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REMARKS ON THE VOWEL SYSTEM OF OLD BURMESE

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Benedict's view of early Burmese phonology was crucial for the vocalism of his entire ST system and is still widely accepted among Tibeto-Burmanists and Sino-Tibetanists. His oBrm[1] (Old Burmese) finals (-y → -j) are as follows:[2]

	-i		-u		-ip		-up	-it		-ut	-ac		-uik	-ok
-əj				-əw										
-aj		-a		-aw		-ap			-at				-ak	

The efforts to reconstruct oBrm seen in Benedict/Matisoff 1972 make quite limited use of the Atsi (Zaiwa) and Maru (Longwo, Langsu) material available then, which is a pity since those are the languages mentioned in the *Conspectus* which are most closely related to Burmese. Ideas for the reconstruction of oBrm are also seen in Pulleyblank 1963 and Gong 1980, but these grand-scale discussions of Sino-Tibetan follow the comparative method even less, making use only of Chinese, Tibetan, and Burmese.

Evidence from a variety of sources, some not available when the STC was written, indicates a vocalic system which is more naturally balanced and easier to use as a comparative tool:

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1 *Abbreviations*: Brm: Burmese, Bsh: Burmish, i: inscriptional, JP: Jingpo, o: old, m: middle, n: new, s: spoken, Tib: Tibetan, w: written, YB: Yipo-Burmic, :: = "is (allegedly) cognate to"

x- in the Zaiwa Group denotes tense vocalisation.

-ˀ, -h : tone marks

-q = final glottal stop.

ɯ = any high central vowel (as a phoneme)

ⁿC- = homorganic prenasalisation of the stop C.

ï- = dz-, ë- = dì- .

2 From *STC* p. 59. Omitted is a set of nasals which closely follows the behavior of the stops.

1) Written Burmese (wBrm) ◌ို "*ui*" = **ə*.

Hla Pe 1961 is a good source for the phonology of Indic loan-words in Burmese. This rime concerns mainly pages 90-92. Simple monosyllables with ◌ို include {*buil*} 'strength' < Pali *bala*, {*guiṇ*} 'group' < P. *gaṇa*, {*puid*} 'stanza' < P. *pada*, {*luiṇ*} 'cave' < P. *leṇa*. In most of these cases we have a short *-a-* in Pali which either already had the pronunciation [ə] commonly found in parts of India when borrowed into Mon or Burmese, or in the case of Mon the sound [ə] may have arisen from short ***-a-*** in the same way that it developed from other short vowels in Mon (cf. Table 1, below). The correspondence is Indic short ***a*** [ə] :: wBrm ***-ui-***.

2) wBrm *-uik -uiṇ*, sBrm [aiq / aié] < * *-ek* / * *-eṇ* < * *-ək* / * *-əṇ*.

"Note especially the words ending in ***-uik***, and ***-uiṇ***. Such finals are rarer in Old Burmese than in Modern. They do not fit into the old Burma Group pattern. Not all the ***-uik*** and ***-uiṇ*** words in Burmese are Shan in origin, but most of them are." (Luce 1985:I.100). With Luce's authoritative assessment in mind, let us consider some evidence pertaining to the earlier values of the rimes now heard as ***-aiq*** and ***-ąi*** in Rangoon Burmese:

a) Miller 1954 is a study of 64 Burmese words transcribed into Chinese some time in the sixteenth century and probably based on older materials. Unfortunately it contains no words in the {***-uik***/***-uiṇ***} rimes, but we do have an early Qing dynasty transcription of ***-uiṇ*** in the word ***ta·luiṇ*** (> ***t'ląi***) used by the Burmans to refer to the Mon people: 得楞 ***tek·leṇ*** (Pelliot 1904). The Chinese (Mandarin) pronunciation [***tə́·lə́ṇ***] (Pulleyblank 1991) was similar to today's, so this either indicates that the wBrm ***-uiṇ*** rime was still being pronounced as [-əṇ], or, if my proposed change ****-ək*** / ***-əṇ*** > ****-ek*** / ***-eṇ*** (and then to modern ***-aiq***/***-ąi***) had already taken place, then Chinese [ləṇ] could have been the closest attempt to render Burmese ***leṇ*** [-eṇ?-eṇ?]. The Chinese could easily have picked an ***-uṇ*** rime character such as 隆 to render "***luiṇ***", but they did not; we can assume that the rime to be represented was indeed closer to [-***əṇ***].

b) Burmese dialect reflexes for {***-uik*** / ***-uiṇ***} are mostly ***-aiq*** /***-aiN***, with perhaps ***-aq*** / ***-aN*** in the far north, so front-vowel rimes such as ****-ek*** / ***-eṇ*** for several centuries ago are a good possibilities. The path of changes which Benedict would require from ****-u:k*** / ***-u:ṇ*** to ***-aiq*** / ***-aiN*** has never been explained by anyone that I know of.

c) A latter-day association of wBrm {***-uiṇ***} with the pronunciation ***-eṇ*** is further evident from the observation in Bernot 1957-1958:278 that the

Chittagong (Marma) Burmese have a word ***šeŋ*** 'long' which is spelled {***hjañ***} in standard wBrm, but these Burmese-speakers have modified the wBrm spelling to {***sjuiŋ***} (Bernot: ***syuiñ***). At the time they adopted this modified spelling, they apparently took their model from a Burmese dialect (Rangoon?) where ***-uiŋ*** was pronounced as [eŋ]. Rangoon Burmese ***še*** 'long' was likely also ****šeŋ*** earlier, but was processed by what was probably an earlier spelling standard, giving it the {***hjañ***} spelling. A similar example of such western dialect spelling is found in Okell 1997 p. 5, where ***cuiŋ*** is given as a 400-year-old Arakan spelling for wBrm {cañ}. The latter can be reconstructed with an ****-eŋ*** rime as in 'long' above. Again we can assume that for the Arakanese of that time, the letters ဲ့ were a way to spell ***-eŋ***.

d) There seems to be a connection between wBrm {***hluiʔŋ***} ***hlaiʔŋ*** < ****hleʔŋ*** (< ****hləʔŋ*** ?) 'wave' and Jingpo ***k'aq·leʔŋ*** 'wave' (***k'aq*** = 'water').

e) Bradley 1985, quoting Loeffler 1960, refers to traces of "earlier Arakanese pronunciations" preserved in Khumi, a Kuki-Chin language. Arakanese, a far western dialect of Burmese, has ***-aiN*** as a reflex of both wBrm {***-añ***} (in cases where the wBrm reflects a real nasal ending) and wBrm {***-əŋ***} (normally written ***-uiŋ***, cf. above). In both cases the Khumi borrowings show ***-eŋ*** ("eng"). My explanation for this is that wBrm {***-añ***} represented ****-eŋ*** which then raised further to ****-iŋ*** in Central Burmese; some time later, by the time of the loans into Khumi, original ****-əŋ*** had fronted to ***-eŋ*** (thus merging with orginal ****eŋ*** in Arakanese but not in Central Burmese), and this product of ****-əŋ*** > ****eŋ*** is preserved in Khumi, but then diphthongised to ***-aiN*** in both Central Burmese and Arakanese.

Given these several connections of wBrm ***-uiŋ*** with front vowels, it would be prudent to reconsider Benedict's evidence (STC #356-363) in support of his claim that ***-uiŋ*** came from ****-u:ŋ*** (and ***-uik*** < ****-u:k***). Indeed he calls the "***ui***" "simply a positional variant (allophone) of the phoneme ***u*** before ***-k***, ***-ŋ*** and ***-w***" although, as he explains, this does not apply to "short medial ***u***". I don't find all this very persuasive: the few wBrm words he cites mostly have some problem, e.g.:

1) ***t'uik-t'uik*** : a rare word not even listed in large dictionaries;
2) ***muik*** : = 'foolish, reckless', not 'dark';
3) 'cave, hole' should be wBrm ***pok*** < ****'buk***, not ***puik*** ;
4) ***cuik*** can be more closely compared with Mru ***cək*** ;

5) ***t'uiŋ*** should be more closely related to Leqi ***t'əŋ'***, Jino ***tɨ*** (= high-central vowel), and Bisu ***dɨŋ*** (Bradley 1979:187-92 says that Bisu ***-ɨŋ*** is the normal reflex of pYipoish ****-iŋ/-eŋ***, not of ****-uŋ/-oŋ***);
6) 'dark' should be wBrm ***hmoŋ***, not ***hmuiŋ*** ('lost in thought');
7) 'river' should be wBrm ***k'joʰŋ*** (< ****k'ruʰŋ***, cf. cNusu ***k'roʰŋ***), and not related to ***k'juiŋ'*** 'pothole'. According to Benedict's theories this Burmese word for 'river' originally had a short ***-u-***, but his argument here requires a long ***-u-***.

Due to these all these misinterpretations and outright mistakes, Benedict's examples do not not fulfill the requirements of his arguments and thus are not at all persuasive that wBrm "uiŋ" originates from ****-u:ŋ***.

