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AUSTRONESIAN LINGUISTICS

*

Volume 1

CURRENTS IN OCEANIC

Amran Halim
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eds



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INTRODUCTION

The Third International Conference on Austronesian Linguistics was held in Bali, Indonesia, in January 1981. Amran Halim, as Conference Organiser, and Stephen Wurm, as OCICAL committee member and also as General Editor of Pacific Linguistics publications, decided that in addition to the Proceedings volume which would be produced in Jakarta, a selection of papers should be published, largely for the international readership, by Pacific Linguistics. This is the first of a series of modest volumes presenting a selection of the papers from the conference: it happens to include papers mainly dealing with comparative linguistics in the Eastern Austronesian, or Oceanic, area largely because these were to hand when finally publication could begin. We have endeavoured to produce this first volume as quickly as possible, as an earnest of faith to readers and contributors. Another three, at least, will follow shortly, and these we hope will maintain the standard of the first, providing in sum a fine indication of trends and thinking in the field of Australian linguistics, just as did the TICAL conference itself. Volume 2 will include papers on comparative linguistics in the Western Austronesian area; volume 3 is to include papers on sociolinguistics; volume 4 will comprise papers on syntax, phonology and so on.

The editors wish to thank various people for helpful comments, including Don Laycock, Bert Voorhoeve, John Lynch, Darrell Tryon, Jacques Guy, Tom Dutton, Peter Silzer, Bill Foley, David Walsh and Malcolm Ross. Our especial thanks go to Christine Billerwell for her thoughtful and painstaking typesetting.

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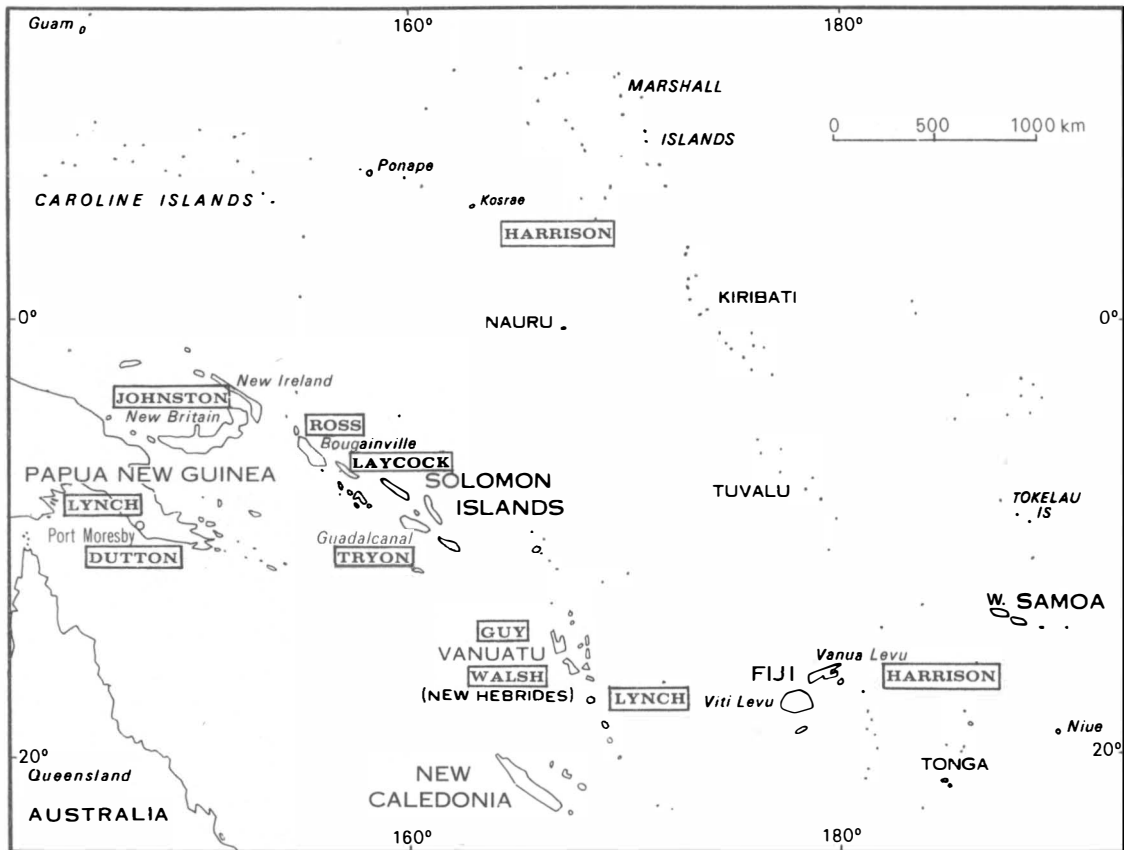
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Location of language areas referred to by the authors

THE DEVELOPMENT OF THE VERB PHRASE IN THE OCEANIC LANGUAGES OF THE BOUGAINVILLE REGION

Malcolm Ross

1. INTRODUCTION

1.1. The languages

The Bougainville region, for the purposes of this paper¹, stretches from Nehan (Nissan or Green Islands) in the north-west to the Shortland and Treasury Islands in the south-east, and includes Buka, its offshore islands and Bougainville. The region is shown in Map 1: the Shortland and Treasury Islands are parts of the Solomon Islands and the remainder of the region belongs to Papua New Guinea.

Much of the island of Bougainville is occupied by speakers of languages belonging to Wurm's (1975) East Papuan phylum. However, parts of coastal Bougainville and all of the region's smaller islands are peopled by Austronesian-speakers, whose languages belong to the Oceanic subgroup of Austronesian languages. It is these languages, shown in Map 2, that this paper is concerned with.

As Figure 1 indicates, the Austronesian languages of Bougainville all belong to one group, the Bougainville family, which probably combines with the New Ireland family to form a higher-order subgroup of Oceanic.² Phonological features which link the two families are:³

- a) merger of POC *d and *R;
- b) merger of POC *s, *ns and Blust's (1978) POC *j, but retention of POC *nj as a separate phoneme;
- c) merger of POC *n and *ñ;
- d) retention of POC final consonants in some (unsuffixed) items, with daughter languages agreeing on items in which a POC final consonant is retained or lost.

There are also a number of morphological features shared by both families. However, further research is required to ascertain whether the two families constitute a closed subgroup, the more so as Johnston's (1982) Proto-Kimbe appears to share all the features attributed to Proto-New Ireland-Bougainville.

Feature (a), merger of POC *d and *R, is common to all the Oceanic languages of the Papua New Guinea mainland (Milke 1965; Pawley 1978), but serves to draw a sharp line between Santa Ysabel (except Bugotu) and the languages of Pawley's (1972:99) South-East Solomonic subgroup of Eastern Oceanic, which merge POC *R with *l, but keep *d separate. At the opposite geographic extreme, it divides off the languages of the Admiralty Islands, which have partially lost POC *R, sometimes retaining it as /y/, but have kept separate reflexes of *d (Blust 1978).

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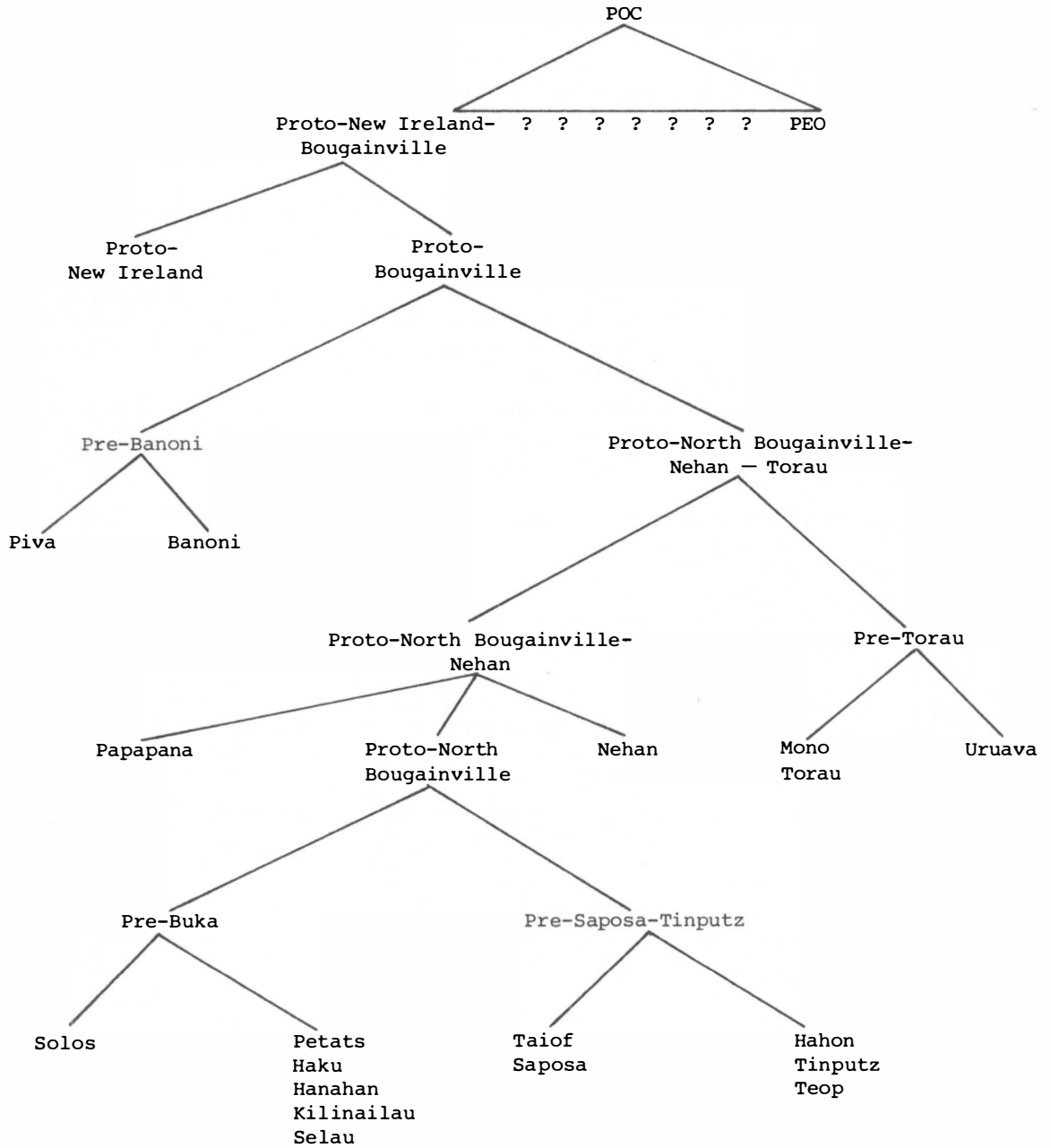
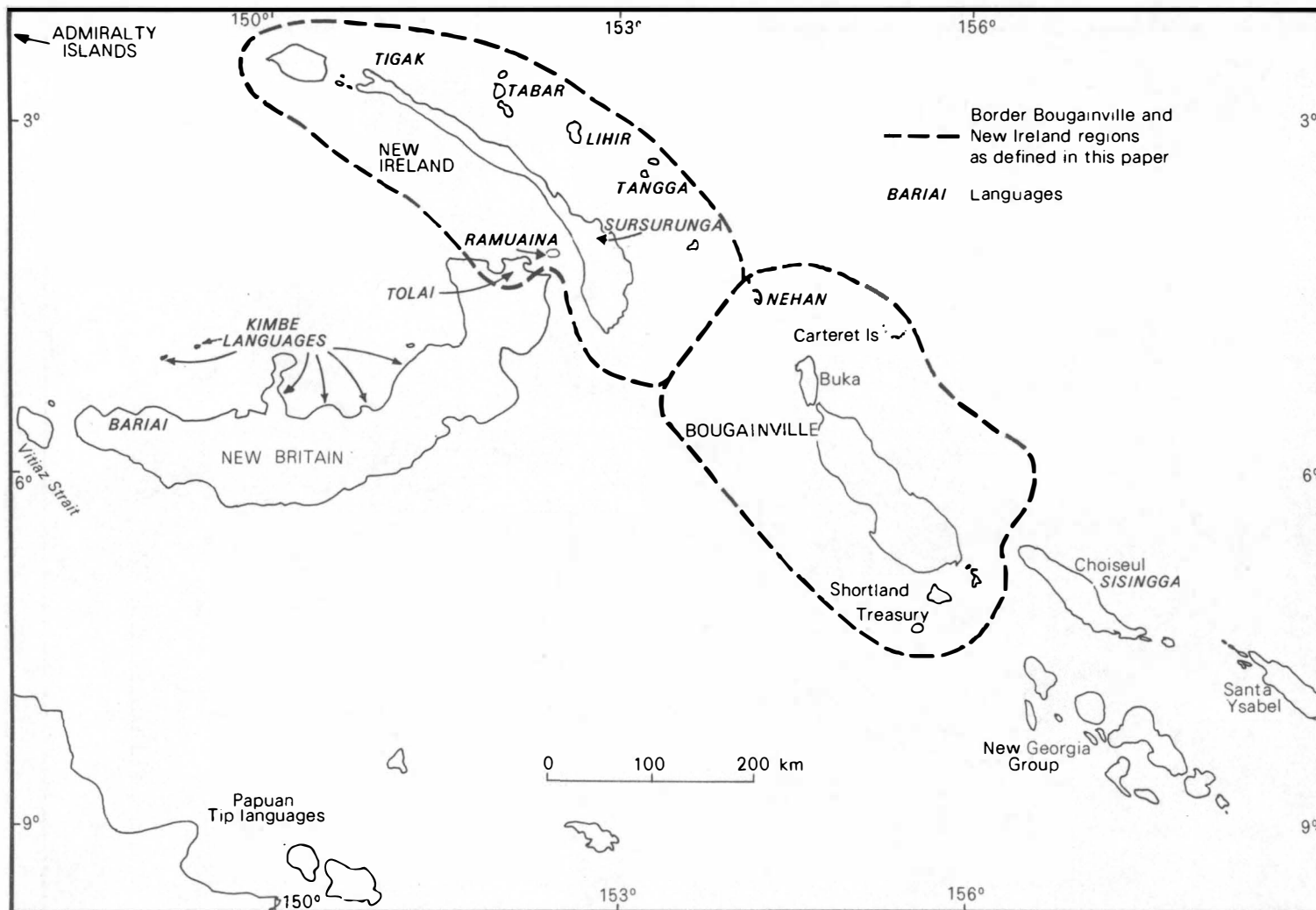
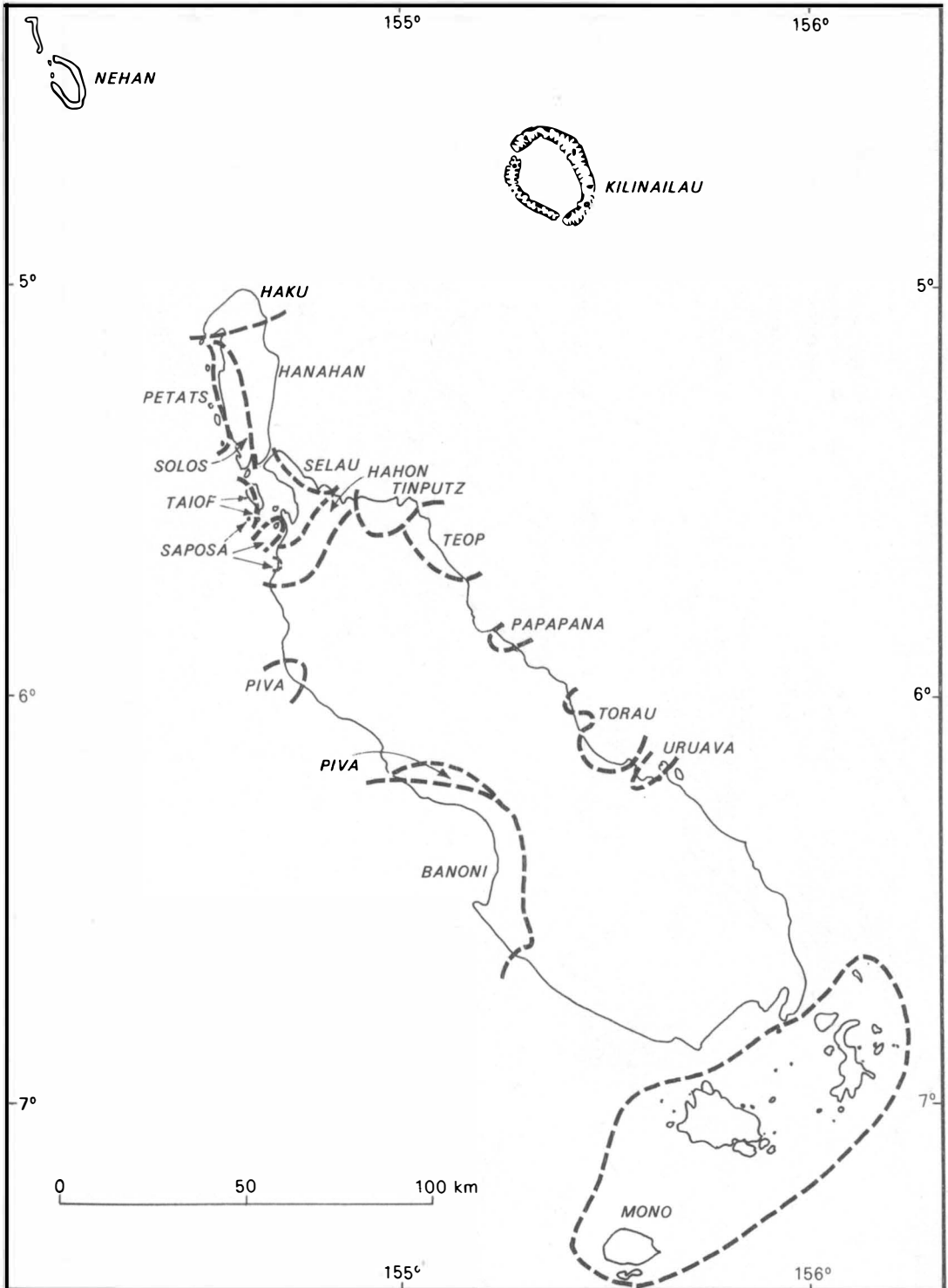


Figure 1: Family tree: Bougainville and New Ireland



Map 1: Sketch-map of locations



Map 2: Sketch-map showing locations of Oceanic languages of the Bougainville region

Feature (b) separates New Ireland and Bougainville from the South-East Solomonian languages, the Admiralties, the north coast of New Guinea (Ross 1977) and the Papuan region (Ross 1979), all of which display other configurations of reflexes.

Features (c) and (d) separate New Ireland and Bougainville from the north coast of New Guinea and the Admiralties, where POC *n and *ñ are separately reflected, and final consonants are not retained.

The only phonological feature distinguishing Proto-Bougainville (PBV) from Proto-New Ireland (PNI) is the retention of POC *w in PNI, contrasting with its loss in PBV. There are however a number of morphological contrasts.³ The New Ireland languages do not share in the developments reconstructed in this paper for the Bougainville verb phrase; and whilst Pawley's (1973) POC *ka-marking is reconstructible in the PNI possessive noun phrase, in PBV it was replaced by *ge-marking.

To the south, several morphological features separate the languages of Choiseul from those of Bougainville. Again, Choiseul languages do not share the innovations in the Bougainville verb phrase; neither POC *ka- nor PBV *ge-marking occur in the Choiseul possessive noun phrase; and Choiseul independent pronouns appear in some cases to entail bases different from those reconstructible for New Ireland and Bougainville (Sisingga and Babatana re '2sg' is not relatable to PNI *[i]u, *nu or PBV *goi⁴, and Sisingga Öra, Babatana zira '3pl' do not reflect the same proto-form as PNI *di[a], PBV *[a]Di[a]⁵).

Tryon's (1982) analysis also indicates a boundary between Mono, the southernmost daughter language of PBV, and the Choiseul languages.

Analysis of the phonological and morphosyntactic development of the Oceanic languages of the Bougainville area, only part of which is reported in this paper, confirms Lincoln's (1976a) groupings and indicates the family tree presented in Figure 1.

The communalects of the Bougainville family for which data were examined are listed in their groupings below, using as far as possible Lynch's (1976)* nomenclature and terminology. Where the work of others has been relied on, this is shown. 'S' indicates that a set of syntactic data was collected⁶, and 'T' that free text was available.⁷ The list also serves as a key to abbreviations:

A. West subfamily	BAN	Banoni	(S,T, Lincoln 1976b)
	PIV	Piva	(T, Lincoln 1976b,c)
B. North-Nehan-Torau cluster			
East subfamily	TOR	Torau	(S, Rausch 1912)
	MON	Mono	(T, Wheeler 1913a,b; Fagan 1979)
	URU	Uruava	(Rausch 1912)
North-Nehan group			
Nehan isolate	NEH	Nehan	(S,T, Todd 1978)
N. Bougainville subfamily			
Buka subgroup	SOL	Solos	(S)
	PET	Petats	(S)
incl. Halia dialects	HAK	Haku	(S)
	HAN	Hanahan	(T, Allen 1971 & 1978)
		Kilinailau	(Carteret Islands)
	SEL	Selau	(S)

* Note that Wurm and Hattori, eds 1981, where the dialects are subsumed into the Halia language, was not available at the time of writing.

Saposa-Tinputz subgroup	TEO	Teop	(S, Carter 1952)
	TIN	Tinputz	(S,T, Hostetler 1975)
	HAH	Hahon	
incl. Saposa dialects	SAP	Saposa	(T)
	TAI	Taiof	(S)
Papapana isolate	PAP	Papapana	

Data were also examined from two languages of the Choiseul family, namely Sisingga (SIS) and Babatana (BAB, Ray 1926) and most of the New Ireland family. Other language abbreviations are:

PBV	Proto-Bougainville
PNNT	Proto-North-Bougainville-Nehan-Torau
PNN	Proto-North-Bougainville-Nehan
PNB	Proto-North-Bougainville
PBK	Pre-Buka
PST	Pre-Saposa-Tinputz
POC	Proto-Oceanic
PEO	Proto-Eastern Oceanic

1.2. The problem

Although references to the structure of the POC verb phrase have appeared in the literature (e.g. Foley 1976; Pawley and Reid 1976) it has yet to be reconstructed in detail. However, the Oceanic languages of New Ireland, the Kimbe family, Papua and Choiseul, as well as Pawley's (1972) reconstruction of the PEO verb phrase, all agree in showing a pre-verbal complex of subject marker (a short-form pronoun marking the person and number of the subject) and tense-aspect marker, as illustrated in (1) and (2) from New Ireland and Choiseul respectively:⁸

Tabar	(1)	eau u ta ka
		<i>I I fut go</i>
		<i>'I shall go'</i>
SIS	(2)	aro m-e zo
		<i>I fut-I go</i>
		<i>'I shall go'</i>

All the languages of the Bougainville family have verb-phrase structures similar to (1) or (2), although in some languages the subject marker or the tense-aspect marker is not present.

However, all the Bougainville languages for which data is available also have a second verb-phrase structure. Capell (1971:276) was the first scholar to note in print of the Buka languages that "Verbs exhibit a method of conjugation which is unique in MN [=Melanesian] as a whole, not only in NGAN [=New Guinea Austronesian]." He commented on the particles following the verb which 'mark person and tense'. Lincoln (1976a:427-428) remarks more specifically that in examples like

HAN	(3)	alia e la-gu
		<i>I vi go-I</i>
		<i>'I (will) go'</i> (Allen 1971:65)
PET	(4)	elia e ngala-no-g
		<i>I vi cry-aux-I</i>
		<i>'I am crying'</i>

"non-past marking includes what look like possessive suffixes that agree in person and number with the subject" and goes on to comment that "Torau, Uruava and Mono

share an interesting device to express continuing present tense, which is more clearly related to the possessives than the Buka system" - as in, for example:

MON (5) gagana sa-ria
 go aux-they
 '(as) they are/were going' (Wheeler 1913a)

MON (6) au e-na
 stay aux-he
 '(as) he was staying'

Lincoln's comment that verb phrases like (3) to (6) resemble possessives refers to the formal similarity of the sequences of auxiliary + subject marker in these verb phrases to sequences of possession morpheme + suffixed possessive pronoun in alienable possessive noun phrases descended from those reconstructed by Pawley (1973) for POC. Thus the possession morphemes in (7), (8) and (9) resemble the auxiliaries of (4), (5) and (6) respectively:

BAB (7) na-gu visu
 poss-I bed
 'my bed'

MON (8) sa-ria pakusi
 poss-they axe
 'their axe'

MON (9) e-na niunu
 poss-he coconut
 'his coconut'

It will be argued below that the absence of an auxiliary in (3) arose from the deletion of the morpheme *e- reflected in (6).

Verb-phrase structures in Bougainville family languages which resemble those of other Oceanic languages (cf. (1) and (2)) will here be called 'Structure A', whilst the possessive-like structures will be called 'Structure B'. Structures A and B in representative languages of the Bougainville family are described in section 2.2. below.

The problem addressed in this paper is that of tracing how Structure B came to exist alongside Structure A. It will be shown that Structure B has arisen from the nominalisation of verb phrases in which the subject pronoun of the verb phrase was transformed into the possessor pronoun suffix in the nominalisation. Indeed, Allen (1978) has shown that the verb phrase in Halia is considerably more complex than Capell or Lincoln were able to describe, and data from other languages of the North Bougainville family show that they share much of this complexity, which includes suffixes marking the presence of an object, the semantic case of another non-subject noun phrase, and information regarding aspect, direction and location. Hence the nominalisations with which this paper is concerned are nominalisations of full verb phrases or clauses, not deverbal nouns derived from verb stems such as are found in various Oceanic languages, e.g.:

SIS (10) o-na le
 poss-he die
 'his death'

Motu (11) ia e-na mase
 he poss-he die
 'his death'

It is likely that the deverbal nouns of (10) and (11) are not of POC antiquity. On plentiful evidence exemplified in (12) and (13), Proto-New Ireland formed deverbal nouns with the infix *ni-/-in-, and the Nehan evidence also points to its

use in Proto-Bougainville:

- Noatsi (12) m-in-et 'death' < met 'die'
 Ramuaina (13) m-in-at 'death' < mat 'die'
 NEH (14) ni-kalekinale 'work (N)' < kalekinale 'work (V)'

Oceanic languages from Bali and Mungen in the New Britain area to Polynesian (Clark 1981) form deverbal nouns with the suffix -ŋa:

- Mungen (15) mate-ŋa 'death' < mate 'die'
 Bali (16) galama-ŋa 'work (N)' < galama 'work (V)'
 Maori (17) hoki-ŋa 'return (N)' < hoki 'return (V)'

Since both affixes probably produced nouns in Proto-Austronesian (Starosta et al. 1982), they must be reconstructed for POC. This makes it less likely that the unaffixed forms as in (10) and (11) occurred as nouns in POC.

It is possible, however, that nominalised verb phrases, as opposed to deverbal nouns, did occur without a nominalising affix in POC, as similar (possessive-like) structures are found in Sursurunga of New Ireland and in Polynesian:

- Sursurunga (18) ka-k tu han ur i rum
 poss-I aux go to at house
 'I am going (am on the way) to the house'
 Maori (19) ka mutu taa-na tohutohu
 tense end poss-he instruct
 'when he finished his instructions' (Clark 1981)

Although it is equally possible that such structures arose independently in Sursurunga, Proto-Bougainville, and Proto-Polynesian, the evidence is insufficient for a claim that Structure B is a morphological innovation supporting the establishment of the Bougainville family as a closed subgroup.

Because the verb phrases of the modern Bougainville languages are very varied and in some cases rather complex, the strategy adopted in this paper is, in Section 2, to describe the verb phrases of the representative languages one by one, then, in Section 3, to present their historical development in chronological order. This is a long-winded strategy, and it does not directly reflect the inductive process of reconstruction on which the work depends, but it is hopefully a less confusing mode of presentation than immediate comparison between the representative languages.

In his dissertation on Halia verb morphology (Hanahan dialect), Allen (1978) expresses the hope that his description will aid research into the historical origins of Melanesian languages. This paper is intended to make a start in fulfilling this hope, and it is appropriate to end this introduction by acknowledging my considerable debt to Allen for his valuable analysis, which has aided me in the analysis of other North Bougainville languages and without which the work reported in this paper could hardly have started.

2. SYNCHRONIC DESCRIPTION

The verb-phrase structures of representative languages of the Bougainville region are described in 2.2. below. The descriptions are arranged in a progression moving from those languages whose verb-phrase systems make the least use of Structure B to those in which it plays the most significant part, as follows:

GROUP	LANGUAGES
West subfamily	Banoni
Nehan isolate	Nehan
East subfamily	Mono
North Bougainville subfamily	
Buka subgroup	Petats, Haku, Selau, Solos
Saposa-Tinputz subgroup	Teop, Taiof, Tinputz

In each description the structure of the verb phrase in the main, declarative, affirmative, active clause, i.e. the 'least marked' clause-type (see Givón 1979), will be presented, together with variations from this structure which are relevant to the discussion in Section 3.

Section 2.1. first provides an outline account of the clausal context of the verb phrase, as a prerequisite for section 2.2.

2.1. The clausal context

All the Bougainville Oceanic languages except Tinputz have in the main, declarative, affirmative, active clause a TVX structure, i.e. Topic - Verb - Rest of sentence. In other words, the preverbal noun phrase is usually one⁹ whose referent the speaker assumes the hearer can identify; other noun phrases follow the verb phrase and may fall anywhere on the cline from 'referent identifiable by the hearer' through 'referent identifiable by the speaker but not the hearer' to 'non-referential'.

If a choice of topic is available, all the languages under consideration tend to select the subject noun phrase as topic as, for example, in (20a). However, (20b) exemplifies the non-subject topic, in this case the object a um ono 'this house' (co-referential with the marker -n), whose referent has just been introduced into the discourse in (20a).

- NEH (20) a. inggam nami uma-ng wesulung siok E TOK i kot¹⁰
we our house-1 cook one sm stand on ground
'Our house for cooking stands on the ground'
- b. a um ono RA KIL0-N a haus kuk
art house this sm:3pl call-om:3sg art "haus kuk"
'They call this house a "haus kuk"' (Todd 1978:1219)

Where the topic is not simply considered identifiable but also 'given' (i.e. "the speaker assumes [it] to be in the consciousness of the addressee at the time of the utterance"; Chafe 1976:30), it is commonly deleted, as (21b,c) and (22c) illustrate for topic subjects, (23b) for a topic object. A clue to the identity of the deleted topic is given by the subject- or object-marker in the verb phrase.

- BAN (21) a. nari KA TAI naanaa
they sm go so
'So they went'
- b. KA NE SISI naanaa
sm come bathe so
'So they bathed'
- c. KA SI-SISI
sm redup-bathe
'They bathed and bathed' (Lincoln 1976c:93)

- MON (22) a. I-NUNU ga Dimoai
sm-dive emph Dimoai
'(Then) Dimoai dived'
- b. keno-a I-NUNU
sea-in sm-dive
'He dived into the sea'
- c. nau I-NGKOT-I ga pakusi
then sm-grasp-om emph axe
'Then he grasped the axe' (Wheeler 1913a)
- BAN (23) a. KA TAI nana-i-ba gheri ghinima
sm go this-art-emph their five
'The five of them went'
- b. K-E TOVI-RIA tsina-ri mo sisi
asp-sm.3sg send-om.3pl mother-their to bathe
'Their mother sent them to bathe' (Lincoln 1976c:91)

A deleted topic subject may simply make way for the next available noun phrase on the cline of identifiability to become topic, as in (20a) and (22b), where only the subject markers *ra* 'they' and *i* 'he' respectively indicate the deleted topic subject.

The fact that the selection of the topic entails the speaker's estimate of the position of a noun phrase on a cline means, among other things, that the TVX pattern can develop different corollaries in different languages. Thus in Banoni and Mono, a corollary of the TVX pattern is that noun phrases considered to be 'new' (in Chafe's sense) cannot be promoted to topic position: this is the case in (23a), where *gheri ghinima* 'the five of them' is the 'new' subject of an intransitive verb and there is no other noun phrase in the clause. It is the non-promotion rule also that prevents the new subject *tsinari* 'their mother' in (23b) from occupying the position vacated by the deleted 'given' topic subject.

The non-promotion rule is even stronger in Mono, where it not only bans promotion of 'new' noun phrases but also of noun phrases whose re-introduction into the discourse may cause an identification difficulty. Hence *Dimoai* (22a), who is the protagonist, is not promoted to topic as he has not been mentioned for several clauses.

At the opposite extreme the North Bougainville languages have no non-promotion rule. If the only noun phrase in the clause is the 'given' topic subject, then it is deleted and the topic position is empty; but if a non-deletable noun phrase occurs at all, it is promoted to topic even if it is 'new', as with *e Hugen...* in (24a) and *tei kolo* in (24b):

- HAN (24) a. e Hugen me-re cina-nen ne tubu-nen
art Hugen with.art mother-his and grandparent-his
| KETE tara bongbong me NA OSUL RAMUNU-R
sm go.up in.art morning and go fill water-sm
'Hugen went with his mother and grandmother one morning to fetch water'
- b. ba tei kolo | HAKOUL-E-MA-TA a mul
and sky people sm let.down-om-dir-past art vine
'And the sky people let down a vine'
- c. ba mul E NA KUTEKUTE-TA i ramun
and vine sm go hang-past at water
'And the vine hung at the water-hole' (Allen 1978)

Bougainville languages are not only TVX but allow only one preverbal topic. Since their relativisation strategy allows only topic relativisation, a subject

noun phrase which in an independent clause might well be topic is 'demoted' in a relative clause to the immediate post-verbal position to make way for a non-subject to be relativised. In (10) and (11) the subject, marked [], is topic in (a) but demoted in (b) to make way for 'woman', which is promoted to topic and relativised. (This process may occasion a change in the form of an independent pronoun subject, but a co-referential subject marker remains without change.)

- TEO (25) a. [ena] pa tara-u a mon
 I asp see-npr art woman
 'I saw a woman'
- b. a mon, to PA TARA VURU [na], PA DE BATA NA-NA
 art woman, rel asp see already I asp carry adv aux-sm
 bon-o hoi
 4-art basket
 'The woman that I saw was carrying a basket'

Examples (26) to (29) are products of the same demotion process:

- BAN (26) nana numa, kang K-0 DZUTE-A [na], k-e tsigom
 that house, rel asp-sm:lsg build-om:3sg I asp-sm stand
 'That house I built is still standing'
- SEL (27) a yana pakum tagla eni, T-E NU-YA-GU [la]
 art fish big my this rel-vi eat-om-sm:lsg I
 'This is my big fish that I shall eat'
- PET (28) a pinapo, T-E KAKA-GU [an], i Pororan
 art village rel-vi live-sm:lsg I at Pororan
 'The village where I live is Pororan'
- NEH (29) a tamata, GE-R-U KALEKINALE [io], t-e Kalok
 art man rel-l-sm:lsg work I cop Kalok
 'The man for whom I work is Kalok'

Two North Bougainville languages, namely Taiof and Tinputz do not have this process. The reasons for this will be discussed later.

It is perhaps worth noting that the languages of New Ireland for which I have examined free text¹¹ are clearly SVX in contrast with the TVX of Bougainville (and Choiseul). The subject is preverbal, and although subject deletion may occur, there is no non-subject promotion. An examination of all nineteen languages of the New Ireland family has shown no promotion or subject demotion in relative clauses. Thus:

- Nalik (30) a. [nia] GA RAIN a ravin nabari
 I sm:lsg see art woman now
 'I saw a woman just now'
- b. a ravin, [nia] GA RAIN, KA VASAK a ruai
 art woman, I sm:lsg see, sm:3sg carry art basket
 'The woman I saw was carrying a basket'

2.2. Verb phrase structures

2.2.1. Banoni¹²

The 'least marked' verb phrase in Banoni is always a variant of Structure A:

- BAN (31) asp (-sm) (dirV) + V (adv) (-om) (-dir)

Banoni has combined aspect-subject markers, but only for the completive aspect:

BAN (32)	SINGULAR	PLURAL
	1e ko	ka(ma)
	1i --	ka(ra)
	2 ko	ka(mi)
	3 ke	ka(a)

For example:

BAN (33) no K0 RABAKA-MA
 asp.sm V-dir
you.sg cmp.you.sg arrive-come
 'You have arrived here'

BAN (34) ghata K-E REGHE-TA nna
 asp-sm V-om
us.i cmp-he see-us.i he
 'He saw us'

It seems likely that the other Banoni aspects, marked with ma 'indefinite future' and ta 'future', may also have been marked for person and number, but have lost this marking just as the completive plurals are losing it now. The future aspects are disambiguated for person and number by a preceding subject noun phrase or subject pronoun:

BAN (35) na MA GEROO
 asp V
I should return
 'I must go back'

(36) nna TA BUTSU
 asp V
he fut fall
 'He will fall'

The Banoni directional verb may co-occur with the future aspect:

BAN (37) ghata TA NO TSEREGHE
 asp dirV V
we.i fut go sleep
 'We will sleep (when we arrive)'

The Banoni verb phrase marks the person and number of an object by suffixed object markers; as (34) above illustrates, this allows the object to be promoted to topic and the subject to be demoted to postverbal position with no loss of case marking.

