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THE BARRIER ISLAND LANGUAGES IN THE AUSTRONESIAN LANGUAGE FAMILY

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1. QUANTITATIVE AND QUALITATIVE EVIDENCE AS BASIS FOR SUBGROUPING ARGUMENTS

Subgrouping arguments can be based on quantitative or on qualitative evidence.[1] Quantitative evidence consists of the statistical study of the vocabularies of languages. Qualitative evidence consists of the collection of exclusively shared innovations. As we will see below, some scholars appeal to both quantitative and qualitative evidence in determining subrelationships, giving preference to qualitative evidence whenever it conflicts with quantitative evidence. The fact that there exists a conflict between these two kinds of evidence shows that we have to question either the assumptions of lexicostatistics or of the comparative method. Blust (1981) irrefutably disproves one of the fundamental assumptions of current lexicostatistical theory, namely that basic vocabulary gets replaced at a rate which is constant for all languages at all times. Blust observes retention percentages from 58.5% to 15.8% in his sample of 55 languages and dialects. It therefore appears that only qualitative evidence represents a reliable basis for the determination of subrelationship.

2. AUSTRONESIAN SUBGROUPING AND THE POSITION OF THE BARRIER ISLAND LANGUAGES IN THE AUSTRONESIAN LANGUAGE FAMILY

Only few scholars who have dealt with the subgrouping of the Austronesian language family included the Barrier island languages in their study. The first one was Brandstetter who concluded that Nias was most closely related to Malagasy. This hypothesis was rejected by Lafeber (1922:57-58) who also recognised "strange phonetic agreements" between Malagasy and Nias "which also appear in other Barrier islands such as the occurrence of the sequence ndr (as reflex of *nD or *nd - BN), of f (as a dialect of Enggano) as reflex of *p and of h (as in Enggano, Toba and Mandailing) as reflex of *k". Lafeber argued that "the Malagasy vocabulary is much closer to the Malay lexicon than to that of Nias". He claimed that the vocabulary of "Batak-Gayo" has many agreements with that of "Nias - Simalur - Mentawai - Enggano". Unfortunately, he gave only two examples:[2] TBt. sada, Ga. södö, sara, Ni. sara, Me. sara, Sim. sara *one*; TBt. toru *below* and its cognates in Gayo and the Barrier islands. However, Lafeber never fulfilled his promise to present further lexical evidence for his hypothesis, since the announced second volume of his book in which this evidence was to be given never appeared in print.

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In his analysis of Mentawai Adriani (1928) reached the conclusion that "one cannot say that the language of the Mentawai islands does not seem to be in its place in its environment. Mentawai is a language which - regarding its geographical position - has no strange character".

Adriani quoted Jonker (1918) who wrote an article on Mentawai for the *Encyclopaedie van Nederlandsch Oost-Indië*:

> Mentawai is certainly related to Nias, but it is notably different, which is due in part to the fact that its sound system has been retained more completely; the difference in the lexicon is very big. Generally, Mentawai words make a strange impression; many items of general vocabulary must have been lost and replaced by others.

In the *Atlas van tropisch Nederland* Esser (1938) presented a single-page classification of the languages of the then Netherlands East Indies. He recognised 17 groups of AN languages. One of these is the "Sumatra" group which consists of Aceh, Gayo, Batak dialects, Minangkabau, (Lubu), Malay, Middle Malay, Rejang-Lebong, Lampung, Simalur, Nias, (Sichule), Mentawai, Enggano, Loncong, Lom, Orang Laut.

Neither in his Grammatischer Abriβ des Enggano (1940) nor in his *Untersuchungen über die Laut-, Wort- und Satzlehre des Nias* (1937) did Kähler comment on the relationships of these languages to other AN languages. However, in the introduction to his unpublished Grammatik der Simalursprache (n.d., probably written in the late 1930s), Kähler wrote that "the Simalur vocabulary contains such a clearly recognisable Celebes-Philippine substratum that a formerly close contact between Simalur and this northern language group is certain". In the fifth section of his manuscript which is entitled "Borrowings in Simalur and their implications" Kähler lists what he treats as loans from 1) Gayo, Aceh; 2) Minangkabau, Batak dialects; 3) Sundanese, Javanese; 4) Celebes and Philippine languages; 5) Borneo languages; 6) languages in the east of the archipelago. Since the largest body of evidence was accumulated for the Celebes and Philippine languages, Kähler drew the conclusion that

> ... a formerly close connection between the inhabitants of these areas seems certain. This common vocabulary cannot be treated as single borrowings, since they consist partly of the oddest words. Simalur shares the possession of a linguistic substratum originating from the northern language group of Indonesia with other dialects on the islands on the west coast of Sumatra (Sichule, Nias, Mentawai, Enggano), although Nias has more words and Mentawai mostly different words which originate from the Celebes group. This original substratum in the lexicon of Simalur was later superimposed by a Sumatran layer. ... In my opinion, the settlement of Simalur (and of the other Barrier islands) cannot have taken place via Sumatra, because those words which appear in the island languages and which originate from this northern group (Celebes-Philippines) do not exist in dialects of Sumatra, although some of them have a lexicographically mixed character.

Before commenting on Kähler's hypothesis, I would like to describe a work which was written by Willms (1955), a student of Kähler. In his analysis of Mentawai Willms compiled lists of what he treated as borrowings from languages

of Celebes and Sumatra. He furthermore has a list of so-called Mentawai borrowings from Nias and Simalur.

Both Kähler and Willms automatically treated all those Simalur and Mentawai words that do not reflect a PAN etymon reconstructed by Dempwolff (1934-1938) as borrowings from one of the languages in which a related form occurs. For example, Willms reconstructed a form *əRəm in order to account for KBt. ərəm, TBt., Angk. orom, Me. om *to resist*. Instead of treating Me. om as a cognate, which actually points to a reconstruction with *R (and not *r), he treated it as a borrowing from the Batak languages and argued that "Mentawai had contact with Batak before the sound change *R > Batak languages r occurred".

Neither Kähler nor Willms considers the possibility that the words which Barrier island languages seem to share exclusively with each other, with Sumatran or with Sulawesi-Philippine languages might reflect an etymon of their respective last common proto-language. There can be no doubt that particularly in the case of words which seem to be shared exclusively by a Barrier island language and neighbouring Barrier island languages or by a Barrier island language and Sumatran languages there in fact exists a borrowing relationship. This is a more difficult argument in the case of the many words listed by Kähler and Willms which appear to be shared exclusively by Barrier island and Sulawesi-Philippine languages.

If we interpret these as reflections of etyma of an earlier common proto-language which is not PAN, one might indeed argue that these two language groups have an exclusively shared history. Although a close examination of the lists compiled by the two German scholars shows that in a considerable number of cases either the forms or the meanings are too different to allow a treatment as cognates or there exist cognates in non-Barrier island and non-Sulawesi-Philippine languages, there remain some interesting comparisons which could be treated as lending support to such an argument.