Even if ***k'juiŋ'*** could be connected with Old Mon ***kruŋ*** 'river', the next section will show how such a ***-u-*** was already turning to ***-ə-*** in Mon, so wBrm ***-ui-*** would still be representing ***ə***. This does seem the case in wBrm ***k'uiŋ*** 'firm, durable', connected to Mon ***k'əŋ*** (earlier written ***k'oŋ***), Shan ***k'əŋ*** and Thai ***k'ɛŋ***. Benedict's theory was that ****-u:k/*-u:ŋ*** > ◌ုက် / ◌ုင် were special pre-velar allophones which should be understood as having a "probably mid-unrounded" vocalism (STC p.60), i.e. [-ək]/[-əŋ], but this is directly contradictory to the more substantial evidence from Mon which suggests it was short ***-u-***, not long ***-u:-***, which changed into ***-ə-*** (Diffloth 1984:276). Of course the way that long vs. short ***u*** developed in Mon also agrees with a similar process well-known in the history of southern English (e.g. ***lŭk > lək*** 'luck' but ***lūk > lŭk*** 'look').

History of the *-ui-* graphic complex:

The graphic complexes ◌ုင် and ◌ုက် are not found in the Indic traditions whence the Mons acquired their script. These innovations are rare in the oldest stage (inscriptional) of Mon writing (cf. Shorto 1971: xii) but became increasingly common in later centuries. Until recent decades, efforts to reconstruct the phonological history of Mon were rather unsatisfactory (e.g. Blagden 1910 [*Journal Asiatique*], Shorto 1971) due to the chaotic spelling of Old Mon and the lack of a broad base of modern dialectal variation. This was greatly alleviated by the discovery of an isolated Mon dialect, Nyah Kur, still spoken in N.E. Thailand. Using this evidence, as well as the testimony of some Indic loan-words with relatively well established phonological histories, it has become possible to trace the history of Mon with much more assurance. Consult Table 1, based mainly on data from Ferlus 1983 and Diffloth 1984 .

Comparison	oMon	mMon	nMon	gloss
pan	*{pan}*[3]	**pɔn {pan}*	*pɔn {pan}*	four
k·mat/hmat	*{pumat}*	**p·mɔt {pamat}*	*k·mot {kmat}*	fire
satta	*{sat}*	**sɔ̄t {sat}*	*sɔt {sat}*	creature
p'ràat	**brāt{brāt}*	**brat {brāt}*	----	banana
dhātu	**dhāt{dhāt}*	----	*t'àt {dhāt}*	element
kacet	*{kcit/kcut}*	**k'jøt {k'juit}*	*c'ət {k'juit}*	die
hetu	*{het}*	**høt {het /huit}*	*hət {huit}*	cause
p'lət	*{plit}*	**pløt {pluit}*	*plət {pluit}*	extinguished
ət	*{ut}*	**øt {uit}*	*ət {uit}*	terminated
kṣana	----	----	*c'ən {k'juin}*	moment
·vìt	*{wit}*	----	*wət {wuit}*	forget
tun	*{tin}*	**tøn {tuin}*	*tən {tuin}*	rise
k'anùun	*{gnun}*	**gnin {gnin}*	*nìn {gnin}*	skirt
k'amuun	*{kmun}*	----	*mɛn {kmin}*	relative
puṇya	*{pun/pin}*	**pøn {puin}*	*pən {puin}*	merit
mahāsamudda	*{mahasamud}*	**hmasəmit {mhāsamut}*	*hma-h·mɛt*	ocean
'paak	*{lumpek}*	**lpaek {lapāk}*	*paik {lpāk}*	slope
hmak	*{kmak}*	*(*hmak)*	*mɛk {kmak}*	male
klèŋ	*{gluŋ/gloŋ}*	**gløŋ {gluiŋ}*	*klàŋ {gluiŋ}*	many
k'amìŋ	*{rmiŋ/rmeŋ}*	**rməiŋ {rmiŋ}*	*mòñ /mòiŋ*	hear
sùŋ/c'ùŋ	*{ǰuŋ}*	**ǰʌŋ {ǰoŋ}*	*càŋ {ǰuiŋ}*	foot
dukkha	*{duk/dok}*	**dʌk {dok}*	*tàk {duik}*	poor
puk	*{puk/pok}*	----	*pak {puik}*	pull(out)
āyuka	*{ājŭk}*	**əjøk {ajuk}*	*əjək {ajuk}*	alive
k'liic	*{clĭk}*	*(*kləik)*	*kloik{klik]*	pig
lekha	*{lekh}*	**ləik {lik}*	*lòik {lik}*	letter (char.)
rìiŋ	**riñ (> Lao)*	----	*ròiŋ {riŋ}*	spicy
k'lièŋ/kalièŋ	**gliaŋ (Lao)*	*{dleŋ}*	*klèaŋ {gleŋ}*	tripod

Table 1: Mon historical phonology: data

[3] Note: {X} (all words in curly brackets) = attested spellings; Comparison: Nyah-kur = plain type, *Indic* = italic type)

Using this Mon data we can reach several conclusions:

a) The phoneme "***-ə-***" (transcribed as ø by Shorto) had become common in Mon by the Middle Mon period (= mMon - starting roughly 1210 with inscriptional evidence, cf. Shorto 1971: x).

b) In some cases this ***-ə-*** developed from earlier short vowels such as ***-u-*** or ***-e-***, but in other cases the source seems to have been something much like ***-ə-*** itself, despite the confused spellings found in oMon; i.e. despite there being no special letter for this sound in the oMon script, comparative evidence (cf. the first column) suggests that it may well have existed at that stage also.

c) The graphic complex ◌ို as in ◌ိုဝ်, ◌ိုက် etc. (which Shorto, following Blagden, transcribes as ***-uiw*** and ***-uik)*** is used to spell ***-ə-*** in the vast majority of words, especially by the time of the regularised spelling of modern literary Mon. In modern spoken Mon (Moulmein dialect), there has been a new lowering process for velar endings: ***-ək > -ak*** and ***-əŋ > -aŋ***, but the old spelling with ◌ို is still used.

The rationale for using two different vowel signs in ◌ို was likely an attempt to describe a sound perceived as in between ***-i-*** and ***-u-***, in other words a central vowel, possibly a high ***ɨ***, but based on Mon dialect evidence and Indic loan-words (about which more later), it was probably more of a mid central vowel, i.e. ***ə***.

Not only did ◌ို also occur sporadically in the oMon period (Shorto 1971: xii), it is also widely used in the earliest of Burmese inscriptions (from 1112 onward). Since ◌ို is consistently associated with ***-ə-*** in the donor language Mon, it is likely to have been put to a similar use in Burmese, especially since so many words ending in ◌ိုဝ် and ◌ိုက် in wBrm are clearly loan-words from Mon. In other words, it appears quite misleading to transcribe ◌ို in the traditional way as {***-ui-***} or the rarer {***-iu-***}, q.v. Pulleyblank 1963 (not to mention Benedict's unfortunate identification of it as a short ***-u-*** phoneme). If this sound was a monophthong, then, barring any pressing historical arguments, it should be transcribed with a single vowel-sign. I suggest ***ə*** (or perhaps ***ɨ***, or even ***y*** or ***ø***). Such a suggestion is not really that revolutionary since Löffler 1960 already transcribed this graphic complex as " ö ".

Although not noted in the above table, there are many examples found in Diffloth 1984 of modern Mon dialects which show front-vowel reflexes such as ***-e- -ej- -aj- -əj-*** for his proto-Mon/Nyah-kur ****-ɯ-*** (equivalent to the ****-ə-*** suggested here) , e.g. V130 ****kɯt*** 'bite-' Cc-Ro ***kəjt***, Nd-Thai ***kejt***; V35 ***ɖɯk*** '(day) is finished' Sc-Rao ***ɖajc***; V134 ***tɯt*** 'come out-' Kb-Ro, Ch-Thai, Sho/Pk-Rao ***tet***, Bk/Nd Thai ***tajt***, Lt-Rao ***tejt***. Although I am not prepared to account for or analyse all such dialectal developments in modern Mon, we can at least use such evidence to gain new insight into how Burmese words such as

'bite' (probably a loan from Mon) developed from wBrm ***kək*** "***kuik*** " to modern sBrm ***kajq*** .

Finally, we should note that the wBrm reflexes relating to this rime are not entirely consistent, and this must be due to the different paths through which a word, particularly an Indic loan-word, might have entered into Burmese usage. For example, the Pali word ***sammuti*** 'name, designate' as a verb is ***θamouq*** in sBrm, reflecting a wBrm ending in {-ut}, but the corresponding noun-form is ***θamaiq***, from wBrm {samàk}. We can draw two useful conclusions from this example:

a) In the noun, the original ***-u-*** underwent a change to a central vowel, probably through the medium of the Mon language, before it entered into Burmese.

b) Although the consonant following the stressed vowel was originally a dental stop, it was reinterpreted as a velar stop in Burmese since that was the only type of stop allowed in the Burmese spelling after this vowel. When this happened is not clear. Such reinterpretations were not at all consistently carried through, e.g. wBrm ***rakk'əs*** from Pali ***rakk'asa*** 'ogre' is pronounced ***jeq·k'aiq*** in sBrm (***aiq*** < ***eq*** < ***əq*** << ***as***) but the original Indic spelling has not been revised to reflect the Burmese pronunciation. Mon independently developed the form ***l'kəh*** in which ***-əh*** more faithfully preserved the Indic ***-as*** (Shorto 1971:312).

3) wBrm *-i* < *-e* (and < *-ej* ?), wBrm *-e* < *-ej* < *-əj* < *-i*

STC's oBrm vocalic system shown above is unnatural and unrealistic. I propose, for a start, a basic five-vowel system of ***u - o - a - e - i*** and probably also several diphthongs. Table 6 shows that many Yipo-Burmic (YB) and Qiangic languages, which together I am calling "Eastern TB", have a simple ***-i*** as the reflex of Benedict's ****-əy/-iy***. A few languages have the reflex ***-aj***, but that is the result of a diphthongisation-process commonly seen throughout the world. ***-əj*** as a reflex is very rare, and Benedict's ***-ij*** simply does not exist. If ****-əj*** were the proto-rime it would likely have often changed to ***-oj*** also, but this reflex is virtually non-existent in this set of words.

