

PROTO MICRONESIAN TERMS FOR THE PHYSICAL ENVIRONMENT

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1. INTRODUCTION¹

The aim of this paper is to reconstruct Proto (Nuclear) Micronesian (PMC) terminologies concerning the physical environment and compare them to Proto Central Pacific (PCP) and Proto Cristobal-Malaitan (PCM). Proto Oceanic (POC) and Proto Austronesian (PAN) reconstructions are mentioned to the extent that they suggest origins for etymologies observed in Nuclear Micronesian (MC), Central Pacific (CP) and Cristobal-Malaitan (CM). But I do not argue their justifications in the way that I do for PMC, PCP and PCM reconstructions. The POC and PAN reconstructions cited here are from other works and are for general reference.

The PMC, PCP and PCM reconstructions were made or accepted from other works on the basis of the subgroupings given in the figure. The MC subgrouping is from Jackson (1983). The CM subgrouping is from Levy (1980). The CP subgrouping is from no particular source but is meant to show the criteria employed in the present work for reconstruction of a PCP form. Neither the internal subgrouping of MC nor Cristobal-Malaitan are well established. Conclusions are not drawn that depend on the validity of these internal subgroupings but etymologies internal to MC are labelled according to Jackson's groups. Evidence is not cited for PCP and PCM reconstructions given here but they were made according to standard comparative criteria: an internal form with an external cognate or internal cognates between two first order subgroups.

The theory of MC phonology follows Bender et al. (1990), Bender and Wang (1985), Jackson (1983, 1986), and Marck (1975, 1977). Four languages were considered in the reconstruction of PCM using the standard sources: 'Are'are, Arosi, Kwaio and Lau. Levy's (1979, 1980) sound correspondences were employed.

2. ORTHOGRAPHIES, ABBREVIATIONS AND SOURCES

The development of orthographies for the MC languages and PMC are discussed in the introductions to the individual language dictionaries, in Bender (1971), Jackson (1983,

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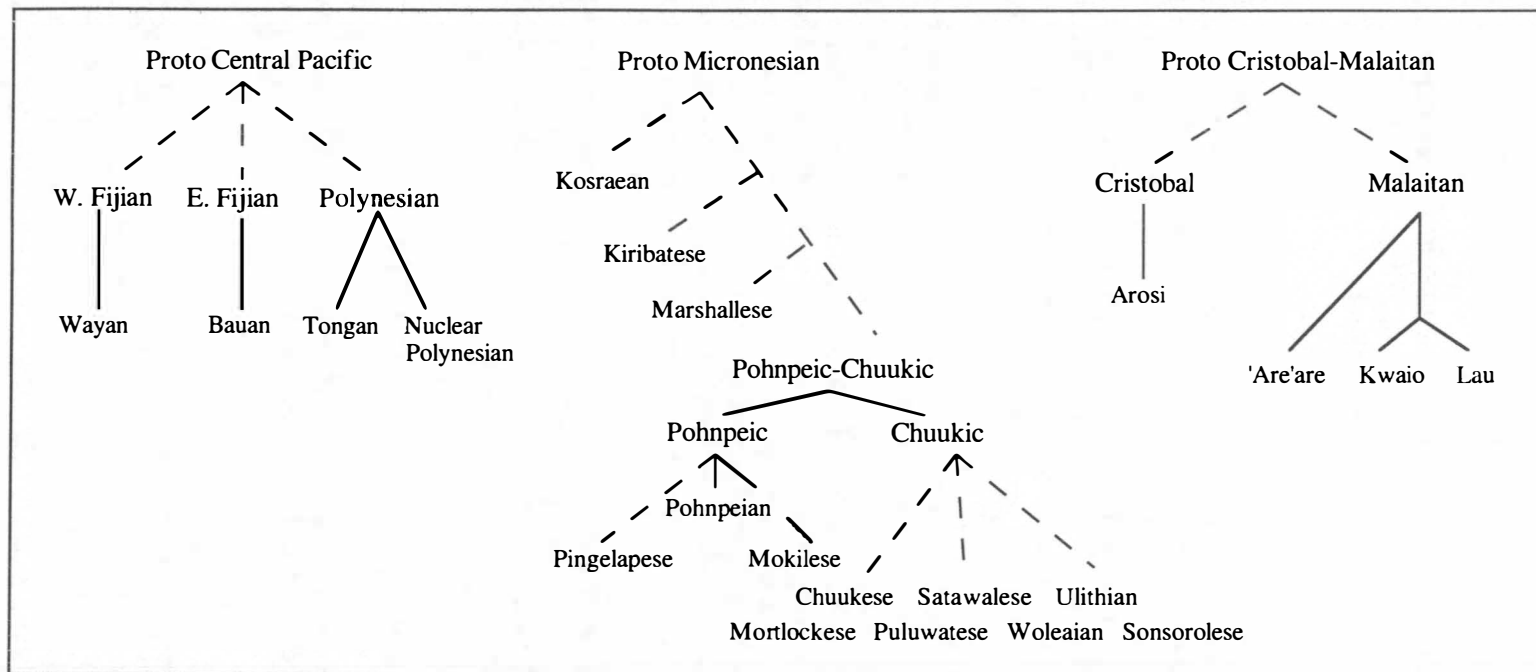


FIGURE: PRESUMED RELATIONS

1986) and Bender and Wang (1985). The organisation of the major PMC source (Bender et al. 1990) is described by Bender and Wang (1985). I shall abbreviate the 1990 work as PMC-B. Sound correspondences of living languages to PMC as reconstructed in PMC-B are reviewed thoroughly in Jackson (1983, 1986). Jackson's correspondences are employed here along with the orthography of those works, with three exceptions.

The first is the representation of final **-u* in PMC. Bender et al. (1990) was assembled at a time when we observed centralised or fronted reflexes of PMC **-u* in most living languages unless preceded by a back consonant or semivowel. This was considered an allophonic phenomenon in PMC at that point but words were reconstructed to PMC with **-u* where living languages showed evidence of a back vowel being maintained and **ú* where living languages showed consistent evidence of centralising. Since that time I have shown (Marck 1991) that Kosraean does not reflect this centralising behaviour. Though the final vowel is lost, it usually shows evidence of being back before disappearing. The centralising phenomenon should now be attributed to Proto Central Micronesian (all MC languages other than Kosraean) but should not be reconstructed for PMC.

The second exception involves my representation of apicals, which differs in two respects from Jackson (1983, 1986). For the correspondences involving the retroflexed stops, affricates and fricatives I employ **t'* rather than **c* for Proto Chuukic (PPCK) and for the correspondences involving PMC-B **s* and the *t* of living Chuukic languages I use PMC and PCK **s* rather than Jackson's **d*. MC orthographies, in general, are not easy to internalise and I believe the use of **t'* and **s* for both PMC and PPCK will better facilitate use of our materials.

The third difference here is my use of **z* rather than **s'* for the PMC correspondence resembling **s* reflexes but showing loss in Kosraean. Jackson (1983) also uses this convention but it was not incorporated into PMC-B.

Orthographies for the living languages are often modified from standard use in PMC-B. The Kiribatese orthography is rather transparent but most of the rest deserve some comment.

For Marshallese, PMC-B employs Bender's (1968) phonemic orthography. While very abstract, it is also very regular historically, something which is not true of the orthography which has developed in the history of Marshallese literacy and under which the entries of the dictionary are organised. The following special characters are employed for the Marshallese consonants here and in PMC-B:

- ' dark consonantal variants
- " round consonantal variants

The vowels of Marshallese in Bender's (1968) phonemic analysis are represented orthographically in the present work as:

- i* high
- é higher mid
- e lower mid
- a low

The phonological interpretation of Kosraean is problematic (Lee & Wang 1984). Phonetically there are such odd phenomena as the rounding or velarisation of many consonants before front mid vowels. These are represented in various ways

orthographically. The reader should consult the Kosraean dictionary and grammar (Lee 1975, 1976). For reference purposes, the orthography of the vowels is given here:

	Front	Central	Back
High	<i>i</i>	<i>ih</i>	<i>u</i>
Upper Mid	<i>e</i>	<i>uc</i>	<i>o</i>
Lower Mid	<i>ac</i>	<i>uh</i>	<i>oh</i>
Low	<i>ah</i>	<i>a</i>	<i>oa</i>

The representation of Pohnpeic vowels is as follows. The standard orthographies employ 'h' to mark length but comparative practice (PMC-B) has been to repeat the base vowel and omit the 'h'.

	Front	Central	Back
High	<i>i</i>		<i>u</i>
Mid	<i>e</i>		<i>o</i>
Low	<i>ae</i>	<i>a</i>	<i>oa</i>

We should also note that Pohnpeian orthographic *t* is the retroflexed affricate while orthographic *d* is the plain stop. Additionally, -w is commonly written as -u in the Pohnpeian orthography. The actual phoneme involved is employed in the present materials to the extent that Rehag has clarified their status in his contributions to PMC-B.

The representation of Chuukic vowels in PMC-B and this work differs only slightly from that of the standard orthographies. The difference is the representation of Woleaian orthographic 'oa' as 'ó', 'eo' as 'é' and 'iu' as 'ú' to correspond to Chuukic orthographies to the east:

	Front	Central	Back
High	<i>i</i>	<i>ú</i>	<i>u</i>
Mid	<i>e</i>	<i>é</i>	<i>o</i>
Front	<i>á</i>	<i>a</i>	<i>ó</i>

There is also a small difference in the representation of Puluwatese 'r' sounds between Elbert (1972) and PMC-B. Elbert represents the retroflexed liquid (much like American English) with orthographic 'r' and the trill with a diacritic above the 'r'. PMC-B adopted plain 'r' for the trill and 'rh' for the liquid, in keeping with usages that have developed for Satawalese and Saipan Carolinian.

Orthographies for the other study languages and protolanguages are as found in the sources except for POC which has been standardised to Ross's (1988) orthography. Also, I use *f for PCM where Levy (1980) uses *v.

The orthography for Proto Central Pacific is that of Geraghty (1986) and that for Proto Polynesian from Biggs (n.d.).

ABBREVIATIONS AND SOURCES:

Subgroups:

AN	Austronesian
CM	Cristobal-Malaitan
CP	Central Pacific

MC	Nuclear Micronesian
PN	Polynesian
OC	Oceanic

Protolanguages:

PAN	Proto Austronesian (Wurm & Wilson (1975); PMC-B; POLLEX)
PCK	Proto Chuukic (All MC reconstructions are from Bender et al. (1990) except for a few from the present work.)
PCM	Proto Cristobal-Malaitan (from the present work employing Levy's (1979, 1980) orthography and sound correspondences)
PCMC	Proto Central (Nuclear) Micronesian
PCP	Proto Central Pacific (mostly from the present work employing Geraghty's (1986) orthography and sound correspondences)
PEMP	Proto Eastern Malayo-Polynesian (POLLEX)
PEO	Proto Eastern Oceanic (POLLEX)
PFJ	Proto Fijian (Geraghty 1986)
PMC	Proto (Nuclear) Micronesian
PMP	Proto Malayo-Polynesian (POLLEX)
POC	Proto Oceanic (Ross, pers.comm.: Ross's (1988) orthography is employed.)
PPCK	Proto Pohnpeic-Chuukic
PPN	Proto Polynesian (All PN reconstructions are from Biggs's (n.d.) POLLEX except for a few from the present work noted: '(J.M.)'.)
PNP	Proto Nuclear Polynesian
PSS	Proto South-East Solomonian (PMC-B; POLLEX)
PWMC	Proto Western (Nuclear) Micronesian

Source Abbreviations:

PMC-B	Proto Micronesian word list (Bender et al. 1990)
POLLEX	Proto Polynesian word list (Biggs n.d.)

