

NOTES FROM THE FIELD

**Maranao: A Preliminary Phonological Sketch with
Supporting Audio**

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This paper presents a preliminary phonological sketch of the Maranao language in light of the revisions made by Lobel and Riwarung (2009). Over 300 audio examples accompany the paper, to allow for and to encourage further instrumental analysis. It is hoped that this will not only facilitate but also motivate further inquiry into a language with a register-like system in which consonant aspiration or voicing affects the height and tenseness of the following vowel. The possible implications of such analysis may apply not only to Maranao, but also to other languages with similar phenomena of vowel raising and voice register.

1. INTRODUCTION.¹ Philippine languages have acquired a reputation for being phonologically unchallenging, a great many reflecting nearly the same set of twenty phonemes—16 consonants /p b m w t d n s l r y k g ŋ ʔ h/ and four vowels /a i u ə/—with little or no deviation. When fewer phonemes are present, this is usually the result of the loss of *h and/or the merger of *ə with *a, *i, or *u. When a larger phoneme inventory is found, it is often the result of monophthongization of earlier diphthongs (*ay > /e/, *aw > /o/, etc.). In stark contrast to the simple phonologies of most other Philippine languages, Maranao has a deviant phonological system which includes four additional “heavy” consonants which are not only aspirated but have a strong raising and tensing effect on the following vowel (cf. Lobel & Riwarung 2009). The outlining of the underlying phonemic contrasts is easy enough, especially in light of comparative data from Maguindanaon, Iranun, and other Greater Central Philippine languages. However, the exact phonetic features involved in the interaction between the heavy consonants and the vowels have yet to be determined.

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A noteworthy detail is that voiced stops also trigger the same tensing and raising of the following vowel, albeit only optionally. The synchronic motivation behind the patterning of voiced consonants with aspirated consonants is elusive, but the historical motivation may likely be explicable by the fact that the heavy stops derive from earlier homorganic clusters *bp, *dt, *gk, and *ds, the first members of which were voiced stops. As such, it appears that the tensing and raising of vowels was triggered both by voiced consonants and these four homorganic clusters in which the first member was voiced. However, this system of vowel raising and tensing is nowhere to be found in the closely related Iranun and Maguindanaon,² so it is unclear if it was a feature of Proto-Danao (PDAN) that was lost in Iranun and Maguindanaon, or was innovated in Maranao alone.

It is noteworthy that an almost identical system has also been noted for Madurese (Cohn 1993, Cohn & Lockwood 1994, Cohn & Ham 1998),³ although apparently with a different historical source. This is striking since the two languages are only distantly related (their last shared ancestor probably being Proto-Malayo-Polynesian) and are separated geographically by 2,000 kilometers, including the entire north-to-south length of the third largest island in the world, Borneo.

1.1. THE MARANAQ LANGUAGE. Maranao (ISO code mrw) is an Austronesian language of the Greater Central Philippine subgroup spoken primarily on the southern Philippine island of Mindanao in the provinces of Lanao del Sur and Lanao del Norte, although a considerable number of speakers have migrated throughout the entire Philippines as merchants. It is closely related to Iranun (spoken in both Mindanao and Sabah, Malaysia) and Maguindanaon. For a recent discussion of the position of Maranao in the Philippine subgroup, see Blust (1991) and many works cited therein.

Native speakers identify themselves and their language as Maranao [m(ə)ranaw]. Within the Maranao community, those living around Lake Lanao were traditionally called “Maranao Ranaw” (‘the Maranao of the lake’) while those living along the northern coast of Lanao del Norte were known as “Maranao M’ragat” (‘the Maranao by the sea’). Other names that are used both by the Maranao and other Filipinos include “Muslim”⁴ and “Moro,”⁵ although both of these terms are used in other parts of the Philippines to refer to whichever specific Muslim population lives in that area. The 2000 population estimate for the Maranao was over one million. Outside of the Philippines, there are a small number

² Both Iranun and Maguindanaon retain the homorganic voiced-voiceless clusters of Proto-Danao which are reflected in Maranao as heavy consonants.

³ Thanks to Robert Blust for bringing these articles to my attention. Ideally, we would have been aware of the relevance of Cohn’s work on Madurese to the Maranao situation earlier, so that we could have commented on it in Lobel and Riwarung (2009).

⁴ It is common in the southern Philippines for both Muslims and non-Muslim Filipinos to use the term “Muslim” as a generic substitute for the name of any majority-Muslim ethnic group or the language thereof, e.g., simply identifying the Maranao and their language by their religious affiliation, e.g., Tagalog *Marunong ka bang mag-Muslim?* ‘Do you know how to speak ‘Muslim’?’

⁵ A Spanish borrowing generally offensive to Philippine Muslims when used by non-Muslims, but which has also been used by a number of Muslim organizations without any negative connotation.

No primary studies of Maranao phonology have previously been published. There has been extensive documentation of Maranao from Elliot (1913) to McKaughan and Macaraya (1996), yet without exception, these works were based on incomplete phonological analyses which overlooked the four heavy consonants, sometimes resulting in the misanalysis of the vowel system (cf. Lobel & Riwarung 2009).⁶ Secondary works with information on some aspects of the phonology include McKaughan and Macaraya (1967, 1996), which also represent the most extensive lexicographic materials on Maranao.

Orthographies used by linguists, dictionary compilers, and Bible translators likewise failed to represent the heavy consonants, and sometimes added an extra vowel phoneme in an attempt to compensate. The orthography used in this sketch was developed four decades ago by three of the most celebrated Maranao writers—Aleem Abdulmajeed Ansano of Taraka (1943–2008), Senator Ahmad Domocao “Domie” Alonto of Ramain (1914–2002), and Shaiekh Abdul Azis Guroalim Saromantang of Tugaya (1923–2003)—without any known outside help. It differs from the orthographies of non-Maranaos in that it recognizes the four heavy consonant phonemes, spelled “ph”, “th”, “kh”, and “z.” The first known publication in which this “nativized” orthography appeared was Ansano (1974). It has since been the orthography favored by virtually all native Maranao writers, used in the Maranao Qur’an interpretation (Saromantang 2001), in countless books and pamphlets published locally by Maranao Islamic scholars from the 1970s to the present, as well as in DVDs and Video CDs of Maranao music, all widely available in the Maranao heartland.

Maranao has one of the richest morphologies of any Philippine language (cf. McKaughan 1958), richer even than Tagalog, Bikol or Waray-Waray. Complex morphophonemics and the recalcitrant phonology further complicate the system, hindering its proper analysis for the first 95 years of foreign inquiry into the language.

In contrast, the syllable structure is fairly simple in comparison to the better-known Philippine languages, allowing only a small number of true consonant clusters, as most historical consonant clusters were either assimilated, simplified (most likely via assimilation to a geminate and then simplification of the geminate to a singleton), or merged as one of the heavy consonants. In this regard, Maranao patterns with the languages of western Mindanao, Sabah (Malaysia), and northern Sulawesi (Indonesia), where the number of permissible consonant clusters has almost universally been greatly reduced.

1.2. THE RECORDINGS AND THE SPEAKER. The speaker on the recordings is the second author (b. 1957). She is a researcher and specialist in Maranao literature, culture, and performing arts at the Mamitua Saber Research Center at Mindanao State University in the Islamic City of Marawi. Although also fluent in Tagalog, Cebuano, and English, she has lived virtually her entire life (outside of working hours and time attending college) in Mulondo, Lanao del Sur, a town which is nearly 100% Maranao, and which is completely surrounded by other towns whose populations are also nearly 100% Maranao. Her late husband was also a Maranao, and Maranao is virtually the only language that she speaks

⁶ In all fairness to previous non-Maranao who worked on this language, the current first author also missed the four heavy consonants for the first three years that he worked on the Maranao language, and also failed to understand the vowel alternations.

with her children, parents, and relatives, as well as with other Maranao both at work and in the community.

The audio files were recorded on a Zoom H-4 using a Shure SM-81 microphone, and were edited on an Asus laptop using Adobe Audition software. The recordings were made in WAV format, in mono with a sample rate of 44.1kHz at 16-bit resolution. Words illustrating contrasts are mostly pronounced in isolation, which has the advantage of fully representing word boundaries, including the preservation of word-final glottal stops. To better illustrate the Maranao language in context, we also include a Maranao version of the story “The Wind and the Sun” commonly used in phonological sketches, translated and recorded by the second author.