The same picture is seen on a wider scale among the various branches of TB and even in Chinese. (Benedict (STC:61) indicates his Inscriptional Burmese (iBrm) "***-iy*** corresponding to ***-i*** in Tibetan, Kachin [= JP], Garo, Lushei *and most other TB languages...*" (my emphasis) but he does not take the hint, apparently being strongly attached to the literal iBrm spelling and its relevance for all other TB languages, or to its implications for his theory of vowel-length distinctions in TB.

Examples of ST ***-i*** words:

'boat': wBrm ***hlei*** < ****hli*** ; JP ***li*** ; Meitei ***hi*** ; cKaren ****k'li*** .

'bow': wBrm ***leʔ*** < ****liʔ***; cKaren ****k'liʔ***; Garo ***cri*** ; Bogar ***iː*** ; Idu ***·lī***, Miju ***hliʔ***; Limbu ***liq*** ; Ao ***lí·***, Mikir ***li***, Meitei ***liru***, Lakher ***lí*** ; OC ****li*** (phonetic in 夷 ***ji*** < ****li***, indicating a bilingual pronunciation for 弓: ****k(j)uŋ*** and ****li***).

'day/sun': wBrm ***neʼ*** < ****niʔ***; JP ***š·ní***, Tamlu-Konyak ***ñiq·***, Khiamngan ***·ñiq*** Tangsa ***·nəjq***; Kamán ***ŋîn***; Idu ***·ñî***, Miju ***ŋît*** ; Lus´ei ***ni***, Zeme ***·naj·***, Angami ***nje·***, Cokri ***na·***, Sangtam ***ñi***, Kheìa***·ni***, Yimchungra ***·ñi***, Mikir ***a·rni*** ; Apatani ***·ñi***, Gallong ***·ñi*** ; cKaren ****ni(h)***; OC 日 ****nit*** .

'die': wBrm ***se*** < ****si*** ; JP ***ši***, Boro ***təj***, Garo ***si***, Chang ***həj***, T.Konyak ***yih***; Luśei ***tʻi***, Meitei ***si***, Tangkhul ***·tʻi***, Zeme ***·caj***, Angami ***sje***, Chokri ***sa***, Mikir ***tʻi*** ; Yimchungra ***še***, Kama´n ***sî***, Apatani ***si***, Gallong ***hi***; Tamang ***si***, Chepang ***si***, wTib ***ši*** < ****si*** ; cKaren ****si*** ; OC 死 ****siʔ***. --- Benedict 1992 (ST Conference paper) has 死 as OC ****sˌjəʁ*** < ST ****səy*** .

'flea': wBrm ***·hleʔ*** < ****hliʔ***; JP ***ʻk'·lí***, Tangsa ***·ləjʔ***, Miji ***s·λi***; Luśei ***·li***, Lakher ***·hli***, Zeme ***h·laj***, Angami***·hlje***, Chokri ***·ha***, Kheìa ***·hli***, Mikir ***či·kli***, Meitei ***ri*** ; wTib ***lǯi·*** (< ****dli·*** < ****gli***, cf. Kaike ***gali***), Monpa ***ʻli*** ; Apatani ***xɨh*** ; Paku Karen ***·klį́*** .

'give': wBrm ***peʔ*** < ****bjiʔ***; Mikir ***·pīʔ***, Meitei ***pīʔ***, Lakher ***pīʔ***, Luśei ***peʔ*** ; Limbu ***piq*** ; Chepang ***bəjq***, wTib ***bji(n)***; Kamán ***pī***, Miju ***pʻit***, Apatani ***bi***, Bogar ***biː*** ; Miji ***bi***, Bugun ***pʻi*** ; Pa-O ***pʻé***; OC 畀 ****piʼ*** .

'grandchild/nephew': wBrm ***mreʔ*** < ****mliʔ***; Limbu ***panli***; Sangtam ***·pʻ·lih***, Yimchungra ***pʻ·leh***, Mikir ***pʻili*** ; JP ***ʻm·li***, Garo ***·ri***, Chang ***lih***, T.Konyak ***lih*** ; cKaren ****li*** ; OC 姪 ****blit***.

'heavy': wBrm ***leʔ*** < ****liʔ***; JP ***li***, Nokte ***a·liq***, Tangsa ***ləjq***, T.Konyak ***liq***, Boro ***lír*** ; Miji ***m·λiq*** ; Kuki-Chin ****rit***; Lepcha ***lim***; Chepang ***liq***, Tamang ***li·***, Monpa ***ʻli***, wTib ***lǯi·*** (< ****dli·*** < ?), Paṭṭani ***hli*** .

'seed': JP ***·li***, Nokte ***a·li***, Tangsa ***a·ləj***, Kamán ***x·lə́j***, Garo ***caqri*** ; Mikir ***ci·lih*** ; Apatani ***a·li*** ; cKaren ****·kʻliʔ*** ; Tsangla ***li*** .

'shit': wBrm ***kʻjeʔ*** < ****kʻliʔ***; JP ***kʻjí***, Tangsa ***xəjq***, Nokte ***hiq***; Kamán ***t·kʻɛ̄j***, Boro ***kiq***, Garo ***kiq*** ; Yimchungra ***kiq***, Sangtam ***čiʔ***, Mikir ***hīʔ***, Tsangla ***kʻi***; Chepang***·kliq***; Tamang ***klīʔ***, wTib ***lči·*** (< ****tli·*** < ****kli·***); Sunwar ***kʻriː***, Limbu ***hīʔ***, Khaling ***kʻli*** ; OC 屎 ****hliʔ*** < ST ****kʻliʔ***. Benedict has OC ****s-gyˌjəʁ*** < ST ****(s-)kləy***. The need for a voiced stop in OC totally eludes me, as does the need for final ****-r***.

'wind': wBrm ***le˩<*li˩***; JP ***buŋ·lí***, Chang ***jəjh***; Luśei ***t'li***, Ashö ***k'li***, Angami ***·k'rje***, Zeme ***·kaj*** ; Apatani ***a·λi*** ; cKaren ****k·li/gli*** .

The reader should note that in the above lists the semi-colons separate the members of different major branches of ST. I have tried to avoid the unfortunately widespread habit of only citing evidence which backs up my proposal; instead I have tried to make these lists representative if not exhaustive, and the reader can easily see that, despite the presence of predictable changes in a certain few languages (e.g. Angami, Tangsa, Zeme), the major rime in all these forms is ***-i***, which, as a simple, basic vowel, constitutes one corner in the vowel-array of most of these languages. This ST ****-i*** is also often reflected in the cognates listed in Table 7, notably excepting diphthongisation in some Burmish languages and changes such as ***i > e*** *(> **a**)* in Pumi and ***i > ə*** in some other Qiangic languages.

Burmese itself exemplifies such Burmish diphthong-developments: YB ****-i*** > oBrm/iBrm ****-əj*** > wBrm ***-ej*** *(> **-e**)*. All three stage of this change are still reflected in one of the N.Burmish languages, but with more complete diphthongisation to ***-aj*** (Zaiwa) and then to ***-a*** (Langsu). Words such as 'grandchild' and 'foot' with ****-ji*** have somewhat different reflexes in N.Burm. (to be detailed in a later paper), and the difference is occasionally also seen in spoken Rangoon (sBrm), e.g. wBrm ***k'je˩*** but sBrm ***č'i˩*** 'shit', wBrm ***mre˩*** but sBrm ***mji˩*** 'grandchild' (cf. Yabu 1994).

I suspect that Benedict's advocacy of ****-əj*** for ST, TB, YB, and oBrm instead of the more obvious, simple ****-i*** was due to a misunderstanding of the nature of inscriptional Burmese, especially in its relationship to the donor language Mon. The symbol ꩜ for ***e*** is indeed found in iBrm, but only in two situations: 1) enclitics, particles, etc. 2) in closed syllables such as ***k'et, sec***. If there were in oBrm a large number of words with the ****-e*** rime, this is not reflected in any direct way in the script. Benedict took this to mean that they simply did not exist in early Burmese. A point that he may have overlooked is that at that time in the way the Mon script was being employed (for Mon), the { ꩜} symbol for ***e*** was rarely used in open syllables, probably because Mon itself, at least in its written tradition, had so few words with open syllables (Ferlus 1983:66). In the closed syllables where { ꩜} was often seen, the pronunciation was probably already [ə] in many words (cf. Table 1), and this may have inspired some hesitancy in its use by the newly-literate Burmese.

An additional factor which likely inhibited the use of { ꩜} in iBrm for words such as 'fire' (wBrm ***mi˩*** < oBrm ****me˩***) or 'near' (wBrm ***ni˩*** < oBrm ****ne˩***) is that several vowel-shifts were underway in Burmese at that time, and words with

the same rime as the two just mentioned very likely had at least a high ***-ẹ*** if not an even higher vowel as a drag-chain response to the ***-i > -əj (> -ej)*** change.

In iBrm the graphic complex ཇྀ, which I would transcribe as { ***ij*** }, was the chief means of transcribing the rime which Benedict describes as ***-iy*** (i.e ***-ij***), which he then took to be one of the proofs for the existence of long vowels in oBrm. He used an analogous argument for a long high back vowel in 'nine' and some other words. As an areal phenomenon in South-East Asia it is the low vowel ***-a-*** which is most commonly associated with contrastive vowel-length, and it is ironic that Benedict showed no evidence for such a contrast in oBrm, while at the same time arguing for length distinctions in these other vowels.

