THE BULGING MONOSYLLABLE, OR THE MORA THE MERRIER: ECHO-VOWEL ADVERBIALIZATION IN LAHU

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1. Sesquisyllabism in South-East Asian Languages

The languages of South-East Asia are overwhelmingly monosyllabic in structure (the notable exception being the Austronesian family) at least in the sense that their morphemes are only one syllable long.[1] Yet, as all South-East Asianists can ruefully testify, this 'monomorphosyllabism' is by no means to be equated with phonetic simplicity! The South-East Asian monosyllable often seems to be bulging at the seams with phonetic material: consonantal, vocalic, and supra-segmental. Diachronically, phonemic features frequently bounce back and forth from one segment of a South-East Asian syllable to the other.[2] Adjacent vowels and consonants unidirectionally or mutually influence each other's articulation -- something I have been known, rather inelegantly, to refer to as 'intersegmental stopover'. More strikingly, decaying consonantal contrasts in syllable-initial or -final position may be 'transphonologized' into the suprasegmental realm, so that previously redundant *tonal* features acquire a compensatory phonemic status.[3]

The intersegmental attraction is by no means confined neatly within the boundaries of individual syllables. A voracious South-East Asian monosyllable may also absorb phonetic material from a *neighbouring* syllable, incorporating it into its own substance. These adjacent syllables belong originally to other morphemes -- these are after all 'monomorphosyllabic' languages -- yet the fusional process respects no lexical boundaries.

A. Prefixization of compound constituents

Especially vulnerable to trans-syllabic absorption are weakly stressed morphemes that stand in a modifying or subordinate relationship. A modifying syllable in a lexical compound may undergo such radical phonological reduction that its original morphemic identity is obscured. Once this happens, it can become more like a meaningless affix or 'formative' than like a full noun or verb and, although elements in compounds may also suffer this fate, even in non-monosyllabic languages like English,[4] the process of 'affixization' or 'cliticization' comes into full flower only in truly monomorphosyllabic language families like

Tibeto-Burman (TB):

--The now meaningless pə- in Written Burmese (WB) pərwak 'ant' (>Mod.Bs. pəywé?) descends from the free morpheme *buw 'insect, bug' (Benedict 1972:#27), reflected by forms like Written Tibetan (WT) 'bu' and by the independent WB word pûi 'bug'. The fully dissyllabic compound for ant is explicitly attested by forms like Lahu (Lh.) pú-g̈ɔ̀? 'ant' (<*buw-rwak), where the vowel of the first syllable retains its quality and has not been reduced to shwa.[5]

--The prefixal element sə- in WB səmak 'son-in-law' (>Mod.Bs. θəmɛ?) is a reduction of the full morpheme *za ɣ*tsa 'child, son' (*ibid.*,#59). The unprefixed root *ma.k (*ibid.*,#324) is reflected in forms like WT mag-pa and Lushai ma.k-pa. The dissyllabic prototype *tsa-mak is directly preserved in the Ch'iang cognates tsʉ-me and tsʉ-mja. Forms like Dhimal hma-wa and Lahu ɔ̀-má-pā have taken the fusional process even further than Burmese, preserving only indirect traces of a sibilant feature before the root.[6]

Sometimes the telescoping of two proto-syllables into one is so complete in TB that the dissyllabic prototype can only be established at the cost of considerable comparative-historical toil. The TB root for lungs that Benedict reconstructed as *tsywap or *tswap (*ibid.*,#239), largely on the basis of Lushai tsuap, has since been shown to be a fusion of two separate roots *tsi-wap, with a second element that originally meant 'spongy, porous'. (Matisoff 1978:113-23, esp.115).

In Jinghpaw (='Kachin'), an important TB language of northern Burma and adjacent areas of China and India, the process of prefixization has been carried very far, to the point where hundreds of nouns and verbs have the phonological shape C_pəC$_i$ (G) V (C_f)*.[7] Most of these unstressed prefixal or 'pre-initial' syllables (C_pə-) seem to be relatively recent accretions to their roots, and have no plausible etymologies or definable meanings. Others are reductions of semantically obscure but fully syllabic prefixes like gùm- or niŋ-, with which they sometimes alternate. One prefix, šə- ~ ǰə, has a clear-cut grammatical function and has been generalized to all verbal roots with the meaning *causativizer/transitivizer.*[8] Still others -- and these cases are the most interesting in the present context -- are reductions of fully syllabic root-morphemes that were once the first constituent in compounds. An example of this latter type is the pair ləkhrá 'right' and ləpāi 'left', where the lə is a reduction of the widespread Proto-Tibeto-Burman (PTB) root

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* Refer to linguistic symbols/abbreviations at the head of the NOTES. (Ed.)

*lak 'hand' (Benedict 1972:#86) (cf. WB lak-ya 'right hand').

In some TB languages, the vowel of the reduced prefixal syllable is not exactly a centralized shwa, but rather an unstressed front or back vowel, like Angami Naga -ĕ- (e.g. mĕkrŭ 'dove'; pĕ- 'causative prefix') or Gyarung -ŏ- (e.g. kŏrŏk 'ant'). In any case, these prefixal syllables are so stressless that they usually cannot bear a full tone -- and it is universally true that even if a tone contrast does exist in such syllables, as has been claimed for Jinghpaw (Maran 1971) it is on the rudimentary side (never more than a two-way, high vs. low distinction).

Important as these reduced pre-syllables are in TB, they seem to play an even more basic structural role in the languages of the Austro-Asiatic (AA) or Mon-Khmer (MK) family.[9] In almost all branches of MK, except Vietnamese, these 'minor syllables' abound.[10] Compared to TB, there is generally a wider variety of possible consonants in MK minor syllables, and it is seldom possible to derive such a syllable from any semantically plausible fully syllabic prototype. This makes it look as if the MK minor syllables go back to remote antiquity, and were present in the family *ab initio*.

In any event, it is clear that untold thousands of words in South-East Asian languages are neither monosyllabic nor dissyllabic, but rather what we might call *sesquisyllabic*: a 'syllable-and-a-half' long.[11]

B. Suffixization and fused vocalic nuclei

This paper is concerned primarily with bulging at the other end of the syllable, i.e. the vocalic nucleus.

In SOV, the postpositional languages,[12] grammatical functors like case- and aspect-particles follow the nouns or verbs with which they interact. Since these functors have a high textual frequency and are naturally unstressed by comparison with their preceding root-word, they are prime candidates for sloppy articulation and phonological reduction.

In a language like Lahu -- a member of the Central Loloish group of the Lolo-Burmese branch of Tibeto-Burman -- postpositional particles are apt to lose their initial consonant in rapid speech.[13] Sometimes both variants are used almost interchangeably (e.g. tā ~ ā 'perfective aspect'; thà? ~ à? 'accusative case') (Matisoff 1973a:38); but the disproportionately large number of modern Lahu particles that begin with a vowel *all the time* makes one suspect that in some cases an old initial consonant has been lost for good.

Once its initial consonant has disappeared, a functor is so phonologically slight that it may be helpless to resist the pull of the voracious, fully-stressed noun or verb that precedes it. If circumstances are right the functor's vowel and/or tone may be incorporated bodily into the vowel of the head-syllable, resulting in a complex, fused vocalic nucleus that is 'a mora-and-a-half' long. The 'sesquimoral'[14] syllables of Lahu are synchronically anomalous and marginal, but the strains to which they subject the phonology are of fundamental importance, since they might well presage an eventual radical restructuring of the entire vowel system.

In what follows, we shall focus on an elusive type of Lahu sesquimoral syllable, which was only recognized after many years of work on the language: *echo-vowel adverbials*. First, however, we should consider the whole phenomenon of vocalic fusion in Lahu in terms of the forces operating to tear down or build up the phonetic substance of the syllable.

2. Diachronic dimensions of the phonological system of Black Lahu:[15] intersegmental influence and the economy of the syllable

The Black Lahu dialect of Chiangdao, Chiang Mai Province, Thailand, has a system of nine simple vowels rather similar to that of Siamese:[16]

i	ɨ	u
e	ə	o
ɛ	a	ɔ.

If only syllables with these nuclei are taken into account (and they comprise the vast majority), the Lahu syllable-canon can be formulated as:

$$\overset{T}{(C_i)\ V}.$$

This starkly simple syllabic structure, maximally comprising an initial consonant, a vowel, and a tone, represents an extreme reduction from the point of view of the complex syllables reconstructed for PTB:

$$*(P_1)(P_2)C_i(G)\ \overset{[T]}{V}\ (:)(C_f)(s).$$[17]

The final stops */-p -t -k/ of Proto-Lolo Burmese (PLB) have lost their oral occlusion in Lahu, though they have usually left their trace in the form of a post-vocalic glottal stop.[18] Although such syllables are transcribed with the symbol '?'

written on the line after the vowel (e.g. tɔ̂ʔ, khɔ̀ʔ), I prefer to consider this glottalization to be a suprasegmental, 'tonal' feature from the synchronic point of view (see Matisoff 1973a: 25-6).[19] There is a two-way tonal contrast in these Lahu 'checked syllables' (as in similar syllables in most other Loloish languages),[20] symbolized by the digraphs /ʌʔ/ (high-stopped tone) and /ˋʔ/ low-stopped tone). Black Lahu is thus a seven-tone language, with 5 open tones and 2 checked ones.[21]

Although the former three-way positional contrast in PLB final stops has been neutralized in Lahu, leaving only stopped tones as the pale reflection of the proto-occlusion, the position of articulation of the *C_f has differentially affected *the quality of the preceding vowel, so that in many cases there* has been no loss of contrast with respect to the syllables as a whole (Matisoff 1972):

PLB *-*ak* > *Lahu -a? : PLB *wak* 'pig' (ibid., #168)* > *Lh. và?*[22]

PLB *-at > Lahu -e? : PLB *k-r-wat* 'leech' (*ibid.*, #167) > Lh. vê?