Salzner (1960) who wrote the *Sprachenatlas des Indopazifischen Raumes* included the Barrier island languages in his so-called "Sumatra group" of southwest Indonesian languages. This group is almost identical with that of Esser (1938). It contains Aceh, Gayo, Batak languages, Minangkabau, Malay, Rejang-Lebong, Middle Malay, Lampung, Lom = Mapor, Basa Loncong, Simalur, Nias, Mentawai, Enggano, and Samsam.

In 1965 Dyen published his *A lexicostatistical classification of the Austronesian languages*. In this study the Austronesian language family is divided into 40 first-order subgroups. Most of them are located in western Melanesia and adjacent areas. We also find one in northern Formosa and another one on Enggano. Blust (1981:13) commented on these results as follows:

> The existence of lexicostatistically-defined first-order subgroups in more than one widely separated area must - if the percentages accurately reflect the historical order of splits - be explained on a hypothesis of migration. Given Dyen's methodological assumptions and the reported percentages it would appear simplest to explain the location of the Atayalic Subfamily and Enggano as a result of several migrations from western Melanesia which resulted in long-distance settlements to the north and west. However, Dyen did not adopt such a hypothesis. Instead, in the case of Enggano he attempted (p.56) to find intermediate percentages that link this language with other languages of western Indonesia. An examination of lists for Enggano's northern neighbours

> Mentawai and Nias (neither of which was considered in the classification proper) failed to provide such intermediate percentages. Dyen admits that the explanation for the low cognate percentages connecting Enggano, Mentawai and Nias with each other and with other AN languages is not clear. Nonetheless he believes "... it is likely that these languages will ultimately prove to be closely related to the languages of western Indonesia by a non-lexicostatistical argument. This is suggested by the appearance of Mentawai buluk, Nias bulu *leaf* corresponding to Toba Batak buluŋ *leaf* (cf. the almost universal cognates of Tagalog da:hon *leaf*), Mentawai ka-baga, Nias bacha *in* corresponding to Toba Batak di-bagas-in *in*, Mentawai uŋat *root* corresponding to Toba Batak urat *root* (cf. the widespread cognates meaning *vein, tendon*), and of Nias f-al-ea *lie down* corresponding to Toba Batak peak *lie down*."

In footnote 8 of this article Blust demonstrated that Dyen's qualitative evidence does not always hold. Cognates of the forms for *leaf* are widespread in the Philippine languages and a reconstruction *buluŋ *foliage* had already been proposed by Dempwolff. Similarly, forms which continue *uRat *vein, tendon* in the meaning *root* occur not only in Mentawai and Toba-Batak but also in many Borneo languages (e.g. Maloh urat *vein, root*).

Furthermore, cognates of the Mentawai, Nias and Toba-Batak forms for *in* also occur in Philippine languages (e.g. Tag. sa-balas *(inland =) north-west)* and also in this case a reconstruction was in fact proposed by Dempwolff (*bajas *interior*).

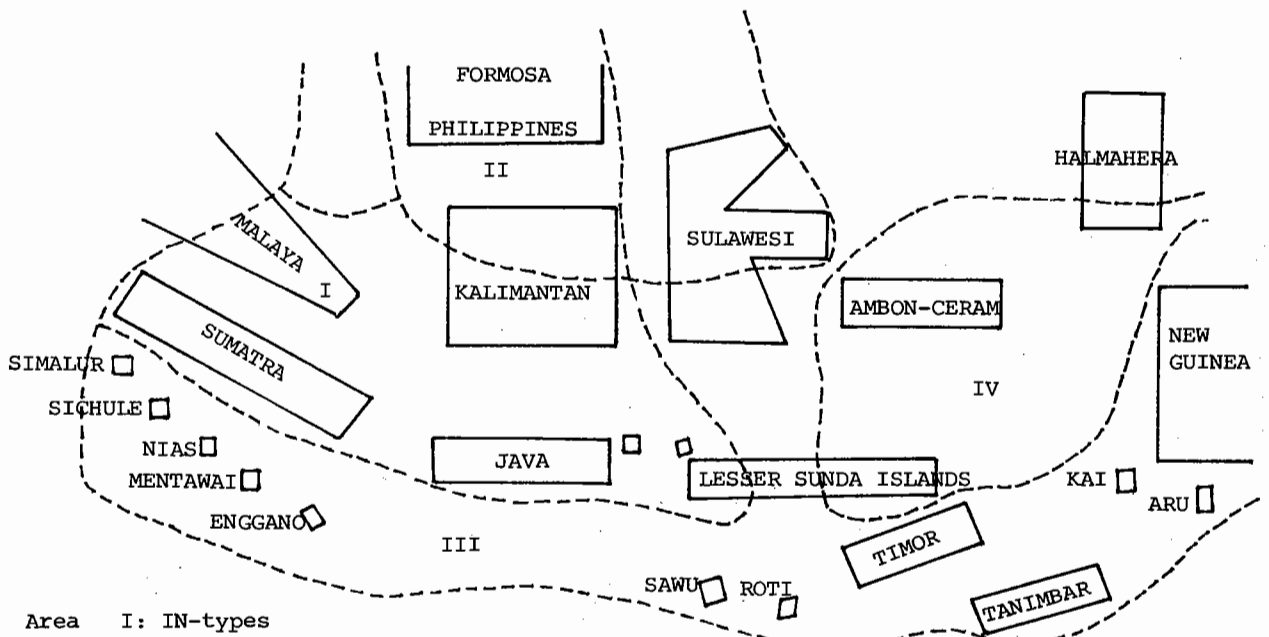
Blust did not attempt to subgroup the Barrier island languages although he wrote in the footnote cited above: "Although I am entirely in sympathy with Dyen's attempts to link Enggano, Mentawai and Nias with other languages of western Indonesia ...".

Capell (1982) argued that

> Enggano is not an Austronesian language from the point of view of its vocabulary and its grammar ... Enggano is structurally *sui generis*; ... it does not have Melanesian traits as for example Mentawai ... Enggano is a remnant of these pre-IN languages, which indeed has IN borrowings, but remains non-Austronesian.

Finally, Capell arrived at a distinction of four language-types in Indonesia. The arguments for these distinctions and for the grouping of the Barrier island languages as being members of the Oceanic type remain unclear to me. Capell drew the following diagrammatic map (1982:15):