Living Languages:

ARE	'Are'are (Geerts 1970)
ARO	Arosi (Fox 1970, 1978)
BAU	Bauan Fijian (Capell 1973)
CHK	Chuukese (Trukese)(PMC-B; Goodenough & Sugita 1980)
CRL	Saipan Carolinian, Elle dialect (PMC-B; Jackson & Marck 1991; author's notes)
FIJ	Fijian of unspecified dialect (POLLEX; PMC-B)
KIR	Kiribatese (Gilbertese)(PMC-B; Bingham 1908; Eastman 1948)
KSR	Kosraean (Kusaiean)(PMC-B; Lee 1976)
KWA	Kwaio (Keesing 1975)
LAU	Lauan (Fox 1974)
MAO	Maori (POLLEX)
MOK	Mokilese (PMC-B; Harrison & Albert 1977)
MRS	Marshallese (PMC-B; Abo, Bender, Capelle & Debrum 1976)
MRT	Mortlockese (PMC-B)
NGK	Ngatik (PMC-B)
PLP	Pulap (PMC-B)

PNG	Pingelapese (PMC-B)
PON	Pohnpeian (PMC-B; Rehg & Sohl 1979)
PSK	Pulusuk (PMC-B)
PUA	Pulo Annese (PMC-B)
PUL	Puluwatese (PMC-B; Elbert 1972)
SAA	Sa'a (POLLEX; PMC-B)
SAM	Samoan (POLLEX)
SNS	Sonsorolese (PMC-B; Capell 1969)
STW	Satawalese (PMC-B)
TIK	Tikopian (POLLEX)
TON	Tongan (POLLEX)
ULI	Ulithian (PMC-B)
WAY	Wayan Fijian (Pawley & Sayaba, forthcoming)
WOL	Woleaian (PMC-B; Sohn & Tawerilmang 1976)

3. THE EVIDENCE

The lists at the head of each subsection give the highest level reconstruction possible within MC, give a general gloss for the MC reconstruction and relate the reconstruction to an early OC form if one is known. After each list is the body of evidence for the MC reconstructions accompanied by comparison to PCP and PCM. The lists are for reference purposes only and should not be taken as a substitute for examining the discussion of data for level of MC reconstruction, OC gloss or problems with the gloss for the MC reconstruction. These are all generalised in the lists.

3.1 SUN, SKY, EARTH AND SEA

POC or Post-POC	PMC or Post-PMC	MC Gloss
*qaco	*alo	sun
*nusa	*anu(s,z)a	small island
*panua	*fanua	land, island
*pituqun	*fituu	star
	*ira	light, flash
	*kat'awa	heaven, 'Hawaiki'
*lapit	*lapj	sky, heaven
*ma(d)rama(R)	*marama	moonlight; (perhaps) the moon itself
*sawa	*masawa	ocean (the place)
*boji	*p'oji	night
*raqani	*raani	day
*rodrom	*rot'o	dark, unilluminated, darkness of night
*sakaRu	*sakau	reef, shoal; reef island
*sinaR	*(s,z)ina	light, shine
*tasik	*tazi	the sea, waters of the sea
*taqu(n)	*ta(w)u	sun, year, season
*dranum	*t'anu	fresh water

***alo** 'sun' (PMC): MRS *hal'*, PCK **alo*: MRT *yóól*, PUL *yóól*, CHK *óno-*, STW, CRL *-ólo-*, WOL *yalo*, ULI *yal*, PUA *yaano*, SNS *yaaro* 'sun'. PAN **qajaw*, **a(n)daw*, **qanjaw*, **a(n)daSaw* and **qan(j)Saw* 'sun' > POC **qaco* 'sun' > PCM **qalo* 'sky', PCP **qazo* 'sun'

Ross (1988:281, 340) reconstructs POC **qaco* 'sun' on the basis of non-Oceanic and Admiralty Islands reflexes. PMC and PCM share an irregular reflex of POC **c* in this form, supporting Blust's (1984b) suggestion of a subgroup.

***anu(s,z)a** 'small island' (PMC): PCK **anusa* 'small, probably uninhabited island': STW *alút*, WOL *alúta* 'small uninhabited island'; PAN **nusa* 'island' > POC **nusa* 'small off-shore island' > PCM **anuta* 'place name for small islands', PCP **anuca* 'n. of island'

***fanua** 'land, island' (PMC): KIR *ann* 'dry land (opposite of sea), used in north only', MRS *yanéy* 'islet, island, land, landward', KSR *acn* 'land, place, site, shelter', PCK **fanua* 'land, island': MRT *fanúw'a-* 'island', CHK *fénúwa-* 'inhabited island', PUL *fanúwa-* 'island', CRL *falúwa-*, WOL *falúwa*, ULI *faluy* 'land, island', PUA *danúa* 'land', SNS *farúya* 'island'; PAN **banua* 'land, island' > POC **panua* 'inhabited island' > PCM **fanua* 'land', PCP **vanua* 'earth, land, island, country'

***fituu** 'star' (PMC): KIR *itoi*, MRS *yijiw*, KSR *itih*, *itu*, PON *usu*, PNG *usu*, MOK *uju*, PCK **fitúú*: MRT *fúú*, CHK *fúú*, PUL *fúú*, STW *fúú*, CRL *fúú*, WOL *fúsúú*, *fúús*, ULI *fīs*, PUA *didi*, SNS *fidi* 'star'; PAN **bituqen* > POC **pituqun* 'star': PCM **f(i,e)qu(u)* 'star', PCP **f(i,e)tuqu* 'star'

***ira** 'light, flash, lightning' (PCMC): KIR *iro* 'ignite, flash', MRS *wir(wir)* 'flame, flash, burning, blaze, lighted', PCK **ora* 'light, flash of light': CHK *wore(y)* 'put a light on, shine a light on', PUL *wora(ar)* 'light', CRL *were(wer)* 'lightning', WOL *were(were)* 'lightning, shine, light, flash', *were* 'light, firelight, gleam, flash'

The retention of PMC **r* in Kiribatese is irregular as is the raising and backing of its final vowel. The rounding of the initial vowel in Marshallese is irregular and we would expect the high vowel to have lowered. The rounding of the initial vowel in PCK is irregular. On the whole, this preliminary PMC-B reconstruction looks as if it has been made to accommodate irregular internal correspondences as well as irregular correspondences to external evidence. PMC-B speculatively relates the form to PAN **sinaR* > POC **sinaR* 'light, shine' but there is an obvious PMC reflex in PMC **(s,z)ina* 'light, shine'. (See MC **(s,z)ina* 'light, shine' in the current list.)

***kat'awa** 'heaven, 'Hawaiki'' (PMC): KIR *karawa* 'heaven, the blue sky; the skies', KSR *kasra* 'queen', *kuhsra* 'place name', *kuhsrao* 'heaven', *toh-kosrah* 'king of Kosrae', PON *kataw* 'mythical place name', PCK **kat'awa* 'mythical place name; basalt': CHK *achaw* 'mythical place name; basalt', PUL *yaraw* 'volcanic rock', CRL *aschaw* 'basaltic rock', WOL *gashawashawa* 'big flat rock at seaside'

Goodenough (1986) has discussed this set of lexical agreements and details of the semantic notion extensively and I will not do so here. I want, however, to point out that: (1) KSR *kuhsra* 'place name' seems the most regular of the possible reflexes of PMC **kat'awa* by comparison to PMC **tarawa* > KSR *tuhla* 'barracuda'; (2) The form apparently came to refer to rock, and probably basaltic rock, in PCK, a point not emphasised by Goodenough; and (3) The reconstruction forms a minimal pair with PMC **kat'awu* 'cloud' < POC **ka(d)rapuR* 'rain, cloud'. Trisyllabic cognates from CP and CM were not encountered although Goodenough (1986) suggests a possible relationship to a disyllabic Fijian form.

***laŋi** 'sky, heaven' (PMC): KIR *naŋ* 'cloud', KSR *luŋ* 'sky, heaven', MRS *lag* 'sky, weather, heaven', *l'ag* 'storm', PNG *laeŋ*, MOK *loaŋ* 'sky', PON *laaŋ* 'sky, heaven', PCK ***laŋi** 'sky, heaven': MRT *lááŋ*, CHK *nááŋ* 'sky, heaven', PUL *lááŋ* 'sky', STW *lááŋ*, CRL *lááŋ* 'sky, heaven', WOL *laŋi* '1. sky, 2. typhoon, rainstorm, wind', ULI *lǎŋ*, PUA *naaŋi* 'sky', SNS *raaŋi* 'sky, heaven'. PAN ***laŋi(t)** 'sky, heaven' > POC ***laŋit** 'sky' > PCM ***laŋi** 'high, up, above', PCP ***laŋi** 'sky'

***marama** 'moonlight, or perhaps the moon itself' (PMC): KIR *maama* 'moonlight', MRS *meram* 'bright, light, flash, glow, illuminate', KSR *mahlwem* 'moon, month', PNG *maeram*, MOK *maram*, PON *maram* 'moon', PCK ***marama** 'moon, month': MRT *maram* 'moon', CHK *maram*, PUL *maram* 'moon, month', STW *meram*, CRL *maram*, *meram*, WOL *marama*, ULI *maram*, SNS *malama* 'moon', PUA *malama* 'moon, month'; PAN ***damaR** 'light' > POC ***marama(R)** 'be light, shining, bright' > PCM ***madama** 'moon', PPN ***malama** 'moon, month'

More common are reflexes of POC ***pulan** 'moon': PCM ***fula** 'moon', PFJ ***vula** 'moon' a form which is not currently known in MC.

***mazawa** 'ocean (the place)' (PMC): KSR *meoha*, KIR *marawa*, MRS *metew*, PON *madaw*, PNG *maedaw*, MOK *madaw*, PCK ***masawa**: CHK *mataw*, PUL *metaw*, STW *metaw*, CRL *metaw*, WOL *matawa*, ULI *madaw*, PUA *matawa* 'id.'; PCM ***matawa** 'open sea'

This is one of the forms that Blust (1984b:109-111) puts forward as an innovation of the weakly defined Malaitan-Micronesian group. POC ***masawa** was once proposed by Grace (1969) but Blust notes that the evidence internal to OC was limited to MC languages. Forms based on ***sawa** are common in AN languages with meanings having to do with space and channels (Pawley, pers.comm.), a matter known to Grace and Blust. ***Ma-** is a common prefix through all of OC. Thus the MC word continues an old AN form and has added a common OC prefix, something which CM languages have also done.

***p'oŋi** 'night' (PMC): KIR *boŋ*, MRS *bég*, KSR *foŋ*, PNG *pwoŋ*, MOK *pwoŋ*, PON *pwoŋ*, PCK ***p'oŋi**: MRT *pwoŋ*, CHK *pwoŋu-*, *pwini-*, PUL *pwoŋi-*, STW *pwoŋ*, *pwoŋi-*, CRL *bwoŋ*, *bwōŋi-*, WOL *boŋi*, ULI *bogu-*, PUA *pwoŋi*, SNS *pwoŋi* 'id.'; PAN ***beŋi** > POC ***boŋi** 'night' > PCM ***boŋi**, PCP ***bogi** 'night'

***raani** 'day' (PMC): MRS *rahan*, KSR *lwen*, PNG *raan*, MOK *reen*, PON *raan*, PCK ***raani**: MRT *ráán*, CHK *ráán*, PUL *ráán*, STW *ráán*, CRL *ráán*, WOL *raali*, ULI *rááli-*, PUA *laani*, SNS *laari* 'day'; PAN ***daqaNi** > POC ***raqani** 'daytime' > PCM ***dani**, *daŋi*

***rot'o** 'dark, unilluminated, darkness, darkness of night' (PMC): KIR *ro(ro)* 'black, dark color', MRS *(ma)req* 'dark (*r* and *d* do not co-occur)' (i.e. ***t'** > *q* because of a morpheme structure rule), KSR *lohsr*, PNG *roas*, MOK *ros*, PON *rot*, PCK ***rot'o**: MRT *rosh*, CHK *roch*, PUL *roorh*, STW *rorh*, CRL *rosch*, WOL *rosho*, ULI *roco-*, PUA *loso* 'dark'; PAN ***DeDem** > POC ***rodrom** > PCM ***rodo** 'dark(ness), night'

***sakau** 'reef, shoal, reef island' (PMC): KIR *rakai* 'coral shoal in a lagoon, reef', MRS *tekey*, *teked* 'strip of reef; long reef between two islets', KSR *tuhka* 'island, atoll', PNG *daekae* 'island', MOK *doakoa* 'atoll, small island, islet', PON *deke* 'small island', PCK ***sakaú** 'uninhabited low island, small island': MRT *tée* 'uninhabited low island', CHK *tée* 'uninhabited low island with vegetation', PUL *tée* 'uninhabited reef island', STW *tée* 'uninhabited low island', CRL *tée* 'group of islands', WOL *tée* 'any outer island', ULI

dógóó 'long reef', PUA *takaú* 'group of islands, archipelago'; POC **sakaRu* 'reef' > PCM **ta'alu* 'shoal, shallow reef area', PCP **cakau* 'coral reef'

(See also MC **t'akau* 'rock, stone, reef' in section 3.5.)