Another reason for Benedict's use of ***-ij*** can be seen by looking at the OC transcription for the above ****-i*** cognates as found in Baxter 1992. Baxter also transcribes this OC rime-set as ***-ij*** instead of simple ***-i***. The reason for this goes back to an observation several centuries old concerning words having this OC rime: many have been found to share the same phonetic element that expresses final ***-it*** in other words, for example 至 ***čij*** 'arrive' and 姪 ***ḍit*** 'nephew'. Even though the vast majority of such words are only found in the ****-i*** rime's 去 tone category, Baxter, Li Fang-kuei and some other scholars have somehow deemed it necessary to project this affinity with final ***-t*** onto the other two tonal categories (平 and 上) as well, in Baxter's case by adding on a ***-j***, i.e. ***-ij*** and in Li's case by adding on a ***-d***, i.e. ***-id***.[4] As the reader can see from the above cognate sets for 'bow', 'die', 'give', and 'shit' above, there is little if any TB evidence to substantiate these extra endings in OC; other Sino-Tibetan ****-i*** cognates can be consulted with the same result. The question naturally arises, for example in the case of Baxter 1992: if a supposedly phonemic system has ***-ij***, then it should also have the more unmarked ***-i***, but we seen that this is not the case. All final ***-i*** in Baxter 1992 have a ***-j*** added onto them. Since there is no contrast then between ***-i*** and ***-ij***, why not follow normal procedure and choose the simpler, eliminate the superfluous?

Although on superficial analysis it appears logical to transcribe ཇྀ as { ***ij*** }, there are some indications in iBrm usage that for the literati of that time it may have directly represented the ****-əj*** diphthong which I contend was its transitional pronunciation:

1) There are places in the inscriptions where the rime ཧྭྀ { ***-əw*** } (Benedict's ***-uiw***) was instead spelled ཧྀ { ***-iw*** } .

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[4] This same fallacy led Li Fang-kuei (and thus Gong et al.) to insist on a final ***-g*** after vowels such as ***-a*** and ***-u*** in not only Old Chinese but Sino-Tibetan itself, thus a final velar stop in words such as 'five' or 'nine' where there is no comparative evidence to support it.

2) Then there are also some cases where ိုက် {***-ək***} (Benedict's ***-uik***) was instead spelled ိုက် {***-ik***} (Ba Shin 1962:28, 38-9).

A simple explanation applicable to both of these cases is that since there was a parallel diphthongisation going on at both the high front and high back corners of the vowel-array, the first part of both ိုယ် and ိုဝ် were both felt to represent ***ə***, therefore the simpler digraph ိ {***i***}, being the ***ə*** of ***əj***, could also serve as the ***ə*** of ***əw*** or of ***ək***. This seems to have been logical to only a minority of the scribes, since in most cases the trigraph ိုဲ is used for [***ə***]. If, on the other hand, ိ were pure and simply the sign for ***i***, there would be no logic at all in using it to represent a high back vowel or diphthong (or ***ə***).

The change from ***-i*** to ***-əj*** underway at the time of the inscriptions must have been largely effected already, but it is the nature of such changes that not all speakers nor all words used by a single speaker will change at the same time. Thus inscriptional records show some YB ****-i*** words still being spelled as simple ိ {***-i***}. This sort of variation is characteristic for transcriptions of a language undergoing considerable sound-shifts, all the more when the language has had no prior spelling tradition.

Benedict's TB **-i*:

Benedict reserves TB ****-i*** for cognate sets where other TB languages have ***-i*** corresponding to wBrm ***-i***. This is quite a smaller set than his TB ***-i*** :: iBrm ***-iy*** set, therefore his TB vowel array has it as the minor type "(***-i***)". The real reason this set shows fewer correspondences is that we are dealing with TB ****-e*** and ****-ej*** (and perhaps ****-aj*** ?); in iBrm this has already been raised to either a high ***-ẹ*** or to ***-i***, and in a number of other TB languages such rimes have also been raised, but in many ST languages there was no such raising (e.g. 'tail': wTib ***me***, Chiru ***·r·meɨ̃***, JP ***n·mai̯***, Chinese 尾 ***wee*** [wěi] < ****məj̯***, but Lotha ***·hmɨ̃***, Gurung ***mi***, wBrm ***·mrɨ̃***), therefore the languages retaining ***-e(j)*** etc. do not fit into Benedict's correspondence set, which is thus a smaller set than his more regular TB ****-əy*** :: oBrm ****-iy*** set.

STC#262-265 contain Benedict's evidence (in quotes) for TB ****-i***:

#262 'penis':

a)"Kanauri ***kut·li*** :: wBrm ***lɨ̃***," but ***·li*** must be from ****le*** since the normal Kanauri reflex of ****-li*** is ***ø*** (cf. ***pø*** < ****pli*** 'four', ***k'ø*** < ****k'li*** 'shit', cf. STC n. 126). also cf. wTib ***mǰe*** < ****mde*** < ****mle***.

b)"Bahing ***bli*** :: wBrm ***lɨ̃***," but both are from ****ble***, cf. Limbu ***le:*** and Starostin 1994's Proto-Kiranti ****lè*** 'copulate-', also cf. Bahing ***mi*** < ****me(j)*** 'fire', ***mičɨ*** < ****mek*** 'eye'. Bahing may have undergone a high-

front vowel-shift similar to Burmese: *-i > -əj > -e* (e.g. *le* 'four', cf. wBrm *leʔ*) vs. *-e > -i* (e.g. 'penis').
c) "Dimasa *li* :: wBrm *liʔ*," but *li < *le*, cf. Dim. *·t'i < *se* 'know-'.

#263 'decay, ulcer':[5]
Vayu *ri* 'decay' :: wBrm *rih* 'be rotten(of cloth); gleet-'", but in both languages the vowels were raised from **re*, cf. Vayu *li < *le* 'tongue'. As for the Kachin cognates he proposes (*riq* = 'a type of arthritis', *n·ji* = 'spittle from a corpse'), I was unable to confirm any of them in the large Chinese-Jingpo or Jingpo-Chinese dictionaries. The Miri citation *tari* 'wound' may actually be cognate with N.Burmish **hriʔ* 'filth, dirt', which would correspond to a hypothetical wBrm ***hreʔ*.

#264 'existence':
"wTib *srit·pa* 'existence' :: wBrm *hrih* 'be-'". Benedict says that the Tibetan *-t* is a suffix, but there is no internal Tibetan evidence for that. Also, I am leery of using such abstract words for comparative work.

#265 'tickle/armpit':
This is the only persuasive-looking set, with an *-i-* match in Nung, Lakher and wBrm, but the etymon is so widely spread over S.E. Asia in other linguistic stocks (Tai/Austronesian) that, as STC n.199 suggests, it may be a borrowing into TB languages, thus not suitable for demonstrating Benedict's point here.

None of this set of four examples is at all persuasive toward establishing Benedict's rarer TB **-i* rime. Such a demonstration would be bound to fail because we are dealing with a bogus set of correspondences: the TB rime here is not a rare **-i* beside the common **-əj* but rather a fairly common TB **-e/ej* (raised to *-i* in wBrm and some other languages) beside an even more common **-i*.

4) wBrm *-ac, -añ < *-ek/-et* (and **-eŋ*), not < **-ik, -iŋ*

The prevailing idea that **-ik* and **-iŋ* are the protoforms from which developed wBrm {-ac} and {-añ} is difficult to reconcile with the evidence: for example, STC#83 reconstructs TB 'name' as **r-miŋ* and offers by way of evidence forms ending in *-iŋ* in four Himalayan languages (including wTib *miŋ*) along with forms from Garo, Jingpo, Luśei, Rangkhol, and Gyarung *·rmi*.

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5 This is a messy set.

Conflicting evidence from many other languages was not mentioned, e.g. Khiamngan ***ñan*** ; Kamán ***·māŋ*** Shǐxìng ***mâ***, Stau ***mñoŋ*** ; Amdo Tibetan ***ñaŋ***; Sani Yi ***mæ̂***, Làngsù (Maru) ***maŋ***; Apatani ***·mrjaŋ***^{r}; Bai ***mjà***, as well as southern Chinese dialects such as Shuangfeng, Meixian, Xiamen, Chaozhou, Fuzhou ***mjaŋ*** (***-aŋ → -ą*** in some of the Min dialects) and Nanchang and Jian'ou ***mjaŋŋ*** (去聲); this is but a sampling of many ST languages with such a low-vowel vocalism.