2. A PRELIMINARY PHONOLOGICAL SKETCH. Maranao has 19 consonant phonemes and four vowel phonemes, as illustrated in Tables 1 and 2. There is also a very marginal /h/ that appears in a very small number of recent Malay loans, only three of which have been found so far: *Tohan* /tohan/ ‘God’ (◀) (< Malay *tuhan* ‘God’), *tahon* /tahon/ ‘astrological sign’ (◀) (< Malay *tahun* ‘year’), *hadapan* /hadapan/ ‘in front (of God)’ (◀) (< Malay *hadapan* ‘front’). These loans must predate the modern era, in which there is no contact with Malay, but postdate the loss of the *h of Proto-Greater Central Philippine (PGCPH), and must also postdate the borrowing of Arabic terms, in which /h/ is reflected as Maranao /k/.

	BILABIAL	DENTAL	ALVEOLAR	PALATAL	VELAR	GLOTTAL
STOPS-VOICELESS	p	t			k	ʔ
-HEAVY	pʰ	tʰ			kʰ	
-VOICED	b		d		g	
FRICATIVE			s			
FRICATIVE-HEAVY			sʰ		(h)	
NASAL	m		n		ŋ	
FLAP			r			
LATERAL			l			
APPROXIMANT						
SEMIVOWELS	w			y		

TABLE 1. Consonant phonemes

	FRONT	CENTRAL	BACK
HIGH	i		o
MID		ə	
LOW		a	

TABLE 2. Vowel phonemes

Previous inventories showed fewer consonant phonemes, overlooking the four heavy consonants, and sometimes showing more vowels, e.g., McKaughan and Macaraya (1996), which presented a five-vowel system consisting of /a i o ə i/, and Dansalan College Foundation, Inc. (1998), which presented a five-vowel system containing /a i o u ə/.⁷ There is no evidence that any five-vowel dialects of Maranao exist. Instead, it appears much more likely that the five-vowel analyses were the result of (1) non-Maranao who had overlooked the four heavy consonants and misinterpreted their raising-and-tensing effect on the vowels, and (2) attempts by some Maranao to write the Maranao language using orthographies that did not account for the heavy consonants and their interaction with the vowels.

CONSONANT	PHONETIC FORM	PHONEMIC FORM	ORTHOGRAPHIC FORM	GLOSS
p	[papag]	/papag/	<i>papag</i> ◀▶	‘wooden food cart’
pʻ	[papʻɤg]	/papʻag/	<i>paphag</i> ◀▶	‘bang, beat’
b	[ɓɤlɪŋ]/ [ɓalɪŋ]	/balɪŋ/	<i>balɪŋ</i> ◀▶	‘return’
m	[maɤay]	/matay/	<i>matay</i> ◀▶	‘die’
w	[waɤaʔ]	/wataʔ/	<i>watâ</i> ◀▶	‘child’
t	[tɪtɔ]	/tito/	<i>tito</i> ◀▶	‘puppy’
tʻ	[tɪtʻu]	/titʻo/	<i>titho</i> ◀▶	‘true’
d	[dɤʔ]/[dâʔ]	/daʔ/	<i>dâ</i> ◀▶	‘none’
n	[nayaw]	/nayaw/	<i>nayaw</i> ◀▶	‘wait’
s	[sisɪŋ]	/sisɪŋ/	<i>sising</i> ◀▶	‘ring’ (n.)
sʻ	[sisʻiŋ]	/sisʻiŋ/	<i>sizing</i> ◀▶	‘wipe’
l	[lalakaw]	/lalakaw/	<i>lalakaw</i> ◀▶	‘walk’
r	[ranaw]	/ranaw/	<i>ranaw</i> ◀▶	‘lake’
y	[ayon]	/ayon/	<i>ayon</i> ◀▶	‘agree’
k	[kan]	/kan/	<i>kan</i> ◀▶	‘eat’

⁷ This should not be confused with other Maranao orthographies which use “u” to represent the schwa. Both McKaughan and Macaraya (1996) and Dansalan College Foundation, Inc. (1998) use “e” to represent the schwa.

k'	[d̪ik'ɣʔ]/ [d̪ək'ɣʔ]	/dək'aʔ/	<i>dekhâ</i>	◀▶	'rest'
g	[ɟuraʔok]/ [ɟoraʔok]	/goraʔok/	<i>goraok</i>	◀▶	'cry'
ŋ	[ŋəŋər]	/ŋəŋər/	<i>ngenger</i>	◀▶	'snore'
ʔ	[siʔi]	/siʔi/	<i>sii</i>	◀▶	'here'

TABLE 3. Consonant phonemes, example words⁸

Any consonant can occur in syllable onsets or intervocalically. In clusters and word-finally, however, heavy consonants do not appear, due to their historical source as clusters in a protolanguage in which there were no word-final clusters and in which word-medial clusters were limited to two members. The following examples illustrate the heavy consonants in word-initial and intervocalic positions.

ENVIRONMENT	PHONETIC FORM	PHONEMIC FORM	ORTHOGRAPHIC FORM	ENGLISH GLOSS
#p'	[p'ɣmasa]	/p'amasa/	<i>phamasa</i>	◀▶ 'will buy'
p'	[tɔp'ɣ]	/top'a/	<i>topha</i>	◀▶ 'spit out'
#t'	[t'undug]/ [t'undog]	/t'ondog/	<i>thondog</i>	◀▶ 'will follow'
t'	[ot'u]	/ot'o/	<i>otho</i>	◀▶ 'noon'
#k'	[k'uwxɣ]	/k'oa/	<i>howa</i>	◀▶ 'will get'
k'	[talik'ud]	/talik'od/	<i>talikhod</i>	◀▶ 'turn one's back'
#s'	[s'uj]	/s'oŋ/	<i>zong</i>	◀▶ 'will go'
s'	[os'ud]	/os'od/	<i>ozod</i>	◀▶ 'fall headfirst'

TABLE 4. Heavy consonants

The glottal stop is only phonemic intervocalically and word-finally, and even in these positions, it is commonly elided in colloquial speech. The glottal stop is clearly phonemic, however, as there are a number of minimal pairs for word-final glottal stop, such as (*e*)*ndô* /əndoʔ/ 'wind' ◀▶ vs. (*e*)*ndo* /əndo/ 'rice pestle' ◀▶; *patô* /patoʔ/ 'inverted' ◀▶ vs. *pato* /pato/ 'duck' ◀▶; *kalô* /kaloʔ/ 'hat' ◀▶ vs. *kalo* /kalo/ 'tool for stirring the native food called *dodol*' ◀▶; and *kakâ* /kakaʔ/ 'older sibling (address form)' ◀▶ vs. *kaka* /kaka/ 'older sibling (reference form)' ◀▶.

⁸ Where two phonetic forms are provided, the first is the normal pronunciation and the second is the careful pronunciation, the variation being the result of the ambiguous behavior of the voiced stops.

Facultative glides /w/ and /y/ are not phonemic where predictable, i.e., /w/ between /o_a/, or /y/ between /i_a/ or /i_o/. This is evident in the fact that the left-to-right spread of tensing and raising of vowels spreads through these facultative glides, but not through phonemic glides (see section 2.1).

In initial position, the voiced stops /b d g/ have implosive allophones [ɓ ɗ ɡ].

Syllable structure is generally (C)V(N) in non-final syllables and (C)V(C) in word-final syllables, although word-initial syllables may also consist simply of a syllabic nasal (cf. section 2.5) and schwas may be elided in non-final syllables (cf. section 2.4). The only true consonant clusters that exist phonemically in native Maranao words are clusters of a nasal followed by a stop. Historically, all other clusters were reduced to singletons, heavy consonants, or prenasalized clusters. A small number of other words are often written with consonant clusters, but these can invariably be broken up with an epenthetic schwa. However, recent loans from English and Spanish via Tagalog and Cebuano often retain their consonant clusters, as do some older loans from Malay and Arabic (the latter usually also via Malay), at least for some speakers.

There are no phonemic geminates in Maranao, but consonants are phonetically longer following a schwa, e.g., *tepad* [təp.pad] ‘get off a vehicle’ (◀), *tekaw* [tək.kaw] ‘startled, surprised’ (◀), vs. *likod* [li.kod] ‘back (of body)’ (◀), *papag* [pa.pag] ‘wooden food cart’ (◀).

