon], as in these forms: \varepsilon kei 'pig'; \tapei 'rice wine'; \textit{me\varepsilon} forms: \varepsilon forms: \varepsilon kei 'pig'; \tapei 'rice wine'; \textit{me\varepsilon} forms: \varepsilon kei 'pig'; \varepsilon kei 'pig'; \tapei 'rice wine'; \textit{me\varepsilon} forms: \varepsilon kei 'pig'; \vare
- is a central diphthong that varies phonetically from [aa] to [ai] in such forms as: pahyaa 'to send'; 'baa 'not yet'; taal 'to answer'; paak 'field house'.
- is a mid back vowel that has a lowered onset in open syllables [00], but in closed syllables it occurs with a lowered/centered off-glide [00] ~ [00] (except before palatals, where the off-glide is neutralized by the usual palatal j-glide). It is exemplified in the forms: moo 'black'; joor 'to use'; moon 'nephew, niece'; spoic (spoic) 'to touch'.
- is a low central dipthong that varies phonetically from [a1] ~ [ae], as in these forms: ca1? 'to put, place'; har 'to watch'; pany 'three'; ?art 'to drink'.
- is a falling central dipthong that occurs most often in names and occasionally in loan words from Lao, as in: miən 'a name'; khiən 'a name'; miəŋ 'district'.
- is a diphthong that rises from the low central to the mid back position and is exemplified in words such as: khlaom 'to blow'; taor 'ear'; klao 'husband'; tao 'there'.
- is a low front vowel as in the forms: ²jet 'fallow field'; peh 'pound rice'; cec (ceic) 'name, to be named'; rəmeh 'firewood'.
- is a mid central vowel that varies phonetically from [ə] to [ə], and is exemplified in forms such as: cok 'to hold in the hand'; ?nçən 'nine'; məŋ 'to depend on'; khən 'to be brave'.
- o is a mid back rounded vowel that occurs in forms such as: lon 'water well'; 'lo?' to know'; thok 'difficult'; 'Inton' to steal'.
- a is a low central vowel exemplified in forms such as: ?nkan 'woman'; war 'mouse, rat'; cra? 'carve, write'; kal 'fell a tree'.
- is a low back vowel occurring as in these examples: kol 'head'; rok 'cow'; səmləŋ 'star'; tro? 'true'.

Vowel Register

The view of Tampuan vowels in Figure 3 may be recast as two separate systems of lax vs. clear vowels, as in Figure 4.

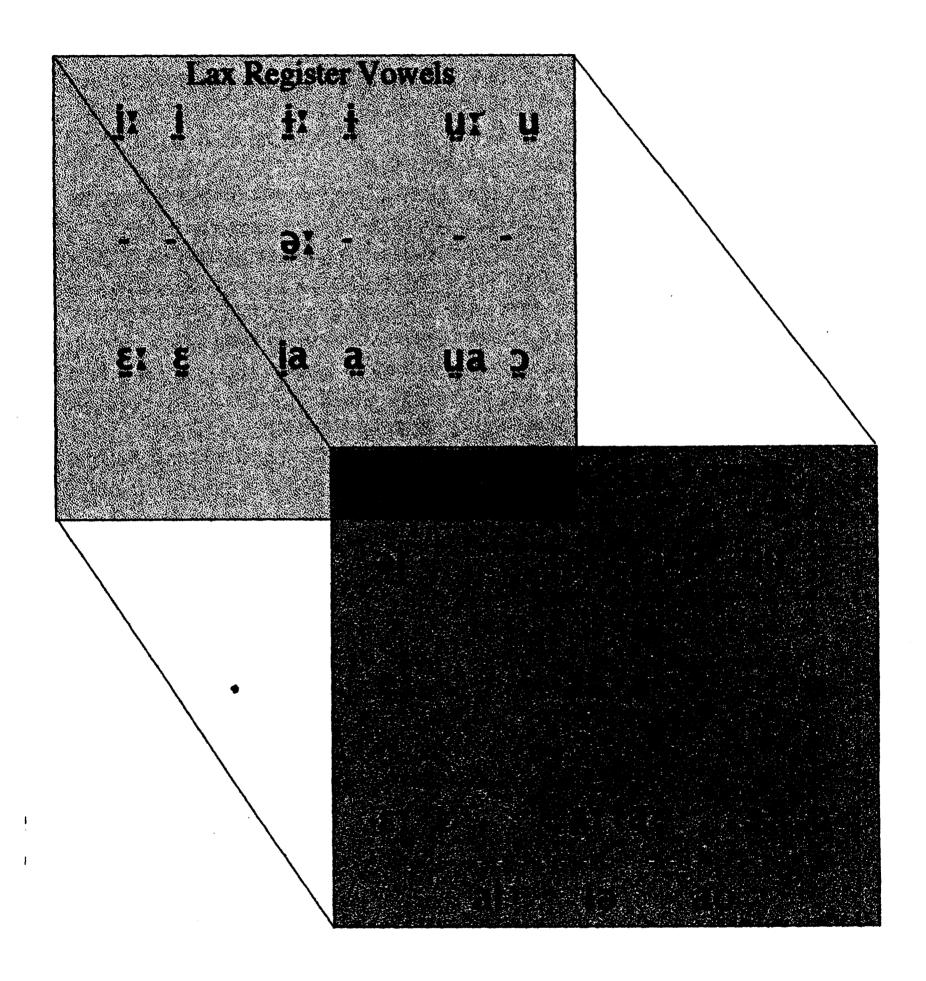


Figure 4. Tampuan lax vs. tense register vowel systems

The standard theory explaining register phenomena and the multiplicity of vowels in Mon-Khmer languages is that an original /b d j g/ became devoiced. This loss of phonetic voicing contrast with original /p t c k/ resulted in the doubling of the number of phonemic vowel contrasts (Huffman 1976:576).

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In "The Register Problem in Fifteen Mon-Khmer Languages" (1976) Huffman posited four classifications for Mon-Khmer languages in relation to the historical evolution of register: Conservative, Transitional, Register and Restructured. The Conservative and Transitional languages are those that retain the original voiced/voiceless distinctions in the consonants to greater or lesser degrees. Loven, Lawa, and Brao were named as representative of the Conservative stage, and Alak, Souei, and Mal as representative of the Transitional stage.

In the Register stage, according to this scenario, languages reflect the original voiced/voiceless contrast not in their stops but through a derived phonemic vowel register, a complete merging of /b d j g/ and /p t c k/ having taken place by this time. Huffman places in this Register stage certain dialects of Kuy, Chaobon, Chong, Bru, and Mon.

Finally, in Huffman's Restructured stage, former register contrasts have become non-existent or sub-phonemic due to diphthongization and vowel migration. Khmer, with its apparent lack of contemporary phonemic register and its 13 diphthongs, is proposed as a candidate for the restructured category (though Henderson 1952 had originally referred to Khmer specifically in terms of register based partially on diachronic evidence). Huffman later added to the restructured category a Bru dialect in Ubol, Thailand, as well as Nge? and Katang spoken in Saravane Province in Laos (Huffman, 1976).