The only occurrence of Structure B found in Banoni is the permissive structure:

BAN (38) tai ghe-m
 V poss-pron
go Ø-you.sg
 'You may go'

On the limited data available, the Piva verb phrase appears to be a simplified version of the Banoni verb phrase.

2.2.2. Nehan

Apart from one relic form, the Nehan verb phrase is always of the Structure A

type:

NEH (39) (asp-) sm (+ {_{int}^{mod}}) + v (+ adv) (-dir)

Whereas in Banoni a subject marker is always prefixed by an aspect marker, the present tense in Nehan is marked by the non-occurrence of an aspect marker. Compare:

NEH (40) (inggo) U EN hon
 sm v
 (I) I eat taro
 'I am eating taro'

(41) (inggo) K-U EN hono neraw
 asp-sm v
 (I) past-I eat taro yesterday
 'I ate taro yesterday'

The modifier slot in (39) is occupied *inter alia* by *turung* 'future' (see (47) and (48) below) and *nihing* 'just' (see (43) and (44) below).

The TVX structure of Nehan was illustrated in (20) above, and it is with this structure that one of the language's most interesting and uniquely innovatory syntactic features is connected: all noun phrases, including pronouns, are marked as either topic-or-subject or non-topic-or-subject. These rather clumsy terms are occasioned by the strange distribution of the marker *ta-* (or variant *to-*) which precedes a non-topic-or-subject noun phrase or pronoun (the morphophonemics of this marker are rather complex, and well described by Todd (1978)).¹³ A topic noun phrase does not have a *ta*-marker:

NEH (42) a kuah E IROTEL *ta-r* tolah
 art woman she carry *ta-l* basket
 'The woman was carrying a basket'

This applies whether the topic (*a kuah*) is subject, as in (42), or object, as in (43):

NEH (43) a kuaha K-U NIHING BANGA ku io
 art woman past-I just see only I
 'I saw a woman just now'

If a subject is demoted to postverbal position, it retains its topic-or-subject form and is introduced by a ligative:

NEH (44) . . . *ta-r* uma r-E WANGOLI-N-ir kuah
 ta-l house l-she live.in-it-l woman
 '... in the house the woman lives in' (Todd 1978:1223)

However, if the object noun phrase is not the topic, it is introduced by *ta-* (or *to-*), as in (45), which is a less marked version of the clause in (43):

NEH (45) K-U NIHING BANGA puk *ta-r* kuah
 past-I just see only *ta-l* woman
 'I saw a woman just now'

Hence the term 'non-topic-or-subject' to describe the function of the *ta*-marker.

The historical origin of this marker is the PBV (and POC) preposition **ta*. However, Nehan has reinterpreted the two prepositions **i* and **ta* as articles. *i* is the article co-occurring with locative nouns (e.g. *i lalon* '(in) the bush'), *ta-* the 'article' co-occurring with non-topic-or-subject noun phrases. As a result, Nehan is almost without prepositions, and all noun phrases (except locative nouns) which are not topic or subject are introduced by the *ta*-marker, regardless of whether they function as object, as in (45), or as location (*ta-r tung*):

NEH (46) Kalok K-E PUNGA ta-r tung
Kalok past-he fall ta-1 ditch
'Kalok fell into the ditch'

or as time (ta-r bong):

NEH (47) ia R-U TURUNG WANGOL io ta-r bong
where I-I future sleep I ta-1 night
'Where will I sleep tonight?' (Todd 1978:1180)

or as accompaniment (ta-r tamat):

NEH (48) inggo U TURUNG LA tago ta-r tamat i lalon
I I future go together ta-1 man art bush
'I will go with the man through the bush'

or as instrument (to-r-o dok):

NEH (49) Kaloko K-E HALOH toto-guo to-ro dok
Kalok past-he hit ta-me ta-art stick
'Kalok hit me with a stick'

or as beneficiary (ta-ng Maria):

NEH (50) Kalok K-E KEP ta-r makih ta-ng Maria
Kalok past-he bring ta-1 betelnut ta-1 Maria
'Kalok brought the betelnut for Maria'

or as thematic topic (ta-r wekih):

NEH (51) ta-r wekih o tamat AHIK PAH RA WEKIH ta-r mamang binaka lik
ta-1 fish(ing) art man not irr they fish ta-1 every time small
'As for fishing, the people don't fish all the time' (Todd 1978:1220)

The one relic of Structure B in Nehan is limited to one verb, *kae-* 'be situated, exist', which does not take normal subject markers or aspect markers, but instead has suffixed subject markers which are reminiscent of possessive suffixes:

NEH (52) Kalok KAE-N ta-r tung
Kalok be-he ta-1 ditch
'Kalok is in the ditch'

(53) gisin KAE-S ta-r tung
these be-they ta-1 ditch
'They are in the ditch'

This structure is discussed in Section 3.1.2.

2.2.3. Mono

Mono, Torau, and Uruava appear to have quite similar verb-phrase structures. The 'least marked' Mono structure is usually a variant of Structure A, although this is sometimes supplanted by Structure B.

Structure A is:

MON (54) sm - asp - V (+ adv) (-om) (-dir)

A superficially puzzling difference between (54) and the verb-phrase structures of the other Bougainville languages lies in the sequence subject marker - aspect, which is the norm only in Mono:

MON (55) ha-na-nuhu-i
 sm-asp-V-om
I-fut-dive-it
'I shall dive for it'¹⁴

The closely related Torau language has the sequence aspect – subject marker in most, but not all, cases:

TOR (56) inau MA-GU TANISI
 asp-sm V
 I fut-I cry
 'I shall cry'

(57) pa-e alo-dia
 asp-sm V-om
 fut-he make-them
 'He will make them'

but:

TOR (58) nimanidi MANI-PA TANISI
 sm-asp V
 we.e we.e-fut cry
 'We shall cry'

This matter is discussed further in section 3.1.1.

Adverbs are sometimes incorporated into the verb phrase in Mono:

MON (59) I-ISA MALE-N ga pota
 sm-V adv-om
 he-throw away-it ? pandanus
 'He threw away the pandanus'

As was illustrated in section 1.2., Mono also has a Structure B verb phrase in which the possession morphemes sa- 'dominant' and e- 'subordinate' occur:

MON (60) (sm-asp-) V (-om) + poss-sm

The occurrence of the two possession morphemes is illustrated by:

MON (61) AU E-NA hahine-na pata-ang
 V poss-sm
 stay \emptyset -she sister-his shore-on
 'His sister stayed on shore'

(62) HO-HOSE SA-RIA, I-KAPA ga pakusi
 redup-V poss-sm sm-V
 paddle \emptyset -they it fell ? axe
 'As they were paddling, the axe fell'

Of the two, sa- occurs far more frequently, but no criterion has been found to predict the occurrence of e-. Thus both morphemes co-occur with the verb au in seemingly analogous environments. Compare (61) with (63):

MON (63) o-na-au sa-m, ha-na-nuhu-i
 sm-asp-V poss-sm sm-asp-V-om
 you.sg-fut-stay I-fut-dive-it
 'While you stay here, I shall dive for it'

A third morpheme, na-, historically dominant possessive (Pawley 1973), but no longer used in Mono noun phrases, replaces sa-/e- where the predicate is nominal rather than verbal:

MON (64) soa TOTONA NA-NA
 subj N poss-em
 thing truth \emptyset -it
 'It is true'

(65) hahine-m na-na
 N-pron poss-sm
 sibling-your.sg \emptyset -it
 'It's your brother'

The non-future aspect has no preverbal marking in Structure B, as (61) and (62) illustrate, but the future aspect has a prefixed subject marker – aspect sequence, as in the first verb phrase of (63), so that there are two subject markers, one prefixed, one suffixed.

Structure B verb phrases serve several functions in Mono, discussion of which is postponed to section 3.2.

2.2.4. Petats

Each of the languages of the North Bougainville subfamily (exemplified here by Petats, Haku, Selau, Solos, Teop, Tinputz and Taiof) has two 'least marked' verb-phrase structures, Structure A and Structure B.

Structure A is used for past or distant-time events and is formally closer to the principal verb-phrase structures of Banoni, Nehan and Mono, in that it has preverbal subject markers. Variants of Structure B, characterised by postverbal subject markers, express non-past times.

The Petats verb phrases are presented here as a model of North Bougainville verb phrases, and only the differences from them in other languages of the subfamily are dealt with in the following sections.

Petats Structure A is:

PET (66) sm + V (+ adv) (-{_{Om}^{Cm}}) (-dir) (-loc)

At its simplest the Petats Structure A resembles the Nehan verb phrase in its present-tense form:

PET (67) ieu E NIN hapal na korits i nala
 sm V
 he he eat some art taro at yesterday
 '*He ate some taro yesterday*'

NEH (68) E EN hono
 sm V
 he eat taro
 '*He eats taro*'

This similarity extends to the directional suffixes that occur throughout Bougainville:

PET (69) elia GU LA-M-A i Pororan
 sm V-dir-loc
 I I go-come-here at Pororan
 '*I have come from Pororan*'

BAN (70) no KO RABAKA-MA
 asp.sm V-dir
 you.sg cmp.you.sg arrive-come
 '*You have arrived here*'

NEH (71) KALE-ME me-k makih io
 V-dir
 bring-come for-me betelnut me
 '*Bring me some betelnut*'

However, the similarity extends no further. On the preverbal side of the verb phrase, Petats has no aspect-marking suffixes corresponding to those of Banoni, Nehan and Mono, but instead switches to Structure B to express non-past events. Postverbally, Petats has a battery of suffixes marking the relationships of the

verb phrase to other clause constituents, where Banoni, Mono, and Nehan use quite different devices. These suffixes also occur in Structure B and are described below.

Petats Structure B is:

PET (72) vi (+ int) + V (+adv) (-{^{cm}_{om}}) (-aux)-sm (-{^{dir}_{fut}}) (loc)

The main difference between Structures A and B is visible in (73), where Structure A is followed by Structure B:

PET (73) imanas elia GU KA-U i Petats kivi roman elia E KA-U-GU i Pororan
 sm V-cm vi V-cm-sm
formerly I I be-at at Petats but now I ∅ be-at-I at Pororan
 'Formerly I lived at Petats but now I live at Pororan'

It will be easier to follow the structures of North Bougainville verb phrases if they are reduced to a 'skeleton' of subject- and aspect-marking affixes and verb stem. The skeletons of the two structures in (73) are:

PET (74) sm + V Structure A

(75) vi + V-sm Structure B

The subject markers of Structures A and B belong to different sets:

PET (76)	Structure A		Structure B	
	Singular	Plural	Singular	Plural
1e	gu	i	-gu	-mu
1i	-	i	-	-ri
2	mu	i	-mu	-mu
3	e	i	-na	-ri

(The vowels of the Structure B pronouns are deleted in certain environments)

The verb introducer of Structure B, e, is invariable for person and number.

Structure B has three variants: present, near past, and future. The skeleton of the present variant is:

PET (77) vi + V (-aux) -sm

The auxiliary morpheme na-^{no}- combines with the subject markers -na '3s' and -ri '3p' respectively to give -nou 'aux + 3s' and -rou 'aux + 3p'. The distribution of the auxiliary is not properly understood, but it is apparently omitted in verb phrases expressing states regarded as more permanent, as in (73). Its use in present clauses is illustrated in (78) to (80):

PET (78) elia E KA-NO-G i luma
 vi V-aux-sm
I ∅ be-?-I at house
 'I am at the house'

(79) elia E NIN-E-NO-G u korits
 vi V-om-aux-sm
I ∅ eat-it-?-I art taro
 'I am eating taro'

(80) elia E NIN BURBURAH-NO-G
 vi V adv-aux-sm
I ∅ eat quick-?-I
 'I am eating quickly'

The skeleton of the near past variant of Structure B is:

PET (81) vi + V-sm-dir

where the directional suffixes *-ma* 'come'; and *-la* 'go' serve as markers of the near past and also have the subordinate function of marking respectively 'to the speaker' and 'from the speaker' with verbs of motion and 'there' and 'here' with other verbs:

- PET (82) elia E SUATS-E-GU-M a tolim a wel
 vi V-om-sm-dir
I ∅ *carry-it-I-come* art *five* art *coconut*
 'I have brought five coconuts'
- (83) elia E NIN HAKAP-E-GU-L a pos
 vi V adv-om-sm-dir
I ∅ *eat all-it-I-there* art *banana*
 'I have eaten all the bananas'
- (84) ieu E METE-LA-L
 vi V-sm-dir
he ∅ *die-he-here*
 'He has died/is dead'

(In (84) *-na* '3s' becomes *-la* by assimilation to *-l(a)* 'directional')

The skeleton of the future variant of Structure B is:

- PET (85) vi (+ int) + V-sm-fut

where the intention morpheme is *na* 'go' or *me* 'come' and the future morpheme is *-u*. For example:

- PET (86) mahu elia E NIN-E-G-U a pos
 vi V-om-sm-fut
tomorrow I ∅ *eat-it-I-shall* art *banana*
 'Tomorrow I shall eat bananas'
- (87) elia E NA NGALA-G-U
 vi int V-sm-fut
I ∅ *go cry-I-shall*
 'I shall go and cry'
- (88) eru E LA MOTO-R-U
 vi V adv-sm-fut
they ∅ *go later-they-will*
 'They will go later'

Discussion now turns to the three sets of suffixes which are common to both Structures A and B in Petats, but which have no direct equivalents in languages outside the North Bougainville subfamily. The three sets are:

- PET (89) a. object marker: -e-
 b. case markers: -me- 'associative'
 -u(a)- 'locative, directional'
 c. locative marker: -(y)a

The object marker *-e-* indicates transitivity, and in Petats does not vary for person or number of the object. It occurs in (79), (82), (83) and (86) above within Structure B. Examples (90) and (91) illustrate its use with, respectively, a Structure A verb phrase and a non-3rd-person object:

- PET (90) e Haroman E SUATS-E-M u mali tere Tangin
 sm V-om-dir
 art *Haroman* *he carry-it-come* art *betelnut* to.art *Tangin*
 'Haroman brought some betelnut to Tangin'

- (91) elia E NGITS-E-GU-L elia
 vi V-om-sm-dir
 I \emptyset cut-'it'-I-there me
 'I have cut myself'

A generic object may be incorporated into the verb phrase by insertion into the object marker slot:

- PET (92) eru E KUA RAMUNU-R
 vi V obj-sm
 they \emptyset drink water-they
 'They are drinking water'

The Petats object marker differs in function from those of Banoni and Mono in that it is an invariant marker indicating a case relationship (normally Patient or Goal) of a noun phrase to the verb phrase, whereas Banoni and Mono object markers are personal pronoun suffixes of the kind common in Oceanic languages, and illustrated for Banoni in (93):

- BAN (93) K-E MANA-MAM vai nna
 asp-sm V-om:lpe
 comp-he give-us.e it he
 'He gave it to us'

The Petats case markers -me- 'associative' and -u(a)- 'locative, directional' also indicate the case relationship of a noun phrase to the verb phrase. Their nearest equivalents in other Bougainville languages are prepositions. Thus -me- 'associative' indicates a comitative relationship expressed in Banoni by the (formally similar) preposition ma-, me-:

- PET (94) e Haroman pes T-E KA GON-ME-N elia
 rel-vi V adv-cm-sm
 art Haroman only who- \emptyset be together-with-he me
 'It is only Haroman who lives with me'

- BAN (95) Satoko K-E TAI-MA me-a
 asp-sm V-dir
 Satoko cmp-he go-come with-me
 'Satoko came with me'

Whereas the Banoni preposition must immediately precede its noun phrase or noun (me-a 'with me'), the Petats case marker -me- is separated from its noun phrase or pronoun (elia 'me') by any morphemes which follow the case marker in Structure A and B (cf. (66) and (72)).

Similarly the Petats case marker -u(a)- 'location, direction' indicates a locative case relationship marked by the Banoni preposition mo:

- PET (96) elia E LA-UA-N0-G tara luma ehei
 vi V-cm-aux-sm
 I \emptyset go-to-?-I at.art house there
 'I am going to that house'

- BAN (97) K-E GH0IT-A nne mo ghabi-na koromo
 asp-sm V-om
 comp-he carry-it he to mouth-its river
 'He carried it to the mouth of the river'

It is typical of the use of the locative case marker -ua- that in (96) it co-occurs with the preposition ta-, also expressing location. Allen (1978:52) labels the corresponding Hanahan marker -ua- as 'directional'; however, the function of Petats -u(a)- includes stative location, as in (73) above.

The case marker *-u(a)-* overlaps in function with the locative marker *-(y)a-*:

PET (98) elia E TAPA-NO-G-A ien
 vi V-aux-sm-loc
 I \emptyset dwell-?-I-there here
 'I live here'

The marker *-(y)a-* also co-occurs with time phrases:

PET (99) ieu E HILOU-YA tara bong
 sm V-loc
 he he run-them at.art night
 'He ran away in the night'

A feature which is important to a historical understanding of North Bougainville verb phrases is relativisation. As foreshadowed in Section 2.1., only the topic may be relativised, and a non-topic subject is demoted to postverbal position. The Petats relative marker is *t(u)-*, prefixed to the subject marker in Structure A, to the verb introducer in Structure B. For example:

PET (100) a katun, T-E LA GON-ME-GU-M an e Haroman
 art man who- \emptyset go together-with-I-here I art Haroman
 'The man with whom I came is Haroman'

where an 'I' is the demoted subject.

Relativisation is used in Petats for contrastive focus (cf. (94) above):

PET (101) e Haroman, TU GU NGOTS-en
 rel sm V
 art Haroman, who I see-him
 '(It was) Haroman (that) I saw'

The same construction appears frequently to focus the *wh*-item in a question:

PET (102) elia GU KAT asah i nala
 sm V
 I I do what at yesterday
 'What did I do yesterday?' (unfocussed)

(103) asah TU GU KAT elia i nala
 rel sm V
 what that I do I at yesterday
 'What was it that I did yesterday?' (focussed)

2.2.5. Haku

Haku is the next member in the chain of communalects running from Petats through Haku and Hanahan to Selau. Its verb-phrase structures differ from Petats only in the area of the postverbal morphemes. Differences observed are:

- a) the object marker distinguishes between *-e-*, *-i-* '3s', *-ri-* '3p', and *-(i)o-* 'non-3' (PET *-e-* is invariant);
- b) there are three case markers: *-ve-* 'benefactive', *-me-* 'associative', and *-wa-*, *-u-* 'locative, directional' (Petats has no benefactive case marker);
- c) the benefactive and associative case markers may be followed by the object marker indicating the person/number of the noun phrase to which the case marker relates (a Petats case marker is never followed by an object marker);
- d) no locative/temporal morpheme has been observed corresponding with Petats *-(y)a-*.

The three Haku object markers are exemplified in (104) to (107):

HAK (104) aku E KOT-E-G-U a tsi tsinihi
 vi V-om-sm-fut
I ∅ make-it-I-shall art bit canoe
'I shall make a small canoe'

The object marker -ri- is apparently used only with a pronominal object, where it disambiguates the object pronoun -en '3', which is both singular and plural:

HAK (105) aku pisahas T-U POK-l-en
 rel-sm V-om:3sg
 aku pisahas T-U POKO-RI-EN
 rel-sm V-om:3pl
I self who-I break-^{it}_{them}}-it/them
'(It was) I myself (who) broke it/them'

(106) e Samu T-E HARUKU-RI-en
 rel-sm V-om:3pl
 art Samu who-he kill-them-them
'It was Samu who killed them'

(but: e Samu T-E HARUKU u muki *'It was Samu who killed the dogs'*).

(107) e Samu E YOYU-10 ku a pal ruei
 sm V-om:1/2
 art Samu he hit-1/2 me art stick wood
'Samu hit me with a stick'

The benefactive case marker and its co-occurring object pronouns are illustrated in (108) and (109):

HAK (108) POLASA-VE-l-en ta tapalan ira
 V-cm-om
bring-for-him-him art some betelnut
'Bring him some betelnut'

(109) POLASA-VE-0 ga ta tapalan ira
 V-cm-om:1/2
bring-for-1/2 us.i art some betelnut
'Bring us some betelnut'

The available data do not include a case marker followed by -ri- '3p', and an example from Allen's study of closely related Hanahan is therefore offered:

HAN (110) none E GALA GONO-ME-RE-NA a gala pien
 vi V adv-cm-om:3pl-sm
he ∅ descend together-with-them-he art pl child
'He is going down (to the beach) with the children' (Allen 1978:53)

2.2.6. Hanahan

The Hanahan verb phrase, described in fine detail by Allen (1978), differs from Haku only in that the auxiliary na-, no- does not occur at all in Structure B.

2.2.7. Selau

The Selau verb phrase, like Hanahan, has no *na-*, *no-* auxiliary in Structure B:

SEL (111) ala E NU-YA- -GU osono

HAK (112) aku E NAN-E-NU-GU potutu

vi V-om-aux-sm

I ∅ eat-it-?-I taro

'I am eating taro'

The Selau structures are otherwise identical to Haku, except in the treatment of object markers. Selau has two object markers, *-ya-* 'singular' and *-ra-* 'plural' (with various morphophonemic variations) for all persons:

SEL (113) e Taga E ATUNG-YA li 'me'

e Taga E ATUNG-YE-n 'him'

e Taga E ATUNG-RA mam 'us.e'

e Taga E ATUNG-RE-n 'them'

sm V -om

art *Taga he hit-. . .*

'Taga hit . . .'

(114) e Taga E ATUNG-RI a wario

sm V-om

art *Taga he hit-them art women*

'Taga hit the women'

Whereas in a case marker — object marker sequence in Haku and Hanahan, the object marker is co-referential with the noun phrase to which the case marker relates (cf. (108) to (110) above), in Selau the object marker is co-referential with and agrees in number with the noun-phrase *object*, i.e. the pattern of (114) above is carried over into a clause with a case marker:

SEL (115) e Taga E ATUNG-ME-RI a wario a tsirei

sv V-cm-om

art *Taga he hit-with-them art women art stick*

'Taga hit the women with a stick'

2.2.8. Solos

Although Petats and Solos show the highest number of cognates on the Swadesh 100-word list (Lincoln 1976:424), a range of phonological and syntactic differences between Solos and the Petats-Haku-Hanahan-Selau chain indicate that historically Solos forms a separate branch of the Buka subgroup. The higher cognate count perhaps results from the trading and intermarriage between Solos and Petats reported by Blackwood (1935:17). A number of important syntactic differences lie in the noun phrase and are beyond the scope of this paper.

Structure B of the Solos verb phrase differs from Petats in that the auxiliary *no-* may occur in all three variants, whereas in Petats it occurs only in the present. Hence Structure B:

SOL (116) (vi +) V (-aux) - sm (-{_{dir}^{fut}})

accounts for all three variants.

Whereas the other Buka languages agree on *-u* as the future suffix, Solos has *-a*:

- SOL (117) no HEN NO-M-A a tsi pos mahu
 V aux-sm-fut
you.sg eat ?-you.sg-will art bit taro tomorrow
'You will be eating taro tomorrow'
- (118) n-E KUI-GU-A o tsinih pea tun
 vi V-sm-fut
I-∅ build-I-shall a canoe big very
'I shall build a very large canoe'

Solos shares with Petats a single invariant object marker. The Solos form is -i-:

- SOL (119) na GU NU-I-M in mes in wen
 sm V-om-dir
I I carry-it-come art one art coconut
'I brought one coconut'

However, Solos resembles Haku, Hanahan and Selau in having a benefactive case marker, -bo-, that Petats lacks:

- SOL (120) na katun, K-E SUA-BO-GU-ME na o tsini, e Nasin
 rel-vi V-cm-sm-dir
art man, who-∅ paddle-for-I-there I art canoe art Nasin
'The man, for whom I paddled the canoe, is Nasin'

Like Petats, Solos does not permit a case marker to be followed by an object marker.

2.2.9. Teop

Teop, which has been assigned to the Saposa-Tinputz subgroup of the North Bougainville subfamily, differs more from all member languages of the Buka subgroup than any of them do from each other.

The most important formal difference in the verb phrase is that Teop has no preverbal subject markers in Structure A and no verb introducer in Structure B. The immediate preverbal slot is instead occupied by an aspect marker in both structures. This gives a structure rather like those Banoni cases where an aspect marker occurs without a subject marker.

Teop Structure A is:

- TEO (121) asp + V (+ adv) (-cm) (-om) (-dir) (-npr)

However, whereas Structure A in the Buka languages expresses only the past, different combinations of aspect marker and the non-present suffix -u give various tenses of the verb phrase. These appear to be:

- TEO (122) pa + V (-u) far past
 nava + V far past
 na + V past
 mana + V recent past
 pasi + V (-u) future

Thus the marker -u, which in Buka indicates 'future', occurs in Teop at both ends of the time spectrum.

Teop Structure B is:

- TEO (123) asp + V (+ adv) (-cm) (-om) aux-sm (-dir)

with two variants:

TEO (124) pa + V + aux-sm past progressive
na + V + aux-sm present

From a synchronic viewpoint, the auxiliary and subject marker in Teop must be regarded as a single subject marker morpheme, as they cannot be separated. There is no usage corresponding to the Buka use of the directional morpheme to indicate near past.

Teop, like Haku and Hanahan, allows a case marker to be followed by an object marker. Three object markers have been observed:

TEO (125) -ma- 1st and 2nd persons
-vu- 2nd person
-ri- 3rd person plural

In the third person singular, no object marker occurs. However, my data show some unexplained variations where a marker occurs with the 'wrong' person, which, together with the overlap of -ma- and -vu- in the second person, indicates that an earlier system may be breaking down. Examples with 'proper' distribution are:

TEO (126) e Ivihi pa navuhu-vu-an bo-no pea naono
e Ivihi PA NAVUHU-RI-ori bo-no pea naono
asp V -om
art Ivihi pa hit-² you.sg 4-art stick wood
3p them
'Ivihi hit you/them with a stick'

This example also illustrates a morpheme observed only in Teop, namely the fourth-person marker ba-, bo-, used when a second or further third-person noun phrase or pronoun occurs in a clause.¹⁵

Teop has three case markers:

TEO (127) {-ki- '3rd pers.'} 'benefactive'
{-ka- '1st/2nd'}
-me- 'associative' (PET -me-)
-vo- 'directional' (PET -u(a)-)

Their usage is similar to Haku:

TEO (128) e Ivihi NA KIU KI-NANA bo-ne Teva
asp V cm-aux.sm
art Ivihi NA work for- 4-art Teva
'Ivihi is working for Teva'

TEO (129) e Ivihi PASI NAO ME-M- -an
e Ivihi PASI NAO ME-VU- -am
e Ivihi PASI NAO ME- ba-ri
asp V cm-om
art Ivihi fut go with-1/2- -you.sg
-2 - -you.pl
-4-them
'Ivihi will go with you.sg/you.pl/them'

(130) have TO NAO-VO an
rel V -cm
where that go -to you.sg
'Where are you going?'

There appears to be a fluidity in the sequence of Teop postverbal elements that does not occur in the Buka languages:

- TEO (131) DE-V0-MA en DE-MA-V0 en
 V-cm-dir V-dir-cm
carry-to-come here carry-come-to here
'Bring it here' 'Bring it here'
- ena PASI NAO-ME-U e Ivihi komana rasu
 asp V- cm-npr
- ena PASI NAO-U-ME e Ivihi komana rasu
 asp V-npr-cm
I fut go-with/-u art Ivihi inside bush
'I shall go with Ivihi through the bush'

What happens here is that the case marker is postponed to the end of the verb phrase, so that it immediately precedes the noun and behaves like a preposition. This in any case happens where two case markers are required:

- TEO (132) e Ivihi NA KIU ki bo-ne John me bo-ne Teva
 asp V cm cm
art Ivihi na work for 4-art John with 4-art Teva
'Ivihi worked for John with Teva'

The relative marker to functions like Petats, Haku, Hanahan and Selau t(V)-:

- TEO (133) a otei, TO PA NOMA-ME-U na, e Ivihi
 rel asp V -cm-npr
art man who pa come-with-u I art Ivihi
'The man I came with is Ivihi' (relative clause)
- (134) e Ivihi, to pa tarama-u na
 rel asp V-npr
art Ivihi who pa see -u I
'(It was) Ivihi (that) I saw' (focus)
- (135) tobonihi to pasi nao-v-ue a ma mon mohina
 rel asp V-cm-npr
what.time that fut go-to-u art p woman garden (wh-item)
'When will the women go to the garden?'

2.2.10. Taiof

The Taiof verb phrase differs as markedly from Teop as from the Buka languages, but shares features with each.

The most marked differences are preverbal. Firstly the subject marker of Structure A and the verb introducer of Structure B have the same forms, namely *ti* if the subject is third person plural and *to* otherwise. These morphemes are labelled as verb introducers in both structures.

Secondly, Taiof expresses aspect partly by the modifiers *matain* 'future' and *nating* 'habitual'.

A less important difference is that Taiof replaces the directional suffixes/markers of other Bougainville languages with the full directional verbs *nao* 'go' and *me* and *um* 'come', which immediately follow the head verb of the verb phrase.

Thus the Taiof Structure A, which (as in Buka) is past in meaning, is:

- TAI (136) vi (+ mod) + V (+ {^{adv}_{dirV}}) (-cm) (-om)

For example:

- TAI (137) u moun TI NAU tasi
 vi V
 art woman they go sea
 'The women went to the beach'
- (138) aina TO NI UM a nima niun
 vi V dirV
 I Ø carry come art five coconut
 'I have brought five coconuts'
- (139) imuan aina TO NATING NONGOS Siara
 vi mod V
 formerly I Ø habitual be Siara
 'I used to live at Siara'

The Taiof Structure B is:

TAI (140) (vi) (+ mod) + V (obj) (+ {^{adv}_{dirV}}) (-cm) (-om) aux-sm

where obj indicates an incorporated generic object.

There are five variations on Structure B:

- TAI (141) vi + V + aux₁-sm present
 (mod₁+) V + aux₁-sm present habitual
 vi + mod₁ + V + aux₁-sm past habitual
 mod₂ + V + aux₁-sm future
 vi + V + aux₂-sm near past

where mod₁ = nating, mod₂ = matain, aux₁ = no-, ro-, and aux₂ = e-.

Unlike its Petats and Solos counterparts, the distribution of the Taiof auxiliary is straightforwardly predictable. It is notable that, like Mono, Torau and Uruava, the auxiliary has two forms, no- ~ ro- and e-, but that in Taiof the choice of form is conditioned by aspect (variation between no- and ro- is morpho-phonemic only, conditioned by the following subject marker).

Structure B is illustrated in:

- TAI (142) aina TO AIN VESAU RO-U
 vi V adv aux-sm
 I Ø eat quick pg-I
 'I am eating quickly'
- (143) aina NATING AIN KAPU MAUT RO-U
 mod V obj adv aux-sm
 I habitual eat taro daily pg-I
 'I eat taro daily'

The use of the modifier matain to express future contrasts with the Buka/Teop suffix -u:

- TAI (144) aye MATAIN MAT NO-N roman
 mod V aux-sm
 he fut die pg-he today
 'He will die today'

The Taiof near past structure has the auxiliary -e- (and does not follow the Buka pattern of adding a directional suffix):

TAI (145) aye TO MAT-E-N
 vi V-aux-sm
 he \emptyset die-perf-he
 'He has died/is dead'

In its object markers Taiof is closer to Teop, with three object markers distributed as follows:

TAI (146)	Singular	Plural
	le -ma-	-ma-
	li -	-ra-
	2 -ma-	-ma-
	3 -i(n)-, \emptyset	-i-, -ri-

For example:

TAI (147) aina TO TOK-MA noh
 vi V-om
 I \emptyset see-1/2 you.sg
 'I saw you'

(148) anoh TO ATUNG-RA-RO- \emptyset reh
 vi V -om-aux-sm
 you.sg \emptyset hit-3p-pg-you.sg them
 'You are hitting them'

(In (148) the expected subject marker -m is deleted before the following consonant.)

Taiof has two case markers, -of- 'benefactive' and -me- 'associative'. As in Haku, Hanahan and Teop a following subject marker is co-referential with the noun phrase to which the case marker relates:

TAI (149) e John TO BINUN-OF-I reh
 vi V- cm-om
 art John \emptyset work-for-3 them
 'John worked for them'

(150) e Maras sivon NONGOS-ME-MA-RO- \emptyset nga
 V -cm-om-aux-sm
 art Maras self be-with-1/2-pg-he me
 'Only Maras lives with me'

Taiof differs sharply from the Buka languages and from Teop in its treatment of relativisation. The differences are tabulated below:

TAI (151)	Buka and Teop	Taiof
relative marker	yes	no
only the topic relativised	yes	no
non-topic subject demoted	yes	no

The difference in strategy is illustrated in:

TAI (152) a moun, nga TO TOK-IN eh, e Soaka
 vi V -om
 art woman I \emptyset see-3s her, art Soaka
 'The woman that I saw was Soaka'

TEO (153) a mon, TO PA TARA VURU na, e Teva
 vi asp V adv
 art woman \emptyset pa see already I art Teva
 'The woman that I saw was Teva'

The difference in strategy and the formal identity of Taiof to 'verb introducer' and Teop to 'relative marker' is examined in Section 3.

The Taiof focus construction follows naturally from this relativisation strategy:

TAI (154) e Maras, aina TO TOK-IN eh
 vi V -om
 art Maras, I Ø see-3 him
 '(It was) Maras (that) I saw'

However, the Taiof wh-question strategy is based, not on relativisation, but on topicalisation:

TAI (155) a sa TO AIN-OF noh na pos
 vi V -cm
 art what Ø eat-for you.sg art banana
 'Why (=what for) did you eat the bananas?'

Witness to the topicalisation strategy is that here the subject (noh 'you.sg') is demoted.

2.2.11. Tinputz

Structurally the Tinputz verb phrase shares features both with Teop and with Taiof.

As in Teop, Structure A is past in meaning. Structure A is:

TIN (156) asp + V (+ adv) (-cm) (-dir)

i.e. as in Teop, but without the non-present suffix -u which does not occur in the Tinputz data. There are two aspect markers: se 'future' (perhaps cognate with the -si of Teop pasi 'future') and to 'non-future' (cognate with the Taiof verb introducer to and Teop relative marker to; see Section 3).

Tinputz Structure B differs from other North Bougainville languages (and resembles Mono) in using reduplication of the verb stem to indicate continuous or habitual action:

TIN (157) asp + (V)V (+ adv) (-cm) aux-sm (-dir)

Like Taiof, Tinputz has two auxiliary morphemes, no- and e-. The former is used in realis contexts:

TIN (158) a te TO TE-TE NÖ-N iun
 asp V-V aux-sm
 art man Ø be-be pg-he house
 'The man is in the house'

The auxiliary e- has been found only in conditional clauses:

TIN (159) eën SE KI NÖ:, ee me: SE NÖ: E-N
 asp cond V asp V aux-sm
 you.sg fut if go he too fut go ?would-he
 'If you went, he would go too'

The Tinputz object marker system is simpler than both Teop and Taiof and indeed seems to survive only in the shape of the fossils -ra- '3p' and -a[n]- 'non-3p', prefixed directly to personal pronoun objects, but not to noun objects.

