

## VOCALIC TRANSFER: A SOUTHEAST ASIA AREAL FEATURE<sup>1</sup>

BY

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Southeast Asia as a regional linguistic area is characterized phonologically by the twin features of monosyllabism and tonality, which apparently diffused from a center in S[ino] T[ibetan], where they are indigenous (Benedict 1975: *Introduction to Glossary*). A three-tone system, developed through sandhi at an early period in Chinese from the original ST two-tone ('low' vs. 'high') system, spread to the two mainland A[ustro] T[hai] stocks (Kadai and Miao-Yao) as well as to a peripheral A[ustro] A[siatic] language (Vietnamese) while in the west another AA group (Palaung-Wa) also developed a tonal system, this under T[ibeto-] B[urman] influence. The latter development came about in relation to unvoicing of initials, another widespread (diachronic) feature, which gave rise also to the 'register' phenomenon of Mon-Khmer (see Benedict 1975: Appendix II on 'Austro-Thai and Austro-asiatic') and a similar feature in Chamic (Lee 1974). As for the monosyllabism, which is our main concern here, this affected both AT stocks (Kadai and Miao-Yao) and Vietnamese as well as Chamic, the intrusive A[ustro] N[esian] language group in south-central Vietnam (Haudricourt 1956; Lee 1974), and the M[on] K[hmer] languages generally, here producing widespread loss of V<sub>1</sub> in the MK canonical CV<sub>1</sub>CV<sub>2</sub>(C) morpheme shape, e.g. forms of *khla~kla* type for 'tiger' from an earlier P[roto] AA \**k[u]la*

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<sup>1</sup> See Benedict 1975 for sources in general and for details of phonology. The N. Tai forms, esp. Ddoi and Sek, are listed separately from PT; similarly, the Fiji forms are listed separately from PPN.

(as shown by Munda forms of *kula~kul* type). The other affected languages display a variety of monosyllabizing stratagems but these include developments paralleling the above, especially in Kadai and Chamic; cf. P[roto] T[ai] *\*blik* 'turn/return', I[ndo] N[esian] *\*balik*; P[roto] C[hamic] *\*pluh* 'ten', IN *\*pulu?*.

The above developments all show simple loss of  $V_1$  in a basic canonical morpheme shape very much like that of MK (the PAT shape also includes CC clusters, very rare at best in MK). Another possibility exists, however, viz. the transfer (in one form or another) of  $V_1$  to the 'surviving' syllable, normally the second in a two- or three-syllable morpheme. This can be considered a form of metathesis, of course, but this term hardly seems appropriate for the phenomenon in its simplest form, which involves vowel gemination in the reduction of earlier reduplicated roots (these are very characteristic of the AT family generally). PT exhibits

	PAT	IN	Formosa	PT	PMY	PC
bast/hemp	<i>*ban/ban</i>	<i>*banban</i>	—	<i>*paan</i>	—	—
gnaw/bite	<i>*gat/gat</i>	<i>*gatgat</i>	<i>*gaya(t)</i> (Pazeh)	—	<i>*gaat</i>	—
foot	<i>*til/til</i>	—	<i>*tiltil</i> (Siraya)	<i>*tiin</i>	—	—
superpose	<i>*tson/tson</i>	<i>*t'ut'un</i>	—	<i>*zoon</i>	—	—
wash/rinse	<i>*saw/saw</i> <i>*ntsaw/ntsaw</i>	—	<i>*sawsaw</i> (Ami)	—	—	—
plait/weawe	<i>*zan/zan</i>	<i>*dandan</i>	—	<i>*saan</i>	—	—
sit/dwell	<i>*z[u]k/z[u]k</i>	<i>*dukduk</i>	<i>*[z]uk</i> (Ami)	<i>*s[uu]k</i>	—	<i>*dōk</i>

Note on Table:

The PT form for 'sit' is based on Ahom (obsolete) *suk*, which is ambiguous for vowel height as well as length (PT *\*u*, *\*uu*, *\*o* but not *\*oo*). In any event, the PC long *\*ō* hardly reflects PAT *\*o* here, since this vowel merged with PAT *\*u* at the PAN level. Lee states that the PC form is the only example known to him of a PC reflex of a reduplicated morpheme, and points out that the anticipated reflex is PC short *\*u*, adding 'this would be the only *\*ō* so far that would be derived from a word of Austronesian origin'. In view of the PT and PMY evidence above, however, together with the fact that PC clearly shows vocalic transfer (VT) in other forms (below), it seems not unlikely that the long *\*ō* here also represents VT but with unexplained vocalic lowering.

this feature in a number of roots and there are occasional examples from P[roto] M[iao] Y[ao], also one possible instance from PC; cf. the following:<sup>2</sup>

The type of vocalic gemination (form of VT) illustrated above, from reduplicated roots, is not unlike the following instances of VT, which are from roots in which  $V_1 = V_2$ . PT displays simple gemination in these roots (with the regular shift: PAT \*ə > PT \*o) but PMY has only \*aa as a geminate vowel, maintaining the contrast in high or mid-high vowels by keeping the geminate vowel high and lowering the single vowel, yielding the following reflexes: \*uu > \*u vs. \*u > \*o; \*oo > o\* vs. o\* > \*ɔ (the evidence is less satisfactory for the front vowels):<sup>3</sup>

	PAT	IN	Formosa	PT	PMY
spotted/ piebald	*baʎaŋ	*balaŋ	—	—	—
village	*q/baʎaŋ	—	—	*ʔblaaŋ	—
	*alaŋ	—	—	—	{*rɔ(ŋ) (PM)
	*q/laŋ	—	*qalaŋ (Atayal)	—	{*laŋ (PY)
pickle	*[m]pəʎaŋ	*pəʎaŋ	—	—	—
	*q/mpəʎaŋ	—	—	*ʔblooŋ	—
bamboo/ with	*boʎoq	*buluq	*buʎuq (Kanabu)	{*took (SW)	—
leaf	*boʎoŋ	*buluŋ	—	*tooŋ	—
	*m(b)ʎoŋ	—	—	—	{*mbʎoŋ (PM)
smell/ fragrant	*s[a]rom	*harum	*sa[r]um (Paiwan)	—	{*nɔm (PY)
	*s[o]rom	—	—	*hoom	*hɔ(ŋ) (PM)
	*s( )rom	—	—	—	*hɔm (PY)

<sup>2</sup> PT and PKS regularly show tone A in these forms (Benedict 1975: Introduction to Glossary, fn. 3 on tone assignment), the few exceptions including two of the forms listed in the table (\*paan<sup>C</sup> 'hemp' and \*zoon<sup>B</sup> 'superpose'), which are by no means exhaustive for PT.

<sup>3</sup> Evidence for VT of this type at an early level is furnished by PAT \*[pa]ts[a]ŋ 'pair', normally (through VT) yielding \*saŋ, represented by the loanword: Arch. Ch. sǎŋ 'pair', from \*sa·ŋ (regular shift); also by PT \*sooŋ 'two', a back-loan from a Chinese dialect (the source of most loans into PT) which regularly had medial \*o· (> PT \*oo) rather than \*ŋ or \*u for long medial \*a. (\*saŋ > \*sa·ŋ > \*so·ŋ).

	PAT	IN	Formosa	PT	PMY
	*s/m/[a]rom	—	*s/m/arum (Paiwan)	—	—
smell/hear <sup>4</sup>	*s/m/[o]rom	—	—	—	{*hnə(ŋ) (PM) *hnom (PY)
listen	*(l)m/( )rom	—	—	—	*mroj (PM)
sticky/ glutinous	*mpuʔut *mbuʔut	*puluʔ —	— —	*[br]u[u]t (Dioi)	— *mbʔut
pull off/ strip	*surut	*urut	*[s]urut (Ami)	*ruut	*[l]ut (PY)

## Note on Table:

P[roto] M[jao] \*-ŋ and \*-(ŋ) represent fully or partially nasalized vowels, respectively, while the corresponding P[roto] Y[jao] forms reflect the earlier PMY vocalization; note that for 'smell/fragrant' PM \*hə(ŋ), based on Kanao *hag* 'strong [odor: sweat, excrement, fire]', points to PMY \*hom (with VT) rather than \*həm (cf. the PM/PY forms for 'smell/hear').

This type of vocalic gemination has not been noted for Chamic but it does occur in Mon-Khmer; cf. P[roto] MK \*kaləŋ 'kite (bird)', as indicated by Pacoh *kaləŋ* and the early loan to Chamic \*kaləŋ (Headly) as well as by the cognate Nicobarese *kaləŋ* 'sea eagle', but MK (generally) *klaəŋ*, whence a parallel early loan to PMY \*klaəŋ (Benedict 1975: Appendix II). This same MK root with vocalic reduction in V<sub>1</sub> gave rise to other forms, as noted below. It seems likely that this kind of development has been fairly widespread in MK, on a scale comparable with that found in the AT stock, but the matter has not yet received detailed study.