Unlike Maguindanaon (Sullivan 1986:11), Maranao does not appear to have phonemic stress contrasts, but this deserves further inquiry as it is possible that the heavy consonants in Maranao affect stress patterns and that some underlying contrast may still be found.⁹

The most common deviation from the Maranao phoneme system as outlined above involves the treatment of Arabic loans. Due to the central role of Arabic in Islamic worship and education, many Maranaos have training in the Arabic language and pronounce Arabic borrowings in their original Arabic pronunciations. However, Arabic loans were almost certainly present in Maranao for the better part of a millennium, long before modern technology facilitated the spread of “correct” pronunciations of Arabic words. Traditionally, Arabic loans were assimilated to Maranao phonology, e.g., the days of the week *Isnin* /is-nin/ ‘Monday (Ar. *ithnin*)’ (◀), *Salasa* /salasa/ ‘Tuesday (Ar. *thalatha*)’ (◀), *Arbaa* /arbaʔa/ ‘Wednesday (Ar. *arbiʔa*)’ (◀), *Kamis* /kamis/ ‘Thursday (Ar. *khamisa*)’ (◀), *Diyamaat* /diamaʔat/ ‘Friday (Ar. *jumʔat*)’ (◀), *Sapeto* /sapəto/ ‘Saturday (Ar. *shabtu*)’ (◀), and *Akad* /akad/ ‘Sunday (Ar. *ahad*)’ (◀). Other examples include *kalal* /kalal/ ‘halal (anything that is permissible in Islam)’ (◀), *karam* /karam/ ‘haram (anything not permissible in Islam)’ (◀), *Diyabarail* /diabaraʔil/ ‘*Jibril* (the angel Gabriel)’ (◀), *kadi* /kadiʔ/ ‘hadji (title for a man who has made the Hajj pilgrimage to Mecca)’ (◀), *Kadis* /kadis/ ‘Hadith (sayings of the Prophet)’ (◀), *diyakat* /diakat/ ‘tithe (Ar. *zakat*)’ (◀), and *tawpik* /tawpik/ ‘that which is taught by Allah (Ar. *taufiq*)’ (◀).

⁹ It is not at all uncommon for one or more members of a Philippine subgroup to have lost contrastive stress while others retain it, as this is exactly what has happened both in the Bikol subgroup (Lobel 2003) and the Cordilleran subgroup (Zorc 1979). It is also worth noting that most languages native to Mindanao and areas further south have lost contrastive stress.

2.1 HEAVY CONSONANTS AND THE RAISING AND TENSING OF VOWELS. One of the most intriguing characteristics of Maranao is that heavy consonants obligatorily trigger the raising and tensing of the following vowel, and that voiced stops optionally trigger the same effect (e.g., *kagaga* /kagaga/ [ka.gɣ.gɣ] ‘can’ (◀) vs. *kaka* /kaka/ [ka.ka] ‘older sibling’ (◀), and *dowa* /doa/ [du.wɣ] ‘two’ (◀) vs. *towa* /toa/ [t̚o.wa] ‘type of tree used for perfume and poison’ (◀)). The result is two parallel sets of phonetic vowels (illustrated in Table 3) that are in complementary distribution or free variation, Set 2 only occurring after aspirated consonants or optionally after voiced stops, and Set 1 occurring elsewhere, as shown in Table 5.

SET 1	SET 2
[-HIGH], ‘LAX’	[+HIGH], ‘TENSE’
ɪ	i
ə	ɨ
o	u
a	ɤ

TABLE 5. The two complementary vowel sets of Maranao

		/a/	/i/	/o/	/ə/
1) NON-RAISING	/p t k s m n ŋ r w y/	a	ɪ	o	ə
2) OBLIGATORY RAISING	/p’ t’ k’ s’ (h)/	ɤ	i	u	ɨ
3) OPTIONAL RAISING	/b d g/	a ~ ɤ	ɪ ~ i	o ~ u	ə ~ ɨ
4) TRANSPARENT	/l ʔ/	a [†]	ɪ [†]	o [†]	ə [†]

TABLE 6. Distribution of vowel allophones by consonant group

[†] That is, the “transparent” consonants are followed by these vowels unless the consonant in the preceding syllable triggers raising and tensing.

Vowel raising and tensing spreads from left to right, if not blocked by a phonemic consonant, e.g., *phowasa* /p’oasa/ [p’u.wɣ.sa] ‘will fast (Actor Focus future)’ (◀) vs. *powasa* /poasa/ [po.wa.sa] ‘fast (n.)’ (◀); *ziyapen* /s’iapən/ [s’i.yɣ.pən] ‘will take care of (Object Focus future)’ (◀) vs. *siyapen* /siapən/ [sɪ.ya.pən] ‘take care of (Object Focus infinitive)’ (◀).¹⁰ For this reason, it is argued that facultative glides are not phonemic, because non-facultative /w/ and /y/ clearly block the left-to-right spread of vowel raising and tensing, as is observable in the penultimate syllables of *mbayadan* [m.bɣ.ya.dɤn] ‘will pay (Location Focus future)’ (◀) and *kambawatâ* [kam.bɣ.wa.ʔaʔ] ‘childbirth’ (◀), and the final syllable of *tikhawan* [t̚i.k’ɣ.wan] ‘was robbed (Location Focus past)’ (◀).

The glottal stop is completely transparent in the left-to-right spread of vowel raising and tensing, e.g., *toosan* [t̚o.ʔo.san] ‘remember (Location Focus infinitive)’ (◀) vs. *thoosan*

¹⁰ Maranaos themselves vary in spelling convention between the Tagalog-type convention, where predictable glides are always written, and the Malay-type convention, where predictable glides are never written.

[t̚ʰu.ʔu.san] ‘will remember (Location Focus future)’ (❧), and *taaman* [t̚a.ʔa.man] ‘taste (Location Focus infinitive)’ (❧) vs. *thaaman* [t̚ʰx.ʔx.man] ‘will taste (Location Focus future)’ (❧).

Vowel raising and tensing may even spread two syllables to the right, e.g., *Zowaan*¹¹ *ko* [s̚ʰu.wʰ.ʔx̄n. = ko] ‘I’ll do it’ (❧), and may also spread across morpheme boundaries, e.g., *Piyakadekhâ aken* [pi.ya.ka.di.kʰ.ʔ = x̄.kən] ‘I made him rest’ (❧), *Lithâ ami* [li.t̚ʰ.ʔ = x̄.mi] ‘We cooked (the vegetables)’ (❧), *Lithâ aka* [li.t̚ʰ.ʔ = x̄.ka] ‘You cooked (the vegetables)’ (❧), and *babô oka* [bʰx̄.bu.ʔ = u.ka] ‘your aunt’ (❧).

The phoneme /l/ is transparent if both the preceding and the following syllables contain tensed and raised vowels, e.g., *bolotho* [bu.lu.t̚ʰu] ‘rainbow’ (❧).

The following examples illustrate the differences between the basic vowels and their allophones which occur after heavy consonants. Additional minimal pairs for heavy vs. non-heavy consonants are included in Appendix A.

VOWEL	PHONETIC FORM	PHONEMIC FORM	ORTHOGRAPHIC FORM	ENGLISH GLOSS
a	[pa.pag]	/papag/	<i>papag</i> (❧)	‘wooden food cart’
(raised)	[pa.pʰɔg]	/papʰag/	<i>paphag</i> (❧)	‘bang, beat’
i	[pi.yor]	/pior/	<i>piyor</i> (❧)	‘sprain’
(raised)	[pʰi.yur]	/pʰior/	<i>phiyor</i> (❧)	‘true, real’
o	[so.pon]	/sopon/	<i>sopon</i> (❧)	‘nipple of a baby bottle’
(raised)	[so.pʰun]	/sopʰon/	<i>sophon</i> (❧)	‘join together’
ə	[a.pər]	/apər/	<i>aper</i> (❧)	‘to touch or inspect’
(raised)	[a.pʰər]	/apʰər/	<i>apher</i> (❧)	‘possessed’

TABLE 7. Basic vowels and allophones

Note that the rare, marginal phoneme /h/ patterns with the heavy consonants, e.g., *Tohan* /tohan/ [t̚o.h̄x̄n] ‘God’ (❧), *tahon* /tahon/ [t̚a.h̄x̄n] ‘astrological sign’ (❧), and *hadapan* /hadapan/ [h̄x̄.d̄x̄.pan] ‘in front (of God)’ (❧).