For example:

TIN (160) { TO REP-RA -poe
 TO REP-AN -yō
 TO REP-A -wa
 TO REP e Viksi }
 asp V -om
 e Valain ∅ hit-3pl-them
 -∅ -me
 -∅ -you.sg
 art Viksi
 art Valain ∅ hit-3pl-them
 -∅ -me
 -∅ -you.sg
 art Viksi
 'Valain hit them/me/you.sg/Viksi'

The three Tinputz case markers are almost identical in form and function to those of Teop:

TIN (161) { ke- '3rd pers.' } 'benefactive'
 ka- '1st/2nd' 'benefactive'
 me- 'associative'
 vu- 'directional'

The relativisation strategy of Tinputz is very similar to that of Taiof (and hence unlike Teop and the Buka languages). The only difference is that where a non-subject is relativised, the relative clause is introduced by the relative marker n-:

TIN (162) ee Varain, n-ō TO EP
 asp V
 he Varain who-I ∅ see
 'It was Varain that I saw'

Subject relativisation is unmarked:

TIN (163) eyō TO EP e kovu, TO TE-TE NO-N o kovei
 asp V-V aux-sm
 I ∅ see art woman ∅ carry ∅-she art basket
 'I saw the woman who was carrying the basket'

However, the Tinputz clause appears to differ sharply from both Teop and Taiof — and indeed all other Bougainville languages — in having a basic SVX rather than TVX structure, as the data show neither topicalisation nor subject demotion.

3. HISTORICAL DEVELOPMENT

The historical development of the Bougainville verb phrase and of its clausal context is described starting near the top of the tree-diagram in Figure 1 and working downwards. Reconstructed forms are used in some examples. Whilst their phonological basis is quite firm and derives from the sound correspondences in Table 1, their lexis is much less certain, as are some questions of morphophonemics. The use of plausible reconstructions has been attempted as a means of presenting historical development, but the correctness of the lexical choices is by no means guaranteed.

Table 1: Sound correspondences

	*p	*p	*t /_*i	*t /_*u	*nt	*[n]s	*nj	*l	*d *R	*nd	*ñ *n	*ŋ	*k *q	*k *q	*k *q	*ŋk
POC	*p	*p	*t /_*i	*t /_*u	*nt	*[n]s	*nj	*l	*d *R	*nd	*ñ *n	*ŋ	*k *q	*k *q	*k *q	*ŋk
PBV	*p	*v	*t	*t	*D	*s	*c	*l	*R	*d	*n	*ŋ	*k	*g	*Ø	*g
BAN	p	v	ts	ts	r	s	s	n	n	r	n	ŋ	Ø	gh,g	Ø	g
PIV	p	v	ts	ts	r	s	s	n	n	r	n	ŋ	k	gh,g	Ø	g
PNNT	*p	*v	*t	*t	*D	*s	*c	*l	*R	*d	*n	*ŋ	k	*Ø	*Ø	*g
MON	p	h	s	t	r,d	s,Ø	s,Ø	n	n	n	n	Ø,n	Ø	Ø	Ø	g
TOR	p	Ø	s	t	d	s,Ø	s,Ø	n	r	r	n	n	k	Ø	Ø	g,ŋ
URU	p	v	s	t	d	s,Ø	s,Ø	r	r	r	r,n	n	k	Ø	Ø	ŋ
NEH	p	w	t	t	?s	h	s	l	r	d	n	ŋ	k	Ø	Ø	g
PNB	*p	*v	*t	*t	*r	*s	*s	*l	*R	*r	*n	*ŋ	*k	*Ø	*Ø	*g
PET	p	h	ts	t	r	s	s	l	l	r	n	ŋ	k	Ø	Ø	g
**HAK	p	h	ts	t	r	s	s	l	l	r	n	ŋ	k	Ø	Ø	g
SEL	p	w	ts	t	r	s	s	l	r	r	n	ŋ	k	Ø	Ø	g
SOL	p	h	t	t	r	s	s	n	n	r	n	ŋ	k	Ø	Ø	g
TAI	p	f	ts	t	r	s	s	n	n	r	n	ŋ	k	Ø	Ø	g
HAH	p	v	ts	ts	r	s	s	n	n	r	n	n	k	Ø	Ø	g
TIN	p	w	ts	ts	r	h	h	n	n	r	n	n	k	Ø	Ø	g
TEO	p	v	s	s	r	h	h	n	n	r	n	n	k	Ø	Ø	g
PAP	p	v	s	t	d	t,s	?	n	n	r	n	ŋ	k	Ø	Ø	g

** Hanahan correspondences are as for Haku.

Notes: POC *mp > b in all languages
 POC *m, *ŋm > m in all languages
 POC *w > Ø in all languages
 POC *t > t/_*a, *o, *e in all languages

3.1. Proto-Bougainville

3.1.1. The structure of the 'least marked' verb phrase

As was indicated in section 1.2., the more ancient of the two verb-phrase structures is Structure A. Since Structure B is 'least marked' only in the North Bougainville subfamily, whilst Structure A is 'least marked' throughout the Bougainville family, the Proto-Bougainville 'least marked' structure was a variant Structure A using evidence both from its daughter languages and from its reconstructed sister language Proto-New Ireland.

There is evidence that both proto-languages had similar aspect-marking morphemes, of which the following are reconstructible for Proto-Bougainville:

- PBV (164) a. *∅ 'past, present' (PNI *∅)
 URU ∅ 'past'
 NEH ∅ 'present'
 PET HAK HAN SEL SOL (Structure A)
 ∅ 'past'
- b. *ka 'completive, stative' (PNI *ka 'sequential')
 PIV ko 'past'
 BAN k- 'completive'
 URU k- 'future'
 NEH k- 'completive'
 (SIS BAB ka- 'past, present')
- c. *ma 'present, indefinite future'
 BAN ma 'indefinite future'
 Pre-MON *ma- (see below)
 TOR ma- 'past'
 TAI ma 'irrealis'
 PBK *m- (see below)
 Pre-NEH *m- (see below)
 (SIS BAB ma- 'future')
- d. *ta 'non-present, non-habitual' (PNI *ta 'non-habitual')
 BAN ta 'future'
 PIV tsa 'future'
 TOR ta 'past'
 (BAB ta-ka- 'past')
- e. *[n]a 'future' (PNI *[n]a 'future')
 MON [n]a 'future'
 URU ka-na 'negative + future'
 TEO na '? imperfective'
- f. *pa ? (PNI *ka-pa 'negative + ?')
 BAN pa 'prohibitive'
 TOR -pa- 'future'
 TEO pa 'perfective'
 TEO pa-si 'future'
 NEH pa- 'irrealis'

The PBV meaning of *ma seems to have been in the area 'non-past, non-completive', and there are three sets of cases which suggest that it had become so neutral in meaning that the sequence *ma + subject marker underwent re-analysis of various kinds. Evidence for this is contained in the paradigms of subject markers below (POC reconstructions are from Ross 1981):

(165)	1sg	2sg	3sg	1pl.e	1pl.i	2pl	3pl
POC	*[ŋ]ku	*u, *ko	*i, *e	*mi, *ma	*ta	*m[i]u	*[n]t[i,e],[n]
PBV	*gu, *(g)u	*u, *(g)o	*i, *e	*mi, *ma	*ta, *da	*m[i]u	*Di, *De, *Ra
BAN	-o	-o	-e	-ma	-ra	-mi	-a
MON	ha-	o-	e-	m-	ta-	omi-	eri-, re-
TOR	-gu	-u	-e	-mani-	-da-	-mu	-di-
URU	-u	-o	-e	emi-	-osi	-omu	-edi
NEH	u	o	e	ming	i	mung	ra
PBK	*gu, *u	*[m]u	*i, *e	*i, *[m][i,u]	*i, *e	*[m][i,u]	*e, *ri
PET	gu	mu	e	i	i	i	i
HAK	u	u	e	u	e, u	u	e

	1sg	2sg	3sg	1pl.e	1pl.i	2pl	3pl
HAN	u, i	u, i	e	u, i	i	u, i	i
SEL	u	e	e	e	e	e	e
SOL	gu	mu	i, Ø	mu, i	i	mu	i, ri

The first set of cases consists of the Buka reflexes of the second singular, first plural exclusive and second plural subject markers. In all three, the Proto-Buka reconstruction contains a facultative *m-. It is suggested that the reflexes of PBV *mi '1pl.e' and *m[i]u '2pl' were re-analysed in the Petats-Halia chain as *m- + subject marker, leading to loss of *m- when aspect markers decayed, whilst the sequence *m- 'aspect' + *u '2sg' was re-analysed as *mu '2sg' in Solos and Petats (perhaps by analogy with PBK *-mu '2sg possessive').

The second set of cases consists of Nehan ming '1pl.e' and mung '2pl', from PBV *mi and *mu respectively, which were re-analysed as *m- 'aspect' + subject marker, as the paradigm below indicates:

NEH (166)		Present	Past	Bound	
	Singular	1	u	k-u	-u
		2	o	k-o	-o
		3	e	k-e	-e
	Plural	1e	ming	k-ing	-ing
		1i	i	k-i	-i
		2	mung	k-ung	-ung
		3	ra	k-a	-a

The third set of cases is made up of the Mono independent pronouns, which begin with ma- (third person pronouns are replaced by demonstratives). They are included in (167):

(167)	1sg	2sg	1pl.e	1pl.i	2pl
POC	*[i]-[n]au	*[i]-[n]u	*ka[ma]mi	*ki[(n)]ta	*kam[i]u
PBV	*[a][i]au	*[a][i]no	*ga[ma]mi	?	*gam[i]u
PTOR	*[a]inau	*[a]ino	*[a]ramani	?	*[a]ramu
MON	maha	maito	mani	maita	maang
TOR	inau	ine	nimani	nida	nimu
URU	aria	aro	aramani	?	aramu

Whilst the Uruava pronoun set and the singular pronouns in Torau are derivable through Proto-Bougainville from the Proto-Oceanic pronouns reconstructed by Ross (1981), of the Mono pronouns only mani '1pl.e' is plausibly derivable from its POC forerunner. Comparison of the remaining Mono independent pronouns with their subject marker counterparts suggests that the Mono independent pronouns derive from *ma- + subject marker sequences:

MON (168)		independent	subject marker
	1sg	maha	ha
	2sg	maito	o
	1pl.i	maita	ta
	2pl	maang	omi

Although sequences of aspect and subject marker do not occur in North Bougainville languages, and although present-day Mono (and, in some cases, Torau) has the sequence subject marker + aspect, the evidence above suggests that the earlier sequence was aspect + subject marker, as it remains in Banoni and Nehan. Sequences of subject marker + aspect in Mono, Torau and Proto-New Ireland apparently arose from the Proto-New Ireland-Bougainville verb-phrase structure:

PNIB (169) indep pron asp + sm + V
 Subject Verb Phrase

The PNIB subject marker was lost, and the independent pronoun reinterpreted as a new subject marker. Evidence for this lies in the fact that where there are formal criteria to distinguish subject markers derived from POC independent pronouns from those derived from POC subject markers, Mono and Torau prefixed subject markers are more readily derivable from the POC independent pronouns:

(170)	Subject markers		Indep pronoun	Subject marker
	MON	TOR	POC	POC
1pe	am-	mani-	*ka[ma]mi	*mi, *ma
1pi	ta-	da-	*ki[(n)]ta	*ta
2pl	omi-	-	*kam[i]u	*m[i]u

The initial vowels of MON am- and omi- and the disyllabicity of TOR mani suggest POC *ka[ma]mi, *kam[i]u, PBV *ga[ma]mi, *gam[i]u as their probable origin; TOR da- points to POC *kinta, PBV *giDa as its origin.

Since Proto-New Ireland shares the subject marker + aspect sequence with Mono and Torau, and also has subject markers derived from the POC independent pronouns, it is possible that the attrition of the old subject marker and the rise of the subject marker + aspect sequence had already started in PNIB. Both Mono and certain southern New Ireland languages indicate an early fusing of independent pronoun subjects and future aspect marker *[n]a, as follows:

(171)		Mono	Sursurunga	Ramuaina
Singular	1	ha-na	i-na	a-n
	2	o-na	u-na	u-n
	3	e-na	∅-na	i-n
Plural	1e	am-a	gim-a	miet-a
	1i	ta-ra	git-a	dat-a
	2	omi-a	gam-a	muat-a
	3	eri-a	d-a	diat-a

The data indicate that this fusion may have commenced in PNIB, and been inherited by Mono. It is possible that the fused order pulled Mono towards the subject marker + aspect sequence, a pull not operating in other Bougainville languages because they had lost *[n]a.

As noted in section 2.2.4., the object marker differs in function among the Bougainville languages. The object marker in Petats and Solos is invariant, and its sole function is to indicate transitivity. At the opposite extreme, the object marker of Banoni, Piva, Mono, Torau and Uruava is plainly a suffixed pronoun indicating the person and number of the object. Between the two extremes lie Haku, Hanahan, Selau, Taiof, and Teop object markers, marking some person and/or number distinctions. These markers are tabulated below:

(172)	1sg	2sg	3sg	1pl.e	1pl.i	2pl	3pl
BAN	-aa	-igho	-a	-mam	-ita	-mi	-ria
MON	-aha	-io, -no	-i, -n	-ami	-ita	-ang	-di
TOR	-au	-o	-(i)a	-mani	-da	-mu	-dia
URU	-au	-io	-i	-mi	?	-mu	-di
PET	-e-	-e-	-e-	-e-	-e-	-e-	-e-
HAK	-(i)o	-(i)o	-e-	-(i)o-	-(i)o-	-(i)o-	-ri-
SEL	-ya-	-ya-	-ya-	-ra-	-ra-	-ra-	-ri-, -ra-
SOL	-i-	-i-	-i-	-i-	-i-	-i-	-i-
TEO	-ma-	-ma-, -vu-	-∅-	-ma-	?	-ma-, -vu-	-ri-
TIN	-a-	-a-	-a-	-a-	-a-	-a-	-ra-
TAI	-ma-	-ma-	-i[n]-	-ma-	-ra-	-ma-	-ra-, -i-

The object markers reconstructible for POC (Ross 1981) and for PBV are as follows:

(173)	Singular		Plural	
	POC	PBV	POC	PBV
1e	-au	-au	-ma, -ma[m]i	-ma, -mami
1i	-	-	-kita, -ta	-ita, -da
2	-ko[e]	-[i]go	-miu, -mu[a]	-mi, -mu
3	-a	-ia	-[n]ti[a]	-Di[a]

(PBV *-ia '3sg om' < POC *i 'transitive marker' + *a '3sg om')

The distribution of object markers in (172) reflects a gradual simplification in the North Bougainville languages of the system of PBV markers. However, all the markers in (172) are derivable from (173). In Teop and Taiof, -ma- (< PBV *-ma '1pl.e') has invaded first the area of formally similar '2pl' (PBV *-mi, *-mu), then the corresponding singulars (Teop retains -vu- < PBC *-go '2sg' as a second-person marker). In Haku, -(i)o- (< PBV *-i]go '2sg') has spread through the first-/second-person area. In Selau the third person pronouns -ya- and -ra-~ri- (< PBV *-ia '3sg', *-Di[a] '3pl') have invaded the first-/second person area. And in Petats, -e- (< PBV *-ia '3sg') is all-victorious. The reasons for this development are examined in section 3.3.1. below.

The remaining features of the 'least marked' Proto-Bougainville verb phrase are fairly easy to reconstruct.

Both Banoni and PNI have the possibility of a directional verb before the head verb. This is illustrated for New Ireland by (174) and for Banoni by (175):

Tabar (174) RA TAR-l-A ma-di kavu bua
 dirV V-tr-om
go carry-∅-it for-them some betelnut
 'Take them some betelnut'

BAN (175) ghata TA NO TSEREGHE
 asp dirV V
we.i fut go sleep
 'We shall sleep (when we get there)'

The intention markers of Nehan and the Buka languages clearly derive from the same source:

BAN (176) inggo U {ME } KALEKINALE
 LA }
 sm int V
 I I {come} work
 go
 'I shall come/go and work'

so we may reasonably assume that PBV had directional verbs.

Only Nehan and Taiof show preverbal modifiers, and one of these, Taiof matain 'future', is evidently cognate with the (postverbal) adverb reflected in PET SOL moto, SOL o-mat, TIN a-mot 'later'. It seems probable that there was no separate preverbal modifier category in PBV, and that Nehan and Taiof modifiers are the descendents of adverbs which have come to serve as aspectual morphemes.

All Bougainville languages agree on incorporating some adverbs (especially of manner and completion, e.g. 'already') into the verb phrase. It is often attached directly to the verb stem:

(177) V + adv-om

Since Beaumont (1979:75) also reports the sequence of (177) in Tigak of northern New Ireland, it seems probable that (177) occurred in PBV.

In the light of the considerations in this section, the structure of the 'least marked' verb phrase in Proto-Bougainville may be reconstructed as:

PBV (178) (asp +) sm (+ dirV) + V (+ adv) (-om) (-dir)

3.1.2. Verbal nominalisation

Enough reflexes of Structure B, the structure of verbal nominalisation, are spread across the Bougainville region to indicate that nominalised verb forms occurred in Proto-Bougainville. It is not immediately clear, however, what their function was.

It was noted in section 1.2. that the forms taken by Structure B resemble the POC possessive structures reconstructed by Pawley (1973):

POC (179) inalienable: N-pron
 dominant: *na-pron + N
 subordinate: *ka-pron + N

and that reflexes of verbal nominalisation where Pawley's N is replaced by V are found as Structure B in Banoni, Mono, Torau, Uruava, Nehan and the North Bougainville family.

In Banoni, Lincoln (1976b) reports on the permissive structure:

BAN (180) TAI GHE-M
 V poss-pron
 go Ø-you.sg
 'you may go'

Mono Structure B is used in general for the progressive aspect and was described in section 2.2.3. above. Its sister languages express progressive aspect in a similar manner:

TOR (181) io TA-TANIS! E-LA
 redup-V poss-pron
 he cry Ø-he
 'He was crying'

(191)	dominant	subordinate	predicative
BAN	ghe-pron + N	ghe-pron + N	
MON	sa-pron + N	e-pron + N	
TOR	a-pron + N	a-pron + N	sa-pron
URU	Ø-pron + N	e-pron + N	
NEH	na-pron + N	[r]-e-pron + N	

whilst the North Bougainville languages preserve no- (< PBV *na-) in Structure B verb phrases (and also e- in Taiof and Tinputz), they have substituted a periphrastic possessive construction with the preposition *ta 'at, to' for the older POC/PBV possessive noun phrase construction:

HAK (192) a luma ta-mulo
 art house ta-you.sg
 'your house'

I am unable to explain the origin of Pre-Torau *sa-pron; the morpheme *sa- appears to be a local innovation, occurring in both possessive noun phrases and verbal nominalisations, but the remaining forms in (193) allow us to reconstruct the PBV possessive sequence as:

PBV (193)	*na-pron + N	dominant
	*e-pron + N	subordinate ¹⁸

Hence the PBV morphemes of possession and verbal nominalisation are the same, namely *na- and *ge-, but the sequence of elements is reversed:

PBV (194)	V + *na-/*ge-pron	nominalisation
	*na-/*ge-pron + N	possession

On widespread Oceanic evidence (Pawley 1973) the possession sequence is the older one.

Although there is ample evidence for reconstructing verbal nominalisation in PBV, there is insufficient agreement between its branches, Pre-Banoni and PNNT, to posit its PBV function.

3.2. Proto-North Bougainville-Nehan-Torau

If the reconstruction of the PBV verb phrase presented in the previous sections is approximately correct, then one of the two branches of PBV, namely Pre-Banoni, is substantially the more conservative. Indeed, the changes from PBV to Pre-Banoni are so limited that there is little to be added to what has been said already.

The same is not true of PNNT, however, whose daughter languages show substantial and varied innovations. These innovations are almost entirely in the area of nominalisation/Structure B. As the discussion in the previous section indicates, all the elements of the 'least marked' verb phrase reconstructed for PBV remained without change in sequence in Pre-Torau (with the possible exception of the pre-head directional verb) and Nehan (except for the loss of the object marker, which is discussed below). Hence there were apparently no significant changes in Structure A during development from PBV to PNNT.

At first sight, there is little commonality of function among the reflexes of verbal nominalisation in the daughter languages of Pre-Torau, in Nehan, and in the North Bougainville languages. However, it will be argued here that three functions of nominalisation can be distinguished in Mono and that these reflect stages in the development of verbal nominalisation, a development which was going on when PNNT

split into Proto-North Bougainville-Nehan and Pre-Torau, and which assumed different forms in the daughter languages.

The first of these functions is illustrated in the first verb phrase of (195c) and (196c):

- MON (195) a. mama RE-ENA ga hakasi
 sm-V
 then they-put ? canoe
 '*Then they launched the canoe*'
- b. RE-HOSE
 sm-V
 they-paddle
 '*They paddled*'
- c. HO-HOSE SA-RIA, I-KAPA ga pakusi
 redup-V poss-pron sm-V
 paddle-paddle Ø-they it-fall ? axe
 '*(As they were) paddling, the axe fell (into the water)'*
- (196) a. IRI-GAGANA
 sm-V
 they-travel
 '*They went (on their way)'*
- b. IRI-NAU
 sm-V
 they-go
 '*They went*'
- c. GAGANA SA-RIA, IRI-SOKU Hauroho
 V poss-pron sm-V
 go Ø-they they-reach Hauroho
 '*Having travelled, they reached the Hauroho river*'

In stylistic terms, these nominalisations exemplify the device of recapitulation, common in the narrative discourse of non-Austronesian languages of the Papua New Guinea region and described by Longacre (1972:45-48), whereby a previous action is briefly recapitulated to 'introduce' the next action in the sequence.¹⁹ Syntactically, this function of Mono nominalisation is similar to the absolute constructions in the earlier Indo-European languages, which also entail something similar to verbal nominalisation, lying between parataxis and subordination (Berent 1973). Such nominalisations are always sentence initial and are independent of the syntax of the following clause. These syntactic characteristics suggest that in discourse terms the nominalisations fall into the category 'topic', whose syntax is described by Li and Thompson (1976); they describe the function of the 'topic' by quoting Chafe (1976:50):

What the topics appear to do is to limit the applicability
 of the main predication to a certain restricted domain
 . . . The topic sets a spatial, temporal or individual
 framework within which the main predication holds.

Since I am using the term 'topic' in a different sense, I will use 'thematic topic' (the term is Olson's, 1979) for Li and Thompson's and Chafe's 'topic'.

Although these writers are mainly concerned with noun phrases as thematic topics, Chafe includes spatial and temporal settings in his description of the thematic topic, so that *Tuesday in Tuesday I went to the dentist* is a thematic topic. The Mono use of verbal nominalisation as recapitulation seems to be a subtype of thematic topic, providing a temporal (sequential) setting for the following clause.

Because a verb phrase like *gagana sa-ria* in (196c) is a thematic topic, it has no TVX structure of its own, and because it is recapitulative, no noun phrases co-occur with it. This — with the simplest structure of nominalisation — is taken to be very early function of nominalisation in PNNT:

PNNT (197) V + *na-/*e-pron

Example (195c) above includes a reduplicated form. Reduplication occurs in Tinputz, Torau, Uruava, Mono and throughout New Ireland to express a continuing action (as opposed to a punctiliar action), and it is therefore reasonable to suppose that (195c) also reflects an ancient structure:

PNNT (198) redup-V + *na-/*e-pron

Structure (198) distinguished continuing action from the punctiliar or perfective event of (197).

The second function of Mono nominalisation is that of a subordinate clause of time. It resembles the first function formally, in that the nominalisation precedes an independent clause, but it is not recapitulative. In cases like (199c) it borders on recapitulation:

MON (199) a. sa-na bataha Dimoai I-MEKA-SOHA

sm-V-V

poss-his wife Dimoai she-long-wait
'Dimoai's wife waited a long time'

b. I-TAHOH

sm-V

she-mourn
'She mourned'

c. RORO SA-NA RORO SA-NA, I-BOI

V poss-pron V poss-pron sm-V

see \emptyset -she see \emptyset -she it-night
'As she kept looking for him, night came'

Here *roro sa-na* is formally similar to the nominalisations in (195c) and (196c), but it does not directly recapitulate a previous verb; instead, the action is vaguely predictable from 'She waited a long time'. More clearly subordinate and not recapitulative are examples like (200) and (201):

MON (200) O-NA-AU SA-M, HA-NA-NUHU-I
sm-asp-V poss-pron sm-asp-V-om
you.sg-fut-stay \emptyset -you.sg I-fut-dive-it
'While you stay here, I shall dive for it'

(201) AU E-NA, AU E-NA hahine-na peta-ang Somapauboho I-AU
V poss-pron V poss-pron sm-V
stay poss-she stay poss-she sibling-his shore-on Somapauboho she-stay
'His sister staying on shore, she stayed at Somapauboho'

In (201) the nominalisation has a VX, but not a TVX, structure. Since a subordinate clause which precedes its main clause is usually presuppositional, i.e. it is itself a topic, it need not have a full main clause structure allowing the occurrence of a battery of noun phrases in various case relations to the verb.²⁰

However, what a subordinate clause of time must do (unlike a thematic topic) is to incorporate tense or aspect, as in (200) and in (202):

MON (202) O-NA-GAGANA SA-M O-NA-RORO-I hanua-ang saiga
sm-asp-V poss-pron sm-asp-V-om
you.sg-fut-travel \emptyset -you.sg you.sg-fut-see-it men-at garden
'As you travel on, you will see men's gardens'

The structural development illustrated here is a grafting of the preverbal subject marker + aspect complex onto a verbal nominalisation. Given that Mono has reversed the aspect + subject marker sequence of PBV (see 3.1.1. above), we may posit as the subordinate-clause structure of verbal nominalisation:

PNNT (203) (asp-)sm + [V]V + *na-/*e-pron

Although none of the North Bougainville languages has both aspect marker and subject marker in Structure B, Teop preserves the aspect marker, whilst the Buka verb introducer *e* appears to be the third person singular subject marker generalised to all persons (since the postverbal pronoun renders person/number distinctions of the subject marker redundant). We may also reasonably assume that a transitive verb occurring in nominalised form as a thematic topic or in a subordinate clause would have carried its object marker with it (and a verb of motion its directional marker). My Mono data in fact show no object- or directional markers in this context, but only independent clauses. However, this is probably a quirk of the data, as Mono, Torau and Uruava all incorporate object markers into Structure B verb phrases in independent clauses:

- MON (204) RORO-IA SA-RIA
 V-om poss-pron
see-it Ø-they
 'They could see it'
- TOR (205) A-ALO-DIA SA-GU
 redup-V-om poss-pron
make-them Ø-I
 'I am making them'
- URU (206) PURA-PURA-IA E-MI
 redup-V-om poss-pron
do-it Ø-you.pl
 'You are doing it'

Hence a fuller version of (203) is:

PNNT (207) (asp-) sm + [V]V (-om) + *na-/*e-pron (-dir)

In its third function, the nominalisation is not only non-recapitulative, but clearly independent, in that it is not relatable to the following clause. Thus (208a) is not relatable to (208b):

- MON (208) a. TA-TAI SA-NA SA-NA kanega taro-na
 redup-V poss-pron poss-pron
cry-cry Ø-she Ø-she man spouse-her
 'She kept on weeping for her husband'
- b. elua boi ga l-AU-l nitua-ang hamata
 sm-V-om
two night? he-stay-it spirit-at village
 'For two nights he stayed at the spirits' abode'

Example (209) contains a nominalisation which has its *own* thematic topic (boitalu) and its *own* TVX structure (topic: hanua-ang Alu), and occurs independently at the conclusion of a narrative:

- MON (209) boitalu hanua-ang Alu RORO-IA SA-RIA ga niunu
 V-om poss-pron
formerly people-at Alu see-it Ø-they ? coconut
 'Formerly the Alu people could see the coconut palm'

In this third function, the nominalised form has become an independent verb phrase expressing habitual action. However, there is no indication in the Mono, Torau or Uruava data of any further development in structure beyond (207).

The North Bougainville languages, on the other hand, show a number of further structural changes, and it seems likely that it was at this stage that PNNT split into Pre-Torau and PNN.

3.3. Proto-North Bougainville-Nehan

It follows from the discussion in the preceding section that PNN should have had two verb-phrase structures, and this is indeed the approximate situation which obtains in the North Bougainville languages, with Structure A derived from the 'least marked' structure of PBV, and Structure B from verbal nominalisation.

It will be convenient to discuss the development of Structure B before Structure A.

3.3.1. Structure B

Structure B, as described for the various North Bougainville languages, is (brackets are omitted for clarity's sake):

(210)

PET SOL	vi	int	V	adv	{ ^{cm} _{om} }		aux	sm	{ ^{dir} _{fut} }	loc
HAK	vi	int	V	adv	cm	om	aux	sm	{ ^{dir} _{fut} }	-
HAN SEL	vi	int	V	adv	cm	om	-	sm	{ ^{dir} _{fut} }	loc
TEO	asp	-	V	adv	cm	om	aux	sm	dir	-
TIN	asp	-	[V]V	adv	cm	-	aux	sm	dir	-
TAI	vi	mod	V	{ ^{adv} _{dirV} }	cm	om	aux	sm	-	-

On the basis of (210), we may make a tentative reconstruction of Proto-North Bougainville Structure B:

PNB (211) (asp-)vi (int +) [V]V (+ adv) (-cm) (-om) +aux-sm (-dir)

The phrase-final locative morpheme occurs only in the Buka languages and will not be considered further; other discrepancies between the North Bougainville structures will be considered below.

The PNNT forerunner of (211) was (207):

PNNT (207) (asp-) sm + [V]V (-om) + *na-/*e-pron (-dir)

The historical question which faces us is how (207) became (211). The question is basically: How did the additional elements in (211) come to be incorporated into the verb phrase in PNB? If it is recognised that the PNB verb introducer *e* is a direct descendant of the third-person subject marker in PNNT, and that the PNB 'auxiliary' morpheme is a direct descendant of *na-/*e-, then we are left with three elements to explain: the intentional morpheme, the incorporation of the adverb, and the origin of the case marker.

The motivating force behind these additions was the extension of function of verbal nominalisation from use in a presuppositional subordinate clause to use in an independent assertive clause. The extension necessitated structural innovations to cope with noun phrases in various case relations with the verb phrase and with adverbial modifications of the verb. In view of this, the most important innovation was the incorporation of the case marker into the verb phrase.

Some insight is gained into the probable process of incorporation if we first return to the object marker. In a 'least marked' verb phrase, the last element of the verb phrase is typically the object marker immediately followed by the noun phrase (if any) with which it is co-referential:

TAI (212) aina TO TOK-IN A MOUN tara tsuin
 vi V-om NP
 I Ø see-her art woman now only
 'I saw a woman just now'

This is also the pattern throughout much of New Ireland:

Tabar (213) U DER-I-A MI VEVINE moni
 sm V-tr-om NP
 I see-Ø-her a woman just now
 'I saw a woman just now'

and in Eastern Oceanic (Pawley 1972). It was probably the POC pattern and almost certainly the PBV pattern.

However, with the introduction into independent clauses of structures arising from verbal nominalisation, the object marker was 'boxed in' by the auxiliary-subject marker sequence and separated from its noun phrase:

TAI (214) a mes TO TOK-IN NO-N A MOUN
 vi V-om aux-sm NP
 art man Ø see-her pg-he art woman
 'The man can see the woman'

It is this separation of object marker from noun phrase which provided the precedent for an analogous separation of a case-marking preposition from its noun phrase. The crucial factor in the analogy is that PBV prepositions themselves had a suffixed object marker co-referential with their noun phrase (as also often in POC; Pawley 1973:142-150).

The one case marker which is common to all the North Bougainville languages is -me- 'associative', which is clearly cognate with the preposition reflected in BAN me-[~]ma-, NEH me- 'with'. The latter has a suffixes object marker, as do some of its New Ireland cognates:

BAN (215) me-a Vapai
 prep-om
 with-him Vapai
 'with Vapai'

NEH (216) Maria me-s o kaluana
 prep-om
 Maria with-them art friend
 'Maria and her friends'

Tabar (217) ma-i-a e Maris
 prep-tr-om
 with-Ø-him art Maris
 'with Maris'

The prepositional origin of the case marker is clear from the fact that even in the North Bougainville languages themselves it may occur in certain circumstances outside the verb phrase, as noted for Teop and Tinputz. A further example is:

SEL (218) amam MERE TAGA E LA-M-U i ratu
 PrepP vi V-sm-fut
 we.e with art Taga Ø go-we.e shall at bush
 'I shall go with Taga through the bush'

However, far more common is the 'boxed in' structure which separates the case marker and its object marker from the noun phrase with which it is co-referential:

HAN (219) none E GALA GONO-ME-RE-NA a gala pien
 vi V adv-cm-om-sm
he ∅ descend together-with-them-he art pl child
'he is going down (to the beach) with the children'
 (Allen 1978:53)

This separation remains in Petats and Solos although they have deleted the co-referential object marker after a case marker:

PET (220) elia E LA GON-ME-G-U e Haroman i latu
 vi V adv-cm-sm-fut
I ∅ go together-with-I-shall art Haroman at bush
'I shall go with Haroman through the bush'

It is easier to present the parallel developments involving the object marker and the preposition-object marker sequence through hypothetical PNN reconstructions than present-day examples, but examples (202) to (220) provide a basis for the reconstruction.

Our starting point is provided by Structure A forms in which the object marker is not separated from the noun with which it is co-referential. We reconstruct:

PNN (221) *e X E ATUNG-IA e Y
 sm V-om
art X he hit-him art Y
'X hit Y'

The parallel prepositional construction is:

PNN (222) *e X E LA MA-IA e Y
 sm V prep-om
art X he go with-him art Y
'X went with Y'

As was illustrated in (212) and (214) above, the B form separates the noun phrase from its object marker, so that the present progressive equivalent of (221) is:

PNN (223) *e X E ATUNG-IA NA-NA e Y
 sm V-om aux-sm
art X he hit-him ∅-he art Y
'X is hitting Y'

The parallel 'prepositional' construction, i.e. the present progressive equivalent of (222) is:

PNN (224) *e X E LA-MA-IA NA-NA e Y
 sm V-cm-om aux-sm
art X he go-with-him ∅-he art Y
'X is going with Y'

With this shift, the PNN case marker construction attested by (219) and (220) arises out of the prepositional construction.

An alternative possibility was noted in Teop and occurs sporadically in the North Bougainville languages, namely leaving the case marker in its 'prepositional' position outside the verb phrase. Hence, as an alternative to (224) we may reconstruct:

PNN (225) *e X E LA NA-NA MA-IA e Y
 sm V aux-sm prep-om
art X he go ∅-he with-him art Y
'X is going with Y'

Since the structure illustrated in (224) occurs more often in the North Bougainville languages than (225), it appears that an alternative resegmentation of the sequence verb + preposition + NP had taken place in PNN on lines similar to English, whereby 'X is going with Y' can be relativised either as 'It is Y, with whom X is going' or the preferred 'It is Y that X is going with'. In the preferred form, 'with' is treated as part of the verb phrase 'is going-with'. North Bougainville relativisation works like the preferred English form, leaving the case marker in the verb phrase:

PET (226) a katon, T-E LA GON-ME-GU-M an, e Haroman
 rel vi V adv-cm-sm-dir
 art man, who- \emptyset go together-with-I-come, art Haroman
 'The man with whom I have come is Haroman'

Relativisation in PNN must have worked the same way:

PNN (227) *a tioni, TO U LA-MA-IA NA-GU, e X
 rel sm V cm-om aux-sm
 art man, who I go with-him \emptyset -I, art X

Although the object marker is lost in this context in SOL and PET (and disappears sporadically in other North Bougainville languages), the evidence above points towards its reconstruction here. Its presence aids recovery of the case of the relativised noun, and perhaps contributed to the reanalysis of the verb + preposition sequence as a transitive verb 'go-with'.

All the examples above employ the case marker -me- 'associative'. However, the other case markers appear to have developed in a similar manner. They are:

	'benefactive'	'directional'
PET	-	-
HAK	-ve-	-wa-, -u-
HAN	-be-	-wa-, -u-
SEL	-bua-	-wa-, -u-
SOL	-bo-	-p(u)-
TEO	ki- ka-	-vo-
TIN	ke- ka-	-vu-
TAI	of-	-

Taiof has no directional case marker, but a relic of it may occur as -o in nao 'go' (< PBK *la 'go' + *u(a) 'directional'?). I cannot explain the origin of the Buka benefactive marker. However, the Teop/Tinputz benefactive marker may be cognate with the New Ireland dominant possessive morpheme *ka-, which sometimes has benefactive force:

Tangga (229) ansiak gi ke Siarafut
 bamboo this for Siarafut
 'This bamboo is for Siarafut'

The Taiof benefactive marker -of- appears to be cognate with the Proto-Malaitan reconstruction *'ofi 'for' (Keesing 1975:245), indicating PBV *govi, PNN *ovi- 'for'.