Similarly, although the protoforms given in STC #433 for 'long' in various TB languages can be reduced to ****sriŋ***, including Benedict's derivation of wBrm ***hrañ*** from an earlier ****sriŋ***, this also does not account for a multitude of other forms such as Cho Chin ***hloŋ***, Mikir ***kraŋ*** ('height'), Lepcha ***kren/·hren***, Yimchungra ***·šaŋ***, Chungli Ao ***t'laŋ·ka***, Yacham Ao ***laŋ·la*** (the root of both being ***laŋ***, cf. Chungli Ao ***t'ə·cə·ka*** 'short'), Mru ***'klaŋ***[2] ; Pumi ***hráŋ***, Lysu ***hrā***; Kamán ***k'rāŋ***; Langsu and Bola ***xaŋ***; Dimasa ***glau***; Amdo Tibetan ***raŋ***, Tamang ***reŋ*** ; Serdukpen ***a·reŋ***. The Bai word for 'tall' is ***kạ̀***, and although probably derivable from ****kaŋ*** (< ****kraŋ*** ?) it is not clear if the word is of Sinitic or TB origin.[6]

Another word with this problem, widespread in ST, is 'full', given as TB ****bliŋ ~ *pliŋ*** in STC#142. Benedict suggests an ***-iŋ*** proto-rime, despite his own evidence which includes wBrm ***prañ/p'rañ***, Lepcha ***·bλan***, Digaro ***bloŋ*** and Dimasa ***p'uluŋ*** (Vt). To these could be added Kamań ***p'lāŋ***, Bola ***pjáŋ*** and Langsu ***pjāŋ***, Sani ***·dlǣ*** ***(< bl-)***, Yani Hani ***bjaŋ' (bjāŋ)***, Lahu ***pe (pê) < *pja*** [not ***biʔ*** (***bî***), cf. Matisoff's dictionary], Paku Karen ***bre***, Garo ***baŋ·***, Ao ***·baŋ·***, Mao ***·p'ro***, Pocuri ***pro***, Kham ***bjalo***, OC 不盈 ***py·jiñ < *p·leŋ*** 'filled' (Ode 179). There are quite a few additional cognates with both high and low front vowels.

Further we have:

'pheasant': wTib ***srek*** ~ W.Tib ***hrak·*** ~ Lepcha ***·hrjak·*** :: wBrm ***rac*** ***< *rek***, cf. Nusu ***k'rek*** ; Bodo ***sriq < *srek*** ; Mikir ***·rék***, Liangmai ***·rêk***, Lus´ei ***·hrit < *hrik < *hrek ;*** Bugun ***p'rek***.

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6 It is evident from this list of cognates that some or all protoforms for ST 'long' had not ****sr-*** but ****kr-*** or ****kl-*** for an initial-cluster. The other initials can be derived from the velar cluster: ***kr- > xr- (~ hr-) > š-*** . Chinese 長 ***ḍaŋ*** is also a likely cognate, with a proto-initial similar to wTib ***rgjaŋ < *grjaŋ*** 'far; extent'. The northern Chin and central Chin languages Teddim Chin and Luśei have similar forms: T.Chin ***kaŋ*** :: L. ***ṭaŋ***, both ***< *kraŋ*** 'to stretch' and T.Chin ***xaŋ*** :: L. ***ṭ'aŋ < *k'raŋ*** 'to grow'. Chinese 張 ***ṭaŋ*** 'extend' and 長 ***ṭaaŋ*** 'grow' are likely derivations formed by *s-* prefixation and other morphological markers (****skraŋ*** ?). Another word 搪 ***daŋ*** 'extend' (so defined in the *Fāngyán*) may, because of velar contacts in its phonophoric (e.g. 庚 ***keñ < kraŋ***), be derived, through a different dialectal strain, from ****dláŋ < *gláŋ < grán***. Another likely cognate is 羹 ***jaŋŋ < (g')laŋh*** 'long' (GSR 732k) . For the ****-r-***, also cf. 韔 ***liaŋŋ < k·raŋ'*** 'bow-case'.

'to screw': Mru ***rek*** :: wBrm ***rac*** < ****rek***
'to cleanse': Mru ***c'et*** :: wBrm ***sac*** < ****c'et***

Without treating this matter exhaustively, I can offer a few more examples that have the same sort of variation, usually to a lesser degree, that the above examples show: 'pus', 'neck', 'dirty', 'marrow', 'green / living', 'ripe/cooked', 'year', 'new' (***-ñ*** < ***-r***), 'tree/wood', 'heart', 'joint'.

Shafer and Benedict have both explained the lower vocalisms found in this set of words by arguing in effect, "We know it was ****-ik***, so in some (or many) languages the vowel must have lowered," which is of course merely begging the question. I present more substantial evidence below for a different interpretation.

Foreign transcriptions/loans:

a) Hla Pe 1961 shows many Sanskrit/Pali loan-words in Burmese where ***-ăj*** is rendered by wBrm ***-ac***, and a few examples show Indic ***-et/-ek*** > wBrm ***-ac*** . By contrast, Indic words with stressed ***-ik***, although still spelled { -ik } in wBrm, are found to merge phonetically with wBrm ***-it*** and end up accordingly as ***-eiq*** in sBrm.

Some of his examples:

Pali ***karavika*** → wBrm ***karawik*** [kərəweiq]
Pali ***lekha*** → iBrm ***likh*** → wBrm ***lik*** [leiq]
Pali ***linga*** → wBrm ***liŋ*** [leiŋ]
Pali ***paccanīka*** → wBrm ***paccanik*** [pjiqsəneiq]

The last example additionally implies that a rime now pronounced [-iq] in modern Burmese was not pronounced ****-ik*** in oBrm as the received ST theory maintains, but rather something much like [-ac], just as a straightforward interpretation of the old script would dictate.

I suggest that the development of ***-ik*** in these and other Indic words also occurred in any other oBrm ****-ik*** syllables, i.e. in the native stock of TB ****-ik*** words.

Although, as mentioned above, Indic loans in ***-et/-ek*** may be found in wBrm with the ***-ac*** ending, they also sometimes have maintained their original spelling in Burmese, but the pronunciation nonetheless follows the ***-ac*** rime and raises to ***-iq*** in sBrm, e.g. wBrm {khet} sBrm ***k'iq*** 'extent, domain' < Pali ***k'etta*** .

As for wBrm ***-ac***, evidence would seem to indicate that it was used to represent the convergence of both a rime with a low vowel, more fronted than ***-ak***, and also a rime with a mid vowel having either ***-t*** or ***-k*** as a final stop. I theorise that in the dialect(s) underlying iBrm, original ****-ek/-et***, perhaps under the influence of ****-jat***, underwent a breaking process to ****jac*** resulting in a rime

which was similar to, but not quite the same as ***-jat***, although in the case of words such as wBrm ***jac*** 'be drunk' < ****jat*** there sometimes occurred early raising to merge with ****jac***. For further discussion of the breaking of mid-front and mid-back vowels, see below.

In the context of this suggested breaking of both front and back mid-vowels, some words from Nishi 1999:49 regarding orthographic variation in iBrm are pertinent: "...most of these variations may be considered to have reflected over-differentiation, or under-differentiation of phonemes." Vacillation between ***-e-*** and ***-ja-***, for instance, may have reflected different dialects already present in Burmese: it would not be surprising for such a large national group to already have had dialectal variation even as it was migrating into the Indo-Chinese peninsula.

b) The evidence from Miller 1954 (#9,18,32,47) is that in the sixteenth century or perhaps somewhat earlier wBrm ***-ac*** was rendered in Chinese by graphs pronounced ***-je(q)***. Bradley 1985:194 recognises this but then strangely concludes that the Burmese sound reflected was "something like [iʔ]", a conclusion which seems to rest more on other, later evidence.

c) On the same page, further down, Bradley refers to what are apparently early loan-words from Burmese into some Chin languages, and concludes that they reflect an early pronunciation of wBrm ***-ac*** as [ɛʔ] (= ***-eq*** in this paper).

If one looks mainly at the reflexes in Jingpo (Kachin), Nung, Garo, Bodo, Dimasa, Luśei, Kinauri and wTib, one can find a number of basic vocabulary words with ***-ik/-iq*** corresponding to wBrm {-ac }, but this is only a small sampling from hundreds of TB languages, and heavily weighted towards the Baric group; unfortunately it was just this selection of languages which constituted the main body of evidence in the STC, as can be readily seen by looking at its cognate lists. Shafer drew on the same Berkeley data-base that Benedict used, so it is not surprising that they both focused on ****-ik*** as the source for wBrm ***-ac***, but if we consider a larger selection of ST cognates, and pay special attention to Burmese's close relatives in N.Burmish (see Table 2), and if we take into account the development of Indic words in Burmese, as well as the 400+ year-old Chinese transcriptions, it then appears rather improbable that {-ac} could have derived from a rime with such a high front vowel.

If we compare the reflexes of ****-jat*** and ****-jek/-jet*** in Burmese and N.Burmish as well as the many ST cognates of wBrm ***-jac*** that have ***-jat***, ***-ek*** and ***-jak*** along side those with ***-ik***, furthermore the Indic loans in ***-aǰ***, ***-et***, ***-ek*** which end up in sBrm with the same ***-iq*** rime that comes from wBrm {-ac} (whereas Indic ***-ik*** > [****-it*** >] ***-eiq***), as well as the Chinese transcription as ***-jeq***, this all points to oBrm ****-et*** and ****-ek*** merging to ****-eq*** and then to ***-iq*** in Rangoon sBrm. The original mid-vowel is still preserved in the Tenasserim Mergui

dialect's ***-eq*** (Jones 1972) and also in some words in North Central dialects such as Intha. Since Rangoon, i.e. South-Central Burmese, only became the standard pronunciation after 1885 (cf. Lehman 1992:227), we can see spellings such as ***-ac*** as representing the North Central dialect area including Intha and parts north. We can suppose that in these areas, and in Arakan as well, a breaking process affected mid-vowel rimes (***-et / -ek > -jac***) and so we see the {***jac***} spelling in the traditional script, whereas the South Central dialect area underwent raising instead: ***-et / -ek > -iq***. This breaking to ***-jac*** can still be heard in the Arakanese dialect: ***-jac > -jaiq*** (e.g. ***a·mraiq*** 'root').