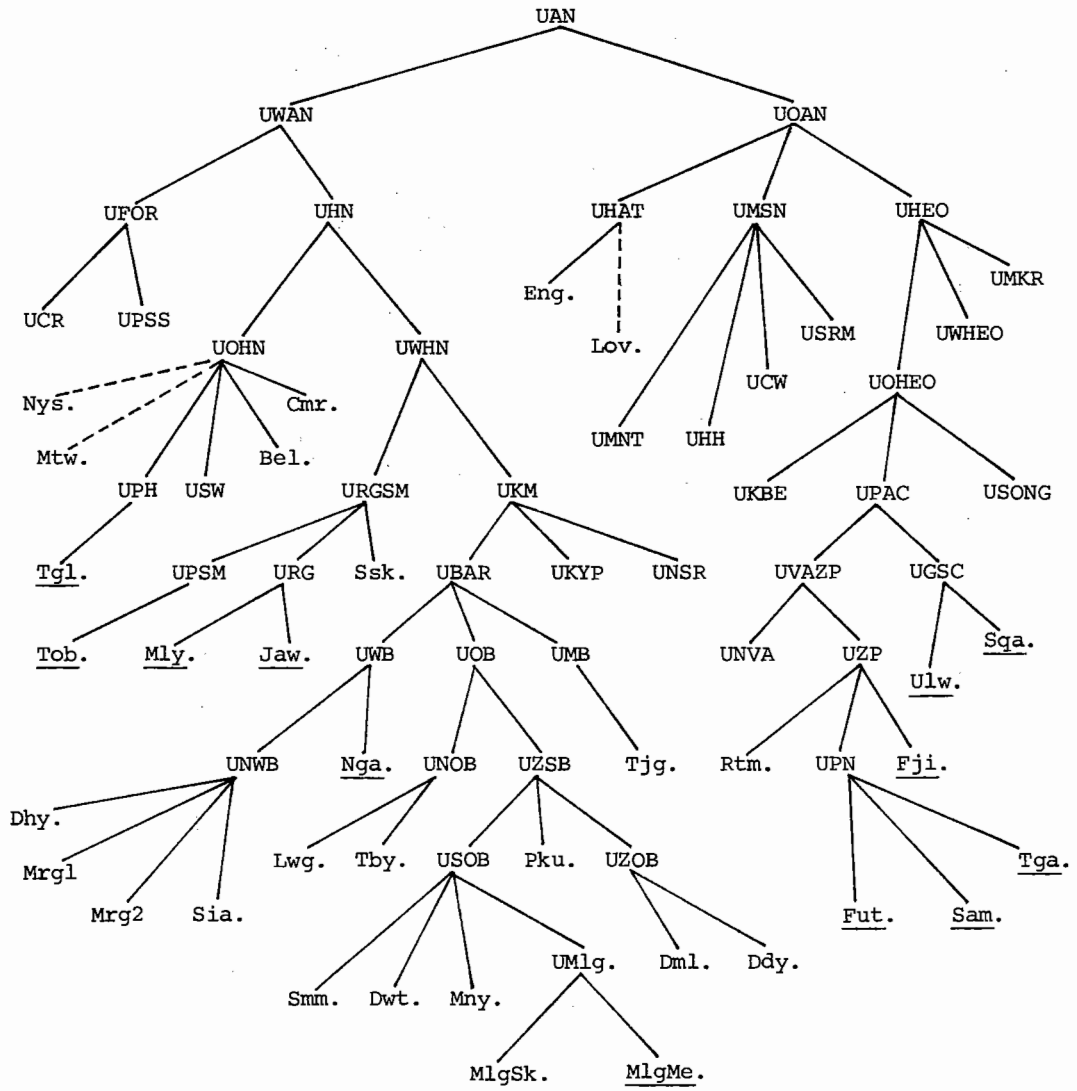
A location diagram of the Indonesian area



Area I: IN-types
Area II: Philippine types
Area III: Oceanic types
Area IV: East Indonesian languages

The most recent attempt at a subgrouping of the Barrier island languages is Mahdi's manuscript "Morphophonologische Besonderheiten und historische Phonologie des Malagasy" which I received in April 1984. Mahdi divides the AN languages into two primary groups: 1) Proto-West-Austronesian and 2) Proto-East-Austronesian. Nias and Mentawai belong to 1) and Enggano to 2) (see Mahdi's tree-configuration).

Mahdi's subgrouping of the AN languages



List of language and dialect abbreviations used in Mahdi's diagram (language names in English, here):

Bel	Belau (Palau)	GSC	Nggela-San Cristobal
Cmr	Chamorro	HAT	Hartanic
Ddy	Dusun-Dejah	HEO	Heonesic
Dhy	Dohoi	HH	Halmaheran
Dml	Dusun-Malang	HN	Hesperonesian
Dwt	Dusun-Witu	KBE	Kimbe
Eng	Enggano	KM	Kalimantanic
Fji	Fijian	KYP	Kayan-Punan
Fut	Futuna	MB	Mahakam-Barito
Jaw	Javanese	MKR	Micronesian (Kern)
Lov	Lovaia	MNT	Molucco-Nusatenggaric
Lwg	Lawangan	MSN	Mesonesian
MlgMe	Mérina (Malagasy)	NOB	North-east Barito
MlgSk	Sakala'va (Malagasy)	NSR	North Sarawakian
Mly	Malay	NVA	North Vanuatuan
Mny	Ma'anjan	NWB	North-west Barito
Mrg1	Murung 1 (Hudson 1967)	OAN	East Austronesian
Mrg2	Murung 2 (Hudson 1967)	OB	East Barito
Mtw	Mentawai	OHEO	East Heonesic
Nga	Ngadju	OHN	East Hesperonesian
Nys	Nias	PAC	Pacific
Pku	Paku	PH	Philippines
Rtm	Rotuma	PN	Polynesian
Sam	Samoan	PSM	Paleo-Sumatran
Sia	Siang	PSS	Paiwano-Saisiat
Smm	Samihim	RG	Urangic
Sqa	Sa'a	RGSM	Urango-Sumatran
Ssk	Sasak	SOB	South-east Barito
Tby	Taboyan	SONG	South-east New Guinean
Tga	Tongan	SRM	Sarmic
Tgl	Tagalog	SW	Sulawesic
Tjg	Tundjung	U	Ur- (= Proto-)
Tob	Toba-Batak	VAZP	Vanuatan-Central Pacific
Ulw	Ulawa	WAN	West Austronesian
AA	Austroasiatic (non-AN)	WB	West Barito
AN	Austronesian	WHEO	West Heonesic
BAR	Barito	WHN	West Hesperonesian
CR	Tsou-Rukai	ZOB	Central East Barito
CW	Cenderawasih (Geelvink)	ZP	Central Pacific
FOR	Formosan	ZSB	Central South Barito

The family tree shows that Nias and Mentawai directly continue Proto-East Hesperonesian just as do Proto-Philippine, Proto-Sulawesi, Palau and Chamorro. Proto-East Hesperonesian and Proto-West Hesperonesian directly continue Proto-Hesperonesian which together with Proto-Formosan is a daughter language of Proto-West Austronesian. Enggano and Lovaia (East Timor) are grouped as daughter languages of Proto-Hartanic which in turn directly continues Proto-East Austronesian.

Mahdi (n.d.:58) comments on his subgrouping by writing that

> ... the Philippines and parts of west and central Indonesia were inhabited by peoples speaking East Austronesian languages. Because they were superseded by West Austronesian

> languages most of their languages were either lost or are preserved only as substratum, e.g. in the languages of the islands off the coast of west Sumatra, in the Batak dialects of Sumatra, in the Aeta dialects and some other idioms of the Philippines, Sulawesi and Nusa Tenggara. It is significant that these idioms often have reflexes of *qa(R)[C]a as the word for *man* .... For the time being, I will assume that the languages which were here lost form a separate subdivision of the East Austronesian group, the proto-language of which I will call Proto-Hartanic. It is indeed possible that Enggano might be regarded as a direct daughter language of Proto-Hartanic. The same possibly also holds for Lovaia.