**(s,z)ina* 'light, shine' (PMC): KIR *-ina*: *ma-ina-ina* 'white', *ga-ina* 'daytime', MRS *jén* 'start a fire', PCK **sina* 'shine, light': MRT *tin*, *tina-* 'shine: used for fire, moon, lantern', *(t)tinn* 'shine, ray, brightness, beam', PUL *tin* 'shine, as the sun', STW *(t)tin* 'shine, ray, brightness, beam'; PAN **sinaR* 'ray of light' > POC **sinaR* 'shine' > PCM **sina* 'sun; to shine, give light', PCP **cina* 'illuminate, fish by torchlight'

Kiribatese is irregular in the loss of PMC **s* which usually > KIR *r*. The regular PMC > MRS is **(s,z)* > *t* and the form is somewhat distant semantically.

**tazi* 'the sea; waters of the sea' (PMC): KIR *taari* 'sea, salt water', MRS *(law)jét* 'ocean, sea', KSR *(kihfi)hn-te* 'salt water', PNG *sed* 'sea', MOK *jed* 'sea water, salt', PON *seed* 'ocean, sea', PCK **tasi* 'sea water, sea': MRT *sáát*, CHK *sáát* 'salt water, sea', PUL *háát*, STW *sáát* 'sea', CRL *sáát* 'salt water, sea', WOL *tati* 'sea, ocean, sea water', *sati* 'id. (archaic)', ULI *táád* 'sea, ocean, water', PUA *taati* 'sea', SNS *taati* 'salt water, sea water; tide'; PAN **tasik* 'salt water' > POC **tasik* 'sea, sea water' > PCM **asi*, PCP **taci* 'sea, seawater'

**ta(w)u* 'sun, year, season' (PMC): KIR *tai* 'time, season, harvest', *taai* 'the sun', MRS *jew* 'interim period between stormy seasons, usually a calm spell', PNG *saeu*, MOK *joau* 'sun', PON *sou* '(archaic) sun', PCK **taú*, **tawu-* 'sun, season, year': MRT *séé* 'season, dusk', CHK *séé-* 'year, season (in compounds)', *sowu-* 'time, season (in compounds)', *séé* 'sunset glow, rosy clouds in west just after sunset', STW *séé* 'sunset', WOL *taú(wata)* 'daylight, day, sun'; PAN **taqun* > POC **taqu(n)* 'season' > PCP **ta'u* 'year, season'

The MC correspondences often have more to do with a season or time of year than the sun, specifically. (See MC **a(w)u* 'air, climate, season' in section 3.2 and MC **alo* 'sun' in this section; see MC **a(w)u* 'air, season' in section 3.2 for discussion of PCM **au* 'southeast tradewind season' which may be cognate with the present form.)

**t'anu* 'fresh water, non-saline flowing liquids in general' (PMC): KIR *ran* 'fresh water, sap, juice, liquid, milk, water', MRS *dan*, *danni-* 'water, liquid, beverage, fluid, juice, sap of coconut tree', KSR *sroano* 'juice, sperm, bath water, liquid', PON *ten* 'viscous, thick, colloidal, congealed', PCK **t'anú* 'fresh water, liquid': MRT *shaan* 'water', CHK *chaan*, *chénú-* 'liquid, juice; fresh water', PUL *rhaan*, STW *rhaan*, *rhanú-*, CRL *schaal*, *shalú-* 'water', WOL *shalú*, ULI *cáál* 'liquid, water', PUA *saarú*, SNS *saarú* 'fresh water'; PAN **(d,D)anum* 'water' > POC **dranum* 'fresh water' > PCM **danu* 'draw water, bail', PCP **dranu* 'fresh water'

3.2 WEATHER AND SEASONS

POC or Post-POC	PMC or Post-PMC	MC Gloss
<i>*a_{jin}</i>	<i>*a_{ji}</i>	wind, breeze, air
<i>*au</i>	<i>*a(w)u</i>	air, season
	<i>*auniari</i>	whirlwind, waterspout
	<i>*fa_{ji}</i>	dry season, winter

	<i>*iaa</i>	rainbow
<i>*ka(d)rapuR</i>	<i>*kat'awu</i>	cloud, rain
<i>*malua</i>	<i>*malua</i>	calm; calm, of the sea
	<i>*malumalu</i>	storm, typhoon
	<i>*m'arakii</i>	rainbow
<i>*paRaRa</i>	<i>*parara</i>	thunder
<i>*apaRat</i>	<i>*para(ta)</i>	tradewind
<i>*raki</i>	<i>*raki</i>	breadfruit season, season of plenty
<i>*taqu(n)</i>	<i>*tawu</i>	sun, year, season
<i>*qusan</i>	<i>*u(s,z)a</i>	rain

**aŋi* 'wind, breeze, air' (PMC): KIR *aŋ* 'wind, air, breeze, gas, breath, atmosphere, climate', MRS *hagi-* 'wind, breeze', KSR *eŋ* 'wind, fart', PNG *aɛŋ* 'wind, breeze', MOK *eŋ* 'air, breeze, wind', PON *aaŋ* 'wind, air', PCK **aŋi* 'wind, breeze, air': MRT *yááŋ* 'soft breeze', CHK *eni-* 'wind (in cpds)', PUL *yaaŋ* 'wind, air', STW, CRL *yááŋ*, WOL *yaaŋi*, ULI *yáŋ* 'wind, breeze, air', PUA, SNS *yaaŋi* 'wind'; PAN **aŋin* > POC **aŋin* > PCP **yagi* 'air, wind'

(See also MC **a(w)u* 'air, season', **para(ta)* 'wind, tradewind' in this section.)

**a(w)u* 'air, season' (PMC): KIR *au* 'season, position of sun n/s of equator', PCK **áu* 'air, atmosphere': STW *yaú(chán)*, WOL *yaú* 'air, atmosphere'

This is a possible reflex of POC **taqu(n)* 'season' but this would involve irregular loss of the initial consonant in PMC. A possible cognate from PCM with no irregularities is seen in PCM **au* 'southeast tradewind season'. Since PCM lost PSS **t* the comparison is ambiguous and PCM **au* could come either from a POC **taqu-* or **aqu-*. (See MC **ta(w)u* 'sun, year, season' in section 3.1.)

**auniari* 'whirlwind, waterspout' (PPCK): PON *einia* 'whirlwind', PCK **aúniari* 'whirlwind, waterspout, tornado, rainbow', MRT *awúniyar* 'whirlwind, tornado, rainbow', CHK *éwúniyár* 'whirlwind, waterspout, tornado', PUL *(ná)áwúniyer* 'waterspout', STW *(na)awúliyár*, CRL *(l)ayúliyár* 'tornado', WOL *(l)áuúliyara* 'rainbow', ULI *(l)olyor* 'rainbow'

This may be analysable as **au-ni-ari* 'atmosphere-of-?' where **-ari* had some as yet unreconstructed meaning along the lines of 'troublesome, fearful' or whatever. The form is not yet known outside MC and is reconstructable only to PPCK within MC.

**faŋi* 'dry season, winter' (PVMC): MRS *(hagen)yag* 'wintertime, windy season, dry season ('wind from the north')', PCK **efaŋi* 'dry season, winter': MRT *(le)eféŋ* 'dry season', PUL *(le)efáŋ* '(in) season with few breadfruit', STW *(le)efáŋ* 'fall season, northern tradewind season', CRL *(le)efáŋ* 'winter, northeast tradewind season', WOL *yefaŋi* 'winter, season with few or no breadfruit'

Given the differences in compounding, we might suspect that the usage developed independently in Marshallese and Chuukic from PMC **faŋi* 'north'. External cognates have not been identified. (See MC **faŋi* 'north' in section 3.8.)

**iaa* 'rainbow' (PVMC): MRS *jiyah* 'rainbow (W. dialect)', PON *aaia*, *iaaia* 'rainbow'

This is a good match but a very limited distribution. No external cognates are known at this writing. (See MC **m'arakii* 'rainbow' in this section.)

***kat'awu** 'cloud, rain' (PMC): KIR *karau* 'rain', MRS *kedaw* 'cloud, overcast', KSR *kuhsrao* 'sky, heaven', PNG *kaesaew* 'rain, to rain', MOK *koasoaw* 'cloud', PON *ketew* 'rain, to rain', PCK ***kot'owu** 'cloud': MRT *woshow*, CHK *kuchuu*-, SNS *gosowu* 'cloud', PUL *worhow* 'white cloud', STW *worhow* 'rain cloud', CRL *oschow*, WOL *goshou* 'rain'; POC ***ka(d)rapuR** 'rain'

(See ***kat'awa** 'heaven' in section 3.1 with which it formed a minimal pair.)

***malua** 'calm; calm (of the sea)' (PMC): PNG *malun* 'calm, cloudiness', MOK *molun*, PON *malun* 'calm (of the sea)', PCK ***malúa** 'calm (of the sea)': MRT *maléw*-, CHK *ménú*-, *núwa*, STW *malú*-, CRL *malú* 'calm (of the sea)', MRT (*m*)*malú* 'tired (of people)', WOL *malúwa* 'loose (as an untied rope)', PUA *núa* 'calm (of water)'

The final consonants of Pohnpeic are unaccounted for. I would suggest a possible POC or PEO ***malua** 'calm, soft, gentle, slow, quiet' on the basis of MC correspondences to: PCM ***maaluu** 'soft, gentle, flexible' and PCP ***malua** 'gently, slowly, quietly'. The word is similar to words for 'shade'. (See PMC ***luru** 'shade' in Section 3.9.)

***malumalu** 'wind, storm, typhoon' (PMC): PNG *melimeli* 'typhoon', MOK *melmel* 'storm, typhoon', PON *melimel* 'windstorm, typhoon', PCK ***malúmalú** 'storm, typhoon': MRT *melúmel*-, WOL *malúmalú*-, ULI *malémalé* 'storm, typhoon', CHK *ménúmén*-, PUL *málemál* 'storm', STW *málimal* 'typhoon', CRL *málimál*-, *malúmal*-, ULI *malémalé* 'typhoon, storm'

Ross (pers.comm.) relates this to a word around New Ireland reconstructable as ***malu** 'wind'.

***m'arakii** 'rainbow' (PCK): MRT (*anún*)*mwarase*-, CHK *mwárisi*-, PUL (*yanú*)*mwarehiy* 'rainbow', STW *mwáresi* 'rainbow ('older people')'. ***rakiimi** 'rainbow' (PCK): MRT *rásiim*-, CHK *resiim*-, CRL *rásiim* 'rainbow', STW *resiim* 'rainbow ('younger people')'

This doublet is known from eastern Chuukic languages only (see MC ***iaa** 'rainbow' in this section). Given how little we sometimes know about the historical dynamics of Kosraean, it is not impossible that the *-lahkwem* and *-nwekwem* form in the Kosraean doublet (*Iwelahkwem*, *nenwekwem* 'rainbow') derives from ***rakimii** and is somehow related to the Chuukic form.

parara** 'thunder' (PMC): KIR *baa*-, KSR *puhlahl*-, MOK *palar*-, PCK ***parara**: CHK *paach*-, PUL *pacc*-, STW (*p*)*pacc*-, CRL *pacc*-, WOL *pacca*-, ULI *parr*-, SNS *pala*-, PUA *paala* 'id.' (parara** in PMC apparently > ***parra** in PCK and then ***pacca** in most of the living languages where ***-rr-** is not generally tolerated); POC ***paRaRa** 'thunder'

***para(ta)** 'tradewind' (PMC): PON (*nan*)*par* 'tradewind season', PCK ***parata** 'tradewind': MRT *paras* 'rain that comes in due to wind', WOL *parasa* 'tradewind', PUA *panada* 'be windy, blow'. PMP ***habarat** 'west wind' > POC ***qapaRat** 'monsoon, rain winds' > PCM ***aara** 'SE trades', PCP ***avaa** 'hurricane, storm'

If PCM is cognate it has lost POC ***p** which it did not regularly do (see MC ***ara** 'south' in section 3.8). Chuukic appears to show the addition of a vowel to the final POC consonant while Pohnpeian shows an uncomplicated regular (POC > PMC) loss of the POC final C and PMC final V (given ***para**). Neither Pohnpeian or Chuukic gives evidence of the initial POC syllable.

***raki** 'breadfruit season, season of plenty' (PMC): MRS *rak* 'south, summer', PNG *raek* 'breadfruit season', MOK *rók* 'breadfruit season', PON *raak* 'season of plenty, breadfruit season', *raki* 'winds (north or southwest)', PCK **raki* 'year, breadfruit season', MRT *ráák* 'year, season', CHK *ráás*, *resi-* 'breadfruit harvest season', PUL *ráák* 'principal breadfruit season', STW *ráák* 'year', (*nee*)*rák* 'summer, calm season, breadfruit season', CRL *ráágh* 'year', (*lee*)*rágh* 'breadfruit season', WOL *ragi-* 'year, summer season', ULI *ragi-* 'year, age, summer season'; POC **raki* 'seasonal wind' > PCP **draki* 'seasonal wind: westerly'

(See MC **ta(w)u* immediately below.)

