When Words Erode:
Moken Trisyllabic Syncopation and PAn Stress*

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The divergence of Moken from the rest of Austronesian group makes it an important piece of puzzle in the reconstruction of Proto-Austronesian (PAn). This paper analyzes the pattern of trisyllabic syncopation in Moken and argues that it provides evidence for PAn stress, in support of Wolff (1993) and Zorc (1978; 1983). Moken trisyllabic syncopation is unique among Austronesian languages, as exemplified by the development of PAn for etyma *talíŋa > tɛŋa: 'ear', *tuqəláɲ > kəla:n 'bone', and *qásəlu > kaʔɔy 'pestle'. This paper examines systematically the patterns of syncopation of PAn trisyllabic roots in Moken in a wider Austronesian perspective, drawing evidence from Proto-Malayic and Proto-Philippine. The development from PAn trisyllabic roots with contrastive stress to Moken disyllabic forms with strictly iambic pattern basically involves two major processes: syncopation of unstressed vowel and cluster resolution.

1. Introduction

Moken is an Austronesian language spoken by a sea-based population of uncertain origin along the coast of the SEA peninsula, ranging from Myanmar to Southern Thailand. Its divergence from the rest of Austronesian group makes it an important piece of puzzle in the reconstruction of Proto-Austronesian (PAn). In particular, Moken trisyllabic syncopation is unique among Austronesian languages, as exemplified by the development of PAn for etyma 'ear', 'bone', and 'pestle' in Moken and Malay.

Table 1. Examples of reflexes of PAn trisyllabic roots in Moken and Malay

gloss	PAn	Moken	Malay
ear	*taliŋa	tɛŋa:	taliŋa
bone	*tuqəlaɲ	kəla:n	tulaŋ
pestle	*qasəlu	kaʔɔy	halu

While previous researchers (particularly, Larish 1999) have identified some changes from PAn to Moken, in many cases the exact processes by which these developments took place have not been systematically explored. In particular, Larish (1999: 371-376) attributed the idiosyncratic patterns of syncopation in Moken to an earlier prominence system but fails to show how the Moken data supports the reconstruction of unpredictable stress in PAn and how the language has developed from Proto-Austronesian stress system. This paper analyzes the patterns

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of trisyllabic syncopation in Moken and argues that they provide evidence for unpredictable stress in PAn, in support of Wolff (1993) and Zorc (1983). In section 2, I provide a sketch of Moken phonology and the development of Moken phonemes from PAn. In section 3, in order to identify the syncopated segments, I propose a scenario in which clusters theoretically resulting from the syncopation are resolved. In section 4, I present correspondences of reflexes of PAn trisyllabic roots in Moken, Proto-Malayic, and Proto-Philippines and account for the patterns of syncopation in Moken as well as the two reconstructed languages by positing an predictable stress in PAn.

2. From PAn to Moken

2.1 Moken inventory

Different dialects of the Moken and their close relative Moklen are now scattered along the Andaman coast of Thailand and Myanmar. Although these varieties have not been extensively studied, a few phonological descriptions of different dialects are available (Chantanakomes 1980; Makboon 1981; Swastham 1982; Naw Say Bay 1995; Larish 1999). The variety analyzed in this paper is that of Rawai Beach, Phuket, Thailand. The data come from two sources. The first is an excellent description by Chantanakomes (1980), who carefully describes the sound system of the language, as well as its grammatical characteristics. The second is data from the fieldwork conducted by John Wolff and myself during July 14-24, 2004 in Rawai District, Amphur Muang, Phuket Province, Thailand. Since the preliminary analysis of the sound system based on data from our fieldwork agrees with that described by Chantanakomes (1980), forms from both sources have been used to cross-check with each other.

Table 2. The consonant inventory of Moken

Labial	Alveolar	Palatal	Dorsal	Glottal
p	t	c	k	ʔ[1]
ph	th	ch	kh	
b	d	ɟ	g	
	(s)			h
m	n	ɲ	ŋ	
	l			
w		j		

Two sounds in the inventory need to be discussed: *ʔ* and *ch*. According to Chantanakomes (1980), final *-ʔ* occurs only after short vowel, suggesting that vowel length is neutralized in this environment. This is consistent with Larish (1999)'s description of 'long' vowels followed by *ʔ* as being half-long. Since in our data Vʔ and V: alternate freely, all instances of Vʔ are analyzed and transcribed as V:, e.g. *mata:* 'eye' is pronounced as *mataʔ* or *mata:*. As for *ch*, Larish (1999) shows successfully that *ch* and *s* in Moken are free variants of the phoneme *ch*. However, both words recorded with *s* and *ch* are found in Chantanakomes (1980). Since the status of *s* is not relevant for the issue being addressed, original transcriptions are preserved.