To comment on Mahdi's last point first: he probably considers Enggano and Lovaia as belonging to the same subgroup, because in both languages *t, *C > k and *s > t.

Mahdi's subgrouping seems to agree partly with the hypotheses put forth by Kähler, Willms and maybe Capell. I assume that the grouping of the Barrier island languages with the Sulawesi-Philippine and/or the Oceanic languages is based on the observation that there exists a number of etyma which have cognates only in these languages. However, this observation is only of relevance for subgrouping, *if* the etyma whose cognates have this distribution are *innovations*. There is, however, no good reason to believe that e.g. *qa(R)[C]a has replaced a form that represented the same meaning in PAN.

3. COMPETING VIEWS ON THE HISTORY OF MENTAWAI CULTURE

The Swiss anthropologist Schefold who wrote various articles on the religion of Mentawai (1972, 1976) maintained in his book *Speelgoed voor de zielen* (1979: 13) that

> ... according to anthropological and linguistic studies the people of Mentawai are closely related to the non-islamised tribes (the Batak) on Sumatra. This supports the hypothesis that the first Mentawai people came from Sumatra. The time of this arrival can only be given approximately. The people of Mentawai do not know how to work metal, they have no knowledge of rice-planting or weaving. Their culture must therefore be older than the bronze age.

In another article (1979:201) Schefold claimed that "metal working and rice-planting came to west and central Indonesia at the same time, but *after* a neolithical Austronesian migration which also influenced eastern Indonesia". Furthermore, Schefold (1979:13) argued that

> ... there are also elements lacking in Mentawai which one can ascribe to the late neolithicum on the basis of the situation in Polynesia: the society is egalitarian, there are no chiefs; the Mentawai people do not know the erection of megaliths. The Mentawai islands represent an early tradition in the neolithicum.

It is interesting to note that Marschall (1966) regarded the Mentawai culture as recessive which secondarily gave up metal-working, rice-planting and weaving.[3] Marschall's hypothesis supports Blust's reconstructions of PAN etyma for metal, rice and weaving.

4. QUALITATIVE EVIDENCE FOR A BARRIER ISLAND-BATAK SUBGROUP

In the following pages I will show 1) that strong qualitative evidence can be adduced in support of a Barrier island-Batak subgroup and 2) that this subgroup contains all Barrier island languages, perhaps including Enggano. Because of the lack of data it is difficult to provide substantial evidence for grouping Enggano with these languages.

The evidence will consist of exclusively shared phonological *and* lexical innovations. Exclusively shared phonological innovations are insufficient for the establishment of a subgroup, since the number of possible sound changes is rather limited compared to the number of possible lexical changes. It follows that identical sound changes which occur in geographically distant languages or language clusters cannot be taken alone as evidence for an exclusively shared history of these languages. It is for this reason that e.g. the occurrence of g as reflex of *j in two geographically distant language groups such as the Barrier island-Batak group and the Philippine group is interpreted as two separate innovations for the time being. Further evidence, be it grammatical, lexical or semantic, has to be adduced. If we based our analysis on phonological innovations alone, Enggano would probably be subgrouped with a language such as Douru (spoken in the Central District of Papua): *t > En., Dou. k; *k > En., Dou. Ø; *s > En., Dou. t; *ŋ > En. h, Dou. Ø.

The material for the island languages consists mostly of grammars and dictionaries written by Kähler (1937, 1940, 1959, 1961, 1975). Other important information appears in Morris 1900 and Zainuddin HR Lenggang 1978 for Mentawai and Sundermann 1905 for Nias. None of these works contains reliable material on the phonology of the languages examined. Toba-Batak material is taken from van der Tuuk 1971 and Warneck 1906. During two fieldtrips to Mentawai I collected Swadesh lists for Mentawai dialects. For Nias I was sent Swadesh lists of six dialects by German missionaries. These lists were used in a lexicostatistical calculation of the cognate percentages among Mentawai and Nias dialects respectively. The results for Mentawai are listed in Table 1:

Table 1: Lexicostatistical percentages among the Mentawai dialects

	Simatalu	Terekan	Sikabaluan	Saxaliow	Sikakap	Sipora
Simalegi	69	74	70	57	62	58
Simatalu		71	71	65	62	61
Terekan			71	58	57	57
Sikabaluan				60	61	60
Saxaliow					56	61
Sikakap						95

There is relatively little dialect variation among the dialects of Nias (cognate percentage about 80%). As we can see from Table 1 this also holds for the dialects of the southern Mentawai islands. The dialects of Siberut however are very different from each other (cognate percentages varying between 71% and 57%) and from the south Mentawai dialects (cognate percentages varying between 62% and 57%).

4.1 The phoneme inventories of the languages under investigation

The most difficult part of the phonemic analysis of the island languages is Kähler's treatment of the vowels represented by the symbols ə, ö, õ, u̲, ə̄. It appears that ö, õ, u̲, ə̄ are phonetically [ɨ]. Another problematic symbol is Kähler's x̌ which appears to be [ç]. In languages which also have [x], [ç] and [x] seem to be in complementary distribution.

4.1.1 The Simalur phoneme inventory

Simalur has the following seven vowel phonemes according to Kähler:

i	ɨ	u
e	ə	o
	a	

Nasal vowels are in free variation with their corresponding oral vowels. They only occur very rarely and only in the environment of nasal consonants.

Simalur has the following consonant phonemes:

p	t	c	k	ʔ
b	d	j	g	
m	n	ñ	ŋ	
f	s		x	h
	l			
	r			
w	y			

The phoneme /x/ has the allophones [x] and [ç]. The latter occurs in the environment of /i/, /ɨ/ or /e/.

4.1.2 The Sichule phoneme inventory

The vowel phonemes of Sichule are, according to Kähler:

i		ɨ	u
e	ö	ə	o
		a	

The consonant phonemes are:

p	t	k	
b	d	g	
m	n	ŋ	
f	s	x	h
	l		
	r		
	y		

Again, the phoneme /x/ has the allophones [x] and [ç]. /b d g/ in final position are realised as unreleased stops.

4.1.3 The Nias phoneme inventory

Nias has six vowel phonemes:

i	ɨ	u
e		o
	a	

Its consonant phonemes are:

	t	k	ʔ
b	d	g	
m	n	ŋ	
f	s	x	h
v	z		
	l		
	r		
w	y		

4.1.4 The Mentawai phoneme inventory

Mentawai has the following five vowel phonemes:

i	u
e	o
a	

The consonant phonemes are:

p	t	c	k	ʔ
b	d	j	g	
m	n	ñ	ŋ	
	s			
	l			
	r			
w		y		

4.1.5 The Enggano phoneme inventory

The vowel phonemes of Enggano are:

i	ɨ	u
e		o
	ɛ ɔ	
	a	

According to Kähler each oral vowel phoneme has a corresponding nasal vowel phoneme:

ĩ	ɨ̃	ũ
ẽ		õ
	ɛ̃ ɔ̃	
	ã	

In his Simalur and Sichule dictionaries Kähler does not distinguish between e and ɛ or between o and ɔ.