Table 2 shows the pattern for words in the North Burmish language group which are cognate with wBrm ***-jac*** words; some other rimes are included for comparison. It can be seen that the N.Burmish values do not support deriving wBrm ***-jac*** from ****-ik***.

wBrm	LC Ach.	LX Ach.	LH Ach.	XD Ach	ZW	LS	BL	LQ
{-ac}	*-ɔc*	*-ɔc*	*-ïc*	*-ɔc/-ïc*	*-ec/-jic*	*-ac*	*-ac*	*-ɔc*
{-jat}	*-rat/-et*	*-ɔt*	*-et*	*-et*	*-jit*	*-jic*	*-jot*	*-jit/-ɔc*
{-jak}	*-jɔk*	*-jak*	*-ja(k)*	*-jɔk*	*-jok*	*-jok*	*-jak*	*-jok*
{-ak}	*-ɔk*	*-ak*	*-a(k)*	*-ɔk*	*-ok*	*-ok*	*-ak*	*-ak*

Table 2. Some rimes in Burmish languages

The Romance language-group has many words which show a similar pattern of vowel-breaking:

gloss	Vlg.Lat.	Spanish	French	Rhætian	Italian	Dalmatian	Rumanian
festival	*fèsta*	fjesta	*fetᵃ*	*feašta(w)*	*fèsta*	*fjasta*	----
iron	*fèrro*	*jerro*	*fer*	*fjer(e)*	*fèrro*	*fjar*	*fjer*
herb	*èrba*	*jerba*	*erbᵃ*	*jarva(w)*	*èrba*	*jarba*	*jarba*
bed	*lèkto*	*lečo*	*lit*	*leč(c)*	*lètto*	*ljat*	----
stone	*pètra*	*pjedra*	*pjerᵃ*	*pjere (e)*	*pjètra*	*pitra*	*pjatra*
strong	*fòrti*	*fwerte*	*fort*	*fwart (e)*	*fòrte*	*fwart*	*(fwarte)*
fire	*fòko*	*fwego*	*fø*[7]	*fug (e)*	*fwòko*	*fuk*	*fok*
door	*pòrta*	*pwerta*	*portᵃ*	*pwarte(e)*	*pòrta*	*pwarta*	*pwarta*

Table 3. Some mid-vowel developments in Romance

[7] ***fwa*** in Franco-Provençal (< A. Martinet).

The most complete examples are 'bed' and 'stone' which show both breaking (lowering) and raising of the original ***-e-***.

I have included the last three examples to show that, in analogy to the process seen in front vowels (breaking and spreading from a mid vowel), a similar process occurred with back vowels. This is relevant to the early history of Chinese and Burmese among other languages.

An example from the Germanic group is 'I', where NW. Germanic ****ek*** (cf. Latin ***ego***) was raised to ****ik*** in W. Germanic but retained the ***e-*** in N. Germanic, which then underwent breaking in some languages: cf. modern Norse ***jag***, from ON ***ek/eg*** (also > Swedish ***jeg***).

The Slavic group also has many examples of these sound-changes:

	'faith'	'part'	'meat'	'summer'	'row'
O.Church Slavic	*věra*	*děla*	*męso*	*lěto*	*rędə*
Bulgarian	*vjára*	*djal*	*mesó*	*ljáto*	*red*
CroatoSerbian	*v(j)èra*	*dȉjel*	*mèːso*	*l(j)èto*	*rèːd*
Slovenian	*vẹ̀ra*	*del*	*mesọ̑*	*lẹ́to*	*rêd*
Czech	*víra*	*díl*	*maso*	*léto*	*rjád*
Slovak	*viera*	*diel*	*mæso*	*leto*	*rád*
Polish	*vjara*	*djal*	*mięso*	*ljato*	*rjọd*
Upper Lusatian	*vjera*	*del*	*mjeso*	*ljeto*	*rjad*
Ukrainian	*víra*	*dil*	*mjáso*	*líto*	*rjad*
Russian	*véra*	*(del)*	*mjáso*	*léto*	*rjad*

Table 4. Some mid-vowel developments in Slavic

I have taken the liberty to respell some of the more misleading native spellings (e.g. Polish ***lato*** → ***ljato***, ***wiara*** → ***vjara***) for the sake of the reader who only wishes to see the interrelationships; those who already know something of these languages can easily recover the native spelling. In each of these cases, the early Slavic vowel was some kind of ***-e-***, either nasalised or lower ([ɛ] ?) than the ***-e-*** in words such as ***seló*** 'village' or ***nébo*** 'sky', in which the ***-e-*** remains fairly constant throughout the various languages. We can conclude with confidence that Old Church Slavic ***-ě-*** / ***-ę-*** (attested from early documents) in some cases lowered and broke into ***-ja-***, in some other cases was raised to ***-i-***, and in many cases it simply remained as ***-e-***.

5) wBrm *-wat / -wak* < **-ot / -ok*, wBrm *-ok* < **uk*

In the Lokat'eikpan inscriptions there are quite a few words spelled with the {-o-} vowel and codas such as ***-n -t -j -m***, whereas wBrm contains no such spellings (cf. Ba Shin 1962: 27-28, 38-39). The only historical analyses of this phenomenon I have seen are: 1) Jones 1976 p.50 "There are also many words in which <o > appears to represent an alternate spelling of medial <-w- >..." and 2) Maung Wun 1975 p.89 ".... that ***o*** in Old Burmese which has today become -wa- ..." Wun's view is quite different from the concensus which posits, for example, an original ****wat*** in which the ***-a-*** later underwent progressive rounding and raising due to the semivowel before it: ***-wat > -wot > -wut > -ut***, the last being the reflex in current standard sBrm. Jones, perhaps in a paraphrase of Ba Shin, characterises the ***-o-*** in iBrm spelling as "an alternate spelling of medial <-w->", yet his logic escapes me: one of the most basic principles of Burmese spelling, in accordance with its Indian origin, is the use of the inherent vowel ***-a-***: if no other vowel is written in between the initial (+ optional medial) and coda, then the syllable is read with the ***-a-*** vowel, e.g. လက် "lk" is interpreted as {lak}. In a word such as လွတ် {lwat} 'to be free' the ***-w-*** medial is written as a subscript which occupies the same position in a syllable as does an ***-j- or -r-***, they are all medial glides. Thus လွတ် "lwt" is assumed to have the inherent ***-a-*** after the medial ***-w-***. In the case of လောတ် "elat" {lot}, the iBrm spelling of this word, there is already a vowel, actually a digraph-vowel ("e" to the left and "a" to the right of the initial consonant), occupying the vowel-slot of the word, therefore there is no room, or need, for an inherent ***-a-***, therefore the ***-o-*** cannot be acting as a medial before an ***-a-***.

The word {lwat} is pronounced ***luq*** in Rangoon sBrm, ***lweq*** in the western Arakan dialect, and ***loq*** in the southeastern Mergui dialect. The southeastern Tavoy dialect has ***luq*** according to Jones 1972, but earlier reports in Taylor 1922 and Ono 1971 both show ***-o-*** for this rime, i.e. the same as Mergui further south. One may assume that Tavoy, closer to the capital, has been quicker to come under the influence of standard sBrm. For this rime, I posit Common Burmish ****-ot***, in which case the southeastern dialect area preserves the original sound, whereas the Arakan dialect reflex is closest (***-wet < -wat***) to the somewhat later dialect development on which wBrm was based. The Rangoon, now sBrm reflex shows a completely different process of simple raising: ****-ot > -ut***. The wBrm form itself is a simple product of breaking (***-o- > -wa-***), a common type of sound-change the world over, cf. the Romance examples given above. Please consult Figure 1 (end of paper) for a schematic design of how I conceive the development of ****-ot*** in various Burmese dialects.

The languages of the North Burmish group have reflexes in either ***-ut*** or ***-øq*** for this rime. I have found no dialect or language with a ***-wot*** which would show evidence of the alleged ***-wat > -wot > > -ut*** process.

There is also evidence from other Sino-Tibetan languages which supports ****-ot*** instead of ****-wat*** as the earlier stage of wBrm {wat}:

'wet' wBrm ***cwat < *cot*** :: XD Ach. ***čōq***, LS ***čúk***, BL ***čóq***, LQ ***čúq***, Paku Karen ***cǫ̀***, Pa-O ***cáu*** < cKaren ****coˀ***, Kadú ***sut*** [2].

'get free (from), escape' wBrm ***lwat < *lot*** :: Jingpo ***lot***.

'slave' iBrm ***kjon (< *gron)***, wBrm ***kjwan***, sBrm ***cụ*** :: cKaren ****ɣroˀn***, OC ****grón'*** 宦 (> BJ xuàn = ***ɣoann***).

'sink-' wBrm ***kjwani < *glom*** :: Drung ***a·glôm***, 陷 xiàn = ***ɣeamm̄*** < ****glóm'***. The Chinese graph belongs to a series with MC initials such as ***k- ɣ- d- ʈ'- j- z-***, most simply explained as originally velars + ***-r- or -l-***.

Another piece of evidence is the autonym of the Mon people which is ***mwan*** in wBrm; the history of Mon sound-changes (cf. Diffloth 1984) would suggest ***mɔn*** (less likely: ***man***) as the oMon form of the word, thus Burmese ****mon > mwan***.