In Vowel Permutations in Austroasiatic Languages, Huffman further described a consistent pattern of diphthongization in a number of the Restructured languages, that is, the lax (second) series high and mid vowels, as well as the low, front vowel /ɛ/, tended to remain stable in vowel position, while their tense (first) series counterparts became diphthongs, all with lowered onsets. By contrast, in the low central and back positions—/a/ and /ɔ/—it was the tense register vowels that showed stasis, while the lax counterparts underwent diphthongization, though with raised rather than lowered onsets. Huffman charted this process as in Figure 5.

		KHMER				BRU	
2 nd	ii ↓	ii ↓	uu ↓		ii ↓	ii ↓	uu ↓
1st	ie	əi	ou		eii	γ ii	ouu
2nd	ee ↓	⇒ ∋	00		ee ↓	YY	00 ↓
1st	εε	es	ao	•	εee	үүс	200
2nd	εε ↓	ia ↑	ə ɔ ↑		(£€) ↓	iia ↑	uua ↑
1st	ae	aa	၁၁		aee	aa	၁၁

Figure 5. Khmer and Bru (Ubol) vowel Systems (Huffman)

Tampuan presents a remarkably parallel pattern to the vowel trajectories reflected in Khmer and Bru. That is, one can see from Figure 3 that Tampuan lax vowels in the high and mid positions along with the low front vowel /ɛ/ show general stasis, while their tense counterparts have lowered onsets. Again like Khmer and Bru, in the low central and back positions, it is the tense series that shows stability while the lax counterparts have been diphthongized.

Huffman tentatively placed Tampuan, however, in the transitional category because he felt it could be analyzed in terms of contrasting stops rather than contrasting vowels. But he added that more information, especially the presence of minimal tense/lax pairs following continuants, might place Tampuan in the pure register category. The present paper is offered as a modest first step in renewing detailed research on Tampuan with a view to clarifying some of the important issues that Huffman originally brought into focus through his taxonomy of Mon-Khmer register development.

Taking up the question as to the correlation of initial consonant types with vowel phonation types in Tampuan, as noted under consonant class descriptions above, there is some correlation—but not an absolute one. Figure 6 recapitulates the cooccurrence possibilities between initial consonant types and vowel types (ie. clear vs. breathy):

Tense/clear Vowel Syllables	Lax/breathy Vowel Syllables
1. Plain voiceless stops [p-]	Weakly aspirated vl. stops [p(h)]
2. Fully aspirated voiceless stops [ph-]	
and spirants [ç-]	
3. Voiced glottalized stops [7b-]	
4. Glottalized liquids [?l-]	
5. Preaspirated continuants [hl-]	
6. Nasals [N-]	Nasals [N-]
7. Liquids [1-]	Liquids [1-]
	- -

Figure 6. Co-occurrence of consonant types and vowel types

That is, tense/clear vowel syllables cooccur with a unique set of initial consonant types (1-5), while lax/breathy vowel syllables allow only (1) weakly aspirated stops uniquely. Both clear and breathy syllables may be initiated with nasal and liquid consonants (6,7).

Thus, it appears that the most pervasive and systematic contrast among syllable types is borne by the prosodic, phonational features of clear vs. breathy, not any initial consonant sets. This argues for a synchronic characterization of Tampuan as having advanced beyond Huffman's Transitional Stage and crossed the threshold of a Register language, albeit, perhaps not by much.

Regardless of present categorization, only time will tell whether Tampuan will in Huffmanesque fashion be pulled inexorably on towards a Khmer-like post-register restructuring via radical migrations of former register counterparts across

vowel space. The presence of diphthongs in nearly every section of the vowel chart may be an indication that such restructuring is already taking place. Further, it is perhaps not without potential consequence that in the eastern dialect of Tampuan vowels seem to be in process of losing much of their tense-lax phonation distinction.

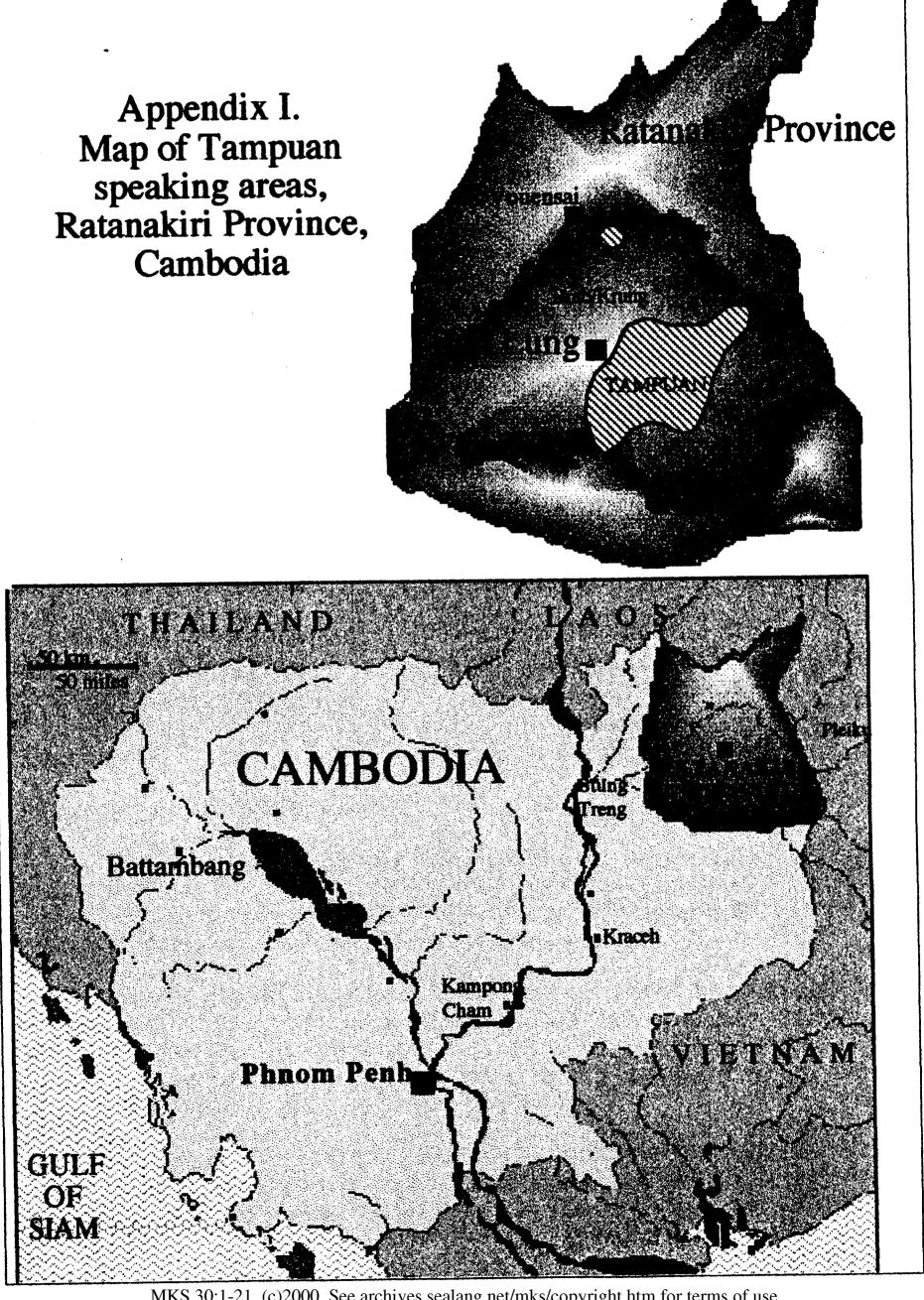
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Appendix I. Map of Tampuan speaking areas in Ratanakiri Province, Cambodia