The number of consonant phonemes depends on the dialect:

p	(t)	c	k	ʔ
b	d	(j)		
m	n	n		
(f)				h

The phonemes in parentheses only appear in the southern dialects.

4.1.6 The Toba-Batak phoneme inventory

The vowel phonemes are:

i		u
e		o
	a	

Toba-Batak has 14 consonant phonemes:

p	t		k	
b	d	j	g	
m	n		n	
	s			h
	l			
	r			

4.2 Phonological history of the languages under investigation

We will not give a full account of the phonological history of each of the languages from reconstructed material. Instead we will present a table which consists of a general overview of the PAN phonemes and their reflexes in the six languages (Table 2).

4.3 Phonological innovations and irregularities shared among the six languages

In this section we will deal 1) with the phonological innovations and 2) with the phonological irregularities which are shared among Simalur, Sichule, Nias, Mentawai, Enggano and Toba-Batak.

Table 2: Phonological changes

PAN			Mentawai			Nias			Toba-Batak			Simalur			Enggano			Sichule		
a			a			a,o			a			a			ᮃ			a		
i			i,e			i,e			i,e			i			ᮄ			i,e		
u			u,o			u,o			u,o			u			ᮅ			u,o		
ə			e,o			ŧ,o			o			ə,ŧ			ᮀ,ᮁ			ə,ö,ŧ		
b			b-/m	-b-	-p	b-	-v-	-Ø	b-	-b-	-p	f-	-f-	-(b)	p-	-p-	-Ø	b-/f-	-f-	-Ø
d			r-	-r-	-t	d-	-r-	-Ø	d-	-d-	-t	d-/r-	-d-/-r-	-(ʔ)		ʔ		d-	-(ʔ)-	-(ʔ)
D			r-	-r-	-t	d-/r-	-r-	-Ø	d-	-d-	-r	d-/r-	-r-	-r	d-/r-	-d-	-Ø	d-/l-	-l-	-n(ʔ)
Z-	-Z-			r			r			d		d-	-r-		r-	-d-		d-	-l-	
z-	-z-			j			z			j		j-	-j-			ʔ			ʔ	
g			g-	-(ʔ)-	-(ʔ)	g-	-g-	-Ø	g-	-g-	-k	g-	-g-	-(ʔ)		ʔ		g-	-g-	
-j-	-j			-g-	-u		-x-	-Ø		-g-	-k		-h-/-x-	-(g)/ʔ		-ç-/-Ø-/-h-	-Ø		-x-	-Ø
R				Ø			Ø			r			l/Ø			Ø			Ø	
h				Ø		h-/Ø	-h-/-Ø-	-Ø		Ø			Ø			Ø			Ø	
q				Ø		h-/Ø	-h-/-Ø-	-Ø		Ø		Ø-	-Ø-	-(h)	h-	-Ø-	-Ø	Ø-	-h-/-Ø-	-Ø
y-	-y-	-ay	(ʔ)-	-j-	-e	y-	-y-	-e	(ʔ)-	-Ø-	-e	(ʔ)-	-e-	-ae	(ʔ)-	-(ʔ)-	-ae	(ʔ)-	-e-/-y-ʔ	-ae
		-əy			-ey			-e			-e			-ae			-(ʔ)			-e
		-uy			-uy/-i			-i			-i			-oe			-(ʔ)			-i
k			k-	-k-	-ʔ	ʔ-/Ø-	-ʔ-	-Ø	h-	-h-	-k	Ø-/k-	-ʔ-/-k-/-Ø	-(g)	ʔ-/k-/Ø-	-Ø-	-Ø	ʔ-	-ʔ-	-Ø
c-	-c-			s		s-	-(ʔ)-			s			s			ʔ			ʔ	
l			l-	-l-	-lV	l-	-l-	-Ø		l			l		l-/r-/d-	-l-/-r-/-d-	-Ø	l-	-l-	-n(ʔ)
r			r-	-r-	-rV	r-	-r-	-Ø		r			r		(ʔ)-	-d-	-Ø	l-	-l-	-(ʔ)
m			m-	-m-	-m /-p	m-	-m-	-Ø		m			m		b-	-m-/-b-	-Ø	m-	-m-	-Ø
n			n-	-n-	-n /-t	n-	-n-	-Ø		n			n		(ʔ)	-d-/-r-	-Ø	n-	-n-	-Ø
ñ-	-ñ-		(ʔ)-	-n-			n			n			n			-n-		(ʔ)	-n-	
ŋ			ŋ-	-ŋ-	-ŋ /-k	ŋ-	-ŋ-	-Ø		ŋ		(ʔ)	-ŋ-	-ŋ	(ʔ)	-h-/-Ø-	-(ʔ)	ŋ-	-ŋ-	-Ø
p			p-	-p-	-m /-p	f-	-f-	-Ø		p		Ø-	-h-/-x-/-Ø-	-(b)	p-	-p-/-b-	-Ø	f-	-f-	-Ø
t			t-	-t-	-n /-t	t-	-t-	-Ø		t		t-	-t-	-(d)	k-	-k-	-Ø	t-	-t-	-Ø
T-	-T-			t			t			t		t-	-t-			ʔ			ʔ	
s			s-	-s-	-Ø	s-	-s-	-Ø		s			s		k-	-k-	-Ø	Ø-	-h-/-Ø-	-Ø
w-	-w-	-aw	b-	-b-	-au	w-	-w-	-o/-ö	Ø-	-Ø-	-o	(ʔ)-	-w-	-ao	b-	-b-	-(ʔ)	Ø-	-w-	-ŧ,ao (ʔ)
					-ou															
					-eu															
		-əw			-eu			-ö			-o			-(ʔ)			-(ʔ)			-(ʔ)

4.3.1 Shared phonological innovations

VOWEL AND DIPHTHONG SHIFTS

PAN	SIMALUR	SICHULE	NIAS	MENTAWAI	ENGGANO	TOBA-BATAK	
1. *e	ə,ɨ	ə,ö,ɨ	i		ʔo	o	
Examples:							
*telu	təlu,təlo	tölu	tɨlu	(telu)	ʔakoru	tolu	*three*
*(b)eli	bəli	bɨli	bɨli=ɨli		e-odi *price*	boli *bride price*	*buy*
2. *e after *R	e				ʔẽ		
Example:							
*Sa-ReZan	aeran	(ola)	(ora)	(orat)	e-hẽã	(ardan)	*ladder, staircase*
3. *e before *j	o			o			
Example:							
*qunej	unog	(unɨ)	(hunɨ)	unou		(unok)	*marrow*
4. *-ay	ae	ae			ae		
Examples:							
*kuday	kudae		(kude, gude-gude)	(ore)	e-ʔorae		*basket made of bamboo*
*baday	badae	badae	(bade)				*storm*