[1] In Pittayaporn (in press), I treat *ʔ* as non-phonemic but this issue is not relevant here.

Table 3. The vowel system of Moken

i, i:		u, u:
e, e:	ə	o, o:
ɛ, ɛ:	a, a:	ɔ, ɔ:
iə		uə[2]

Note that a major difference between Chantanakomes's and my analysis is the nature of the vowel quality distinction. Chantanakomes analyzes Rawai Moken (henceforth Moken) as having contrasts between lax high, tense high, and mid vowels, while in our analysis the language has a three-height distinction. That the so-called "tense high vowels"[3] pattern with low vowels in vowel harmony suggests that they are non-high (see Pittayaporn in press). In this paper, data taken from Chantanakomes are re-transcribed to conform to our system.

Like other mainland languages, Moken has a strict iambic word template. In other words, the canonical shape of Moken words is disyllabic, with a stressed second syllable: CV'CV(:)(C). Consonant clusters are not allowed in this language. A syllable obligatorily has a single onset and, in the case of a stressed syllable, a heavy rime. Although monosyllabic forms are found, they are rare and are mostly restricted to function words. In casual speech, however, the first syllable is often dropped, leaving the root monosyllabic. Interestingly, most cases where the first syllable is dropped are verbs, i.e. *dɔt~ mədɔt* 'to cook', and *yay~miyay* 'to think (that)'. This phenomenon is also reported in Larish (1999).

2.2 Development of PAn phonemes

After Dempwolff (1934)'s foundational work, several alternatives (for example, Dyen 1965; Dahl 1973; Blust 1980; 1983-4; 1986; Wolff 1988; Ross 1992; Wolff 2002) have been proposed in order to improve the system. Although there is no consensus about the reconstruction of the phonology of the proto-language, the one proposed by Wolff (2002) is used in this paper. The reconstruction of individual roots and well as data from modern languages are drawn from the Wolff's PAn database (Wolff in progress).

Table 3. Reconstructed PAN consonants

Wolff	Ross	Dyen
p	p	p
t	C, t	C, t
k	k	k
-	-	T, c
q	q	q
b	b	b
d	d_1, d_2, d_3	D
ɟ	Z	Z

[2] Veena posits a contrastive long *uə:* but explains that it has been found only in two words. One of these, *buə:k* 'fruit' are recorded as *buwa:k* in our data, therefore the proposed phoneme does not exist in our analysis.
[3] ĭ and ŭ in Chantanakomes (1988)'s notation.

Wolff	Ross	Dyen
-	-	z
g	j	j
-	g	g
ɣ	R	R
m	m	m
n	n	n
ɲ	ñ, L	ñ, N, L
ŋ	ŋ	ŋ
l	l	l
-	d_l	r
c	s	s
s	S	S
w	w	w
y	y	y
-	h, ʔ	h, ʔ

The discrepancies between PAn sound systems that have been proposed are primarily concerned with the consonants. Since interpretations of segmental correspondences are not relevant in this paper, I simply adopts Wolff (2002)'s system with minor notational differences from the original transcriptions. As for the vowel system, there is a general agreement that PAn had 4 contrastive vowels. The system is presented in Table 4.

Table 4. Reconstructed PAn vowel phonemes

i	u
ə	
a	

Although in the traditional PAn sound system, no suprasegmental contrast is reconstructed, after Zorc (1983; 1992) shows that contrastive stress has to be reconstructed for what he calls Proto-Philippine, several linguists working on Austronesian (Ross 1992; Wolff 1993) have presented evidence in support for the contrastive stress in PAn while some (for example, Blust 1997) express doubts. I argue that patterns of trisyllabic syncopation in Moken suggest that PAn stress was unpredictable.