The origin of the directional marker is puzzling, as it co-occurs with the preposition i in those languages which have it:

HAN (230) alia LA-U i Hanahan
 V-cm
 I go-to at Hanahan
 'I went to Hanahan'

This sequence is reminiscent of one in southern New Ireland where a directional morpheme *u* precedes a locative preposition:

Tangga (231) A LA u na Amfar
I go to at Amfar
'I am going to Amfar'

The directional marker *u* would then have been 'boxed in' in the same way as *-me-* 'associative':

HAN (232) alia E LA-WA-G i han
 vi V-cm-sm
I Ø go-to-I at home
'I am going home'

The directional marker *-u-~wa-* is never followed by an object marker, the absence of which is predictable from the hypothesis above.

Other items which were part of the 'least marked' verb-phrase structure in Proto-Bougainville were also 'boxed in' in the PNN Structure B. Thus the adverb tended to directly follow the verb, and to precede the object marker in a transitive verb, so that when the verb was 'boxed in' by the auxiliary + subject marker sequence, these two elements both remained with it. Thus:

PNN (233) *e X E LA GONO MA-IA e Y
 sm V adv prep-om
art X ge go together with-him art Y
'X went together with Y'

developed a present progressive equivalent:

PNN (234) *e X E LA GONO MA-IA NA-NA e Y
 sm V adv cm-om aux-sm
art X he go together with-him Ø-he art Y
'X is going together with Y'

corresponding to the development from (222) to (224), and attested by (219) and (220).

Similarly a generic/non-referential noun object was and is incorporated into the verb phrase, displacing the object marker. Thus in (235) the presence of the object marker *-a* indicates the referentiality of the object, and in (236) its absence indicates generic status:

BAN (235) nna K-E TSUN-A-MA i borogho
 asp-sm V-om:3sg-dir
he cmp-he kill-it-here art pig
'He killed a (particular)/the pig'

BAN (236) na K-0 TA KUU manguri
 asp-sm asp V
I cmp-I fut drink coconut
'I am drinking coconut'

The Banoni treatment of referential and generic objects follows a common Oceanic pattern. Fijian behaves similarly:

Fijian (237) e GUNU-V-A na wai na gone
drink-tr-om:3 art water art child
'The child drinks the water' (referential)

(238) e GUNU WAI na gone
drink water art child
'The child drinks water' (Foley 1976) (generic/non-referential)

It is reasonable to assume that this was the pattern of POC and PBV, and that in PNN the Structure A pattern of (239) developed a Structure B equivalent in (240):

PNN (239) *e X E AN KORITI
 sm V obj
 art X he eat taro
 'X ate taro'

PNN (240) *e X E AN KORITI NO-NA
 sm V obj aux-sm
 art X he eat taro Ø-he
 'X is eating taro'

This development is attested by (241):

TEO (241) ena NA AN MUNIHI TAMUANA NOM
 asp V obj adv aux.sm
 I na eat taro daily Ø.I
 'I eat taro every day'

In section 3.1.1. above, it was shown that the various object-marker systems in North Bougainville languages represent varying stages in the decay of the original object-pronoun suffixes of Proto-Bougainville. The demise of the object-marker system in North Bougainville was apparently the result of two interacting factors, one syntactic, the other phonological. The syntactic factor is the use of independent pronouns within the TVX structure attributable to PBV. The X portion of TVX contains at least one 'new' element, and where the new element in Proto-Bougainville was a personal pronoun, it was marked by the non-topic form of the pronoun in addition to the clitic or suffixed pronoun form. Thus a clause with the presupposition 'X did something to me' would read:

PNN (242) *e X E ATUNG-AU
 art X he hit-me
 'X hit me'

whereas with the presupposition 'X hit someone', it would read:

PNN (243) *e X E ATUNG-AU lau
 art X he hit-me me
 'X hit me'

It is probable that by the time PNN split into Nehan and Proto-North Bougainville, the structure illustrated in (243) had become unmarked and had displaced (242), as Nehan has lost its object markers:

NEH (244) kaloko K-E HALOH toto-guo
 Kalok past he hit ta-me
 'Kalok hit me'

and the North Bougainville languages only permit (243):

TAI (245) e Maras TO RAK-MA na
 art Maras Ø hit-1/2 me
 'Maras hit me'

The use of a non-topic independent pronoun in the X-part of TVX in North Bougainville languages is not limited to objects. It results originally from 'new'-ness in the post-verbal X region and has become the unmarked form of any non-topic pronoun. Its use for demoted — i.e. non-topic — subjects was illustrated in section 3.1.1. above. It is used in the same way for case-marked pronouns:

TAI (246) e Maras sivon NONGOS ME-MA-RO-Ø NA
 V cm-om-aux-sm Pron
 art Maras self be with-1/2-Ø-he me
 'Only Maras lives with me'

SEL (247) Taga atua T-E SOUSOUO ME-N LA
 rel-vi V cm-sm Pron
Taga only that-Ø live with-he me
'Only Taga lives with me'

A similar process has affected dominant/subordinate possessive constructions, in which the preposition *ta is used (as in much of Oceania: Pawley 1973:148-150). The PBV construction was as in:

PBV (248) *a Ruma [ta]ta-gu
 art house at-me
 'my house'

as in Tigak (New Ireland) a lui tata-k. However, in contexts where the pre-supposition is 'the house belongs to someone', an independent non-focal pronoun was added:

PNN (249) *a Ruma eni [ta]ta-gu lau
 art house this at-me I
 'this house is MINE'

By the break-up of PNN this had become the unmarked form, so that we find a reflex of *lau 'I' not only in the potentially marked case:

SEL (250) a ruma eni ta-g-la
 art house this at-me-I
 'this house is MINE'

but also in the unmarked case:

SEL (251) a ruma ta-g-la eni
 art house at-me-I this
 'my house is THIS ONE'

The result is that Nehan and all the North Bougainville languages except Solos have possessive pronoun suffixes which are composed historically of the original possessive suffix and an independent pronoun, whilst the original possessive suffixes have become (except in Nehan) the subject markers of Structure B verb phrases. For example, for the second person singular:

(252)	Possessive	Subject-marker	Non-topic pronoun
NEH	-mua < -mu-a	-	a
PET	-mulou <	-m(u)	lou
HAK	-mulu <	-mo	lu
HAN	-mulo <	-mu	lo
SEL	-mli <	-m	li
SOL	-o	-m	-o
TEO	-man <	-m	an
TIN	-ma <	-m	wa
TAI	-mon <	-mu	an

The phonological factor at work in the decay of object pronouns is similar to the process of phonological simplification which has led to the reanalysis of two morphemes as one in the possessives. However, whereas the redundancy of two pronouns has led to the collapsing of two morphemes into one in the possessives, the object marker is boxed in and separated from the independent pronoun, and has undergone phonological attrition, and reinterpretation as a marker of transitivity alone. Thus the earlier PNN forms:

- PNN (253) *e X E ATUNG-MAMI NA-NA lami
 art X he hit-us e aux-he us
 'X is hitting US'
- (254) *e X E ATUNG-MIU NA-NA limiu
 art X he hit-you.pl aux-he you.pl
 'X is hitting YOU'

were reduced to:

- PNN (255) *e X E ATUNG-MA NA-NA lami/limiu
 'X is hitting us/you'

and the loss of person/number marking triggered the extension of *-ma to the first person singular illustrated in Taiof (245) and (246) above.

This attrition is still going on in Taiof, Tinputz and Teop, but is complete in Petats and Solos, where only one object marker survives for all persons. This object marker therefore became redundant after a case marker and was deleted.

In Selau, illustrated in section 2.2.7., matters have taken a different turn. Instead of being deleted, the object marker (which distinguishes singular and plural) has been reinterpreted in the context of a case marker so that it is co-referential not with the case-marked noun phrase but with the object noun phrase (example (110)).

The developments described in this section have brought us from the verbal nominalisation of PNNT, with the structure:

- PNNT (207) (asp+) sm + [V] V (-om) + {^{*na}_{*e-}} -pron (-dir)

to a PNN structure:

- PNN (256) (asp+) sm + [V] V (+adv) (-cm) (-om) -{^{*na}_{*e-}} -sm (-dir)

The remaining developments which gave rise to the PNB structure:

- PNB (257) (asp) (vi) (+int) + V (+adv) (cm) (-om) (-aux) -sm {^{dir}_{npr}}

have been largely foreshadowed by previous discussion, and are motivated by the drive to eliminate redundancy from a highly complex verb phrase structure.

An important development which apparently occurred before the break-up of PNN was the attribution of function to the now functionless morphemes *na- and *e-, originally markers of nominalisation. From their origin in subordinate temporal clauses, Structure B verb phrases developed progressive ('(as) they were going') and near past ('having reached ...') senses, which seem to have been attributed to *na- and *e- respectively. Taiof witnesses to this distinction. Any possessive sense which *na- and *e- might have retained was lost with the replacement of the possessive construction by the *ta construction in PNB. The attribution of a progressive sense to *na- rendered reduplication redundant, and it disappeared.

The origin of the morpheme -u (Buka 'future', Teop 'non-present') at the end of the verb phrase is obscure, but its distribution shows that it arose at the PNN or PNB stage, probably as part of the reallocation of tense/aspect functions.

Once Structure B was well established as the verb phrase of an independent clause with, among other senses, a potentially future use, then the integration into it of the intentional morphemes *la 'go' and *me 'come' (derived from directional verbs) was a natural step, as in:

- PET (258) elia E NA NALA-G-U
 vi int V-sm-fut
 I Ø go cry-I-shall
 'I shall go and cry'

3.3.2. Structure A

The 'least marked' verb phrase of PBV:

PBV (259) (asp+)sm(+dirV) + V (+adv) (-om) (-dir)

underwent only a minimal change to produce PNN Structure A:

PNN (260) (asp+)sm(+int) + V (+adv) (-cm) (-om) (-dir)

namely the incorporation of the case marker into the verb phrase by analogy with Structure B. Whereas in Structure B however, this incorporation occurred through the 'boxing in' of the case marker, in Structure A it occurred by simple affixation. To return to reconstruction:

PNN (261) *elia GU LA ma-ia e X
 sm V prep-om
I I go with-him art X
'I went with X'

a weakening of boundaries gave:

PNN (262) *elia GU LA-MA-IA e X
 sm V-cm-om
'I went with X'

reflected in relativisation:

PNN (263) *e X TO GU LA-MA-IA eni
 rel sm V-cm-om
art X who I go-with-him this one
'(It was) X, that I went with'

where *eni serves as mandatory non-topic pronoun as attested by:

PET (264) e Haroman, TU GU LA-M-EN
 rel sm V-cm
art Haroman who I go-with him
'(It was) Haroman that I went with'

3.3.3. Nehan

Nehan was attributed by Capell (1971:259-261) to the New Ireland family. Lincoln (1976) attributes it to the Bougainville regional grouping, but not to a specific subfamily. Todd's (1978) study of its grammar enables it to be assigned to the North-Bougainville-Nehan group proposed in this paper, although, as Lincoln points out, it has long been separated from the languages of the rest of Bougainville.

The main grammatical clues to its membership presented above were:²¹

- a. its strongly TVX structure;
- b. its lack of case marking;
- c. the affixation of non-topic independent pronouns to possessive pronoun suffixes;
- d. the verb kae- 'be situated, exist', which takes possessive-type pronoun suffixes as subject markers and is derivable from PNN *ka- 'be' + *e- 'auxiliary'.

Feature (d) indicates that Nehan once had Structure B, but has lost it, retaining only the kae- structure. What appears to have happened is that Structure A and Structure B were merged, the sequence (-cm) (-om) was lost from Structure A, and the sequence (-cm) (-om) (aux-sm) from Structure B, leaving the Nehan verb phrase reported in section 2.2.3.:

NEH (265) (asp-)sm (+ {^{int}_{mod}}) + V (+adv)(-dir)

The introduction of preverbal modifiers to indicate some aspect categories is then explained as associated with the loss of the aspect-marking auxiliary; indeed the rise of modifiers (also found in Taiof) may have occasioned the loss of the auxiliary by rendering it redundant. The postverbal subject marker attached to the PNN auxiliary was in any case redundant, as preverbal subject markers remained.

An important clue to the probability that Pre-Nehan had the case markers of PNN but lost them lies in the lack of prepositional case marking in Nehan and its identical treatment of all non-topic cases. It has been hypothesised above that prepositions became case markers in PNN; these case markers were lost in Pre-Nehan, leaving all non-topic cases identically marked.

3.4. Proto-North Bougainville and subsequent developments

Whereas Nehan apparently eliminated the redundancy of the two subject markers in Structure B by losing the postverbal subject marker, PNB took the opposite course and reduced the preverbal subject markers to a verb introducer *e*, originally the third singular subject marker. This simplification has spread gradually to the Structure A (preverbal) subject marker (see table (170) above), and loss of person/number distinction is compensated by the use of topic or non-topic independent pronouns as subject. This left the PNB skeleton structures.

PNB (266) (asp+)sm... + V...(-dir) Structure A

(267) (asp+)vi... + V...-aux-sm(-dir) Structure B

At this point, PNB split into Pre-Buka and Pre-Saposa-Tinputz, and each subgroup treated the preverbal complex in different ways.

In Pre-Buka, the potential redundancy of a preverbal aspect marker and a postverbal aspect-marking auxiliary in one verb phrase was eliminated by loss of the aspect marker. However, the 'near past' auxiliary *-e- was then lost by phonological attrition, and its function attributed to the directional marker, giving:

PBK (268) sm ... + V ... (-dir) Structure A

(269) vi ... + V ... (-aux)-sm(-dir) Structure B

In Pre-Saposa-Tinputz, retention of the aspect marker marked the onset of the verb phrase, rendering the verb introducer and the already decayed preverbal subject markers redundant and resulting in their loss. Hence:

PST (270) asp ... + V ... (-dir) Structure A

(271) asp ... + V ... -aux-sm(-dir) Structure B

In Taiof, the aspect marker was lost, but the postverbal auxiliary distinction between *-na- and *-e- remained. A result of this loss was the absence of any marker showing the onset of the verb phrase. The formal identity of the Taiof/Tinputz verb introducer to and the Teop relative marker to was noted earlier, and it is evident that Pre-Taiof and Pre-Tinputz demarked the Pre-Saposa-Tinputz focus construction so that it became the least marked structure. The focus construction in Teop includes a relative clause:

TEO (272) e Ivihi, T0 PA TARA-U na
rel asp V-npr
art *Ivihi*, who past see-u I
'(It was) *Ivihi* (that) I saw'

Its earlier, Pre-Taiof, equivalent was:

Pre-TAI (273) *e X, TO TARA-l nga
 rel V-om
 art X, *who see-him I*
 '*(It was) X (that) I saw*'

However, the unmarked equivalent of (273) did not mark the verb onset:

Pre-TAI (274) *anga TARA-l e X
 V-om
 I *see-him* art X
 '*I saw X*'

and so (273) was demarked (and replaced (274)), leaving to as verb introducer:

Pre-TAI (275) *e X TO TARA-l nga
 vi V-om
 art X \emptyset *see-him I*

where the object marker *-i guarantees proper case-recovery and the gloss '*I saw X*' (not '*X saw me*'). This is the situation that obtains in present-day Taiof and that has resulted in a relativisation strategy different from that of all other North Bougainville languages (section 2.2.10).

4. CONCLUSIONS

It can by no means be claimed that this paper gives a complete description of even the 'least-marked' verb phrases of Bougainville Oceanic languages, and the sketch of their historical developments given here neglects much, especially in the area of morphophonemics. The attempt to trace these developments, however, provides some justification for the genetic groupings given in Figure 1, and provides a family-tree, which, as Lincoln (1976a) observed, is only partly possible with phonological and lexical data.

The division of the Bougainville family into a West subfamily (Banoni, Piva) and the North-Nehan-Torau cluster is motivated by:

- (a) the retention of PBV *g in the West subfamily and its loss in all other languages;
- (b) the development of the structure of verbal nominalisation to 'least marked' status in the North-Nehan-Torau languages.

The division of the North-Nehan-Torau cluster into an East subfamily (Mono, Torau, Uruava) and a North-Nehan group is motivated by the continued development in the function and structure of Structure B (< verbal nominalisation) in the North Bougainville languages, with which Nehan is grouped for the reasons given in section 3.3. The East subfamily also stands out as the only group in Bougainville to distinguish reflexes of POC *nt and *nd. However, it is just possible that Nehan retains this distinction also.

The North-Nehan group is assumed on the basis of very limited data to include Papapana, as it shares with the North Bougainville languages and Nehan the division of nouns into two categories: 'clearly countable' (PNN article *a) and 'not clearly countable' (PNN article *o).

An account of the sequence of splits in the North Bougainville subfamily is provided in the section immediately above the present one.

NOTES

1. My thanks go to Robert Blust, Ross Clark, Peter Lincoln and Darrell Tryon for their comments on an earlier version of this paper. Full responsibility for this revised version, however, lies with me.
2. In an earlier version of this paper it was suggested that the Bougainville and New Ireland families belonged to a much larger higher-order subgroup of Oceanic. However, there is evidence that most of the features crucial to establishing this subgroup may be retentions of previously unreconstructed POC contrasts (Ross 1981). Hence, although such a subgroup has not been refuted, the evidence for it is weakened.
3. The features here are the result of my own analysis of the sound- and cognate correspondences among most of the Oceanic languages of New Ireland and Bougainville, based on my own data, and a more cursory analysis of Choiseul languages, using data from Capell (1968) and Lanyon-Orgill (1950).
4. The bracketing conventions employed in reconstructions are:
 - (X) phoneme X may or may not have been present;
 - (X,Y) either phoneme X or phoneme Y was present;
 - [X] alternate reconstructions with and without phoneme X are supported by the data;
 - [X,Y] alternate reconstructions, one with phoneme X, the other with phoneme Y, are supported by the data.
5. SIS BAB re is of unknown origin; PNI *[i]u, *nu reflect POC *[i]-[n]u; PBV *goi reflect POC *[i]-ko[e]; SIS öra, BAB zira reflect POC *ida; and PNI *di[a], PBV *[a]-Di[a] reflect POC *-[n]ti[a]. (POC pronoun reconstructions are from Ross 1981).
6. My knowledge of Banoni syntax came first from Lincoln's (1976b & c) work, for which I am very grateful. My knowledge of Nehan syntax comes partly from Todd (1978), to whom I am also indebted. I would also like to thank the following informants, who provided lexical and/or syntactic data: Mr Andrew Belanias, Yatchibol village (Nehan); Mr John Tsihakou, Nova village, and Miss Helen Hosian, Hapan village (Solos); Miss Mary Koisan, Pororan Island, and Miss Dinah Teit, Petats Island (Petats); Miss Alina Masina, Lontis village, and Mr Samu Sasama, Lemanmanu village (Haku); Miss Josephine Wariu, Baniata village (Selau); Miss Josephine Tosan, Jupuno village, and Miss Rose Sisip, Kokoteni village (Taiof); Mr Ezekiel Ivihi, Takani village, and Miss Roslyne Purupuru, Teop village (Teop), Mr Chanel Suston, Sisiko village (Tinputz); Miss Ann Sirinai and Miss Rose Magasa, Rorovana village (Torau); Sr Mary Patricia, Mariga village (Banoni); and Mr Moses Biliki, Gagara village (Sisingga). To all my informants, students and teachers following programmes at the Goroka campus of the University of Papua New Guinea, I owe a debt of gratitude for their patience and goodwill.
7. Text sources are Lincoln (1976b & c) for Banoni and (1976c) for Piva; Wheeler (1913a) for Mono; Todd (1978) for Nehan; Allen (1978) for Hanahan; Hostetler and Hostetler (1975) for Tinputz; and a Saposia manuscript kindly provided by David Snyder of SIL.

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PROTO-KIMBE AND THE NEW GUINEA OCEANIC HYPOTHESIS

Raymond L. Johnston

0. INTRODUCTION

In considering the Kimbe languages in relation to the New Guinea Oceanic hypothesis¹ three crucial issues present themselves:

- (a) Is the language ancestral to the present-day Kimbe languages (PK) a descendant of an earlier New Guinea Oceanic proto-language (PNGO)? (cf. Pawley 1978).
- (b) Are the Kimbe languages immediately related to the other AN languages of the New Guinea area? and
- (c) Is there a fundamental dividing line at the Willaumez Peninsula, west of which the Bariai and North Coast-Madang Austronesian languages group distinct from the Kimbe languages? (cf. Chowning 1973).

These questions presuppose that there is a PK which can be reconstructed. Thus the reconstruction of Proto-Kimbe phonemes, certain etyma and limited grammatical forms is the first goal of this paper.

A second goal, however, is to relate what is reconstructed to the wider picture for NGO. In so doing the reconstruction of an historical sequence of development is crucial because of earlier claims by other researchers. Milke (1976) and Pawley (1978) have broached the NGO hypothesis, however the role of the Kimbe languages in helping define the nature of putative NGO was undermined by Chowning (1973) who, after comparing Kove as representative of the Bariai family, and Nakanai as representative of the Kimbe family, claimed that (1973:227) "If NGA does include all the languages of the north coast of New Guinea ... I think it extremely unlikely that it will include any languages of the Kimbe family".

However, when the Kimbe languages are looked at from the point of view of their reconstructed form, Nakanai appears as the most mutated of the languages in its development from PK. Additionally there is some evidence of a substratum influence which looks to be of an Eastern Oceanic source.

Crucial in the reconstruction of PK is the consideration of the Bali and Vitu dialects spoken on the French Islands, and which previously have not been seriously considered in comparative research in north-western New Britain. The Bali dialects appears to closely reflect PK, and seems not too far removed from POC. The reconstruction of PK identifies clearly the Kimbe languages as part of the subgroup of Northern New Guinea. The dividing line at the Willaumez Peninsula is maintained, but not as clearly as indicated in Chowning (1973). The matter of whether PK and other putative groups such as Proto-New Ireland, Proto-Bougainville, Proto-North Coast-Madang, and Proto-Papuan Tip are first-order descendants of POC, or descendants

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of an intermediary PNGO stage, cannot be resolved with reference to PK alone. However the data herein do show that the Kimbe languages ought to be grouped in their historical origins with all the other AN languages of New Guinea, even though they still remain distinct by certain criteria from the Bariai and North Coast subgroup.

The Kimbe languages are situated in the central northern seaboard area of western New Britain. (See Map 1). The group is comprised of the following languages:

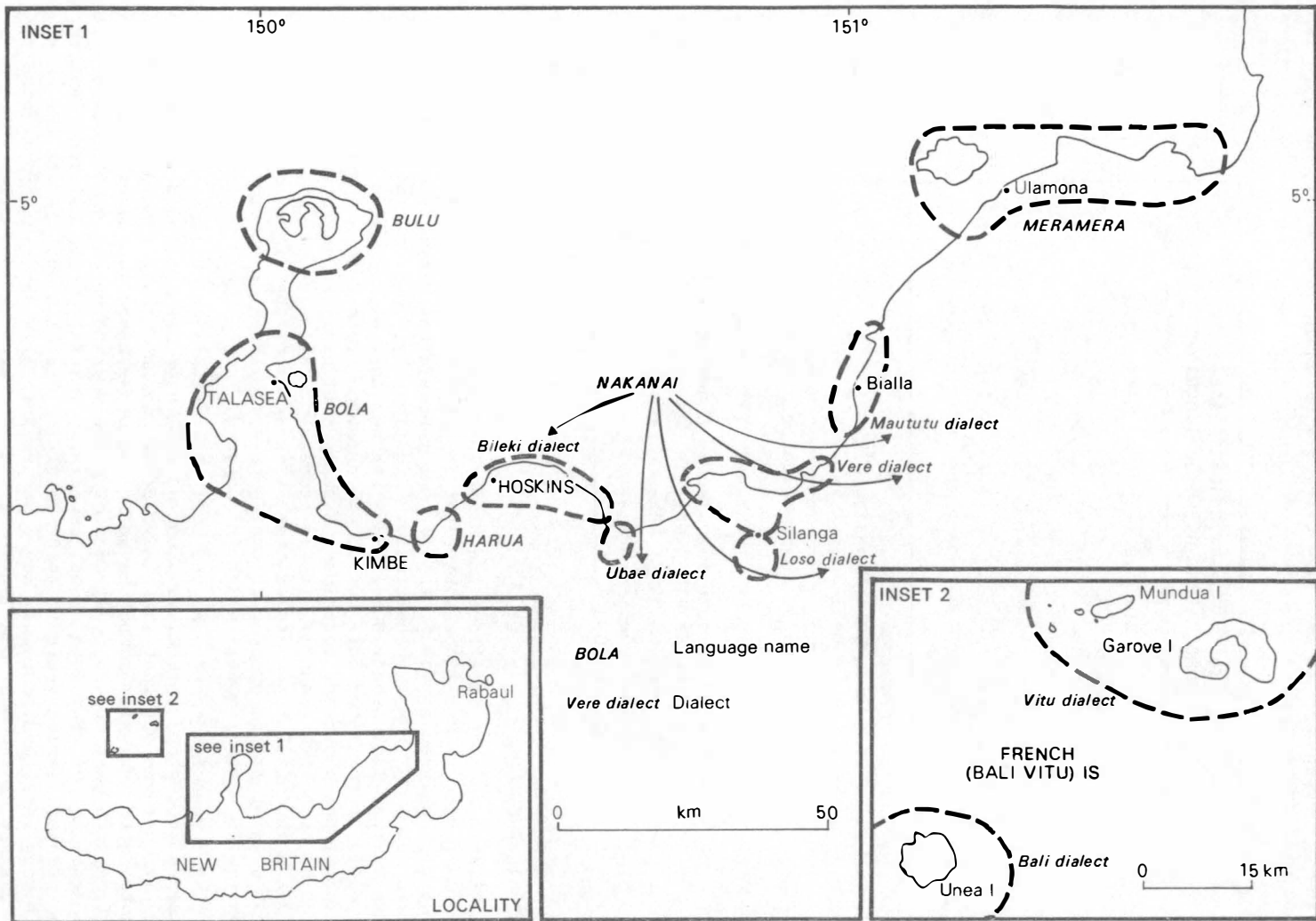
Bali	total speakers	5,586
Vitu		3,132
Bulu		566
Bola		6,194
Harua		1,339
Meramera		1,561
Nakanai		10,403

The only Kimbe language to show any substantial dialect variation by geographical location is Nakanai, which is divided into dialects as follows: Bileki (6,477), Maututu (1,312), Loso (1,513), Vere (737), Ubae (364). Despite their number, the Nakanai dialects are not widely divergent in phonology, lexicon or grammar. An account of the Nakanai dialects may be consulted in Johnston 1980a:14-18, while an account of the sociological situation of the Kimbe languages is available in Johnston 1980b.²

The Kimbe languages first came to the attention of comparative Austronesianists through the work of Goodenough (1961a,b) who demonstrated that Lakalai (Nakanai) and the other Kimbe languages differed from other nearby Austronesian languages, and adduced evidence to include Nakanai in Grace's (1959) subgroup consisting of Fijian, Rotuman and Polynesian. Goodenough (1961a) suggested that Nakanai and its relatives arrived in New Britain by means of a back-migration from the east. While the ties with Fijian seem remarkable, Milke (1965:331) refuted Goodenough, saying supposedly uniquely shared features he had noted may have a much wider distribution. Goodenough (1961b) additionally reconstructed a number of proto-forms for 'Proto-Willaumez', based on comparisons of Bulu, Bola and Harua. Chowning (1969, 1973, 1976a,b) has ably summarised and extended such previous comparative research in New Britain, her main contribution perhaps being a strong rebuttal of Milke's (1965) arguments for the inclusion of Nakanai in his proposed NGO group.

Previously there has been little recognition given to Bali and Vitu in the work on the Kimbe languages. These dialects appear to preserve a number of Oceanic features that are less evident in the other Kimbe languages. The author has amassed some materials in these two dialects, as well as in all of the Kimbe languages and all Nakanai dialects.³ It is my hope that if the languages of the Kimbe family can be further analysed and their distinct phonological and grammatical histories demonstrated, then the Kimbe family might help in the overall task of refining the first attempts at understanding the proto-forms of larger groupings such as Oceanic, as in Grace (1969) and Pawley (1973), and NGO (Pawley 1978). Additionally the author would like to see an applied value for contemporary speakers of the Kimbe languages, as their languages are analysed and established on consistent orthographic and grammatical footings.

The claims of earlier researchers that some or all of the Kimbe languages group as a discrete entity on lexicostatistical estimates of shared cognacy in basic vocabulary (Allen and Hurd 1963; Goodenough 1961b; Dyen 1965) is confirmed by a cognate count of the first 100 items (nouns) from Johnston 1980b:144-148. This list is the first comparison of items all elicited by the same fieldworker (the author) under similar conditions and in a similar space of time for all languages. As the list is shorter than the commonly-used Swadesh 200 list, and includes a number of items general to coastal Melanesia and to Melanesian culture, it is presumed to inflate somewhat on figures derived from comparing Swadesh lists or their equivalent.



Map 1: The Kimbe languages

Cognacy ranges from 40 to 86% (see Table 1), and averages 52.6%. If the bottom diagonal row of percentages is excluded (i.e. all neighbouring pairs) the range is from 40-66%, the average 48.4%.

Table 1: Lexicostatistical comparisons of Kimbe languages ⁴					
	BUL	BOL	HAR	NAK	MER
BAL	47	43	44	40	42
BUL		68	66	47	52
BOL			85	49	52
HAR				49	49
NAK					56
Average: 52.6%					
cf. Bali-Mangsing 12%					
Bali-Kaliai 25%					
cf. % shared cognates calculated by Goodenough 1961b from 205-6 items:					
HAR-BOL 66 HAR-BUL 54 BOL-BUL 53					
Shared cognate %s cited in Chowning 1969:					
MER-NAK 64 NAK-HAR 52 NAK-BOL 35					
NAK-BUL 59 HAR-BOL 66					
BUL-BAL/VIT 36-42					

1. SYNCHRONIC PHONOLOGY

The syllable pattern in all of the Kimbe languages is (C)V. Stress is penultimate, and non-phonemic in all non-ambivalent instances. High vocoids [i] and [u] are accordingly analysed as vowels in all occurrences, thus simplifying stress specification as predictably penultimate. Additionally, instrumental timing of segments in Nakanai (Johnston 1980a:247-260) showed that high vocoids preceding a stressed vocoid approximated full vocoids in duration, rather than approximating the duration of non-obstruent contoids. A semi-vowel analysis therefore seems unwarranted on objective grounds. In the process of extensive elicitation of vocabulary and in consulting texts written by speakers of the Kimbe languages, no tendency at all for native speaker literates to symbolise high vocoids in sequence with other vowels as semi-vowels has been observed.

Again, for reasons dictated by the syllable analysis which I have proposed, prenasalised voiced stops in BAL, VIT, BOL and BUL have been analysed as unit phonemes. It so turns out that these have developed into their voiced stop counterparts according to a regular sound change in the other Kimbe languages. Younger speakers from both east and west extremes of BOL appear to be changing from nasal to oral grade realisation of voiced stops, especially initially. In all four languages preserving prenasalisation there is evidence of its dissolution. In HAR the nasal ongrade is very rare, and certainly never occurs initially, and we have treated it as a free variant of the oral ongrade stop. In BUL, BAL, BOL and VIT nasal clusters are the more common pronunciation, both initially and medially, however they are

less frequent initially, especially mb. In this paper voiced stops in BAL, VIT, BOL and BUL are written as nasal clusters with occasional reduction in the initial consonant to the non-complex counterpart, in cases where elicitation suggested it. Thus a proliferation of correspondence sets for voiced stops was avoided, and the phonemic nature of the stops in Kimbe more appropriately summarised and reconstructed.

Phoneme /t/ is sounded as [ts] preceding /i/ in all the Kimbe languages, except in HAR where [s] allophone of /t/ appears before /i/. The same applies for Bulu, in which [s] is an allophone of /t/, appearing before /i/ whereas [t] appears in all other environments:

sitano	'earth'
basi	'give'
busi	'see'
pasisi	'stand'
matatau	'sit'
itomoto	'why'
kerebate	'sweet potato'

Similarly [s] appears very infrequently in Harua, one exception to its predictable conditioned environment being sajabulu 'ten' which Goodenough appears not to have had in his data, but which could easily have been borrowed from Nakanai with s. Otherwise HAR [s] appears before /i/ or intervocalically between /i/ and /e/ in that order, e.g.

miseu	'1st person trial exclusive'
sibi	'grass skirt'

There are a couple of exceptions. Goodenough (1961b:2) cites tio for 'nine', but my elicitation did not lead to that form at all, and I therefore support Goodenough's suggestion that tio is a loan (his reason being that he would expect rio in HAR). s appears in loanwords such as misin and it could be that the two allophones [s] and [t] have become distinct phonemes for modern HAR as Goodenough has suggested, but it is also clear that they were relatively recently allophones of the one phoneme /t/ and should be regarded as such for comparative purposes (although they may still with profit be listed distinctly in wordlists in order that the information as to their conditioning should not be covered over).

Goodenough (1961b:4) correctly points out the morphophonemic variation in HAR where the final vowels of verbs when followed by the third person singular object pronoun -a shift u to i, o to e, and a to e. He cites PW* gutu 'cook' to HAR gusi-a; PW* (k)amumu to HAR kamumi-a 'to follow him exactly'; PW* loNo 'hear' HAR longe-a; PW* mati/*mita 'to see' HAR mise-a; plus other examples.

Certain problems of vowel hiatus, initial vowels, and PW *h are also considered by Goodenough (1961b:18-23) which I've not covered.

Table 2: Phonological chart for the Kimbe Languages				
	bilabials	alveolars	velars	Comments
voiced stops	mb	nd	ŋg	No prenasalisation in HAR, NAK, MER
voiceless stops	p	t	k	BOL /k/ for /g/ and /k/, NAK /h/ for /g/, MER /ʔ/ for /g/ and /k/
fricatives	b	s	ɣ	BAL /z/, VIT /d/ for /s/, BUL and HAR [s] allophone of /t/
nasals	m	n	ŋ	NAK no /n/ or /ŋ/
flap		ɾ		MER has no /ɾ/
lateral		l		
	front	central	back	
vowels-				
high	i		u	
mid	e		o	
low		a		

In HAR, BOL and BUL /g/ is manifested in free fluctuation as [ɣ, x, h], although there are difficulties with the analysis of this phoneme and its allophones, which is orthographically rendered by literates as 'gh' or 'h'.⁵

In MER /u/ is manifested as [U] following a nasal word finally; /i/ occurs as /i/ word finally following an alveolar stop or fricative. In NAK /i/ is not usually sounded after /t/ and /s/ word finally and [U] fluctuates with [u] word finally after /m/.

2. RECONSTRUCTION OF PROTO-KIMBE PHONEMES AND ETYMA

This section is arranged as follows:

- 2.1. An English to Proto-Kimbe finderlist of reconstructed PK etyma and the evidence for them, plus the corresponding POC form in most instances. Prenasalised forms of PK are not written, since the prenasalisation feature is phonemic. The 'traditional' prenasalised forms of POC etyma have however been retained.
- 2.2. A listing of the evidence for the consonant correspondences which indicate the PK consonants which I have reconstructed, indexed to the finderlist.
- 2.3. A listing of evidence relating to PK vowels and their reconstruction, also indexed to the finderlist.
- 2.4. A table of correspondences between POC, PK and the consonants of the Kimbe languages.

For the most part, reconstructed forms of pronouns, numerals and grammatical forms are listed only in the appropriate sections of part 3 of the paper. These forms have not been exhaustively cross-referenced into Sections 2.2. and 2.3., so further evidence of Proto-Kimbe phonemes can be adduced by the reader by referring carefully to part 3. The reader will note that for a number of etyma a considerable body of 'residual' data, not conforming to PK, is also listed, which could possibly reflect a substratum immigratory influence from Eastern Oceanic. A strict criterion of correspondences between BAL and VIT, NAK and MER, and one of the Willaumez languages was for the most part used in reconstruction, in order to filter out any possible substratum influence in the Kimbe area. This explains the small number of reconstructions, with familiar items such as fire, leg, and tooth missing. Goodenough (1961b) gives reconstructed forms for Proto-Willaumez etyma. A comparative wordlist for Nakanai dialects and Meramera was given in my doctoral dissertation (Johnston 1978).