A third type of VT involves PAT roots with \*a for V<sub>1</sub> and either \*i or \*u for V<sub>2</sub>. This kind of VT, which is especially characteristic of Thai and other KD languages, yields final \*-ay (or -e, -ε) and \*-aw, often with doublets in -i (rarely -əi) or -u (rarely -əu) from

<sup>4</sup> Note the semantic shift to 'hear' from a basic PAT root (\*s[a]rom) for 'smell' in this \*m/ infix MY form; the White Miao gloss is 'to hear; to sense, feel [pain]; to sense, be conscious of smell or odor, to smell'. Chinese presents a striking parallel; cf. Arch. Ch. *m̄wən* (Mand. *wen*) 'hear; smell' (v. tr.), *m̄wəd* (Mand. *wei*) 'taste' (v. tr., n.) (Mand. has *wen wei* 'to smell a smell'), doublets derived through characteristic dental suffixation from Proto-ST \*(s-)mwəy 'smell' (Pwo Karen *mwai* 'offensive smell, stink'; WB *hmwe* 'smell sweet, be fragrant'; Lushai *hmui* 'savoury smell, strong smelling').

prototypes with unstressed  $V_1$  ( $*a > ə$ ). As indicated in the *Notes on Tables*, this development ( $*a > ə$  for  $V_1$ ) is also widespread among the AN languages, along with assimilation of  $V_1$  to  $V_2$ , and in some roots the PT or other KD evidence is of critical value in reconstructing the PAT value of  $V_1$  (see especially 'say/speak', below):

	PAT	PT	Dioi	PKS	Lakkia	PLi
bitter/bile	$*q/mp[ə]li$ $*q/mpali$	$*ʔbli$	$bi\sim di$	$*ʔbi$	—	—
change/	$*bəli$	—	—	—	$ʔblai$	—
exchange/	$*(m)ba\li$	$*m\lay$	—	$*[ ]dyay$	—	$*dəy$
buy/sell	$*pa\li$	$*thay$	—	—	$plɛ$	—
smell/	$*s[ə]ri$	—	$səi$	—	—	—
stink	$*sa\ri$	$*(h)aay$	—	—	—	$*hnaay$
weep	$*playis$	$*hay$	$tai$	$*ʔye$	$pi\tilde{e}$	$*ɣay\sim*\etaey$
millet/	$*[bə](N)qu[Ru]$	—	—	$*(N)qəw$	$kou$	—
rice	$*[b]a(N)qu[Ru]$	$*xaw$	$hau$	—	—	—
I	$*w[ə]ku$ $*waku$	$*ku$ $*kaw$	$ku$	—	—	$[*qhəw]$ —
gr. parent/	$*əpu$	$*pu$	—	—	—	$*p(h)əw$
gr. child	$*apu$	$*paw$	$pau$	—	—	$*phaw$
support/	$*[bə]ntu$	$*du$	—	—	—	—
lean on	$*[b]antu$	$*daw$	$tau$	—	—	—
say/speak	$*k[a]lu$	$*klaaw$ $*(h)law$	$tla:u$ ( <i>Sek</i> )	—	—	—
pestle/	$*[s]a\lu$	—	—	—	—	$*raw$
mortar						

Notes on Table:

'bitter/bile': IN  $*[ʔ]a(m)pəni$  'bile', from  $*[qa]/pəli$ ; Form: Puyuma  $*qapəli$  ( $< *qa/pəli/li$ ) 'bitter' (partial redupl.); Rukai  $*ma/pali/li$  'bitter/salty' (with retention of stressed  $*a$  for  $V_1$ ); KD forms all glossed 'bile' or 'gall bladder'.

'change/exchange/buy/sell': IN  $*bəli$  'buy'; Form: Paiwan  $*b/n/əli$  'buy',  $*pa/bəli$  'sell'; Atayalic  $*(m)ba\li$  'buy',  $*ba\li-$  'sell' (with retention of stressed  $*a$  for  $V_1$ ); PT  $*m\lay$  'exchange' (Tho), from  $*mblay < *mb(a)li$ ; also  $*thay$  'change/exchange' (Lao 'buy back, exchange'), from  $*phlay < *p(a)li$ ; cf. IN  $*palit$  'exchange gift' (Toba-Batak 'take in payment'), from  $*pali/t$  (Tagalog  $palit/an$  'barter; to exchange') and PMY  $*phl[et]$  'change', from  $*p[ə]lit < *p[a]li/t$  (a pattern of dental suffixes must be reconstructed for PAT); KS  $*[ ]dyay$  'buy', from  $*[ ]byay <$

\*[ ]bray < \* [b(a)ri; Lakkia *plē* 'sell', from *pl[ay]*; PLi *\*dəy* 'buy' (White Sand Loi), from *\*brəy* < *\*b(ə)ri*.

'smell/stink': IN *\*həñir* 'fatty [rancid]' (but Ngaju-Dayak and Hova 'stink'); PT *\*aay* (generally)~*\*həay* (Nung) 'to smell (good or bad), odor, exhalation, vapor', from \* [a(ñ)i[r]~\* [(a)ñi[r]; Dioi *səi* (same tone) 'vapor, odor', from *\*so(ñ)i[r]* < *\*sə(ñ)i[r]*; PLi *\*həay* 'smell (tr., intr.), stink', from *\*shəay* (with second. vocalic length before original \*-r, as in PT).

'weep': IN *\*tañit'*; Form: Bunun *\*[f]agits*, but the Atayalic forms point to a PAT doublet in final \*-s (PAT has frequent \*-ts~-s variation), as in Kadai (\*-s > -y is regular shift, with \*-y merging with VT = \*i, but the newly described Laka language of N. Vietnam has *ñil~ñiel* < *\*ñi[ts, s]*); PT *\*hay* < *\*həyay* (Thai [Siamese] also reflects *\*həy* 'weeping countenance' and *\*həy* 'cries, weeping of children', from *\*?ñ[ay]*); Dioi *tai* < *\*ta(y)i[y]* (with regular loss of unstressed intervocalic *\*ñ*); PKS *\*?həy* < *\*?ñ[ay]*; Lakkia *piē* < *\*py[ ](y)e* (secondarily nasalized vowel) < *\*pl[ ](y)[ay]*; PLi *\*həyay*~*\*həy*, the latter probably from *\*?ñ[ay]*.

'millet/rice': Form: Rukai *\*baquRu* 'cooked rice', Paiwan *\*baqu* or *\*baqu[R]* 'millet'; PT *\*xəu* 'rice' (White Tai also 'cereal'), from *\*qaw* < *\*[b](a)ngu*; Dioi *hau* 'rice, cereals', from *\*qhaw*; Sek *γaw* 'rice', from *\*Gaw* < *\*[b](a)Ngu*; PKS *\*Gəw* (Sui, Then, Kam)~*\*qəw* (Mak) 'rice' [Mak glosses 'rice, paddy (used before the names of the five cereals)], from *\*[b](ə)(N)gu*; Lakkia *kou* 'rice', from *\*[q]əw* (as in Mak); Ong-Be *ɲa:u*, id., from *\*NGa:u* < *\*[b](a)Ngu*.

'T': IN *\*(u)aku*; the PT doublet *\*ku*~*\*kaw* is reflected in a puzzling alignment of the westernmost Tai languages (Anom, Khamti, Shan) with 'Central Tai' (Thonung), all with *\*kaw*, as opposed to the Southwest group generally (Thai [Siamese], Lao, White and Black Tai) and Dioi (N. Tai), all with *\*ku*, paralleling a similar alignment of forms for 'thou' (PT *\*mal* as opposed to *\*mlj*); PLi *\*həw* 'I/me' (White Sand Li also 'we'), from *\*[qh]əw*, reflecting a PAT doublet root (*\*wəqu* > *\*wəqu*) represented in Tsouic (Formosa) and probably also by Laqua *kəu*.

'gr.parent/gr.child': IN *\*ə(m)pu*, id.; Form: Thao *\*apu* 'grandparent', Pazeh *\*apu/apu* 'ancestor' (with retention of stressed *\*a* for *V<sub>1</sub>*); PT *\*pu* 'fa's father', also *\*paw* 'gr. grandfather' (Lao, Black Tai), from *\*(a)pu*; Dioi *pau um* 'fa's father' (*um* not anal.); White Sand Li *pəu* 'gr.child (gr.father sp.)', *phəu* 'gr.father' (basically a self-reciprocal term, as in IN); S. Li *phəu~fəu* 'sir, old man'.

'support/lean on': IN *\*bantu* 'support'; PT *\*daw* 'support, lean on', *\*may daw*~*\*(may) du* (Lao) 'walking stick, cane' (*\*may* 'wood'); Dioi *tau* (low tone) 'prop up', from *\*daw* < *\*ntaw* < *\*[b](a)ntu*.

'say/speak': IN *\*kunu* 'one says, it is said (*dicitur*)', an assimilated form; Philippine forms point to a doublet *\*kənu* (Iban *kenu* 'word used to mark a quotation') and even *\*kanu* (Ilocano *kano* 'it is said'), the last supported by the PT and Sek cognates (Formosan cognates, confirming the anticipated medial *\*-l-*, have not been uncovered); PT *\*klaaw* 'say, relate, make a complaint' (with secondary vowel lengthening), also *\*law*~*\*hlaw* (Lao) 'speak, address, relate, recite'; Sek *pak-lla:u* < *\*klaaw* 'speak' (*pak* is for *\*pa:k* 'mouth').

'pestle/mortar': IN *\*halu* 'pestle'; Form: Bunun, Kuvalan, Atayalic *\*(qa)salu*, but East (Paiwanic) generally *\*(qa)sulu* (assim. form), id.; PLi *\*raw*: S. Li *drau* 'mortar', Basadungli *ro* 'rice mortar'.

In the above examples VT does not present any problem since the PAT root ended either in a vowel (\*-i, \*-u) or a consonant (\*-R, \*-s) that yielded PT \*-y (merging with \*i). Before consonants of other types, however, the 'regular' \*ai or \*au cluster that VT might have been expected to yield was ruled out by the PAT (and general KD) canonical syllable shape, which permits only the (falling stress) vowel clusters /ia, ta, ua/ before final consonants (including glides). The actual yield here, as shown in the table below, was PT (or PKS, PLi) medial \*-ua- (> \*oo), with reversal of V<sub>1</sub> and V<sub>2</sub>:<sup>5</sup>

	PAT	PT	Dioi	PKS	Lakkia	PLi
round	*bəluR	—	—	—	kyon	—
	*(q/)b[a]luR	*?duay	den	*?duan	—	*bluan
dew/frost/ smpw	*hamuy	*hmuay	—	—	—	—
	*h[ə]m/l/uy	—	—	*hnuy	—	—
	*ham/l/uy	—	nai	—	kyãi	*hmluay
fire	*[sə]puy	*vi	fi	*pwi	pui	—
	*[s]apuy	*vay	—	—	—	*pwei
stream	*q[ə]rus	—	wi	*kruy	—	—
	*qarus	*xruay	—	—	—	—
perforate/ hole/tube	*[ta]buk	*?buak	—	—	—	—
	*[ta]mbuk	*hmook	—	—	—	—
cover/hat	*qa/[u]muk	*hmuak	muak	—	—	—

(Sek)

Notes on Table:

'round': IN \*bəluγ (with reduction of V<sub>1</sub> = \*a > ə); PT \*?duay, from \*?bruay <\*q/b(a)ruγ; Dioi den (high tone), from \*?deen <\*?breen <\*?braan (regular shift before dental finals) <\*q/baran (assimilation of V<sub>2</sub> to V<sub>1</sub>); PKS \*?duan <\*?bruan <\*q/b(a)run (as in PT but with PAT \*-R > \*-n); Lakkia kyon = éon, from \*[pr]on <\*[br]on (initial unvoicing) <\*b(ə)rən (assimilation of V<sub>2</sub> to reduced V<sub>1</sub>; contrast Dioi); PLi \*bluan: S. Li luon, N. Li pluon (with l for \*r < \*ʎ in the consonant cluster).