Adopting Wolff's system of PAn phonology, a few segmental innovations can be identified. One of the sound changes that characterizes Moken is the change from **q* to *k* in all positions, as shown in **qabu* > *kabɔy* 'ashes' **paqa* > paka: 'thigh, legs' and **baɣəq* > bala:k 'abscess, swell'. Syllable-finally, the resulting *-l* further neutralized with *-n*, i.e. PAn **s* and **h* also seem to have merged and are reflected as *ʔ* initially and medially and lost finally, as illustrated by **saŋin* > *ʔaŋin* 'wind', **nasik* > *ɲaʔɛk* 'to ascend', * *təbus* > **təbu* > *təbɔy* 'sugar cane', and **baɣəhat* > *baʔa:t* 'heavy'. Another characteristic change in Moken is the development of **ɣ*, which is reflected *ʔ* initially, as *l* medially, and as *n* finally, i.e. **ɣumaq* > *ʔɔma:k* 'house', **uɣat* > *ɔla:t*

'vein', **təŋəɣ* > *təŋan* 'a kind of seaside tree'. The development of PAn in Moken is summarized below.

Table 4. Reflexes of PAn consonants in Moken

PAn	C-	-C-	-C
p	p	p	p
t	t	t	t
c	ch~s	ch~s	h
k	k	k	k
q	k	k	k
b	b	b	p
d	d	d	t
ɟ	ɟ	ɟ	t
g	g	y/∅	y
m	m	m	m
n	n	n	n
ɲ	n	ɲ, n	n
ŋ	ŋ	ŋ	ŋ
l	l	l	n
ɣ	ʔ	l	n
s	ʔ	ʔ	∅
h	ʔ	ʔ	∅
w	assimilated	w	w
y	y	y	y

As for the vowels, the most important innovations in Moken are vowel lowering and diphthongization. Unless they are open or followed by PAn **q* or **ɣ*, high vowels of the second syllables lowers regularly, i.e. **kulit* > *kɔlɛt* 'bark of tree' and *ɣatuc > *latɔh* '100'.

In cases of open final syllables, the two vowels were lengthened. PAn **i*, and **u* regularly diphthongized and merged in open final syllables but are retained in closed syllables (Larish 1999:323). The resulting diphthong may differ among dialects but Rawai Moken shows *ɔy* and *uy* regularly for both **i*, and **u*. Moken forms that illustrate this change are **qəti* > katɔy 'finish', **waɣi* > *ʔalɔy* 'day' **batu* > *batɔy* 'stone', and **buni* > *munuy*[4] 'to hide'. In addition, the vowels of the first syllable must harmonize with the vowels of the following syllables unless some other factors override the effect.

[4] Reflexes of verbal roots regularly shows nasal initials whose nasality is inherited from PAn prefix **məN-*.

Table 4. Reflexes of PAn vowels in Moken

PAn	1st syllable	2nd syllable		
		V#	Vq/Vɣ	VC
i	i/ɛ	ɔy/uy	i:	ɛ
u	u/ɔ	ɔy/uy	u:	ɔ
a	a	a:	a:	a:
ə	ə	-	a	a

These innovations have led Moken to become more similar to mainland Southeast Asian languages than to its insular relatives. I have argued elsewhere that the convergence toward mainland SEA prototype is a gradual process which involves contact not with one single donor language but with multiple languages on the Southeast Asian mainland (Pittayaporn in press). In particular, the trisyllabic syncopation is argued to be a general Austronesian phenomenon whose outcome conforms to the mainland SEA typology.

3. Cluster resolution

Crucial to the understanding of trisyllabic syncopation is the identification of the syncopated elements. Blust (1986) states that Moken lost antepenultimate syllable if the penult began with **q*, i.e. **baqəʋu > kəlɔy* 'new' and **buqaya > kaya:* 'crocodile'. Similarly, Larish (1999) shows how PAn stressed syllables in some trisyllabic roots are dropped to yield strict disyllabic template in Moken. However, these accounts does not recognize the fact that ** talíŋa* gives *tɛŋa:*, not the expected **taŋa* or **lɛŋa:*. That is, in this etymon the onset of the antepenult is preserved while it is the penultimate vowel that is retained. This paradox suggests that it is not the whole unstressed syllable but only the vowel that is lost.