2.1. English to Proto-Kimbe finderlist and evidence

'after'

BAL	mirimuri
HAR, NAK, MER	mulimuli
BOL	muri
PK	*muri
POC	*mudi

'areca nut'

BAL, VIT, BOL	mbua	Residue:
HAR, NAK, MER	bua	BAL alternative patsi cf.
PK	*bua	NAK uatsi 'stone'
POC	*mpuaq	

'axe'

BAL, VIT, BOL	kira	Residue:
BUL, HAR	kila	MER uaba
NAK	ila	
PK	*kira	
POC	*kiRam	

'back (n)'

BAL	poke	Residue:
NAK	poke	BUL boto
MER	po?e	BOL, HAR bito
PK	*boke (?)	NAK poga 'lumber'
		MER po?a 'lumber'

'banana'

BUL, BOL	bundi
BAL	mbetsi
HAR, MER	budi
NAK	bugi
PK	*bundi
POC	*punti

The correspondences PK *b to BAL /mb/ and PK *nd to BAL [ts] (phonologically /t/) are irregular.

'beautiful'

BAL	mazata
MER	malasa
NAK	marasa
PK	*mazat

'bird'

BAL	manuku	Residue:
NAK	malu	BAL kandirobo probably from
BUL, MER, VIT	manu	POC *kani and *Ropo
PK	*manuk	
POC	*manuk	

'blood'

BOL, BUL	ndara	Residue:
HAR	dala	BAL, VIT topo
MER	dala	NAK, UBA, MAU, LOS kasoso
PK	*dara	VER ?asoso
POC	daRa	cf. POC and PPN *toto

'breadfruit'

BAL, VIT	kulu	
NAK	unu (probably by analogy with PK *n to NAK *l)	
PK	ulu	
POC	*kulu	
PK	*kulu	
PK	*l to MER /l/ shows differential rate of change	

'breast'

BAL	zuzu
VIT	ɖɖu
BOL, BUL, HAR	ruru
NAK, MER	susu
PK	*zuzu
POC	*susu

'butterfly'

BAL	kambamba	Residue:
VIT	kambembe	BAL alternative kambeke
BOL	mbembe	
NAK, LOS, MAU, MER	bebe	
PK	*kabebe	
POC	*mpempe	

'canoe'

BAL	ɓanga
BOL	anga
HAR	aga
NAK, MAU, LOS	ɔaga (phonemically uaga)
MER	oɑŋa
PK	*ɓaga
POC	*wɑŋka

'cassowary'

BAL	ndundu	Residue:
HAR	tundu	NAK kehu
NAK	dudu 'decorative plume'	MER melege
PK	*dudu	

Occurrence of prenasalised d in HAR is unusual.

'climb'

BAL	zage	Residue:
NAK	sahe/sae	BOL, HAR rike
MER	saʔe/sae	
PK	*zage	
POC	*nsake	

'cold'

BAL, VIT	mangi-mangi-ana
BUL	maŋgi
HAR	makigi
NAK	makarigi also maigi (all dialects)
MER	maʔigi
PK	*ma-karigi
POC	*ma-didiŋ

'cooked, ripe'

BAL	mazaka
NAK	maosa
MER	masosa (probable lexical reduction cf. NAK maosaosa 'almost cooked')
PK	*maozak
POC	*ma-asa

'cry'

BOL	taŋiti
MER, BUL, HAR	taŋi
NAK	tali
PK	*taŋit
POC	*taŋis

'dig'

BAL, VIT, BUL	geli
HAR, BOL	keli
NAK	oli
MER	elai
PK	*geli
POC	*keli

'distribute'

BAL	ɓazeni
MER	ɓile
NAK	ɓeru
HAR	ɓineru (metathesis)
BOL	ɓaberu
PK	*ɓazeni (transitive marker POC *-ni petrified?)
POC	*vaze

'drink'

BAL	ɣinumi
MER	niʔinu
NAK	liu (metathesis)
BUL, VIT	ɣinu
BOL	ninu
PK	*qinum
POC	*inum

'ear'

BAL, VIT, BUL, BOL, HAR	taliŋa	Residue:
MER	taŋila	NAK, UBA, MAU, LOS gavusa
PK	*taliŋa	NAK alternative pito
POC	*taliŋa	MER alternative tuli

'eat'

BAL, VIT, BUL	gani
BOL, HAR	kani
NAK	ali
MER	ani
PK	*gani
POC	*kani

'excreta'

BAL	tage-tage	Residue:
BOL, HAR	tage	BOL, BUL kube
NAK	ta-tae	BAL kindoko cf. BOL
MER	tae-tae	NAK koko 'excrete'
LOS	tae	
PK	*taqe	
POC	*taqi	
(BAL form may mean 'rubbish')		

'eye'

In all languages	mata
PK	*mata
POC	*mata

'face'

BAL	ŋalu
MER, NAK	lagu (metathesis)
PK	*ŋalu

'father'

BAL, MER, NAK, HAR	tama
BOL, BUL, VIT	tata
PK	*tama
POC	*tama

'finger'

BAL, NAK	kuku
MER	u?u
PK	*kuku
POC	*kuku

'fish'

BAL	igaja
VIT	gigu
BUL	iga
NAK	ia
MER	aia
PK	*igan
POC	*ikan

'fly (verb)'

BAL	roboko	Residue:
NAK	lobo	VIT, BOL, BUL mbembe
MER	lobo	HAR bebe
PK	*robok	cf. POC *mpempe
POC	*Ropo	cf. 'butterfly'

'flying fox'

BAL, BIT	mbega	Residue:
MAU	beka	BUL kabe
MER	be?a	BOL kopa
PK	*bega	HAR tabureki
POC	*mpenka	NAK, LOS bureki
		VER bure?i

'front, first, ahead'

BAL, BOL	munga
HAR, NAK, MER	muga
PK	*muga
POC	*muqa

POC *q to PK *g is unexplained.

'full'

BAL	bonuku
MER, HAR	bonu
NAK	bolu
PK	*bonuk
POC	*ponuq

'garden'

BAL	guma	Residue:
NAK	mahuma	BOL gania
MER	mauma	HAR lego
PK	*maquma	
POC	*quma	

'go down'

BAL	zio	Residue:
MER, NAK	sibo	BOL, HAR puru
PK	*zibo	NAK alternative purusu
POC	*nsipo	

'grandparent, grandchild'

BAL	tumbu	Residue:
NAK, MER	tubu	BAL sisi
PK	*tubu	
POC	*tumpu	

'hear'

BAL, BUL	loŋoni
HAR, BOL, MER	loŋo
NAK	lolo
PK	*loŋoni
POC	*loŋo/*doŋo

'house'

BAL	rumaka
BOL, VIT	ruma
MER, NAK, BUL, HAR	luma
PK	*rumak
POC	*Runjma

'knee'

BAL, BOL	туру
VIT	tuturu
BUL	tutulu
NAK	tulu
MER	patulu (may be combination of *patu and *туру)
PK	*туру
POC	*tudu

'leaf'

BAL	rauna	Residue:
MER	laulau	BOL panga
VIT	raurau	HAR paga
NAK	galalau	
BUL	lalau	
PK	*raun	
POC	*ndaun	

'light (n)'

BAL	ndama
NAK	maga (metathesis)
MER	muada (metathesis)
PK	*dama
POC	*dama

'light' (= not heavy)

BAL	mazagazaḡ-aḡa	Residue:
HAR, BUL	malagalaga	NAK alternative maḡulaha/maḡulaga
BOL	maragaraga	
MER	malamala 'easy'	
NAK	maramara 'lightened, relieved'	
PK	*ma-zaqazaḡ-aḡa	

PK *ma- is presumed to correspond to POC *ma- stative prefix. PK *-aḡa is nominalising/adjectivalising suffix.

'lime, ash'

BAL	ḡabu 'ash, dust'	Residue:
BOL, BUL	ḡambulo	BOL, BUL kamarḡi
HAR	ḡabulo	HAR kamagi
NAK	haḡu	
MER	oaḡu	
PK	*qabul	
POC	*apuR/*kapudul	

'log'

BAL, BOL	ponda
HAR, NAK	poda
PK	*boda (?)

'louse'

VIT, BUL	ḡutu	Residue:
HAR, BOL	kutu	BAL mbonu, ḡutu (?)
NAK	utu	MER lesa
PK	*ḡutu	
POC	*kutu	

'male'

BAL	tamagane
NAK	hatamale (metathesis)
MER	latamane
PK	*tamaqane
POC	*tamole/*ḡmane

'mother'

BAL, MER	tina	Residue:
NAK	tila	VIT didi
BOL	kina	
HAR	kini	
PK	*tina	
POC	*tina	

'my' (inalienable)

BAL, VIT, BOL, BUL	-ngu
HAR, NAK, MER	-gu
PK	*-gu
POC	*-ŋku

'name'

BAL	izana
VIT	gida
BUL	ria (metathesis)
BOL, HAR	ra
MER, NAK	isa
PK	*qizan
POC	*qansan

'nape of neck'

BAL, BOL, BUL	kindu
HAR	kidu
NAK	kisu
MER	isu
PK	*kidu
POC	*ŋkensu/*ŋkenju

'navel'

BAL	puzo	Residue:
VIT	pudo	BOLA kila
BUL	mburu	
NAK, MER	buso	
PK	*buso	
POC	*mpuso	

The set of correspondences PK *mb to BAL, VIT /p/ is irregular.

'net (fishing - large)'

BAL	bugoto
BUL, BOL	buko
HAR	bugo
NAK, MER	buo
PK	*bugot
POC	*puko

'night, darkness'

BAL	marigomo	Residue:
VIT	maringo	BOL rondo 'night'
NAK, MER	maligoma 'darkness'	HAR lodo
PK	*marigomo	MER lodo
		NAK logo
		BUL boŋi

'new'

BUL	kalambaka
BOL	karamba
HAR	kalaba
NAK	alaba
MER	alaba
PK	*garabak

'numeral formative for six to nine'

BAL, VIT, BOL, HAR	polo-
MER	pan-
NAK	uolo 'six'
BUL	bolo/golo 'six'
PK	*bolo

'obsidian'

BAL	gane
NAK	hali
MER	ali
PK	*qane

'oven'

BAL, VIT	gumu	Residue:
NAK	humu/umu	BOL, BUL babe
PK	*qumu	MER gama
POC	*qumu	

'paddle'

BAL	bozere
NAK, HAR, BOL, BUL	bore
VIT	bode
MER	bole
PK	*bozer
POC	*ponse

'pig'

BAL	mboroko
BUL, BOL, VIT	mboro
HAR	boro
HAK, MER	bolo
PK	*borok
POC	*mpoRo

'put'

BAL	tarugi
MER, NAK	tau
BOL	ru
HAR	uri (metathesis)
PK	*taruq
POC	*taRu

Note PK *b to MER, NAK \emptyset ; cf. 'reciprocal'.

'rain'

BAL	guzaja	Residue:
VIT	guda	BOL, HAR bala cf. NAK leabala
NAK	hura	'wet season'
PK	*quzaja	BUL kadabu
POC	*qunsan	MER adabu

'rat'

BAL	kubuzeke	Residue:
VIT	kudube	MER go?i
BUL, BOL, HAR	kurube	
NAK	ku(hu)suke	
PK	*kubuzek	
POC	*kunsupe	

'reciprocal prefix'

BAL	bari
MER	ma \emptyset i (irregular correspondence with *b)
NAK	bu \emptyset i
BOL	ba $\emptyset\emptyset$
PK	*bari
POC	*pai
PEO	*paRi

PK *r to MER, NAK \emptyset is irregular. cf. 'put'.

PK *b to MER /m/ is also irregular.

'road'

BAL	ndalaŋa	Residue:
VIT, BUL, BOL	ndala	NAK gauru 'road'
HAR	dala	UBA ai
NAK	gala 'crawl'	MER vea
MER	?ala 'crawl'	
PK	*dalana	
POC	*nsalan/*njalan	

'root'

VIT	boraka
BOL	baka
BUL	akalaka
HAR	kala
BOL	aka
NAK	ua
MER	?a?a
PK	*borak
POC	*waka

'rotten'

BAL	mapurutu
HAR, NAK	mabulu
BOL	maburu
MER	mabulu
VIT	mapu
PK	*ma-burut
POC	*ma-puru

I presume that ma- was a separate morpheme in PK, to allow the morpheme-initial realisation of PK */b/ as BAL /p/, since /b/ would be expected medially.

'sea'

BAL	ndaziki
VIT	ndaɛi
BOL/BUL	ndari
HAR	dari
NAK	gasi 'wave'
MER	dasi 'wave'
PK	*dazik
POC	*tansik

'shadow'

BAL	nuanua
MER	lunu
NAK	kalulu
PK	*kanuanua
POC	*nunu

A differential rate of change is shown by the correspondence sets for 'shadow' and 'that'. If we assume PK *n to NAK /l/ via MER /n/ as a 'wave' of change, then 'shadow' and 'that' show the advancement of this change into MER. For most occurrences of PK *n, however, MER retains /n/.

'sky'

BAL	laniti
MER	lanj
NAK	lagi
PK	*lanit
POC	*lanit

'sleepy'

BAL	turu-turu-ni
BOL	mata-tulu
HAR	makene-tu-tulu
NAK	mata-tu-tulu
MER	mata-tulu-tulu
PK	*mata-turu-turu-ni
POC	*ma-tudu

'smell' (intransitive)

MER	maŋi
BUL	maŋina
HAR	maŋino
NAK	mali
PK	*maŋin(a,o)

(-na/-no presumably is a suffix).

'stand'

BAL	mandiri
NAK	magiri
MER	magili
PK	*ma-diri
POC	*Gini

ma- is presumed to represent petrified stative prefix; occurrence of g rather than d in MER form presumed to indicate the early realisation of the change MER d > NAK g in MER itself.

'stone'

BAL, MER	batu	Residue:
NAK, VER, LOS	uatsi	BOL, BUL, BAL (alternate) kendo
PK	*batu	VIT kendo
POC	*patu	HAR kedo

*b to NAK /u/ preceding /a/ cf. *banga NAK uaga

*u to NAK /i/ is irregular; NAK /i/ conditions ts allophone of /t/

'sugar cane'

NAK, MER, BAL, VIT	to <u>bu</u> except VER <u>bo</u> bogo
PK	*to <u>bu</u>
POC	*topu

'sun'

BUL, BOL	garo	Residue:
HAR, NAK	garo	BAL <u>bo</u> roto
MER	oaso	VIT <u>bo</u> ro
PK	*qazo	
POC	*qanso	

'tail'

BAL, VIT	li <u>ko</u>
BUL, HAR	iku
BOL	ku
NAK	kiu (metathesis)
MER	?iu
PK	*iku
POC	*iku

'ten'

BAL	za(ŋa)buluku
VIT	ɗaŋabulu
HAR	i-raŋabulu
BUL	raŋabulu
NAK, UBA, LOS, MER	sabulu
VER	saburu
PK	*zaŋabuluk
POC	*nsaŋapulu

'that'

BAL	ini
MEL	eli
NAK	ele
PK	*ini
POC	*ini

'throat'

BAL, VIT, BUL, BOL, HAR	logo
NAK	loho
MER	loʔo
PK	*loqo

'tie, bind'

BAL	bizi	Residue:
MER	tabilie	BOL kolo
NAK	biri	BUL kola
PK	*bizi	

'tongue'

BAL	tambela	Residue:
BUL, BOL	tambele	VIT labe
HAR, MER, LOS	tabele	NAK kalamea
PK	*tabele	UBA kamela (metathesis)
		VER ʔaramea
		MAU kalamea
		POC *amea

'tree'

BAL, VIT, BUL	gai	Residue:
BOL, HAR	kai	NAK (all dialects) obu
MER	ai	
PK	*gai	
POC	*kai	

'viscera'

BOL	tamundi	Residue:
HAR	tamudi	BAL, VIT mangali
BUL	tamondi	MER magali
NAK	tamus i	

There is still ndundu 'cassowary' (BAL) cf. NAK dudu, where d might be due to the reduplicated syllable preventing NAK *dusu. There is the chance too that the presumed cognate is only illusory.

'vomit'

BAL	lualuaka
VIT	lualua
BUL, BOL	lua
HAR	kululua
NAK	kalalua
MER	alualua
PK	*lualuak
POC	*luaq

'when'

BAL	ɲiza-ŋa
VIT	ɲida
BUL	ɲare-ka
BOL	ɲgari-ka
HAR	gari-ka
NAK	gaɸi-sa (? metathesis from garika)
LOS	gɸɸi-sa (probably PK *k to /ɸ/ and PK *z to /s/)
MER	aɸi-sa
PK	*ɲiza-ŋa
POC	*ɲinsan

'yesterday'

BAL	ɲarabi 'afternoon'	Residue:
BOL	rabi	BAL ɲora BUL nola 'yesterday'
NAK	alalabi	cf. POC *noRA
MER	labi	
PK	*aɲarabi	
POC	*Rapi	

*aɲa- is a prefix meaning 'past time'.

2.2. Index of evidence for PK consonant correspondences

*b	*t	*q
areca nut	cry	climb
butterfly	ear	excreta
flying fox	excrement	garden
grandparent	eye	lime, ash
navel	father	male
pig	mother	obsidian
	sleepy	oven
*d	stone	rain
blood	sugar cane	sun
cassowary	tongue	throat
light		
nape of neck	*k	*b
road	axe	back (n)
sea	finger	banana
stand	rat	canoe
viscera	root	fly
	tail	four (see Table 6)
*g	vomit	lime
cause		log
cold		net
front		numeral formative
my (inalienable)		root
night		rotten
		stone
		yesterday

It would seem that PK *b morpheme initially is variably reflected as /p/ and /b/ in BAL and VIT, reflecting POC *p, which is consistently reflected as /b/ medially in PK and all the daughter languages. Observation of this limited regularity removes the need to posit PK *w, appearing only initially. The conditioning noted here presumably reflects a PK phoneme /b/ which had /p/ as an initial allophone as witnessed by such pairs of correspondence as:

e.g.	VIT	poke	'fall'	
	NAK	poke	'back' (noun)	
cf.	VIT	mapu	'rotten'	
	NAK	maʔulu	'rotten'	
*z			*r	*m
beautiful			after	bird
breast			axe	eye
cooked			fly (verb)	father
distribute			house	male
go down			knee	
light (= not heavy)			leaf	*n
name			night	bird
navel			pig	drink
paddle			put	eat
rat			reciprocal prefix	full
ten			stand	male
tie				mother
when			*l	shadow
			breadfruit	that
*g			ear	
dig			face	*ŋ
eat			hear	cry
fish			sky	sky
house			tail	smell
new			vomit	when
tree				

2.3. Vowel correspondences

Vowels are on the whole represented uniformly by five contrastive vowels in each of the languages of the Kimbe family. These vowels i, e, a, o, u, for the most part reflect corresponding vowels in POC. We therefore readily reconstruct five PK vowels, *i, *e, *a, *o, *u, illustrated by a number of correspondence sets, such as *a in 'flying fox', 'areca nut' and 'sea'; *e in 'flying fox', 'rat' and 'man'; *i in 'sea', 'stand'; *o in 'throat', 'sun' and 'lime'; finally *u in 'areca nut', 'grandparent' and 'navel'.

Irregular correspondences are illustrated by:

- BAL a to e in the other languages, as in 'butterfly', 'tongue';
- BAL u to NAK i in 'stone' but not for patsi 'areca nut';
- BAL, VIT o to u in the other languages, as in 'tail';
- BAL e to u in the other languages, as in 'banana';
- BAL ʔo to NAK u (POC *wa) as in 'root';
- NAK o sometimes corresponds to MER e as in oli and eli 'to dig'.

Other non-correspondences are BAL a to NAK o as in 'ripe', BAL o to NAK a as in 'night', 'dark', BAL i to MER and NAK e as in ini 'this' to ele. In these latter cases it is easy to find counter examples to the reverse as in BAL meme 'urinate' to MER mimi and NAK mimisi.

For the Willaumez languages, Goodenough (1961b:4-5) noted that "Sometimes, under conditions which are not clear, there have been assimilations and dissimilations of vowel height...Since no consistent pattern is discernible, I treat these irregular correspondences as ambiguous for reconstruction purposes". He cites 'when', 'right hand', 'wing', 'to tie', 'sibling (opp. sex)', 'to think/know', 'rotten', 'to walk/come from', 'to smell (transitive)', 'intestines'. Those of this set that I have

compared I have either resolved by looking at the non-Willaumez languages or let the POC form resolve any ambiguity since only a minority of cases is involved. Goodenough also draws attention to correspondences between BOL a and HAR i and between BUL o and BOL and HAR i which lead him to ambiguous reconstructions PW *(ai) and *(oi) on the basis of 'worm', 'back (of body)', 'mother', 'earth/sand/clearing'. Goodenough believes however that there is outside evidence that the vowel i represents an innovation.

A final complication with vowels is also noted by Goodenough, and was mentioned in the discussion of synchronic phonology (section 1), specifically that the final vowels of verbs when followed by the third person singular object pronoun -a shift as follows in haruā: u to i, o to e, and a to e.

Much of the above information can be approximately summarised as follows for three of the Kimbe languages:

	BAL	MER	NAK
POC & PK			
*a	a, e	e	a, o
*e	e, a	e	e, o
*i	i, e	i, e	i, e
	a	a	a (after a bilabial continuant)
*o	o, a, u	o, a	o
*u	u, o	u, a, i	u, o, i

2.4. Consonant correspondences between PK, POC and Kimbe family languages
- a summary

PK	*b	*d	*g	*t	*k	*q	*ɸ	*z	*ɟ	*r	*l	*m	*n	*ŋ
POC	*mp, *np	*nd, *nt, *nj	*ŋk	*t	*k	*q, *k	*p	*ns, *s	*k	*R, *d	*l	*m, *ɟm	*n, *ñ	*ŋ
BAL	mb	nd, l, r	ng	t	k	ɟ	ɸ	z	ɟ	r	l	m	n	ŋ
VIT	mb	nd	ng	t	k	ɟ	ɸ	d	ɟ	r	l	m	n	ŋ
BUL	mb	nd	ng	t	k	ɟ	ɸ	r	ɟ	l	l	m	n	ŋ
BOL	mb	nd	ng	t	k	ɟ	ɸ	r	k	r	l	m	n	ŋ
HAR	b	d, l	g	t	k	ɟ	ɸ	r	k	l	l	m	n	ŋ
MER	b	d, l, r	g	t	ʔ, ɸ	ʔ, ɸ	ɸ	s	ɸ	l	l, s	m	n	ŋ
NAK	b	d, l, r	g	t	k, ɸ	h, ɸ	ɸ, u	s	ɸ	l, r	l, r, s	m	l	g, l
C o m m e n t s		BAL, MER, NAK /l/ or /r/ after a high vowel			NAK /h/ and MER /?/ may also go to ɸ; presum- ably *k and *q are in the process of merging	MER /ʔ/ realised as [o] before [a] word initially and some- times is found reflec- ted also as [u]	variably reflected as /b/ and /p/ morpheme initially in all except BUL, NAK; also found intermit- tently reflected as /mb/ (BAL, VIT, BUL) or /b/ (MER, NAK); also in MER as /m/ and NAK as /h/ initially	There are a number of additional variable and unpredictable alveolar reflexes in all languages PK *z corre- sponding to /s/, /n/ and /t/ in addi- tion to the more regular correspond- ences listed	NAK ɸ re- interpreted as /h/ by some speakers also BAL and NAK /g/	two corre- spondence sets give PK *r to NAK, MER ɸ, also NAK /t/	NAK /r/ between high vowels		Appar- ently uncon- ditioned dual reflex in NAK	
NOTE: Allowance has been made, in interpreting correspondence sets, for a wave of change from BAL (most conservative) to NAK, roughly in the sequence west to east, with some reflexes lagging behind a predictable sound change, and others realising it early along with the next language in the postulated historical sequence (see part 4.1.).														

3. GRAMMATICAL SYSTEMS

Noun phrase and clause formats in the Kimbe languages are unremarkable for Oceanic languages. The genitive phrase, however, appears originally to have been of the preposed form. The basic clause format is NP VP (NP) (Prep P) (Prep P). The basic head modifier NP format is Noun Marker (Number) Noun (Poss) (Quant) (Qual) (Deictic/demonstr). The VP format appears to be (Modals) Aspect/Subject marker Verb (-OM) Modifier.

The general prepositional phrase is of the form PK *na + Noun, exemplified as follows:

BAL, VIT, VUL, HAR, BOL, MER na + Noun (where na means 'for, by, to' and takes the form ne preceding a personal noun)

NAK te + Noun

The motion prepositional phrase is indistinguishable in form from the General Prep P in BAL, VIT and BUL, so we do not reconstruct a motion toward preposition.

BOL, HAR o + Noun

MER u-LOC (Noun)

NAK so-LOC (Noun)

In these phrases o means 'to', u means 'to, at' while in Nakanai so- means 'to' while other bound verbal roots give 'at' (o-), and 'from' (lo-).

There is also an Instrumental/purposive/temporal Prepositional Phrase represented in the Kimbe languages, of the form PK *ni + N.

BAL, VIT, BOL ni meaning 'at/in' (temporal) and 'purpose'

MER ni meaning locative 'in, at, on'

NAK le meaning 'with/from' (i.e. instr/source/cause).

It would appear entirely likely that in Proto-Kimbe nouns had to appear marked in either of two categories, common (marker *na) and personal (marker *e) both markers being preposed to the noun:

	Common	Personal
BAL	a	e
VIT	na (definites only)	-
BUL	∅	e
BOL	a	e
HAR	a	e
NAK	la	e
MER	na	e

The Directional Phrase takes the familiar pattern found in Oceanic languages of a verb serving as a prepositional relator, followed by a noun. In Proto-Kimbe the noun appears to have been supported by a further preposition:

BAL ga [uata kirala gaigai]
run go to.dem bush
'run [to the bush]'

VIT gaba [kara mungomungo]
run go bush
'run [to the bush]'

- BUL paga [goto na sibulu]
run go prep bush
 'run [to the bush]'
- BOL ga [lakea na robo]
run go prep bush
 'run [to the bush]'
- HAR paru [bairo na koru na utu]
arrive come prep stomach prep ocean
 'come [from out at sea]'
- NAK hari [goio la hohoi]
run go.to NM bush
 'run [to the bush]'
- MER a bua [mai-no ne Pius]
NM areca nut come-dem prep Pius
 'An areca nut [from Pius]'

3.1. Subject personal pronouns

BAL, VIT and BOL are distinct in having a trial as well as a plural set of pronouns. BUL preserves this system vestigially. HAR, MER and NAK all reflect the trial pronouns from PK as their plural set, i.e. designating all pronominal reference beyond dual number. Table 4 shows the forms of the subject personal pronouns. Proto-forms indicate the following recurring partials:

*ta	'inclusion'	*mi	'exclusion'
*mu	'2nd non-singular'	*zi	'3rd non-singular'
*-rua	'dual'	*-tolu	'triple'

HAR forms with /k/ tokua, koe, mutoku, are crucial for reconstructing PK *g rather than *q in the proto-forms of the pronouns.

The emphatic, topical or focal forms of the pronouns are given in Table 4. These are usually the same as the subject forms except for the latter often being reduced by removal of the final vowel. Object forms may be reduced by removal of the initial vowel.

Table 4: Subject personal pronoun forms in the Kimbe languages				
1st singular		2nd singular		3rd singular
BAL	gau	BAL	ogo	BAL ia
VIT	gau	VIT	go	VIT gia
BUL	au	BUL	ego	BUL eia
BOL	iau	BOL	ioe	BOL ia
HAR	au	HAR	koe	HAR ia
NAK	eiau	NAK	eme	NAK eia
MER	iau	MER	oʔo	MER ei
PK	*giau	PK	*go	PK *ia
1st dual incl.		1st dual excl.		2nd dual
BAL	to-ro	BAL	mi-ro	BAL mo-ro
VIT	n/e	VIT	mi-ro	VIT mo-ro
BUL	si-ta-lu	BUL	mi-lumba	BUL mu-lu
BOL	ta-rua	BOL	ma-ria	BOL ma-rua
HAR	ta-lu	HAR	mi-lu	HAR mu-lu
NAK	e-ta-lua	NAK	a-mi-lua	NAK a-mu-lua
MER	ei-ta-u	MER	a-mi-lu	MER a-mu-lu
UBA	e-ta-ru	UBA, MAU	e-mi-lua	UBA e-mu-lua
		VER	e-mi-ra	VER e-mu-ra
PK	*i-ta-rua	PK	*a-mi-rua	PK *a-mu-rua
				3rd dual
				BAL g/z/ndi-ro
				VIT gi-ro
				BUL ri-lu
				BOL ø-rua
				HAR ri-lu
				NAK e-gi-rua
				MER su-lu
				UBA e-su-lua
				MAU gi-lua
				PK *zi-rua
1st trial incl.		1st trial excl.		2nd trial
BAL	ta-rolu	BAL	mi-tolu	BAL mu-tolu
VIT	n/e	VIT	mi-u	VIT n/e
BUL	me-te-tolu	BUL	me-teu	BUL mu-tou
BOL	re-u	BOL	ma-teu	BOL ma-tou
HAR	to-kua	HAR	mi-seu	HAR mu-tolu
NAK	e-ta-tou	NAK	a-mi-teu	NAK a-mu-tou
MER	ei-ø-tou	MER	a-mi-teu	MER a-mu-tou
		VER	e-mi-tou	VER e-mu-tou
				MAU a-mu-teo
PK	*i-ta-tolu	PK	*a-mi-tolu	PK *a-mu-tolu
				3rd trial
				BAL g/z/ndi-tolu
				VIT n/e
				BUL re-teu
				BOL ø-tou
				HAR ri-tou
				NAK e-gi-teu
				MER sou
				UBA e-ø-sou
				VER e-gi-tou
				MAU gi-teo
				PK *zi-tolu
1st plural incl.		1st plural excl.		2nd plural
BAL	gi-ta	BAL	ga-mi	BAL ga-mu
VIT	gi-ta	VIT	n/e	VIT n/e
BUL	-	BUL	ma-mi	BUL -
BOL	gi-ta	BOL	ø-mi-a	BOL ø-mu-a
HAR	-	HAR	-	HAR -
NAK	-	NAK	-	NAK -
MER	-	MER	-	MER -
PK	*gi-ta	PK	*ga-mi-a	PK *ga-mu-a
				3rd plural
				BAL gi-zi
				VIT ø-ndi-a
				BUL ø-r/ndi-a
				BOL ri-a
				HAR -
				NAK -
				MER -
				PK *ri-a

3.2. Possessive pronouns and possessive suffixes

Bali has four systems of marking possession:

- (a) Inalienable: N [-ŋgu] for body parts and kin, parts of wholes: a liko-na kauaka 'the/a dog's tail';
- (b) Intimate: kina [-ŋgu] N items intimately connected with the referent, e.g. areca nuts, a letter (i.e. which I wrote): a kina-ŋgu pas 'my letter';
- (c) Neutral: ke-[ŋgu] for domestic items, drinkables, e.g. house, village, spear, dish, water: a ke-ŋgu malara 'my village';
- (d) Edible: ʒa[-ŋgu] food and food-associated objects, e.g. saucepan, pig, dog, fish: a ʒa-ŋgu iʒaŋa 'my fish'.

N + N possession is marked by ke preceding the possessor, which precedes the possessed noun as in:

ke Liŋei a rumaka 'Lingei's house'

N + N combinations with no possession marked also occur as in:

a manuka manuku 'the/a bird's nest'

For contrastive focus all non-inalienably possessed nouns can be fronted as in:

a rumaka ke-na 'HIS house' (as against a number of possible houses potentially referred to).

The Vitu system appears to have one less possessive category, but apart from that appears to be little different from Bali:

a kandia stua 'their store'

kaŋgu malala 'my village' (for newly introduced (as well as indefinite) information, marker na is deleted)

The possessed noun may be preposed, and in the non-singular persons the different category markers may be neutralised:

a malala kote ʒita 'their little village'

Like Bali, Bulu has four systems of possession:

- (a) Inalienable: N[-ŋgu] for body parts: lima-ŋgu 'my hand';
- (b) Familiar: N ta[-ŋgu] for kin: kambu ta-na 'his cross-collateral relative';
- (c) Neutral: no[-ŋgu] N for personal items such as axe, house, dog: no-∅ mbute 'your dog';
- (d) Edible: ʒa[-ŋgu] N also ʒa[-ŋgu] for foods, e.g. taro, banana: ʒa-ŋgu maʒu 'my taro'.

N + N combinations of possession are marked by the possessive marker preceding the possessor, which is postposed to the possessed noun, but sometimes with a pronoun copy of the possessor preposed to the whole phrase:

nona mbute ne Alois 'Alois' dog' (lit. 'his dog of Alois')

bundi ʒana John 'John's banana' (lit. 'banana of John').

Evidence is that the systems in BAL, VIT and BUL are non-gender-like:

VIT ʒaŋgu kaua 'my dog (to eat)'
ka-ŋgu kaua 'my dog (to keep)'.

Bola, Harua, Nakanai and Meramera all have just two (gender-like) possessive systems, inalienable and alienable, the possessor always being postposed to the head noun:

BOL	HAR	NAK	MER	
a lima-na 'his hand'	a lima-na 'his hand'	la lima-la 'his hand'	lima-na 'his hand'	INALIENABLE
a taŋa n-au 'my village'	a tuaŋa neŋo-ŋgu 'my village'	la mautu taku 'my village'	a ubu mi-n-au 'my village'	ALIENABLE
a bakoŋi dangi ne Kimbe 'a big man of Kimbe'	na tuaŋa ne misin 'the place of the mission'	la tahalo te gaŋman 'a man of the government'	buse ne Alois 'Alois' dog'	NOUN + NOUN POSSESSION

Table 5: Inalienable possessive pronoun systems in Kimbe language

1st singular		2nd singular		3rd singular			
BAL	-ŋgu	BAL	-ma	BAL	-na		
VIT	-ŋgu	VIT	ṽ ¹	VIT	-na		
BUL	-ŋgu	BUL	-∅	BUL	-na		
BOL	-ŋgu	BOL	-mu	BOL	-na		
HAR	-gu	HAR	-mu	HAR	-na		
NAK	-gu	NAK	-mu	NAK	-la		
MER	-gu	MER	-mu	MER	-na		
PK	*-gu	PK	*-mu	PK	*-na		
1st dual incl.		1st dual excl.		2nd dual		3rd dual	
BAL	ndoro	BAL	mi-ro	BAL	mo-ro	BAL	ndi-ro
VIT	n/e	VIT	n/e	VIT	n/e	VIT	n/e
BUL	talū	BUL	mi-lū	BUL	mu-lū	BUL	ri-lū
BOL	ne-rua	BOL	ne-maria	BOL	ne-ma-rua	BOL	ne-∅-rua
HAR	ne-talu	HAR	ne-ma-rilu	HAR	ne-mu-lu	HAR	ne-ri-lu
NAK	-galua	NAK	mi-lua	NAK	a-mu-lua	NAK	gi-rua
MER	ne-itau	MER	ne-ami-lu	MER	ne-a-mu-lu	MER	ne-su-lu
PK	*ne-ta-rua	PK	*ne-mi-rua	PK	*ne-mu-lua	PK	*ne-zi-rua
1st trial incl.		1st trial excl.		2nd trial		3rd trial	
BAL	nda-tolu	BAL	mi-tolu	BAL	mu-tolu	BAL	ndi-tolu
VIT	dolu	VIT	i-ta	VIT	mi-u	VIT	ndi-a
BUL	ma-mi	BUL	me-te	BUL	mo-tou	BUL	ria/ndia
BOL	ne-teu	BOL	na-me-teu	BOL	ne-ma-tou	BOL	ne-tou
HAR	ne-tou	HAR	ne-∅-tou	HAR	ne-mu-tou	HAR	ne-ri-tou
NAK	ga-tou	NAK	-mi-teu	NAK	mu-tou	NAK	gi-teu
MER	ne-itou	MER	ne-a-mi-teu	MER	ne-a-mu-tou	MER	ne-so-u
PK	*ne-ta-tolu	PK	*ne-mi-tolu	PK	*ne-mu-tolu	PK	*ne-zi-tolu
¹ ṽ indicates vowel lengthening and/or stress (data from P. Lincoln personal communication).							
Note: BAL, VIT, BUL and BOL have plural possessors as well as trial.							