'dew/frost/snow': IN \*hamuy 'dew' (Tagalog hamog), also \*lamuy, id. (Javanese

<sup>5</sup> The yield in roots with V<sub>2</sub> = \*i should be \*ia (> \*ee), paralleling \*ua (> \*oo) in roots with V<sub>2</sub> = \*u, but no certain examples of this have been uncovered in KD or MY (see below under 'above/sky/cloud/rain' for apparent example in MK); the difficulty is compounded by the fact that PAT often has the cluster \*ia (> IN \*i) in the V<sub>2</sub> slot.

*lamur*), from \*[h]l/amuγ (contrast the position of the infix in the KD cognates); PT \*hmuay 'fog/frost/hoar-frost/snow' (Ahom, Khamti, Shan), from \*h(a)muγ <\*h(a)muy, also \*hmlay 'fog/dew/fine [erachin] rain/snow' (Black and White Tai), from \*hmyay <\*hmuay (secondary palatalization); Dioi *nai* (high tone) 'snow, hoar-frost', from \*hnay <\*hmlay <\*hml/w]ay <\*h(a)m/l/uy; PKS \*hnuy 'snow', from \*hmluy <\*h[ə]m/l/uy; Lakkia *kyāi*, id., from \*hnay <\*hmlay (as in Dioi); PLi \*hmluay: S. Li *mug* 'snow, hair, frost', White Sand Li *hluay* 'snow', from \*h(a)mluγ <\*h(a)m/l/uy.

IN \*(w)apuy; Form: East (Paiwanic), Tsouic \*sapuy (Atayal \*sapu-); 'fire': PT \*vay <\*pway <\*(a)puγ, also the doublet \*vi (Shan: 'fireplace'), from \*pwi <\*(ə)puγ; Dioi *fi* (low tone) <\*vi (as in Shan doublet); PLi \*pwei <\*[pw]ay (as in PT).

'stream': IN \*ʔayut' <\*qayuls; PT \*xruay <\*qruay <\*q(a)ruy <\*q(a)rus, reflecting a PAT doublet (cf. 'weep', above); Dioi *wi* <\*rwi <\*[qə]ruy; PKS \*kruy <\*[qə]ruy.

'perforate/hole/tube': IN \*tə(m)buk 'perforate' (with reduction of V<sub>1</sub> = \*a > ə), also \*tumbuk 'thrust through' (Hova 'perforate') (with assim. of V<sub>1</sub> to V<sub>2</sub>); Fiji *tombu* <\*tambu[k] 'hole in river bed'; PT \*ʔbuak 'tube, pipe (water), quiver, container for chopsticks' (Tho-Nung), from \*[t]abuk, also the complex doublet: \*hmook 'quiver (Khamti); tube, gun (Lao)', from \*mbook <\*mbuak <\*[t]ambuk.

'cover/hat': Form: Atayal ʔumuk 'to cover, cover the head, wear on the head', aʔumuk (<\*qa/umuk) 'lid, cover'; PT \*hmuak 'hat, cap' (Ahom also 'attire/clothe' = 'cover the body'), from \*q/muak <\*qa/[u]muk; Sek *muak* (high tone) 'hat', from *hmuak* (as in PT).

We come now to a fourth type of VT, in which the PAT etymon has \*i or \*u (rarely \*o) for V<sub>1</sub> and a different vowel, usually \*a, for V<sub>2</sub>. Here the anticipated yield of \*-ia- or \*-ua- presents no difficulties since these are normal PT (and KD) medial clusters (see above). In some instances, however, the VT vowel \*u produced labialization of the following consonant, e.g. the PT and PLi shifts \*phw > \*f, \*pw/bw > \*v (cf. 'fire', above) are secondary to VT in the following roots, serving to confirm PAT \*u for V<sub>1</sub>:

In addition to the secondary labialization after labials, as demonstrated above, the KD languages also show this feature after velars and postvelars, as illustrated in following table. The first three entries all have initial \*qw- for PKS (Sui *p-~q-*, Mak *k-~c-* [before \*e], Then and Kam *p-*), with a correspondence in Sek *kw-* (< \*qw-) in two cases (but Sek *kaw* 'horn' for the anticipated \*kwaw through dissimilation). In the first two roots the secondary labialization is the result of a preceding labial con-

	PAT	PT	Dioi	PKS	Ong-Be	PLi
bark/skin/ pod/husk	*[q]upak	*fak	hək	*fwak	–	*fuak
dream	*[s̥u]pi/an	–	–	–	bien	–
	*šupi/an	*fan	–	*fin	–	*fa[n]
blow/ whistle	*[iyu]p/iyup	*phiu	–	–	–	–
	*[iy]up/iyup	–	–	–	–	*viu
clothes	*[k]umpiay	–	–	–	ve(Lati)	*viaŋ
notched/ broken	*ts[ə]biŋ	*ʔbin	bin	*[ ]biŋ	–	–
	*tsubiŋ	*(h)win	–	–	–	–
breath/ spirit	*tsubeŋ	*hweeŋ	–	–	–	*veŋ
	*tsumbaŋ	*hmaaŋ	faŋ	*hmaaŋ	–	–
fly/bee	*[k]ubaŋ	–	–	–	-vaŋ	*vaŋ
	*[k]umbaŋ	–	–	–	-maŋ	–

## Notes on Table:

'bark/skin/pod/husk': IN *\*u(m)pak* 'bark' (Tagalog 'rind, skin, peel, bark'); PT *\*fak* 'pod, scabbard' (Lao 'scabbard, sheath, envelop, husk'), from *\*phwak* <\*(u)phak, probably from *\*q(u)pak* (secondary aspiration); Dioi *hək* 'scabbard, sheath, case, pod', from *\*hwak* <*\*phwak* (as in PT); PKS *\*fwak* 'bean pod' (Mak also 'sheath/scabbard'); PLi *\*fuak* = *\*fwak* 'carcass, empty container, snake skin'.

'dream': IN *\*i(m)pi* 'dream', from *\*u(m)pi*, the earlier (unassimilated) doublet form still reflected in Maanjan *upi*; also *\*nupi* 'a dream', from [s̥]/n/ *upi* (as shown by Formosan forms); Form: Paiwan, Rukai, Saisiat, Atayalic *\*sipti*, from *\*\*supi* through assimilation (cf. IN); PT *\*fan*, from *\*phwan* <*\*supa/an* (secondary aspiration by the \*s-) <*\*supi/an* (vocalic assimilation); PKS *\*fin* <*\*phwin* <*\*supi/n* (with the 'zero' vocalization form of this PAT suffix; cf. the \*/n/ infix in IN); Ong-Be *bien* (high tone), from *\*pien* <\*[ ]pi/an; PLi *\*fa[n]*: White Sand Li *faŋ* <*\*fan*, from *\*phwan* (as in PT); PMY has the simple form without affix (and without VT): *\*mpei*, from \*[ ]mpi.

'blow/whistle': IN *\*iyup* 'blow'; Form: East (Paiwanic) *\*m/iyup* 'blow (with mouth)'; also the (originally) reduplicated form: IN *\*piyup*: Hova *flukä* 'whistle', from *\*[iyu]p/iyup*; PT *\*phiu* 'whistle' (Khamti, Shan, Siamese), from *\*phiup* (with typical 'Procustean' loss of final after the cluster *\*iu*, which does not occur as a medial); PLi *\*viu* 'wind', also 'flute' (both = 'the blower'), from *\*pwiu* <\*[iy]up/iyup; note also the PAT doublet showing parallel development in AN and KD: IN *\*tiup* 'blow' (Hova *tsiuf/ina* 'what is used for blowing', *tsiukä* 'breeze'), probably (at very early level) from *\*pyiyup* <*\*iyup/iyup* (with *\*py-* >*\*t-*, paralleling the basic shifts: PAT *\*pl*, *\*pl*, *\*pr* >*\*t*); P[rotá] P[oly] N[esian] *\*tiu* 'wind' (Tuamotban *tiuu/a* 'blown off course'); PT *\*thiu* 'whistle' (Khamti, Lao); Sek *hit thiw*, id.; S. Li *teu vat*, id.; PMY has only *\*pyom* 'blow', from the reduplicated form: *\*pyom/pyop* (typical MY development) <*\*p[i]yup/p[i]yup*.

'clothes': Form: Rukai, Puyuma *\*kupig~\*kipig* (assim. form), from *\*kupiag*; Lati *pu ve* 'clothes' (cf. *pu he* 'trousers'), from *\*ve[ŋ] <\*v[iag]*; PLi *\*viag*, from *\*bwiag <\*[k]umpiag*.

'notched/broken': IN *\*t'u(m)big* 'notched' (Hova '-ragment' = 'broken off *piéée*'); PT *\*?bin* 'notched' (Shan 'broken off'), from *\*?big* (regular shift) *<\*[s]big*, also *\*(h)win* 'cloven, torn, broken' (Lao *sop win* 'hairlip' [*sop* 'mouth']), from *\*(h)wig <\*(s)[u]wig <\*[tsu]big*, also the complex doublet, *\*hweeg* 'torn, broken', from *\*s(e)weg <\*(s)uweg* (vocalic assimilation) *<\*[tsu]beg*; Diol *bin* (high tone) 'notched; indented (as bowl)', from *\*?bin <?\*big* (as in PT); PKS *\*[ ]big* 'notched', from *\*[s]big*; PLi *\*veg* 'notched [bowl], hairlipped [person]', from *\*bweg <\*[s](u)-beg*; PMY has only *\*mpheg* 'cracked', from *\*[s]mbeg <\*[ts][u]mbeg* (without VT).

'breath/spirit': IN *\*t'umagat* 'spirit (*Geist*)', from *\*tsum[b]aŋ/t* (as indicated by the Formosan cognate); Form: Bunun *\*tsumbaŋ* 'breathe'; PT *\*[h]ma[a]ŋ* 'an imaginary evil spirit' (Ahom [obsolete] only), also *\*hmaaŋ* 'make imprecations, curse' = 'call the evil spirits against', from *\*s(a)maŋ < \*s(u)maŋ* (vocalic assim.); Diol *faŋ < \*fa[a]ŋ* 'genie', Sek *maaŋ* 'spirit, ghest', from N. Tai *\*mwaŋ < \*(u)maŋ < \*(u)m[b]aŋ*; PKS *\*hmaaŋ* 'demon', from *\*s(a)maŋ* (as in PT).