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Appendix II. Tampuan Vowel Frequencies (Text Count)

Vowel	Text Count	Percent of Total	Text Rank	Dictionary Rank
a	852	21.0%	1	1
ar	396	9.8%	2	2
3	288	7.1%	3	3
Э	264	6.5%	4	16
13	246	6.1%	5	4
O!	236	5.8%	6	7
0	162	4.0%	7	11
əi	142	3.5%	8	8
ai	136	3.3%	9	9
į	128	3.2%	10	12
3	127	3.1%	11	14
į	126	3.1%	.12	25
ao	117	2.9%	13	5
)IC	112	2.8%	14	24
¥	108	2.7%	15	10
į.	86	2.1%	16	22
ia	76	1.9%	17	13
aə	72	1.8%	18	17
a	72	1.8%	19	6
ou	64	1.6%	20	15
ູດ	64	1.6%	21	20
ų:	57	1.4%	22	18
એ :	42	1.0%	23	21
ya	20	0.5%	24	19
e	16	0.4%	25	27
əi	12	0.3%	26	28
Ę	8	0.2%	27	26
i; ii: ii:	3	0.1%	28	23
iə	1	0.0%	29	29
Ę	0	0.0%	30	30
Total	4033	, 100		

	Text	Diction.
	Count	Count
Tense Vowels	80%	74%
Lax Vowels	20%	26%

Selected Tampuan Glossary tra? cra? write, carve' write, carve' write, carve' crim bahing place' deep' leg' leg' leg' leg' leg' leg' leg' leg	Appendix III		co:k	'cup'
7b crim 'bathing place' 7baab 'to open' cup 'leg' 7baak 'to open' cwal 'rent, hire' 7baak 'to open' cwal 'rent, hire' 7baik 'white' 'baik 'dar 7baik 'dirty' ?daom 'urinate' 7bait 'dirty' ?dar	Sciected Tail	ipuan Giossary	_	
Thabak 'not yet' cum 'leg' leg' Thabak 'to open' cwal 'rent, hire' Thatk 'white' Thaik 'white' Thaik 'dirty' daom 'urinate' Thaik 'dirty' daom 'float' Thaik 'sell' daon 'float' Thaik 'dirty' daom 'urinate' Thaik 'dirty' daom 'float' Thar 'sell' daon 'float' Thar 'sell' daon 'geary afternoon' Thar 'sell' dar cask 'yesterday' The 'to harvest fruit' dar cask 'yesterday' The 'to harvest fruit' dar cask (sun exiss)' The 'to 'or' dar lac 'east (sun exiss)' Thou 'tiger' dar mut 'west (sun enters)' Thuan 'spoon' dar pon 'midday, noon' Thar 'yeary dar' 'sun, day' Thail 'shallow' Thar 'yeary dar' 'geary afternoon' Thar 'yeary afternoon' Thar 'ye				
The back To open' Cun Seg'	2h			
The part	_	'not vet'	cry?	'deep'
Phace 'to smell' Phatk 'white' Phoi 'rain' 7d Phoit 'dirry' 'daom 'urinate' Phoror 'sell' 'daom 'urinate' Phoror 'sell' 'daom 'urinate' Phoror 'sell' 'daom 'urinate' Phoror 'a little' 'daom 'urinate' Pholit 'binal' 'dar can 'what day', when?' Phoror 'dar can 'wat day', when?' Phoror 'dar can 'wat day', when?' Phoror 'dar mut 'west (sun exits)' 'dar mut 'west (sun exits)' 'dar mut 'west (sun exits)' 'dar pun 'midday, noon' 'dar 'perty, clean, good' cair 'a place'			▼ .	
Phatik 'white' Phoi 'rain' ?d Phoit 'ditry' ?daom 'urinate' ?barot 'sell' ?daom 'float' ?barot 'sell' ?daom 'float' ?barot 'a little' ?dar çaok 'yesterday' ?blel 'blind' ?dar çaok 'yearly early ea		-	cwal	'rent, hire'
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borot 'sell' 'daoŋ 'float' bobet 'a little' 'dar çaak 'yesterday' bleh 'to harvest fruit' 'dar ça?' 'early afternoon' bleil 'blind' 'dar com 'what day?, when?' bot 'or' 'dar lac 'east (sun enters)' botk 'tiger' 'dar mut 'west (sun enters)' buaŋ 'spoon' 'dar poŋ 'midday, noon' 'dar on' 'dar 'sun, day' car 'a place' 'dail 'shallow' car 'a place' 'dail 'shallow' car 'a place' 'dail 'also' car 'put, place' 'dayl 'also' car 'hew timber' 'poople' can 'friend' can 'friend' can 'grasp' can 'friend' can 'grasp' coik 'pineapple' h cok 'hold ift the hand' hah 'at, locative' con 'future auxiliary' hah com 'where?' conett 'share, portion' hai 'to watch' conenn 'beside, near' hak 'vomit' cet cet 'sing' hann 'side of a river or lake' cet 'don't' hoi 'house' cet 'don't' hoi 'house' cet 'don't' hoi 'house' cial 'smooth' hian 'lear' cial 'mide' hom 'bathe' cial 'smooth' hian 'lear' cial 'ito lead' hlar 'lear' cin 'accompany' hot 'tobacco' cir 'descend' hre: 'rattan' cir 'descend' hre: 'rattan' com 'question particle' hwat 'pull out'	_		_	
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ceik 'divide' hər 'throw' cial 'smooth' hian 'learn' cia? 'to lead' hla: 'leaf' cih 'ride' hom 'bathe' cin 'accompany' hət 'tobacco' ciŋ 'sew' hour 'flow' cir 'descend' hre: 'rattan' ciɪc 'light in weight' hut 'blow' com 'kiss' hwaŋ 'rabbit' cəm 'question particle' hwat 'pull out' cə? 'floor' hyoŋ 'lose something, be los	cei cei		harŋ	'side of a river or lake'
cial 'smooth' hian 'learn' cia? 'to lead' hlar 'leaf' cih 'ride' hom 'bathe' cin 'accompany' hot 'tobacco' ciŋ 'sew' hour 'flow' cir 'descend' hrer 'rattan' circ 'light in weight' hut 'blow' com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' c2? 'floor' hyon 'lose something, be los			həi	'house'
cia? 'to lead' hla: 'leaf' cih 'ride' hom 'bathe' cin 'accompany' hot 'tobacco' ciŋ 'sew' hour 'flow' cir 'descend' hre: 'rattan' circ 'light in weight' hut 'blow' com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' co? 'floor' hyorn 'lose something, be los	ceik		hər	'throw'
cih 'ride' hom 'bathe' cin 'accompany' hot 'tobacco' cin 'sew' hour 'flow' cir 'descend' hre: 'rattan' circ 'light in weight' hut 'blow' com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' co? 'floor' hyon 'lose something, be los	cial	'smooth'	hian	'learn'
cih 'ride' hom 'bathe' cin 'accompany' hot 'tobacco' cin 'sew' hour 'flow' cir 'descend' hre: 'rattan' circ 'light in weight' hut 'blow' com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' co? 'floor' hyon 'lose something, be los	çia?	'to lead'	hlar	'leaf'
cin 'accompany' hot 'tobacco' cin 'sew' hour 'flow' cir 'descend' hre: 'rattan' circ 'light in weight' hut 'blow' com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' con 'floor' hyon 'lose something, be los	çih	'ride'	hom	'bathe'
cin 'sew' hour 'flow' cir 'descend' hre: 'rattan' circ 'light in weight' hut 'blow' com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' com 'floor' hyon 'lose something, be los	çin	'accompany'	_	
circ 'light in weight' hut 'blow' com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' co? 'floor' hyon 'lose something, be los	ciŋ	'sew'		
circ 'light in weight' hut 'blow' com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' co? 'floor' hyon 'lose something, be los	cir		_	'rattan'
com 'kiss' hwan 'rabbit' com 'question particle' hwat 'pull out' co? 'floor' hyon 'lose something, be los	c <u>i</u> :c	'light in weight'	_	
com 'question particle' hwat 'pull out' co? 'floor' hyon 'lose something, be los		'kiss'	•	
ca? 'floor' hyom 'lose something, be los	com	'question particle'	•	
	c ე?	_	•	•
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k		1	6112
kac	'strip off, harvest rice'	kərmit	'yellow'
kal	'cut a tree'	kətac	'break (of wire, rope)'
kam	'arrow'	kətaŋ	'hear'
kanəi?	'comb'	kətam	'possible, OK'
_		kətar	'board, plank'
kaop	'stay temporarily'	kəteh	'short'
kap	'bite'	kəto?	'number specifier for
kan	'hard'		objects'
kar	'seed'	kətraək	'close, shut'
ka:	'fish'	kətrail	'cut wood'
kam	'work, non-manual'	kit	'expensive, prestigious'
karp	'speak'	klaəm	'liver'
kəçai?	'unripe, green'	klaŋ	'heavy'
kəcam	'spy, watch secretly'	klao	'husband'
kəcam	'garlic, onion'	klar	'plate'
kəcap	'durable, firm'	kleh	'exhausted'
kəçet	'cut through something'	klei	'pound, mill'
kəçei	'rope'	koh	· 'chop with an axe'
kəçi:l	'lazy'	kəl	'head'
kəçoh	'spit'	kol jaŋ	'forehead'
keh	'already'	kor	'rake'
kəhla:p	'wing, feather'	koum	'wait'
kəhrəi	'red'	kouŋ	'stairs, ladder'
kəi?	'comb'	ka?	'cooking pot'
kəkarp	'converse, discuss'	kom	'save (money, gold)'
kəkul	'spider'	kom	'child'
kəlŋa:c	'afternoon'	kor	'shave'
kəman	'wife'	kram	'sink, be submersed'
kəmak	'man, male'	kran	'enough'
kəməl	'odor, a smell'	krap	'number spec. for small
kəmli:	'morning'	•••	objects'
kəməl	'cloud'	kra?	'old, of living things'
kənat	'cloth'	krin	'to be cold, shivering'
kəna?	'thing'	krip	'every'
kəncrou	'rainbow'	kro:c	'citrus fruits'
kənih tiw	'same'	kuan	'gong'
kənon	'in, into'	kuaj	'boundary, of garden'
kənən	'mediator, representative'	kul	'beginning'
kəntil	'heel'	kwe?	'trap, to snare'
kənti?	'center, middle'	kjam	'near'
kəntout	'package, small'	kja?	'watch for, wait for'
kən?ia	'now'	wlen	mawii 101, Wall 101
kəpaiç	'cotton'		
kəpem	'shoulder'	kh	
kəpou	'buffalo'	khai	'moon, month'
kəpyl	'thick'	khar	'value, price, usefulness'
kərkəik	'laugh'	khən	'dare, be brave'
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1-h-4	6al.:1?		fahaala)
khət	'think' 'fail miss'	men	'cheek'
khaik	'fail, miss'	mouç	'clear a field'
khạŋ	'thing, possession,	mouh	'nose'
l-bo	ingredient'	moi	'black'
khary	'accustomed'	mom	'niece, nephew'
khlaom	'blow'	mot	'enter'
khleh	'sprain'		
khur	'pair'	ո-ր-ŋ	
khja:l	'wind, air'	nam '	'weep'
		nan	'look for'
1		ŋaoy	'visit'
lac	'leave, exit, leak'	nai	'what?'
lah	'cut open'	naik	'difficult'
lam	'go'	nair	'manual labor'
ləjet	'hungry'	ŋarw	'forest cat'
lan	'pointed'	na:w?	'again'
larp	'spread on'	nən	'we, 1st p. pl. exclusive
ləhoŋ	'papaya'	neiw	'type, kind'
ləkao	'self, body'	hcn	'that, there'
lelon	'rub briskly'	10/11	Bandy Marva
ləŋ	'from'		
ləŋ²wai	'sit'	p	
lowan	'swallow'	paək	'field house'
ləwaŋ	'careful'	pah	'break, split'
ləjam	'good'	pəhjaə	'send'
lai	'with, of, and'	pan	'shoot'
lạry	'throughout, all the way'	par	'to fly'
le?	'fall'	pat	'be extinguished'
lə?ət	'cold, cool'	paic	'splash water on'
lian	'money'	pary poir	'to cook rice'
lon	'water well'	pa? com	'where? where at?'
lop	'fold'	pec	'want, like'
lyam	'go to a meeting'	peh	'pound rice'
••		pəiç	'wash clothes'
		pəka:w	'flower'
m		pəlai	'well, better'
mac	'wring'	pəl?oc	'butt, backside'
mai?	'mother, leader, boss'	pəŋ	'at'
maŋ	'night'	pənao	'interpretation of dream
maon ja?	'cousin (one	pançan	'get married'
	grandmother)'	pəŋhian	'teach'
mat	'eye'	panhjom	'cause to lose, disappe
ma:j	'daughter-in-law'	pənil	'drunk'
məi	'older sibling'	mineq	'mountain'
niem	'swidden field'	pənir	'speech'
marec	'red pepper'	pənouç	'person'
mą:?	'mother'	pantaw	'kill'
3	ATZC 20-1-21 (-)2000 C1-	/1/	C