Table 6: Alienable possessive pronoun systems in the Kimbe languages

	BOL	HAR	NAK	MER
BAL prefixes with ke/kina/ga the forms in Table 5				
VIT prefixes with k(in)a/ga the forms in Table 5				
BUL prefixes with no-/ta-/ga- the forms in Table 5				
1st singular	ne-nau	ne- bo -gu	te-giaku ¹	mi-n-au
2nd singular	bo -mu	ne- bo -mu	ta-ume ²	mi-ni-ʔo
3rd singular	bo -na	ne- bo -na	te-tala	mi-ne-i
1st dual incl.	ta-rua	ne-ta-lu	te-galua	mi-ne-itau
1st trial incl.	ne-teu	ne- ϕ -tou	te-gatou	mi-ne-itou
1st dual excl.	ϕ -ma-ria	ne-ma-rilu	ta-milua	mi-ne-amilu
1st trial	ϕ -ma-teu	ne- ϕ -tou	ta-miteu	mi-ne-amiteu
2nd dual	ϕ -ma-rua	ne-mu-lu	ta-mulua	mi-ne-amulu
2nd trial	ϕ -ma-tou	ne-mu-tou	ta-mutou	mi-ne-amutou
3rd dual	ne-rua	ne-ri-lu	te-girua	mi-ne-sulu
3rd trial	ne-tou	ne-ri-tou	te-giteu	mi-ne-sou
¹ alt. tegea(k)u		² alt. taime		

The forms of inalienable and alienable possession in the Kimbe languages are shown in Tables 5 and 6. It would appear from the data presented here that the possessive markers that can be reconstructed might be as many as five, yet the highest number of non-inalienable systems observed is three, in Bali and Bulu. It seems likely that the various possessive markers can be reduced to a tripartite set for Proto-Kimbe as shown in Table 7.

Table 7: Possessive prefixes in the Kimbe languages

PK	*na- familiar ¹	*ta- neutral	*ga edible
POC	*na- controlled possession	*ta of a place (or person?)	*ka edible/subordinate
BAL	ki-na- ²	ke- ³	ga
VIT	k(i-n)a-	-	ga-
BUL	no-	ta-	ga-
BOL, HAR, MER	ne-	-	-
NAK	-	te-/ta-	-
¹ Familiar and neutral categories appear to have switched in Bulu.			
² ki- forms on this table are presumed to indicate a 3rd singular verbal prefix.			
³ Form ke- is presumed to indicate a reduced development of earlier forms as *ki-ta > *ki-te > ke.			

The possessive phrase is tentatively reconstructed for Proto-Kimbe as follows: POSSESSOR + POSSESSED, making it of the *preposed* type. Since this is only attested in BAL, VIT and BUL, the question of influence from Kove arises. Counts (1969) gives the following possessive classes and forms for Kaliai-Kove:

INTIMATE - for kin and body parts	ahe-gu 'my leg'
EDIBLE - for food and food-getting things	a-gu haniŋa 'my food'
NEUTRAL - for other items	le-gu waga 'my canoe'

These forms seem to indicate that the edible category of possession could have been borrowed from Kove, but equally well they could indicate a shared inheritance of both languages.

3.3. Numeral systems

These show a dual grouping, BAL, VIT, BOL, HAR and MER all having a base-ten system in which the numbers from six to nine are built up from five plus smaller digits, and BUL, NAK which have a fully decimal system with numbers from one to ten all reflexes of POC cardinal numerals. If an immigratory influence brought in the latter system it apparently influenced Bulu and Nakanai separately, since if Bulu had borrowed its system from Nakanai we would expect BUL 'six' to be ()ol; we would also expect NAK i- to be borrowed into BUL, along with the accreted initial u in the NAK form for 'six'. Additionally, the ɣ in BUL appears to have developed independently of NAK, and the words for 'nine' differ considerably. The numeral systems for all the Kimbe languages can be found in Table 8. As with the analysis of the possessive systems, Proto-Kimbe numerals appear to be more like the Bariai languages to the west than would be apparent from simply looking at the Nakanai data or the data from the Willaumez languages alone. For example the numbers from six to nine in Maleu (personal communication G. Haywood) are formed from five plus a digit:

MALEU 'six'	masa me teia
'seven'	masa me lua
'eight'	masa me tol
'nine'	masa me taje

When a less aberrant reflex of 'five' (POC *lima) is observed, as in Kaliai, the parallel with Proto-Kimbe numerals is more evident in form as well as system: Kaliai 'eight' lima-ga-tolu, cf. Kilenge 'eight' massa-me-i-to. The numerals of the Kimbe languages excluding BUL and NAK suggest a shared grammatical typology with the Bariai languages, yet without such an identity of form that we can suggest an immediate grouping of these two groups of languages.

Table 8: Number systems in the Kimbe language

ENGLISH	BALI	VITU	BULU	BOLA	HARUA	NAKANAI	MERAMERA
'one'	katiku	kati(k)u	tara ¹	taku ²	tara	i-sasa ³	tasa
'two'	te-rua	rua	lua	rua	i-lua	i-lua	lua
'three'	te-tolu	tolu	tolu	tolu	i-tolu	i-tolu	tolu
'four'	te-bata	bata	baa	baa	i-baa	i-baa	baa
'five'	te-lima	lima	lima	lima	i-lima	i-lima	lima
'six'	te-polo-katiku	polo-katiu	gono/bono	polo-tara	polo-na-tara	i-uolo	pan-tasa
'seven'	te-polo-rua	polo-rua	bitu	polo-rua	polo-na-lua	i-bitu	pad-ilua
'eight'	te-polo-tolu	polo-golu	alu	polo-tolu	polo-na-tolu	i-ualu	pan-tolu
'nine'	te-polo-bata	polo-bata	rio	polo-baa	polo-na-i-baa	ualasiu	ialasue
'ten'	zanabuluk	danabulu ⁴	rangabulu	i-rabulu(-taku)	irangabulu	sabulu	sabulu
	¹ takena 'another one' (alt.)	² tara 'another one' (alt.)	³ VER, LOS i-ta 'one', i-nima-ta 'five'				
	⁴ alt. lanabulu/ngaramo						
	POC	PAN	PK		cf. PW (Goodenough 1961b)		
'one'	sa/kai	esa	taza		tara		
'two'	dua	Dewha	rua		Lua		
'three'	tolu	telu	tolu		tolu		
'four'	pati	e(m)pat	bata		vaa		
'five'	lima	lima	lima		lima		
'six'	ono	enem	bolo-taza		(h)ono		
'seven'	pitu	pitu	bolo-rua		vitu		
'eight'	walu	walu	bolo-tolu		(h)alu		
'nine'	nsiwa	nsiwa	bolo-bata		siwa		
'ten'	zanapulu (PEO)	(n)sa-nga-pulu	nga-bulu-ku		-vulu		

3.4. Nominalising suffix

A reflex of the PEO noun derivative suffix *(C)ʌŋa is preserved in BAL, VIT, and BOL, but not in the other languages. In BAL and VIT it has the form -ʌŋa, as in miaŋa 'sitting' and in BOL it has the form -ŋa as in ʌaubiŋa 'fighting'. The use of the suffix is most evident in BAL however, where it serves as a participial marker marking a dependent clause. Both functions, nominalising and participial formation, may be semantically related as a typological feature of Austronesian languages (cf. Chung 1973, Ross 1982). Certainly we can recognise reflexes of the nominalising suffix in other languages of the north coast of New Guinea, so at least some of the Kimbe languages again turn out to look less dissimilar to their neighbours than might previously have been assumed. The other Kimbe languages follow Nakanai's pattern of nominalising by suffixation of -la/-na (stems of more than two syllables) or infixing of -il-/-in-. On the basis of examples such as these in Bali we tentatively reconstruct PK *ʌŋa for the nominalising suffix:

talako-ʌŋa 'talking'	tureng-ʌŋa 'killing'
lebo-ʌŋa 'throwing'	kutu-ʌŋa 'making'

3.5. Aspect and subject agreement markers preposed to the verb

While the system of aspect/subject marking is not as yet fully analysed for Bali and Vitu, it is known for Bola (Bosco 1979:33), which system shows the likely complexity of the original system, which is declined (in Bola) for five aspects, and conjugated through all 15 pronouns for subject agreement (see Table 9). By contrast, BUL, HAR, and MER all have much simpler systems indicative of the Eastern Oceanic languages. The BAL and VIT systems, upon preliminary analysis, appear to have a reduced version of the Bola system, which appears comparable to systems in parts of Papua and Eastern Oceania. In the simpler systems of BUL, HAR, NAK and MER, aspect is either marked (irrealis) or not (realis), the marked aspect being indicated by ge or ŋge, from POC *ŋke 'hypothetical'. If the verb is marked at all, it will be only the third person agreement marker i which appears.

Table 9: Aspect/subject agreement markers preposed to the verb in Bola

	Real	Future	Conditional	Expected	Irrealis
1st singular	a	ga	hara	taga	maga
2nd singular	o	go	boro	tago	mago
3rd singular	i	ge	bari	tage	mage
1st dual excl.	miri	(ga)miri	ba(ra)miri	tamirigi	(ma)mirigi
1st trial excl.	mete	(ga)mete	ba(ra)mete	tametege	(ma)matege
1st plural excl.	mi	(ga)migi	ba(ra)mi	tamigi	(ma)migi
1st dual incl.	tu	(ga)tu	ba(ra)tu	tatugu	(ma)gotu
1st trial incl.	te	(ga)tege	ba(ra)te	tatege	(ma)gate
1st plural incl.	si	(ga)sigi	ba(ra)si	tasigi	(ma)sigi
2nd dual	murū	(ga)murū	ba(ra)murū	tamurugu	(ma)murugu
2nd trial	moto	(ga)moto	ba(ra)moto	tamotogo	(ma)gamoto
2nd plural	mu	(ga)mu	ba(ra)mu	tamugu	(ma)muga
3rd dual	ru	(ga)ru	ba(ra)ru	tarugu	(ma)garu
3rd trial	to	(ga)to	ba(ra)to	tatogo	(ma)togo
3rd plural	ri	(ga)ri	ba(ra)ri	tarigi	(ma)garigi

4. THE HISTORICAL DEVELOPMENT OF THE KIMBE LANGUAGES

4.1. Development subsequent to PK

Table 3 showed the system of correspondences of phones in POC, PK and Kimbe languages. Bali and Vitu have more and closer reflexes of POC than do the other languages. BUL, BOL, HAR are next in closeness of reflexes of POC, and finally MER and NAK show the least identity. I posit the following historical sequence of change:

BAL	POC -C endings retained, with echo-vowel added PK *g and *q merge as BAL g
VIT	loss of most -CV endings less productive use of -aŋa PK *z to VIT d
BOL	PK *g and *k merge as BOL k PK *z to BOL r
BUL	simplification of aspect/subject marking
HAR	loss of trial pronoun set loss of nasal gradient in voiced stops
MER	PK *q and *k merge as MER ? PK *q goes to MER o before a PK *z to MER s PK *r and *l merge as MER l
NAK	PK *ŋ and *ŋ merge as NAK l PK *ŋ to NAK g and l PK *q to NAK h PK l and n to NAK l

[in the above sequence a statement is true for all languages level with it and below, until superseded, e.g. PK *z to d is superseded by the lower change PK *z to r]

Confusing the neatness of the above hypothesised historical sequence are the isoglosses for numerals and noun markers. The cardinal numeral systems group BOL, HAR and MER with polo- prefixes, versus the others which have regular reflexes of the POC system. As noted in 3.3. the phonologies of the intrusive numeral substratum in NAK and BUL suggest that these two languages were influenced separately, rather than BUL borrowing second-hand from NAK, despite historical records of migration to BUL from NAK around 1913. (cf. Hees 1915-16). Noun markers are lost for the most part in MER, VIT, HAR and BUL, but these are assumed to be ephemeral, and consequently subject to easy loss if contact pressure and language simplification conditions apply.

I propose therefore a process of phonological, lexical and grammatical divergence from Proto-Kimbe, as listed above. The historical sequence broadly follows a line west to east, which could reflect the complex of contact with other languages, rather than a line of migration.

4.2. Development of PK from POC: implications for the New Guinea Oceanic hypothesis

Evidence presented in parts 1 to 3 of this paper suggest that PK is a distinctly reconstructible proto-language subsequent to POC. There is, then, in the area immediately north of mainland New Guinea, a record of an historical stage in which a language existed which had three palatals, three velars in the process of merging to two, POC *ns, *d and *s merged as *z, word-final C retained, and POC *d and *R merged as *r. It is interesting that BAL and VIT still show a three-way palatal contrast, whereas in the other daughter languages of PK it has reduced to a contrast between r and l or l and s. Also noteworthy is the fact that the three velars PK

*q, *k and *g are only discernible by comparative means, and are not all witnessed together in any contemporary language of the Kimbe family, except by *g going to \emptyset as a contrast with both k and h in NAK, where the picture is confused by a contemporary change to loss of k and h, and reinsertion of h for \emptyset by some speakers in certain definable areas. In the daughter languages of PK there is complex crossing of the three proto-velars, which appear to have been distinct until the break-up of PK.

The merging of *q and *k is found to be in progress throughout NGO from Central Papua to Kimbe, so these were presumably separate phonemes in a dialect chain which broke up into the present-day language families of NGO (excluding the languages from Aitape to Salamaua, as well as the languages of the Admiralty Islands.) It seems likely that the allophones of *k and *q overlapped in the original dialect chain.

It is evident that with POC *q and *k beginning to merge at the point of PK's break-up, and with POC *s and *ns merged as PK *z, as well as the retention of POC final C in PK, that PNC and PK have distinct lines of development subsequent to POC.

Some reconstructed PK etyma herein suggest that final C should be written in more POC etyma than had previously been realised to have this ending. Further than this, however, there is little indication that PK is anything other than a conservative post-POC development, phonological mergers being typical of those characteristic of POC.

The closeness of PK to POC indicates a quick break-up of what was probably a dialect chain, over a wide geographical area, possibly beginning in northern New Britain. There would have been little time for an intermediary PNGO phase of development, and there is no consistent evidence in phonological innovations or shared grammatical changes to support such an hypothesised stage of development.

In summary, reconstruction of PK shows that the Kimbe languages are part of the comparative and historical linguistic milieu of NGO, and were not introduced into the area independently of the source common to other NGO languages, although a substratum influence from Eastern Oceanic is still a possibility in the Kimbe area. Additionally, we can tentatively conclude that PK, while being distinct by certain phonological criteria from the north coast New Guinea languages, is not so markedly divergent as to support an intermediary PNGO phase of development.

Certainly the close identity in phonological characteristics of PK and POC indicates the rapid break-up over the NGO area from Kimbe to Central Papua of a dialect chain, this break-up occurring relatively quickly after the break away from POC, a contention supported by the apparent similarity in phonology and grammatical systems of PNI, PBV and PPT to PK (see Ross 1979, 1982), and the uniform closeness of these proto-languages to POC. If these claims are true, then the existence of PNGO is considerably undermined by the existence of PK in the form reconstructed in this paper.

NOTES

1. This paper is a revised version of the one given at the Conference. A finder-list of PK etyma has been included, an appendix of Bali texts deleted, certain amendments made in the tracing of the historical development of PK phonemes, and some PK etyma revised. Abbreviations used herein are as follows:

BAL	Bali	NGO	New Guinea Oceanic
BIL	Bileki	PAN	Proto-Austronesian
BOL	Bola	PBV	Proto-Bougainville
BUL	Bulu	PCH	Proto-Choiseul
HAR	Harua	PCP	Proto-Central Pacific
LOS	Loso	PEO	Proto-Eastern Oceanic
MAU	Maututu	PK	Proto-Kimbe
MER	Meramera	PNC	Proto-North Coast-Madang
NAK	Nakanai (Bileki dialect taken as standard, except where a contrast is emphasised between BIL and the other dialects)	PNGO	Proto-New Guinea Oceanic
UBA	Ubae	POC	Proto-Oceanic
VER	Vere	PNI	Proto-New Ireland
		PPN	Proto-Polynesian
		PPT	Proto-Papuan Tip
		PSH	Proto-Southern Hebrides
		PW	Proto-Willaumez

2. The author's research in the Kimbe languages has been conducted since 1971 for varying periods of time, residing in Karapi village in the Nakanai-speaking area near Hoskins. An earlier draft of this paper entitled 'Steps towards the phonology and grammar of Proto-Kimbe' was delivered at the 1978 Congress of the Linguistic Society of Papua New Guinea. Grateful acknowledgement is expressed to those who assisted with criticisms of that earlier paper and a subsequent re-drafting: John Lynch, Pete Lincoln, Bob Blust, Malcolm Ross. They are in no way responsible for my possible misapplications of the points they have tried to make with regard to the analysis of the Kimbe languages. Thanks is also extended to Ann Chowning and Andrew Pawley for sending hard-to-get materials, and to Pete Lincoln for Vitu data and Malcolm Ross for Bali data. I am also grateful to both Ross and Blust for further criticisms and comments on the present revision, with of course the same disclaimer as above.
3. Thanks are due to Barbara Gili (Bali), John Matana (Bali), Fidelma Lingei (Vitu), Francis Gelo (Harua), Sabina Berbard (Meramera), Michael Utu (Bulu), John Bosco (Bola) for assistance with the elicitation of wordlists and the production of texts. Further materials referred to were L. Bischof's *Ubili dictionary* from the Microbibliotheca Anthropos series, kindly printed off and sent by Lois Carrington with the ready co-operation of Stephen Wurm; a computer printout master list of available wordlists, kindly prepared by Steve Whitacre of the Summer Institute of Linguistics; the data in Goodenough 1961a & b; the information available in Chowning's 'Bileki vocabulary' (typescript) and in Chowning 1973; Richard Thurnwald's 'French Insulaner Sprache' cards in the possession of Don Laycock, ANU; various lists by teachers' college students and lists taken by the author and by members of the Summer Institute of Linguistics (SIL), on file with SIL, PNG; Vincent Tangari's mimeograph work 'Tabele ne tarua' [Our language] (Bola), Keravat High School; data in Johnston 1980a & b, and Johnston, ed. 1980; John Bosco's 'Bola grammar' (see bibliography) including extensive

text material prepared by Bosco therein; Bible History in the Ubili Language, Mimeograph, Sacred Heart Mission, Ulamona.

4. Tryon (1979:891) gives further figures for Nakanai percentage of cognates with Pacific languages as follows: with Gilbertese (20.8%); with Mota (Banks Islands) (21.3%); Samoan (22.1%). Compare these with the considerably lower figures obtained between Nakanai and New Britain languages in Hooley (1971): with Kuanua (18%); with Maleu (15%); with Arove (Arawe) (6%). Blust calculated 30% for Nakanai and Fijian.
5. Goodenough (1961b:2-3) had difficulty with the phones h, x and g in BOL, BUL and HAR (his Xarua). However it seems that what was recorded variously as ɣ, h and x in his data is the one phoneme ɣ (mistakenly g) articulated differently by different speakers and in different areas. This ɣ appears to be lenis and back-velar in quality and articulation. In wordlists from various workers (e.g. Allen and Hurd 1961 - on file SIL) x and h are sometimes both recorded for the one item. In wordlists by educated young people, h is invariably written for all three possibilities, as indeed it is written for ɣ in Bali and Vitu; literate Bolas also sometimes write the ɣ as gh. Consider to that the name of my "Harua" has been variously rendered as Xarua, Karua, and Garua - suggesting that the initial consonant is more than elusive even to a trained ear. Goodenough lists a number of facts from his data that further encourage one to go ahead confidently and list ɣ rather than raising the spectre of false correspondences multiplying velars as a result of artifacts of our over-differentiation plus inaccurate recording. Consider then the points Goodenough raised:
 - a. The distribution of x, h and g in BOL, BUL and HAR suggests one phoneme;
 - b. In BUL h appears in only three words, all initially, while x is recorded in 26, both initially and medially;
 - c. In BOL h is recorded in five words (all medially) while x is recorded in 18 words both initially and medially;
 - d. In HAR however h is recorded in 22 words (initially and medially) and x in only six (both initially and medially);
 - e. The pair kuru-hale '*wrong*' and xale '*bad*' in HAR suggest that recorded x and h may represent free variants of one phoneme; (while one does not readily agree with G's reasoning here, nevertheless this is the point he makes);
 - f. A similar correspondence to (e.) is found in BUL hatelu-ka '*egg*' and NAK hatotolu '*egg*', when NAK h is otherwise reflected by BUL x or g;
 - g. But there was difficulty in discriminating between x and g in both BOL and BUL;
 - h. For the five cases of h in BOL, two with cognates in HAR and BUL show a different pattern of correspondences from that which obtains where BOL x is recorded, while one shows the same pattern; this is suggestive but not conclusive evidence of a separate phonemic status of h and x in BOL;
 - i. The correspondence patterns for HAR h and x with BUL and BOL are the same, thus supporting the apparent lack of phonemic difference in those two languages;

However Bola has been analysed by a young national student in linguistics who has produced a grammar, orthography, literacy plan and pre-reading and primer materials. At no stage of his training or production of materials has the student (John Bosco) indicated the need to establish a contrast between x and h in Bola, which sounds he symbolises as h but analyses as ɣ.

6. There is also some lexical evidence of an intrusive influence from Eastern Oceania. This argument was put forward by Goodenough (1961a) and is also alluded to in general terms in Chowning 1976b and 1973. It would seem incautious however to attempt to subgroup the Kimbe languages with the Central Pacific or other Eastern Oceanic languages on the basis of irregular changes which could

be due to parallel evolution, and under the influence of relatively high lexicostatistical percentages of cognacy between Kimbe languages and the Central Pacific languages and their neighbours, when such figures could be an artifact of unusually high retention rates in the languages compared. Note that Goodenough (1961a) also raised the matter of the complexification of data in the Nakanai dialects by virtue of dialect borrowing which led to new correspondence patterns. In this connection he cites among other evidence doublets such as MER oate, ate, UBA hate, BIL hate '*liver*' alongside MER Nala, UBA gala, BIL gala '*breath*' giving two sets of reconstructed doublets TNK *hate, *HaTe and *Nala/*ngala. Such doublets are quite frequent, and G. quotes BIL pulo/bulo '*to turn*' as a prime example.

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TOWARDS A CLASSIFICATION OF SOLOMON ISLANDS LANGUAGES

D.T. Tryon

1. INTRODUCTORY

The term 'Solomon Islands' has been used in anthropological and ethnological parlance with a variety of meanings, usually extending beyond the boundaries of the country formerly known as the British Solomon Islands Protectorate. The reason for such usages has its origin in the history of the former protectorate, parts of which were under German control until the end of the last century.

Britain declared a protectorate over the southern islands of the group (Guadalcanal, Savo, Malaita, San Cristobal and the New Georgia group) in 1893. In 1898 and 1899 the islands of the Santa Cruz group, including Utupua, Vanikoro, Tikopia and Anuta, as well as the Polynesian Outliers Sikaiana, Rennell and Bellona were added to the protectorate. In 1900, by a treaty with Germany, several islands in the north were transferred to British administration. These were Choiseul and Santa Ysabel, the Shortland Islands to the south of Bougainville (now part of Papua New Guinea), and the outlying atoll of Ontong Java. All of these islands make up the Solomon Islands, which gained its independence on July 7, 1978 (see also Map 1). The total land area of the Solomon Islands is 11,200 square miles (Census 1970:viii), while the population is currently estimated at a little over 200,000 people.

The languages of the Solomons are among the most imperfectly known in island Melanesia. Early writers such as Codrington (1885) and Ray (1926), together with that prolific student of island Melanesian languages, the Rev. W.G. Ivens, culled most of their material from gospel translations, and concentrated on grammatical sketches. Capell (1956 and 1962) gave a general account of the languages of the archipelago. It was not until 1968 (Hackman 1968) that any publications appeared which treated anything like the totality of the Solomon languages, followed in 1971 (Hackman 1971) by a short listing of the languages. In 1975 Hackman decided to join forces with the present writer, to undertake a survey of all of the languages of these islands and to present an internal classification of them, initially, (see Tryon and Hackman, forthcoming). There was a sociolinguistic account of the language situation in the Solomons published in 1979 (Tryon 1979), and the present paper represents a first attempt at an overall classification, to be expanded and amplified in the forthcoming study mentioned above. The preliminary classification presented here is based largely on lexicostatistics, the sound correspondences between the languages having been determined and taken into account. In the latter part of the paper, the phonological evidence for internal subgrouping is considered briefly, as a check on the subgroupings which emerged from the quantitative evidence.

Amran Halim, Lois Carrington and S.A. Wurm, eds *Papers from the Third International Conference on Austronesian Linguistics*, vol.1: *Currents in Oceanic*, 97-108. *Pacific Linguistics*, C-74, 1982.

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2. THE LANGUAGES

There are, according to the criteria followed in this study, some sixty-three languages and many more dialects spoken in the Solomon Islands at present, excluding Gilbertese and other languages imported into the Solomons over the last few years. The languages of the Solomons are basically Austronesian, fifty-six out of the sixty-three languages being so. Of the fifty-six Austronesian languages, fifty-one are Melanesian, the other five being Polynesian Outlier languages. Seven of the Solomons languages are considered to be Papuan or non-Austronesian, although the exact classification of some of these has been a matter for debate, see below. For purposes of this paper, however, the emphasis will be on the Austronesian languages.

2.1. The Papuan languages

The Papuan (non-Austronesian) languages of the Solomons number seven. No attempt has been made here to classify them. It is of interest, however, to note that nearly all of them have borrowed extensively from neighbouring Austronesian languages, this being particularly noticeable in the case of Savosavo and Baniata, borrowing from Guadalcanal and New Georgia languages respectively. The Papuan languages, with locations and approximate numbers of speakers are as follows:

LANGUAGE	LOCATION	SPEAKERS
Bilua	Vella Lavella	4,300
Baniata	Rendova	1,000
Lavukaleve	Russell Is	700
Savosavo	Savo I	950
Aiwo	Reef Is	3,500
Santa Cruz	Santa Cruz I	3,030
Nanggu	Santa Cruz I	200

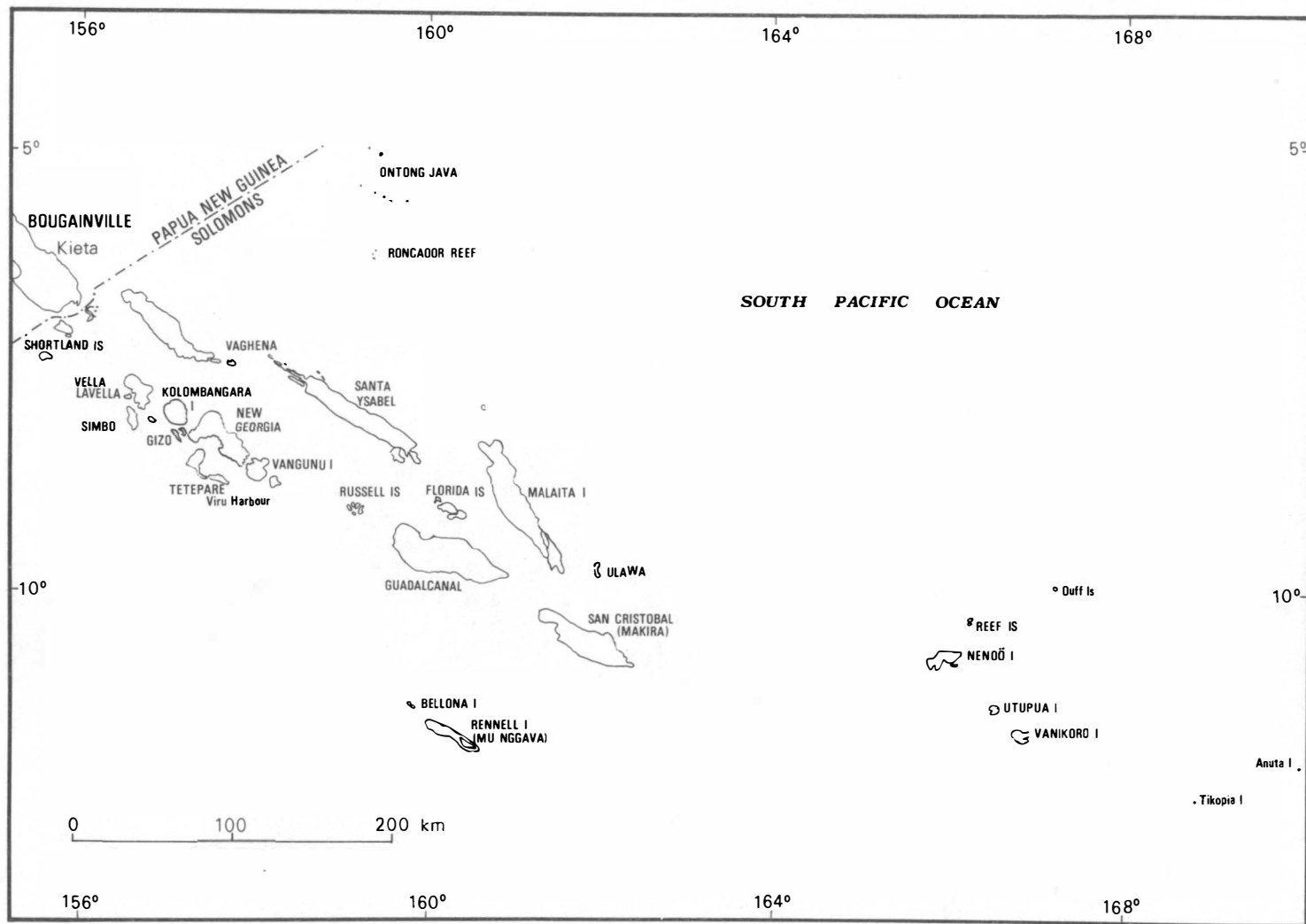
Formerly there were three Papuan languages/dialects spoken on the island of New Georgia:

1. Kazukuru
2. Doriri
3. Guliguli

Very little is known of these languages, although a wordlist of roughly one hundred words is available for Kazukuru (Capell 1969).

Early writers did not recognise the Papuan languages as such, but simply regarded them as aberrant or difficult Melanesian languages (see Codrington 1885 and Ray 1926). Wurm (1975) assigns the first four languages listed above (Bilua, Baniata, Lavukaleve and Savosavo) to the Yele-Solomons Stock of his East Papuan Phylum, seeing a genetic relationship between them and the Yele languages of Rossel Island (Papua New Guinea). He also tentatively assigns Kazukuru, Doriri and Guliguli to the same stock, although the material available for these languages is extremely scanty. Todd (1975) agrees with Wurm in grouping Bilua, Baniata, Lavukaleve and Savosavo into a 'Solomons Language Family', noting that Bilua and Savosavo are more closely related to each other than to the remainder.

The Papuan languages of the Eastern Outer Islands of the Solomons have been something of a problem in terms of language classification. A number of scholars have written about Aiwo, Santa Cruz and Nanggu, including Davenport (1962), Wurm (1969, 1975 et passim), Lincoln (1975, 1978), Green (1976) and Simons (1977). There has been some debate concerning the status of these three languages, particularly Santa Cruz. Wurm (1975:796) maintains that they are indeed Papuan and that they have been heavily influenced by Austronesian languages. He assigns them to the East Papuan Phylum, although as a subphylum-level family some distance from the



Map 1: The Solomon Islands

Papuan languages in the north of the Solomons archipelago. On the other hand, Lincoln maintains that the languages in question are indeed Austronesian, pointing to a number of lexical and morphosyntactic features in support of his claim. The affiliation of these three languages is not clear-cut, for while a number of features in them are plainly Austronesian, the basic morphological system appears quite unlike anything else in island Melanesia, and in fact quite similar to that encountered in the Papuan languages to the north of the Solomons. The morphological complexity of the verb phrase in Aiwo, Santa Cruz and Nanggu is in distinct contrast to the relatively simple system found in the four Papuan languages of the northern Solomons. Until further detailed studies are undertaken it is unlikely that the debate will advance much further. The present writer considers that in view of the central role of the verb and verb morphology in these languages and their obvious dissimilarity with other island Melanesia languages, it is preferable, for the present at least, to consider Aiwo, Santa Cruz and Nanggu to be Papuan. The final word has certainly not been said on the subject and the multiple influences that have been at work on these languages will be difficult to unravel, for the languages of this area have, in addition to what has been discussed above, also been subject to considerable Micronesian and Polynesian influence.

2.2. The Austronesian languages

There are fifty-six Austronesian languages spoken in the Solomon Islands, including five Polynesian Outliers. They are as follows:

LANGUAGE	LOCATION	SPEAKERS
Alu	Shortland Is	1,700
Vaghua	Choiseul	1,000
Varisi	Choiseul	1,900
Ririo	Choiseul	18
C.E. Choiseul	Choiseul	5,000
Ghanongga	Ranongga	1,320
Lungga	Ranongga	700
Simbo	Simbo	950
Nduke	Kolombangara	1,500
Roviana	New Georgia	4,100
Ughele	Rendova	650
Kusaghe	New Georgia	950
Hoava	New Georgia	600
Marovo	New Georgia	2,900
Vangunu	New Georgia	900
Zabana	Santa Ysabel	1,000
Laghu	Santa Ysabel	5
Kokota	Santa Ysabel	170
Zazao	Santa Ysabel	100
Blablanga	Santa Ysabel	550
Maringe	Santa Ysabel	5,000
Gao	Santa Ysabel	500
Bugotu	Santa Ysabel	1,900
Gela	Florida	5,300
Lengo	Guadalcanal	5,200
W. Guadalcanal	Guadalcanal	5,000
Talise	Guadalcanal	4,500
Malango	Guadalcanal	1,800
Birao	Guadalcanal	3,200
Longgu	Guadalcanal	750

LANGUAGE	LOCATION	SPEAKERS
Lau	Malaita	6,500
N. Malaita	Malaita	13,500
Kwara'ae	Malaita	12,500
Langalanga	Malaita	2,000
Kwaio	Malaita	7,000
Dori'o	Malaita	900
'Are'are	Malaita	10,000
Oroha	Malaita	100
S. Malaita	Malaita	6,500
Arosi	San Cristobal	2,800
Fagani	San Cristobal	300
Bauro	San Cristobal	2,800
Kahua	San Cristobal	4,000
Nemba	Utupua	150
Asumboa	Utupua	20
Tanambile	Utupua	50
Buma	Vanikoro	50
Vano	Vanikoro	5
Tanema	Vanikoro	5
Rennellese	Rennell/Bellona	1,800
Luangiua	Ontong Java	1,100
Sikaiana	Sikaiana	220
Pileni	Reef Is	800
Tikopian	Tikopia/Anuta	1,800

The Austronesian languages of the Solomon Islands have been classified, tentatively at this stage, using the following criteria quantitatively:

Approximately 81% - 100%	Dialects of same Language
Approximately 50% - 80%	Different Language, same Subgroup
Approximately 30% - 49%	Different Subgroup, same Group
Approximately 20% - 29%	Different Group, same Family

These percentages of shared cognates largely follow Wurm (1971:542), with the modifications made in Tryon (1976) in his classification of the languages of Vanuatu (formerly New Hebrides). The reasons for the selection of these percentages as critical need not detain us here, in a preliminary classification of this nature. Two other points are, however, relevant to the classification:

- i) At least two hundred comparisons were made between all test lists, which included the Swadesh 200 list, as modified by Samarin (1967:220).
- ii) The sound correspondences for all lists were worked out and used to determine cognancy or otherwise (and will be reproduced in full in the final classification, Tryon and Hackman (forthcoming)).

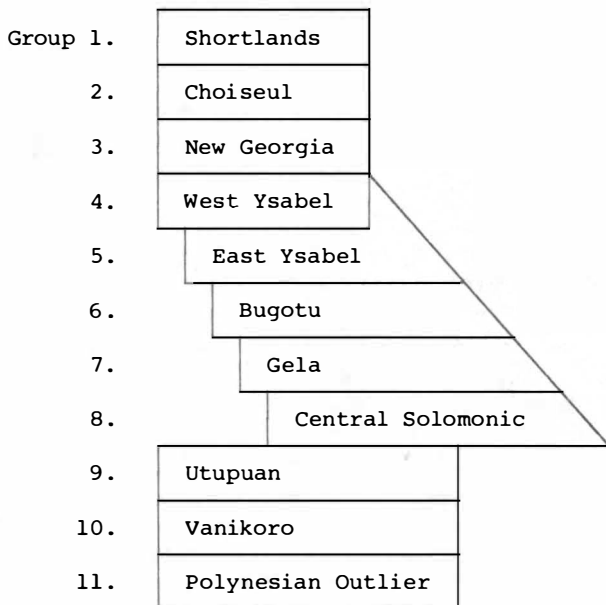
In this paper, as in previous classifications of the languages of Vanuatu (Tryon 1976 and 1977), the problem of non-discrete boundaries and subgroups has manifested itself again in some instances. For example, a 'dialect chain' would be a series of speech communities such that the speech of Community A is mutually intelligible with that of Community B, that of B with C, but not A with C, setting up an intelligibility chain. The dialect chaining principle is well known from the work of Wurm and Laycock (1961), Voegelin et al. (1963) and Wurm (1972). What is of interest here, and throughout island Melanesia at least, is the extension of the chaining principle to language subgrouping at higher levels, thereby circumventing the problem of sharp cut-offs between one category or subgroup and the next.