***ta(w)u** 'sun, year, season' (PMC): see entry in section 3.1.

***u(s,z)a** 'rain' (PMC): KIR *uura* 'throw water onto by hand, sprinkle', MRS *wét* (Vi), *witey* (Vt) 'to rain (on)', MOK *wud* 'rain', PCK **usa*: MRT *úút*, *uta-*, CHK *wúút*, CRL *úút*, WOL *uta*, ULI *yuda*, PUA *úúta*, SNS *wúúta* 'rain'; PAN **quzan* 'rain' > POC **qusan* > PCM **uta*, PCP **uca* 'id.'

3.3 TIME OF DAY

POC or Post-POC	PMC or Post-PMC	MC Gloss
*Rapi	*faka-afi	evening
	*l(u,a)tuu	tomorrow
*malawa	*mala	dawn
*ñoRap	*nanao	yesterday
*boŋi	*p'oŋi	night
*raqani	*raani	day
	*tora	morning
	*-wata	noon (suffixed to 'sun')

***faka-afi** 'evening' (PMC): KSR *ekuh*, PCK **faka-afi*: MRT (*lee*)*fááf*, CHK *fááf* 'evening meal, main meal', PUL (*le*)*fáf* 'evening meal', STW *fáff*, CRL (*lee*)*fááf* 'in the evening', WOL *fegaafi* 'last night', PUA *dakadi*, SNS *fakafi* 'evening'

The second morpheme of the PMC reconstruction is widely known in OC and AN in general: PAN **Rabi* > POC **Rapi*: PCM **lafi* 'evening', PCP **(R)avi*.

***l(u,a)tuu** 'tomorrow' (PMC): MRS (*yi*)*ljiw*, KRS *lutu*, PCK **latuu*, CHK *néwú*, PUL *layú*, STW *naú*, CRL *laay*, WOL *laúú*, SNS (*wa*)*radi* 'tomorrow'

External cognates are not presently known. (See MC **tora* 'morning' in this section.)

***mala(wa)** 'dawn' (PMC): PCK **mala(wa)*, CHK (*m*)*man*, WOL *manna-* 'dawn', MRT (*m*)*mala(we)*, STW *man*, CRL *maal* 'dawn, sunrise', STW *man(nátá)* 'sunrise'

I would reconstruct POC or PEO **malawa* 'dawn' > PCM **malawa*, PCP **(mala)malawa* 'dawn'.

***nanao** 'yesterday' (PMC): KIR (*ŋkoa*)*nanao* 'yesterday', *nanao* 'the front, before', MRS (*yi*)*nney*, PCK **nanao*, MRT *nanaw*, CHK *nánew*, PUL *nánewú*, STW *nánew*, CRL *lalew*, WOL *lałowa*, ULI *lalow*, PUA *nanao* 'yesterday'; PAN **(ñ,n)eRab* > POC **ñoRap* 'before, formerly, yesterday' > PCM **nanola*, PCP **noa* 'yesterday'

The **na-* increment on the POC base is unique to CM and MC but the same increment seems to be present in PPN but applied to a different base: PPN **nanafi* 'yesterday'.

**p'ogji* 'night' (PMC): see discussion in section 3.1.

**raani* 'day' (PMC): see discussion in section 3.1.

**tora* 'morning' (PPCK): PON *sooraa(n)* 'pre-dawn hours (lit.: 'not day')', PCK **tora* 'morning', MRT *soor*, CHK *soor*, *sora-*, PUL *hora-*, STW (*yótó*)*sor*, CRL (*lee*)*sor*, WOL (*loo*)*sor* 'morning'

Depending upon external evidence that may develop we should perhaps assume that PCK reanalysed the PON type into a single morpheme and that the protoform was **tooraani*.

('sun'-)wata* 'noon' (PPCK): PNG (*sóu-*)*was*, MOK (*jau-*)*wata*, PON (*sou-*)*was*, PCK **(lee-alo-)wata*: CHK (*nee-yóno-*)*was*, PUL (*ley-ólo*) *wah*, STW (*lee-yólo-*)*was*, CRL (*lee-ólo-*)*was* 'noon', WOL (*tau-*)*wata* 'daylight'

Pohnpeic and Chuukic both have **-wata* suffixed to words meaning 'sun'.

3.4 MARINE, SUBMARINE AND COASTAL FEATURES

POC or Post-POC	PMC or Post-PMC	MC Gloss
<i>*laje</i>	<i>*laje</i>	coral
<i>*laur</i>	<i>*lau</i>	pool, pond
<i>*maca</i>	<i>*masa</i>	low tide; dry
<i>*namo</i>	<i>*nam'o</i>	lagoon, harbour
<i>*napo</i>	<i>*nao</i>	wave, surf
<i>*ŋalu</i>	<i>*ŋalu</i>	ocean wave, ocean swell, billow
<i>*po(d)ra</i>	<i>*ot'a</i>	coral reef
	<i>*pailaŋi</i>	horizon
	<i>*pasa</i>	tidal swamp
	<i>*pesepese</i>	shallow
<i>*bucoq</i>	<i>*p'usop'uso</i>	foam, froth
	<i>*p'ut(u,i)</i>	high tide
<i>*sakaRu</i>	<i>*sakau</i>	reef, shoal; reef island
<i>*sawa</i>	<i>*sawa</i>	channel, passage through reef

**laje* 'coral' (PMC): MRS *l'ay* 'gravel', KSR *lahs* 'k.o. coral'; POC **laje* 'branching coral' > PCM **lade* 'branching coral', PCP **laje* 'branching coral'

**lau* 'pool, pond' (PMC): KIR *nei* 'pond, pool, swamp, marsh', MRS *l"ey* 'pool', KSR (*in*)*luh(luh)* 'pond, shallow lagoon', MOK *le* 'bog, small taro patch', PON *lee* 'pool, lake', PCK **lau* 'pool, pond, puddle': MRT *léé(lé)* 'flooded area, flooded', CHK *néé* 'pond, pool, flooded place', *néénén* 'liquid contents of s.t.', PUL *lééle* 'to be full of liquid as a coconut or breast, liquid contents', STW *léé* 'pool, pond', CRL *lééle* 'all manner of standing water (puddles, pools, ponds, lakes), typically in reference to fresh water (n.); to be full of liquid contents (v.i.)', WOL *léé* 'dug-out well for bathing', ULI *loo* 'water storage'

Jackson (1983:380) suggests that the reconstructed meaning is a semantic innovation of PMC: "POC **lau* is reconstructed with the meaning 'open sea, seashore'. The PMC form for

the former of these meanings is **mazawa*'. Grace (1969) reconstructs **lau* 'open sea, seashore' while Ross (1988:276) reconstructs **laur* 'sea' for the form. The present reconstruction appears to be the PMC reflex of that form. It was replaced by **mazawa* for the 'ocean' meaning in PMC as Jackson observed and PCM as Blust (1984b:109-111) later observed. (See **mazawa* 'ocean' in section 3.1.)

***masa** 'low tide, dry' (PMC): KIR *mara* 'moistened, soaked, softened', MRS *mat(mat)* 'sponge, pad (Ralik)', KSR *mwes* 'low tide', PNG *mad* 'low tide, shallow', MOK *mad* 'portion of reef exposed at low tide', PON *mad* 'dry'; ***mamasa** 'low tide, dry' (PWMC): MRS *mmat* 'protrude from surface (water or land), emerge', PON *mmad* 'dry', PCK **mmas* 'low tide, dry': MRT *mmat*, CRL *mmat*, ULI *mmad* 'low tide, dry', CHK *mmat* 'low tide, be at low tide', PUL *mmat* 'to be low tide', WOL *mmata* 'low tide', PUA *mmata* 'be dry, shallow'; PAN **(ma)maja* 'dry up' > POC **(ma)maca* 'evaporate, dry up; low tide' > SAA *mamata* 'dry', PCP **maza* 'dry, empty (of liquid)'

***nam'o** 'lagoon, harbour' (PMC): KIR *namo* 'harbour', MRS *nam* 'secondary lagoon', KSR *nwem* 'deep area in lagoon', MOK *lam* 'lagoon', PON *naamw* 'lagoon, deep place inside barrier reef', PCK **nam'o* 'lagoon': MRT *nóómw*, CHK *nóómw*, PUL *nóómw*, STW *nóómw*, CRL *lóómw*, WOL *lamwo*, ULI *laamw* 'lagoon', PUA *namwo* 'lagoon, lake'

Mokilese is irregular in **n > l* and **m' > m*; PAN **namaw* 'sheltered water' > POC **namo* > PCM **namo*, PCP **namo* 'lagoon'.

***galu** 'ocean swell, billow': MRS *gél* 'ocean swell, mounting wave which does not break, billow', PNG (*pwuu*)*gal* 'deep sea, where the ocean is blue', MOK *galgal* 'low tide'; POC **galu* 'ocean wave': PCM **galu*: LAU *galugalu* 'a rough confused sea'; PCP **gwalu* (POLLEX) 'wave'

***ot'a** 'reef' (PMC): KIR *ora* 'reef, shoal', MRS *wed* 'coral reef, coral, coralhead', KSR (*in*)*sroac* 'passage in reef', MOK *wos* 'reef', PON *oot* 'reef (archaic)', PCK **ot'a* 'reef': MRT *wosh*, CHK *wooch*, *wocho-*, STW *woorh* 'reef', CRL *woosch*, *woscho-* 'reef (the whole lagoon platform up to the breakers)', WOL *wosho*, ULI *woco* 'reef', PUA *wosa* 'reef, coral'

The final vowel is reconstructed on the basis of Kiribatese and Pulo Annese evidence. **Ot'o* is suggested by Woleaian and Ulithian. The Kosraen cognate is somewhat doubtful. The reconstruction is a good match for PCP **voda* 'rocks in sea' and we might reconstruct POC or PEO **po(d)ra* 'reef, reef rocks'. (See MC **sakau* 'reef, reef island' in section 3.1.)

***pailagi** 'horizon' (PWMC): MRS *paylég*, PCK **pailagi*: MRT *payiléŋ*, CHK (*p*)*peyinen*, PUL (*yóro*)*páálaŋ*, STW (*p*)*payileŋ* 'horizon'

The form is not known externally; it is multimorphemic and may have meant 'arm/wing of the sky'.

***pasa** 'swamp' (PMC): KSR *pat* 'hole', (*tuh*)*pahsrpahsr* 'plain, flat, level', MRS *pat* 'swamp', MOK *pad* 'depression', PON *paad* 'dent, depression, puddle', PCK **pasa* 'tidal swamp': CHK *paat*, *pata-* 'tidal inlet, offshore gully in the shallows', PUL *paat*, *pata-* 'swamp', PUA *paata* 'a piece that is cut out'

The second Kosraen consonant is irregular. The Pulo Annese correspondence is weak semantically. The form is similar to a PAN reconstruction: PAN **payah* 'swamp' but no probable cognates were identified in CM or CP.

***pesepese** 'shallow' (PWMC): MRS *péjpéj* 'shallow, superficial', *píjpíj* 'shallow', MOK *poadpoad* 'shallow', PON *pedeped* 'shallow', PCK **pese* 'shallow', **pesepese* 'become shallow': MRT *pet*, CHK (*p*)*pet*, PUL (*p*)*pet*, STW *pet*, CRL *pet*, WOL *pete*, PUA *pete* 'shallow', MRT *petepet* 'become shallow', CHK (*á*)*petepeet* 'shallow', PUL *petepet* 'shallow', STW *petepete(tá)* 'become shallow'

***p'usop'uso** 'foam, froth' (PMC): KIR *b'urob'uro* 'froth, bubbles, foam, lather', MOK *pwudo* 'v.i., to sweat', PON *pwudopwud* 'foam, scum', *pwudo* 'perspiration, sweat'. The form irregularly had the following PCK outcome: ***p'urop'uro** 'foam, froth': MRT (*a*)*pwurópor*, *pwuropwuro*- 'foam', CHK *pwuropwur* 'bubble, foam, suds', (*pw*)*pwur* 'be bubbling, in a lather', PUL *pwuroopwur* 'foam', STW *pwuropwur* 'foam, bubbles, froth', CRL *bwurobwur* 'foam, froth', *bwuro(long sáát)* 'be incoming tide (Vi.)', WOL *buroburo*- 'foam', PUA *pwulopwulo* 'foam'; PAN **busa(h)* > POC **bucoq* 'foam, froth' > PCM **furo* 'to bubble, boil, be churned up', PCP **vuso* 'foam, froth'

Note that PCM had an irregular **s* > **r* as did PCK.