Schematically, the process of vowel deletion would result in a complex cluster but no such stage has been attested in the history of Moken. This suggests that when the vowel is syncopated, an additional consonant deletion was trigger to prevent illicit clusters. I argue that such cluster resolution operated according to the sonority sequencing (Pittayaporn in press). That is, the less sonorous element is retained while the more sonorous one is lost. If a cluster of two stops is created, the one further back is retained, as shown in table 5. These tendencies for syncope are quite regular. Note that in *lɛta:k* 'leech' the liquid is unexpectedly retained. This is because the fourth syllable from the end **qa-* was lost early on as also was the case in Malay *lintah* (Wolff, personal communication). The principles that govern the cluster resolution cannot be reduced to a simple linear ordering. For example, the first consonant **t-* is retained in 'ear' but the second consonant **q* is retained in 'bone', despite the fact that both etyma started with a **t*.

Table 5. Cluster resolution in some PAn trisyllabic and quadrisyllabic forms

*taliŋa	> *tliŋa	> *tiŋa	> tɛŋa: ‘ear’
*buqaya	> *bqaya	> *qaya	> kaya: ‘crocodile’
*baqəɣu	> *bqəɣu	> *qəɣu	> kəlɔy ‘new’
*tuqəlaɲ	> *tuqəlaɲ	> *qəlaɲ	> kəla:n ‘bone’
*ɣuqaɲay	> *ɣqaɲay	> *qaɲay	> kanay ‘man’
*qitəluɣ	> *qtəluɣ	> *qəluɣ	> kəlu:n ‘egg’
*sabaɣat	> *sbaɣat	> *baɣat	> bala:t ‘west wind’
*qasulipan	> *qsulpan	> *qupan	> kɔpa:n ‘centipede’
*(qa)ɲimataq	> *ɲimtaq	> *ɲitaq	> lɛta:k ‘leech’

Having established that only vowels were syncopated, it is now clear that a retention of the onset does not entail that the syllable was not affected by the syncopation. This type of vowel syncopation is similar to that of Malay represented by the development **timəɣaq* > **timrah* > *timah* ‘tin’ (Blust 1982). Therefore, to determine which syllable was targeted by the syncopation, we need to identify which of the three PAn vowel in a given root is not reflected in the modern Moken form.

4. Syncopation and PAn stress system

As discussed in Larish (1999), a Moken word must be an iambic foot of shape CV.CV́(:)(C) like in many other mainland Southeast Asian languages. He also suggested that, for PAn disyllabic roots, the path to the observed Moken canonical shape is simply shifting the stress to the final syllable. However, the development of trisyllabic etyma is more complicated and very suggestive of syncopation in Moken as reflexes of PAn stress pattern.

As mentioned earlier, Blust (1986: 32) states that Moken lost penultimate syllable if the penult began with **q*, i.e. **baqəɣu* > *kəlɔy* ‘new’ and **buqaya* > *kaya:* ‘crocodile’. This account does not capture many other PAn trisyllabic roots that does not have **q* as onset of the penultimate syllable as these forms may lose either the penult or the antepenult, e.g. **taliŋa* > *tɛŋa:* ‘ear’ and *qasəlu > *kaʔɔy* ‘pestle’. Moreover, it is not clear why the place of articulation of the penult should trigger syncopation of the syllable preceding it.

In contrast, Larish (1999:369-70) adopts the hypothesis that PAn had contrastive stress (Zorc 1983; Zorc 1992; Wolff 1993). He suggested that unstressed syllables in PAn trisyllabic roots, such as **tuqəlaɲ*, **buqaya*, * *baqəɣu*, and * *taliŋa* are dropped to yield Moken *kəla:n* ‘bone’, *kaya:* ‘crocodile’, *kəlɔy* ‘new’, and *tɛŋa:* ‘ear’ respectively. In these specific cases, the vowel of the antepenult is lost. However, he does not address many cases where the antepenult is retained, e.g. *kaʔɔy* ‘pestle’ < *qasəlu, and *kapaw* ‘gall’ < **qapəgu*. Furthermore, Larish (1999: 368) also suggests that a stress shift to the final syllable is responsible for these distinctive patterns of syncopation in Moken. However, this scenario is not consistent with the data.