nantawa	thuild?	dayania	(mototo tubor)
pentarw	'build'	pum	'potato, tuber'
pətar	'spin'	pweh	'calf of the leg'
pen	'full'	pya:	'cucumber'
peil	'shovel'		
pə?am	'delicious'	ph	
pə?deit	'light fire'	phah	'when, while'
pə ⁷ douh	'grow something'	-	'book'
pia	'who'	phap	
piak	'target'	pha:	'say, if'
pjal	'hunt'	pharm	'blood'
pih	'snake'	?iedq	'full, satisfied'
pixl	'mat'	pher	'uncooked rice'
pin	'we, 1st p. pl. inclusive'	phlaiŋ	'type, kind, variety'
pih	'come'	phouŋ	'clan, ancestral seed'
pil	'forget'	phoun man	'dawn'
p i r	'mouth'	phor	'corn'
pik pik	'slowly'	•	
	'father'	_	
pį:?	'fruit'	?	
plai		?aə	'call'
plain	'sky'	?ait	'drink'
plur	'thigh'	?an	'I, 1st p. sing.'
plum	'tell a lie'	?aon	'hide'
ply?	'feverish'	?a:	'this'
pok	'fall over'	7am	'sweet'
pon	'oil, fat'	?əih	'you, 2nd p. sing.'
por	'please, ask for, beg'	?əik	'angry'
pah	'salt'	?əi?	'pain, sickness'
pop	'see'	?ei	'he, she, it, 3rd p. sing.'
poir	'cooked rice'		
prai	'salty'	7iaŋ	'many'
praot	'frightened'	?mhmao	'rock, stone'
prəçən	'compete'	?mhmaoc	'ant'
proit	'banana'	?mhmou	'ashes'
pronyik	'pile, stack'	?mhmouy	'guest'
-	'soul'	?mpaŋ	'on, above'
prənat	'meet by chance'	?mpa:r	'door'
prətah		?mpon	'ask'
liewerq	'cause to turn back'	?mpyet	'tongue'
prəyam	'fix'	?ŋhaəm	'breathe'
prih	'scatter (seed)'	? ŋhəit	'tall'
pri:	'forest'	7phpah	'fingernail'
br33	'do or make'	?nhnal	'recognize, remember'
pyaŋ	'shin'	?nhnam	'medicine'
pµay	'follow'	?nhnəi	'in-law'
put	'heart, mind'	Inhnok	'have a cold'
bhi	'they, 3rd p. pl.	?ŋkan	'woman'
-	indefinite'		
p y:k	'pile up'	Iŋkah Inkar	'just now' 'skin'
•		?ŋka:r	'skin'