Thus in Chart I it will be seen that the languages of the Solomons fall into a number of Groups, Subgroups, Languages and Dialects, the percentile criteria for which have been given above. It will be noted that all of the subgrouping levels

lie within rectangles, a number of which overlap. This overlapping represents non-discrete subgroups brought about by the chaining phenomenon discussed above, the principle being applied at all levels.

So under the heading 'Dialect', names enclosed in rectangular configurations are dialects, mostly all chains, of the 'Languages' to their left. So, for example, the language named Central East Choiseul is in fact a dialect chain with six major constituents or links. At a higher level it will be seen that Ririo is a member of both the North West Choiseul and Central East Subgroups, Vaghua, Varisi and Ririo meeting the criteria for membership of a single subgroup, while Ririo and Central East Choiseul form a separate subgroup. At a higher level again, the Group level, it will be seen that both of these subgroups are subsumed under a single Group, the Choiseul Group. An examination of the Chart will show, then, that the chaining phenomenon is apparent at all levels.

So it is that the languages of the Solomon Islands fall into eleven highest-order (for purposes of this paper) subgroups, here called 'Groups', based on a standard basic wordlist. Some of the groups so distinguished will be seen to represent discrete entities, while others will be seen to overlap; the Chart appearing below should be self-explanatory. For the sake of added clarity, however, the highest-order groups and their overlaps will be set out separately as follows:



The above diagram is meant to illustrate what has been included in Chart I, namely that the languages of the Solomon Islands fall into eleven higher-order subgroups according to lexicostatistical criteria, that Groups 1 to 3 and 9 to 11 constitute discrete subgroups, while Groups 4 to 8 are overlapping groups, such that for example West Ysabel partially overlaps with East Ysabel which partially overlaps with Bugotu and so on until the Central Solomonian Group.

The total Solomon Islands classification, distinguishing four levels, is put forward, tentatively at this stage, in the chart as follows:

Group	Subgroup	Language	Dialect
SHORTLANDS	Shortlands	Alu	Mono Alu Fauro
CHOISEUL	N.W. Choiseul	Vaghua Varisi	Vaghua Ghone Varisi
	C.E. Choiseul	Ririo C.E. Choiseul	Ririo Babatana Katazi Sengga Lōmaumbi Avasō
NEW GEORGIA	Roviana	Ghanongga Lungga Simbo Nduke Roviana Ughele Kusaghe Hoava	Ghanongga Lungga Simbo Nduke Roviana Ughele Kusaghe Hoava
	Marovo	Marovo Vangunu	Marovo Vangunu Mbareke
WEST YSABEL	Kia	Zabana	Zabana
	Laghu	Laghu	Samasodu
EAST YSABEL	Ysabel	Kokota Zazao Blablanga	Kokota Kilokaka Blablanga
		Maringe Gao	Ghove Kmagha Leleghia Tataba Poro
BUGOTU	Bugotu	Bugotu	Bugotu
GELA	Gela	Gela Lengo	Gela Lengo Paripao Ghaimuta
		West Guadalcanal	Gae Ndi Tandai Nginia Gari
CENTRAL SOLOMONIC	Guadalcanal	Talise	Poleo Koo Malageti Talise Tolo Moli
		Malango Birao	Malango Birao

Group	Subgroup	Language	Dialect
CENTRAL SOLOMONIC (continued)	Malaita	Longgu	Longgu
		Lau	Lau Walade
		North Malaita	To'abaita Baelelea Baegu Fataleka
		Kwara'ae	Kwara'ae
		Langalanga	Langalanga
		Kwaio	Kwaio
		Dori'o	Dori'o
		'Are'are	'Are'are
		Oroha	Oroha
		South Malaita	Sa'a Ulawa Uki Ni Masi
	San Cristobal	Arosi	Arosi
		Fagani	Fagani Rihu'a Agufi
		Bauro	Bauro Haununu Rawo
		Kahua	Kahua Tawaroga Mami Santa Ana S. Catalina
UTUPUA	Nembaio	Nembaio	Nembaio
	Asumboa	Asumboa	Asumboa
	Tanimbili	Tanimbili	Tanimbili
VANIKORO	Vanikoro	Buma	Buma
		Vano	Vano
		Tanema	Tanema
POLYNESIAN OUTLIER	Polynesian Outlier	Rennellese	Rennell Bellona
		Luangiua	Ontong Java
		Sikaiana	Sikaiana
		Pileni	Pileni
		Tikopian	Tikopia Anuta

va

SOLOMON ISLANDS NON-AUSTRONESIAN LANGUAGES

1. Bilua (Vella Lavella)
2. Baniata (Rendova)
3. Kazukuru (New Georgia, extinct)
4. Lavukaleve (Russell Is)
5. Savosavo (Savo I)
6. Aiwo (Reef Is)
7. Santa Cruz (Santa Cruz I)
8. Nanggu (Santa Cruz I)

3. THE PHONOLOGICAL EVIDENCE

The subgroupings based on quantitative criteria, tentative though they are, appear to be well supported by qualitative evidence. The phonological evidence for each of the lexicostatistically based subgroups will be examined briefly, highlighting only the major phonological innovations which may be used to distinguish them.

A Shortlands subgroup appears to be supported by (1) the fact that POC *ŋ → ∅ [Alu boi 'night', lao'au 'fly'] intervocalically; (2) POC *k → ? intervocalically also [Alu ba'oi 'shark']; (3) POC *s and *ns appear to merge as ∅, with the sole exception of Alu hose 'paddle', thus: [aha-na 'what', ale 'float']. (4) Phonetically POC *p is reflected as h in Alu, and in none of the languages north of Malaita, while POC *d and *nd merge as l. While the quantity of lexical data from which this phonological evidence has been adduced is rather limited, nevertheless it appears that none of the other language groups within the Solomon Islands share the combination of sound changes listed above.

Choiseul appears to be supported as a subgroup by a small number of phonological developments not found elsewhere in the Solomons. The most common of these is a v accretion before u, and a z accretion before i after the loss of initial k generally. Thus, we have: Babatana vutu 'louse', zita 'we pl incl'. In West Choiseul the accretion does not occur regularly, thus Vaghua eta 'we pl incl'. All of the languages of Choiseul share an r accretion to reflexes of the cardinal pronoun forms *koe 'you sg', *kami 'we pl excl' and *kamu 'you pl'. Thus, for example: Vaghua oram, Varisi ramu, Ririo ram, Babatana, Katazi, Sengga, Lōmaumbi, Avasō ramu, 'you pl'. In Choiseul POC *w → ∅, a change shared by a number of other languages in the area, and POC *ns → ∅ word initially, except when reflecting *nsaqat 'bad'. Thus, for example, Sengga z-ia 'nine'.

The New Georgia subgroup can perhaps be best defined negatively, for these languages share none of the innovations which distinguish the Shortlands and Choiseul subgroups. They do, of course share such widespread developments as POC *w → ∅, and the merger of POC *ŋm and *m as m.

Phonologically, Santa Ysabel, with the exception of the Bugotu area in eastern Ysabel, appears to form a subgroup distinct from all other Solomon Islands groups. The phonological history of these languages is obviously complex, with the development of a set of aspirated stops not encountered elsewhere, together with preconsantal glottal occlusions whose origins are not evident as yet. Apart from these phonetic oddities, a number of the POC phonemes have reflexes not shared beyond Santa Ysabel. For example, POC *m → ∅ with cardinal pronouns. Thus: Kilokaka yai 'we pl excl', yau 'you pl'. Initial POC *m is sometimes reflected as n. Thus, Kilokaka nat^ha, Blablanga nat^ha, Gho ve nat^ha 'eye'; Blablanga nanafa, Samasodu nanafa 'heart'. This sound change could be the result of the merging of some kind of article, perhaps *na, with the first consonant of the noun. Articles are not generally used in the languages of Santa Ysabel, however. It is interesting to note also that POC *n is reflected as ñ in the languages preserving the Proto-Oceanic *n/*ñ distinction, but only reflecting POC *manawa 'heart', thus Leleghia nañafa, Poro ñañafa 'heart'. It is possible, of course, that the POC reconstructed form may be more properly *mañawa.

Santa Ysabel (excepting Bugotu) is alone, too, in reflecting POC *p as f or h, *mp as b, but *ŋp as p^h. The phonological evidence, then, even after a preliminary study, would indicate the existence of a Santa Ysabel subgroup.

The lexicostatistically established subgroups, Bugotu, Gela, Guadalcanal, Malaita and San Cristobal, and the Central Solomonic group share the merger of POC *l and *R. This merger (see also Pawley 1972:30) is not shared by other language groups in the Solomons. This large subgroup also shares a number of other sound changes occurring over a wide area, and not of great diagnostic value.

Within the Central Solomonian group, a subgroup including the languages of Malaita (together with Longgu and Marau on Guadalcanal) and San Cristobal appears to be strongly indicated by the phonological evidence. All of these languages share the following innovations:

- (1) POC *t → ø. Thus: To'abaita mā-na, Bauro mā-na 'his eye'; Kwaio ū, Kahua ŷū 'louse'.
- (2) POC *s and *ns are reflected as s before high vowels, and t elsewhere. Thus: Fataleka fote, Ulawa hote 'paddle', but sikwa and siwa 'nine', respectively.
- (3) There is an s- accretion before a in a number of words. Thus: Oroha sae, Fataleka saeθau 'liver', Fataleka sato, Ulawa sato 'sun'. This accretion appears to be restricted to Malaita and the languages within the immediate Malaitan subgroup, where the *s- has a number of regular reflexes.

The languages of Guadalcanal, Florida (Gela) and Bugotu may be subgrouped negatively, in that while they all share the POC *l and *R merger, they do not share the innovations just discussed for Malaita and San Cristobal. Positively, POC *m and *ŋm merge as m in Bugotu, Gela and Guadalcanal, traces of the labiovelar being found as reflexes of *ŋmata 'snake', in some of the dialects of Guadalcanal, but not for other etymons. Thus: Gela mane, Gae mane, Malango mane 'man', but Moli mata, Gari muata, Lengo umata 'snake'. The merger of POC *ŋm and *m is fairly widespread, but is not shared by the Malaita-San Cristobal languages, where we find, for example: Baelelea ŋwane, Sa'a mwane 'man', Kwaio wā, Ulawa mwā 'snake'. In addition, POC *w → u in Florida and Guadalcanal, and ø in Bugotu, while it is retained in Malaita-San Cristobal. Thus: Ndi siu, Talise siu 'nine', but Baelelea sikwa, Arosi siwa 'nine'. The phonological evidence for two subgroups of Central Solomonian is strong, then, even though only the major features have been discussed here.

As far as the two putative subgroups in the Eastern Outer Islands, Utupua and Vanikoro, are concerned, the picture is not so clear, for the dearth of cognates and low percentages lexicostatistically make it difficult to establish many phonological rules which are useful as subgrouping evidence. As more extensive vocabularies become available and the complex borrowing patterns clarified, detailed phonological evidence will undoubtedly be adduced. At this stage, the picture is not very clear. It appears that Utupua and Vanikoro share none of the phonological innovations which constituted the principal evidence for the subgroups discussed above, and so may be excluded from them. Utupua appears to have lost reflexes of POC *R, while Vanikoro appears to have retained them. Thus: Nembao nie, Tanimbili nowio 'water', but Buma ero, Vano wire, Tanema wira 'water', Nembao nanö, Tanimbili noñio 'coconut', but Buma luro 'coconut'. POC *d is also reflected as y in two of the three Utupuan languages, while it is reflected as l in Vanikoro. Although these pieces of evidence are fragmentary, they suggest that the languages of Utupua and Vanikoro have undergone a perhaps lengthy period of separate development. The lexicostatistical evidence would certainly lead one to believe this, although morphosyntactic features suggest much closer links.

4. CONCLUSIONS

While both the quantitative and qualitative evidence is of a preliminary and necessarily tentative nature, it appears that the major subgroups established on lexicostatistical criteria are largely corroborated by a preliminary consideration of the broad lines of the phonological evidence. The only significant modification which the qualitative evidence would suggest, at this stage, is a single subgroup for Santa Ysabel (with the exception of Bugotu) rather than the two overlapping subgroups for that island set up in the first part of the paper. What is known of the morphosyntax of the Solomon Islands languages suggests that a similar more definitive subgrouping will be reached as that evidence is considered. Of course

the external relationships of these languages remain to be determined. Such an exercise was beyond the scope of a preliminary study such as this.

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BORROWING IN AUSTRONESIAN AND NON-AUSTRONESIAN LANGUAGES OF COASTAL SOUTH-EAST MAINLAND PAPUA NEW GUINEA

Tom Dutton

1. INTRODUCTION

The coastal area of the mainland of south-east Papua New Guinea is inhabited by different groups of people speaking one or more of two distinct language types, Austronesian (AN) and non-Austronesian (NAN). The NAN languages that we are interested in in this paper belong to one family, the Mailuan Family, whose speakers occupy the coastal area between Cape Rodney in the west and Gadaisu in Orangerie Bay in the east and inland of Cloudy Bay as far as the Keveri Valley – see Map 1. These people are in contact with speakers of the AN Keapara language on their western boundary, with those of the AN Suau language on their eastern boundary, and in betwixt these two points with the few remaining speakers of several scattered AN languages, Ouma, Yoba, Magori and Bina. In addition one group of speakers of one of the member languages of the Mailuan Family, notably the Mailu Islanders, were, at the time of first European contact, and still are active and aggressive long-distance traders whose principal points of contact were and still are with Aroma and Maopa dialect speakers of the Keapara language on the west and with Suau and other AN speakers of the present-day Milne Bay Province of Papua New Guinea farther east.

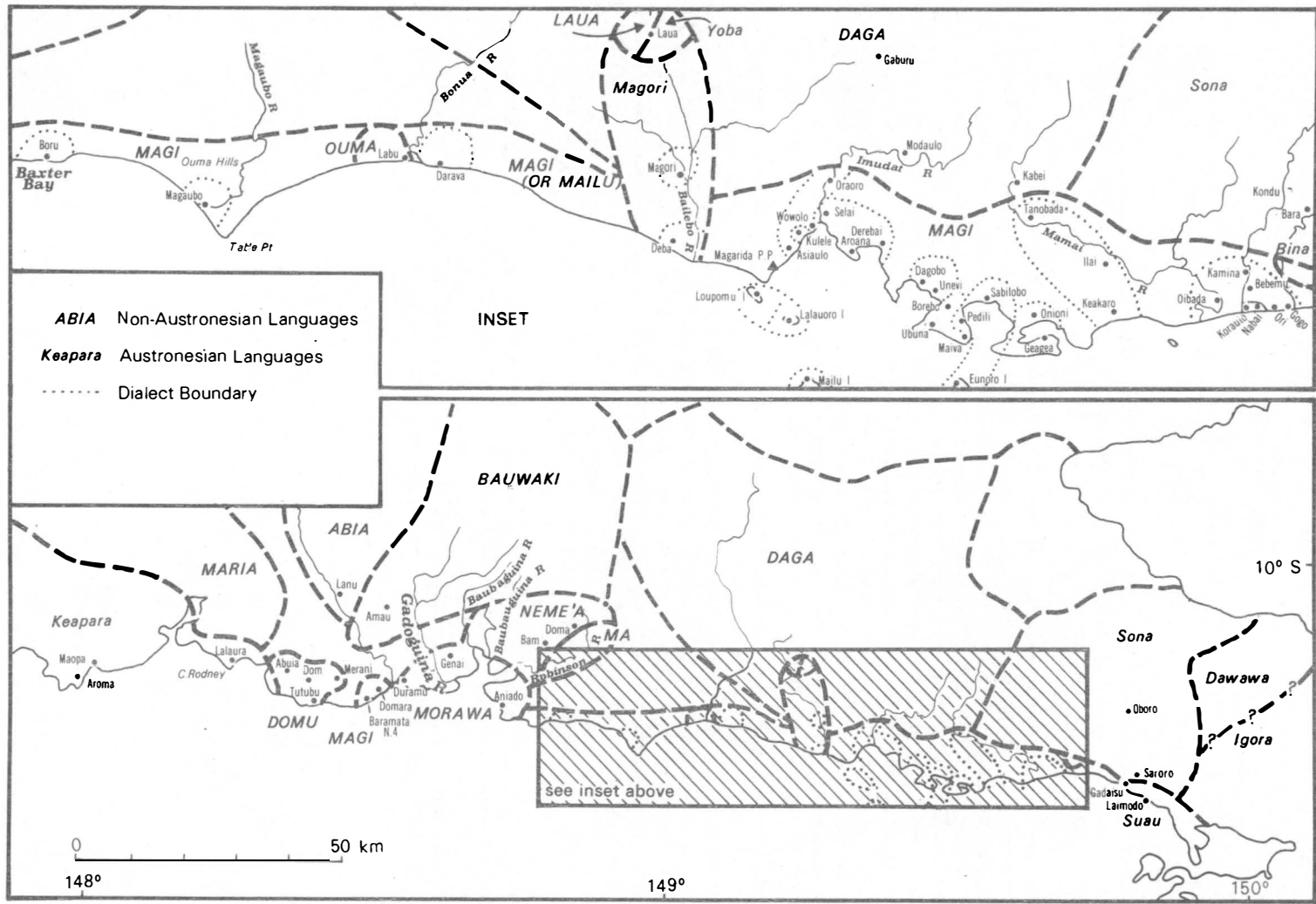
Little wonder then that many of these languages contain borrowings from one another's languages. Indeed several of them contain so much basic vocabulary in common that early observers can hardly be blamed for classifying one in particular, Magori, as an aberrant form of another, Magi, when in reality they are genetically quite unrelated (Dutton 1976c). However, although the nature, distribution and use of these languages is now better understood and preliminary studies have shown that the loaning and borrowing is confined, for the most part, to the Mailuan Family languages and Ouma, Bina, Yoba and Magori (Dutton 1971b; 1976c) the question of who borrowed what from whom precisely, and when, has not been investigated seriously, although it has long been proposed (Thomson 1975a:44,51).

It is the purpose of this paper to rectify this situation and to begin such an investigation by focussing on Ouma and Magori, two of the four Oumic languages which belong to different subgroups of those languages and for which the best materials are available. The results of this investigation will then be considered briefly to see what implications they have for the prehistory of the area.

Amran Halim, Lois Carrington and S.A. Wurm, eds *Papers from the Third International Conference on Austronesian Linguistics*, vol.1: *Currents in Oceanic*, 109-177. *Pacific Linguistics*, C-74, 1982.

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Map 1: Sketch map of languages of coastal south-east mainland Papua New Guinea

2. THE PRESENT-DAY LINGUISTIC SCENE IN MORE DETAIL

2.1. The Mailuan family

The Mailuan Family consists of six or seven languages depending on whether two different sets of communalects in one area are regarded as rather divergent dialects of a single language or as separate languages. In this study the latter position is adopted so that the family will be taken as consisting of the following seven languages whose numbers of speakers are approximately as shown:^{1,2}

1. Domu	500
2. Morawa	800
3. Ma	600
4. Neme'a	200
5. Bauwaki	400
6. Magi (or Mailu)	5,500
7. Laua	1?

Village lists and old names used to refer to parts or wholes of these languages are given in Dutton (1973) and Thomson (1975a), and present-day villages are shown on Map 1.

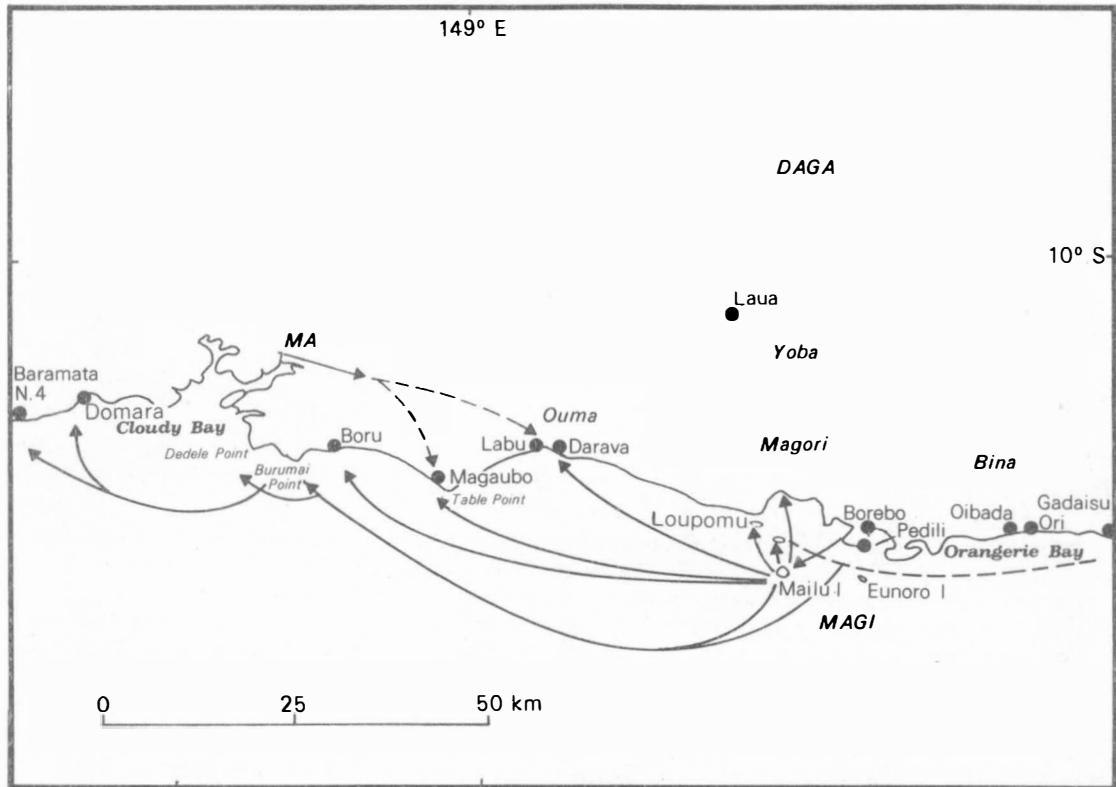
These languages share between approximately 50% and 60% basic vocabulary with each other, with the higher percentages occurring between neighbouring languages. However these figures cannot be regarded as indicating the 'true' relationship between these languages as the calculations used to arrive at those percentages are based on numbers of apparent cognates which include many borrowings from different sources. A better picture can only be obtained after the results of this paper are taken into account.

Magi (or Mailu as it is sometimes called) is the largest and most prestigious language of the family and is the only one which has been studied in any detail, and so is the only one for which there is anything other than basic vocabulary lists available. As already indicated it is spoken by about 5,500 people who inhabit some 120 kilometres of coastline between Sandbank Bay in the west and Orangerie Bay in the east. It consists of the following nine dialects (from west to east) which are defined and discussed by Thomson (1975a):

1. Domara	900
2. Darava	276
3. Island	1,985
4. Asiaoro	382
5. Delebai	379
6. Borebo	758
7. Geagea	173
8. Ilai	185
9. Baibara	233

These dialects are all similar to each other and differ most in basic vocabulary chiefly "as the result of a greater degree of borrowing from AN languages" (Thomson 1975a:56). There are some minor grammatical differences between them, however, which group them into two sets: those east of Amazon Bay and including the last four listed above, which are often referred to as the Varo or Maisi dialects, and the remainder, as shown on the accompanying Map 1.

The Island dialect is the largest and most prestigious and is the source of those spoken on the nearby islands of Laluoro and Loupomu and on the mainland opposite and to the west, as well as at Gadaisu and Laimodo in Orangerie Bay where there has been intermarriage between Magi speakers and Suau speakers (Thomson 1975a:43) as Island dialect speakers moved out to found new colonies in the past few centuries. See Map 2. From the point of view of this paper the Island dialect



Map 2: Recent known prehistorical movements of Magi and other speakers

is also the most important as it is the one that has been best recorded as well as being the one spoken by Mailu Islanders, who are the potters and long-distance traders of the area.

2.2. The AN languages Ouma, Magori, Yoba and Bina

As already noted Ouma, Magori, Yoba and Bina are the scattered remnants of what were apparently formerly much larger AN language speaking groups.

Ouma was formerly the language spoken in villages of the same name reported by early Government officers and missionaries as being several miles inland up the Bonua River that flows into Table Bay but now represented by only four speakers living in the small village of Labu (51) on the coast near the mouth of that river. Nearby was, and still is, Magori, spoken in the two villages of Magori (124) and Deba (39) situated inland and on the coast beside the lower reaches of the Bailebo River at the eastern end of Table Bay. Inland of Magori was Yoba formerly spoken along the middle reaches of the Bailebo River just mentioned but now only remembered by two speakers, a man, Aruba Inabe, and his mother, Bo'odi, at present living in Laua village (31) in the same area. Much farther east was Bina inland of the western end of Orangerie Bay. Today the only surviving speakers of this language are an old man, Tobi Koakoa, married into and living at Nabai (49), and his sister living at Gogosiba (56), both Magi villages in Orangerie Bay.

Speakers of all four languages are also fluent in Magi, the dominant (socially and economically) language in the area. Many also know and use other languages such as Laua and Daga spoken in the same villages and inland.

These languages, together with other AN languages of what is now called the Central Province of Papua New Guinea, belong to a single closed subgroup of Oceanic and derive from a single common ancestor, which was originally called Proto-Central District (Pawley 1975), but which has since become better known as Proto-Central Papuan (PCP). There is some disagreement amongst linguists interested in this subgroup, however, as to whether the four Oumic languages form a separate subgroup within this family and as to just what their relationships are with other members of the family (Dutton 1976c; Lynch 1978; Ross 1979a). We do not need to pursue this debate here, however, as all we need to know for present purposes is what the phonological correspondences between the separate languages are, and/or how established, or suggested, reconstructed proto-sounds are reflected in these languages. For present purposes also we will assume as Ross (1979a) and I (Dutton 1976) have argued elsewhere, that Ouma and Magori belong to different lower-order subgroups within an Oumic subgroup, and have therefore had separate histories for the past few hundred years.

3. METHODS AND MATERIALS

3.1. Data

The following study is based on data obtained from the following varied, and for the most part unpublished, sources:

(a) short basic vocabulary lists of usually fewer than 150 items collected by early government officers and published in the *Annual reports* for British New Guinea or Papua. See for example Grist (1926), Strong (1911; 1919a,b,c,d). Some of these were later reproduced in Ray (1938) and also used in Capell (1943);

(b) longer basic vocabulary lists of usually between 200 and 300 items collected more recently by missionaries and/or others. Many of these are still only available in manuscript form and are of limited distribution. These include Abel (1980), Dutton (1968, 1969, 1980), Saville (1935a,b) and Thomson (1971). Some of these, or parts of them, have been published, or exist in mimeographed form, notably Cooper (1975), Dutton (1970; 1976c), Pawley (1975), Ross (1979a,b), Saville (1935a,b), and Thomson (1975a);

(c) fuller vocabularies in the AN languages Motu, Sinagoro (Balawaia dialect), and Keapara (Hula dialect) which are to be found in Kolia (1975), Short (1939), and Lister-Turner and Clark (n.d.).

These data are of varying reliability and value. The early materials are naturally the most valuable historically as they were collected before the socio-linguistic situation of the immediate precontact period was disturbed by the relocation (and often combination) of communities to suit the administrative needs of the Australian colonial period, and before Police Motu, the lingua franca of Papua, had spread into every village. There is always the problem with these materials, however, of not knowing what exactly they represent and whether they were accurately recorded as no information is supplied about speakers from whom they were obtained nor about the manner of collection. In these circumstances we have to assume they are representative of the speech communities nominated by the collectors and reliably recorded except where it is possible to detect errors by comparison with later materials.³

The later materials were collected using Magi and/or Police Motu as the eliciting language. Besides being from a later period they suffer from other defects.

As far as the Oumic languages are concerned Bina, Yoba and Ouma are the least reliably recorded (and in that order) because they are moribund and will be dead when the few remaining speakers pass on. Because these languages are no longer functional and their speakers are bilingual in Magi and use that language (or more particularly, that dialect of it in which they live) for everyday living, the reliability of the materials from these sources is decreased. Ouma is the most reliable of the set but here too we have to expect that contact with modern Magi may well be, and is most likely, interfering with, or has already interfered with, earlier borrowings, either by replacing old Ouma items, or by modifying old Magi forms. Magori is better off but there too the speakers are fluent in Magi (Island dialect) and this is interfering with the phonology of the language, so that, for example, it is not yet clear whether glottal stop is a phoneme in Magori or not.

On the NAN side the Magi materials are the most reliable, because the language has been well studied and recorded, Laua the least, and the others somewhere in between. In the Magi case we do have to remember, however, that because of name avoidance and word taboo associated with kinship relationships the distribution of words (inherited and borrowed) within dialects of Magi may be disturbed (Thomson 1975a:43).⁴

The Laua materials are the least reliable because at the time of collection the only speaker of it for whom it was his first language was not available and so the data were collected from two others for whom it was, in one case, that person's second or third language, and in the other that person's fourth or fifth language. The data from the other Mailuan languages are as reliable as survey data usually are.

Thus it is impossible to be sure that the data available and used for this study reflect the historical events accurately, or perhaps better, that we will be able to interpret them correctly. Given that they are the best we have available, however, and provided they are approached cautiously, they can probably be used to indicate historical trends if nothing better.

3.1. Assumptions and general principles

Apart from the assumptions and general principles that underly comparative and historical linguistics generally the following particular ones underly this study:

- 1) items of similar form and meaning occurring in Oumic and Mailuan languages must, by virtue of the designation or definition of these languages as AN and NAN respectively, be borrowings. Consequently when we find such items the task becomes one of determining the origin, and hence, direction of borrowing, of them. In practice items are determined as being either AN or NAN in origin according to whether they reflect established or suggested reconstructions in these two domains;
- 2) initially a borrowing language will only maintain the distinctions in sounds of the language borrowed from as long as they coincide with its own: those that do not will be modified to suit the borrower's own sound system.⁵ Over time, however, and particularly if borrowing continues on a large scale the borrowing language may develop new sounds to incorporate borrowed ones. In this case sounds (and therefore words in which they occur) may only be suspected of being borrowed if there is something unusual about their distribution in words in individual languages. In practice the sound systems of relevant languages are compared in order to determine which sounds are diagnostic in identifying (recent) borrowings in the different languages. This is done herein in Chart 1 which is derived from the descriptions in Appendices 2 and 3. By studying this chart it will be noted that all the languages have similar ranges of sounds and that the only diagnostic sounds for detecting borrowings are those which correspond to absence (marked #) in other

Chart 1: Summary display of synchronic sound of Mailuan and Oumic languages																		
Language	p/f	t/s	k	'	b	d	g	h	m	n	l/r	v/w	y	i	e	a	o	u
Magi	+	+	+	+	+	+	+	#	+	+	+	+	+	+	+	+	+	+
Domu	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Morawa	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Neme'a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Bauwaki	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Laua	+	+	#	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Magori	+	+	+	+	+	+	+	#	+	+	+	+	#	+	+	+	+	+
Ouma	+	+	+	+	+	+	+	+	+	+	+	+	#	+	+	+	+	+

*Not medially

Chart 2: Diagnostic reflexes of proto-sounds in Mailuan and Oumic languages													
Mailuan								Oumic					
PMF	MGI	DOM	MOR	MA	NEM	BAU	LAU	POC/PCP	OUM	MAG	YOB	BIN	
*t	t	h	s	s	h	s	h	*t	t(h)	t	t	t	
*r	r	n	n	r	r	r	r	*s,ns/D	r	k	'	'	
*k	k	k	k	k	k	k	k	*l,y/R	ϕ/(y)	y	y	y	
	'	'	'	'	'	'	g	*#/k	ϕ,k	k	k	k	
	ϕ	ϕ	ϕ	ϕ	ϕ	ϕ	ϕ	*k,q/q	ϕ	k	'	'	
							(h)	*#/kw	ϕ	ϕ	k	k	
*w	v	w	w	w	w	w	h,v?						
*y	?	y	n,l	y	y	y	?						

languages, notably, h in Magi and Magori, k in Laua, medial k in all languages except Magi, and perhaps y in Ouma and Magori. Clearly there are not many and those few uncertain. This does not mean that we have little hope of detecting borrowings for we need to remember that just because these languages have similar sound systems they do not reflect proto-forms in the same way and therefore it is possible to identify sources by looking at the sounds in the various forms of apparent cognates available. Thus, for example, Morawa and Domu reflect PMF *r as n medially and not r as other languages do so that if two cognates occur in the Oumic languages one with r and one with n the one with n most probably comes from one of the two languages Morawa and Domu in which n occurs in inherited words. The proto-sounds and reflexes that are relevant in this regard in the two sets of languages can be obtained from Appendices 1 and 2 but which are set out again in Chart 2 for convenience;

3) in attempting to identify sources we can only work from what is available in the data (at least initially, and until we begin to build up a picture of the borrowing pattern). That is, where there is identity in form across the Oumic-Mailuan boundary we have to assume that the form on one side was borrowed directly from the language with the same form on the other. We do not assume that both borrowed the form from a third party for which there is no evidence, even though, of course, there is always that possibility, since any form can obviously be replaced in the right circumstances. On the other hand where there is non-identity in form then we have to allow for the possibility, and probability, that one of these has come from a language where no present-day cognate exists (i.e. which may have had that form but it has been replaced). Take, for example, words like the following for '*garden*'. In Magi this is madava while in Magori it is mado. Assuming these two are cognate, it is clear that since we have only one form in the Mailuan languages which is not identical to the Magori form, and since we have no other comparative evidence to go on, we are forced, in cases like these, to allow that the Magori form (assuming that the cognates are NAN in origin) may well have come from a source other than Magi. The alternative is to claim that there has been an idiosyncratic sound change in Magori, which is of about the same probability as claiming that it came from another source. Without additional evidence these cases are not useful for historical reconstruction.

Finally, note also in this regard that where there are no data available in a particular language we have to allow of the possibility that the languages so indicated may be a source, since negative evidence is not evidence that that language was not a source, even though on other evidence it is not very probable. See for example, '*joke*' in section 4. below;

4) languages change through time and no situation is static. We should expect therefore that the evidence will be stratified and that all the vocabulary (since that is what we have to work with at this point) will not necessarily have been borrowed at the same time. There is no way of predicting in advance to what historical level a particular item belongs, or even necessarily of spotting it, except in particular cases where sound changes may have intervened;

5) 'inherited' is a relative term. If borrowings are old it may not be possible to detect them because if an item was borrowed before the present-day daughter languages split off from their ancestors then that word will undergo sound changes like any other inherited one and will go undetected as a borrowing;

6) people borrow from one another according to the advantages (prestige, economic, power) that they see in knowing and using parts, or all, of the language of those they borrow from. Thus if A borrows from B he does so with some purpose in mind (though not necessarily consciously expressed). So if we know what A borrows from B we can reconstruct with varying degrees of confidence, what it was that B had that A was interested in or did not have. We must be careful, however, not to assume that negative evidence is taken as evidence of an event. If something does

not occur it may be either because A was not interested in it or that the vocabulary item A used to refer to it at the time he borrowed it has since been replaced. In short we have to keep in mind that we will never be able to say we have reconstructed the full story because we can never be sure that we have all the necessary evidence.

3.2.2. Application of assumptions and general principles

The process of analysing and interpreting the available data (or that portion of it that can be used) is a cyclic one, requiring a number of passes over the data refining the results with the object of developing a hypothesis that accounts for as much of the data as simply as possible. The following description sets out the steps by which the results upon which the hypothesis presented later is established.

STEP 1

Initially the available materials were searched for apparent cognates in the relevant languages. These were arrayed on sheets of the kind shown in section 4. with only one set of apparent cognates per sheet, together with a marking system devised to show the range and type of data available. When doublets or triplets occur these are identified by using subscripts on the English reference head word, e.g. '*father*₁' and '*father*₂', '*hot*₁' and '*hot*₂'.