PLB *-ap > Lahu -o? : PLB *k-rap* 'needle' (*ibid.*, #191) > Lh. g̈ò?.

Similarly, the three *nasal C_f's of PLB have totally departed from the segmental scene, leaving their traces only in the quality of the preceding vowel:

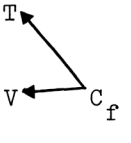
PLB *-aŋ > Lahu -ɔ : PLB *naŋ[1] 'you' > Lh. nɔ̀

PLB *-an > Lahu -e : PLB *wan[1] 'dhole' > Lh. vè

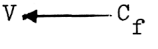
PLB *-am > Lahu -o : PLB *s̆am[1] 'otter' > Lh. g̈ɨ̀-s̆o-lo.

As these examples indicate, Lahu shows assymetry in the *degree of decay* of original syllable-final consonants according to whether they were *stops or *nasals. While almost all originally *stopped syllables have preserved at least a post-vocalic [ʔ] -- the exception being 'doubly glottalized' syllables, which lost their occlusion entirely (qv. n.18 above) -- the *nasal C_f's have not even caused a nasalization of the preceding vowel, so that the feature of nasality has disappeared completely from the rhyme of such syllables. (But see 2.A.c,d, e, below.)

These transphonologizations may be symbolized by



and



[where C_f was /p t k/] [where C_f was /m n ŋ/].

That is, final *stops have been transphonologized into both suprasegmental (tonal) and vocalic dimensions of contrast, while final *nasals have influenced only the oral quality of the preceding vowel and have not superimposed any coarticulatory feature upon it.

A. Secondary glottalization and nasalization in Lahu

Counteracting the overall decline in syllable-final occlusion in native inherited lexical material is a variety of disparate phenomena which are 'conspiring' to increase or introduce the suprasegmental features of glottalization and nasalization.

(a) Loans from Tai and Burmese where the donor language had /-p -t -k -ʔ/ are usually borrowed into Lahu under a stopped tone (e.g. hàʔ 'love' [< Shan; cf. Thai rák]), and this same treatment is sometimes accorded to loans where the donor language had a short vowel followed by a *nasal* (e.g. tàʔ-nòʔ 'police' < Thai tamrùat), or even a liquid (e.g. motoš̃ɨkɛ̃ʔ 'motorcycle' < Eng.).

(b) Any Lahu action-verb that is under one of the five open tones may be given *imperative* force by shortening its vowel and pronouncing it with a glottal stop: dɔ̀ 'drink' > là-ɡɨ̈ɨ̀ dɔ̀-ʔ 'Drink some tea!'[23]

(c) Loans from Tai and Burmese with -m, -n, -ŋ/, or a nasalized vowel[24] in the careful speech of Lahu who have a fair knowledge of the donor language (e.g. ɔ̀-bo ~ ɔ̀-bon 'merit, advantage' [< Shan (cf. Thai bun), ultimately < Pāli); a-khwà ~ a-khwàn 'permission' [< Bs.]).

(d) Syllables whose initial is h- or zero, and whose vowel is -a or -ɔ, are optionally nasalized by the widespread phenomenon I have called *rhinoglottophilia*: ɔ̂(n) 'four', ɔ̀-ha(n) 'spirit', hɔ̂(n)ʔ 'to coil', hâ(n)ʔ-hâ(n)ʔ 'fast', etc.[25]

(e) A few verbs acquire vowel nasalization in vivid adverbial expressions involving the particle kàʔ (Matisoff 1973a:4.44): ŋá (V) 'spread open' > ŋán kàʔ (AE) 'wide open'; thɛ̂ (V_{adj}) 'be straight' > thên kàʔ 'straight as an arrow'.

Marginal and heterogeneous as such secondarily glottalized and nasalized syllables may be as far as their historical status is concerned, they are of considerable potential importance for the future of Lahu phonology. As a general rule of thumb, once some feature is present phonetically in a South-East Asian monosyllable, no matter how redundant or trivial it may appear, it is available for future exploitation and transphonologization.

3. Complex vocalic nuclei in Lahu (Matisoff 1973a: 15-20)

Our streamlined syllable canon, $(C_i)\overset{T}{V}$, fails to account for any but the nine simple vocalic nuclei mentioned above. In addition, Lahu has a wide assortment of 'complex' nuclei consisting of more than a simple vowel. These may be roughly subdivided into 'intrinsically complex' (i.e. occurrent within a single morpheme) vs. 'fusional' (the result of phonetic telescoping across morpheme boundary). Almost all intrinsic complex nuclei have come into the language through borrowing.

A. Intrinsic falling diphthongs

The most frequent diphthong of this type is /ay/ [a$^{\breve{e}}$], found in a great many loanwords from Tai: lấy 'several', hày 'evil, fierce', vây 'fast', tháy 'to plough', etc.[26] Other, rarer, diphthongs found in loanwords include /aw/ [a$^{\breve{o}}$] (qāw 'tell, narrate', mà?-pāw 'coconut') and /ew/ [e$^{\breve{o}}$] (mà?-tèw 'gambling, card-playing', khè-mèw? 'a Meo, a Hmong').

B. Intrinsic rising diphthongs in loanwords

Lahu rising diphthongs always begin with a labial (never a palatal) semivowel. We write this phonemically as /w/, though its precise phonetic quality depends on the height of the following vowel, thus: /w/ [u$^{\breve{i}}$], /we/ [o$^{\breve{e}}$], /wɛ/ [o$^{\breve{ɛ}}$], /wa/ [o$^{\breve{a}}$].[27] A large proportion of these syllables are loans from Burmese or Tai, e.g. pwê 'festival' [< Bs.], a-khwà(n) 'permission' [< Bs.], hwé-šī 'oyster' [< Shan (cf. Thai hɔ̌j)], kwâ(n) 'govern' [< Bs.], nà?-wɛ̄-šī 'candy' [< Shan (for 2nd syll. cf. Thai ʔɔ̂j 'sugarcane')], etc.

The labial element strikes the ear as more vocalic than consonantal, especially before non-high vowels. It is articulated laxly, without very pronounced puckering of the lips, so that the syllable sounds 'sesqui-moral.' Syllables which begin with this labial glide (as in 'candy', above) are deemed to have *zero*-initial. That is, the /w/ is a feature of the vocalic nucleus rather than of the C_i.[28]

C. Labialized doublets of syllables with back vowels (Matisoff 1973a:19, #1.43)

Further support for the analysis of /w/ as part of the syllable's rhyme is provided by an extremely interesting and rather productive type of doublet formation, wherein syllables with simple back vowels /u o ɔ/ may also be pronounced with nuclei consisting of /w/ plus the *front* vowel of the corresponding height /i e ɛ/: i.e. u ~ wi, o ~ we, ɔ ~ wɛ. Thus, ŋâ-ku ~ ŋâ-kwi 'dried fish'; lɔ̂?-qō ~ lɔ̂?-qwē 'stick inserted in bobbin of spinning-wheel to take wound thread off'; yè-mí-tɔ̄ ~ yè-mí-twɛ̄ 'a bear'; ɔ̄ 'cooked rice' ≠ á-qhâ-wɛ̄ (lit. 'rag-weed

rice') 'ritual rice sent to grave of dead man', etc. This doublet-making is still a living process in Lahu, and is even applied to loanwords: kū ~ kwī 'bed' [< Shan < Bs. khu'taŋ 'bedstead']; co ~ cwe 'era, period of time' [< Shan (cf. Thai chûa)]; ɔ̀-lɔ̂? ~ ɔ̀-lwê? 'terraced field' [< Shan]; lɔ̂ ~ lwê 'swim' [< Shan (cf. Thai luj 'wade')].

As far as native lexical material is concerned, the 'basic' variant in these pairs is clearly the one with the simple back vowel. Thus the word for 'cooked rice' is always ɔ̄ (< PLB *haŋ[2]), except in the single compound á-qhâ-wɛ̄. Yet for certain words the labialized variant occurs more frequently, and may even have displaced the simpler one entirely (e.g. chɨ-pí-qwɛ̀? 'barking deer (*Cervulus muntjac*)', but never *chɨ-pí-qɔ̀?).

Among the loanwords which receive this doublet treatment, some had complex nuclei involving a labial element in the donor language (e.g. era, swim), but others originally had only a simple back vowel (e.g. bed). There are also cases where a Tai syllable with a falling diphthong consisting of a back vowel plus palatal semivowel (e.g. -ɔ(ɔ)j) gets borrowed into Lahu with a prelabialized nucleus with no non-labialized doublet (e.g. oyster, candy)(3.B above).

This doublet formation seems originally to have developed internally within Black Lahu, though it clearly has been reinforced and encouraged by attempts to approximate the complex vocalic nuclei in the languages with which these Lahu have recently been in the closest contact: Burmese, Shan, Northern Thai, and Siamese.