Thican 'bow' raon 'meeting house' wash (surface)' Thicok 'back of the body' raw 'wash (surface)' Thitash 'chest' raik 'carry from shoulder po 'elbow' Thitash 'stand up' rakem 'elbow' rolu 'rest' Thitip 'hand something' raman 'deer' Thitip 'hand something' raman 'deer' Thitip 'steal' raphai 'take care of, look after raphai 'take care of, look after raphai 'take care of, look after raphai 'before' raphai 'before' raphai 'smooth, slippery' raphai 'before' raphai 'before' raphai 'before' raphai 'smooth, slippery' raphai 'before' raphai 'be	?ŋke:	'horn'	rah	'tell'
Thick 'back of the body' raw 'wash (surface)' Thicou 'neck' raic 'raik clothes off' Thicou 'neck' raik 'carry from shoulder po' Thicath 'chest' raik 'carry from shoulder po' Thicath 'stand up' rakem rakul 'knee' Thich 'under, below' ralou 'rest' Thich 'under, below' ralou 'rest	_			
Thisou 'neck' raik' raik' carry from shoulder po 'ntaah' 'chest' raik' raik' carry from shoulder po 'ntaah' 'stand up' raken' rakul 'knee' 'elbow' ntaah' 'after' rakul 'knee' 'rest' ntaah' 'under, below' ralou 'rest' 'ntaph' 'hand something' raman 'deer' 'ntipp 'exteal' raman 'deer' 'ntipp 'explain, show how' raphai 'take care of, look after 'ntipp 'pestle' raif'jar 'claw' 'ntipp 'worm' raphon 'smooth, slippery' 'ntipp 'worm' rapon 'argue, fight' 'rott' 'ntipp 'worm' rapon 'argue, fight' 'rott' 'ntipp 'worm' raph' 'rott' 'argue, fight' 'rott' 'ntipp 'worm' raph' 'rott' 'argue, fight' 'argue, fight' 'argue, fight'			•	'wash (surface)'
Thitash 'chest' rolk 'carry from shoulder po 'elbow' rolating 'stand up' rokem' rokul 'knee' 'ntight' 'under, below' rolou 'rest' 'deer' 'ntight' 'hand something' roman 'deer' 'mand 'steal' roof' rolon 'steal' ro		•		
Thtaw stand up' rakem rakul knee' knee' rakul rest' raman deer' rakul roof' raman deer' raman deer' raman stake care of, look after raman kntraw knidow' raman take care of, look after raman kntraw knidow' raman take care of, look after raman kntraw knidow' raman take care of, look after raman take care of, look after raman kntraw knidow' raman take care of, look after lake care of,	•		•	
Theait 'after' rakul 'rest' Thigh 'under, below' ralou 'rest' Thigh 'under, below' ralou 'rest' Thigh 'hand something' raman 'deer' Thigh 'steal' romeh 'firewood' Thigh 'roof' rapap 'silent' Thigh 'explain, show how' raphai 'take care of, look after Thigh 'before' raphai 'smooth, slippery' Thirting 'pestle' raphai 'smooth, slippery' Thirting 'before' raphol 'smooth, slippery' Thirting 'worm' rappon 'argue, fight' Thidai 'some' ratan 'thin, not thick' Thidai 'some' ratan 'thin, not thick' Thidai 'ye, 2nd p. pl. 'rawah 'elephant' Thidai 'some' ratan 'thin, not thick' Thidu 'with' rerw 'back basket' Toh 'dip, spoon out' rah 'old, of things' Ton 'give' ral 'play, of children' Ton 'give' ral 'play, of children' Ton 'give' ral 'play, of children' Ton 'give' rouj 'fly (insect)' Totan 'not yet' rouj 'fly (insect)' Totan 'not yet' rouj 'fly (insect)' Thidu 'dull (knife)' Tl-7w-7y 'abandon, leave' ran 'bird' Thin ran 'bird' Thin, not thick' Too' 'back basket' Too' 'back basket' Too' 'bird' Thin, not thick' Too' 'back basket' Too' 'back basket' Too' 'back basket' Too' 'ran 'play, of children' Thin, not thick' Too' 'ran 'play, of children' Too' 'ran 'play, of children' Thin, not thick' Too' 'ran 'play, of children' Too' 'ran 'play, of children' Too' 'ran 'play, of children' Thin, not thick' Too' 'ran 'play, of children' Too' 'ran 'play, of children				——————————————————————————————————————
Inteh 'under, below' ralou 'rest' Intip 'hand something' roman 'deer' Inton 'steal' roman 'firewood' Inton 'explain, show how' ranhai 'take care of, look after Intra 'widow' ranhai 'take care of, look after Intra 'woom' raphai 'take care of, look after Intra 'perpor ranhai 'take care of, look after Intra 'some raphai 'take 'claw' Intra 'they, ard pl. 'rothick' Intra 'they, 3rd p. pl. rata	_	_		
Thip 'hand something' rəman 'deer' Thton 'steal' rəmah 'firewood' Thiəl 'roof' rənap 'silent' Thiəl 'roof' rənap 'silent' Thiəl 'roof' rənap 'silent' Thiəl 'roof' rənap 'silent' Thial 'explain, show how' rənlak 'hand of bananas' Thire 'pestle' rənl'jar 'claw' Thirual 'before' rəphəl 'smooth, slippery' Thirun 'worm' rəpon 'argue, fight' Thidain 'ye, 2nd p. pl.' rəwah 'elephant' Thidain 'ye, 2nd p. pl. definite' rəjah 'root' Thidur 'with' rerw 'back basket' Thidur 'with' rerw 'back basket' Thidur 'with' rerw 'back basket' Thidur 'give' rəl 'play, of children' Tən 'give' rəl 'play, of children' Tən 'son-in-law' rəp 'every' Tor tan 'not yet' rouj 'fly (insect)' Thial 'abandon, leave' ran 'bird' Thal 'abandon, leave' ran 'bird' Than 'long' read 'gan 'sharp' Than 'long' reside, continue' ran 'sach 'sach 'sharp' Thon 'wood' reside, continue' ran 'suck' reside, continue' ran 'suck' reside, continue' Thial 'fallow field, scrub forest' ran 'pig' Thial 'fallow field, scrub forest' Thial 'rub, wipe' ran 'spare' Tanac 'choose' 'choose' 'choose'		_	. •••	
Thion steal roof range r		•		
Thicyl 'roof' rangap 'silent' Thicyl 'explain, show how' ranghai 'take care of, look after 'Intraw 'widow' ranghai 'take care of, look after 'Intraw 'back 'claw' 'hand of bananas' 'Intraw 'take care of, look after 'Intraw 'take care of, look after 'Intraw 'back 'nand of bananas' 'Intraw 'claw' ranghai 'take care of, look after 'Intraw 'take care of, look after 'Intraw 'claw' 'take' 'claw' 'hand of bananas' 'take 'are of, look after 'Intraw 'take care of, look after 'Intraw 'take care of, look after 'Intraw 'claw' 'take' 'claw' 'hand of bananas' 'take 'are of, look after 'Intraw 'take care of, look after 'Intraw 'claw' 'take' 'claw' 'hand of bananas' 'take 'are of, look after 'Intraw 'take care of, look after 'Intraw 'claw' 'take' 'claw' 'pagna, 'take care of, look after 'take care of, look after 'take care 'claw 'take care of, look after of 'take care of, look after of, look after of 'take care of, look after of 'take care of, l	_			
Into? 'explain, show how' Intraw 'widow' Intraw 'widow' Intry 'pestle' Intry 'pestle	•			