***p'ut(u,i)** 'high tide' (PCMC): KIR (*ia*)*buti*, MRS (*yi*)*bij* 'high tide'

Evidence for the form is limited to Kiribatese and Marshallese.

***sakau** 'reef, shoal; reef island': see section 3.1.

***sawa** 'channel, passage through reef' (PMC): KIR *rawa*, MRS *tewe-*, PNG *daw*, MOK *daw*, PON *daaw*, PCK **sawa*: CHK *taaw*, STW *taaw*, CRL *taaw*, WOL *tawa*, ULI *daw*, PUA *taw*, SNS (*t*)*taawe* 'channel, passage through reef'; PMP **sawaq* 'channel' > POC **sawa(ŋ)* 'strait, passage between islands' > PCM **tawa* 'channel, landing place', PCP **sawa* 'channel'

3.5 SAND, SOIL AND ROCKS

POC or Post-POC	PMC or Post-PMC	MC Gloss
<i>*patu</i>	<i>*fatu</i>	rock, stone
	<i>*lape</i>	a kind of clay
<i>*maka</i>	<i>*maka</i>	stones for throwing
	<i>*mat'aro</i>	mud
	<i>*pika</i>	sand, beach, sandbank
	<i>*p'alu</i>	taro patch
<i>*belu</i>	<i>*p'elu</i>	dirt, soil
<i>*baro</i>	<i>*p'aro</i>	flat underwater rock
	<i>*p'et'e</i>	coral lime, limestone
<i>*tanoq</i>	<i>*tano</i>	ground, earth, soil
<i>*sakaRu</i>	<i>*t'akau</i>	rock, stone
	<i>*waani</i>	pumice

***fatu** 'rock, stone' (PMC): KIR *ati-* 'prefix for stone, rocks in compounds', MRS *hajhaj* 'hard rock, substance of clam shell', KSR *paht* 'cornerstone', *pot* 'stone wall', PCK **fatú*: MRT *faaw*, CHK *faaw*, *féwú-*, PUL *fawú-*, STW *faay*, CRL *faay*, *fayú-*, WOL *faú*, ULI *fás*, PUA *daadú*, SNS *faadú* 'rock, stone'; PAN **batu* > POC **patu* > PCM **fau*, PCP **vatu* 'stone, rock'

The Kosraen retention of **fas p* is not the dominant pattern in Kosraen where loss of **f* is more common (Jackson 1983:326-329). They are possibly loans.

***lape** 'k.c. clay' (PMC): KSR *lap* 'id.', PCK **lape* 'red clay, used for caulking': PUL *lápi(n)* 'red dye consisting of earth, used for canoes', STW *lápe-* 'red clay, used for caulking', WOL *lapa-* 'red clay, used for caulking between boards'

***maka** or perhaps ***fatu-maka** 'stones for throwing' (PMC): KIR *maka(re)* 'habit of throwing stones', PCK **fatu-maka* 'gravel', MRT *faw'u-mó*, STW *móók* 'field for playing marbles or with small stones or shells', CRL *faúmó*, WOL *faúmwage*, ULI *fas-mwag* 'gravel', PUA *dadimaka*, SNS *fadúmaka* 'gravel, pebble'

The form is not specifically associated with 'sling' in MC as it sometimes is elsewhere: POC **maka* 'throw, sling' > PPN **maka* 'stone, rock; to sling, hurl'. There is also: CM-ARO *maka* 'Adam's apple', *ma'a* 'hard'

***mat'aro** 'mud' (PCK): PCK **mat'aro*, MRT *méshór* 'mud, muddy', CHK *ma(ch)chaa(ch)* 'muddy', PUL *merhar*, STW *merhór*, CRL *mmeschar*, WOL *masharo-*, ULI *mócor*, PUA *masalo-* 'mud'

The form is limited to Chuukic and no external cognates were found.

***pika** 'sand, beach, sandbank' (PMC): KIR *bike* 'beach sand, sand bank', MRS *pike(y)*, *pike(-)* 'flat land surface', KSR *puhk* 'sand', PNG *pik* 'beach, sand', MOK *piik*, *pike-* 'sand', PON *piik* 'sand', PCK **pika* 'beach, sand bank, sand islet or island': MRT *piya-* 'beach', CHK *pise-* 'sand, sandy islet (in place name compounds)', PUL *piik* 'name of island: Pikelot', STW *piik* 'name of small sandy islands', *pigha-* 'sand, beach (in place name compounds)', WOL *pigha* 'sand islet'; ***pikapika** 'sandy' (PMC): KSR *puhkpuhk*, PON *pikapik* 'sandy' (also MRS *piyépey* 'sandbank; to build up a pile of rocks'); ***pipia** 'sand, sandy, sand spit, beach' (PwMC): MRS *ppéy* 'sandbank; to build up a pile of rocks', PCK **ppia* 'sand, sand spit, sand beach': MRT *ppe* 'beach, sand', CHK *ppi* 'sand, sand spit, beach', PUL *ppi* 'sand', STW *pii*, *piya-* 'beach, beach of', *ppia-* 'sand', CRL *ppi*, *ppia-* 'sand, sandy, sand beach, sand spit', WOL *ppiya* 'sand, sand beach', ULI *ppiy* 'sand, sand beach, beach', PUA *piia* 'sand', SNS *ppiiya* 'sand'

***p'alu** 'taro patch, soil as found in taro patch' (PMC): KSR *fahluhl* 'type of taro', MOK *pweel* 'taro patch, taro swamp', PON *pweel* 'dirt, soil, earth, ground', *pweeli(pwel)* 'dirty, soiled', PCK **p'alú* 'taro swamp': MRT *pwéél*, *pwélú-* 'taro patch', CHK *pwénú-* 'fresh water swamp, taro patch', PUL *pwéél* 'swamp garden, as for taro', STW *pwéél* 'taro patch', CRL *bwéel*, *bwélú-* 'taro swamp', WOL *belú* 'taro patch'

Ulithian has *bol* 'taro patch' but it would appear to derive from a merger of pronunciations with **p'elu* 'dirt, soil' > *bol* 'soil, taro patch'. It should be noted that the semantic reconstruction is biased towards the Pohnpeic/Chuukic meaning and could have been innovative at that level. The PMC form could just as well have meant '(kind of) taro' as it does in Kosraen. At any rate the PMC form would have had to do with taro and its cultivation. (See discussion after following reconstruction.)

***p'elu** 'dirt, soil' (PMC): KIR *bon* 'black soil, leaf mold, humus', MRS *bél* 'taro swamp', PCK **p'p'elú* 'soil, dirt, dirty', MRT *pwpwel* 'dirt, dirty', CHK *pwpwúnú-* 'soil, earth, dirt, soot (stem)', PUL *pwpwél* 'dirt, ground, to be dirty', STW *pwéén* 'dirt, soil', CRL *pwpwel* 'soil, earth, ground, dirty', WOL *(b)belú* 'soil, dirt', ULI *bol* 'soil', PUA *(p)ponú* 'soil, earth'

The **p'alu* and **p'elu* minimal pair is a very tenuous suggestion and all the forms may simply derive from a common source rather than a minimal pair. I would relate the second reconstruction to BAU *benu* 'refuse from food; offal' and BAU *veluvelu* 'in *duka veluvelu*, very dirty'. Possibly it is related to PEO **bwela* 'dirty' > PPN **pela* 'dirty (as mud); decayed'. There is also an interesting resemblance of PMC **p'alu* to MAO *paru* 'dirt, dirty, excrement; mud', *paruparu* 'dirty'.

**p'aro* 'flat underwater rock' (PMC): KIR *b'a* 'rock or ledge, continuous and solid; firm as a rock', MRS *bar* 'rock', PCK **perou* 'beach rock': CHK *piru* 'beach rock', PUL *poroow* 'sandstone', WOL *porou* 'beach rock, huge flat rock', PUA *polow* 'beach rock'

The PCK correspondence to Kiribatese and Marshallese is irregular in the first consonant, in the first vowel, and in the addition of a final vowel. Internally, it is a rather tenuous group of correspondences but there is a strong resemblance to: PCM **baro* 'flat underwater rock': LAU *baro* 'a flat rock in the sea', KWA *balo* 'flat reef stones'. I have reconstructed the same meanings for PMC and PCM based on general agreements but specifically that seen between Woleaian and Lau/Kwaio. Cognates were not encountered in other study languages. The PCM-PMC correspondence could be further evidence for Blust's (1984b) suggestion of a CM-MC group.

**p'(a,e)t'e* 'coral lime, limestone' (PMC): KSR *fasr* 'limestone, coral lime', MOK *pwoaoas* 'limestone', PON *pweet* 'lime made from coral', *pwetepwet* 'white', PCK **pwet'e* 'coral lime, limestone', **pwecepwece* 'white': MRT *pweesh* 'lime', *pwéshépwésh* 'white', CHK *pweech* 'powdered lime (made by burning coral limestone)', *pwecha(-)* 'to be white (stem)', PUL *pweerh* 'coral lime, as used for white dye, etc.', *pwerh* 'to be white, as pandanus leaves for thatching', STW *pweerh* 'lime', *pwerhepwerh* 'white', CRL *bweesch* 'coral lime', *bweschebwesch* 'white', WOL *beshe* 'lime', ULI *bec* 'lime', PUA *pwese* 'coral lime for betel nut'

**tano* 'soil, earth, ground' (PMC): KIR *tano* 'sand, soil, clay, ground, land', PCK **tano* 'soil, earth, ground', MRT *sóon* 'land that has been cleared for a house', CHK *sóon* 'the earth (versus heaven)(archaic)', PUL *hóon* 'surface, ground, floor, bottom', STW *sóol* 'land, soil (generic)', WOL *(te)taló* 'soil, earth, ground', ULI *talo(p)* 'earth', PUA *(to)tano* 'soil, earth, ground'. MRS has *jene(-q)* 'footprint' and KSR has *sroŋi* 'soil', neither of which are very satisfactory candidates as cognate. PAN **tanah* 'earth, land' > POC **tanoq* 'earth, soil' > PCM **ano* 'earth, land, ground', PPN **tano* 'cemetery, grave' (J.M.): TON *tano* 'place of burial, cemetery', TIK *tano* 'grave'

**t'akau* 'rock, stone' (PCMC): KIR *rakai* 'rock, reef, block of coral rocks', MRS *dekar* 'stone, rock, gravel, flint', PNG *saekai* 'stone', MOK *sakai* 'rock', PON *takai* 'stone, rock'

The internal evidence for this form alone suggests reconstruction to PCMC. Given PMC **sakau* 'reef, reef island' it is apparent that a minimal pair had developed at about PMC times. Lack of a Kosraen cognate prevents reconstruction of the present form to PMC itself. While Kiribatese has the 'reef, block of coral rocks' sense this may be due to the emergence of homophony between this protoform and the reflex of PMC **sakau* 'reef, etc.'. MC evidence other than Kiribatese suggests that the present form meant simply 'rock, stone' and didn't necessarily have a common sense relating specifically to coral. (See MC **sakau* 'reef, reef island' in section 3.1 for MC synonym/near homonym and a discussion of external cognates.)

***fatu waani** ‘pumice’ (PMC): KSR *yotwen* ‘basalt’, KIR *waan*, MRS (*tila*)*han*, MOK *ween*, PON *waan(pei)*, STW (*wu*)*wan*, PUA *waani* ‘pumice’, WOL (*u*)*waali* ‘lava rock’

All languages but Kosraen appear to have dropped the PMC **fatu* portion including Pohnpeian that appears to have added it retrospectively. From this we can also reconstruct POC or PEO **fatu manu* ‘pumice’ > PCM **fatu manu(manu)* ‘pumice’, PNP **fatu manu* ‘pumice’.