The question arises whether the labialized variants should be considered 'intrinsic' or 'fusional' complex nuclei. It will be recalled that the labial element we write abstractly as /w/ is really a semi-syllabic vowel whose phonetic height is the same as the following full vowel: /wi/ = [u̯i], /we/ = [o̯e], /wɛ/ = [ɔ̯ɛ]. These complex nuclei are, therefore, 'fused' in the sense that something has been *attached* to their basic vowel /u o ɔ/, displacing it from the syllable's 'peak of sonority' in the process: u > u̯ o > o̯, ɔ > ɔ̯. This 'something' which usurps the peak of sonority is the front vowel of the corresponding height /i e ɛ/. But this front vowel does not *mean* anything -- it does not belong to any separate morpheme. It is essentially a meaningless extrusion or extension from the original nuclear monophthong. All it does is provide some phonological bulk, a benign bulging of the syllable's substance.[29] As indicated in Section 3 above, we prefer to reserve the term 'fusional' for cases where there has been a phonetic telescoping across morpheme boundary, and these labialized doublets do not quite meet this criterion.

D. Revising the syllable canon

In any event, this doublet formation has conspired *with the influence of foreign words (3.B above) to reintroduce* the slot 'G' into the Lahu syllable. Revising our syllable canon to accommodate these cases, we get:

$$(C_i) \quad (G) \quad \overset{T^*}{V} \quad \text{, or, more specifically,} \quad (C_i) \quad (w) \quad \overset{T^*}{V}$$

where T* may include the feature [?], and where everything except C_i belongs to the *rhyme* of the syllable.

While we are at it, we should also add to our canon the feature of secondary vowel nasalization and the intonational feature of imperative glottal stop (2.A above), as well as the post-vocalic semivowels /-y -w/ that we have encountered in loanwords (3.A above). By now, we are faced with an overall *syllable structure of surprising complexity:*

$$(C_i) \left| \begin{array}{lll} & T & \left[y \right] \\ (w) & V & \left[w \right] \\ & (N) & \left[? \right] \end{array} \right.$$

We shall continue to refine this formula as we go along.[30]

E. Fusions of verb-particles to their verbs

(a) *With* ò (P_v). When the verb-particle (P_v) ò (Matisoff 1973a: #4.64), indicating 'change of state' or 'completed action', follows a verb under the same tone as itself /ˆ/, the two syllables are fused into a single sesqui-moral nucleus without affecting the quality of either vowel. We write these sequences with a hyphen: pè-ò '[It's] finished now'; gà-ò '[We've] arrived already'; mɔ̀-ò 'Now [I] see [it].'

Phonetically 'a-o' is identical to the intrinsic diphthong found in loanwords like qāw [qa$\overset{o}{\hat{}}$] 'narrate' or càw [ca$\overset{o}{\hat{}}$] 'lord' (3.A above), but there is no reason to obscure the morphemic structure of verb-plus-ò sequences by such spellings as pèw, gàw, or mɔ̀w.

(b) *With* e (P_v). The verb-particle e (Matisoff 1973a: #4.61) indicates 'transitive motion', or figuratively 'departure from the center of interest; departure into a new state'. It usually maintains its syllabic integrity with respect to its verb: há e 'go to spend the night', phɔ e 'run away', šɨ̀ e 'die, pass away', tɔ̃ʔ e 'go out from'. In a few cases, however, the two syllables fuse into a sesqui-moral unit: pā-e [pa$\overset{e}{\hat{}}$] 'fall down, fall over', na-e [na$\overset{e}{\hat{}}$] 'get well, recover, heal'. *Although* these fused syllables in 'a-e' rhyme exactly with intrinsically *diphthongal* loanwords like láy 'several' or mày 'wood' (3.A above),

their bimorphemic status induces us to write them with a hyphen.

The most interesting case of all is provided by one of the commonest and most important verbs in the language, qay [qa$\overset{e}{\hat{}}$] 'go'. This word rhymes perfectly both with the monomorphemic loanwords in -ay (3.A) and with the bimorphemic fused nuclei pā-e and na-e. The sequence *qay e does not occur. Since there is no evidence that qay is of non-Lahu origin, I have suggested (Matisoff 1973a:15-16) that it might well represent an ancient fusion of a now obsolete verb *qa with the directional verb-particle e: *qa-e.[31] Unlike the cases of pā 'fall down' and na 'be cured, which occur independently in other contexts than before e, modern Lahu has no simple verb qa with the meaning 'go'. For this reason, I write the word qay with the same symbols used for the rhyme of the monomorphemic loanwords in -ay. This is a striking instance of a fusion that has occurred so thoroughly that all traces of the 'seam' or 'suture' have disappeared, (somewhat analogous to the loss of previously existing morphemic boundaries among English speakers; qv. n.4). When fusion reaches this point (which we might call *superfusion*), the nucleus achieves a new wholeness or 'intrinsicality', no less real because it is diachronically secondary.

We have thus identified three stages of intimacy between a verb and the following verb-particle e:

(1) separate and equal moras (2 syllables)

hā́ e 'go to spend the night'

(2) fused sesqui-moral unit (one-and-a-half syllables) with sense of morpheme boundary preserved

na-e 'get better'

(3) 'superfused' sesqui-moral unit (one-and-a-half syllables) with sense of morpheme boundary obliterated

qay 'go'

By now it will be evident that the whole distinction between 'intrinsic' and 'fusional' complex nuclei is a fuzzy one, since it can be no more precise or stable than the concept of morpheme boundary on which it is based.

F. Fusion in lexical compounds (Matisoff 1973a: 18-9, #1.42g)

There are a number of nouns in Lahu which exhibit a peculiar complex vocalism: the syllable peak is a central vowel (esp. ɨ or ə), which is then followed by a non-syllabic palatal offglide: /-ɨy/[ɨi̯], /-əy/[ə$\overset{e}{\hat{}}$], /ay/[a$\overset{e}{\hat{}}$]. This second element is suffixal, since most of these words have alternate pronunciations with simple vowels /ɨ ə a/. It is impossible to assign any definite meaning to the suffix, however, so we are again faced with an elusive 'morpheme boundary'. It seems in fact that the

/-y/ may represent a merger of more than one originally independent lexical item. Our examples are almost all native Lahu words, but include at least one borrowing from Tai.

(a) ɔ̀-lɛ́y

This nouns means 'something extra, something special, something left over', and is also pronounced ɔ̀-lɛ́. It is derived from the verb lɛ́ 'be left over' [< Shan (cf. Thai lyǎ [lɨ̌a])]. It is safe to assume that the second element was originally the verb-particle e (3.Eb above), since the meanings of lɛ́ and e are highly compatible ('go on being there to the point of excess').

(b) ɔ̀-məy

This word means 'powder', and occurs without the prefix in such compounds as šɑ-mɑ-məy 'cornmeal', vɛ̂?-məy 'pollen' ('flower-powder'), kɛ́y-məy 'glass fragments' (kɛ̀w- 'glass' <Tai), jɛ̀?-məy 'dust' ('earth-powder'), etc.[32]

In this case there is no doubt at all that the -y is a reduced and incorporated version of the P_V e, since there exists an independent verb mə 'to powder, reduce to a powder' and the fused form məy (< mə + e) retains full verbal force, as in ɑ́-lɛ̀? məy ve 'to powder salt, reduce rock-salt to powder'.

(c) mɛ̂?-g̈ɛ́y

This interesting word, meaning 'mirror, hand-mirror', seems to involve a fusion with quite a different morpheme, namely the diminutive M_{pfx} ɛ́.[33]

The basic form is mɛ̂?-g̈ɛ̂?, comprising the morphemes mɛ̂? 'eye' (< PLB *s-myak (Matisoff 1972: #145)) and g̈ɛ̂? (M_{pfx}) 'something shiny; shadow' (< PLB *k-rip (*ibid.*, #189)), i.e. 'something shiny to the eye'. A synonymous variant with secondary high-rising tone also occurs (mɛ̂?-g̈ɛ́).[34] The meaning of mɛ̂?-g̈ɛ̂? ≈ mɛ̂?-g̈ɛ́ ranges from (1) 'glass as a material, a glass object' to (2) 'a sheet of glass' to (3) 'a looking-glass; mirror' to (4) 'eyeglasses.'[35] Since this is a broad range, it is easy to see how a diminutive coinage mɛ̂?-g̈ɛ́-ɛ́ 'little (sheet of) glass' (big enough for a hand-mirror but too small for a window) came to be specialized both phonetically (fused nucleus g̈ɛ́y) and semantically ('hand-mirror'):

mɛ̂?-g̈ɛ̂? > mɛ̂?-g̈ɛ́ > mɛ̂?-g̈ɛ́-ɛ́ > mɛ̂?-g̈ɛ́y

(d) ɔ̀-pɨ̀y; ɔ̀-kɨ́y; -qɑ́y

Other words of this type, where the morphemic identity of the fused element is not so clear, include ɔ̀-pɨ̀y 'salmon-pink, something pinkish-orange in colour'; ɔ̀-kɨ́y (~ ɔ̀-kɨ́) 'a scar'; and -qɑ́y 'a doubled or forked digit' (là?-nɔ-qɑ́y 'forked finger', khɨ-nɔ-qɑ́y 'forked toe' [~ là?-nɔ-qɑ, khɨ-nɔ-qɑl).

G. *The complex covalent nucleus -i̯ɛ- after palatal initials*

In a few words beginning with palatal initials, there is a distinctive complex nucleus /i̯ɛ/ that is 'almost two moras' in length -- i.e. the nucleus takes longer to utter than a sesquimoral one like /əy/ or /we/, but somewhat less time than two full vowels in hiatus.