'fly/bee': IN *\*kumbag*: Malay *kumbag* 'bumble-bee, beetle'; Ong-Be *meŋ-vag~miŋ-mag* (dial. variation) 'fly', from *\*(u)(m)baŋ* (*meŋ~miŋ* 'insect'); PLi *\*vag* 'fly; (comp.) mosquito', from *\*bwaŋ < \*[k](u)baŋ*; PMY has *\*(?)mb]uŋ* 'fly, bee; (comp.) mosquito' (PY only), from *\*( )mb]aŋ* (regular shift), without VT.

sonants (*\*p*, *\*w*) but in the last two roots a form of VT is involved) note that for 'pick/pierce' the alternative possibility (PT *\*khuit*) is ruled out by the canonical syllable pattern (cf. 'blow', above) while for 'barter/buy/sell' there does exist a viable alternative (Sek *\*kuay*), the determining factor here having been the secondary vowel length (before original final *\*-r*), since Sek *\*kuaay* is also excluded by the pattern (no three-vowel clusters, in Sek and KD generally).

A third class of consonants that occasionally show secondary labialization in the KD languages are the resonants *\*r* (*< PAT \*r*, also *< PAT \*l* when not in a consonant cluster) and *\*l* (*< PAT \*l*, which yields PT *\*-n~\*-y* as final, also IN *\*n* as medial and final). The first two entries in the following table illustrate the development of labialized *\*l* after a preceding *\*w*, while the last three entries involve a variety of VT, to be compared with that found after velars/postvelars (see above).

Ancient loans into Sino-Tibetan, especially as represented by Archaic Chinese reconstructions (as early as 1,500–1,200 B.C.), show secondary labialization of the above type, as might be

	PAT	IN	Formosa	PT	Sek	PKS
thigh	* <i>(m)paqa</i>	* <i>paʔa</i>	* <i>paqa</i> (Puyuma)	* <i>xa</i>	<i>kwa</i>	* <i>qwa</i>
horn	* <i>waqa</i> * <i>waqa/waqa</i>	—	* <i>waqa</i> * <i>waqa/waqa</i>	—	—	—
sell/buy/ barter	*[ <i>t</i> ]uqa[r] *[ <i>t</i> ]uNqa[r]	— * <i>tuka[r]</i>	—	* <i>xaay</i>	<i>kwaay</i>	* <i>qwe</i>
pierce/ pick	* <i>tsukit</i> * <i>tsupkit</i>	— * <i>tʉpkit</i>	—	* <i>khwit</i>	<i>kwit</i> (Dioi)	—

Notes on Table:

'horn': Form: East (Paiwanic) \**waqa* 'horn (Ami, Bunun, Thao), deer (Saisiat)'; Atayalic \**waqa/nux* 'deer', also Bunun: Katoguran dial. \**waqawaqa* 'horn'; PT \**xaw*, from \**qaw* < \*[*wa*]qaw[*aqa*]; PKS \**qwaaw*, from \*(*wa*)qaw[*aqa*], with both secondary labialization and VT.

'sell/buy/barter': PT, Sek and PKS all 'sell'; IN \**tuka[r]* 'barter' (Toba-Batak 'price, buy'), from \**tuNqa[r]*.

	PAT	IN	Formosa	PT	Dioi	Sek	PKS
spider	* <i>(k)lawā</i> (/lawā)	* <i>lawā</i> * <i>lawā/lawā</i>	* <i>lawā</i> (Siraya)	— * <i>klaaw</i>	— <i>kwau</i>	— <i>klwaaw</i> (Wuming)	— * <i>klwaaw</i>
child	*[ <i>Na</i> ]wak *[ <i>Na</i> ]w/al/ak	— * <i>(w)anak</i>	* <i>(w)ak</i> * <i>(w)alak</i>	— * <i>luuk</i>	— <i>lək</i>	— <i>llk</i>	— * <i>laak</i>
bone	* <i>q/tuʎay</i> * <i>q/ntuʎak</i>	* <i>tuʎay</i> —	* <i>tuqʎal</i> —	— *ʔ <i>duuk</i>	— <i>dɔ</i>	— <i>rɔɔk</i>	— *ʔ <i>dlaak</i> *ʔ <i>duak</i>
mushroom	* <i>(n)kuʎat</i>	* <i>kuʎat</i>	—	* <i>hrwet</i>	<i>rat</i>	—	—
louse/ flea	*[ <i>ba</i> ]( <i>m</i> )bulay	—	* <i>babulay</i> (Pazeh)	* <i>ray</i>	<i>rwi</i>	<i>ri</i>	* <i>(m)byay</i>

Notes on Table:

'spider': IN \**lawā* 'spider, web' (Tagalog *lawā~lawalawā~lalawā*, Malay *lawalawā*); Sinaugore, Rubi (Southeast Papua) \**ka/walawā* 'spider', by metathesis from \**ka/lawalawā*; PT \**klaaw*, Dioi *kwau* < \**k[ʎ]wa[aw]*, Wuming *klwaaw*, Mak *ɕwa:u* < \**klwaaw* all show VT of the kind found with reduplication (see above).

'child': the AN and KD forms here appear to have been derived through infixation of \*/*al*/ from a basic root represented by PMY \**Naw(a)*(?) < \**Naw(a)k*, Form: Tsouic \**[w]ak*; PT \**luuk* < \**lwak* (F. K. Li 1965), from \**w[al]ak*, contrasting with PKS \**laak* < \*(*a*)*lak*, showing a simple form of VT, as well as with Dioi *lək*, Sek *llk*, from \*(*ə*)*lək* (reduction of \**a* > *ə*, followed by assimilation of *V*<sub>2</sub>: \**əlak* > \**ələk*).

'bone': IN *\*tuʔlaŋ*, from *\*q/tulaŋ* (with the ubiquitous *\*q/* prefix); Form: Paiwan, Siraya *\*tuqʌl*, from *\*tuqʌ/ʌ/ʌŋ* < *\*q/tuʌ/ʌ/ʌŋ*; PT *\*ʔduuk*, from *\*ʔntuuk* < *\*ʔntwak* (cf. 'child', above) < *\*q/ntu(r)ák*; Dioi *dɔ* (high tone), from *\*ʔdook* < *\*ʔduak* < *\*q/ntú(r)ak* (note contrast in stress with PT); Sek *rɔk*, from *\*ruak* < *[nt](u)rak* (with VT); PKS *\*ʔdlaak*, from *\*ʔd(a)lak* < *\*ʔd(u)lak* (vocalic assim.) < *\*q/nt(u)lák* (cf. PT), also *\*ʔduak* (Mak), from *\*q/ntú(r)ak* (as in Dioi).

'mushroom': PT *\*h[r]et* indicated by Khamti, Siamese and Lao *het*, Shan *hep* < *\*het* (possibly influenced by the earlier initial cluster) but Nung *vit* < *\*w[e]l* requires modification to *\*hrwet*, from *\*[k]hrwet* < *\*[k](u)ret* < *\*[k](u)rat* (regular shift before dentals); Dioi *rat* < *\*r[e]l*; PLi *\*[r]ít*.

'louse/flea': Form: Pazehe *babulay* 'head louse; (comp.) body louse'; PT *\*ray* 'louse (esp. of animals/birds/fowl)' (Siamese 'louse/flea'), probably from an earlier *\*r[w]ay* (cf. Dioi) < *\*[lw]ay*; Dioi *rwi* 'lice of fowls', from *\*rw[ay]* < *\*[u]ray*; Sek *ri* 'chicken lice', from *\*r[w]i* (as in Dioi); KS *\*[ ]mb[ay]* 'chicken flea', from *\*[ ]mb[u]lay*.

anticipated in view of the fact that these (ST) languages typically have medial *\*-w-* but lack the medial diphthong *\*-ua-*; note the following trio of roots, representing two different types of VT (see above):

	PAT	Arch. Ch.	Proto-Tai	Proto-TB
10,000	<i>*[u]bal</i>	—	<i>*ban</i>	—
	<i>*umbal</i>	<i>m̄jwǎn</i>	—	—
fly/moth/ insect	<i>*[k]uman</i>	<i>m̄jwǎn</i>	<i>*muan</i>	—
			<i>*moon</i>	
			<i>*(m)wan</i>	
onion/garlic	<i>*[l]atsun[aq]</i>	<i>swǎn</i>	—	<i>*swan</i>

Notes on Table:

'10,000': Form: Ami *\*ubal* '10,000'; PT *\*ban* '1,000' (Siamese, Lao, Black and White Tai only); Arch. Ch. *m̄jwǎn* '10,000', from *\*(u)man* (the palatalization is a secondary Chinese feature) < *\*(u)mbal*, confirms both V/ as *\*u* and the meaning of this numeral root as '10,000', with additional confirmation from PT *\*hm̄ln* '10,000', a back-loan from the early Chinese dialect (Arch.-LPT) which supplied the loans to Thai (Benedict, 1976), showing stress reduction of V/ (*\*u > ə*) followed by assimilation of V/ (as in 'scale off/scales', above) as well as the *\*s/* prefix (*\*sm-* > *\*hm-*) which is reflected in most Arch. Ch. numerals (Benedict, 1976): *\*s/umbal* > *\*suman* > *\*səman* > *\*səmən* > *\*hm̄ln*; the PT root for '1,000' cited above (*\*ban*), having been replaced in its original meaning ('10,000') by the back-loan from Chinese (*\*hm̄ln*), underwent a shift in meaning, replacing in turn the original PT root for '1,000', viz. *\*[t]hriay* (Ahom, Khamti and Shan; Tho-Nung congate lacking), also Dioi *rɛŋ* (high tone) '1,000,000' (replaced in basic meaning

by back-loan from Chinese), from \**hreeŋ* < \*[t]hriaŋ, apparently cognate with Form: Thao, Siraya \**k[ə]fiŋ* '10' < PAT \*(k/)triaŋ, as shown again by the early Chinese loan: Arch. Ch. *ts'ien* '1,000', from \**ts'ieŋ* < \**st'ieŋ* (both well-attested shifts) < \**s-[r]iaŋ* (with the standard \**s/* prefix).