3.6 HIGH ISLAND FEATURES

POC or Post-POC	PMC or Post-PMC	MC Gloss
<i>*malo</i>	<i>*malo</i>	hollow, depression, valley
	<i>*pili</i>	moving water (river in some languages)
	<i>*ppala</i>	hill
	<i>*p'aja</i>	hole, cave
	<i>*p'aro</i>	box, container, hole, cavity (cave in some languages)
<i>*pupu</i>	<i>*p'ulu</i>	fall, flow (the base for river and stream in some languages)
	<i>*p'ugu</i>	to fall (the base for river and waterfall)
	<i>*t'uku</i>	mountain
<i>*puna</i>	<i>*una(una)</i>	spring of water
<i>*waxo</i>	<i>*wao</i>	valley
<i>*solo</i>	<i>*zolo</i>	n. mountain, peak, pinnacle
		v.i. appear and disappear over horizon
	<i>*lozo</i>	tip of canoe mast (assumed to be a metathesised form of <i>*zolo</i>)

***malo** ‘concaveness, depression, valley’ (PCMC): KIR *mano(no)* ‘valley, depression, hollow, dent’, *m'ano* ‘hollow, concave’, PON *mwoaloal* ‘dent, depression’, PCK **malo* ‘hollow, depression, area within armpit, elbow’: MRT *mólé(n)* ‘area within elbow and armpit’, CHK (*nee*)*móón* ‘valley’, PUL *móól* ‘valley (rare), elbow joint’, STW (*lee*)*mólo* ‘area under arm, inside of elbow’

There is occasionally some shift of **m* to *m'* (*mw*) in most of these languages when the following vowel is phonemically or phonetically round (cf. Kiribatese and Pohnpeian). Attributing the ‘valley’ sense to the reconstruction is problematic as the meaning is seen only in Kiribatese and two Chuukic languages. A more conservative assessment of the protoform’s semantics would not include the ‘valley’ sense and would explain it in some living languages as an extension of the ‘concaveness, depression’ sense. The form is apparently cognate with POC **malo* ‘submerge, reef, indented’ > PCM **malo*: ARE *maro* ‘submerged coral reef’. Possibly it is related to PPN **ɣalo* ‘disappear’. (See MC **wao* ‘valley’ in this section.)

***pili** ‘moving water’ (PMC): MRS *pil* ‘trickle; dribble; drop of liquid’, KSR *pul* ‘move, dive with a splash’, PNG *pil* ‘water’, MOK *pil(lap)* ‘river’, PON *piil* ‘water, liquid’, *pil(lap)* ‘river’, *pili(tik)* ‘stream’

This is the Pohnpeian base for 'river'. It is presented here to show that it apparently did not originate in an older form meaning 'river'. The form contrasts internally with KSR *infaci* 'river, stream, creek' for which no cognate has been identified and PCK **t'anu-p'uup'uu* 'stream, river': CHK *chénúpwuupwu* 'stream, river', PUL *rhaanú pwuupwu* 'river', CRL *schalúbwuubwu* 'waterfall, river, stream; any flowing or running (fresh) water'. No known cognates outside Chuukic. (See MC **p'ulu* 'fall, flow' in this section.)

***ppala** (PCK) 'hill': MRT *ppal* 'hill', CHK *ppan* 'hillside, steep slope', STW *ppan*, CRL *ppal* 'hill'

The form was not seen outside Chuukic and contrasts with: KSR *igij* 'hill, mound, knoll, dune', PON *dool* 'small mountain, hill', *kumwukumw* 'small hill', *uluul* 'pillow, small hill', *mpwoampw* 'rise, low hill'. A possible MC agreement with PN is seen in that of PON *kumwukumw* 'small hill' with PPN **tumutumu* 'summit'. The correspondence of PON *k* to PPN **t* would suggest a loan from a PN language where PPN **t* had gone to *k* such as in Colloquial Samoan (cf. SAM *tumutumu* (Col. *kumukumu*) 'top (of trees, hills), peak, height, zenith'). But there is no general suggestion of PN influence into Pohnpeian and the resemblance may be fortuitous.

***p'aga** 'hole, cave' (PCMC): KIR *baŋa* 'hole, cavern, excavation, hiding place, refuge, den, lair, net, eelpot, snare, mosquito net', PCK **p'aga* 'hole, cave': CHK *pwaag* 'hole, cave, cavity, pit, tunnel, hollow, vagina', *pwaŋe(ni)* 'make a hole or space in s.t.', PUL *pwaŋ* 'hole, classifier in counting', CRL *bwaag* 'k.o. hole', WOL (*b*)*baŋa* 'crevice, small holes in arms', PUA *pwaŋa* 'vagina'

***p'aro** 'box, container, hole, cavity' (PMC): KIR *b'aro* 'provision box, small box; overflow hole: depression where water stays', KSR *fahr* 'cavity, hole, pit, hollow stem', MOK *pwoar* 'hole', PON *pwoaoar* 'hole, cave', *pwaar* 'hole for planting yams', *pweri(niak)* 'hole for planting yams', PCK **p'aro* 'box, container for possessions': MRT *pwóór*, *pwóro-* 'box', CHK *pwóro-* 'box, chest, crate, coffin', PUL *pwóór* 'box', STW *pwóór* 'box for possessions, container, crate', CRL *bwóór* 'box for possessions', WOL *baro* 'box'

PMC **r* is not regularly retained in Kiribatese. The Chuukic semantics are limited to 'box' but the other cognates have fairly definite 'container' notions that are extended to the physical environment. Pohnpeian alone appears to have extended the general 'enclosure' sense to caves. (See MC **p'aga* immediately above.)

***p'ulu** 'fall, flow' (PMC): MRS *béwél'(tegteŋ)* 'overflow (*tegteŋ* = intensifier)', KSR *fuhl* 'to fall upon, fall to', PON *pwil* 'to flow, to rise or flood (of a stream)', PCK **p'uu* 'flow, esp. of fresh water': MRT *pwu*, *pwuu(pwu)* 'flow, esp. of fresh water', CHK *pwu* 'to flow, of fresh or salt water', *pwuu(pwu)* 'to flow, of a stream', PUL *pwu* 'to flow', STW *pwu* 'to flow', *pwuu(pwu)* 'to be flowing', CRL *bwuu(bwu)* 'to flow; a waterfall'

PCK is seen as irregularly losing PMC **l* but possible external cognates are consistent with the PCK rather than the PMC: POC **pupu* 'leak, drip, spill out', PPN **puupuu* 'rise the mouth, gargle'.

***p'uŋu** 'fall, as rain or a person (there is also, commonly, a 'breaking waves' sense)' (PCMC): KIR *buŋ* 'going down, descending', MRS *big* 'fall', *big''(n'ew)* 'breaking waves, high surf', MOK *pwuŋ* 'break, sound of breaking waves', PON (*koro*)*pwuŋ* 'small waterfall', *pwuŋi(dek)* 'break, of waves, splash (Vi)', *pwuŋu(r)* 'splash, wash up on shore (Vt)', PCK **púŋú*, **p'uŋu-* 'fall, as rain or a person', **púŋúpúŋú* or **ppúŋú* 'to break, of waves': MRT *púŋú(téw)* 'fall down', *pwuŋu(show)* 'rainfall', *ppúŋú(n)* 'surf', CHK *púŋ*

'fall, as rain or as on a slippery surface', *púgú(tiw)* 'fall down', PUL *púgi(tiw)* 'fall down', *púgúpúg* 'to break, of waves', STW *púg* 'to fall, to rain (Vi)', *púgutiw* 'fall down', *púgúpúg* 'breaking waves, surf', CRL *púg* 'fall, trip', *púgútiw* 'fall down', *pugu(schow)* 'to rain', *púgúpúg* 'falling (as a teetering object/person), pattering (as rain)', *pwpuwupwpuw* 'the sound of breaking waves', WOL (*p*)*púgú*- 'to fall, drop, come down suddenly', ULI (*p*)*puḡ* 'fall', PUA *púgú* 'fall, make a sound', SNS *púgú* 'fall'

It seems that this root came into PCK with a reinterpretation of PMC **p'* as **p*. In addition to the 'breaking waves' meanings one can note the use of the root in a word for 'small waterfall' in Pohnpeian.

***t'uku** (PCK) 'mountain': MRT *shuuk*, CHK *chuuk*, *chuka*-, PUL *r'uuk*, STW *rhuuk*, *rhuku*-, CRL *schuugh*, *schughu*-, WOL *shugu*, ULI *cugu*, SNS *duuku* 'mountain'

There is also the use of **t'uku* as a placename for the Chuuk lagoon and the correspondences are regular through Chuukic. However, they seem to be loans into the non-Chuukic that use it: MRS *riq*, KSR *ruk*, MOK *ruk* 'Chuuk', PON *ruk* 'Chuuk; to hide'. Jackson (1983) suggests that the aggressive navigators of the PUL-PLP-PSK area may be responsible for the non-Chuukic pronunciations as *rh* is the common reflex of **t'* in these languages. The Chuukese definition includes verbal senses of 'heaping' and 'piling' and 'heaped up' or 'piled up'. Perhaps a cognate external to Chuukic will eventually emerge with those general meanings. (See MC **zolo* 'mountain' in this section.)

***una(una)** 'spring of water' (PMC): KSR *unohn* 'spring, well'. KSR seems to correspond (with reduplication) to PPN **puna* 'bubble or well up (of water); a spring'. From this we can reconstruct POC or PEO **(b,p)una* 'spring, well'. PCM has **fura* 'spring' which corresponds irregularly to PMC and PPN in the second consonant. MC has the following non-cognate forms: MRS *hayébéj* 'rain water, a well, drinking water', PON *pwoarukus* 'spring of water', *pwarer* 'well, spring', CHK *misíwi*, *miror* 'spring (of water)', PUL *limerór* 'brackish water spring believed connected with the sea', CRL *bwatich* 'spring or other place fresh water surfaces'

Puluwatense seems to be related irregularly to Chuukese. Possibly KSR *unohn* 'spring of water' is related to: KIR *un* 'the principal or central root', MRS *win* 'base; basis; root; reason; purpose; cause; problem; arithmetic; motive; source; lower part of a tree, brush, or grass', MOK *win* 'tree sp.', CHK *wúún* 'aerial root of the mangrove; rope used to pull a tree in a desired direction when chopping it down; a vine (*Derris elliptica*) (it is used as a rope to haul logs and as fish poison) (*wúna*)', PUL *wun* 'to be poisonous'. The forms, especially Kiribatese and Marshallese, seem related and there seems no potential Kosraen cognate other than that currently under discussion.

***wao** 'valley' (PMC): PON *waaw* 'valley'

The form is not otherwise known in MC but is similar to KWA *wa'o* 'valley' which would have come from a PCM **waxo*. There are many words for 'valley' amongst the languages spoken on islands where valleys exist. The resemblance could be fortuitous and this is a very weak reconstruction. (See MC **malo* 'concaveness, depression, valley' in this section for discussion of 'valley' in the study languages.)

***zolo** 'mountain, peak, pinnacle' (PMC): MRS *tel* 'hill, mountain', KRS *ohl*, PNG *dol*, MOK *dol* 'mountain', PON *dool* 'small mountain, hill', PCK **solo* 'peak, pinnacle, tip (of mast, mountain, etc.)': MRT *tool* 'top of mast, peak, pinnacle', CHK *toon* 'peak, pinnacle; extension of a mast; visible, discernible, prominent', *toon* 'Ton island – highest peak (*tonen*

chuuk'), PUL *tolo*- 'top section of mast', STW *tool* 'height of sun', *tolo*- 'mountain', CRL *tool* 'objective, end; the time or height of the sun; the distance from one place to another', *tolo*- 'tip, end'. **zolo* '(v.i.) to disappear' (PVMC): MRS *tel*" '(Vi.) to disappear, die out, become extinct'; PCK **solo* '(Vi.) disappear from sight, esp. below horizon': CHK *ton* 'Vi., adj. (be) visible, discernible, viewed; prominent', *tononó* 'fade from being visible', *tonoto* 'become visible, become more visible', PUL *tol* 'to disappear', *tolo(l)* 'setting position (of stars)', *tolo(ló)* 'disappear, set', STW *tol* 'disappear from sight', CRL *tolo(ló)*, *tol(ló)* 'to disappear (in ref. to things crossing horizon)', *tolo(to)* 'to appear (in ref. to things crossing horizon)', WOL *tolo* 'to disappear, submerge, go out of sight, vanish, die away', ULI *dél* 'disappear'; **lozo* 'top of mast' (PMC): MRS *l'et* 'id.', KSR *loo* 'top, tip, apex (of a tree)', MOK *lod* 'id.', MRT *lou(gan)* 'top of something high', PUL *loot* 'top section of mast'

In PMC-B **lozo* is considered a metathesised form of **zolo*. The verb may have had more of the Chuukese sense of 'in and out of sight' and been disambiguated by use of the directionals. POC **solo* 'mountain, highlands, interior': PCM **tolo* 'mountainous interior', PCP **colo* 'inland country, mountain country'.