In agreement with Larish (1999), I hypothesize that syncopation patterns in Moken reflect PAn unpredictable stress. In particular, I propose that unstressed syllable in PAn trisyllabic roots are syncopated. Such loss of unstressed syllables is well-attested in languages all over the world. The most famous example is the development from Latin to Romance languages (Posner 1996).

That the ultimate, the penultimate or the antepenultimate can be dropped suggests that stress may have been placed in different position in different roots, i.e stress was unpredictable. Chronologically, the syncopation must have occurred before stress in Moken was shifted to the last syllable, contra Larish (1999).

4.1 Patterns of syncopation

The relationship between syncopation in Moken and PAn stress can be clarified by examining the similar patterns of syncopation in Proto-Malayic (Adelaar 1992) and Proto-Philippines (Zorc 1978). Previous researchers (Zorc 1978; Ross 1992; Wolff 1993) have discussed this kind of relationship; in Table 6, I have presented Proto-Malayic (PM) and Proto-Philippines (PPh) data together with the corresponding Moken forms[5]. Note that only 13 trisyllabic roots are included because trisyllabic roots are relatively rare in PAn. In many cases, a given root has been identified only in one or two of the three languages used in this paper.

Table 6. Syncopation of PAn in Proto-Malayic, Proto-Phillipine, and Moken

	PAn[6]	Proto-Malayic	Proto-Philippine	Moken	Gloss
1	*baɣəhat[7]	*bərat	bigat (Tg)	baʔat	heavy
2	*qasəlu	*halu	*haqlu	kaʔɔy	pestle
3	*(məN-)buɣəsu	cəm-buru (Ml)	pani-bughoʔ (Tg)	məlɔy	jealous
4	*(məN-)qaləcəm	*masəm	asim (Tg)	masam	sour
5	*tuqəlaŋ	*tulaŋ	*tuqlaŋ	kəla:n	bone
6	*taliŋa	*taliŋa	*tali:ŋa	tɛŋa:	ear
7	*buqaya	*buhaya	*buqa:ya	kaya:	crocodile
8	*ɟuɣami	*jərami	*daRa:mi[8]	-	straw
9	*qaɲitu	*hantu	*qani:tu	katɔy	spirit
10	*baqəɣu	*baharu	*baqRuh	kəlɔy	new
11	*qapəgu	*hampədu	apdo (Tg)	kapaw	gall
12	*qitəluɣ	*təlur	itlog (Tg)	kəlu:n	egg
13	*sapəgiq	*pədih	hapdiq (Tg)	pəyiək	to smart

In PM, there are three ways that PAn trisyllables are reflected. The first pattern is syncopation of penultimate syllables (represented as σ×σ) as in 'heavy', 'pestle', 'jealous', 'sour', 'bone' and 'spirit'. The second pattern involves retention of all the three syllables of the PAn roots (σσσ), e.g. 'ear', 'crocodile', 'straw', 'new' and 'gall'. In addition, there are two cases of antepenult deletion (×σσ): 'egg', and 'to smart'. In PPh, only two patterns of syncopation can be

[5] According to Wolff (1993), the PAn stress is preserved in many Philippine languages in form of vowel length in most cases and stress is predictable in term of length. Tagalog prominence is realized both as length and stress but phonological evidence suggests that it should be considered stress (French 1988).

[6] PAn/PMP roots cited in Adelaar (1992) are substituted by Wolff's reconstructions (in progress). Some forms presented here may not go back to PAn but only to PMP but all languages being compared are Malayo-Polenesian. Therefore, it is justifiable to include MP forms in the analysis.

[7] Wolff (personal communication) suggests that PAn 'heavy' might have to be reconstructed as *bəʏəhat to account for the *ə* in Ml and *i* in Tg. Note that Wolff (1992) does not reconstruct *h.

[8] Zorc's *R correspond to *ʏ in Wolff's system.

identified. The first pattern is syncopation of the penult (σ×σ), e.g. ‘heavy’, ‘pestle’, ‘jealous’, ‘bone’, ‘new’, ‘eleven’, ‘egg’ and ‘to smart’. The rest of the roots show no syncopation (σσσ). Note that, in these retention cases, the preserved penultimate syllables are always stressed.