The first segment of [i̯ɛ] is the superhigh buzzing vowel [ɪ], the normal allophone of /i̯/ after palatal initials (Matisoff 1973a: 6). The second segment is a true low front vowel [ɛ], not merely a palatal semivowel. This diphthong /i̯ɛ/ [ɪɛ] is thus neither 'rising' nor 'falling' in the usual sense, but rather what we might call *co-valent*, in that each mora receives more or less equal prominence (though each by itself is somewhat less than a full vowel).[36]

The principal words with this vocalism are as follows: g̈ɑ̂?-šɨ̯ɛ? 'measles'; šɨ̯ɛ?-šɨ̯ɛ? 'drizzling (of rain)'; tɔ̂-chɨ̯ɛ? te ve 'to whisper'; and -cɨ̯ɛ́ ~ -cɨ́ ~ -cɛ́ 'object smaller than the norm.'[37]

This last morpheme occurs as a bound constituent in compounds like là?-nɔ-cɨ̯ɛ́ 'little finger, pinkie-finger'; khɨ̯-nɔ-cɨ̯ɛ́ 'little toe'; má-nɔ̂?-cɨ̯ɛ́ 'small species of figtree'; nā-qû-cɨ̯ɛ́ 'small-leaf banyan' (a species smaller than the ordinary banyan, which is called nā-qû-cɛ̂). The meanings suggest that the fused element is our diminutive morpheme ɛ́, appearing in only 'semifused' guise -- not totally fused as in mɛ̂?-g̈əy 'mirror' (3.Fc above).[38] This -cɨ̯ɛ́ is of especial interest since it has two variants with simple vowels, -cɨ́ and -cɛ́. Collectively the various allomorphs exemplify the process of phonetic fusion at several different stages. The compound á-phè?-cɨ́ 'small sp. of chilli-pepper' has the allomorph with simple /i̯/. This -cɨ́ is presumably the basic root-form of the morpheme, probably related to the important word cɨ̯ (M_{pfx}) 'a joint; section of a long object' [< PLB *?dzik (Matisoff 1972: #45).[39] *In contradistinction to this unfused* form, there has also developed a *superfused* variant -cɛ́, which is optionally used in the words for the smallest digits: là?-nɔ-cɛ́ (~là?-nɔ-cɨ̯ɛ́) 'little finger', khɨ́-nɔ-cɛ́ (~ khɨ́-nɔ-cɨ̯ɛ́) 'little toe.' Here, the vowel of the superadded diminutive morpheme /ɛ́/ has actually displaced the original nuclear vowel of the root-syllable entirely.[40] In the process the initial consonant becomes a phonetically palatal affricate instead of the dental allophone it had been when the /i̯/ was still there: cɨ̯ɛ́ [tsɪɛ] > cɛ́ [tšɛ]. However, the Lahu palatal series /c ch j š y/ has dental allophones before /ɨ́/, viz. [ts tsh dz s z] (qv. Matisoff 1973a:6).

To recapitulate:

c̱ɨ́	+	ɛ́	>	c̱ɨ́ɛ́	>	c̱ɛ́
'joint, section'		'little'		'less than norm'		'id.'
UNFUSED				SEMIFUSED		SUPERFUSED

In order to accommodate these nuclei with /ɨɛ/ vocalism, another complication must be introduced into our syllable canon:

$$(C_i) \mid (w) \quad \begin{matrix} T^* \\ V \\ (N) \end{matrix} \quad \left[\begin{matrix} y \\ w \\ ʔ \\ ɛ \end{matrix}\right]$$

Constraint: ɛ occurs as second member of a complex nucleus only if the preceding vowel is /ɨ/. In such syllables the C_i is usually a palatal, but may also be a non-palatal voiceless spirant.[41]

4. Fusions in adverbial expressions

One of the most important bits of grammatical hardware in Lahu is the subordinating particle è, which serves to mark a wide variety of structures as attributive to a nominal or verbal head (see Matisoff 1973a: #1.42d, 1.8, 3.612, 3.617c, 3.618, 3.62, 4.2b, 4.42, 5.424, 6.114c, 6.493). In keeping with its high frequency, predictability in well-defined syntactic constructions, and slight phonological shape, è is a phonetically unstable morpheme. Though usually under the open low-falling tone /ˋ/, it sometimes acquires a glottal closure in rapid speech, becoming /èʔ/.[42]

There is another particle pronounced è which occurs in quantified noun-phrases with a 'minimizing' meaning that is often best translated 'only'. This is also a kind of subordinating function, and I believe this particle to be of the same historical origin as the subordinator è. Synchronically, however, they should be distinguished, since they *co-occur* in attributive constructions involving the 'minimized extentives.'[43] To complicate matters, our minimizing è is also tonally unstable. It, too, is sometimes pronounced under the low-stopped tone /èʔ/. Furthermore, in the minimized extentives (4.A below), it has developed high-rising or high-falling tone /ɛ́/ or /ɛ̂/, making it look like the etymologically distinct 'diminutive' M_{pfx} ɛ́ we have already encountered.

The same factors (phonetic slightness, high frequency) which make these particles tonally unstable also make them prone

to fusion or incorporation into the preceding syllable. The rest of this paper will be devoted to fusional nuclei involving the various constructions in which subordinating and minimizing è occur. Most of these will be passed over very briefly, since they have already been discussed in detail in Matisoff (1973a). Only in the case of *echo-vowel adverbializations*, which were not discovered until 1977, will we expatiate at greater length.

A. The minimized extentives[44]

A few Lahu adjectives referring to measurable quantities have morphophonemically related forms that occur together with the determiner chi 'this' to yield expressions of 'extentive' meaning.

mâ 'be many' / chi ma 'this many, this much, this amount'

ɨ̄ 'be big' / chi hɨ 'this big, this size'

yɨ̀ 'be long' / chi šɨ 'this long, as long as this'

vɨ̂ 'be far' / chi fɨ 'this far, this distance'

mu 'be tall, high' /chi mu 'this high, this tall'.

To these extentives may be added a further morpheme, to be identified with the particle è 'only', which serves to minimize the degree of the quantifiable characteristic in question. The resultant nuclei are fused, and acquire the high-rising tone /ˊ/ (at least in their onset). Two stages in the fusional process are exemplified in these words: in the partially fused items the second element retains the vowel quality /-ɛ/; in the totally fused words, the second element has been reduced to the palatal semivowel /-y/. Of our five extentives, two are minimized only with /-ɛ/, two *either* with /-ɛ/ or /-y/, and one only with /-y/. See Table 1.

ORDINARY EXTENTIVES		MINIMIZED EXTENTIVES		
		Partially Fused	Totally Fused	Gloss
chi šɨ	'this long'	chi šɨ́ɛ́ ~ chi šɨ́ɛ̂[45]		'only this long'
chi mu	'this high'	chi mwɛ́ [mᵛɯ̃ɛ̃][46]		'only this high'
chi hɨ	'this big'	chi hɨ́ɛ́ ~ chi hɨ́ɛ̂	chi hɨ́ŷ [hɨ̃ⁱ]	'only this big'
chi fɨ	'this far'	chi fɨ́ɛ́ ~ chi fɨ́ɛ̂	chi fɨ́y [fɪ̃ⁱ]	'only this far'
chi ma	'this much'		chi máy [mãᵉ]	'only this much'

Table 1: *The vocalism of extentive morphemes in Lahu*

It is noteworthy that the two stages of fusion we observe in these expressions are exactly paralleled in the non-extentive lexical compounds we have already discussed, e.g. mê-g̈ə́y 'mirror' (total fusion: 3.Fc above) vs. -cɨ́ɛ́ 'smaller than the norm' (partial fusion: 3.G above).

Furthermore, if we look more closely at the partially fused minimized extentives, it becomes clear that further fusional substages can be recognized -- and that indeed it is artificial to try to compartmentalize a gradual process into discrete stages. When a native speaker feels there is a tonal difference between the two parts of the nucleus (e.g. chi hɨ́ɛ̂), *less* fusion has occurred than if there is no such perceptible difference (e.g. chi hɨ́ɛ́).[47]

B. Types of adverbial/adnominal expressions with subordinating è

Lahu has several kinds of adverbial structures which can also be subordinated to nouns via the genitive/relative particle ve. We refer to these collectively as 'subordinate expressions' (or SEs). (Matisoff 1973a: 278-301, #4.42). They include qha-adverbials, *stative adverbials*, *reduplicated verbs*, intensified adjectives, and verbal elaborate expressions. It is characteristic of SEs to include the subordinating particle è. In the case of qha-adverbials, this è is occasionally fused into the vocalic nucleus of the preceding morpheme.

In order to lay the groundwork for our discussion of the fusional type of SE *par excellence* -- echo-vowel adverbials -- we should first list examples of these other kinds of modifying structures. See Table 2 below.