Thiraw 'widow' raylak 'hand of bananas' Thiray 'pestle' raphol 'smooth, slippery' Thriun 'before' raphol 'smooth, slippery' Thriun 'worm' rapop 'argue, fight' Thriat 'some' ratan 'thin, not thick' Thriat 'some' ratan 'thin, not thick' Thriat 'some' ratan 'thin, not thick' Thriat 'they, 3rd p. pl. definite' rajah 'root' Thriat 'with' rerw 'back basket' Toh 'dip, spoon out' rah 'old, of things' Toh 'fire' rak 'cow' Ton 'give' ral 'play, of children' Ton 'son-in-law' rapp 'every' Tot tan 'not yet' rouj 'fly (insect)' Tok 'bad' Tul 'dull (knife)' That 'abandon, leave' caam 'happy' Tlatt 'abandon, leave' caim 'bird' Tlan 'long' can 'grandchild' Tlan 'long wood' cao 'grandchild' Thon 'wood' cat 'eat food' Thon 'wood' cat 'saw wood' Thon 'wood' car 'reside, continue' car 'saw wood' Tyan 'reside, continue' car 'saw wood' Tyan 'fallow field, scrub forest' cair 'story, topic, problem' Tyan 'fallow field, scrub cair 'fallow field, scrub forest' cair 'story, topic, problem' Tyan 'fallow field, scrub cair 'fallow field, scrub cair 'fallow field, scrub cair 'fallow 'rub, wipe' camrap cannon 'spare' 'spare' Tyou' 'afraid' camrarap cannon 'spare' 'spare' Tyou' 'afraid' camrarap cannon 'spare' 'spare' Tyan' 'rub, wipe' camrarap cannon 'spare' Trace 'choose' 'choose'			— —	
Thitgs 'pestle' ray jai 'claw' Thityal 'before' raphol 'smooth, slippery' Thityal 'worm' rapon 'argue, fight' Th'da: 'some' ratan 'thin, not thick' Th'da: 'they, 3rd p. pl. definite' rayah 'root' Th'du: 'with' retw 'back basket' Toh 'dip, spoon out' rah 'old, of things' Ton 'fire' rak 'cow' Ton 'give' ral 'play, of children' Ton 'son-in-law' rap 'every' Tot tan 'not yet' rouj 'fly (insect)' Tot tan 'not yet' rouj 'fly (insect)' Tok 'bad' Tul 'dandon, leave' gam 'happy' Tlatt 'abandon, leave' gam 'bird' Tlong 'long' gan 'sharp' Tlong 'wood' gan 'grandchild' Tlong 'wood' gar 'eat food' Tong 'suck' gar 'story, topic, problem' Tyal 'stake' gair 'dig' Tjou 'rise up' gamap Tiput 'rab, wipe' gamap Traaç 'choose'	_		•	•
Intrual 'before' raphol 'smooth, slippery' Intrun 'worm' rapon 'argue, fight' In'da: 'some' ratan 'thin, not thick' In'daih 'ye, 2nd p. pl.' raweh 'elephant' In'de: 'they, 3rd p. pl. definite' rajah 'root' In'du: 'with' re:w 'back basket' In'du: 'som-in-law' rap 'every' In'du: 'som-in-law' rap 'every' In'du: 'abandon, leaw' rap 'every' In'du: 'abandon, leave' rap 'originally, long ago' 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'som' 'bird' In'du: 'abandon, leave' rap 'originally, long ago' 'bird' In'du: 'abandon, leave' rap 'origin	• • •		•	_
Thtrun 'worm' 7n'da: 'some' 7n'da: 'some' 7n'da: 'some' 7n'da: 'some' 7n'da: 'some' 7n'da: 'ye, 2nd p. pl.' 7n'de: 'they, 3rd p. pl. definite' 7n'du: 'with' 7n'du: 'with' 7oh 'dip, spoon out' 7oh 'dip, spoon out' 7on 'give' 7on 'give' 7on 'son-in-law' 7or tan 'not yet' 7ot tan 'not yet' 7ot tan 'not yet' 7ot tan 'not yet' 7ot tan 'dull (knife)' 7l-7w-7y 7latt 'abandon, leave' 7latt 'abandon, leave' 7latt 'abandon, leave' 7lan 'long' 7long 'son-in-law' 7long 'son-in-law' 7long 'son-in-law' 7long 'dull (knife)' 7long 'dull (knife)' 7long 'son-in-law' 7long 'dull (knife)' 7long 'son-in-law' 7long 'dull (knife)' 7long 'son-in-law' 7long 'son-in-law' 7long 'dull (knife)' 7long 'son-in-law' 7long 'son-in-				
Th'dat 'some' rotany 'thin, not thick' not'daih 'ye, 2nd p. pl.' roweh 'elephant' not' rot' they, 3rd p. pl. definite' rojah 'root' hack basket' roth 'dip, spoon out' roh 'old, of things' roh 'old,	**	_		
n'idaih 'ye, 2nd p. pl.' n'ide: 'they, 3rd p. pl. definite' rajah 'root' n'idu: 'with' rerw 'back basket' ?oh 'dip, spoon out' roh 'old, of things' ?op 'fire' rol 'play, of children' ?on 'give' rol 'play, of children' ?on 'son-in-law' rop 'every' ?or tan 'not yet' rouj 'fly (insect)' ?or tan 'not yet' rouj 'fly (insect)' ?or tan 'hot yet' rouj 'fly (insect)' ?or tan 'not yet' rouj 'fly (insect)' ?or tan 'happy' ?or gaan '	mryg 2-74	_		
In'des 'they, 3rd p. pl. definite' rejah 'root' In'dus 'with' resw 'back basket' In'dus 'with' resw 'back basket' In'dus 'dip, spoon out' roh 'old, of things' In'do 'fire' rok 'cow' In'do 'give' rol 'play, of children' In'do 'son-in-law' rop 'every' In'do 'son-in-law' rou 'fly (insect)' In'do 'son-in-law' 'son-in-law' 'son-in-law' In'do 'dull (knife)' C C In'do 'son-in-law' 'son-in-law' 'son-in-law' 'happy In'do <t< td=""><td></td><td></td><td>•</td><td></td></t<>			•	
?n/dut 'with' retw 'back basket' ?oh 'dip, spoon out' roh 'old, of things' ?on 'fire' rok 'cow' ?on 'give' rol 'play, of children' ?on 'son-in-law' rop 'every' ?ort tan 'not yet' rouj 'fly (insect)' ?otk 'bad' 'play, of children' ?on 'son-in-law' rop 'every' ?ott tan 'not yet' rouj 'fly (insect)' ?ott 'can 'happy' ?ott caom 'happy' ?lat 'abandon, leave' caom 'happy' ?lat 'abandon, leave' caom 'happy' ?lat 'abandon, leave' caom 'happy' ?lat 'sharp' 'originally, long ago' ?lat 'sharp' 'originally, long ago' ?lath 'short' cao 'grandchild' ?lom 'carrying pole' cao 'grandchild' ?lom 'wood' car 'cat food'			- - · · · -	
7oh 'dip, spoon out' roh 'old, of things' 7on 'fire' rok 'cow' 7on 'give' rol 'play, of children' 7on 'son-in-law' rop 'every' 7ot tan 'not yet' rouj 'fly (insect)' 7otk 'bad' 'bid' 7ul 'dull (knife)' 'cam 'happy' 7latt 'abandon, leave' 'caan 'brid' 7leh 'short' caan 'knife' 7lat 'shandon, leave' caan 'brid' 7leh 'short' caan 'knife' 7lat 'short' can 'grandchild' 7lom 'wood' caa 'grandchild' 7lom 'wood' cai 'eat food' 7lom 'wood' caik 'saw wood' 7loor 'know' caik 'saw wood' 7ljap 'suck' car 'story, topic, problem' 7jap 'chicken' cack' cack' 'brid' 7jou 'rise up'				_
7on 'fire' rok 'cow' ?on 'give' rol 'play, of children' ?on 'son-in-law' rop 'every' ?or tan 'not yet' rouj 'fly (insect)' ?ork 'bad' 'play 'fly (insect)' ?ork 'bad' 'play 'fly (insect)' ?ork 'play 'fly (insect)' 'play ?ork 'play				
Pon				
Pon 'son-in-law' rop 'every' Por tan 'not yet' rouj 'fly (insect)' Posk 'bad' Pul 'dull (knife)' Pl-7w-7y	•			