2.2 SCHWA ASSIMILATION. Vowel quality spreads left-to-right across a glottal stop to the schwa of a suffix or clitic. One synchronic example of this is the Object Focus suffix *-en* /ən/, e.g., *kowaan* ‘get (Object Focus infinitive)’ (❧) (< *kowa* + *-en*), *patoon* ‘invert (Object Focus infinitive)’ (< *patô* + *-en*) (❧).¹² Another example of this is the clitic pronoun =*eka* /əkə/ ‘2sg.gen.’ e.g., *batî ika* [ba.ti.ʔ = i.ka] ‘your brother-in-law’ (❧), *babô oka* [bʰx̄.bu.ʔ = u.ka] ‘your aunt’ (❧).

¹¹ Historically, the suffix on this form is *-ən, but vowel quality also spreads left to right across glottal stops to a following schwa (cf. section 2.2).

¹² That these are Object Focus forms suffixed with *-en* is evident in the past forms—*kinowa* ‘got (Object Focus past)’ (❧) and *piyatô* ‘inverted (Object Focus past)’ (❧)—in which the suffix is dropped, as is characteristic of the past form of the Object Focus in Austronesian languages.

2.3 EPENTHETIC SCHWA. As noted earlier, only a very small number of consonant clusters are allowed in Maranao, primarily homorganic -NC- clusters. Morpheme-internally and between affixes and rootwords, all other consonant clusters were assimilated to prenasalized clusters and/or simplified by phonological rules. Synchronically, however, some of these otherwise-impermissible consonant clusters occasionally occur within a phonological phrase between a consonant-final word and the following consonant-initial word. In these instances, it is not uncommon to hear an epenthetic schwa being inserted between the two consonants, e.g., between the last two words in the sentence *Dâ ako tindeg kagiya* [dʔ ako tɪndɛg^ə kagiɣ] ‘I didn’t stand up earlier’ (❖); between the two words in the sentence *Tomepad tano* [tɔmɛpəd^ə tano] ‘Let’s go down’ (❖), and between the last two words in the sentence *Dâ pen tepad* [dʔ pən^ə tɛpəd] ‘(He/she) hasn’t come down yet’ (❖). This is even the case where the two consonants are identical, as in the first two words in the sentence *Ideket tano so propaganda* [idɛkɛt^ə tano so propagɛndɛ] ‘Let’s put up the campaign materials.’ (❖)

2.4 SCHWA SYNCOPE AND APHERESIS. Synchronically, phonemic schwas are often elided between two consonants, creating phonetic consonant clusters that are phonemically impermissible, e.g., the elision of the schwas of *seka* ‘you (singular)’ and *sekano* ‘you (plural)’ in the phrases *Dâ ami seka mailay* [dʔ.ʔ = ɣ.mɪs.kɑ.mɑ.ɪ.lɑy] ‘We didn’t see you (singular)’ (❖) and *Dâ ami sekano mailay* [dʔ.ʔ = ɣ.mɪs.kɑ.nɔ.mɑ.ɪ.lɑy] ‘We didn’t see you (plural)’ (❖).

Word-initial schwa was elided historically (after initial *ʔ merged with zero), resulting in forms with initial heavy consonants, such as *tharô* ‘say’ (❖) (< PDAN *ədtaruʔ) and *phoon* ‘start, beginning’ (❖) (< PDAN *əbpuʔun). The same process of apheresis created monosyllables from earlier disyllables, such as *thak* ‘drip’ (❖) < PDAN *ədtak, *ped* ‘other, companion, accompany’ (❖) < PDAN *əpəd, and *khap* ‘weigh’ (❖) < PDAN *əgkap. Apheresis is also responsible for Maranao prefixes with initial heavy consonants, such as *phaki-* < PDAN *əb-paki- (vs. *paki-* < PDAN *paki-), *khi-* < PDAN *əg-ki-, *phaka-* < PDAN *əb-paka- (vs. *paka-* < PDAN *paka-), *kha-* < PDAN *əg-ka- (vs. *ka-* < PDAN *ka-), and *phe-* < PDAN *əg-pə(g)- (vs. *pe-* < PDAN *pə(g)-). Note that when forms that have undergone historical apheresis are prefixed with g-final prefixes such as *meg-*, *mig-* and *peg-*, the schwa seems to resurface, as in *phagethak* ‘is dripping’ (❖) (< *thak*), and *pagekhapen* ‘to weigh something (location focus)’ (❖) (< *khap*). The position of the infix <in> in words of this shape also causes evidence of the earlier initial *ʔə- to resurface, e.g., *inephoonan* ‘began, founded (location focus past)’ (❖) (< Pre-Proto Danao *ʔ<in>əbpuʔun-an) and *inekhap* ‘weighed something (object focus past)’ (❖) (< Pre-Proto Danao *ʔ<in>əgkap). If these forms had been completely regularized, the expected forms would be ***phinoonan* and ***khinap*, respectively. Regardless, these forms are probably best treated synchronically as irregular, as opposed to being treated as having an underlying initial /ə/, since schwa does not otherwise occur in word-initial position in any Maranao word, and no previous analyses of Maranao have ever proposed an initial schwa in these forms.

2.5 SYLLABIC NASALS. Schwa apheresis also results in syllabic nasals in modern Maranao, both in root words like *(e)ndô* ‘wind’ [ɲduʔ] (❖) and *(e)ndo* ‘rice pestle’ [ɲdu] (❖), and in prefixes deriving from PDAN *əN- (an allomorph of PDAN *əG- occurring before voiced

stops): *mbaling* ‘will return (actor focus future of *baling*)’ (❶), *ndekhâ* ‘will rest (Actor Focus future of *dekhâ*)’ (❶), and *nggalebek* ‘will work (Actor Focus future of *galebek*)’ (❶). Syllabic nasals also occur allophonically in the perfective particle *den* in phrases like *dâ den* ‘not anymore’ /da dən/ [dɤ.dɲ].

2.6 GLOTTAL STOP APHERESIS AND SYNCOPE. Besides having been lost historically in consonant clusters and word-initially, intervocalic and word-final glottal stops are often elided in colloquial speech, whether morpheme-internal or across word boundaries, e.g. *dî* [diʔ] ‘no, not’ (❶) but *dî ka* [di ka] ‘aren’t you going to...’ (as in the sentence *Dî ka ba den thindeg?* [di ka bɤ dɲə tʰindɨg] ‘Aren’t you going to stand up?’ (❶)); *dâ* [dɤʔ] ‘not (past), none, there isn’t’ (❶) but *dâ pen* [dɤ pən] ‘not yet’ (as in the sentence *Dâ pen tepad* [dɤ pənə tɐpad] ‘(He/she) hasn’t come down yet’ (❶)). Note that variation occurs in speech, e.g., *an-tonaa* ‘what’ /antonaʔa/ which can be realized as either [anʔonaʔa] or [anʔonaa] (❶).

2.7 ANTI-LENITION. Historically, PGCPH *b and *d sporadically lenited to Maranao /w/ and /r/, respectively, but the stop reflexes are preserved in forms that have nasal-final prefixes: *watâ* ‘child’ (< PGCPH *bataʔ) (❶) but *kambawatâ* ‘childbirth’ (❶) (< PDAN *kaG-CV-bataʔ); *walay* ‘house’ (❶) (< PGCPH *balay) but *kambalay* ‘the act of building’ (❶) and *pembalay* ‘will build a house (actor focus future)’ (❶); *ron* (❶) ~ *roo* (❶) ‘there (oblique deictic)’ (< PGCPH *duʔun) but *ndoroo* (❶) ~ *ndodon* (❶) ‘there (present-locational)’ (< PDAN *əN-du-duʔun).

2.8 PARAGOGIC [-əʔ]. One prominent feature of Maranao is the presence of a paragogic [-əʔ] at the end of words (or phonological phrases) whose final phonemic segment is a liquid or an obstruent other than a glottal stop. Native speakers of Maranao seem to be unaware that they are pronouncing this sequence at the end of words and phrases, but to a non-Maranao, it is often no less salient than any phonemic sequence in the language. In fact, when eliciting data or transcribing audio, unless one is familiar with the words being spoken or asks a Maranao how to spell the word, it is virtually impossible for a non-Maranao to decide whether an utterance-final [-əʔ] sequence is the end of the word, or just the paragogical sequence. This paragogic [-əʔ] can be heard in a large number of the audio recordings that accompany this paper in Appendix B. Note that the same paragogic [-əʔ] was also present historically in some Sangiric languages (Maryott 1978:134) and all Mongondow-Gorontalo languages except Mongondow and Ponosakan (Sneddon & Usup 1986:411), except that in these languages, it was later phonemicized.¹³

3. A MARANAQ TEXT. As a number of issues exist with data that consist only of elicited words pronounced in isolation, we are including a translation and recording of the short

¹³ Sneddon and Usup (1986:417) note that “the paragogic vowel is in the process of loss” in Buwol, in which “loss of the [paragogic] vowel [is] more common than its retention,” noting that there are also dialectal difference in its loss. Note that other differences also exist between the paragoge in these languages; e.g., while this paragoge in Maranao only occurs after stops or /s/, /l/ or /r/, the paragoge in Gorontalo languages affected all consonant-final words.

text “The Wind and the Sun” (*So Endô ago so Alongan* in Maranao) which is usually included in phonological sketches such as those in the *Journal of the International Phonetic Association*. While this is obviously not a native Maranao text, it allows for comparisons to be made with other languages whose sketches include translations of this text. The orthographic transcription follows the orthography of Ansano (1974, 2001, 2004).¹⁴ A phonemic transcription is also included.