TYPE OF SE	ADVERBIAL USE	ADNOMINAL USE
minimized extentives	chi + $N_{dim\ ext}$ + è + V_h	
	chi hɨ́ɛ̀ phè? 'be so small'	
qha-adverbials[48]	qha + V + è + V_h	qha + V + è + ve + N_h
	qha bû? è câ 'eat to satiety'	qha bû? è ve jɨ́ 'a satiety of liquor'
stative adverbials[49]	M + è + V_h	M + è + ve + N_h
	ní è qay 'be red, become red' (lit. 'go redly')[50]	ní è ve á-pò 'a red shirt'

TYPE OF SE	ADVERBIAL USE	ADNOMINAL USE
reduplicated verbs[51]	$V_1 + V_1 + \underline{\grave{\varepsilon}} + V_h$	$V_1 + V_1 + \underline{\grave{\varepsilon}} + \underline{ve} + N_h$
	dà?-dà? è te 'do very well'	da?-dà? è ve á-thɔ 'a very good knife'
intensified adjectives[52]	$V_{adj} + B_v + \underline{\grave{\varepsilon}} + V_h$	$V_{adj} + B_v + \underline{\grave{\varepsilon}} + \underline{ve} + N_h$
	qhâ-tɔ́ è phɛ̀? 'be bitter as gall'	qhâ-tɔ́ è ve á-phê 'a damn bitter cucumber'
verbal elaborate expressions[53]	$V_1\text{-}X\text{-}V_2\text{-}X + \underline{\grave{\varepsilon}} + V_h$ or $X\text{-}V_1\text{-}X\text{-}V_2 + \underline{\grave{\varepsilon}} + V_h$	$V_1\text{-}X\text{-}V_2\text{-}X + \underline{\grave{\varepsilon}} + \underline{ve} + N_h$ or $X\text{-}V_1\text{-}X\text{-}V_2 + \underline{\grave{\varepsilon}} + \underline{ve} + N_h$
	ha-lɛ̀-ha-qa è te 'be happy and relaxed'	ha-lɛ̀-ha-qa è ší-g̈wé 'a happy and relaxed meeting'
	mâ-thê-mâ-cɔ́ è phɛ̀? 'be unjust and dishonest'	mâ-thê-mâ-cɔ́ è ve qhâ?-šɛ 'an unjust and dishonest headman'

Table 2: *Previously recognized types of subordinate expressions in Lahu.*

C. Echo-vowel adverbialization

Still another type of subordinate expression exists in Lahu, though its subtle and elusive phonetic realization prevented me from becoming aware of it until 1977. Syntactically these expressions behave identically to the other kinds of SEs. In their adverbial guise they occur only before 'dummy' abstract verbs like qay 'go', phɛ̀? 'be', te 'do'. As adnominals they are connected to their head-noun via the relative/genitive particle ve. The big difference lies in the way the subordinating particle è is realized. Instead of always having the vowel quality [ɛ], *the particle takes on the same vowel quality as the nucleus of the previous syllable.* For this reason I would like to call them *echo-vowel adverbials*, or EVAs for short.[54]

By the end of my 1977 fieldtrip I had collected 22 examples of EVAs.[55] Though this is a relatively large number, I have the distinct feeling that this is only the tip of the iceberg, and that many more remain to be identified.

By happy chance, the present corpus of EVAs includes examples of the echoing of all nine of the basic vowels of Black Lahu. The largest number have back vowels /u o ɔ/, with /o/

being especially frequent. The least-often echoed vowels are central /ɨ ə a/. As for the cases with /ɛ/, it becomes an intricate matter to distinguish an echo-vowel formation from the usual kind of stative adverbial with the 'intrinsically' ɛ-coloured particle ɛ̀ (see below). Nearly half of our echoed syllables are under checked tones /ˆʔ ˋʔ/; phonetically the glottalization here is perceived as a slight interruption of the phonation somewhere in the middle of the prolonged sesquimoral syllable.[56]

An echoed vowel sounds like a single long vowel with a double 'tonal pulse.' To my ears the tone contour of the syllable usually changes noticeably at a point about halfway through the vowel, ending up almost always as mid-tone (unmarked in the orthography).[57]

Morphologically, all the EVAs consist of two parts. The first element (the 'head') is a fully meaningful morpheme (usually an adjectival verb) that can occur independently in other contexts. The second element (the part that is fused with its echo-vowel -- let us call it the 'tail') is typically a bound, restricted entity that occurs nowhere else than after its particular head. (I have called such hapless, meaningless formatives 'morphans', i.e. *orphan morphs*. See Matisoff 1973a: 60-1, #3.333.) In this respect, the EVAs most resemble *intensified adjectives* (Matisoff 1973a: #4.424) where the otherwise meaningless intensifier is also selected by one, or at most two specific head-morphemes.[58] (We adopt the orthographic convention of separating the head from its tail by an equals sign ' = '.)

The total EVA is almost always 'two-and-a-half' syllables long.[59] An EVAs 'ideal' shape is: HEAD=TAIL-ECHO.
1 1 1/2

Often, however, variations are possible (as we shall see when the EVAs are listed individually). The echo may optionally be omitted:
HEAD=TAIL(-ECHO).

Sometimes, the tail may be followed *either* by an echo-vowel *or* by the ordinary unfused subordinating particle ɛ̀:
HEAD=TAIL-ECHO ~ HEAD=TAIL + ɛ̀

And sometimes, the head and tail may reduplicate with each other (either ABAB or AABB), with nothing following at all (neither an echo-vowel nor unfused ɛ̀):[60]
HEAD=TAIL-ECHO ~ HEAD-TAIL-HEAD-TAIL ~ HEAD-HEAD-TAIL-TAIL.

One thing we never find, however, is an echo-vowel co-occurring in the same expression with an unfused ɛ̀:
*HEAD=TAIL-ECHO + ɛ̀.

This proves that *the echo-vowel is nothing more than a superfused reduction of the underlying particle* è *itself.*

D. The EVAs listed according to their tail-vowel

[I] with u-u

(1) qhò?=tū-u 'hollowed, emaciated (as a face)'.
/< qhò?(V_{adj}) 'be concave, cupped, sunken, dented'; also qhò? è (AE_{stat}). E.g. mê qhò?=tū-u qay ve 'have a sunken face'/

(2) ci=cú-u 'all sour'
/< ci (V_{adj}) 'be sour'; also ci-cú-ci-cú/

(3) šâ?=qú-u 'all rough (as an unplaned board)'
/< šâ? (V_{adj}) 'be rough'; also šâ?-qú è or just šâ?-qú. E.g. yè-khɨ́-dɔ chi qha-dè?-dè? mâ lê? šē -- šâ?=qú-u phè? šɔ̄ 'This housepost isn't properly smooth yet -- it's still all rough.' NB: The same head occurs in another EVA with a different tail and a slightly different meaning (see šâ?=qè-ɛ), IX.20 below).[61]/

[II] with o-o

(4) ɨ̄=ló-o 'great big; on a large scale, in a big way'
/< ɨ̄ (V_{adj}) 'be big' and -ló (B_n) 'big thing, something big'.[62] E.g. ɨ̄=ló-o te qo 'if (you) make it so big' [adverbial use]; yɔ̂ ɨ̄=ló-o ve ɔ̄-phû? câ pè šē ve 'He has eaten up the biggest rice-cake' [adnominal use]. NB: ɨ̄-ló also occurs as the unitary head of ɨ̄-ló=mə-è (qv. n.59)./

(5) kɨ́=gò?-o 'all scarred up'
/< kɨ́ (M_{pfx}) 'scar' (cf. ɔ̀-kɨ́ ~ ɔ̀-kɨ́y [3.Fd above]); gò? is perhaps an allofam of gô (V_{adj}) 'be dried up and brittle (as fallen leaves)' and gwê (B_n) 'dried thing' (as in ɔ̀-gɨ̀-gwê (N) 'hide, dried animal-skin'). NB: The same head occurs in a synonymous EVA with a different tail (see kɨ́=chɨ̄?-ɨ, IV.12 below)./

(6) cú=kô?-o 'all shrivelled up; dry and puckered'
/< cú (V) 'be tightly closed, puckered up; close something tightly', as in tó-cú 'sew up tight', mɛ̂? cú ve 'shut one's eyes tight (OV); be blind (N_{spec}-V).' E.g. á-phè? bɨ́ cɨ́ qo ɔ̀-phà? cú=kô?-o qay ve 'When there's blight on the chilli-peppers the leaves get all shrivelled up.'/

(7) tɛ̀?=pô?-o 'short and broad (of a person or thing); stumpy, squat'
/tɛ̀? is not a free morpheme, but it recurs in ɔ̀-tɛ̀?-nɛ́, chɔ-tɛ̀?-nɛ́ (N) 'a short person, a shorty', and tɛ̀?-nɛ́ ɛ̀ (AE_{stat}) *'short'*, *á-pɔ̂-tɛ̀? (N) 'kind of short, stubby banana'*; the compound tɛ̀?-pô? is a true verb, and can be negated (mâ tɛ̀?-pô?). E.g. yɔ̂ tɛ̀?-pô?-o yɔ̀ 'He's a dumpy little guy.' guy.'63/

(8) pɛ̂?=chô?-o 'tasteless, insipid (of food); barren (of land)'
/< pɛ̂? (V) 'dissipate, lose its power; be tasteless, get stale (food); get flat (beer, soda); be infertile (land); be shallow (objects, water)'. E.g. khɔ-mú chi pɛ̂?=chô?-o qay 'This bread has gone stale.'/

[III] with ɔ-ɔ

(9) chɔ̂=nɔ̀-ɔ 'all bruised'
/< chɔ̂ (V) 'be bruised (people, fruit)'; the compound chɔ̂-nɔ̀ is also a full verb. E.g. á-pɔ̂ chi chɔ̂=nɔ̀-ɔ qay 'These bananas are all bruised.'/

(10) phɨ=phɔ̀?-ɔ 'grayish (like clouds)'
/< phɨ ~ phɨ́ (V_{adj}) 'be gray'; also phɨ (B_n) 'something gray', phɨ́ ɛ̀ (AE_{stat}) 'gray(ly)', phɨ-phɔ̀? ɛ̀ (AE_{stat})/

(11) lɛ̂=lɔ̀-ɔ 'big and round; big and lumpy'
/lɛ̂ is not a free noun or verb, but appears in lɛ̂ ɛ̀ (AE_{stat}) 'cylindrical' and šɨ̂?-lɛ̂-lɔ̀ (N) 'hunk of wood'. NB: This EVA apparently occurs only in combination with another one of similar meaning, chu=pè?-e (VIII.17 below).