VOWEL MERGERS

1. *au		ɨu	ɨu	eu			
*eu		ɨu	ɨu	eu			
Examples:							
*Zauq	(dao)	a-dɨu	a-rɨu	a-reu		(dao)	*far*
*behew	(fo)	bɨu	bɨu	beu	(upau)	(bau)	*smell*
2. *a before *-k and *-ŋ		o	o				
*e before *-k and *-ŋ		o	o				
Examples:							
*anak		n-ono	n-ono		(e-ara)	(anak) *son*	*child*
*ma(n)yaŋ	(maeaŋ)	mõẽõ	moyo	(mañaŋ)			*hawk*
*qutek	(uta?)	uto	uto	(ute) *head*		(utok-utok)	*brain, marrow*
*lateŋ	(lalatəŋ)	lato	lato	(lalatek)		latoŋ	*stinging nettle*
3. *a in the environment of o (> *a)		o	o				
*e in the environment of o (> *e)		o	o				

PAN	SIMALUR	SICHULE	NIAS	MENTAWAI	ENGGANO	TOBA-BATAK	
Examples:							
*layaR	(laeal)	loyo	loyo	lajo		rear	*sail*
*anak		n-ono	n-ono				*child*
*DeŋeR		loŋo	roŋo				*hear*
4. *a in the environment of *R *e in the environment of *R contraction of o's (> *a or *e) after the loss of *R		o	o	o			
Examples:							
*paRi	(ali)	foi	foi	poi			*stingray*
*qabaRaH	(bala)	bo	bo	bo		abara	*shoulder*
*Ratus	(latus)	otu	otu	otu			*hundred*
*DeŋeR		loŋo	roŋo				*hear*
*timbeR	(tebəl)		simbo	timbo	(e-ipo)		*smoke*
*Sa-ReZan	(aeran)	ola	ora	orat	(e-hea)	(ardan)	*ladder*
*eRem				om		orom	*resist*
*baRaH	(bala,fala)	bo (naitɨ)	bo(galitɨ)	bo			*heat, red*
CONSONANT SHIFTS							
1. *-j-				g		g	
	x,h,Ø	x	x	x(Pagai)	ç,h,Ø		
Examples:							
*Sua(n)ji	axi,ahi	axi	axi	bagi	(ãhãi)	aŋgi	*younger brother*
*sijem	sixəm	ixöm	sixɨ	sigep	e-kiço		*ant*
2. *-ñ-	n	n	n	n	n	n	
Example:							
*peñu	əno	fɨnu	fɨnu	penu-ŋ	e?ũnũ?ũnũ	ponu	*sea-turtle*
3. *-C		Ø (?)	Ø		Ø		
Example:							
*xe(m)pat	(ad)	ɨfa	ɨfa	(epat)	?a-opa	(opat)	*four*
4. *-b-	f	f					
Example:							
*tabeq	tafɨ(x)	tafɨ	(tavɨ)	(tabe)		(tabo)	*fat*

PAN	SIMALUR	SICHULE	NIAS	MENTAWAI	ENGGANO	TOBA-BATAK	
5. *p- -p-		f	f				
Examples:							
*pitu	(itu)	fitu	fitu	(pitu)		(pitu)	*seven*
*lapaR	(lahal)	olofo	lofo				*hungry*
6. *-n[dD]-			ndr	ndr			
Examples:							
*lan[dD]aw				landrou		(lando)	*limb, length*
*tanduk	(tadu?)		tandru		(e-kadu?u)	tanduk	*horn*
7. *R		Ø	Ø	Ø	Ø		
Examples:							
*layaR	(laeal)	loyo	loyo	lajo		rear	*sail*
*Rumaq	(luma)		omo	uma	e-uba	(ruma)	*house*
CONSONANT MERGERS							
1. *ñ	n	n	n	n		n	
*n	n	n	n	n		n	
Examples:							
*peñu	ənо	fɨnu	fɨnu	penu-ŋ	(e?ũnũ?ũnũ)	ponu	*sea-turtle*
*bunuq	bunu,funu	bunu	bunu	munu	(pudu)	bunu	*kill*
2. *-Z-	r	l	r	r	?	d	
*-D-	r	l	r	r		d	
Examples:							
*Sa-ReZan	aeran	ola	ora	orat	(e-hẽã)	ardan	*ladder, staircase*
*peDem	ɨrɨ?	mɨlɨ	mɨrɨ	merem		podom	*sleep*
3. *c-	s	?	s	s	?	s	
*s-	s		s	s		s	
Examples:							
*cimcim	sincim			sipsip			*ring*
*caremin	sərəmen		sɨrɨmi			sormin	*mirror*
*sawa	sawa	(awa)	sawa	sawa		sa	*snake*
4. *Z- ... *l		l...l	l...l	l...l			
*D ... *l		l...l	l...l	l...l			
*d ... *l		l...l	l...l	l...l			
Examples:							
*zalan	(dalan,ralan)	lala	lala	lalan *vulva*		(dalan)	*path*
*Dilaq	(dila)	lela	lela	lila	(e-dio)	dila	*tongue*
*dalij	(dalig)	lali	lali		(e-nãnĩ)		*root*

4.3.2 Shared phonological irregularities

Another kind of phonological material which can also be taken as evidence for subgrouping is shared irregularities in phonological development. The first list contains irregularities which appear to be exclusively shared by Barrier island languages and the second list those which appear to be exclusively shared by at least one Barrier island language and Toba-Batak. Sometimes forms from other Sumatran languages are cited.

List 1: Phonological irregularities shared by Barrier island languages

*pulaw > Sim., Sich. ulao, Ni. hulo *island* (*q- instead of *p)
*laŋaw > Sim. ŋalɨ, Sich. ŋalɨ=nalao, Ni. ŋalɨ-ŋalɨ *fly* (metathesis)
*betuŋ > Ni. motu *kind of wood*, Me. metuk *kind of bamboo* (*m instead of *b)
*uRat > Sich. g-uŋo *vein, tendon*, Me. uŋat *vein, tendon, root* (unexpected ŋ)
*Cuqelaŋ/CuqelaN > Sich., Ni. tɨla *bone* (*e instead of *o)
*beli > Ni. ɨli *buy*, En. e-odi *price* (loss of *b)

List 2: Phonological irregularities shared by Barrier island languages and Toba-Batak (and/or other Sumatran languages)

*lalej > *lanej > Ni. nalö (< *nalej), Me. si-linau (< *si-linaj < *silenaj), TBt. lanok, KBt. lanəŋ *fly*
*bibiR > Me. bibo, KBt. bibər *lip* (*e instead of *i)
*Rejaŋ > Me. ogdag *wooden stick to work coconut*, TBt. ordaŋ *planting-stick*, Mal. rəjaŋ *break up with a crowbar* (metathesis of *Re)

4.4 Lexical innovations shared among the six languages under investigation

The lexical evidence for a group consisting of the Barrier island languages and Toba-Batak is divided into two lists. Again, the first list contains lexical items which appear to be exclusively shared by Barrier island languages and the second list contains those which appear to be exclusively shared by at least one Barrier island language and Toba-Batak. Sometimes items from other Sumatran languages are cited.