'fly/moth/mosquito': IN \**kuman* 'maggot' (Malay); Fiji *kuma* (< \**kuma*[n]) 'moth'; PT \**mleeg muan* 'the common fly; any flying insect (\**mleeg*)' (Khamti, Shan), from \*(u)*man*; also \**mleeg ŋuan* 'fly' (Black Tai) (with assim. of initial); also \**mleeg moon* 'gnat' (Nung), from \**muan*; also \**mleeg wan* 'fly' (Siamese, Lao), from \*(m)*wan*; also \**mleeg von*, id. (Tho-Nung), from \*[m]w[an]; Dioi *wan* 'tinea moth', from \*(m)*wan*; Lakkia *mun* 'fly', from \**mwan*; Arch. Ch. *mjwǎn* 'insect' the graph is drawing of insect, and is used as a loan in sense '10,000' (above).

'onion/garlic': IN \**lal'una?* 'onion', without known PT of PMY cognates, but the PAT root would regularly (with VT) has yielded \**suan*: Arch. Ch. *swǎn* 'garlic'; PTB \**swan* on the basis of W[ritten] B[urmese] *krak-swan* 'onion', *krak-swan-phyu* 'garlic' (*phyu* 'white') (*krak-* not glossed separately); the indicated PST reconstruction is \**swa'n* but it seems more likely that the Chinese and Burmese forms represent distinct ancient loans from AT (but cf. Skr. *lasuna*).

The 'regular' type of VT involving roots with \**u* or \**i* for V<sub>1</sub> and (generally) \**a* for V<sub>2</sub> shows simple metathesis of the VT vowel, yielding \**ua* and \**ia*, respectively, and this can then be followed by the later shifts: \**ua* > \**oo* and \**ia* > \**ee*, both very characteristic of PT (and KD in general). A parallel development exhibits stress reduction of V<sub>1</sub> (\**u/i* > ə), yielding PT \**ta* (< \**yaa*), PKS \**ya*, Ong-Be *ea/ia*, PLi \**t* (< \**ya*) or \**ya* (< \**yaa*), also (rarely) PT, PKS, PLi \**#* through vocalic assimilation (see 'scale off/scales' in table below). A third possible line of development also exists, viz. the shift to a form with medial \*-aa-, either through assimilation of V<sub>1</sub> to V<sub>2</sub> (\**u* > \**a*) or via an intermediate \*-waa- from a root form with ultima stress, as suggested below (but note that medial \*-wa- yielded PT \*-uu-; see 'child', above); cf. PAT \**!u(w)aq* 'vomit': IN \**luwa?*; PT \**raak* < \**rwaak* (or < \**ra(w)ak*); Sek *ruak* < \**ruwak*; Ong-Be *doak* < \**ruwak*. As in roots with primary \*ə for V<sub>1</sub> and \**a* for V<sub>2</sub>, the presence of an unpalatalized \**a* in the 'surviving' syllable indicates simple loss of the first syllable; cf. the following:

PAT \*[b]əna: IN \**bəna* 'low-lying, flooded land'; Form: Favorlang [obsolete] *bonna* = \**bəna* 'fields (all kinds)'; PT \**na* 'wet rice field', from \*[bə]na, but Ong-Be *nea*, id., from \*[b]əna.

PAT \**!əŋa* 'sesame': IN \**ləŋa*; T \**ŋa* < \**[rə]ŋa*; Dioi *ra* < \**ra(y)a*

(regular loss of unstressed intervocalic \*ŋ) < \*rə(ŋ)a (vocalic assim.), but PKS \*ʔŋya, from \*[r]əŋa.

In some roots a reconstruction of \*u for V<sub>1</sub> is possible on the basis of the over-all evidence, as in the following:

PAT \*(n)tu(m)ba 'poison (for fish)': IN \*tu(m)ba; PT \*ʔbta 'poison' (Nung 'to catch fish by using a kind of poison'), from \*ʔbya < \*[t]əba; Dioi bə (high tone) 'to poison (fish)', from \*ʔbta (as in PT), but Sek *via* 'to poison', from \*vta < \*bwta < \*[t]əbwa < \*[t]uba, the \*u being confirmed by the PMY cognate doublet: PMY \*do~\*dom 'poison (PM); to fish with poison (PY)', from \*to(m)[ba] (regular secondary voicing of PAT initial \*t-) < \*tu(m)[ba] (regular vowel shift).

PAT \*[p]u(n)tsa[q] 'cat/tiger': IN \*put'a[?] 'cat' (Hova 'catlike beast of prey'); PT \*sta 'tiger' (White Tai 'generic name of large carnivorous animals'), from \*[p]əsa < \*[p]ətsa[q], but Ong-Be *zoa* (high tone) 'tiger', from \*[ ]nsua < \*[ ](u)nsa < \*[p](u)ntsa[q]; Kelao *dzie*, id., from \*dza < \*[pu]ntsa[q].

In some roots, however, only a provisional reconstruction of V<sub>1</sub> is possible, on the basis of the AN cognate; cf. the following:

PAT \*[(m)pu]lay 'return home': IN \*pulay = \*(m)pulay (Ngaju-Dayak *tã-mpulay* 'start back'): PKS \*lay: Mak lay, from \*[p]lay (hence *l* rather than \*r for PAT \*l); Ong-Be *lŋ~lə:ŋ*, from \*[p]ələŋ < \*[p]əlay (stress reduction of V<sub>1</sub> followed by assim. of V<sub>2</sub> to V<sub>1</sub>); PLi \*[b]lŋay: S. Li *lə:ŋ* (N. Li cognate lacking), from \*[mp]əlay.

In the one example at hand of VT involving an AT root with \*o for V<sub>1</sub> and \*i for V<sub>2</sub>, the reduction of V<sub>1</sub> (\*o > ə) has produced an 'irregular' Dioi form:

PAT \*\*\*(N)qo(m)bi(t)s 'body (esp. pubic) hair/beard': IN \*kumit' 'beard', from \*Nqumbits; Form: East (Paiwanic), Atayalic \*(N)qu(m)bis 'pubic hair (East; Ata: Squliq dial.) (Paiwan also 'axillary hair'); beard/body hair/feather/down (Ata: Ci'uli dial.); PT \*hmooy 'pubic/axillary hair' (Shan also 'beard'), from \*q(o)mi < \*q(o)mbiy < \*q(o)mbis (with regular final \*-y for PAT \*-s but merged here with \*i; cf. 'weep', above); Dioi *mi* (high tone), from \*hmi < \*q(ə)mi.

The following table presents a variety of AT roots with \*u for V<sub>1</sub> and \*a for V<sub>2</sub> in illustration of the general points outlined above

(cf. also the examples cited above in connection with early loans into Chinese):

	PAT	PT	Dioi	Sek	PKS	Ong-Be	PLi
worm/penis	*q/uzay	—	duai	—	—	—	—
	*q/[u]zay	*ʔdi	dai	—	—	—	—
	*q/[u]nzay	—	nai	—	—	—	—
crustacean	*q/u(n)zay	—	—	—	—	zoaŋ	—
forest	*[q]utal	*wan	—	thual	tiə	dan	*thaan
	*[q]ətal	*thlan	—	—	(Kelao)	—	—
	*[q]əntal	—	tə:n	—	—	—	—
wheel/ cycle/ring	*kurap	*kroop	—	—	*khuap	—	—
		*kraap	—	—	—	—	—
	*qurap	*xuap	həp	—	[*hwap]	—	—
		*x[aa]p	—	—	—	—	—
	*Nqurap	*ʔoop	—	—	—	—	—
		*roop	—	—	—	—	—
trough/dish	*[d]uɭay	*raay	—	—	*duay	doay	—
worm/eel	*[tu]la[q]i	*hlay	—	—	—	—	—
	*tula/la	—	—	tlual	*[z]an	—	*vuan
	*q/ntəla/la	*ʔdɭan	də:n	—	—	—	—
scale/off/ scales	*qulap	—	—	—	—	—	*luap
	*qəlap	*hlɭp	—	—	—	—	—
penis/male	*uNq[a]lay	*ʔruay	wai	—	—	—	—
	*[u]q[a]lay	—	—	—	*[qh]lay	hle (Lati)	—
bear, n.	*krumbay	—	—	—	*ʔmuy	—	*m[u]y
	*krəmbay	*hmlay	məi	—	*ʔmyay	—	—
	*kr[u]mbay	*hmi	—	mi	—	—	—
hair/topknot	*umbal	*muay	—	—	—	—	—
snake	*uŋa[ta]	*ŋu	—	ŋua	—	—	—
	*əŋa[ta]	—	ŋə	—	nyie	ŋia~ŋea	—
	*uŋat[a]	*ŋoot	—	—	(Lakkia)	—	—
	*[uŋ]ətə	—	—	—	—	—	*thya
flesh/meat/ animal/ deer	*mbula	—	nɔ	mlɔɔ	—	—	—
	*mbəla	*nɭa	—	—	—	—	—
	*q/bəla	*ʔblɭa	—	—	—	—	—
	*b[u]la/b[u]la	*bla	—	—	—	—	—

	PAT	PT	Dioi	Sek	PKS	Ong-Be	PLi
white/moon	* <i>q/buʔal</i>	*ʔ <i>doon</i>	—	—	—	<i>sa~sɔi</i>	—
	* <i>q/bəʔal</i>	*ʔ <i>blʔan</i>	<i>də:n</i>	<i>blʔan</i>	—	—	—
	* <i>mbəʔal</i>	—	—	—	* <i>nyan</i>	—	* <i>hʔaan</i>
skin/	* <i>mbuʔay</i>	—	—	—	—	—	* <i>nuay</i>
leather	* <i>q/mb[u]ʔay</i>	* <i>hnay</i>	<i>nay</i>	<i>nay</i>	—	<i>nɔy</i>	—
	*[ <i>bu</i> ]ʔa[ <i>y</i> ]	—	—	—	* <i>ra</i>	—	—
yam/sweet	*[ <i>q</i> ]uma[ <i>ah</i> ]	—	—	—	—	—	* <i>mual</i>
potato	*[ <i>qu</i> ]ma[ <i>ah</i> ]	* <i>man</i>	<i>man</i>	<i>man</i>	—	—	—

## Notes on Table:

'worm/penis': IN \**uɔay* 'worm'; PPN \**ule* 'penis', from \**unɔay*; PT \*ʔ*di* 'glow-worm' (Lao), from \**q/di* < \**q/day* (typical PT effect of \**q*/); Dioi *duai* ~ *dai* (both tone) 'larva of the large bamboo weevil', from \*ʔ*duay* ~ \*ʔ*day* < \**q/(u)zay* ~ \**q/[u]zay* (both \**q/d-* and \**q/z-* yield \*ʔ*d-* in PT/Dioi), also *nai* (high tone) 'penis (the 'decent' term)' (perhaps because basically non-sexual), from \**q/[u]nzay*.