Tot tan 'not yet' rouj 'fly (insect)' Totk 'bad' Tul 'dull (knife)' Tl-7w-7y 'caam 'happy' Tlatt 'abandon, leave' caim 'bird' Tlan 'long' can 'knife' Tlong 'wood' cat 'eat food' Tlong 'wood' caik 'saw wood' Twai 'reside, continue' cary, topic, problem' Tjap 'suck' car 'story, topic, problem' Tjap 'suck' car' Tjat 'fallow field, scrub cai 'fallow field, scrub forest' Tjou 'rise up' cam 'take care' Tjoul' 'afraid' cam 'spare' Traac 'choose' couj 'floor 'spare' Traac 'choose'				
70tk 'bad' 7ul 'dull (knife)' 7l-7w-7y ; caəm 7latt 'abandon, leave' 7leh 'short' 7ləŋ 'long' 7ləŋ 'long' 7loŋ rəik 'carrying pole' 7loŋ 'wood' 7loŋ 'know' 7loŋ 'know' 7wai 'reside, continue' 7jəp 'suck' 7jər 'chicken' 7jər 'chicken' 7jət 'fallow field, scrub forest' çəi 7jou 'rise up' 7jou 'rise up' 7jut 'rub, wipe' 7jut 'rub, wipe' 7 çəmrap 7jao 'choose' 'happy' 'originally, long ago' 'happy' 'knife' 'gardchild' 'knife' 'garadchild' 'sharp' 'eat food' 'sharp' 'saw wood' 'star 'story, topic, problem' 'story, topic, problem' 'be named, name' 'young, child' 'head louse' 'gai' 7jou 'rise up' 'gai' 'dig' 'pig' 'take care' 'take care' 'take care' 'spare' 'gamtap 'pig' 'take care' 'spare' 'gamtap 'spare' 'gamtap 'spare' 'gamtap 'pantok 'boil, (N boiled sou) 'left side'	•		_	<u> </u>
7ul 'dull (knife)' 7l-7w-7y • çaəm 'happy' 7latt 'abandon, leave' çaəf per 'originally, long ago' 7leh 'short' çaim 'bird' 7ləŋ 'long' çaŋ 'knife' 7ləŋ 'wood' çao 'grandchild' 7lon 'wood' çar 'eat food' 7lon 'know' çar 'eat food' 7wai 'reside, continue' çaik 'saw wood' 7jəp 'suck' çar 'story, topic, problem' 7jər 'chicken' çec 'be named, name' 7jər 'chicken' çəçwai 'young, child' 7jət 'fallow field, scrub çəi 'head louse' 7jou 'rise up' çəmolən 'star' 7jou? 'afraid' çəmlən 'star' 7juit 'rub, wipe' çəmrap 'spare' raəç 'choose' 'choose' 'cəntok 'boil, (N boiled sou			rouj	my (msect)
?1-7w-?y ; caəm 'happy' ?latt 'abandon, leave' ; caə? per 'originally, long ago' ?leh 'short' ; caim 'bird' ?ləŋ 'long' ; can 'knife' ?ləŋ 'long' ; cao 'grandchild' ?long rəik 'carrying pole' ; cao 'grandchild' ?long 'wood' ; cat 'eat food' ?long 'know' ; car 'eat food' ?wai 'reside, continue' ; car 'story, topic, problem' ?jəp 'suck' ; cec 'be named, name' ?jər 'chicken' ; cəçwar 'young, child' ?jər 'chicken' ; cəi 'head louse' ?jək 'take' ; cəir 'dig' ?jou 'rise up' ; car 'take care' ?jou? 'afraid' ; cəmlən 'star' ?jurt 'rub, wipe' ; cəmrap 'spare' r ; cəntok 'boil, (N boiled sou) r ; cəntok 'boil, (N boiled sou) r ; cəntok 'boil, (N boiled sou)				
?1-7w-7y caam 'happy' ?1axt 'abandon, leave' caa? pex 'originally, long ago' ?1eh 'short' caim 'bird' ?1ay 'long' cay 'knife' ?1oy 'wood' cao 'grandchild' ?1oy 'know' cao 'sharp' ?1oy 'know' cai 'eat food' ?wai 'reside, continue' caik 'saw wood' ?wai 'reside, continue' car 'story, topic, problem' ?jay 'suck' car 'story, topic, problem' ?jar 'chicken' cac 'be named, name' ?jar 'fallow field, scrub cai 'head louse' ?jou 'rise up' cam 'take care' ?jou? 'afraid' cam 'take care' ?jut 'rub, wipe' cam 'star' raac 'choose' 'choose' 'confail	Mi	duli (kmie)	C	
Platt 'abandon, leave' cap? per 'originally, long ago' bird' Pleh 'short' cam 'bird' Plan 'long' can 'knife' Plong raik 'carrying pole' cao 'grandchild' Plong 'wood' carrying pole' carrying pole' carrying 'wood' Plong 'know' carrying pole' carrying carr	-1		_	'happy'
Plant short' short' sam 'bird' Plan 'long' san 'grandchild' Plon raik 'carrying pole' sao 'grandchild' Plon 'wood' sao 'grandchild' Pau 'gar 'eat food' Pau 'saw wood'	71-7 w- 7y			
The short sh	Mart			
long roik 'carrying pole' cao 'grandchild' long 'wood' car 'eat food' lo? 'know' car 'eat food' wai 'reside, continue' car 'story, topic, problem' lop 'suck' car 'story, topic, problem' lop 'story, topic, probl			•	
Plom raik carrying pole carrying				
Tony Tony Tony Tony Tony Thony	Non raik		_	
'wai 'reside, continue' çaik 'saw wood' 'yai 'reside, continue' çair 'story, topic, problem' 'yai 'suck' çac 'be named, name' 'yai 'fallow field, scrub çai 'young, child' 'yai 'fallow field, scrub çai 'head louse' 'yai 'fallow field, scrub çair 'dig' 'yair 'fallow field, scrub çair 'dig' 'yair 'fake' çake: 'pig' 'yair 'faraid' çamlan 'star' 'yair 'rub, wipe' çamlan 'spare' 'yair 'fallow field, scrub çamlan 'spare' 'yair 'fallow field, scrub çair 'dig' 'yair 'fallow field, scrub 'fa	lon		-	
reside, continue reside, cont				
raaç 'choose' Suck Cec 'be named, name' Cec 'be named, name' Captwai 'young, child' Captwai 'taed louse' Captwai 'taed louse' Captwai 'dig' Captwai 'pig'	⁷ wai		_	
Tjet 'fallow field, scrub çəçwa: 'young, child' forest' çəi 'head louse' 7jok 'take' çəkɛ: 'pig' 7jou 'rise up' çɛm 'take care' 7jou? 'afraid' çəmləŋ 'star' 7juit 'rub, wipe' çəmrap 'spare' raəç 'choose' çəŋ²jao 'left side'	⁷ jəp		-	'be named, name'
forest' forest' jok take' jou rise up' forest' çair dig' yig' çake: pig' çem take care' take care' çamlan çamlan star' çamrap çamrap çantok raaç 'choose' 'boil, (N boiled sou) çan'jao 'left side'	⁷ jər		•	
raaç 'choose' rocat' you' 'take' you' 'rise up' you' 'afraid' you' 'afraid' you' 'rub, wipe' you' 'sam' yo	⁷ jet			'head louse'
Tou 'take 'choose' coke: 'pig' 'jou 'rise up' 'jou? 'afraid' 'pig' 'take care' 'take care' 'star' 'star' 'spare' 'contok 'boil, (N boiled sou) 'contok 'contok 'left side'				
riou rise up 'jou? 'afraid' 'juit 'rub, wipe' raəç 'choose' 'sem 'take care' çəmləŋ 'star' çəmrap 'spare' çəntok 'boil, (N boiled sou) çəŋ²jao 'left side'	0.			
riou? 'afraid' camlon 'star' 'juit 'rub, wipe' camrap 'spare' rapç 'choose' camlon 'star' camlon 'star' camrap 'spare' cantok 'boil, (N boiled sou) cantok 'spare' cantok 'boil, (N boiled sou) can'jao 'left side'		-	•	
rasç 'choose' 'just 'rub, wipe' çəmrap 'spare' çəntok 'boil, (N boiled sou) çəŋ²jao 'left side'		•	_	_
raaç 'choose' çəntok 'boil, (N boiled sou cap ⁷ jao 'left side'	'ju:t	'rub, wipe'		-
raaç 'choose' çəŋ²jao 'left side'			•	
raaç 'choose'	1			• •
m m + 4 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1	•			