List 1: Lexical innovations shared by Barrier island languages

Ni. la-lau *to braid, plait, twist*, Me. lai *to wrap, wind, tie*
Ni. xɨtɨ harita *young green beans*, Me. gette *kind of keladi (taro)*
Ni. havo, Me. abo *bunch of bananas*
Ni. alito, Me. alito *fire*
Ni. si-baya *brother of mother*, Me. baja *brother of father*
Ni. hɨlua *skin-disease*, Me. belua *leprosy*
Ni. bute, Me. butet *pointed end of a plant*
Ni. hɨlɨ-hɨlɨ *uncertain, unsteady*, Me. ele *perhaps*
Ni. gogo, Me. gugu *lower back*
Ni. kalamba, Me. kalabba *big boat*
Ni. dege *approach*, Me. legere *closeness*
Ni. mɨi, Me. moi *to come*
Ni. fɨlɨ, Me. palau *castrate*
Ni. savɨ, Me. sabau *trespass against*
Ni. tundra *glass-pearl*, Me. tuda *big, long pearl*
Ni. a-hulɨ, Me. ma-ulau *early in the morning*
Ni. lave *female*, Me. labai *aunt, elderly woman*

Ni. balatu *working knife*, Me. balatu
Ni. huno, Me. enuŋ-an *path*
Ni. vaha, Me. ban *horn*
Ni. ajulo, Me. ajolou *egg*
Ni. momo, Me. meme *loose*
Ni. lulu *upper end, bed-head*, Me. lulu *to guide, lead*
Sim., Sich. maila, Me. meira *sea-fish which causes poisoning*
Sim. la-toru?, Sich. la-tolo?i, Me. turu-turu *alang-alang*
Sim. maeaŋ, Sich. mõẽõ *hawk*, Ni. moyo *kind of eagle*, Me. mañaŋ *eagle*
Sim. safut-i, Ni. savu, Me. sabu-i *to wipe off*
Sich. falɨ, Ni. farɨ, Me. pare *coconut greaves* [left over after oil extraction]
Sim. əpa, Me. matat kepa, En. e-aro?opa *armpit*
Sim. ateŋaŋan, Me. tereŋaŋa, En. e-kahaha *scorpion*
Sim. bai?, Me. bai *just, perhaps*
Sim. inti?, S.-Me. ta-iti *broken*
Sim. katuko, Me. katuka *kind of tree*
Sim. koku? *cohabitate*, S.-Me. koko *husband, wife*
Sim. -ma?i, Me. -mai *our*(excl.)
Sim. e-nawan *right side*, En. e-daba *the right one*
Sim. sibix, Sich. imbi, Ni. simbi *chin*
Sim. əlis, Sich. əli?, Ni. di *gnat*
Sim. xexe, kexe, Sich. xexe, Ni. haxi *stalk, stem*
Sim. bawa, faba, Sich. bawa, Ni. bava *moon, month*
Sim. batɨ? *chicken enclosure below house*, Sich. batɨ, Ni. batɨ *house*
Sim. tɨmba-tɨmba *palate*, Sich. tɨmba-tɨmba, Ni. tɨmba *lower chin*
Sim. tolog, Sich. a-tulɨ, Ni. a-tulɨ *upright*
Sim., Sich., Ni. tete *back*
Sim. lahan-laxan, Sich. ɨ-laxa, S.-Ni. salaxa-laxa *guts, heart, stomach*
Sim., Sich. lɨxɨ *house*, Ni. lɨgu *hut*
Sim. axɨsi, ahɨsi, Sich. axɨi, Ni. hɨsi *furious*
Sim. soŋo fatu, Sich. oŋo, Ni. soŋo *kind of fish*
Sim. fupub, Sich. a-fufu, Ni. fufu *to reduce to small pieces*
Sim. atɨ, Sich. fatɨ, Ni. fatɨ *price*
Sim. daluag, Sich. lalua, Ni. lalu?a *sole, inner part*
Sim. sɨxɨ, Sich. ɨxɨ, Ni. sɨxɨ *to observe*
Sim. fusa, Ni. busa *to peel*
Sim. anan, S.-Ni. hana *why*
Sim. afasɨx, S.-Ni. abaso *to burn*
Sim., Ni. sini-sini *kind of plant*
Sim., Ni. siŋa *bamboo as a tool*
Sim. tifol, Ni. tibo-?ɨ *to expose*
Sim. abon, Ni. m-ambu *smith, anvil*
Sim. iwaŋ, Ni. i?iwa *kind of grass*
Sim. tɨfa, Ni. tɨva *basket made of pandanus leaves*
Sich. mafɨ, Ni. mavɨ *small wild palm*
Sich. ufe *look*, S.-Ni. uve *eye*
Sich. uhu, Ni. susu *to string*
Sim. kəliŋ, Sich. gɨli *river-mussel*
Sim. lamon, Sich. lamo *sprouting coconut*
Sim. kasa = hasa, Sich. xaha *work, feast*
Sim. tenəŋ, Sich. tinɨ *torch, match*
Sim. ku = ko, Sich. o-xoxo *kernel, pit*

List 2: Lexical innovations shared by Barrier island languages and Toba-Batak (and/or other Sumatran languages)

Sim. tebəl, Ni. simbo, Me. ti(m)bo, En. e-ipo, KBt. simbər *smoke*
Sim. a-təlu, Sich., Ni. tou, TBt. toru, DaP. təruh, Ga. tuyuh *under, below*
Sim. sara, Sich. ala, Ni., Me. sara, TBt., Angk., KBt. sada, Ga. sara *one*
Sim. alae, ale, Ni. le, Me. alei, TBt., Angk., DaP., KBt. ale-ale *companion, friend*
Sim. la?un, Ni. la?o, Me. lakut, Ga. lakun *brother- or sister-in-law*
Sim. dəlog, Sich. l̪i̪l̪i̪, Me. leleu *hill, forest*, TBt., Angk. dolok, KBt. dələŋ *mountain*, Ac. rölöŋ *cliff*
Me. ekem, TBt. ehem *to clear one's throat*
Me. eket, TBt. a-l-hot *sap*
Me. elak, TBt. holaŋ *space between*
Me. bukat, TBt. bo-r-gat, bu-r-gat *uproot*
S.-Me. gude *banana*, TBt. aŋ-gunde-a *banana in the language of the medium*
Me. pulege, TBt. pulogos *kind of rattan*
Me. sapo, TBt. sapu *spotted, stained*
Me. ulup *to blow*, TBt. u-l-tup *to shoot with blowpipe*
Me. a-kula *flesh*, KBt. kula *body, skin*
Me. laje, TBt. le, KBt. ləhe *hungry*
Me. ale, TBt., Angk., DaP. ale *oh*
Me. belek, TBt. boloŋ *to fall*
Me. luŋun, DaP. luŋu *be sad, look for revenge*
Me. ŋitŋit *mosquito*, TBt. ŋitŋit *moth*
Me. landrou *limbs*, TBt. lando *length*, KBt. mə-lando *long as of bamboo sections, fingers*
Me. om, TBt., Angk. orom, KBt. ərəm *to resist*
Me. oppat *pull out (from a sheath)*, TBt. uppat, Angk. umpat *to pull out*
Me. pasi *subterraneous vertical root*, TBt., Angk. pasi *cone*, Ga. pasi *pointed end, pin, peg*
Me. suruk-at *pregnant*, DaP. suruŋ *foetus*
Me. saraina *brother*, KBt. sənina *brother of a man, sister of a woman*, Angk. mar-sadaina *have one mother*, Ga. sar-inö *brother, sister*
Me. sokat, TBt. sogot *next day*
Me. ale, alei, Lamp. salai *afterbirth*
Me. kuruk, TBt., Mand. hunduk, Ga. kuku? *back, to lie with one's back towards*
Sim. bəŋi?, Sich. bi̪ŋgi, Ni. bi̪gi, KBt., Ga. bəŋkik *bat*
Sim. muŋkoi, Sich. muŋkui, Ni. mugu, Ga. muŋkus, Ac. muŋkueh *kind of small fish*
Sim. aŋki̪x, Ni. ago, TBt., Mand. aŋgo, KBt. aŋgəh *to smell, kiss*
Sim., Sich., Ni. dalu-dalu, Ga. dədalu *kind of plant*
Sim. ima mali(x), Sich. imamali, Ni. mali-mali, Mal. mamali *kind of tree*
Sim. saiŋ, Ni. sai, Min. saieŋ *fang*, Angk. saiŋ *tooth of a horse*
Sim. abaŋ, Ni. mu-hombo, TBt. habaŋ, Lamp. humabaŋ *to fly*
Sim. oleŋ, Ni. hole-hole, Min. oleŋ *sloping*
Sim. dan, ran, Ni. a-ra, TBt., Mand. dan *duration, long*
Sim. tafa, Ni. taba, TBt., Angk. taba, KBt. tabah *to cut, root out*
Sim. alafae, Ni. alawe, Lamp. kalabay, MMl. kəlaway *female (animal)*
Sim. pato, Ni. fato, Angk. pato *hatchet*
Sim. tidao *pray for*, Ni. sindro-a *idol*, Ga. tiro *to ask for*
Ni. f-al-ea, TBt. p-eak *to lie down*
Ni. tuo, TBt. tura-tura *to sting*
Ni. bexu, TBt. begu *spirit*
Ni. belu, TBt. sidaŋ belu *name of a spirit*
Ni. fa-biko, TBt. pa-biha *to open*
Ni. duru-duru, TBt. dolo *kind of shrub*