[IV] with ɨ-ɨ

(12) kɨ́=chɨ̀?-ɨ 'all scarred up'
/This EVA is evidently quite synonymous with kɨ́=gò?-o (qv.) E.g. yɔ̂ ve mɛ̂?-phû kɨ́=chɨ?-ɨ qay 'His face is all scarred up.'/

[V] with ə-ə

(13) ɨ̄-lɔ́=mə-è 'on a grand scale; so that it's big'
/The roughly synonymous morphemes ɨ̄ (V_{adj}) 'be big' and -lɔ́ (B_n) 'something big' here form a compound head for the EVA. This is a more complex variant of ɨ̄=lɔ́-o [qv.], where -lɔ́ is in the tail. E.g. ɨ̄-lɔ́=mə-è te go ni šа jâ 'If it's made nice and big it'll look very fine.'/

[VI] with a-a

(14) chê?=qâ-a 'too thin, watery (of a liquid which should be thick, as honey, paint, soup)'
/There is no independent morpheme chê? with a meaning anything like this. E.g. pê-g̈ɨ̄ chi chê?=qâ-a mâ qay -- né ve yò 'This honey isn't watery -- it's thick.'/.

[VII] with i-i

(15) nɔ=vî-i 'light green; light blue'[64]
/< nɔ (N; B_n) 'green, blue; something green or blue'; cf. also nɔ́ ɛ̀ (AE_{stat}) 'blue, green'/

[VIII] with e-e

(16) qɛ̀?=lè-e 'all scraped up; scraped and abraded; red and raw (skin); mangy (of animal)'
/< qɛ̀? (V) 'get scraped, abraded; irritated, mangy-looking'; also occurs reduplicated as qɛ̀?-qɛ̀?-lè-lè/

(17) chu=pè?-e 'plump, chubby'
/< chu (V_{adj}) 'be fat'; also chu-pè? lɛ̀? (AE_{stat});[65] chu-pè? is a free verb in its own right. E.g. chu=pè?-e te ve 'be chubby' [adverbial use]; chu=pe?-e ve chɔ 'a chubby

person' [adnominal use]. NB: This EVA occurs as a constituent in a number of more complex and emphatic expressions: chu=pè?-e-dì-qu (N) 'big fat person; butterball'; chu=pè?-e g̈é̱ ɛ̀ (AE_{echo} + AE_{stat}) 'fat and round'; chu=pè?-e lɛ̂=lɔ̀-ɔ (AE_{echo} + AE_{echo}) 'rolling with fat; hulking and blubbery.'/

(18) pâ=nê?-e 'very thin (as paper); sharp (of a blade)' /< pâ (V_{adj}) 'be thin (of people, objects); be sharp (of blades)'; also occurs unfused as pâ-nê? ɛ̀ (AE_{stat})/

[IX] with ɛ-ɛ

When the vowel of the tail-syllable is intrinsically /ɛ/ anyway, it is sometimes hard to decide whether we are dealing with an EVA or simply an ordinary stative adverbial. If the echo-mora is mid-tone, it is safe to assume the expression is an EVA [#19,20f.] Otherwise we have a problem [#21,22f.].

(19) qa=pɛ-ɛ 'spread out, splayed; swooping (as with spread wings)'

/< qa (V) 'be forked, branch out from [archaic]' ✕ qá (M_{pfx}) 'branch' ✕ qáy (B_n) 'something forked' [3.Fd above]; ult. related to qay (V) 'go' < *qa + e (P_v) (3.Eb above). The bound morpheme pɛ ~ pɛ̀ recurs in a few other compounds (e.g. šɨ́?-qá-pɛ 'fork in a tree; forked stick', pɛ̀-lí-kā 'armpit'. E.g. pù qa=pɛ-ɛ qay ve 'have one's thighs spread apart'; tê khɨ̱ gà lɛ hê-bí qa=pɛ-ɛ cô mû-qɔ tɔ̂? la ve yò 'All of a sudden a plane came swooping out of the sky over there.'/

(20) šâ?=qɛ̀-ɛ 'rough and raspy (as the voice of an adolescent boy)'

/< šâ? (V_{adj}) 'be rough'; this same head occurs in another EVA with a different tail and a slight semantic difference (cf. šâ?=qú-u). E.g. yɔ̂ ɔ̀-khɔ̂ šâ?=qɛ̀-ɛ qay ve 'His voice is getting rough and raspy.'/

(21) hɔ̄=vɛ̀ʔ-ɛ̀(ʔ) 'warped, twisted out of shape (as wood, metal); twistedly, spirally'

/< hɔ̄ (V) 'get bent (esp. of metal)' and vɛ̀ʔ (M_{pfx}) 'a screw'. E.g. šo-bá chi hɔ̄=vɛ̀ʔ-ɛ̀ʔ qay 'This sheet of metal is warped'; vɨ-lɔ́ tê khɛ šɨ̂ʔ-qɔ̄ qhɔ hɔ̄=vɛ̀ʔ-ɛʔ tɔ̂ʔ la ve 'A big snake came twisting out of the hollow tree.' NB: Since the last element is not under mid-tone, this expression might better be analysed as an ordinary AE_{stat}: hɔ̄-vɛ̀ʔ ɛ̀(ʔ)./

(22) gɔ̀=lɛ̀ʔ-ɛ̀(ʔ) 'peacefully; quietly'

/< gɔ̀ (V_{adj}) 'be cool; be miserable, in trouble'; also gɔ̀ ɛ̀ (AE_{stat}) 'cold; silent, quiet', tàʔ-í-gɔ̀-lɛ̀ʔ ~ tàʔ-í-gɔ̀-ɛ̀ 'in absolute silence'. E.g. gɔ̀=lɛ̀ʔ-ɛ̀ chɛ̂ ā mɛ̄ 'Please stay there quietly.' NB: This is the most problematic of our EVAs. The last element is not under mid-tone. Furthermore, lɛ̀(ʔ) can be an allomorph of the subordinating particle ɛ̀ itself, (qv. n.45) as illustrated by the variant pronunciations of tàʔ-í-gɔ̀-(l)ɛ̀(ʔ).[66]/

E. Secondary vowel length and the Lahu syllable canon

The echo-vowel adverbials are no doubt marginal to the Lahu phonological system, but they have nevertheless introduced the feature of contrastive vowel length into the language.[67]

Although our original simple syllable canon, $(C_i)\overset{T^*}{V}$ is still adequate to characterize the 'core-system' of Lahu phonology, a much more elaborate schema is required to accommodate all the secondary or marginal features we have been discussing. Adding vowel-length /:/ to our formula, we arrive at the following monstrous result:

$$(C_i) \;\vdots\; (w) \;\; \begin{matrix} T^* \\ V \\ (N) \end{matrix} \;\; \left[\begin{matrix} Y \\ w \\ ?^{**} \\ \varepsilon^{***} \\ : \end{matrix}\right]$$

(* where T includes the checked tones /ˆʔ ˋʔ/;
** this is imperative/intonational glottal stop, distinct from the checked tones;
***ɛ occurs as second element of a complex nucleus only if /ɨ/ precedes).

5. The bulging monosyllable: decay and rebirth

There is no reason to feel sorry for the poor little monosyllables of languages like Lahu. Despite the phonological reduction they have undergone, these syllables teem with the seeds of new life. Among all the marginal features floating around these syllables, some will certainly catch on and eventually penetrate to the core of the system. The monosyllabic languages of East and South-East Asia show an uncanny homœostatic ability to regulate themselves in cyclic swings of expansion and contraction. What is absorbed and incorporated *here* will be diffused or extruded *there*.[68]

The accretional or augmentative tendencies do not of course stand in a simple one-to-one replacement relationship versus the tendencies toward reduction and attrition. Things are more indirect and slow-moving than that. Nonetheless, it is hard not to believe in some kind of overarching regulatory principle which eventually ensures that things will not go too far in any one direction. There is no harm in referring to this by some functional label like the 'economy of the syllable'.[69]

In a more cosmic vein, these phenomena furnish one more bit of reassuring evidence that the forces of creativity have nothing to fear from the forces of destruction.

Symbols and abbreviations not explained in the text are as follows:

$\aleph$	belongs to the same word family as; as an allofam of
AE	adverbial expression
AE_{stat}	stative adverbial morpheme
B_n	bound nominal morpheme
B_v	bound verbal morpheme
C_f	final consonant
C_i	initial consonant
C_p	prefixal consonant
G	glide
M	morpheme
M_{pfx}	prefixable morpheme

MSC	Modern Standard Chinese
n,N	nasal(ization)
N	noun
N_h	noun-head; head-noun
N_{spec}	specifying noun
OV	object-plus-verb
P	prefix
p_n	noun-particle
P_v	verb-particle
PST	Proto-Sino-Tibetan
s	suffixal-s
SE	subordinating expression
SOV	subject-object-verb
ST	Sino-Tibetan
SVO	subject-verb-object
T	tone
V	vowel; verb
V_{adj}	adjectival verb; adjective
V_h	verb-head; head-verb
VP	verb phrase

NOTES

1. However, in most languages of the region (including Chinese) the pervasive process of *compounding* has ensured that a large percentage of the *words* in the lexicon are polysyllabic. A language may thus be simultaneously *monomorphosyllabic* but *polylexosyllabic*.

2. 'There is something about the tightly structured nature of the syllable in monosyllabic languages which favors the shift in contrastive function from one phonological feature

of the syllable to another' (Matisoff 1973b:78). Henderson (1975) has dubbed this phenomenon 'feature shuffling'.