çəpan	'copper'	təh	'take off clothes'
çət	'return home'	ton	'fat'
çətak	'run'	tour	'exchange, trade'
çətuaŋ	'trap, snare'	tak	'monkey'
çə ⁷ lom	'stew'	tລູກ	'help'
çlar	'betel chew'	to?	'hot'
çmaoŋ	'grass'	trom	'stomp'
çmaı	'right (side)'	tron	'straight'
çnan	'tooth'	trop	'mud'
çnar	'food'	trot	'push'
çok	'hair'	trom	'road'
çoŋ	'eat rice'	tro?	'true, right'
ço;	'dog'	tụŋ	'pull, draw along'
çra?	'crossbow'	tun	'long, in time'
Çrei	'plain, field'	*****	10116, 111 11110
çreik	'shout'	•	
y. Car		th	
		the?	'small'
t		thok	'difficult'
tac	'buy'	thon	season, flood'
taəl	'answer'		
taəm ⁷ loŋ	'tree'	w-y	
taip hlak	'sleep'	wac	'abdomen'
taip	'lie down, recline'	war	'rat'
tao	'there, that'	wət	'toss'
taor	'ear'	wລູໃ	'grandfather'
tap	'roof a house'	jaĥ	'take apart'
tal	'carry on the head'	jah	'although'
tạŋ	'charcoal'	ja:p	'count'
teh	'ground, dirt'	joic	'wrong'
təham	'soldier'	jor	'use'
təi	'arm'		
təih	'big, important'	NIT IN A ID IT	n c
təŋhụt	'inhale'	NUMBERS	
təŋlaw	'lake'	maon	'one'
təpah	'slap'	piar	'two'
təpal	'mortar'	pain	'three'
tapei	'rice wine'	pwan	'four'
tətar	'light'	prətam	'five'
tətam	'bachelor'	trao	'six'
tətiaŋ	'roast'	desqmp	'seven'
təwaŋ	'between'	təŋha:m	'eight'
tiak	'water'	qnçən	'nine'
ţi:	'have'	qnçit	'ten'
ţ <u>i</u> l	'until'	cit maon	'eleven'
tip	'including'	piar cit	'twenty'
toh	'breast'	rəyaŋ	'hundred'
		:µqer	'thousand'
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