3.7 NAMED LAND (USE) AREAS

POC or Post-POC	PMC or Post-PMC	MC Gloss
* <i>jalan</i>	* <i>ala</i>	path, trail, road
	* <i>maata</i>	clearing, open place
* <i>mwalala</i>	* <i>mala</i>	cleared area, to clear land
	* <i>m'at'a</i>	garden, farm
* <i>rata(R)</i>	* <i>rata</i>	cleared land
	* <i>tap'o</i>	village, place, land, spot
* <i>qutan</i>	* <i>uta</i>	interior, inland
	* <i>walu</i>	forest, woods, bush area

**ala* 'path, trail, road' (PMC): MRS (*yi*)*yal*, PNG *al*, MOK *al*, PON *aal*, NGK *aal*, PCK **ala*: MRT, CHK *ana*-, PUL *yaal*, STW *yaan*, CRL *ala*-, WOL *yala*, ULI *yaal*, PUA *yaana*, SNS *yaara* 'id.'

PMC is assumed to have lost the initial consonant of POC even though Kiribatese and Kosraen cognates are unknown. Perhaps there was PMC **jala*. PAN **zalan* > POC **jalan* 'path, trail, road' > PCM **tala* 'path, road', PCP **zala* 'path, road'.

**maata* 'clearing, open place' (PMC): MRS *mahaj* 'cleared space, open field, pasture (and *mel'ahaj*)', KSR *mwes* 'shallow place in the reef', PCK **maata* 'farm, clearing', STW *maat* 'farm', CRL *maat* 'farm, fields, land cleared as farmstead', WOL *maata* 'farm, garden', PUA *maata* 'garden, property, taro patch', SNS *maat* 'garden'. The Kosraen semantics are distinct from the others but the form is phonologically regular and the reduplicated form below shows a clear semantic relation to the others; **maataata* 'clearing, open space' (PMC): KIR *maataata* 'cleared space', MRS (*ke*)*mahajhaj(ey)* 'to clear land (v.t.)', KSR (*ahk*)*mwesis(ye)* 'clean, cultivate, clear land', MOK *maajajaj* 'well kept, cleared, not overgrown', PON *maasaas* 'cleared of vegetation'

***mala** 'to clear, cleared area' (PMC): MRS *mel'a(haj)* 'open space, field, pasture, outdoors (also *mel'en* 'land surface, surroundings, environment')', KSR (*i*)*mac(i)* 'v.t. clear, farm, cultivate, n. a farm', MOK *mal* 'barren field', PCK **mala(si-i)* 'v.t. clear of brush': MRT (*lee*)*mal* 'land', *malete* 'v.t. clear land', PUL *máletiy* 'v.t. to clear, as a garden', STW *máleti* 'to clear brush', CRL *máletiy* 'to clear brush at the farm', WOL *malatii* 'clear it, remove obstacles'. KSR does not normally lose **l* but the semantic fit is good; ***malala** 'cleared ground' (PWMC): MRS *mel'al* 'id.', PON *mall* 'clearing, open grassy area', PCK **malaala* 'cleared ground': STW *melaal* 'id.', WOL *melaagú* 'field'. The third consonant of Woleaian and the vowel length of PCK are irregular; ***malemale** (PCK) 'cleared area, to clear of brush', MRT *malamal* 'cleared land', CHK (*á*)*mámámáma* 'v.t. clear land of vegetation', *mánámán* 'n. place of habitation, inhabited place', PUL *málemál* 'to be clear of brush, clear space', CRL *málemál* 'to clear brush, to be cleared of brush', WOL *malemale* 'to be cleared, clear'

This form appears to have been reinterpreted in much of Chuukic as *male-*, probably due to vowel assimilations associated with the common transitive **malasi*. These forms would seem related to the POC **malala* 'cleared ground' reconstruction as well as PCM **lala* 'clear space, clear ground; public common'. It would appear there was PPN, PNP **malage* 'meeting place, village common' as well as PNP **maala* 'cultivated field' which is more similar to the present form.

***m'at'a** 'garden, farm' (PWMC): MRS (*je*)*m'ade(n)* 'wasteland', MOK *mwoas(wel)* 'vegetable garden', PON *mwaat* 'clearing, field, plantation, farm'

See MC **maata* above for which the evidence is pretty well in complementary distribution. There is a resemblance to CM-ARO *mwatake* 'clear, free of weeds' but no other similarity was encountered in the study languages.

***rata** 'cleared land, laid out area' (PMC): KIR *ata* 'width of land, material, mat, house, etc. (large)', PON *raas* 'place where an earth oven is made', PCK **rata* 'cleared land': MRT *raas* 'cleared land', *rasa(n)* 'land for (modifier)', STW *raas* 'cleared land', WOL *rata* 'field, clear land'

The reconstructed meaning is somewhat biased towards PCK and compares with: PAN **dataR* 'level, flat' > POC **rata(R)* 'level, smooth' > PCM **dada* 'level, smooth'.

***tap'o** 'village, place, land, spot' (PCMC): KIR *tabo* 'place, spot, locality, position', MRS *jabe(n)* 'point of land, corner', MOK *japw* 'land, island', PON *saapw* 'land, farmstead, homestead', PCK **tap'o* 'village': MRT *sóópwu-*, CHK *sóópw*, *sópwú-*, PUL *hóópw*, STW *sóópw*, *sópwō-* 'village', CRL *sóóbw*, *sóbwō-*, WOL *tabo-*, *sabo* 'village, district'

The form is homophonous with PMC **tap'o* 'end, part, half, extremity'. No certain external cognates were encountered.

***uta** 'interior of an island, inland' (PMC): MRS (*iyé*)*wéj* 'interior of an island', KSR *wuct* 'inland, towards inland', MOK (*e*)*wij* 'inland' (presumably, the Mokilese is a Marshallese loan, cf. Rehag & Bender 1990); PAN **qutan* > POC **quta(n)* 'inland' > PCM **uta* 'pith or heart of something', PCP **'uta*: PPN **quta* 'inland'

***walu** 'forest, woods, bush area' (PPCK): PNG *wael* 'forest, woods', MOK *woal* 'forest', PON *waal* 'forest, jungle', PCK **walú* 'forest, woods, bush': CHK *wénú-* 'bush, vegetation generally', PUL *waali-* 'forest, jungle', WOL *walú* 'forest, bush, woods'. ***waluwalu** (PCK) 'forest, woods, bushy area': MRT *waliwel* 'forest', CHK *wénúwén*

'vegetation, uncultivated bush; to be overgrown', PUL *walúwal* 'plant, tree, forest; to be forested', STW *waniwan* 'plant, forest', CRL *walúwal* 'forest, wild land', ULI *waluwal* 'forest, plant, bush', PUA *wonuwonu* 'forest, bush'

The evidence is exclusively from Pohnpeic-Chuukic. It would appear that the reduplicated form became the common usage through Chuukic at about the time of PCK itself. (See MC **uta* below for comparison to PAN **quta(n)* > POC **quta* 'forest'.)

3.8 DIRECTIONS

POC or Post-POC	PMC or Post-PMC	MC gloss
<i>*ara</i>	<i>*ara</i>	south
<i>*atas</i>	<i>*ata</i>	up, high, top, summit, east
<i>*auru</i>	<i>*auru</i>	south
	<i>*faji</i>	north
	<i>*losowa</i>	west
<i>*sake</i>	<i>*sake</i>	up(wards), east(wards)
<i>*sipo</i>	<i>*sio</i>	down(wards), west(wards)

***ara** 'south' (PMC): MRT *-ar*, STW *-ar*, WOL *-ara*, PUA *-ala* 'id.'

This would be PCK at best but external evidence is seen in: PCM **ara* 'south wind'. In MC the form occurs in compounds meaning 'south-west' (see MC **losowa* in this section). Possibly the PCM is from POC **apaRa* 'NW monsoon'; see MC **para(ta)* 'tradewind' in section 3.2).

***ata** 'up, high, top, summit, east' (PMC): KIR *eta* 'up, on high, above, top, upper, heavens', KSR *yat* 'eastern part of a village', PCK **ata* 'top, up, on land, east': MRT (*yéérú-nee*)*yas* 'SSE wind', CHK *asa-*, PUL (*ye*)*yah* 'to be easterly', STW (*yéérú-lee*)*yas* 'SSE wind', *yat* 'up, top', CRL *-as* 'up, high (in cmpds)', WOL *-yasa* 'up, upside', *yat* 'up, top', ULI *yat*, PUA *-yasa* 'up'; PAN and POC **atas* 'top, above' > WAY *ata* 'top, above, the top', PPN **ata* 'dawn'

***auru** 'south' (PMC): KSR *acir* 'north', PNG (*pali*)*eir*, (*pali*)*aeir*, PON (*pali*)*eir*, PCK **aurú*, PUL *yéér* 'at the south, to be the south wind', STW *yéér*, CRL *éér*, WOL (*i*)*yeúrú*, ULI (*i*)*ér* 'south'

This seems a cognate of PCM **auru* 'west': ARO *auru* 'west, down, the west', *uru* 'the west'. I reconstruct PMC 'south' in spite of the Kosraen evidence due to the proposed contrast with PPMC **faji* 'north'. I reconstruct PCM 'west' simply on the basis of Arosi. If external cognates outside CM are not identified, this could be taken as support for Blust's (1984b) suggestion of a CM-MC subgroup. Wayan Fijian has *aaulu* 'to face in a certain direction' but it has a long initial vowel and reflects POC **l* rather than **r*.

***faji** 'north' (PMC): KIR (*me*)*aaji* 'north wind (Goodenough)', MRS *yagi-* 'north', KSR (*e*)*paŋ* 'south', PON (*e*)*peŋ*, PCK **(e)faji*: MRT *eféŋé-*, CHK *efeŋ*, PUL *yefán*, STW *effán*, CRL *efán*, WOL *-faji*, ULI (*yi*)*faj*, PUA (*ie*)*daji*, SNS (*yiye*)*faji* 'north'

The Kosraen retention of **f* and its initial vowel increment suggest a loan from Pohnpeic or Chuukic (Jackson 1983:329-330). (See MC **faji* 'dry season, winter' in section 3.2.) External cognates are not presently known.

***losowa** 'west' (PMC): KSR *rohtoh*, PCK **losowa*, MRT *lotowa*-, CHK *notow*, PUL *lotow*, STW *lotow*, WOL *letowa*, ULI *lodow*, PUA *(i)notoa* 'west'

Kosraen typically reflects PMC **l* as *l* and has a tendency to reflect PMC **r* as *l* as well. Thus this is an unusual agreement for which we have no loan hypothesis. The form was not encountered outside MC. (See MC **sio* 'down(wards), west(wards)' in this section.)

***sake** 'up(wards), east(wards)' (PMC): KIR *rake* 'upwards, eastwards', MRS *tak* 'upward, eastward', CHK *-tá* 'upward, eastward', PUL *-tá* 'up, east', CRL *-tá* 'upwards, northwards', WOL *tage*, ULI *dag* 'upward, eastward', PUA *-take* 'up, north'. PAN **sakaj* 'climb' > POC **sake* 'up above, go up' > PCM **taxe* 'ascend, rise', PCP **cake* 'upwards'

***sio** 'down(wards), west(wards)' (PMC): KIR *rio* 'lower or west side, down', MRS *téw* 'climb down, disembark', KSR *te(n)* 'down the beach', PNG *-di*, MOK *-di*, PON *-di* 'downwards', PCK **sio* 'downward, downwind, west': MRT *-téw* 'id.', CHK *-tiw* 'down, west, westward', PUL *-tiw* 'down, west', STW *-tiw* 'down', CRL *-tiw* 'downwards, downwind', WOL *-tiwe* 'down(wards)', ULI *-diy* 'id.', PUA *-ti* 'downward, west'; PMP **tibt'ib* 'slide off' > POC **sisi(p)* 'go down, to land, west' > PCM **sifo* 'down, go down'

3.9 MISCELLANEOUS

OC	MC	MC Gloss
<i>*qasu</i>	<i>*asu</i>	smoke
	<i>*falaga</i>	ashes
<i>*lubwa</i>	<i>*lip'a</i>	hole in ground, pit, excavation, grave
<i>*maluRu</i>	<i>*luru</i>	shade
<i>*nunu</i>	<i>*genu</i>	shadow
	<i>*peata</i>	ashes, hearth
	<i>*p'u(rako)</i>	smoke, dust, powder, fog

***asu** 'smoke' (PMC): MRS *hatiy(tiy)*, (ba)(hat) *hat* 'to smoke dry', PON *adi*- 'vapour, smoke, mist', NGK *edi(niei)*, PCK **asú*, MRT *yet*, CHK *étú*-, PUL *yaat*, STW *yatú*- 'smoke', CRL *átí(yát)* 'smoke', WOL (gera) *atí* 'smoke'. PAN **qasu* > POC **qasu* > PCM **sasú*, PCP **qasu* 'smoke' > PPN **qasu* 'smoke' (POC **qa*- often > CM *sa*-, KWA *la*-)

***falaga** 'ashes(?), dry s.t.(?)' (PPCK): MOK *palag* 'dry (tr), poaloag (intr), PON *palag* 'dry in the sun (tr), peleg 'dry in the sun (intr)', PCK **falaga* 'hearth ashes': MRT *falaḡ* 'cookhouse, underground oven', CHK *fanaga*- 'ashes, dust', PUL *falaga*- 'ashes, cinders', CRL *falaḡ* 'ashes, charcoal, charred wood', WOL *falaga* 'ashes, fireplace', ULI *falaḡ* 'fireplace, ashes', STW *felaḡ*, PUA *danaga*, SNS *farag* 'ashes'

The form reconstructs only to PPCK and its meaning at that level is uncertain. (See MC **peata* 'ashes' for external comparisons.)