So Endô ago so Alongan (Orthographic version)

Miyakaisa alongan, na dii phawala so endô ago so alongan. Miyagambog so endô, “Saken i mabager sii reketa a dowâ.” Magaan a somimbag so alongan, “Dî! Saken i mabager sii reketa a dowâ!” Giyoto i pitharô o endô, “Ilayn ta baden o antawaa reketa i tittho a mabager.”

Dâ mathay, na miyokit so mama a somosolot sa diyakit. Piyagayonan o alongan ago so endô o antawaa kiran i phakapangendâ sa diyakit ko mama, sekaniyan i mabager.

Miphoon somamber sa mabager so endô. Somiyamber sa tonganay a mabager a khagaga niyan. Ogaid na sii ko kapephakabagera o endô ko kapezamber iyan, na piyanabenaran ko mapet o mama so diyakit iyan. Dâ mathay na somiyorindir so endô.

Miphoon somebang so alongan. Dâ pen mathay na tonganay den a inatingan so mama, giyoto i inendâ a niyan so sosoloten iyan a diyakit.

Kagiya ko mailay o endô so miyanggolaola, na pitharô iyan ko alongan, “Benar den a seka i mabager sii reketa a dowâ.”

Phonemic transcription of recorded passage

miakaʔisa aloŋan / na diʔi pʔawala so əndoʔ ago so aloŋan. miagambog so əndoʔ / “sakən i mabagər siʔi rəkəta a doa.” magaʔan a somimbag so aloŋan / “diʔ! sakən i mabagər siʔi rəkəta a doa!” gioto i pitʔaroʔ o əndoʔ / “ilayn ta badən o antawaʔa rəkəta i titʔo a mabagər.”

daʔ matʔay / na miokit so mama a somosolot sa diakit. piagayonan o aloŋan ago so əndoʔ o antawaʔa kiran i pʔakapaŋəndaʔ sa diakit ko mama / səkanian i mabagər.

mipʔoʔon somambər sa mabagər so əndoʔ. somiambər sa toŋanay a mabagər a kʔagaganian. ogaid na siʔi ko kapəpʔakabagera o əndoʔ ko kapəsʔambər iyan / na pianabəbaran ko mapət o mama so diakit iyan. daʔ matʔay na somiorindir so əndoʔ.

mipʔoʔon soməbaŋ so aloŋan. daʔ pən matʔay na toŋanay dən a inatiŋan so mama / gioto i inəndaʔ a niyan so sosolotən iyan a diakit.

kagiya ko maʔilay o əndoʔ so miyanggolaʔola / na pitʔaroʔ iyan ko aloŋan / “bənar dən a səka i mabagər siʔi rəkəta a doa.”

¹⁴ Largely identical to the orthographies of Saromantang (2001) and Alonto (1991), except that (1) Saromantang and Alonto use “sh” instead of “z” to represent /sʔ/, (2) Saromantang uses “u” instead of “e” to represent /ə/, and (3) Alonto writes a final “h” on the end of all words that do not otherwise end in a consonant.

English translation of recorded passage

One day, the wind and the sun were arguing. The wind boasted, “I’m the stronger of the two of us.” The sun quickly answered, “No! I am the stronger of the two of us!” So the wind said, “Let’s see which one of us is truly the strongest.”

Before long, a man passed by wearing a jacket. The sun and the wind agreed that whoever could make the man take his jacket off was the stronger.

The wind started to blow. He blew as hard as he could. But the stronger the wind blew, the more the man held on to his jacket. Before long, the wind gave up.

The sun began to shine. Before long, the man began to sweat, so he took his jacket off.

When the wind saw what happened, he said to the sun, “You are truly the stronger of the two of us.”

4. DISCUSSION. The characteristics of the heavy consonants of Maranao and their effects on the vowels, as described in Lobel and Riwarung (2009), are striking enough. They are even more noteworthy considering that a very similar phenomenon has been found in Madurese (Cohn 1993), spoken on Madura and eastern Java in Indonesia, approximately 2,000 kilometers southwest of Maranao. The Maranao and Madurese systems, however, had different historical sources, and have different synchronic details. Madurese aspirated stops derive from earlier voiced stops, and synchronic voiced stops obligatorily have the same tensing and raising effect on the vowels as the aspirated stops do. In Maranao, on the other hand, the heavy consonants derive from earlier homorganic voiced-voiceless clusters, and the voiced stops only optionally trigger the tensing and raising of the following vowel. Further supporting a hypothesis of independent development is their degree of geographical and linguistic separation, as no less than 2,000 kilometers of sea separate these two languages, and their last common ancestor according to any presently-accepted subgrouping was Proto-Malayo-Polynesian. Furthermore, Maranao is the most landlocked language in its subgroup, and its phonological peculiarities are shared neither by its close relatives Iranun and Maguindanaon, nor by any of its other closest neighbors Talaandig-Higaonon, Southern Subanen, Western Bukidnon Manobo, and Cebuano. In contrast, Iranun—spoken by Maranao’s much more coastal and (formerly) seafaring cousins who settled as far as western and eastern Sabah—preserves a phonological system virtually identical to that reconstructed for Proto-Danao by Allison (1979), with no evidence of the vocalic effects found in Maranao. As such, it appears that the Maranao system of consonant-vowel interaction only developed in the 300 or 400 years after the breakup of Proto-Danao.¹⁵ For all of these reasons, there can be little doubt that the Maranao and Madurese systems developed independently of the other.

¹⁵ Believed locally to have occurred after a 17th-century eruption of Mt. Makaturing, near Butig town on the border of the provinces of Lanao del Sur and Maguindanao, sending the ancestors of the Maranao northward into what was possibly Talaandig-Higaonon or Manobo territory. Fleischman (1981:63) cites the same eruption “sometime before 1667” as causing some Iranun from areas to the immediate south of Maranao to migrate to western Sabah.

Cohn (1993:107) raises questions about the motivation for this type of consonant-vowel interaction:

This pattern of interaction between the voicing or aspiration of a stop and the height of a following vowel is striking for a number of reasons. First, when consonants and vowels interact phonologically, the interaction tends to involve properties that are either commonly present in both vowels and consonants, such as nasalization, or it involves the superimposition of a vocalic property onto a consonant, e.g., a high front tongue position (palatalization) [...] Secondly, a priori, we expect phonological rules to involve natural classes [...] Thus, the facts of vowel height pose a number of problems for an adequate phonological representation of Madurese.

However, we find example after example of this type of phenomenon, including the register-like systems which turn up in Maranao and then again in Madurese; the phenomenon of Low Vowel Raising along the Pacific coast of Luzon (Blust 2000:306–307, Robinson 2008, Lobel 2010, Robinson & Lobel in preparation, and Blust, Lobel & Robinson in preparation) and the central-western coast of Borneo (Blust 2000); the raising of non-high vowels after voiced stops in some Gorontalic languages (Sneddon & Usup 1986:414–415); or the full-blown register systems of languages like Javanese (Cohn 1993:118), Western Cham (Edmondson & Gregerson 1993), and over a dozen Mon-Khmer languages in Vietnam, Thailand, Laos, and Burma (Gregerson 1976, Huffman 1976, Wayland & Jongman 2001). Obviously these phenomena differ greatly in detail, yet they share the feature of raising and/or fronting of one or more vowels after voiced (or historically voiced) obstruents. This distribution challenges us to reconsider our assumptions about the development of register in languages like Cham, where it has generally been written off as the result of contact with Mon-Khmer register languages, but for which Edmondson and Gregerson (1993:72) offer the following insight:

Is it merely a loan phenomenon from nearby Mon-Khmer languages? If so, how does one account for strikingly similar patterns as far east as Javanese and Madurese [...]? Then, one is further struck with the different roads that [Western Cham's] near relatives [Eastern Cham] and Utsat (Huihui) have taken in seizing on pitch as their prosodic developments project to the exclusion of F1 effects [...].