Unlike PM and PPh, all trisyllabic roots are reduced to a canonical disyllabic shape. The first pattern is also syncopation of the penult (σ×σ). The set of roots that conform to this pattern in Moken is a subset of the set of roots with syncopated-penult in PM, e.g. ‘heavy’, ‘pestle’, ‘jealous’, ‘sour’, and ‘spirit’. The second group of roots consists of those that lost the antepenult vowels, e.g. ‘bone’, ‘ear’, ‘crocodile’, ‘new’. Lastly, there are two roots that lost the penult (σ×σ), e.g. ‘egg’ and ‘to smart’. Note that Moken ‘gall’ did not participate in the trisyllabic syncopation. The vowel **a* and **u* contract to form a diphthong *aw*; the change from **-g-* to *-∅-* is regular in this environment. In other words, the root might have already been reduced to disyllabic before the syncope took started to operate: probably **qapə́gu* > *kapagu* > *kapau* > *kapaw*.

The correspondences are shown in table 7.

Table 7. Patterns of syncopation in Proto-Philippines, Proto-Malayic, and Moken

	PPh	PM	Moken	
(1)	σ×σ	σ×σ	σ×σ	‘heavy’, ‘pestle’, ‘jealous’, ‘sour’
(2)	σ×σ	σ×σ	×σσ	‘bone’[9]
(3)	σσσ	σσσ	×σσ	‘ear’, ‘crocodile’, ‘straw’
(4)	σ×σ	σσσ	×σσ	‘new’, ‘gall’
(5)	σ×σ	×σσ	×σσ	‘egg’, ‘to smart’

4.2 Proposed account

Departing from the hypothesis that syncopated syllables were unstressed in PAn, the correspondences presented above strongly suggests that stress was unpredictable, i.e. contrastive. Specifically, any of the three syllables in PAn may potentially have received prominence.

4.2.1 Reconstruction of stress

Among the etyma included in this study, only ‘bone’, i.e. Moken *kəla:n*, is reconstructed with ultimate stress. Correspondence (2) shows that PPh and PM both lost the penult, eliminating a possibility of stressed penultimate syllable in PAn. Moken is unique with respect to this etymon because it surprisingly lost PAn antepenult, indicating that the antepenult must also have been unstressed. By this process of elimination, this etymon must be reconstructed with ultimate stress. The rarity of ultimate stress may explains why PM unexpectedly shows **-ŋ* instead of **-n* for PAn **-ɲ* in this etymon. That is, it is possible that PAN final **-ɲ* is reflected as PM **-ŋ* only in an etymon that has ultimate stress in PAn.

Unlike ultimate stress, penultimate stress seems to have been common in PAn. PM forms in (3) show retention of the penult. Since PM shows a binary contrast between syncopated and retained penult, the retention of the penult by itself can be used as evidence for PAn penultimate stress. Moreover, PM agrees with the PPh forms, which not only retain the syllable but also show the expected penultimate stress. This correlation strongly suggests that these roots had penultimate stress in PAn. In these cases, The Moken forms also retain the penults, giving further support to PAn penultimate stress in these roots. However, the PPh reflex of ‘spirit’ shows

[9] Larish (1999: 370) noted that the *k* in *kəla:n* may have developed secondarily from a *t* > *k* /_Vl dissimililation. However, this dissimilation rule does not apply in Rawai Moken, indicating that the *k* reflects PAn **q*.

stressed penult while the PM and Moken forms show syncopated penult. It is possible that there was a stress shift either in PM or PPh due to the taboo nature of the etymon. Hale (personal communication) also suggests that this discrepancy may be due to an addition of an inalienable-possessive suffixation.

Antepenultimate stress was also common in PAn. The penults of roots showing correspondence (1) were syncopated before the PM stage. This suggests that the penult was unstressed in the proto-language. This interpretation is strengthened by their Philippine cognates, which also show syncope of the penult. Given that (2) reflects ultimate stress, the only possibility is then that these roots had stressed antepenults in PAn.

At first glance, forms in (4) and (5) seem to present a problem for stress reconstruction since there are disagreements between PM and the Philippine cognates. Specifically, PM roots retained the penult suggesting it was stressed while the syncopated forms in the Philippine languages suggest unstressed penult. However, these cases all involve **ə* in the penult, suggesting a possibility of a stress shift conditioned by **ə*. According to Zorc (1992:89), **ə* cannot be stressed in PPh , unlike **i, *u,* and **a*. This lends support to the stress-shift speculation since there is a gap of stress distribution in PPh. In other words, I hypothesize that PAn had stressed penultimate **ə* in these cases and that PM retains the original pattern while PPh innovated by shifting the stress to avoid accented **ə*.