Sim. təpi(x) *piece*, Sich. a-təpi *a little*, Ni. a-tɨfi *broken off*, En. e-kopi *piece*
Sim. tɨfa, Ni. töva *basket made of pandanus leaves*
Sim. ariŋ, Ga., Ac. areŋ *barb on a spear*
Sim. riri, TBt., Angk. didi, KBt. ridi, Ga. niri *to bathe*
Sim. baiŋ, KBt. bahiŋ, Ga. böiŋ *ginger*
Sim. baluŋ, faluŋ, Sich. mbaluŋ, TBt. sibaruŋ *heron*
Sim., Sich. bantae, Min. bantai *flesh, meat*
Sim. bereŋan, Sich. beleŋan, Ac. briŋan *yard on a sailing boat*
Sim. kaol, xaol, haol, TBt., Angk. gaol *banana*
Sim. gəməto, Ga. gəməto, Ac. gömöto *wasp*
Sim. hunsaʔ, xunxaʔ, KBt. kunsa, Ga. kunsö, Ac. gunsa *dry measure*
Sim. lagaŋ, Sich. ilaxaŋ, Angk., Ac. lagaŋ *kind of tree*
Sim. abui, Min. abuih *to cook in water*
Sim. boruŋ, Sich. oluŋ, Ac. burōŋ *demon, spirit of a dead person*
Sim. anaʔ, Sich. g-anaʔ, Ga. anas *prepared betel*
Sim., Angk. nali, KBt., Ga. nalih, Ac. naleh *rice measure*
Sim. saeam bano, Ga. sayam, Angk. sayom, TBt. saem *to bring back to harmony*
Sim. dabɨs, Ga. döbös, Ac. daböeh *ware, article*

4.5 Semantic innovations shared among the six languages under investigation

Further evidence for our subgrouping hypothesis is found in the following lists of semantic innovations which appear to be exclusively shared.

List 1: Semantic innovations shared by Barrier island languages

Sich. falɨ, Ni. balɨ, Me. bale *to borrow* (< *bales *to repay*)
Sim. bano, En. e-pado *placenta* (< *banua *land, settlement*)

List 2: Semantic innovations shared by Barrier island languages and Toba-Batak (or other Sumatran languages)

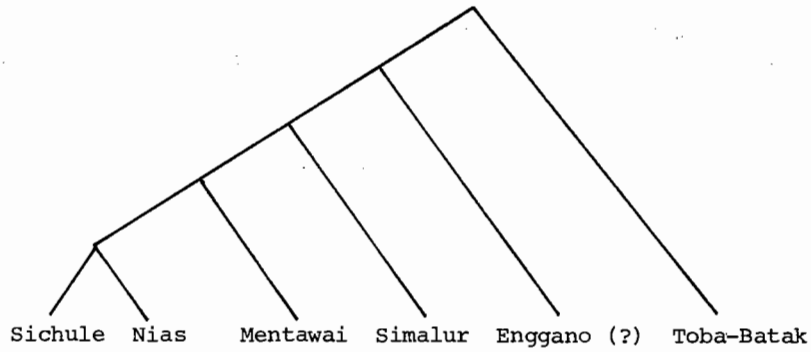
Me. ulou, TBt. ulok *snake* (< *qulej *worm, maggot*)
Me. tuktuk, TBt., KBt. t-ar-utuŋ *Durian* (< *tu(ŋ)tuŋ *spinous animal*)
Me. paola, poula, TBt., KBt., DaP., Ga. pola *sugarpalm* (P-Minahassa *pola *sugarcane*)

4.6 Phonological irregularity and semantic innovation shared by Barrier island languages and Toba-Batak (and/or other Sumatran languages)

Sim. ləkao *dry season*, Sich. lɨxɨ *heat which follows rain*, Ni. lɨxɨ *clear (of weather)*, Me. ma-legeu *warm, dry (of weather)*, TBt., Angk. logo, KBt. ləgo *dry (of weather)* (< *qalejaw *day*)

4.7 Internal relationships of the Barrier island-Batak group

Considering the number of phonological innovations exclusively shared among members of the Barrier island-Batak group one might suggest the following tentative internal subgrouping:



NOTES

1. This is a slightly revised version of a paper presented at the Fourth International Conference on Austronesian Linguistics at Suva in 1984. I thankfully acknowledge the helpful comments of Robert A. Blust, David Zorc and S. Adelaar.

2. Abbreviations used in the body of the paper: Ac. = Achinese, Angk. = Angkola-Batak, DaP. = Dairi Pakpak, Dou. = Douru, En. = Enggano, Ga. = Gayo, KBt. = Karo-Batak, Lamp. = Lampung, Mand. = Mandailing, Min. = Minangkabau, Me. = Mentawai, MMl. = Middle Malay, Ni. = Nias, Sich. = Sichule, Sim. = Simalur, TBt. = Toba-Batak.

3. The linguistic evidence for metal, rice and weaving is discussed in Blust 1976.

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