An alternative to a language contact hypothesis [...] is that they may rather constitute reflexes of a prosodically richer Austronesian antecedent than is traditionally assumed. Contemporary tonality effects thus raise the question whether and to what degree these features may represent retentions rather than bizarre innovations in the daughter languages.

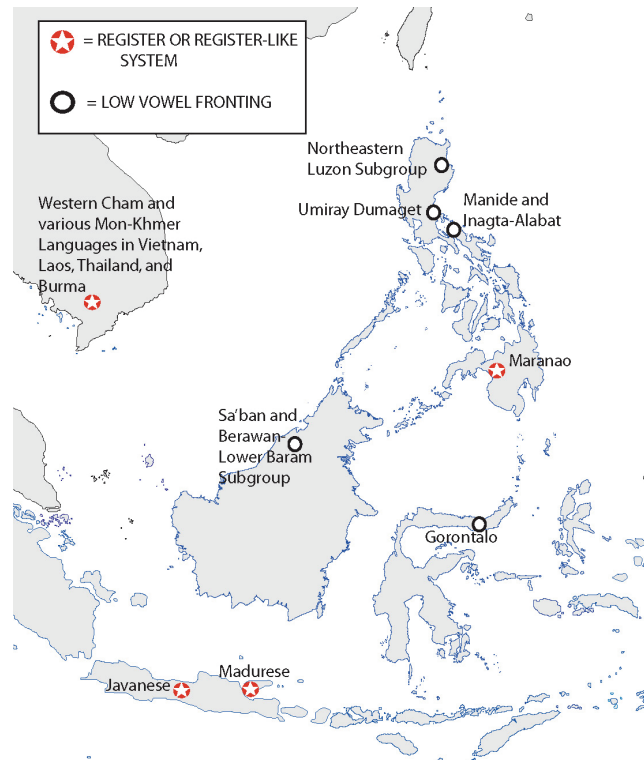


FIGURE 2. Distribution of Austronesian languages with register or low vowel fronting

As Edmondson and Gregerson suggest, the contact hypothesis has obvious limitations, especially for explaining the Maranao situation—even though it may apply in some cases, like Cham and other Austronesian languages which are in contact with Mon-Khmer languages, Javanese (whose rulers had significant connections with kingdoms in Cambodia centuries ago), and possibly also to Madurese (which may have been influenced by Javanese or by a register language from the mainland). It is more likely that some other explanation exists for the reoccurrence of consonant-vowel interactions in such widely separated languages in the Philippines, northern Borneo, northern Sulawesi, and Madura. Excluding a contact-based explanation, three other possibilities exist: (1) underlying phonetic motivation, (2) inherited features from the protolanguage, or (3) pure coincidence. The third option is obviously the least satisfactory of the three, while the second is problematic in that it requires being able to assign to Proto-Malayo-Polynesian a prosodic feature which would have been lost in most of its daughter languages, and only retained in a few as vocalic effects triggered by historically-voiced stops and/or by newly-innovated aspirated consonants. The first option, therefore, is the most attractive, and while little research on this has been conducted for Austronesian languages, a considerable amount has been written about the interaction of aspiration and voicing on vowel height (Haudricourt 1954,

Ferlus 1979, Wayland & Jongman 2003, Esling 2005, and Edmondson & Esling 2006).¹⁶ Exactly how such motivation works itself out in the phonetic details of Maranao remains to be seen and is certainly worthy of further study.¹⁷ In order to facilitate such study, audio recordings have been included herein illustrating 50 minimal pairs in Appendix A, and 162 other lexical items containing heavy consonants in Appendix B.

5. CONCLUSION. This paper has presented a concise illustration of the current state of knowledge about Maranao phonology and its historic source, along with audio examples of some of the most interesting and problematic data. It is hoped that this will both facilitate and motivate others to conduct further analysis of Maranao phonology and phonetics which may answer the questions raised in this paper and in the other aforementioned works. Such instrumental investigation will hopefully reveal the true degree of similarity of these phenomena which seem so similar on paper for so many languages, and help determine whether it is at all possible that these widely distributed phonological innovations could be traced back to prosodic features in Proto-Malayo-Polynesian. Further study may also help revise our beliefs about the phonetic motivations for voice register and other phenomena. It is hoped that the data documented in this paper, and the preliminary analysis presented thereof, will make a valuable initial contribution to that end.

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¹⁶ Thanks to an anonymous reviewer for bringing these articles to our attention.

¹⁷ So far, preliminary inquiry to this effect has proven inconclusive. John Ohala (pers.comm., Sept. 9, 2009), for example, found that there is slightly longer voice onset timing for the aspirated consonants than for their unaspirated counterparts, but felt that the difference was not significant enough to be phonemic. However, physical tests confirm the presence of aspiration in the heavy consonants, though much stronger for the bilabial /p'/ and before /o/ (or, more accurately, its [u] allophone). The difference in the height and tenseness of the vowels are so great that instrumental testing, while desirable, hardly seems necessary.

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APPENDIX A. Fifty Minimal and Near-minimal pairs for heavy consonants¹⁸

- 001a *apher* /ap'ər/ [a.p'ɪr] 'possessed' ◀▶
- 001b *aper* /apər/ [a.pər] 'to touch or inspect' ◀▶
- 002a *bathik* /bat'ik/ [ba.t'ik] 'hard and sticky' ◀▶
- 002b *batik* /batik/ [ba.tik] 'the Indonesian *batik* cloth' ◀▶
- 003a *bethang* /bət'aŋ/ [bə.t'ɪŋ] 'crazy' ◀▶
- 003b *betang* /bətəŋ/ [bə.taŋ] 'dowry' ◀▶
- 004a *betho* /bət'o/ [bə.t'u] 'to name, say, or mention' ◀▶
- 004b *beto* /bəto/ [bə.to] 'to fire a gun or set off fireworks' ◀▶
- 005a *bothâ* 'mud' ◀▶
- 005b *bota* 'blind' ◀▶
- 006a *dakhar* /dak'ar/ [da.k'ɪr] 'to jab' ◀▶
- 006b *dakar* /dakar/ [da.kar] 'to get something, with bad intentions' ◀▶
- 007a *ikhan* /ik'an/ [ɪ.k'ɪn] 'time for eating' (< *iG-kan) ◀▶
- 007b *ikan* /ikan/ [ɪ.kan] 'to take responsibility by feeding visitors at a wake' ◀▶
(< *i-kan)
- 008a *izâ* 'question; to ask' ◀▶
- 008b *isa* 'one' ◀▶
- 009a *kakhar* /kak'ar/ [ka.k'ɪr] 'to dig' ◀▶
- 009b *kakar* /kakar/ [ka.kar] 'gutter' ◀▶
- 010a *khakan* /k'akan/ [k'ɪ.kan] 'edible (OBJECT FOCUS ABILITATIVE FUTURE)' ◀▶
(< *əG-ka-kan)
- 010b *kakan* /kakan/ [ka.kan] 'eat (ACTOR FOCUS PRESENT)' (< *ka-kan) ◀▶
- 011a *khan* /k'an/ [k'ɪn] 'eat (ACTOR FOCUS FUTURE)' (< *əG-kan) ◀▶
- 011b *kan* /kan/ [kan] 'eat (ACTOR FOCUS IMPERATIVE)' (< *ø-kan) ◀▶
- 012a *khaped* /k'apəd/ [k'ɪ.pəd] 'can be accompanied (OBJECT FOCUS ABILITATIVE FUTURE)' ◀▶
(< *əG-ka-pəd)
- 012b *kaped* /kapəd/ [ka.pəd] 'companion' (< *ka-pəd) ◀▶
- 013a *howa* 'will get (AF.FUTURE)' ◀▶

¹⁸Alphabetized by the “a” member of each pair.