'crustacean': IN \*ʔ*u(n)ɔay* 'crustacean' (Tagalog 'lobster', Toba-Batak 'shrimp'); Ong-Be *zoay* 'shrimp'; (comp.) lobster' (irreg. low tone), from \*ʔ*duay* < \**q/[(u)zay]*; cf. also White Sand Li *fiay* 'shrimp', apparently from \**fuay* (dissim.) < \**[hrw]ay* (S. Li cognate lacking) < \**[qu]zay*.

'forest': IN \*ʔ*[u]ʔan*; PPN \*ʔ*uta* (< \*ʔ*uta[n]*) 'inland (= forested)'; PT \**thlan* 'forest, wilderness; wild, savage', from \**[q](ə)tan* (secondary aspiration after \**q-*), also \**wan* 'forest, wood, desert' (Lao), apparently from \**[t]wan* < \*(*u*)*tan* (without reduction of V/); Dioi *tə:n* (low tone), from \**dlan* < \**nlan* < \*(*ə*)*ntan* (cf. PT); Sek *thual*, from \**[q](u)tal* (with secondary aspiration, as in PT); Kelao *pu tiə*, from \**[t]an*; OB *dan* [high tone] 'partridge', for *kai dan* 'fowl (*kai*) of the wild (*dan*)', from \**tan* (cf. PT \**kay thian* 'wild fowl, pheasant'); PLi \*(*khay*) *thaan* 'partridge' (as in Ong-Be), from \**[q](a)tan* < \**[q](u)tan* (with vocalic assimilation, and secondary aspiration, as in PT and Sek).

'wheel/cycle/ring': IN \**ku[r]ap* 'skin disease' (Toba-Batak, Malay 'ringworm' = the disease with rings on skin), also \**kurapu* 'name of a fish or marine animal' (Tagalog 'sp. of mussel' = the ringed/circular animal); PPN *lafa* 'ringworm', from \**[ku]raf/a* < \**[ku]rap/a*; also \**kulapo*: Samoan *ʔulapo* 'name of a sea-cucumber (Holothuria)' [circular animal]; PT \**kroop* 'circuit, frame, border, side' (Thai [Siamese]), from \**kruap* < \**k(u)rap*; also \**kraap* 'sides of boat' (= circular rim around a boat) (Thai [Siamese]), from \**krwaap* < \**kurap* (or < \**k(a)rap*); also \**xuap* 'periodic revolution; (comp.) week, month, year', from \**qu(r)ap* (but White Tai \**xoop* < \**xuap*, and Lao \**ɣuap* < \**Nqu(r)ap*; cf. forms below); also \**[x]a[a]p* 'wheel; anything round and flat' (Ahom [obsolete] only), from \**qwaap* or \**qa(r)ap*; also \**yoop* (circle, ring; circuit, period of time; encircle', from \**ɣuap* < \**nqu(r)ap*; also \**roop* (circuit, turn; encircle', from \**ruap* < \**[Nq](u)rap*; Dioi *həp* 'periodic revolution; (comp.) month, year' and (listed as distinct words) 'circle, circular; surround', from \**qhoop* < \**qhuap* < \**qu(r)ap* (as in PT); KS \**khuap* 'wheel' (Kam), from \**ku(r)ap*; also \**hwap* 'cycle (gen. 30 days)' (Sui, Mak), an apparent loan from N. Thai (cf. Dioi).

'trough/dish': IN *\*dulaj* 'food vessel (*Essunlerlage*)' (Javanese 'food dish', Malay 'salver or tray, usu. of wood', Ngaju-Dayak 'trough', Cebuano Bisayan 'wooden basin for washing', Hanunoo 'shallow wooden tub or basin'); PT *\*raag* 'trough' (Shan also 'large wooden bowl cute out for holding water'; WT also 'oval iron dish'), from *\*rwaaj* < *\*ruwaj* < *\*ruwaj* < *\*[d](u)raj* (or < *\*ra(w)aj*); PKS *\*duaj* 'trough, wooden trough for feeding pigs; box; (comp.) inkstand' (Mak), from *\*ruaj* < *\*[d](u)raj*; Ong-Be *doaj* 'trough', from *\*ruaj* (as in Mak).

'worm/eel': Form: Ataul *talaii~tala'e* 'eel', from *\*[u]laqi* (cf. forms below); PT *\*pla hlaj* 'eel' (*\*pla* 'fish'), from *\*[l]la[q]i*; IN *\*[t]una* 'eel', apparently an abbreviated form from an earlier *\*[t]una?i* < *\*tulaqi*; Fiji *nduna*, id., from *\*ntuna*; Form: East (Paiwanic) *\*tula*, id.; PT *\*?dian* 'worm', from *\*?ntlan* < *\*?ntllan* < *\*q[nt]alan*; Dioi *da:n* (high tone), id., from *\*?dian* (as in PT); Sek *tlual*, id., from *\*t(u)la/la* (partial redupl.); PKS *\*[z]an* (Mak), from *\*[t]an* < *\*[tu]lan*; Pli *\*vuan* (Small Cloth Loi), from *\*[t]vuan* < *\*tuwan* < *\*tulan*.

'scale off/scales': IN *\*[?]unap* 'fish scales'; Sa'a (Solomons) *uneh/a?a* 'fish scales', *unch/i* 'scale off' (in some Southeast Papuan languages this root takes the transitive suffix with a thematic consonant and becomes verbal: 'to scale fish'); PPN *\*una(f)* 'fish scales' (Samoan *unafi* 'fish scales', *unafi/a* 'peeled off'); PT *\*hlitp* 'to scale or peel off', from *\*q(ə)lap* < *\*q(ə)lap* (with assimilation of  $V_2$  to reduced  $V_1$ ); Pli 'fish scales', from *\*[q](u)lap*.

'penis/male': IN *\*m/u(?)an[ay]* 'male' (Balinese *m-uani*, with irregular *-i* for *-e*); P[roto] O[ceanic] *\*gmane* 'male, husband, spouse, male cross-sibling', from *\*m/wane* < *\*m/u(?)anay*; PPN *\*ta?ane* 'male', from *\*ta?anay* (with the typical PPN prefixed *\*ta/* for *\*m/*, with loss of first syllable); Form: Paiwan *\*uqalay*; Kualan *\*u[q]/l[al]ay*; Rukai *\*sa-u[q]alay* 'man/male'; PT *\*gruay* 'penis', from *\*Gruay* < *\*(u)Nq[al]ay*; Dioi *wai*, id., from *\*[Gr]uay*; KS *\*[qh]lay*, id. (Mak), from *\*[u]q[al]ay*; Lati *i hle* 'urine' = 'water (i) of the penis (*hle*)', from *\*[qh]lay* (as in Mak); PMY has *\*qlay* 'penis', without VT.

'bear', n.: Form: Atayalic *\*k[r]umay* (Sedik *kumay~sumay*), Tsouic *\*tsumay*, East (Paiwanic) *\*fumay*, all from PAT *\*kru(m)bay* (cf. PMY cognate, below; IN cognate lacking); PT *\*hmi*, from *\*q/may* (vocal influence by *\*q/*) < *\*[kru]mbay*, also the doublet *\*hmlay* 'bear, large sp.' (Lao), from *\*qəmay*; Dioi *mɔi* (irregular low tone), from *\*[q](ə)mi* but Yay has *mlay* (high tone) < *\*hmlay* (as in Lao doublet); Sek *mi* (high tone), from *\*q/mi* (as in PT); PKS *\*?muy* (Sui, Mak), from *\*qumi* < *\*qumay* (influence by *\*q/*, as in PT), also *\*?myay* (Kam), from *\*qəmay* from *\*qəmay* (as in Lao and Yay); Lakkia *kui*, from *\*q(u)mi* (as in PSK); Pli *m[u]i*: White Sand Loi *moi* (cf. PKS); the reconstruction of *\*u* for  $V_1$  at PAT level is confirmed by PMY *\*krop*, from *\*krup* < *\*krub[ay]*.

'hair/topknot': IN *\*?uban* 'gray hair/gray-haired', from *\*q/uban* < *\*q/ubal*; Form: East (Paiwanic), Atayalic *\*qubal* 'head hair (Paiwan), body hair (Rukai), hair (head, body, pubic), feather/down (Sedik)'; PT *\*muay* 'topknot' (Lao also 'head'), from *\*mbuay* < *\*(u)mbay* < PAT *\*[q](u)m[ə]bal*.

'snake': IN *\*gata* 'snake, worm'; PO *\*gmata* = *\*gwata* 'snake', from *\*(u)gata*; PPN *\*gata* 'snake, snail, slug, sea-slug'; PT *\*gu* 'snake', from *\*(u)ga[ta]* (with assim. of  $V_2$  to  $V_1$ ), also *\*goot* 'lycoden [snake]' (Siamese), from *\*guat* < *\*(u)ga[ta]*; Dioi *gə* 'snake', from *\*gla* < *\*(ə)ga[ta]*; Sek *gaa*, id., from *\*(u)ga[ta]* (straight VT,

without stress reduction of V/); Lakkia *gyie*, id., from \**gyia* < \**gya* (as in Dioi); Ong-Be *gia~gea* (dial. variation), id. (as in Dioi, Lakkia); PLi \**lhya*, id., from \*[*uŋ*](ə)*la*; Laqua *ŋl*, id., from \**gya* (as in Dioi, Lakkia, Ong-Be).