Correspondence (5) looks superficially problematic in another aspect but can in fact be explained away by an independent factor. Specifically, loss of antepenults as is the case for roots showing correspondence (5) is a well-attested change in PM (Adelaar 1992).Specifically, these roots were trisyllabic and had penultimate stress in early PM but they subsequently lost the antepenult through an independent process involving PM initial *h-*. Such change must have been independent from and subsequent to the trisyllabic syncopation. As for Moken, it consistently dropped the antepenult, suggesting that it agrees with PM in having unstressed antepenult in these etyma.

4.2 Generalization and chronology

The reconstruction of PAn stress above makes trisyllabic syncopation in PM, PPh, and Moken systematic. Syncopation patterns in these languages, which at first glance seem disparate, can be accounted for by one or two rules in each language. The generalization about PM and PPh syncope is that the penultimate syllable of PAn trisyllabic roots was lost regularly unless it was stressed. For PPh, an additional rule that shifts original stress out of **ə* must be posited. I remain agnostic as to which syllable the stress moved to.

Table 8. Ordering of rules in PM and PPh.

Proto-Philippine

	‘pestle’	‘bone’	‘ear’	‘new’
PAn	*qásəlu	*tuqəláŋ	*talíŋa	*baqə́ɣu
1) *ə́ > ə̆	-	-	-	*baqə̆ɣu
2) V̆ > ∅ / σ__σ	*haqlu	*tuqlaŋ	-	*baqRuh
PPh	*haqlu	*tuqlaŋ	*tali:ŋa	*baqRuh

Proto-Malayic

	‘pestle’	‘bone’	‘ear’	‘new’
PAn	*qásəlu	*tuqəláɲ	*talíŋa	*baqə́ɣu
1) V̆ > ∅ / σ__σ	*halo	*tulaŋ	-	-
PM	*halo	*tulaŋ	*taliŋa	*baharu

Moken is unique in giving priority to the preservation of the right edge. The syncope rule is that the PAn antepenultimate vowel is syncopated unless accented. This process would make these trisyllabic roots disyllabic with stress on either of the two syllables. However, this is not the case. Moken is strictly iambic, that is, stress always falls on the last syllable of the root. This means that a subsequent stress shift must have shifted all the penultimate stress to the final syllables. Contrary to Larish (1999:368), who suggests that this stress shift conditions trisyllabic syncopation, the shift to final stress must have followed the syncopation. If the stress shift had preceded the syncopation, the PAn unpredictable stress, which conditioned the syncopation, would have been eliminated.

Table 8. Ordering of rules in Moken

	‘pestle’	‘bone’	‘ear’	‘new’
PAn	*qásəlu	*tuqəláɲ	*talíŋa	*baqə́ɣu
1) V̆ > ∅ / __σσ / ó__σ	*qásu	qəláɲ	*tíŋa	*qə́ɣu
2) óσ > σó	*qasú	-	*tiŋá	qəɣú
Moken	kaʔɔ́y	*kəlá:n	*tɛŋá:	*kəlɔ́y

5. Conclusion

In this paper, I have argued by comparing Moken with Proto-Malayic and Proto-Philippines that Moken trisyllabic syncopation is key to the reconstruction of unpredictable stress in PAn. The process of trisyllabic discussed shows that the development from PAn trisyllabic roots with contrastive stress to Moken disyllabic forms with strictly iambic pattern basically involves two major processes: syncopation of unstressed vowel and cluster resolution. Although it is clear that importance was given to the last syllable of the roots, this account strongly suggests that at an early stage of Moken, the stress pattern was still not predictable, in contrast with the hypothesis that considers the stress shift as the trigger of the syncopation. Only after the syncopation had taken place could the stress be shifted to the ultimate syllable, as evidenced by the retention of the PAn antepenultimate vowel, e.g. *baʔat* ‘heavy’, *kaʔɔy* ‘pestle’. In conclusion, this account discovers systematicity in the overlooked process of trisyllabic syncopation in Moken, as well as in Proto-Malay, and Proto-Philippines.

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