- 013b *kowa* ‘to get (AF.INFINITIVE)’ ◀▶
- 014a *kokhor* /kok’or/ [ko.k’ur] ‘to skim; to scrape the surface lightly’ ◀▶
- 014b *kokor* /kokor/ [ko.kor] ‘to scrape out the contents of a coconut’ ◀▶
- 015a *letho* /lət’o/ [lə.t’u] ‘to stretch upwards in order to reach something’ ◀▶
- 015b *leto* /ləto/ [lə.to] ‘protruding into something that is otherwise flat or even’ ◀▶
- 016a *lokhabang* /lok’abaŋ/ [lo.k’ɤ.baŋ] ‘shell’ ◀▶
- 016b *kabang* /kabaŋ/ [ka.baŋ] ‘for one’s haircut not to be in proper shape’ ◀▶
- 017a *lozak* /los’ak/ [lo.s’ɤk] ‘step on’ ◀▶
- 017b *losak* /losak/ [lo.sak] ‘left behind, left out’ ◀▶
- 018a *mathay* /mat’ay/ [ma.t’ɤy] ‘take a long time’ ◀▶
- 018b *matay* /matay/ [ma.tay] ‘die’ ◀▶
- 019a *othang* /ot’aŋ/ [o.t’ɤŋ] ‘to fall’ ◀▶
- 019b *otang* /otaŋ/ [o.taŋ] ‘debt’ ◀▶
- 020a *otho* /ot’o/ [o.t’u] ‘noon; a type of big, red, poisonous snake’ ◀▶
- 020b *oto* /oto/ [o.to] ‘that (nominative)’ ◀▶
- 021a *ozod* /os’od/ [o.s’ud] ‘to fall head first; a type of spear’ ◀▶
- 021b *osod* /osod/ [o.sod] ‘to bring something somewhere’ ◀▶
- 022a *ozor* /os’or/ [o.s’ur] ‘progress’ ◀▶
- 022b *osor* /osor/ [o.sor] ‘to regret’ ◀▶
- 023a *paphag* /pap’ag/ [pa.p’ɤg] ‘to bang or beat’ ◀▶
- 023b *papag* /papag/ [pa.pag] ‘wooden container on which a meal is placed’ ◀▶
- 024a *phagawâ* ‘is leaving (AF.PRESENT)’ ◀▶
- 024b *pagawâ* ‘will leave (AF.FUTURE)’ ◀▶
- 025a *phagayon* ‘agrees (AF.PRESENT)’ ◀▶
- 025b *pagayon* ‘will agree (AF.FUTURE)’ ◀▶
- 026a *phagigâ* ‘is lying down (AF.PRESENT)’ ◀▶
- 026b *pagigâ* ‘will lie down (AF.FUTURE)’ ◀▶
- 027a *phaginom* ‘drink (AF.PRESENT)’ ◀▶
- 027b *paginom* ‘will drink (AF.FUTURE)’ ◀▶
- 028a *phagonot* ‘is accompanying (AF.PRESENT)’ ◀▶

- 028b *pagonot* ‘will accompany (AF.FUTURE)’ 
- 029a *phagontod* ‘is sitting (AF.PRESENT)’ 
- 029b *pagontod* ‘will sit (AF.FUTURE)’ 
- 030a *phamasa* ‘will buy (AF.FUTURE)’ 
- 030b *pamasa* ‘to buy (AF.INFINITIVE)’ 
- 031a *phamola* ‘will plant (AF.FUTURE)’ 
- 031b *pamola* ‘to plant (AF.INFINITIVE)’ 
- 032a *phelalakaw* ‘is walking (AF.PRESENT)’ 
- 032b *pelalakaw* ‘will walk (AF.FUTURE)’ 
- 033a *phelangoy* ‘is swimming (AF.PRESENT)’ 
- 033b *pelangoy* ‘will swim (AF.FUTURE)’ 
- 034a *pherabak* ‘is throwing (AF.PRESENT)’ 
- 034b *perabak* ‘will throw (AF.FUTURE)’ 
- 035a *(ma)rezik* /marəs’ik/ [ma.rə.s’ik] ‘dirty’ 
- 035b *resik* /rəsik/ [rə.sik] ‘to spread’ 
- 036a *sizing* /sis’iŋ/ [sɪ.s’iŋ] ‘to wipe’ 
- 036b *sising* /sisiŋ/ [sɪ.sɪŋ] ‘ring’ 
- 037a *sokhar* /sok’ar/ [so.k’ɤr] ‘to pick fruit from a tree with a stick’ 
- 037b *sokar* /sokar/ [so.kar] ‘to die; to stir the ingredients of the native food *dudul* when cooking it in a pot’ 
- 038a *sophon* /sop’on/ [so.p’un] ‘to join together’ 
- 038b *sopon* /sopon/ [so.pon] ‘nipple of a baby bottle’ (< Spanish) 
- 039a *talikhod* /talik’od/ [ta.lɪ.k’ud] ‘to turn one’s back’ 
- 039b *likod* /likod/ [lɪ.kod] ‘back (anatomical)’ 
- 040a *tekhaw* /tək’aw/ [tə.k’ɤw] ‘thief, robber’ 
- 040b *tekaw* /təkaw/ [tə.kaw] ‘sudden movement; surprised, startled’ 
- 041a *thepad* /t’əpad/ [t’i.pad] ‘get off a vehicle (ACTOR FOCUS FUTURE)’ 
(< *əG-təpad)
- 041b *tepad* /təpad/ [tə.pad] ‘get off a vehicle (ACTOR FOCUS IMPERATIVE)’ 
(< *ø-təpad)
- 042a *thindeg* ‘will stand (AF.FUTURE)’ 



























- 042b *tindeg* ‘to stand (AF.INFINITIVE)’ 
- 043a *thondog* ‘will follow (AF.FUTURE)’ 
- 043b *tondog* ‘to follow (AF.INFINITIVE)’ 
- 044a *tiphô* ‘to jump down’ 
- 044b *tipo* ‘envy’ 
- 045a *tithig* /tit’ig/ [tɪ.t’ig] ‘to cut or chop’ 
- 045b *titig* /titig/ [tɪ.tig] ‘vowels’ 
- 046a *titho* /tit’o/ [tɪ.t’u] ‘true’ 
- 046b *tito* /tito/ [tɪ.to] ‘puppy’ 
- 047a *topha* /top’a/ [to.p’ɣ] ‘to spit out of the mouth forcefully, as water, food, or medicine’ 
- 047b *topa* /topa/ [to.pa] ‘to tell someone that he or she had better not repeat something bad that was done’ 
- 048a *zendad* ‘will end (AF.FUTURE)’ 
- 048b *sendad* ‘to end (AF.INFINITIVE)’ 
- 049a *zilâ* ‘will explode (AF.FUTURE)’ 
- 049b *silâ* ‘to explode (AF.INFINITIVE)’ 
- 050a *zong* /s’oŋ/ [s’uŋ] ‘go (ACTOR FOCUS FUTURE)’ (< *əG-suŋ) 
- 050b *song* /soŋ/ [soŋ] ‘go (ACTOR FOCUS IMPERATIVE)’ (< *ø-suŋ) 





























APPENDIX B. 162 Root words with heavy consonants

















001	<i>apher</i> ‘possessed’	◀▶
002	<i>bakhar</i> ‘meet unexpectedly or accidentally’	◀▶
003	<i>bakhowas</i> ‘to wake suddenly’	◀▶
004	<i>bathiag</i> ‘not serious about one’s work’	◀▶
005	<i>bathik</i> ‘hard and sticky’	◀▶
006	<i>bathing</i> ‘bell’	◀▶
007	<i>bazag</i> ‘strike suddenly’	◀▶
008	<i>bekhed</i> ‘a rope or string used to tie something’	◀▶
009	<i>bekhes</i> ‘to tie things tightly; to tighten’	◀▶
010	<i>bekhog</i> ‘crooked; not straight’	◀▶
011	<i>bethang</i> ‘crazy’	◀▶
012	<i>bethas</i> ‘to cross a river or road’	◀▶
013	<i>bethek</i> ‘the spur of a cock’	◀▶
014	<i>bethig</i> ‘bump, collide’	◀▶
015	<i>betho</i> ‘to say, to mention’	◀▶
016	<i>bikhat</i> ‘lift, pull up’	◀▶
017	<i>bizol</i> ‘clear field by fire; field cleared by fire’	◀▶
018	<i>bokhag</i> ‘lie’	◀▶
019	<i>bokharaw</i> ‘to move suddenly, as from surprise’	◀▶
020	<i>bokhot</i> ‘to draw; pull out from’	◀▶
021	<i>bolotho</i> ‘rainbow’	◀▶
022	<i>bothâ</i> ‘mud’	◀▶
023	<i>bothol</i> ‘lower abdomen’	◀▶
024	<i>bothong</i> ‘only child’	◀▶
025	<i>bozô</i> ‘a species of bird’	◀▶
026	<i>bozod</i> ‘throw’	◀▶
027	<i>dakhar</i> ‘to jab at something with a stick’	◀▶
028	<i>daphik</i> ‘diaper’	◀▶