3. See Haudricourt (1954a, 1954b, 1961). This process has been called *tonogenesis* (Matisoff 1970, 1972, 1973b). A good summary of recent work in this area is Mazaudon (1977).

4. Familiar examples include 'bonfire', 'daisy', 'hussy', 'window', 'nostril' (see Partridge 1978, entries).

5. The Lahu independent morpheme for 'bug' is pû. The high-rising tone in pú- already represents an incipient fusional process since it occurs (albeit sporadically) as a sort of sandhi-tone in several other compounds, e.g. hɛ 'field, swidden', but hɛ́-ɣâ? 'wild chicken' ('field-chicken').

6. The Dhimal voiceless nasal hm- must descend from *s-m-, while the high-rising tone of Lahu má bespeaks a Proto-Loloish prefix *?- (< *s-), ultimately < *za or *tsa 'child, son'. (See Benedict 1972:#59; Matisoff 1970; and 1972:#153.).

7. For example, fully 36 pages of Hanson (1906/1954:242-78) contain words beginning with kə-; there are 25 pages of šə- words (*ibid.*, 631-56), etc.

8. This causative prefix appears as ǰə- before roots beginning with sibilants or aspirates, and as šə- otherwise. This formation descends from a sibilant causative prefix that must be set up for PTB itself (Benedict 1972:105). This is one of the rare cases where a morphological element with a well-defined meaning can be imputed to the proto-language already in 'reduced' prefixal form. At a still earlier time-depth, however, we may speculate that even this *s- prefix derived from an independent full syllable, maybe the prototype of the Old Chinese causative auxiliary verb 使 MSC shǐ, reconstructed as *sl̥əg/ṣi (Karlgren 1957: GSR 975n). (See Maran 1971:151ff., 1976; Matisoff 1976:431).

9. These designations are not quite synonymous. In current usage, 'Mon-Khmer' comprises all branches of the Austro-Asiatic family except for the Munda languages of India.

10. We owe this convenient and widely accepted term to Henderson (1952), who first applied it to Cambodian. For a brief discussion of minor syllables in Old Mon, see Shorto (1971: xv); for Khmer, Huffman (1972); for Northern Mon-Khmer (Palaung-Wa), Shorto (1960, 1963); for Khasi, Rabel (1961: 17-9); for Senoic, Diffloth (1973).

11. The phrase 'syllable-and-a-half' I first heard from the lips of Gordon Downer (LSA Summer Institute, 1967);

the Latinized version 'sesquisyllabic' was introduced in Matisoff (1973b:84ff.).

12. This includes all the branches of TB except Karen, which under heavy Mon and/or Tai influence, has evolved into a prepositional SVO language.

13. This also happens with the high-frequency negative adverb mâ, very often pronounced â in colloquial style. Adverbials are a 'prepositional' class in Lahu, preceding the verbs they modify.

14. Cacophonous as this term may be, it is certainly better to be sesqui-moral than utterly immoral, and less equivocal than to be bi-moral.

15. The discussion in this section is based on Matisoff 1973a: 10-38.

16. These 9 vowels are, however, compressed into a much higher and narrower range of phonetic space than in Thai. Thus the vowel written /ɛ/ is like that of Eng. bed (not like bad, as in the Siamese vowel often transcribed with the same symbol). The mid-vowels /e ə o/ are so high that they often vary with /i ɨ u/.

17. P = prefix (up to two 'prefix-slots' are posited even at the PTB stage); C_i = (root-)initial consonant; G = glide /w y r l/; V = vowel; ':' = vowel length; C_f = final consonant /-m -n -ŋ -p -t -k -r -l -s/; s = suffixal -s, which could occur after root-final C_f's. It is still controversial what status to impute to tone at the PTB stage, though this language family seems always to have been 'tone-prone'.

18. In certain types of syllable with a glottalized initial, even this postvocalic [-ʔ] has disappeared by 'glottal dissimilation', leaving a compensatory high-rising tone (Matisoff 1970; 1972).

19. One reason out of many is that glottal stop disappears in Lahu *singing*, as do all other tonal features (pitch, contour). Additional support for this suprasegmentalist approach is provided by the phonetic behaviour of the echo-vowel adverbials, 4.C below). For a clear account of glottalization in the context of 'phonation types' in general, see Egerod (1971).

20. This contrast has been explained in terms of the influence of the voicing or voicelessness of various elements in the syllable-initial (see Matisoff 1972, *passim.*).

21. We use the same diacritics in our digraphs for the stopped tones as are used for two of the open tones, /ˆ/ and /ˋ/. This is entirely a matter of orthographic parsimony, since there is no historical or synchronic connection whatever between /ˆ/ and /ˆʔ/, or between /ˋ/ and /ˋʔ/. We regard the open and checked tones as constituting quite separate subsystems in Lahu phonology.

22. Note that the *w- functions here as the PLB *C_i, not as a *G. For 'pig', the proto-rhyme is *-ak and the Lahu reflex is -aʔ. Contrasting to this are syllables like *twak 'emerge', where the proto-rhyme is *-wak, i.e. where the -w- is functioning as a feature more closely associated with the nuclear vowel than with the C_i. Here the vowel quality is changed, and the Lahu reflex is -ɔʔ.

23. The -ʔ comes after the completion of most of the verb's tonal contour, so that there is usually no question of confusing these imperatives with other verbs having 'intrinsic' checked tones (Matisoff 1973a:352-3).

24. These are written with -n for orthographic convenience, though we conceive of the nasality as a suprasegmental or coarticulational feature.

25. As these last examples show, this blind phonetic process operates even in syllables under stopped tones, so that the same vowel can be nasalized and glottalized simultaneously. This is another bit of evidence for the suprasegmentality of the feature of glottalization. Similarly, Burmese 'creaky' tone may occur on syllables with nasalized vowels (e.g. ʔəkhwin' 'permission'). (See Matisoff 1975.)

Most Lahu syllables that *begin* with nasal C_i's do not show pronounced nasalization of the following vowel, with the notable exception of /mu/, where the vowel is so nasalized that it is almost completely swallowed up by the initial: [m^{V}ɯ̃] ~ [m^{V}]. (Lahu labials /p ph b m/ are affricated before /u/ to [p^{f} ph^{f} b^{V} m^{V}].) Parallel developments have occurred in other Loloish languages like Akha. Thus, PLB *s-muw[1] 'mushroom' > WB hmui, Lahu mù [m^{V}ɯ̃], Akha hm̀.

26. Phonetically, the second element is a semivowel intermediate in height between e and i, [e̯ˆ].

27. /w/ never occurs before the back vowels /u o ɔ/ or the central vowels /ɨ ə/.

28. PLB initial consonantal *w- developed regularly into Lahu v-, as in PLB *wak 'pig' > Lh. và?, PLB *wa[2] 'bamboo' > Lh. vâ, etc.

29. This is not to say that there is no difference whatsoever between the two variants. Sometimes the prelabialized form seems to convey a *stylistic* nuance of familiarity, a more colloquial or folksy tone than the plain variant. Strictly speaking, however, this is not a 'morphemic' difference. It is somewhat similar to the 'dropping of the -g' in the present participles of verbs in certain varieties of American English (e.g. singin' [sɪ̄ŋən] instead of singing [sɪ̄ŋɪ̄ŋ]).

30. To keep things simple, certain constraints have not been built into the formula: (a) No Lahu syllable has yet been encountered with *both* a prevocalic glide *and* a postvocalic -y or -w. (Such syllables do exist in Tai, e.g. Siamese dûaj 'together', diaw 'single'); (b) A verb that already is intrinsically under a checked tone undergoes no change in the imperative.

31. Subsequent research has thoroughly borne out this hypothesis. A general TB root *ka ⨯ *ga can now be set up with the meaning 'go' deriving ultimately from the notion of *striding* or *spreading the legs* (cf. Benedict 1972:#469, and below 4.D (19)).

32. It also appears without the suffix, either as ɔ̀-mə or ɔ̀-mə̄, with the variant under very-low tone /¯/ occurring in the compound nã̂?-mə̄ 'gunpowder.'

33. A 'M_{pfx}' or 'prefixable morpheme' is a root which occurs either in 'general' form with the prefix ɔ̀-, or in 'specified' form modified by another noun (Matisoff 1973a: 3.34). The general prefixed form ɔ̀-ɛ́ means 'child, baby'. In specified form it serves as a productive diminutivizer (phɨ̂-ɛ́ 'puppy', ɔ̀-ɡ̈ù-tɛ̂?-ɛ́ 'small intestine', yɛ̀-ɛ́ 'little house').

34. For alternations between /ˆ?/ and /ˊ/, which are 'mechanical' in nature, see Matisoff (1973a:1.63, p.28). It is the open-toned variant that occurs in the compound mɛ̂?-ɡ̈ə́-lwɛ̂ 'firefly.'

35. This term is used by Lahu in Burma. Lahu resident in Thailand now tend to say mɛ̂?-kɛ̀w for 'eyeglasses'. The same semantic association between 'shadow' and 'mirror' is displayed by the Japanese root kage 'shadow' and its derivative kagami 'mirror'. (I owe this observation to Susan Matisoff.)

36. If anything /ɨɛ/ is more like a rising diphthong, since [ɪ] is such a high vowel that it is quasi-consonantal (*almost* a semivowel), with less acoustic energy than [ɛ]. This nucleus is somewhat comparable to the three centralizing diphthongs of Siamese, sometimes written

/ia ɨa ua/ and sometimes /iə ɨə uə/. As the latter transcription suggests, the second element is less prominent than the first, but it is still a true vowel, not a semi-vowel. Rather than calling these 'falling diphthongs', the term 'co-valent' seems appropriate here also.