The rime spelled {-ok} in wBrm is pronounced ***-auq*** in Rangoon as well as many other dialects of Burmese, but it retains the old ***-o-*** vowel in some northern and southern areas such as Phun, Intha, Danu and Tavoy (Jones, Taylor ibid.). I reconstruct its oBrm and Yipo-Burmic value as ****-uk*** based on the widely found ***-u-*** in Sino-Tibetan cognates (e.g. 'six') and more particularly on the evidence of the North Burmish group of languages where there is a general pattern of either retention of the ***-uk*** or of its diphthongisation into ***-auk***. This is in contrast to wBrm {wak} which, in analogy to {wat, wap}, I derive from ****-ok***: this rime is generally found as ***-ok*** in North Burmish. It has raised to ***-uk*** precisely in those languages which have vacated the "***-uk*** slot" following its diphthongisation to ***-auk***. Some data is listed in Table 5; for a full discussion cf. Dempsey 2000 ms.

Note that many of these languages still reflect exactly what I propose as the Common Burmish values for these two rimes.

oBrm	wBrm	LC Ach.	LX Ach.	LH Ach.	XD Ach	ZW	LS	BL	LQ
****-uk***	{-ok }	***-ok/-uk***	***-uk***	***-u (k)***	***-uk***	-uk	-auk	-auk	***-uk***
****-ok***	{-wak}	***-ok***	-uak	***-ok*** /-uak	***-ok***	***-ok***	***-uk***	***-ok***	***-uk***

Table 5. Reflexes of two Burmish rimes

Sino-Tibetan comparative evidence for the change oBrm ***-ok*** > wBrm {wak} is also stronger than for the idea that ****-wak*** was the original rime:

'rat/mouse' wBrm ***krwak*** < ****k·rok*** :: Phun Burmese ***k'·rùq/k·ròq***, Achang dialects: ***krōq - kuàq - kuà(q) - krōq***, Langsu ***ɣùk·*** < ****rok***, Bola ***ɣòq*** · <****rok***, Leqi ***kjùq***, Nusu dialects: ***ruaq· - rɔ̂q - râq***, Lahu ***faq·***, Jino ***xǫ̀·***, S.Pumi ***ɣòq*** (<****'rok*** ?), Chepang ***rok·juq***, Lotha ***z̄ī·rɔ̄*** (?)

'come out' wBrm ***t'wak*** < ****t'ok*** :: Achang dialects: ***t'ōq - t'uāq - t'ōq - t'ōq***, Zaiwa ***t'óq***, Langsu ***t'úk***, Bola ***t'óq***, Leqi ***t'úq·***, Nusu dialects: ***t'uaq- t'ō - t'uā***, pYipo ****ʿtok*** (****ʿtuk*** ?), Lisu ***ʿtoq***, Dà·zhài Hani ***ʿtuq***, Gé·lǎng·hé Hani ***ʿtoq***, Lahu ***toq***, Jino ***tǫ̀·***, Gazhuo ***toq***, Mpi ***toq***, Sangkong ***toq*** (all Yipoish languages with ***toq*** are from ****ʿtok*** (= ***n·tok***) .

'ant' wBrm ***(pah·)rwak*** <****·rok*** :: N.Burmish ****·rok***, Lahu ***·ʾɣoq***, Yipo ****·roh***, Nusu ***·ruà - ·rū -·ruáq***, Jino ***·xǫ́*** ; Muya ***çuă***, Zhábà ***·ró***, Stau ***sk'ro/sk'rau***, QueYuz ***bú·ʒó·***, Shixing ***c'â·rō***; Drung ***·róq***, Longcang Tangsa ***k'okrok***, Wak-ching Konyak ***te·wo*** < ****·ro*** (cf. ***te·wok*** < ****·rok*** six'), wTib ***grok·***, N. Monpa ***xrok***, Chaudangsi ***nəŋ·kro***, Athpare Rai ***poŋ·gorok***; Gallong ***tâ·ruk***; in fact, of the six cognates to wBrm ***·rwak*** listed in STC #199, none supports the vocalism of the reconstruction "TB ****rwak***".

'carry (on the head)' wBrm ***rwak*** < ****rok*** :: XD Achang ***rōq***

'leaf' wBrm ***rwak*** < ****·rok*** :: LC Achang and XD Achang ***·xrōq***

Bradley 1979:198 comments on his pLoloish ****-wak*** : "****wak*** seems to have reflexes identical to those of ****ok*** in most Loloish languages other than Phunoi..." His system has Phunoi ***-o(t)*** < ****-ok***, ***-oa*** < ****-wak*** . I would even eliminate the Phunoi proviso from his statement, since there is no "oa" listed in the Phunoi phonological inventory (ibid. p. 46) nor did I find it in the comparative listings; the typical reflex seems to be ***-oq***, e.g. ***hoq·*** 'rat, ***·hoq*** 'ant', ***t'oq*** 'take out', ***toq*** 'come out'.

Finally, let us consider two typological arguments:

a) Why does wBrm give evidence of ***-waC*** rimes but no rimes in ***-weC***, ***-wiC*** or ***-woC*** ? This may indicate that ***-waC*** rimes were not part of an established pattern but rather the product of a localised breaking.

b) If my proposed reconstruction is followed, the appearance of rising diphthongs can be more simply described as occurring in all types of syllables instead of only in open syllables.

6) Breaking as part of a larger trend

We can see the vowel breaking type of sound change in early Burmese (both ***-e- > -ja-*** and ***-o- > -wa-)*** as part of a general trend in the Burmese phonological system during the last millennium: the plain mid-vowels ***e*** and ***o*** have been eliminated from their systematic participation in syllabic patterns, and at the same time syllable-final falling diphthongs such as ****aj *uj *oj *aw*** have also been eliminated in favor of monophthongs or rising diphthongs with a greatly expanded use of the ***-w-*** onset-glide (alongside the rise of ***-j-*** in place of ***-r-/-l-***). For ***e*** and ***o***, the main targets for elimination were the closed syllables (****-ep *-et *-ek *-op *-ot *-ok*** and their nasal-ending analogues).

The breaking processes which were underway in the mid-to-low front and back vowel areas at the time are reflected in the variable spellings found in iBrm. Uncertainty is also found in transcriptions of other vowels. For example, in the same Jātaka story on a wall of the Lokat'eikpan we find in adjacent lines the same word {si} in two places (Ba Shin 1962:26): the first ***si*** means 'to die' whereas the second means 'fruit', and not only the many Tibeto-Burman cognates but also modern sBrm evidence tells us that the pronunciation of these two words must have been different (I would reconstruct as ****si*** and ****sej*** respectively for Common Burmish), but the inscribers must have been uncertain due to the changes underway (***i > əj*** and ***ej > i)*** ; both words also appear elsewhere in the Lokat'eikpan as ***sij***. Ba Shin's text contains many such examples.

Some examples of final falling diphthongs having shifted to rising diphthongs in Burmese, consider words such as:

'snake' wBrm ***mrwe*** (> sBrm ***mwei)*** < ****mruj*** :: Zaiwa ***·mûj***, Langsu ***·mòj***, Bola ***·mø̄***, Leqi ***·mjù***, Achang dialects: ***mrúj - mùj - hmí· - mrúj***, wTib ***sbrul*** < ****smrul*** < TB ****(s)mrul*** :: 虺 huǐ = ***xuee*** (< ****hmruɬ*** ?)

'hang-' wBrm ***twaʳ*** (> sBrm ***tweʳ***) < ****xdojʳ*** :: Langsu ***tǵj·***, Bola ***tùj·***

'easy' wBrm ***lwai*** (> sBrm ***lwe***) < ****loj*** :: Zaiwa ***lûj***, Langsu ***lòj***, Bola ***lūj***, Leqi ***lə̀*** (< ****lø*** < ****löj*** < ****loj)***

'buffalo' wBrm ***kjwaiʳ*** < ****gˈlojʳ*** :: N.Burmish ****nǫʳ·lojʳ*** ; JP ***ˈw·loj***, Jili ***ŋaluj***, Kamán ***t·lúj***, Khoibu ***ra·loj***, Kapwi(Nruang·hmei) ***sa·loj***, Tang-khul Naga ***si·luj***, Koreng(Liangmai?) ***a·luj***, Manipuri ***i·roj*** ; cf. Paku Karen ***glɔʳ***; Nyah Kur ***kˈlə̨w*** < cMon ****gləw***.

7) Restrictions on breaking

wBrm has two other environments in which ***wa*** may occur: initially as in ***wak*** 'pig' and finally as in ***swaʳ*** 'tooth'. In neither case do I suggest the

development ***o* > *wa***. Since in Burmese the histories of ***-a*** and ***-aC*** are quite unalike, we cannot expect the histories of ***-wa*** and ***-waC*** to be alike either. In the case of 'pig', it is clear from the cognates in other languages that the ***w-*** in this word functions not as a medial or part of a diphthong but as an initial. The word ***krwat*** 'leech' is a similar case: there is no long-standing etymon with a ***k-*** initial reflected in other TB languages, and cognates showing the ***r*** of wBrm ***krwat*** have the ***r*** in a preceding syllable (cf. STC#45); the etymonic syllable of most cognates has simply ***p-*** or ***w-*** for an initial. Standard Burmese tends to fuse the parts of a sesquisyllable together (e.g. ***kjaˀ*** 'tiger' < ****klaˀ*** < ****kʰlaˀ***, cf. Phun ***kạlà***), thus: ***krwat*** < ****krʰwat*** < ****kʰrʰwat***, and not ***krwat*** < *****krot***.