'flesh/meat/animal/deer': Form: Rukai \**bulabulay* 'flesh/meat' (Tainan dial.), animal (Budai dial.), from \**bulabula/i*; PT \**bla* 'seasoned raw meat' (Siamese), from \**b[u]la/b[u]la* (retention of voicing of initial \**b*- points to an original reduplicated form); also \**nla* 'flesh/meat (esp. deer meat)' (Siamese also 'deer'), from \**mlla* < \**mblla* < \**mb(ə)la*; also \**?blla* 'deer, flesh of animals' (Siamese doublet), from \**q/b(ə)la*; Dioi *nɔ* = /*nɔɔ*/ 'flesh/meat', from \**mlɔɔ* < \**mbɔɔ* < \**mblua* < \**mb(u)la*; Sek *mlɔɔ*, id. (as in Dioi).

'white/moon': IN \**bulan* 'moon' = 'the white (shining) object' (this semantic feature also shown in a distinct, Formosa/PMY root: \**q[i]las*), also \**bulay* 'white', apparently from an earlier \**bu[al/i]*; Fiji *vula* 'moon', *vulavula* 'bright' = 'white' (semantic merging with a distinct root: IN \**burak* 'white'; cf. PPN \**pu[l,r]a* 'shine, glow' = 'glowing white'); Form: East (Paiwanic), Tsouic \**bu[al]* 'moon' (Atayal \**bu[la-tiŋ]*); also \**bu[n/al]* 'white' (Puyuma); PT \**?doon* 'white', from \**?bloon* < \**?bluan* < \**q/b(u)lan*; also \**?bllan* 'moon', from \**q/b(ə)lan*; Dioi *də:n*, id., from \**?dlan* < \**?bllan* (as in PT); Sek *blian* (high tone), id., from \**?bllan*; PKS \**nyan* = \**nian*, id., from \**mlyan* < \**mblyan* < \**mb(ə)lan*; Lakkia *?bien*, id., from \**?blian* (cf. PT and Sek); Ong-Be *sa~sɔi*, id., from \**phra~phrai* < \**[q]bra~[q]brai*, from an earlier \**[q]b[u]ral*; PLi \**ñaan* 'moon/month', from \**mlyaan* < \**mblyaan* < \**mb(ə)laan* (secondary vocalic length before the original final \*-l); Lati *méoa* = \**méua* 'moon', from \**mprua* < \**mbrua* < \**mb(u)ra[l]* (straight VT, without stress reduction of V<sub>1</sub>).

'skin/leather': IN \**balulag* 'thick hide (leather)', from \**b[al]ulag*; PT \**hnag* 'skin/leather/bark', from \**hmlag* < \**q/mb[u]lag*; Dioi *nag* (high tone), id., from \**hnag* (as in PT); Sek *nag* (high tone) 'skin', from \**hnag* (as in PT and Dioi); PKS \**ra* 'skin', from \**ra[ŋ]* (PKS shows occasional, unexplained loss of final \*-ŋ) < \**[bu]rag*; Ong-Be *nɔŋ* (high tone) 'skin, leather (untanned)', from \**hnag* (as in PT, Dioi, Sek); PLi \**nuag* 'skin, bark', from \**mluag* < \**mbluag* < \**mb(u)lag*; Lati *i mle* 'sweat' = 'water (*i*) of the skin (*mle*)' (cf. 'urine' = 'water of the penis', above), from \**ml[ag]* < \**mb[u]lag*.

'yam/sweet potato': PAT \*(N)*qum/a[ah]*, from \*(N)*qumah* 'cultivate (field)/field/work' (IN \**?uma*, Form: East [Paiwanic], Atyal \**qumah* but Sedik *kumu* < \**Nqum[ah]*; Atayal has \**qumah* 'work the field', \**qum/a[ah]* 'field (swidden, dry)' = 'the cultivated land'); cf. PPN \**kumala* 'sweet potato', from \**kum/al/a* < PAT *Nqum/a[ah]* (= 'the cultivated crop'), precisely cognate with the KD forms (see Benedict: 1975: *Introduction to Glossary* for the historical implications of this relationship); PT \**man* 'potato, sweet potato, yam' (generic term); Dioi *man* 'yams, potatoes'; Sek *man* 'yam': PLi \**mual* = \**mwal* 'sweet potato': S. Li *va:i* (< \**mwal*, with secondary length before final \*-l), N. Li *muon* (< \**mual*), Loi *man* < \**m[w]al*, also *man-mai* < \**m[w]al/m[w]al* (cognate lacking for White Sand Li, which maintains PLi final \*-l).

The comparative material for VT involving PAT \**i* rather than \**u* for V<sub>1</sub> is much more limited but there are scattered illustrations

of the various lines of development noted above, yielding PT \**ia*, \**ee*, \**ta*, \**t*, PKS \**ya*~\**ia* and \**aa* (through assimilation of V<sub>1</sub> to V<sub>2</sub>) and PLi \**ia* and \**a*(< \**ya*). One root shows VT both in PT and PMY; cf. the following:

PAT \*[NG]i<sup>l</sup>ay: IN \**gilay* 'glitter', from \*NGilay; PPN \**kikila*~\**yigila* 'shine, glisten', from \*(y)gi(y)gila; also the doublet \*(N)qilay: PT \**riay* 'shine/shining' (Siamese 'shining, glittering'), from \*(ə)ray; PKS \**qh*[l][ia]y: Sui *qhay*~*khay* 'bright'; PY \**gwiay* (high tone) 'bright, clear; to shine, light; smooth (= shiny)', from PMY \*[Nq][l]iay < \*Nq(i)lay.

PT also shows the shift to \**ta* in two roots of considerable ethnological interest:

PAT \**biyaq*: IN \**biya?* '[tuberous] plant name'; PO \**piya* (< \**biya?*) 'large/giant arum, elephant-ear taro'; Form: East (Paiwanic) \**biyaq* 'leaf' (app. the distinctive feature of the plant); PT \**ph*[r]tak 'edible root or tuber, yam, sweet potato', from \**p*(ə)rak < \**b*(ə)rak (typical unvoicing of initial \**b*-); Wu-ming (N. Tai) *pltak* 'yam', from \**prtak* (as in PT) but PKS \**?yaak* 'taro', from \*[(a)ɣak < \*[(i)ɣak (assim. of V<sub>1</sub> to V<sub>2</sub>); Lakkia *ya:k* (high tone), id., from \**?yaak* (as in PKS); Ong-Be *sak*, id., from \**phrak* < \**b*[i]rak (without VT); Laqua *rə* 'sweet potato', from \**ra*[q] < \**bi*raq (also without VT); this root appears to lack a PMY cognate; cf. the parallel AT root represented by IN \**pirak* 'silver'; PT \**phlak* 'white' (two other AT roots display this association), apparently from \**phrtak* < \**p*(ə)rak but N. Tai, Lakkia and Ong-Be cognates point to a voiced initial \**b*- for this root, from \**mp*- (\**mpirak*) and the evidence for medial \**r* is found only in N. Kelao (*ru* 'white'); PKS has \**b*[ua]k 'white' (Mak, Kam), reflecting a doublet root: PAT \**bu*[r]ak; cf. IN \**burak* 'white'.

PAT \**[b]iyay*: Form: Saisiat \**biyay* 'buck (male deer)'; PT \**ylay* 'wild goat, goat-antelope', from \**[b](ə)yay*; S. Li *yay* 'sheep/goat' is an apparent loan/back-loan from Chinese *yay* (origin uncertain) but White Sand Li *ziay*, Loi *jian*~*jeɲ*, suggest the reconstruction: PLi \**yiyay*, from \**[b](i)yay*; PMY has \**yuaŋ* 'sheep/goat', apparently from \**yiyay* (through dissimilation) < \**[b](i)yay*; cf. also IN \**kambiy* 'goat', from \**kamb*[ia]y; PT \**[b]eeŋ*, id. (Ahom [obsolete] only), seemingly reflecting PAT

\**(k/)(m)biay* as an early doublet form. As indicated by this apparent doublet, PAT exhibits much variation between \*-*ia*- and \*-*iya*-; note, however, the following root, in which (pre-nasalized) \**y* is retained in a VT situation:

PAT \*[*b*]*i(n)ya[wak]*; IN \**bi(n)yawak* 'large lizard, the varanus': Malay *biyawa?*, Kadazan *biavak*, Tagalog *bayawak* (vocalic assim.), Ngaju-Dayak *băd'awak* (prob. from \**bănyawak*), Javanese *měńawa?* < \*[*b*]*ănyawak*; PT \*[*ń,y*]*ee* 'sand lizard (Shan), large lizard of the woods (Siamese)', from \*[*ń,y*]*ia* < \*[*b*]*i[ny,y]-a[wak]*.

PT has reduced to \**ł(i)* in the following pair of roots, in which PKS has retained an earlier \**ia/ya*:

PAT \**si(n)dzam*: IN \**hi(n)dam*~\**hińd'am* (Dempwolff) = \**hi(n)zam* (Dyen) 'loan': Form: Paiwan *săd'am* 'borrow' (Dahl cit.), from \**sădzam* < \**s[i]dzam* (stress reduction of  $V_1$ ); PT \**ʔyħm* or \**hyħm* (high tone series but reflexes are ambiguous) 'borrow; (comp.) lend', from \**h(ə)yəm* < \**s(ə)yam* (assim. of  $V_2$  to  $V_1$ ); PKS \**ʔziam*, id.: Sui *ʔyam~yam~ʔyiəm*, Mak *čħiim*, from \**[s](i)zam*.