- 029 *dathem* ‘raincloud’ 
- 030 *dazang* ‘drop suddenly’ 
- 031 *dazeg* ‘approach’ 
- 032 *dekhâ* ‘rest, stop’ 
- 033 *dekhêt* ‘stick together, as in the process of weaving’ 
- 034 *dekhowag* ‘protruding’ 
- 035 *dephak* ‘fall forward’ 
- 036 *dephil* ‘paste’ 
- 037 *dephong* ‘blunt, of tip’ 
- 038 *dezaan* ‘seashore’ 
- 039 *dirizo* ‘straight, direct’ 
- 040 *dozô* ‘jump upward’ 
- 041 *dozol* ‘sty (of eye)’ 
- 042 *dozong* ‘stoop; to fall suddenly face down’ 
- 043 *gepha* ‘fall forward’ 
- 044 *iphed* ‘consume all of’ 
- 045 *ithog* ‘to throw’ 
- 046 *izâ* ‘ask’ 
- 047 *izan* ‘similar to’ 
- 048 *kakhag* ‘laugh loudly; to raise one’s voice to scare someone’ 
- 049 *kakhar* ‘dig’ 
- 050 *karekhad* ‘dandruff’ 
- 051 *kekhang* ‘shake off small particles’ 
- 052 *kekheb* ‘bite’ 
- 053 *kekhem* ‘fist’ 
- 054 *kekhen* ‘scoop up things that have dried in order to put in a sack’ 
- 055 *kekher* ‘to tremble; shiver; shake’ 
- 056 *kikhid* ‘to rub’ 
- 057 *kikhil* ‘to neigh like a horse’ 
- 058 *kokhog* ‘to shake something’ 

- 059 *kokhom* ‘to want all of something’ ◀▶
- 060 *kokhong* ‘to clean out a bottle by shaking water in it’ ◀▶
- 061 *kokhor* ‘to scrape’ ◀▶
- 062 *lakes* ‘of bamboo flooring, the wooden foundation where it’s tied’ ◀▶
- 063 *lazog* ‘Maranao game of chase’ ◀▶
- 064 *lazowag* ‘penetrate’ ◀▶
- 065 *lekheb* ‘to topple’ ◀▶
- 066 *lephad* ‘whip, flog’ ◀▶
- 067 *lethang* ‘to poison fish’ ◀▶
- 068 *letho* ‘jump; stretch upwards in order to reach something; fly (of birds)’ ◀▶
- 069 *lithowas* ‘come out’ ◀▶
- 070 *lizeg* ‘to grind, mill; to run over’ ◀▶
- 071 *lokhabang* ‘shell’ ◀▶
- 072 *lothiad* ‘off-balance’ ◀▶
- 073 *lozeg* ‘crush, crumple, trample’ ◀▶
- 074 *makhap* ‘lightweight’ ◀▶
- 075 *mariphes* ‘often, frequently’ ◀▶
- 076 *mathay* ‘long time’ ◀▶
- 077 *mazem* ‘sour’ ◀▶
- 078 *modizat* ‘calamity’ ◀▶
- 079 *mophon* ‘cocoon’ ◀▶
- 080 *mozeng* ‘muzzle of an animal’ ◀▶
- 081 *ophit* ‘cut bamboo or rattan into strips’ ◀▶
- 082 *othang* ‘fall’ ◀▶
- 083 *othat* ‘kick by pushing with foot’ ◀▶
- 084 *otho* ‘noon’ ◀▶
- 085 *ozad* ‘to stumble down; slump down’ ◀▶
- 086 *ozak* ‘to become rotten’ ◀▶
- 087 *ozod* ‘to fall head first’ ◀▶
- 088 *ozor* ‘move upward or forward; increase; have an improvement in life’ ◀▶

- 089 *paphag* ‘bang, beat’ 
- 090 *pelithak* ‘make a clicking sound with the tongue in order to call someone’ 
- 091 *pep heg* ‘pack down’ 
- 092 *pethad* ‘sand’ 
- 093 *peza* ‘a boil (on the skin)’ 
- 094 *pikhet* ‘paralyzed’ 
- 095 *pip hil* ‘pat; touch gently’ 
- 096 *pophog* ‘fall down’ 
- 097 *pozan* ‘preserve something by pickling’ 
- 098 *rapakhar* ‘the sounds made when rushing’ 
- 099 *rephedâ* ‘close relative’ 
- 100 *rethon* ‘when the milk in a woman’s breast drips because it is time to breastfeed’ 
- 101 *rezâ* ‘contemporary (n.)’ 
- 102 *(ma)rezik* ‘dirt; dirty’ 
- 103 *rikhet* ‘sticky’ 
- 104 *rikhot* ‘small broken piece of a grain of rice’ 
- 105 *rizeki* ‘gift from God; blessing’ 
- 106 *sakhaw* ‘catch’ 
- 107 *sakhob* ‘cockfight’ 
- 108 *salikhat* ‘to catch chickens or birds’ 
- 109 *salokhod* ‘next’ 
- 110 *salozog* ‘sew loosely, not permanently’ 
- 111 *sapha* ‘caught on stick while floating in water’ 
- 112 *sapher* ‘disease caused by the devil passing you by’ 
- 113 *sarizid* ‘get wet by rain coming through a window’ 
- 114 *sekhad* ‘to plant a stick into the ground to make a foundation’ 
- 115 *sekhô* ‘layers separated from each other; to touch’ 
- 116 *sezad* ‘make bamboo fencing’ 
- 117 *sezal* ‘hammer iron on an anvil’ 

- 118 *sezed* ‘mat’ 
- 119 *sezen* ‘gather things together’ 
- 120 *sikhem* ‘grab, snatch’ 
- 121 *sikhol* ‘to touch with the elbow’ 
- 122 *sizing* ‘to rub or scrub’ 
- 123 *sizok* ‘to poke’ 
- 124 *sokhar* ‘a pole used to pick fruit from a tree’ 
- 125 *sokhip* ‘to place on a wall, with something to hold it’ 
- 126 *sophon* ‘join together’ 
- 127 *sozod* ‘bamboo toy that children make in which a stick is poked in order to make the contents come out’ 
- 128 *sozol* ‘hurry’ 
- 129 *tagithing* ‘mildew’ 
- 130 *tagothob* ‘thud’ 
- 131 *takhip* ‘to tuck something under one’s belt or at one’s waist (as a spear or bolo)’ 
- 132 *talekheb* ‘topple’ 
- 133 *talikhod* ‘to turn one’s back’ 
- 134 *tarathad* ‘chop’ 
- 135 *taretheb* ‘edge’ 
- 136 *tathab* ‘graze’ 
- 137 *tathad* ‘cut into pieces’ 
- 138 *tathag* ‘to make the food called *tiyathag* in Maranao and *tinadtag* in Maguindanaon’ 
- 139 *tayothon* ‘lower something from a height’ 
- 140 *tekhaw* ‘steal; thief’ 
- 141 *tekhes* ‘to bind together; to tie closely or tightly’ 
- 142 *tekhiang* ‘to retort’ 
- 143 *tephak* ‘hit w/ fist overhand’ 
- 144 *tephed* ‘broken’ 
- 145 *tephiring* ‘slap’ 

- 146 *tephol* ‘dull’ 
- 147 *tetheb* ‘nibble’ 
- 148 *thak* ‘drip’ 
- 149 *thebaan* ‘riverbank’ 
- 150 *tikharas* ‘wake up suddenly’ 
- 151 *tiphes* ‘store something, put away’ 
- 152 *tiphô* ‘jump down’ 
- 153 *tiphod* ‘break the tip off of’ 
- 154 *tithig* ‘cut, chop’ 
- 155 *tithing* ‘part of a bladed weapon that is inserted into the handle’ 
- 156 *titho* ‘true, straight’ 
- 157 *tiyakhâ* ‘to surprise; frighten’ 
- 158 *topha* ‘spit out of mouth, as food, water, or medicine’ 
- 159 *tophong* ‘die young’ 
- 160 *tothol* ‘story; tell’ 
- 161 *tothon* ‘lower something’ 
- 162 *wazir* ‘judge’ 