***lip'a** 'hole in the ground, pit, excavation' (PMC): KIR *nib'a* 'small hollow in soil, small trench, notch, cut', MRS *léb* 'grave, tomb', KSR *luhf* 'hole', PNG *lipw* 'hole', MOK *lipw* 'hole, crater, scar', PON *liipw* 'large hole in the ground', PCK **lip'a* 'hole, grave, pit': MRT *liipw* 'grave, hole', CHK *nipwa*- 'pit for soaking coconut husks', PUL *lipwa*- 'pool where green coconut fibres are soaked', STW *liipw* 'hole', CRL *libwa*- 'grave, hole, excavation', WOL *liba* 'hole', ULI *liib* 'hole', PUA *nipwa* 'hole, to bury'. PAN **lubag* 'hole, pit, grave, mine'

Possibly there is a CM cognate in LAU *likwa* 'a hole, cavity in a tree'.

***luru** 'shade' (PMC): KIR *nuu* 'shade, shadow, outline', MRS *lir* 'shade', KSR *lul* 'shade, shadow', MOK *rir* 'shaded', PCK **nurú* 'shade': MRT *núr* 'shade', CHK (n)*núr* 'be shaded, shady', PUL *néér* 'shade', CRL (l)*lur* 'shaded, be shady', WOL (n)*núr* 'shady, shaded', PUA *rúlú* 'shade, shelter' (PCK irregularly saw PMC **l > n*. The PUL vowel is irregular.) PEMP **maluRu* > POC **maluRu* 'shade' > PCM **malu* 'shade', PCP **malu* 'shade'

***ɣenu** 'shadow; ghost, spirit (in the sense of a physical manifestation/apparition)' (PMC): KSR *ɣun* 'spirit', PNG (*gene*)*ɣen* 'shadow', MOK *ɣen, ɣeni* 'spirit, soul', PON *ɣeen, ɣeni* 'soul, spirit, shadow', PCK **ɣenú* 'shadow, ghost, spirit', MRT *ɣéén, ɣénú* 'shadow, ghost, spirit', CHK *ɣúún* 'soul, spirit of a person', PUL *ɣúnú* 'soul, spirit', STW *ɣéén, ɣénú* 'shadow, ghost, spirit', CRL *ɣéél, ɣélú* 'shadow', WOL *ɣelú* 'picture, image, ghost', ULI *ɣélu* 'soul, image', PUA *nulú* 'shadow'

Possibly a variation of: POC **nunu* 'shadow, reflection' > PCM **nunu* 'shadow, shade'.

***peata** 'ashes, hearth' (PMC): MRS (wi)*pahaj* 'fireplace, ashes', KSR (a)*pact*, PNG *paeaes* 'ashes', MOK *poaoaj* 'hearth, cooking area', PON *pees*, NGK *pees* 'ashes', PCK **peata* 'hearth ashes': MRT *peyás* 'ashes (from fireplace)', PUL *peyah* 'ashes', WOL *peyasa* 'ashes (archaic)'

***p'u(rako)** 'smoke' (PCMC): KIR (bu)*bu* 'smoke, dust, powder, fog', PCK **p'urako* 'smoke': PUL *p'urók* 'to emit smoke', STW *pwurók*, CRL *bwuróogh*, WOL *buraago*, ULI *borag*, PUA *pwuloko*, SNS *bwulogo* 'smoke'

(See MC **asu* 'smoke' in this section.)

4. CONCLUSIONS

In the foregoing etymologies we can generally observe that the more minimal the semantic concept, the less likely was change. Extremely basic concepts such as 'night', 'day', 'sky' and 'sea' changed hardly at all. Addition of complexity in the semantic notion generally decreased the historical stability of the associated words. Thus 'darkness of night' was more stable than 'sun' or 'moon', because the latter were sources which emitted something (i.e. light). The noun for the source was occasionally confused with the noun for the light it emitted or verbs for its shining.

Perhaps 'sea water' had more stable etymologies than 'sea, ocean' because the former was a basic, universal notion while the latter meant different things to people in different geographical situations. And 'sea water' may have had more stable etymologies than 'fresh water' because of the former having a single invariable source, the latter having many (rain, rivers, wells, puddles) each with its own characteristics. Distinctness and minimalness of semantic notion are characteristics of the more stable forms.

A second source of variation was certainly the commonness of the referent. 'Wind' and 'rain' were profoundly conservative compared to 'typhoon' and 'waterspout' etymologies. Even 'rainbow' had a great variety of forms through the study languages.

A third source of variation was a dimension best characterised as 'usefulness'. Thus 'low tide' had a single etymology through most of the study languages while 'high tide' was extremely diverse, the former being a time of fishing and gathering, the latter being a time of

marginal economic utility. Low tide is also commonly a distinct moment while high tide is not. During low tide the whole lagoon can go dead still for about an hour while the high tide is marked by an irregular pounding surf whose height varies through a longer period of time according to wind and changes in the source wave pattern in addition to the general height of the sea and whether it is still coming in or has started to go out.

Another phenomenon encountered was absorption of an extensive semantic complex by one word from another. This was apparently the case in relation to POC **wai(r)* and **dranum* which must both be reconstructed generally as 'fresh water'. For both PMC **t'anu* and PCM and PCP **wai* we can reconstruct an extensive set of subsidiary meanings including 'liquid, fluid, moisture, sap, juice, liquid discharge from the body'. In PCM the POC **dranum* word seems to have concerned moving water about (e.g. 'bailing') and in PCP it had to do with rinsing salt from the body and the water used for that purpose. Whether PMC or PCM and PCP innovated cannot be suggested with any certainty from the present study, but it seems that one took the whole semantic complex of the other.

To discuss what we might learn about Micronesian culture history, we might first consider the internal development of PMC **sakau* 'reef, shoal, reef island'. The form has similar meanings externally but within MC it came to mean '(small) island' in Chuukic and is the principal word for 'island, atoll' in Kosraen and Pohnpeic. This is otherwise unknown for the study languages and apparently reflects the extension of the older 'reef' meaning to atolls (reef islands) and then to high islands in Kosraean and Pohnpeic (apparently after the departure of the Pre-Chuukese who retained the 'reef, reef island' sense and still called 'land, island' by reflexes of PMC **fanua*).

The comparison of high island (versus atoll) referent vocabularies (section 3.6) turned out to be quite interesting. Micronesianists (e.g. Bender et al. 1990) have long been aware of the PMC **zolo* 'mountain, peak, pinnacle' etymology and wondered why such terms as 'valley', 'stream, river', 'cliff' and other high island referents could not be reconstructed to PMC. We wondered if PMC was spoken on atolls and if PMC **zolo* (which continues POC **solo* 'mountains, highlands, interior') may simply have been remembered in chants or other oral literature and been reapplied to their own environment once high islands were discovered.

The problem was compounded by the possibility of the verbal sense of **zolo* having existed in PMC as it does in many living languages. The verb normally has a sense of 'things breaking the horizon at sea' and could easily have been reapplied as a noun to the first thing breaking the horizon on a high island. Additionally, there is an apparent metathesised form reconstructable to PMC **lozo* 'top of mast'. As the single high island referent reconstructable to PMC it presented several layers of problems in interpretation.

The present work has established that neither PCM nor PCP allow for much in the way of reconstructing etyma concerning the interior, relief and their features. Where evidence is available, the archaeology of the time period concerned² describes coastal populations not terribly interested in settling island interiors. So the phenomenon we have long observed for PMC turns out to be somewhat true for PCM and PCP as well: languages of that general age seem not to have well-established terminologies for the interior physiographic phenomena we were wondering about for PMC.

² PCP and PMC were apparently breaking apart in the early first millenium BC. The disintegration of PCM may have been somewhat later or may have proceeded more slowly.

The situation differed in PPN. Quite a variety of high island terms are reconstructable for that language and have continued very broadly into the living languages (Pawley & K. Green 1971; Biggs n.d.). I would suggest that the interiors of islands had come to mean more to the PPN speakers than they did to speakers of PCP or PCM. I would therefore suggest that our dearth of PMC etyma with high island physiographic referents is less significant than we have long suspected.

Another finding of the present study is that MC languages have a previously unrecognised cognate in this domain in the agreement of KSR *unohn* 'spring, well' with PPN **puna* 'spring, well'. There are horizontal seepage wells dug into the freshwater lenses of atolls but there are no springs and no Micronesian atoll language uses a cognate of the present form to name their seepage wells.

Thus the results of the present work both expand the reconstruction of high island referents for PMC to two and relieve us of some pressure to keep producing more. It seems we now have gone from an ambiguous situation with the linguistic evidence slightly favouring an atoll homeland or atoll filter on the way to the homeland to a situation where we are developing reason to believe high islands were at least part of the overall environment where PMC or its dialects were spoken, and that they applied at least some POC terms to high island features.

We need to look at plants, continuities in their vocabularies and which plants cannot be grown on atolls. But that is work for another day. For the moment we can note that POC terms for 'fruit bat' (POC **beka* > PMC **p'eka*) and 'freshwater eel' (POC **tuna* > PMC **tuna*) appear to have continued into PMC. These two faunal species are fairly well restricted to high island environments. Pohnpeian does not continue the POC terms for 'spring of fresh water' or 'freshwater eel' as does Kosraen, even though both exist on Pohnpei. The freshwater eel is an object of religious significance on Pohnpei. Its name could have been changed by speech taboos or other social behaviour over the years.

We might also note the lack of PAN **danaw* > POC **dano* 'lake' cognates in MC. There are no lakes where MC languages were spoken at the time of European contact and MC cognates extended to other parts of the environment have not been identified. Similarly, reflexes of POC **wair* 'stream, river' are not presently known in MC. Pohnpei has substantial streams or rivers but Kosrae and Chuuk do not.

Green (1981, 1987) has argued that PPN was spoken over a large area including at least Tonga and Samoa. Kosrae is a tougher voyage to or from the Marshall Islands/Kiribati than voyages around the Tonga/Samoa area. A continuous language through the Kosrae-Pingelap-Mokil-Pohnpei area would be more plausible in terms of geography and voyaging. But the linguistic evidence does not support such a scenario as it relates to maintenance of a single language. Kosraean and Pohnpeian seem to have no special relationship within MC except through borrowing.

Whatever geographical spread PMC attained before it began to break down, it now seems more likely that the speakers knew of a high island such as Kosrae or Pohnpei, that some of the speakers resided on one of them and that they remembered and applied some POC terms to its physiographic features and fauna. The most simple explanation for the continuation of POC terms into PMC would be that a high island was first encountered or was encountered soon after the discovery of eastern Micronesia. But this is not the only possible scenario. The terms could have been retained in the cultural memory on atolls and applied to high island

referents upon re-encountering them. It is also possible that the terms could have been forgotten in Pre-Micronesian but reintroduced through continuing immigration from Melanesia.

This review of terminologies for the physical environment produced supporting evidence for Blust's (1984b) suggestion of a special relationship between CM and MC. That evidence can be seen in the discussions of PMC **alo* 'sun' in section 3.1, **naoa* 'yesterday' in section 3.3, **p'aro* 'flat underwater rock' in section 3.5 and **ara* 'south' as well as **auru* 'south' in section 3.8. Some of it may need to be dismissed upon wider comparison with OC languages not considered in the present work but the apparent phonological, morphophonemic and semantic innovations shared are of the same general type utilised in defining other OC subgroups.

A thorough study of MC plant names and their internal and external relations would be the next logical comparative linguistic project in a continuing research program for Micronesia. And the behaviour of MC terms should be compared to CM and CP or some other well-documented control groups. A striking finding in the present work was the similarity in behaviours for vocabularies at the PCM and PCP levels to PMC with respect to high island referent terminologies. Possibly there will be unexpected results in a thorough plant name study as well.