PAT \**lima*~\**łima* 'hand/five': IN \**lima* 'five', also \**ka/lima* 'hand' (Philippines: Calamiano); PO \**lima* (< \**łima*) 'five' (Sa'a *lime*), also \**nima* (< \**[ka/]lima*, hence \**l* > *n* as medial) 'hand' (Sa'a *nime-*); PPN (generally) \**lima* but also (Tongan, Uvean) \**nima* 'hand/five' (cf. PO); Form: East (Paiwanic), Tsouic, Atayalic \**łima* 'hand/five' but note Rukai \**łima* 'five', \*(*qa*)/*łima* 'hand'; PT \**mł* 'hand', from \**mya* < \**[l](ə)ma*; Sek *mł*, id. (as in PT); KS \*( )*mya* = \*( )*mia*, id.: Sui *mya~miə*, Mak *mi* = *mii* (all high tone), Then, Kam *mya* (low tone), from \*(*l*)(*ə*)*ma*; Lakkia *mie*, id., from \**mia*; Ong-Be *mə~me* (dial. variation), id., from \**mya*; PLi \**ma* 'five', from \**[li]ma*, also \**mə* 'hand', from \**[l](ə)ma*;<sup>6</sup> Laqua *mə* 'five', from \**mya*; Kelao *mle* 'hand' (in

<sup>6</sup> As pointed out by the writer in his first (1942) paper on AT, the Southern Li 'dialects' regularly maintain initial nasals while the Northern Li 'dialects' replace them with homorganic surd stops (Bupăli is transitional). In a few roots, however, the Northern Li forms also show nasals, as in 'hand' contrasting with 'five'; cf. S. Li, Loi (all dialects), White Sand Li *mə* 'hand' but S. Li *ma*, Loi (all dialects) *ba* = \**pa*, White Sand Li *pa* 'five'. This supplies a clue to the origin of this distinction, since the vocalism (above) indicates that the *mə* form has been modified by an earlier preceding \*(*ə*) whereas the *ma~pa* forms have not been

comp: 'finger'), *mleŋ* 'five' (secondary nasalization), from *\*mla* < *\*[i]ma*, but *mu* 'five' in comp: '15'), from *\*[li]ma* (cfl PLi; reflexes for PAT *\*-a* conditioned by initial); Lati *m* (> *ŋ*) 'hand/five', from *\*mu* < *\*[li]ma*.

The anticipated *\*ia* as a yield from this kind of VT seems actually to be rare in KD although a few instances have been encountered in PKS (see 'borrow' above), PLi and PT; cf. PL *\*fiap* 'close the eyes', from *\*mliap* < *\*m(i)lap* < *\*m/ilap*; Form: Kuvalan *\*m/i[l]ap* 'sleep', from a doublet AT root (*\*ilap*) represented also by IN *\*inap* 'lie down, sleep, dream'; PT has *\*hlap* 'close eyes, sleep', from *\*q/[i]lap* (without VT); also PLi *\*p[ia]ŋ*: S. Li *peŋ* 'side (of body)'; cfl. for paired members or organs', from *\*[ts](i)pay*; IN *\*t'i(m)pay* 'side road, road fork'; Fiji *tsimbatsimba* 'the other side', from *\*nsimpa[ŋ]/nsimpa[ŋ]*; PMY *\*ph[u]ŋ* 'side (of body)', from *\*ts[i]pay* (secondary aspiration by the initial *\*ts-*). PT also has *\*ia* or *\*ee* in the following roots, one of which ('red') shows variation between the two (*\*ee* is probably the more 'regular' reflex):

PT *\*hmliay* 'tea/fermented tea (Khamti, Shan, Lao), betel (Siamese)' (in phrase: *miay maak* [both high tone] 'betel and areca [*maak*']), apparently from *\*hmbliay* < *\*q/mb(i)lay*; PT also has *\*laay* 'areca' (Black and White Tai, Tho, Nung), from *\*[b](a)lay* (assim. of  $V_1$  to  $V_2$ ), on the basis of the apparent PLi cognate: *\*[b]luay*, id. (S. Li *luoŋ~loŋ*; N. Li cognate lacking); IN has the complex doublet *\*pinay* 'areca palm', from *\*pilay*, but note Form: Atayal *pinay* 'areca' (an apparent loan from Malaya *pinay*), Saisiat *punay*, id., which must be regarded as an early loan (hence *\*l* > *n*) from an otherwise unattested IN *\*pun[a]ŋ* (for the *\*i~\*u* interchange in a closely similar environment, cf. 'white', above); the PT root *\*hmliay* points to the replacement of

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so modified, i.e. they have been derived from (secondarily) monosyllabic rather than disyllabic PLi roots: *\*[j]mə* 'hand' as contrasted with *\*ma* 'five'. On this basis, then, we can reconstruct, for example, *\*na* (rather than *\*[j]na*) 'field (wet, rice)': S. Li *na*, N. Li, White Sand Li *ta*, from *\*[bə]na* (IN *\*bəna* 'low-lying, flooded land'), as confirmed by the unpalatalized vowel; cf. PT *\*na* 'field (wet, rice)', from *\*[bə]na* (monosyllabic root), as contrasted with Ong-Be *nea*, id., from *\*[b](ə)na* (disyllabic root); see the discussion in text, below, of the handling of PAT roots with  $V_1 = *ə$ .

an earlier 'areca/betel' complex (areca nuts and betel leaves) by a later 'fermented tea' complex (LeBar 1967).

PT \* $\text{?deej}$  'red', from \* $\text{?reej}$  (PT lacks \* $\text{?r-}$  and appears to have substituted \* $\text{?d-}$ ) < \* $\text{?riaj}$  < \* $\text{q/(i)raj}$ , or perhaps from \* $\text{?bria}$  < \* $\text{q/b(i)raj}$ ; Dioi *diy* (high tone), from \* $\text{?di[i]j}$  < \* $\text{?riij}$  < \* $\text{q/(i)rij}$  (with assim. of  $V_2$  to  $V_1$ ); Sek *riij* (as in Dioi, but without \* $\text{q/}$ ); cf. IN \**iyaj* 'deep red'; Form: Ami, Bunun \*(*qa/*)*iyaj* 'blood' = 'the red (substance)'; IN also \**biyaj* < \**b/iyaj* 'reddden'; PT also has the complex doublet \**hmliaj* 'rust' = 'the red (substance)', from \**hm(i)raj* (\**mr* > \**ml*) < \**q/m(i)raj*; Laqua *nej* 'red', from \**mlej* < \**mr[ia]j*; cf. IN \**miyaj*: Malay *merah merah* (< \**miya? miyan*) 'deep red', from \**m/iyaj*.

PAT \**s[a]rimaw* 'cat/tiger': IN \**harimaw* 'beast of prey' (Malay 'tiger') (Formosan cognates lacking); PT \**meew~mleew* (doublet in Ahom [obsolete]) 'cat', from \**mliaw~mliaw* < \*(*i*)*maw~r(i)maw* (by metathesis, with \**mr* > \**ml*, as in 'red', above); also \**hmeew* (Nung, id., from \**hmliaw* < \**h(i)maw* < \**[sr](i)maw*; Dioi *meu* (high tone), id., from \**hmeew* (cf. Nung); Ong-Be *niu*, id., from \**mliu* < \**mli[aw]* (cf. Nung); P*Li* \**mliaw*, id.: S. Li, White Sand Li, Shaved Head Loi, Basadungli, Mefuli *miu*, Ha *miou*, Double Cloth Loi *miau* but Bupalai *niäu*, White Sand Loi *niu* (cf. Ong-Be); PMY has simply \**ma(a)w* 'tiger; (comp.) weasel' (PY only), from \**[sar](i)maw* (with partial assim. of  $V_1$  to  $V_2$ ).

The types of VT described above for the mainland AT languages, with \**i* or \**u* for  $V_1$  and \**a* for  $V_2$ , or the reverse, have curious parallels elsewhere in Southeast Asia, both in Mon-Khmer and Chamic, for which there is also evidence of VT in roots with  $V_1 = V_2$  (see above). The Chamic languages exhibit one variety of the former type in several roots, as shown in the following table (modified after Lee 1974, with the addition of one form: Cham *paryak* 'silver'); three of these involve AT roots appearing also in the material presented above: 'red' (PAT has \**iyaj* as a doublet form, probably from \**iya/iyaj* = \**?iya/?iyaj*); 'silver' (KD 'white'); field' (see under the derivative, 'yam/sweet potato'):

Lee (cit. op.) points out that this feature involves only PC \**b*, \**l*, \**r* and nasals, and he emphasizes its sporadic occurrence.

	PC	Rade	Jorai	Roglai	Cham
ear	* <i>taliŋah</i>	–	<i>təŋya</i>	<i>iŋya</i>	<i>taji</i>
red	* <i>m/hira(?)</i>	–	<i>mryah</i>	<i>maryah</i>	<i>mtryah</i>
silver	* <i>pirak</i>	–	–	<i>parya?</i>	<i>paryak</i>
vein/nerve	* <i>hurat</i>	? <i>arwat</i>	–	–	–
thorn	*[ <i>d</i> ] <i>urih</i>	? <i>erwe</i>	–	<i>darwəy</i>	<i>jaroy</i>
worm	*? <i>uləj (Dyen)</i>	<i>hlwat</i>	<i>hlwat</i> <i>hlat</i>	–	–
tuber	*? <i>ubih</i>	–	–	<i>habwəy</i>	–
field	*? <i>umah</i>	–	<i>həmwa</i> <i>həma</i>	–	<i>hmu</i>

He does not relate it to the much richer pattern in the KD languages, which was apparently not known to him. As is sometimes the case in KD (see above), these VT forms provide valuable clues to the reconstruction of the original  $V_1$  which tends towards marked reduction in PC.

The Mon-Khmer languages also appear to reflect a variety of VT but with the reverse order:  $V_1 = *a$  (see Benedict 1975: Appendix II 'Austro-Thai and Austroasiatic'). The medial clusters *\*ia* and *\*ua*, which must be posited for PMK, show 'leveling off' in Khmer, e.g. *\*liat* 'lick' > Khm. *liit*; *\*kuan* 'child' > Khm. *kuun*. Khmer does, however, have medial clusters with falling stress, comparable with PT *\*ia*, *\*ta* and *\*ua*, and it appears that these are to be explained, at least in part, as the result of VT; cf. the following:

PMK *\*(m)balij* 'above/sky/cloud/rain': Chong *paliŋ* 'above' but *pliŋ* (< *\*p[a]liŋ*) '(comp.) cloud'; Jeh. Halang *pliŋ*, Lemet *mpliŋ*, Aslian (Malaysian group) *\*(m)balij* 'sky', Khm. *bhlieŋ* (< *\*[ ]bliay*) 'rain', from *\*[ ]b(a)liŋ*. It seems likely that many of the seeming 'irregularities' uncovered in comparative MK studies will eventually be shown to have been the product of VT of some kind involving the 'missing'  $V_1$  in a basic  $CV_1CV_2(C)$  canonical morpheme pattern. In addition, once more as in KD, the reduction of  $V_1$  has led to a variety of forms, e.g. (from the PMK *\*kalaŋ* > *klaaŋ* root for 'kite' described above) Khm. *khlaeŋ*, from *\*k(ə)laŋ* (Shorto [1973] reconstructs *\*k(laiŋ!)*); Khasi *kliŋ*, from *\*k(i)liŋ* (reduction of  $V_1$  followed by assimilation).

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