In a word like ***swaˀ*** not only are we dealing with an open syllable, thus a different environment than the above examples, but cognates such as S.Monpa ***ʻwa***, Jingpo ***wa***, and Tangsa ***pa*** show that the ***s-*** has not always been an inseparable part of the word; it would be reasonable to conceive of its Burmese history as ****sʰwaˀ*** > ***swaˀ***. In that case the ***w*** was again essentially an initial consonant, just like the ***w*** of ***wak*** 'pig', not necessarily even contradicting the trend in Burmese diphthong development (falling → rising) suggested above. Therefore neither of these cases qualifies as an exception to the process ****-oC*** > ***-waC*** which I have proposed.

The oBrm - wTib cognate sets in section X of Luce 1985 contain many suggested cognates-pairs with no corrobative evidence from other TB languages, and in any case involve too many complexities to be discussed at this point. The wider history of ***-o-*** and ***-u-*** in the various ST language groups appears rather complex, but I hope the arguments presented here have clarified the picture at least for early Burmese.

To sum up the major points of this paper:

1. The history of Mon/Nyahkur and Indic loans into Brm shows that the graphic complexes written before the offglides in iBrm ◌ိဝ် ***-əw*** and ◌ိယ် ***-əj*** were indeed pronounced as ***-ə***, but thesewere only transitional diphthongs (cf. early mod.English), i.e. ****-u*** > ***-əw*** > ***-ow*** and ****-i*** > ***-əj*** > ***-ej***, and not any evidence that the TB or ST values were ever anything but simple ****-u*** and ****-i***, confirmed by the ***-u*** and ***-i*** vowels found in most such cognates in TB and Chinese, especially in the Burmish branch itself.

2. The rare ***-uik*** and ***-uiŋ*** finals are reflected as front vowels in Brm dialects and Yipo-Burmese cognates, far afield from Benedict's suggested ****-u-***. Evidence indicates an evolution of ****-əŋ*** > ***-eŋ*** (> ***-aiŋ***) etc.

3. Brm vocalism was in an unstable period when the language first began to be inscribed. A chain reaction involved ***-e** > ***-i*** with ****-i** > ***-əj*** (> ***-ej***), which was balanced by ****-o** > ***-u*** with ****-u** > ***-əw*** (> ***-ow***). Even if ****-e*** and ****-o*** still existed then (unraised), Mon writing did not provide a good model for transcribing them. This ****-e*** (Benedict's ****-i***) matches ***-i*** only in those TB languages which shared a similar raising of ****-e*** to ****-i***. Most languages kept ***-e***, thus this correspondence set is smaller. The situation with back vowels is analogous.

4. Deriving Brm ***-ac/-añ*** from ****-ik/-iŋ*** stems from Shafer's limited TB data-base with its heavy bias toward Baric languages and Tibetan. Many TB groups and Chinese show ***e*** or ***(j)a*** reflexes, which together with ***-i*** all derive from ****-e-***, a commonly-seen pattern, e.g. examples from Slavic, Romance, Germanic. Early inscriptions also spell ***-ac*** words with ***-et*** or ***-ek***, and Indic loans also indicate a non-high vowel. ***-jat*** is virtually absent from wBrm, having merged as ****-jet*** with ****-jek***, both spelled as ***-ac***. The ST/TB dental source for ***-ac*** was not ****(j)it***, which merged with ****(j)ik*** > ***-eiq***. Indic loans to Brm support this claim. Also, many Sanskrit/Pali loans in ***-ăǰ*** are rendered by wBrm ***-ac***, and a few examples show Indic ***-et/-ek*** > wBrm ***-ac***. 500-year-old Chinese texts transcribing Brm ***-ac*** reflect ***(j)eq***, not ***(j)iq***. The same is true for early loans from Brm into the Chin languages of Western Burma.

5. Evidence from early inscriptions and TB cognates, especially from those languages closest to standard Brm, indicates wBrm ***-wat / -wak*** < ****-ot / -ok*** but wBrm ***-ok*** < ****uk***.

gloss	**'bug'**	**'horn'**	**'thorn'**	**'white'**
N.Burmish	**buˢ*	**kru*	**ʒoˢ*	**pro*
LC Ach.	*bauˢ*	*k'rau*	*ǯoˢ*	*p'ro*
LX Ach.	*bauˢ*	*k'jau*	*ʒuˢ*	*p'u*
LH Ach.	*bauˢ*	*·č'au*	*ǯuˢ*	*·p'u*
XD Ach.	*bauˢ*	*·k'rau*	*ǯuˢ*	*p'ru*
Zaiwa	*bauˢ*	*k'jui*	*ʒuˢ*	*p'ju*
Maru	*búq*	*k'jùq*	*ʒauˢ*	*p'ju*
Bola	*bauˢ*	*k'ju*	*duˢ*	*p'ju*
Letsi	*bouˢ*	*k'jou*	*ʒuˢ*	*p'ju*
wBrm	*pəˢ*	*k'jo*	*c'uˢ*	*p'ru*
sBrm	*pouˢ*	*č'o*	*s'uˢ*	*p'ju*
Arakan dl				*påru*
Phun dl	*pù·taŋ*	*·xúˀ*	*k'·sù*	*p'júˀ/p'jó-*
Nusu		*k'rɨ*	*ʒuˢ*	
Lisu	*buˢ*	*č'j́·*	*c'uˢ*	*p'u̲*
Lahu	*puˢ < buˢ*	*·k'o*	*·č'uˢ*	*p'u/p'o*
Hani	*bøˢ·/buˢ·-piˢ*	*k'ø*	---	*p'ju-fv*
Jino	*pú̲· < buˢ*	*·č'i*	*·čō*	*·p'ró̲*
Yipo 5-7-8	*buˢ·-bəˢ·-bvˢ·*	*·fu-č'i·-č'ɨ̀·*	*ɕ'uˢ-ɕ'uˢ-ʒɨˢ*	*·č'u-p'jo-ṭ'v*
Gyarung	---	*·ru*	*·mʒo*	*(·pram)*
Pumi	**buˢ*	**ɕ'u*	**ʒuˢ*	*p'rị-p'rą-p'rẹ*
QueYu	*pú·*	*ɕ'í*	*c'í*	*pṭ'o·*

Table 6. Some word-sets in East Tibeto-Burman

gloss	'die'	'wind'	'red'	*'tail'
N.Burmish	*ši	*hli	*ne	*mjeˀ
LC Ach.	ṣɿ	hli	na	---
LX Ach.	ši	lï	ne	·'mi
LH Ach.	ṣɿ	lai	ñe	---
XD Ach.	ṣɿ	lai	na	hniˀ·
Zaiwa	ši	lai	ne	·m̄iˀ
Maru	šìq	la	ne	m̄ì
Bola	šɿ	li / ləj	ne	·mɪˀ
Letsi	šej	lej	ne	·m̄iˀ
wBrm	se	le	ni	·mɪriˀ
sBrm	ʤe	le	ni	·m̄iˀ
Arakan dl	ʤi	li	nen	·mɪŋˀ
Phun dl	ši	k·lí	k·nɛ̀	·mì
Nusu	ṣɿ	hli	hñe	hmɨˀ·
Lisu	ši	·hi̱	---	·moˀ
Lahu	šɿ < si	·xo < xli	·'ñi	xmeˀ·
Hani	si-ši	·le /·hli	ñi-ne-ñi-nɤ	·miˀ/·meˀ
Jino	šɨ̀	hl̥ì·	nɤ́	·mɨ́
Yipo 5-7-8	sɿ-ši < si	hlɿ··ši···	hni-ñi-ne	'mè-má-mɔ̀
Gyarung	·ši	k'a·li	·rne	·jmi
Pumi	sɿ̀-sə́-sə̀	·lə----	'ne-'ñe-'ñø	*məˀ ?
QueYu	·sí	hlá	hñé·	---

Table 6 cont. Some word-sets in East Tibeto-Burman

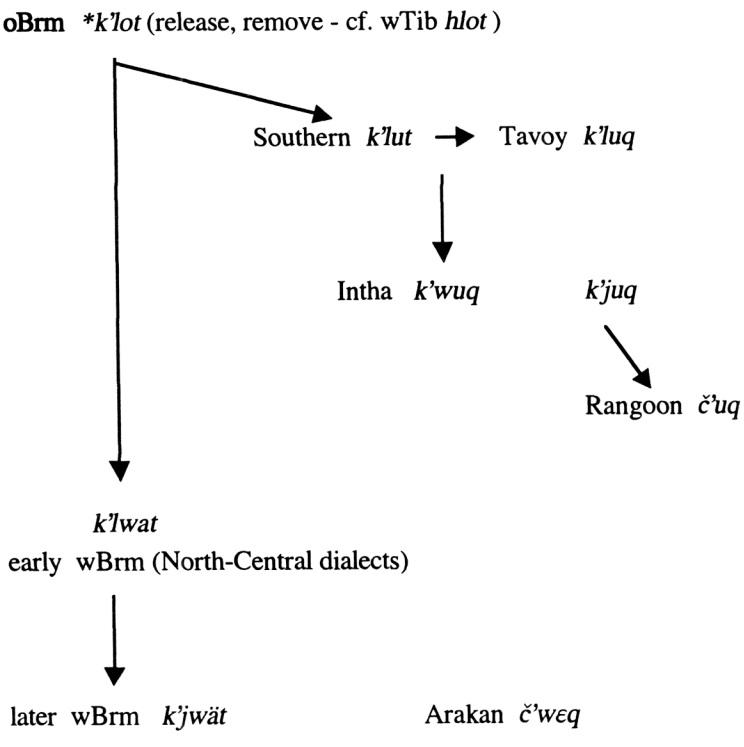

*Figure 1: the development of Burmese *-ot*

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