37. The meaning of the fused element in 'measles' is obscure! For 'drizzle' and 'whisper', it is undoubtedly the adverbializing particle è (4.B below) which has become amalgamated with the preceding syllable in underlying *stative adverbial* constructions (*ibid.*, esp. n.49) of the form *šɨ̀? è, chɨ̀? è.

38. For complex nuclei which show free variation between 'totally fused' /-y/ and 'semifused' /-ɛ/ vocalism, see the discussion of the *minimized extentives*, below 4.A.

39. The word là?-nɔ-cɨ́ (lit. 'finger-joint') means 'knuckle, phalanx' (in the sense of a finger-section from joint to joint). The word for 'little finger' (là?-nɔ-cɨ́ɛ́ ~ là?-nɔ-cɛ́) seems thus to be derived from a fuller form *là?-nɔ-cɨ́-ɛ́ [< là?-nɔ 'finger' and cɨ́-ɛ́ 'small joint'], i.e. 'small-knuckled finger; the finger with the smallest phalanges.'

40. This is quite analogous to a phenomenon at the other end of the syllable that I have called *prefix preemption*, whereby a prefix comes to drive out the original root-initial consonant. (See, e.g., Matisoff 1979.)

41. For such syllables as hɨ́ɛ́ and fɨ́ɛ́, see the discussion of minimized extentives (4.A below).

42. Lahu checked syllables take less time to utter than open ones. A number of Lahu syllables under high-rising or very-low tones /ˊ ˋ/ have allegro variants under high-checked or low-checked tones /ˆ? ˇ?/, respectively. See Matisoff (1973a:#1.631, p.28), and the discussion of mɛ̂?-ɡə̂? ~ mɛ̂?-ɡɛ́ (3.Fc above).

There is evidence that this particle è derives historically from a syllable with lateral initial /lɛ̀/ which still survives as an alternant of è in certain collocations. As noted above (1.B), several functors optionally drop their C_i in Black Lahu, including such essential items as mâ ~ â (Adv) 'negative', thà? ~ à? (P_n) 'accusative', and tā ~ ā (P_v) 'perfective.'

43. E.g., chi hɨ́y ɛ ve chɔ 'such a small person'. See below 4.A and 4.B (esp. Table 2) and Matisoff (1973a:130).

44. See Matisoff 1973a:#1.42f, 3.62. These words are called 'diminutive extentives' throughout that work, but we adopt

the label 'minimized' here to avoid confusion with the distinct morpheme ɛ́ (M_{pfx}) that we are calling 'diminutive'.

45. My most reliable informant (1977) insisted that he felt a slight drop in pitch on the second mora, and suggested it be written with the symbol for high-falling tone /ˆ/.

46. The initial consonant is here affricated, the fused vowel [ɛ] is nasalized to [ɛ̃], and the original nuclear vowel, unrounded to [ʉ] in this environment, is deprived of its syllabicity.

47. The high-rising tone acquired by the extentives in their minimized form is similar to what we find in a number of stative adverbials (4.B below), where a mid-tone base form becomes high-rising tone before the subordinating particle ɛ̀: phu 'white' > phú ɛ̀ 'whitely', chu 'fat' > chú ɛ̀ 'fatly', etc. See Matisoff (1973a:#1.641, p.30).

48. The adverb qha means 'all'; V_h = verb-head, N_h = noun-head. Examples of fused nuclei in qha-adverbials include:
qha pèy [pəɛ̃] 'completely' < qha pè ɛ̀ < pè 'to finish',
qha ëay [ëaɛ̃] 'until it is reached, up to the point that' <qha ëa ɛ̀ < ëa 'to reach',
qha mây [maɛ̃] 'equally, to the same extent' < qha mâ ɛ̀ < mâ 'be many',
qha cwê [cɒɛ] 'perfectly, correctly' < qha cô ɛ̀ < cô 'be correct',
qha lwɛ̀?[lɒɛ?] 'sufficiently' < qha lɔ̀? ɛ̀ < lɔ̀? 'be enough',
qha šwi [šʉi] 'in the same way' < qha šū ɛ̀ < šū 'be the same' (Matisoff 1973a:17, 20).
This last example involves the doublet formation u ~ wi (3.C above).

49. The morpheme preceding ɛ̀ in a stative adverbial is sometimes an independent verb in its own right [e.g. ba (V) 'shine, be bright' > ba ɛ̀ 'clearly, brightly']. Sometimes it may be more nounlike [šǐ (N) 'gold' > šǐ ɛ̀ 'yellow, gold-coloured']. In many cases the morpheme only occurs in the adverbial construction, so it is hard to tell what its intrinsic form-class is. To cover all these contingencies we are using the non-committal symbol 'M' (for 'morpheme').

50. The verb following a stative adverbial is usually one of a handful of highly abstract items like qay 'go', te 'do', phɛ̀? 'be', là 'come'. The chief semantic burden of the VP is borne by the adverbial, with the verb merely providing a cushion for its adverbiality to rest upon. The same is true for most of the other types of SEs in their adverbial function. (The exception is qha-adverbials, which occur freely before any semantically appropriate verb.)

51. Especially reduplicated adjectival verbs (V_{adj}).

52. B_v = bound verbal morpheme. We conventionally connect this intensifier to its adjective by a hyphen.

53. These are four-syllable constructions at least two of which are verbs, such that the first and third, or the second and fourth elements, are identical.

54. There will probably be little danger of confusing this term with the similar acronym used by astronauts for 'extra-vehicular activity'!

55. Larger, for example, than the number of adjective-intensifiers so far discovered. As we shall see, the EVAs resemble intensified adjectives more than any other type of subordinate expression.

56. The auditory impression is rather similar to that of the Vietnamese ngã tone, though the Lahu syllables have less 'creakiness' than the Vietnamese ones.

57. Exceptions are ga=pɛ-ɛ, where the root-part of the syllable is already mid-tone; and a few items like ɬ-lɔ́=mə-ɔ̀, gɔ̀=lɛ̀?-ɛ̀, hɔ̄=vɛ̀?-ɛ̀, where the contour ends as a low-falling tone /ˋ/. With these last two there is some question as to whether they are really EVAs [4.D (21-22) below].

58. These are very similar in status to such lexically specific English intensifiers as jet (black), scot (free), stock (still), luke (warm), etc.

59. In our corpus, the exception is ɬ-lɔ́=mə-ɔ̀ 'on a grand scale' (3-and-a-half syllables). But here ɬ-lɔ́ is functioning as a tight lexical unit. See 4.D (13) below.

60. Since reduplication by itself is already a widespread morphological technique to achieve adverbialized status in Lahu (reduplicated verbs are a kind of 'SE': see Table 2), the reduplication obviates the necessity for any subordinating particle.

61. We may symbolize the cases where a given head may have multiple tails as: HEAD=$TAIL_1$-ECHO ~ HEAD=$TAIL_2$-ECHO. This again is similar to what goes on with ordinary intensified adjectives, where the same V_{adj} may occasionally take more than one intensifier, with some semantic differentiation. Thus hɛ 'be hard' may be intensified as hɛ-kû 'stiff (as cramped muscles or an erect penis)' vs. hɛ-tɔ̂? or hɛ-tâw? 'hard and chewy (as sugarcane)'; 'hard but resilient (as a pig's sternum)'.

62. This morpheme is from Shan (cf. Thai lŭaŋ), but is thoroughly integrated into Lahu, functioning as the antonym of ɛ́ (M_{pfx}) 'something small'.

63. In this example, the EVA occurs 'independently', with no following verb. Since Lahu adverbials tend to be the semantic centre of interest of their clauses (the following verb is usually an abstract dummy), it frequently happens that the verb is omitted, so that the adverbial becomes more verblike. (See Matisoff 1973a:#4.421I, 4.422(3), 4.424, 6.47.)

64. The last syllable of this EVA was correctly understood to be a fusional variant of the subordinating particle ɛ̀ in Matisoff (1973a:17,#1.42e). However, the identification of vɪ̂ with the morpheme vɪ̂ (M_{pfx}) 'something sharp' (as in á-thɔ-vɪ̂ 'knife-blade', pɛ̂-vɪ̂ 'stinger of bee') was quite wrong. Contra Matisoff, *op.cit.*, there is no AE_{stat} of the shape vɪ̂ ɛ̀ [vi-i] meaning 'sharp', and vɪ̂-i, in fact, occurs only as the tail of nɔ in this particular EVA.

65. The lɛ̀ʔ is to be regarded as the fuller (presumably original) form of the subordinator ɛ̀ (qv. n.42).

66. I analysed this lɛ̀(ʔ) as a variant of the subordinator ɛ̀ which came to be 'treated as part of the root-morpheme of the adverbial, so that another /ɛ̀/ may directly follow it' in Matisoff (1973a:565, n.144.)

67. We should perhaps say 'reintroduced', since vowel length is set up as a feature of PTB (Benedict 1972:70f.), though only in syllables with final consonants.

68. There are even excellent examples of new syllable-final *oral stops developing from semivowels*. In Maru (Burmish group), PLB *-uw and *-iy have become -uk and -it, respectively. (See, e.g. Burling 1967:59-61). This is similar to a development that has been traced for Archaic Chinese millennia ago, where *-g and *-d have been plausibly derived from earlier *-w and *-y (Benedict 1948).

69. I do not believe that A. Martinet (*Economie des changements phonétiques: traité de phonologie diachronique*. Berne; 1955) actually uses the term *l'économie de la syllabe*, though I doubt he would object to it.

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