STEP 2

The sets established in step 1 above were then scanned and all but the most promising-looking cases (that is, those with the most complete evidence)⁶ and within those in which the Ouma and Magori forms were different or showed some variation in form⁷ were put aside for later consideration and interpretation in the light of the results obtained by taking the best cases first. Altogether, all but about 75 cases out of over 400 were excluded in this way. The remaining 75 cases were then studied in some detail and divided into two sets: those containing items (sets of cognate forms) which on inspection looked as if they were AN in origin and those which were not. In doing this decisions about the AN-ness or otherwise of the items were made by appealing to the various sets of reconstructions that have been suggested or established for AN languages in general (Wurm & Wilson 1975) and those of Central Papua in particular (Ross 1979a,b), and to the derivational sound laws for languages of Central Papuan AN languages as tentatively established and discussed in Pawley (1975), Lynch (1978), and Ross (1979a,b), and represented by the chart given in Appendix 1.⁸

In presenting the results of these decisions later I cite Proto-Central Papuan (PCP) and Proto-Oceanic (POC) (or reconstructions that have been suggested for specific subgroups of Oceanic if available) in preference to Proto-Eastern Oceanic (PEO) ones, in preference to Proto-Austronesian (PAN) ones, as this order reflects the ascending order of subgroups which include the relevant AN languages in question.

Where no appropriate reconstruction appears to have been suggested to date⁹ decisions about the AN-ness of a form were made on the following basis:

If a form in Oumic languages has cognates of the right form (i.e. in accord with established sound laws) in other AN languages of Central Papua and/or in Suau (in dialects other than, or as well as that containing Gadaisu and Laimodo communalects)¹⁰ it is regarded as AN, and a reconstruction suggested and double starred.

On the other hand if a form for which no reconstruction is available has cognates only in Oumic languages (e.g. and perhaps in Suau dialect incorporating Gadaisu and Laimodo) then it is regarded as NAN in origin. Indeed it was further assumed, given results of earlier studies which show that Mailuan languages have borrowed very little from other NAN languages except in the border areas between this family and the Yareban one to the north and west,¹¹ that all words of (probable) NAN origin are

of Mailuan origin (and until it can be shown by comparison farther afield that they should not be so regarded), and a reconstruction, based on the sound correspondences for Mailuan languages set out in Appendix 2, suggested.

In a few cases (e.g. '*garden*', '*sweat*', '*sweet potato*') where the evidence is limited to one cognate in one of each of the Oumic and Mailuan languages, or where there is unpredictable variation between apparent cognates the source of the item is more in doubt than usual. In these cases the source is assigned according to the principles already outlined but question marked, and in one case ('*hair*') no decision was made at all and the source was left indefinite. These cases are not discarded as useless, however, even though their probable origin cannot be assigned with as much confidence as others. They obviously still have value for showing contact between two specific groups of speakers irrespective of which way the borrowing has gone. That is, we distinguish between those cases which show source and direction of borrowing and those which only show contact, the latter being a restricted and less informative case of the former.

STEP 3

Once the items had been roughly sourced in the manner described in step 2 they were studied in more detail and expected reflexes compared with actual forms. In some cases earlier decisions about the status of the forms had to be revised. In others hypotheses of origin could be more clearly stated. For example, where there is no present-day cognate given in either Ouma or Magori but a form appearing in one of the Mailuan languages contains a reflex that could only have come from one of them, and not the other, the origin of that form can be assigned with confidence to the Oumic language with that reflex (e.g. '*jaw/chin*', '*sun*₁', '*sweat*'). A few other cases were put aside as not being sufficiently clear or useful to warrant inclusion in the final set of 'best' cases.

During this step it was also found that in a few cases there were different reflexes of the same proto-form in Oumic languages which according to the derivational and borrowing sound laws used must have come from different sources within the language groups being considered (e.g. '*woman's clothes*', '*navel*', '*old*', etc). In these cases both sources are listed and discussed although the reflexes themselves are not counted as separate items. These are not counted as in the listing given in section 4., as distinct from doublets which are.

STEP 4

The sixty 'best' cases remaining after the completion of step 3 were then studied in detail with a view to making hypotheses about the origin and direction of borrowing and/or in those few cases where sourcing was not possible, about the contact between the languages concerned. These hypotheses, together with accompanying justifications are recorded on the data sheets presented in the next section.

4. RESULTS

In this section the comparative data and hypotheses regarding the origin and direction of borrowing of items between Oumic and Mailuan languages and vice versa are presented. These cases represent the 'best' or clearest cases that have been arrived at after the application of the methods of analysis described above. They are arranged in alphabetical order according to the English referent head words used for ease of reference. Each sheet is also marked in the top right-hand corner in a self-evident way so that it can be rearranged into language-specific sets involving either Ouma (OUM) or Magori (MAG) as necessary.

In setting out the data and working with it the following other more specific conventions are used in addition to those that have already been indicated more generally above:

1) Languages, dialects of interest, and references to reconstructions are coded in the following way:

POC	Proto-Oceanic
POCGR(OC) etc	Codes used in Wurm and Wilson (1975)
PCP	Proto-Central Papuan
PCP (Ross)	PCP as reconstructed by Ross (1979a,b)
POM	Proto-Oumic
PMF	Proto-Mailuan (Family)
MTU	Motu
SIN	Sinagoro
KEA	Keapara
KEA (H)	Hula dialect of Keapara
KEA (A)	Aroma dialect of Keapara
KEA (W)	Wanigela dialect of Keapara
OUM	Ouma
MAG	Magori
MAG (M)	Magore dialect of Magori
MAG (D)	Deba dialect of Magori
YOB	Yoba
BIN	Bina
SUA	Suau
SUA (G)	Gadaisu communalect of Suau
SUA (L)	Laimodo communalect of Suau
SUA (K)	Konemaiva communalect of Suau
SUA (S)	Savaia communalect of Suau
SUA (Is)	Suau Island communalect of Suau
MGI	Magi
MGI (Is)	Island dialect of Magi
MGI (O)	Dialects of Magi other than the Island one
DOM	Domu
MOR	Morawa
MA	Ma
NEM	Neme'a
BAU	Bauwaki
LAU	Laua
DAG	Daga

2) Data are presented as they occur in the available sources and no attempt has been made to phonemicise them in accordance with the descriptions given in Appendices 2 and 3. There is thus variation between phonemic, subphonemic and phonetic renditions. This is not too serious in this case, however, as the phonologies of all languages are not complex;

3) Only apparent cognates are shown and where a language does not contain a relevant form in the available materials but has some other form this is indicated by a dot (or period). Where there is no evidence available at all for a given language this is indicated by a question mark. That is, a question mark signifies that we do not know whether an apparent cognate exists or not in the given language as there was nothing recorded for the given English item in the available data;

4) On both sides of the sheet the column 'Expected Reflex' is for displaying what the form of the established or suggested proto-form we are interested in should be if that form were reflected in the present-day languages. Where such a proto-form is reflected its expected present-day form is obtained by applying the sound laws given in Appendix 2 to the proto-form. As has already been pointed out these expected forms are important for determining whether a given form in the data is of

AN origin or not, as well as for suggesting the source of borrowed forms where there is no present-day cognate in the source language(s);

5) The section 'Borrowing Hypothesis' sets out in schematic form conclusions reached as to the origin of a form in either the AN or NAN language, or languages, under review, as well as to the direction of borrowing of that form in the respective language or languages. Arrows across the data are an additional display of the conclusions reached although it is not always possible to include all the various aspects of the hypothesis proposed. Full line arrows indicate the most probable sources and direction of borrowing; broken line ones indicate less probable ones. Note here also that all sourcing is based on linguistic evidence only. Social and other evidence are not relevant at this point and will only be taken into account in interpreting the evidence later. That is, we work from the linguistic evidence to history (since that is what we are trying to illuminate) and not vice versa;

6) In the section 'Justification' the conclusions reached in the 'Borrowing Hypothesis' section are justified. In this the simplifying shorthand expression 'proto-AN' or 'AN in origin' is used to indicate that the form is derived from some established or suggested reconstruction and is therefore not necessarily equivalent to Proto-Austronesian (PAN);

7) In proposed PMF reconstructions (as in Proto-AN ones) symbols in round brackets or parentheses indicate that evidence as to the presence or absence of that symbol is inconclusive. Two symbols separated by a comma in parentheses indicate that one or the other phoneme is to be reconstructed, but the evidence does not show which. A symbol in square brackets indicates that there is evidence for the reconstruction both with and without the phoneme and two symbols separated by a comma in square brackets indicate that the evidence points to both alternatives.

The data follow:

ITEM: 'bathe, wash'

SUMMARY CONCLUSION: (AN+) NAN + AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	opuopu		MTU	.	
(O)	opuopu		SIN	.	
DOM	↑	3	KEA (H)	.	
MOR	↑ 2		(A)	.	
MA	↑ ?		(W)	.	
NEM	.	1	OUM	ofu	repu
BAU	.		YOB	'epu	'epu
LAU	?		MAG (M)	kebu	kepu
DAG	.		(D)	?	
			BIN	'epu	'epu
			SUA (G)	yepuyepu	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: Nil			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: POM **Depu 'bathe, wash'		

Borrowing Hypothesis:

?AN in origin. Complex borrowing with sequence:

1. Oumic language + MF lg;
2. Sound change in MF lg;
3. MGI → OUM.

Justification:

The origin of these forms is unclear. However, given the variety of forms in Oumic languages which reflect (except for OUM) a suggested POM form **Depu, then the OUM form represents a reborrowing from MGI where the form presumably represents a changed form of an earlier borrowing from the Oumic languages. The alternative hypothesis that the Oumic forms all derive from MGI is much more elaborate and therefore less likely in that it involves unexplained sound changes in three of the Oumic languages. A third possibility is that MGI borrowed directly from OUM where ofu is unexplained. Irrespective of the 'true' origin of opuopu in MGI or ofu in OUM the correspondence between these two forms shows contact between MGI and OUM.

ITEM: 'betelnut'

SUMMARY CONCLUSION: NAN + AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.	oa(k, ' , β) e	MTU	.	
(O)	.		SIN	.	
DOM	wa 'e	wa(k, ' , β) e	KEA (H)	.	
MOR	wa 'e	oa(k, ' , β) e	(A)	.	
MA	wa 'e	oa(k, ' , β) e	(W)	.	
NEM	wa 'e	wa(k, ' , β) e	OUM	ua'e	
BAU	oake	oa(k, ' , β) e	YOB	.	
LAU	? - - - - -	oahe	MAG (M)	.	
DAG	?		(D)	.	
			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: PMF *oake 'betelnut'			Established Reconstruction(s): No obvious ones. Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. $\left. \begin{array}{l} \text{DOM} \\ \text{MOR} \\ \text{MA} \\ \text{NEM} \\ \text{LAU?} \end{array} \right\} \rightarrow \text{OUM}$

Justification:

OUM ua'e is not the expected reflex of any suggested or established proto-AN reconstruction and because it does not have any apparent cognates in any other AN language, although it does with NAN MF languages, it must be a borrowing from one of those languages. The most likely source is one of DOM, MOR, MA, NEM and possibly LAU for which there is no evidence, because the OUM form corresponds best with the forms in those languages. BAU is excluded as the most probable source because of the k in oak. The MF forms appear to derive from a proto-form *oake 'betelnut'.

ITEM: 'buttocks'

SUMMARY CONCLUSION: AN(Mag) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	boto		MTU	.	
(O)	boto		SIN	.	
DOM	(gon)poi		KEA (H)	.	
MOR	.		(A)	.	
MA	bo'i(na)		(W)	.	
NEM	.		OUM	.	buto
BAU	bore		YOB	.	buto
LAU	boto		MAG (M)	boto	buto
DAG	.		(D)	boto	buto
			BIN	.	buto
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(OM,EB) *mputo 'anus'		
			Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. MAG → {^{MGI}_{LAU} (or MAG → MGI → LAU)

Justification:

The MF language forms in MGI and LAU are obviously most similar to MAG boto and since the MAG form is a reflex of a proto-AN form the MF language ones must be AN in origin. The most probable source is MAG as OUM has another form, vea, which has no cognates elsewhere and is presumed to be an innovation or a replacement from some other source. It is not clear if MGI and LAU borrowed directly and independently from MAG or one from the other.

ITEM: '(men's) clothes, perineal band, sihi'

SUMMARY CONCLUSION: NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	ivari	{(k, 'ə)evari	MTU	.	
(O)			SIN	.	
DOM	ewan	(k, 'ə)ewani	KEA (H)	.	
MOR	evan	(k, 'ə)ewani	(A)	.	
MA	ewal	(k, 'ə)ewari	(W)	.	
NEM	gwal	(k, 'ə)ewari	OUM	.	
BAU	evari	(k, 'ə)ewari	YOB	ivari	
LAU	? -----	(k, g, ə)ehari	MAG (M)	uvari	
DAG			(D)	uvari	
			BIN	ivari	
			SUA (G)	ifari	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	?	
Proposed Reconstruction: PMF *kevari 'perineal band, sihi'			Established Reconstruction(s): No obvious one(s).		
			Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. {^{MGI}_{MA}
BAU
LAU? } → MAG

Justification:

The MAG form uvari is not a reflex of any proto-AN form so must be a borrowing from MF languages. Although the initial vowel is unexplained in Magori the most likely source is one of MGI, MA, BAU and/or perhaps LAU. DOM and MOR are excluded as sources because of the medial n and NEM is excluded because of the initial g.

ITEM: '(woman's) clothes, skirt, petticoat'

SUMMARY CONCLUSION: {NAN → AN(Oum)
NAN → AN(Mag)}

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	barowo baroa (Saville 1935)	baro[v](o,a)	MTU	.	
(O)	barowo	baro[v](o,a)	SIN	.	
DOM	.	bano[w](o,a)	KEA (H)	.	
MOR	bora	bano[w](o,a)	(A)	.	
MA	boro'o	baro[w](o,a)	(W)	.	
NEM	.	baro[w](o,a)	OUM	baroa	
BAU	.	baro[w](o,a)	YOB	.	
LAU	baroa	baro[h,v](o,a)	MAG (M)	barowo	
DAG	.		(D)	barowo	
Proposed Reconstruction: PMF *baro[v](o,a) '(woman's) clothes, skirt, petticoat'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	?	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

- NAN in origin. Complex borrowing pattern.
- MGI } → OUM
LAU }
 - MGI } → MAG
MOR? }
MA }

Justification:

Assuming that these forms are not AN in origin then we are forced to assume that the OUM form is borrowed from either MGI or LAU and the MAG form is borrowed from one of the remaining MF languages, most probably MGI.

ITEM: 'cloud, sky'

SUMMARY CONCLUSION: NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	nogara	nogara	MTU	.	
(O)	.		SIN	.	
DOM	.	nogana	KEA (H)	.	
MOR	.	nogana	(A)	.	
MA	.	nogara	(W)	.	
NEM	.	nogara	OUM	.	
BAU	.	nogara	YOB	.	
LAU	nogara	nogara	MAG (M)	nogara	
DAG	.		(D)	nogara	
Proposed Reconstruction: PMF *nogara 'cloud'			BIN	nogara	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI } → MAG
LAU }

Justification:

As the Magori forms are not reflexes of so far suggested or established proto-AN forms, they must be borrowed from MGI or LAU, the only candidates.

ITEM: 'coconut'

SUMMARY CONCLUSION: NAN + AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	'ama	{(k, ' , ϕ) ama	MTU	.	
(O)			SIN	.	
DOM	.	(k, ' , ϕ) ama	KEA (H)	.	
MOR	.	(k, ' , ϕ) ama	(A)	.	
MA	?	(k, ' , ϕ) ama	(W)	.	
NEM	?	(k, ' , ϕ) ama	OUM	.	
BAU	?	(k, ' , ϕ) ama	YQB	?	
LAU	.	(k, g, ϕ) ama	MAG (M)	ama	
DAG	.		(D)	.	
			BIN	?	
			SUA (G)	?	
			(L)	?	
			(K)	?	
			(S)	?	
			(Is)	.	
Proposed Reconstruction: PMF *kama 'coconut'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI
MA?
NEM?
BAU? } → MAG

Justification:

As the MAG form is not a reflex of any so far suggested or established proto-AN one, it must be a borrowing from MGI, the only candidate, unless it is from one of MA, NEM, BAU for which there is no available evidence.

ITEM: 'cold (of a thing)'

SUMMARY CONCLUSION: NAN + AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	memea	meme(k, ' , ϕ) a	MTU	.	
(O)	meme 'a	meme(k, ' , ϕ) a	SIN	.	
DOM	.	meme(k, ' , ϕ)	KEA (H)	.	
MOR	.	meme(k, ' , ϕ)	(A)	.	
MA	.	meme(k, ' , ϕ)	(W)	.	
NEM	.	meme(k, ' , ϕ)	OUM	.	
BAU	.	meme(k, ' , ϕ)	YQB	?	
LAU	.	memeha	MAG (M)	memea	
DAG	.		(D)	.	
			BIN	?	
			SUA (G)	?	
			(L)	?	
			(K)	?	
			(S)	?	
			(Is)	.	
Proposed Reconstruction: PMF *memeka 'cold'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI + MAG

Justification:

As the MAG form is not a reflex of a so far suggested or established proto-AN form, it must be a borrowing from MGI, the only candidate.

ITEM: 'cook, boil'

SUMMARY CONCLUSION: (AN+) NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	daridari		MTU	.	
(O)			SIN	dari	dari
DOM	.		KEA (H)	.	
MOR	dan		(A)	.	
MA	dari		(W)	.	
NEM	dari		OUM	dani	dari
BAU	.		YOB	daridari	dari
LAU	?		MAG (M)	dari	dari
DAG	.		(D)	?	
			BIN	.	dari
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: Nal			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: PCP **dari 'cook'		

Borrowing Hypothesis:

- AN in origin. Complex, old borrowing:
 1. MAG } → MF lgs.
 OUM?
 2. Sound change in MOR and then MOR → OUM.

Justification:

Given that the AN forms are derived from a PCP **dari 'cook' (and the occurrence of dari in SIN suggests this) then the MF form must be AN in origin and borrowed most probably from one or more of the Oumic languages. However, this borrowing must have been some time ago as the MOR form has undergone the -r->-n- sound change of inherited words. Subsequently OUM borrowed dani from MOR replacing in the process the expected form dari or some other form that it must have had.

ITEM: 'cough'

SUMMARY CONCLUSION: (NAN → AN(Oum)
NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	oko	{o(k, ' , φ)oro	MTU	.	
(O)			SIN	.	
DOM	oro	o(k, ' , φ)ono	KEA (H)	.	
MOR	olo	o(k, ' , φ)ono	(A)	.	
MA	oro	o(k, ' , φ)oro	(W)	.	
NEM	ero	o(k, ' , φ)oro	OUM	oro	oro
BAU	ekoro	o(k, ' , φ)oro	YOB	.	
LAU	horo	ohoro	MAG (M)	oko	
DAG	?		(D)	?	
			BIN	oko	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: PMF *okoro 'cough'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

- NAN in origin.
 1. DOM } → OUM
 MOR }
 MA }
 LAU?
 2. MGI → MAG

Justification:

Given that these forms are NAN in origin then the present distribution of forms indicates complex borrowing patterns both within the Mailuan family and between it and OUM and MAG. Relevant to understanding this are the following facts:

- (a) the DOM and MOR forms are not the expected reflexes of PMF *okoro; they should contain medial n, not medial r/;
 (b) LAU horo should be borrowed as horo also in OUM but the OUM form may be misrecorded. If it is horo and not oro as shown then IAU would be the most probable source.

ITEM: 'crooked'

SUMMARY CONCLUSION: NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	kiokio	(k, 'ɸ)io ²	MTU	.	
(O)	'io'io	(k, 'ɸ)io ²	SIN	.	
DOM	.	(k, 'ɸ)io ²	KEA (H)	.	
MOR	'io'io	(k, 'ɸ)io ²	(A)	.	
MA	.	(k, 'ɸ)io ²	(W)	.	
NEM	.	(k, 'ɸ)io ²	OUM	kiokio'ai	
BAU	.	(k, 'ɸ)io ²	YOB	kiokio	
LAU	.	(k, g, ɸ)io ²	MAG (M)	.	
DAG	?		(D)	?	
Proposed Reconstruction: PMF *kiokio 'crooked'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s).		

Borrowing Hypothesis:

NAN in origin. MAG(Is) → OUM

Justification:

The OUM form can only be derived from MGI(Is) because of the k's in that form and since kiokio'ai does not appear to be a reflex of any proto-AN form.

ITEM: 'cut (with knife)'

SUMMARY CONCLUSION: NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	pomupomu	pomu	MTU	.	
(O)	.	pomu	SIN	.	
DOM	pomu		KEA (H)	.	
MOR	.	pomu	(A)	.	
MA	.	pomu	(W)	.	
NEM	.	pomu	OUM	.	
BAU	.	pomu	YOB	?	
LAU	? - - - - -	pomu	MAG (M)	(giri)pomu	
DAG	.		(D)	?	
Proposed Reconstruction: PMF *pomu 'cut'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s).		

Borrowing Hypothesis:

NAN in origin. MGI(Is)
DOM
LAU? } → MAG

Justification:

As the MAG form is not a reflex of a so far suggested or established proto-AN form, it must be a borrowing from either MGI(Is), DOM or LAU the only possible candidates.

ITEM: 'dog'

SUMMARY CONCLUSION: NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.	da(k,'ɸ)ari	MTU	.	
(O)	dari	da(k,'ɸ)ari	SIN	.	
DOM	.	da(k,'ɸ)ani	KEA (H)	.	
MOR	.	da(k,'ɸ)ani	(A)	.	
MA	da'al	da(k,'ɸ)ari	(W)	.	
NEM	.	da(k,'ɸ)ari	OUM	da'ari, dahari	
BAU	.	da(k,'ɸ)ari	YOB	.	
LAU	dahari	dahari	MAG (M)	.	
DAG	.		(D)	.	
Proposed Reconstruction: PMF *dakari 'dog'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI(O)
 MA
 LAU } → OUM

Justification:

As the OUM form is not a reflex of any so far suggested or established proto-AN form it must be a borrowing from one of MGI(O), MA, or LAU, with the latter two the most probable.

ITEM: 'elbow'

SUMMARY CONCLUSION: NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	igutu	igutu	MTU	.	
(O)	.		SIN	.	
DOM	.	iguhu	KEA (H)	.	
MOR	.	igusu	(A)	.	
MA	iguhu	igusu	(W)	.	
NEM	.	iguhu	OUM	.	
BAU	.	igu(s,k)u	YOB	.	
LAU	igisihi	iguhu	MAG (M)	igutu	
DAG	?		(D)	igutu	
Proposed Reconstruction: PMF *igutu 'elbow'			BIN	igutu	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI → MAG

Justification:

As the MAG form is not a reflex of any so far suggested or established proto-AN form it must have been borrowed from some MF language where similar, if not identical forms exist. On this evidence MGI is the most likely candidate with the -i- in the MAG form being explained as an unexplained subsequent sound change judging by the BIN form which must have been borrowed from the same source.

ITEM: 'eye'

SUMMARY CONCLUSION: NAN + AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	ini	ini	MTU	-	
(O)	ini	ini	SIN	-	
DOM	nigaba	ini	KEA (H)	-	
MOR	nigiba	ini	(A)	-	
MA	ini	ini	(W)	-	
NEM	ni		OUM	-	
BAU	ni'aba	ini	YOB	-	
LAU	ini		MAG (M)	ini	
DAG	-		(D)	ini	
Proposed Reconstruction: PMF *ini(kaba) 'eye (ball)'			BIN	-	
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI }
 MA } → MAG
 LAU }

Justification:

As the MAG form is not a reflex of any so far suggested or established proto-AN form it must be a borrowing from some MF language where identical and other similar forms occur. MGI, MA and LAU are the most probable candidates.

ITEM: 'father₁'

SUMMARY CONCLUSION: NAN + AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	abai	baba(k, 'ϕ) i	MTU	-	
(O)			SIN	-	
DOM	baba, babai 'i	baba(k, 'ϕ) i	KEA (H)	-	
MOR	aba'ai, abai'i	baba(k, 'ϕ) i	(A)	-	
MA	bo'i	baba(k, 'ϕ) i	(W)	-	
NEM	babo	baba(k, 'ϕ) i	OUM	-	
BAU	baba'e	baba(k, 'ϕ) i	YOB	-	
LAU	-	baba(k, g, ϕ) i	MAG (M)	abai	
DAG	amboi		(D)	abai	
Proposed Reconstruction: PMF *babaki 'father'			BIN	-	
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. NGI }
 MOR } → MAG

Justification:

As the MAG form is not derived from any so far suggested or established proto-AN form it must be a borrowing from some MF language where cognates are to be found. The most likely candidates are MGI and MOR although MGI is the strongest because its forms are identical with those in MAG.

ITEM: 'father₂'

SUMMARY CONCLUSION: NAN + AN(Oum)

NAN Languages			AN Languages					
Language	Data	Expected Reflex	Language	Data	Expected Reflex			
MGI (Is)	abai	baba(k, ' , ϕ) i	MTU	.				
(O)			SIN	.				
DOM	baba, babai' i	baba(k, ' , ϕ) i	KEA (H)	.				
MOR	aba'ai, abai' i	baba(k, ' , ϕ) i	(A)	.				
MA	bo' i	baba(k, ' , ϕ) i	(W)	.				
NEM	babo	baba(k, ' , ϕ) i	OUM	baba				
BAU	baba'e	baba(k, ' , ϕ) i	YOB	.				
LAU	.	baba(k, g, ϕ) i	MAG (M)	.				
DAG	.		(D)	.				
Proposed Reconstruction: PMF *babaki 'father'			BIN	.				
			SUA (G)	.				
			(L)	.				
			(K)	.				
			(S)	.				
			(Is)	.				
			Established Reconstruction(s): No obvious one(s).			Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. $\left. \begin{matrix} \text{DOM} \\ \text{NEM} \\ \text{BAU} \end{matrix} \right\} \rightarrow \text{OUM}$

Justification:

As OUM baba is not a reflex of any so far suggested or established proto-AN form it must be a borrowing from one of DOM, NEM, or BAU, with the first two as the most probable.

ITEM: 'fly(n)'

SUMMARY CONCLUSION: AN(mag) + NAN

NAN Languages			AN Languages					
Language	Data	Expected Reflex	Language	Data	Expected Reflex			
MGI (Is)	naga a		MTU	.				
(O)			SIN	nagama	na(g,g)ama			
DOM	.		KEA (H)	.				
MOR	.		(A)	nakama	nakama			
MA	.		(w)	rakama				
NEM	.		OUM	.	nagama			
BAU	.		YOB	.	nagama			
LAU	nagama		MAG (M)	nagama	nagama			
DAG	.		(D)	nagama				
Proposed Reconstruction: Nil			BIN	.	nagama			
			SUA (G)	.				
			(L)	.				
			(K)	.				
			(S)	.				
			(Is)	.				
			Established Reconstruction(s): PCP (Ross) *nagama 'fly(n)'			Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. $\left. \begin{matrix} \text{MAG} \\ \text{SIN} \end{matrix} \right\} + \left\{ \begin{matrix} \text{MGI} \\ \text{LAU} \end{matrix} \right.$

Justification:

Given that all these forms are AN in origin the most probable sources for the MGI and LAU forms are MAG and SIN. KEA is excluded as a source as medial k is not borrowed as g in MF languages.

ITEM: 'garden'

SUMMARY CONCLUSION: NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	madava	madava	MTU	-	
(O)			SIN	-	
DOM	-	madawa	KEA (H)	-	
MOR	-	madawa	(A)	-	
MA	-	madawa	(W)	-	
NEM	-	madawa	OUM	-	
BAU	-	madawa	YOB	-	
LAU	-	mada(h,v?)a	MAG (M)	mado	
DAG	-		(D)	mado	
			BIN	-	
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: PMF *madava 'garden'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI → MAG (with subsequent unexplained sound change)

Justification:

As the MAG form is not a reflex of any so far suggested or established proto-AN form it is assumed to be a borrowing from some MF language where there is still at least one cognate. The only candidate at the moment is MGI but this involves an unexplained sound change in MAG. However, it is possible that the MAG form was borrowed from some other MF language in which the form once was mado. In the absence of additional evidence of this having happened, however, we assume that MGI is the source.

ITEM: 'hair'

SUMMARY CONCLUSION: AN(Mag) $\overset{?}{\leftrightarrow}$ NA

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	līmu'u ¹		MTU	-	
(O)	līmu'u ²		SIN	-	
DOM	-		KEA (H)	-	
MOR	-		(A)	-	
MA	-		(W)	-	
NEM	-		OUM	-	ramu
BAU	-		YOB	-	ramu
LAU	-		MAG (M)	rimu ³	ramu
DAG	-		(D)	rimu ³	ramu
			BIN	-	ramu
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(OC) *Ramu 'root' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

Origin probably AN. If so MAG → MGI; if not origin uncertain and MGI → MAG.

Justification:

If MAG rimu is not an unexplained derivative of ramu, a reflex of POC *Ramu 'root', its origin is uncertain. The MGI and MAG forms are clearly related, however, and must indicate contact between these two groups irrespective of original source.

¹In MGI līmu'u means 'hair, fur'.²This form only occurs in the Baibara dialect and means 'feather'.³rimu in MAG(M,D) means 'feather, fur'.

ITEM: 'ground, land, earth'

SUMMARY CONCLUSION: NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.	doi	MTU	.	
(O)	.	doi	SIN	.	
DOM	.	doi	KEA (H)	.	
MOR	doi	doi	(A)	.	
MA	doi	doi	(W)	.	
NEM	doi	doi	OUM	doi	
BAU	do'o	doi	YOB	.	
LAU	doi	doi	MAG (M)	.	
DAG	.		(D)	.	
Proposed Reconstruction: PMF *doi 'land, ground earth'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s).		
			Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MOR }
MA } → OUM
NEM }
IAU }

Justification:

Given that there is as yet no suggested or established proto-AN form from which these forms can be derived it is assumed that the OUM form is aborrowing from one of MOR, MA, NEM, or LAU where identical forms occur.

ITEM: 'head'

SUMMARY CONCLUSION: AN(Mag) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	uru		MTU	.	
(O)	.		SIN	.	
DOM	.		KEA (H)	.	
MOR	.		(A)	.	
MA	.		(W)	.	
NEM	.		OUM	.	uyu
BAU	.		YOB	kuru	'uyu
LAU	.		MAG (M)	uru	kuyu
DAG	.		(D)	uru	kuyu
Proposed Reconstruction: Nil			BIN	kulu	'uyu
			SUA (G)	kuru	kulu
			(L)	kuru	kulu
			(K)	kuru	kulu
			(S)	.	
			(Is)	*kuru	kulu
			Established Reconstruction(s): POCGR(OC) *qulu 'head'		
			Proposed Reconstruction: Nil		

Borrowing Hypothesis:

- AN in origin but borrowing pattern complex:
- SUA → { BIN
YOB
 - SUA }
BIN } → MGI
YOB }
 - Loss of k in MGI then MGI → MAG.

Justification:

The MAG forms are clearly AN in origin but the expected reflex is kuyu suggesting that the present-day form has been borrowed. Given that SUA still retains forms of the expected shape derived from POC *qulu it would appear that it is the most likely source of the kulu and kuru forms in BIN and YOB respectively and that the MAG form is to be explained as a borrowing from MGI where kuru had earlier been borrowed from either SUA, YOB or BIN and where it had lost the initial k as has happened in other cases – see Appendix 2. The reverse hypothesis that MGI borrowed from MAG after it had lost initial k after having itself borrowed kuru from SUA is less likely.

ITEM: 'hot₁'

SUMMARY CONCLUSION: AN(Oum) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	-		MTU	-	
(O)	(Domara) vavana		SIN	-	
DOM	..		KEA (H)	-	
MOR	wawana		(A)	-	
MA	wawana		(W)	-	
NEM	wawana		OUM	vovona(i'ahi)	vana
BAU	-		YOB	-	vana
LAU	-		MAG (M)	-	vana
DAG	?		(D)	-	
			BIN	-	vana
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(OC) *pana 'hot' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

$$\left. \begin{array}{l} \text{AN in origin. OUM} \\ \text{MAG?} \\ \text{YOB?} \\ \text{BIN?} \end{array} \right\} \rightarrow \left\{ \begin{array}{l} \text{MOR} \\ \text{MA} \\ \text{NEM} \end{array} \right.$$

Justification:

Assuming that the OUM form is a reflex of POC *pana (although the vowel change is unexplained) then MOR, MA and NEM must have borrowed their form from one of the Oumic languages, most probably OUM, although we cannot be absolutely sure because YOB, BIN and MAG should have had similar reflexes of POC *pana to OUM originally, even though they now have other forms most probably borrowed from one of the other MF languages as is indicated in item 'hot₂' following.

ITEM: 'hot₂'

SUMMARY CONCLUSION: NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	odaoda (except Domara)	vodavoda	MTU	-	
(O)			SIN	-	
DOM	-	wodawoda	KEA (H)	-	
MOR	-	wodawoda	(A)	-	
MA	-	wodawoda	(W)	-	
NEM	-	wodawoda	OUM	-	
BAU	vadada	wodawoda	YOB	(wodawoda)	
LAU	hodahoda	hodahoda	MAG (M)	vodavoda	
DAG	?		(D)	-	
			BIN	(wodawoda)	
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: PMF *vodavoda 'hot'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI (except Domara) → MAG

Justification:

As these forms do not reflect any so far suggested or established Proto-AN form they are presumed to be NAN in origin. If so then the Oumic languages have borrowed from MF ones, most probably from MGI where the absence of initial v/w on the reduplicated parts is taken to represent a recent change if it does not represent a recording error.

ITEM: 'how many, how much'

SUMMARY CONCLUSION: {AN(Oum) + NAN
NAN + AN(Oum)}

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	liva		MTU	.	
(O)	liva		SIN	.	
DOM	vila		KEA (H)	.	
MOR	liva		(A)	.	
MA	livaha		(W)	.	
NEM	.		OUU	livaha	vira
BAU	.		YOB	.	vila
LAU	?		MAG (M)	.	vika
DAG	?		(D)	?	
			BIN	.	vi'a
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(OMB,OC,EB) *Pinsa 'how much, how many' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin, but complex borrowing pattern.

1. OUM + DOM (and possibly others)
2. Metathesis in one of MGI, MOR, MA with borrowing in remainder
3. MA → OUM

Justification:

Given that all these forms are related (through metathesis) and are reflexes of POC *pinsa 'how much, how many' the most economical explanation of the present-day distribution of different forms is that the expected OUM reflex vira of POC *pinsa did in fact occur and was borrowed by one or more of the MF languages, including MGI, DOM, MOR and MA. Subsequently this form was metathesised in one of these languages and borrowed by others, except DOM, which retained the original expected OUM form vila. OUM then borrowed livaha from MA replacing the earlier form vira.

ITEM: 'jaw, chin'

SUMMARY CONCLUSION: AN(Oum) + NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	are(na)		MTU	ade ('chin')	ade
(O)	are(na)		SIN	gare	are
DOM	.		KEA (H)	gare	are
MOR	.		(A)	gare	are
MA	are		(W)	gareka	are
NEM	.		OUU	ale	are
BAU	.		YOB	.	a'e
LAU	are(na)		MAG (M)	.	ake
DAG	.		(D)	.	ake
			BIN	.	a'e
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(OMN) *anse 'jaw' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. $\left. \begin{matrix} \text{OUM} \\ \text{SIN} \\ \text{KEA(H,A)} \end{matrix} \right\} \rightarrow \left\{ \begin{matrix} \text{MGI} \\ \text{MA} \\ \text{LAU} \end{matrix} \right.$

Justification:

Given that these forms are AN in origin those in MGI, MA and LAU can only have been borrowed from OUM, KEA and SIN - MTU is excluded as a probable source because of the medial d in ade which should be borrowed as d by MF languages if/when borrowed. It is not clear from the available evidence, however, which of OUM, KEA or SIN is the most probable source for MGI, MA and LAU as both gare and ale will be borrowed as are by MF languages - see Appendix 4.

ITEM: 'joke'

SUMMARY CONCLUSION: NAN + AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	borere	borere	MTU	.	
(O)	?		SIN	.	
DOM	.	bonene	KEA (H)	.	
MOR	?	bonene	(A)	.	
MA	.	borere	(W)	.	
NEM	.	borere	OUM	.	
BAU	.	borere	YOB	?	
LAU	?		MAG (M)	borere	
DAG	?		(D)	?	
			BIN	?	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: PMF *borere 'joke'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI } + MAG
LAU? }

Justification:

Given that borere does not reflect any so far suggested or established proto-AN form it is assumed to be NAN in origin. MAG borere must therefore be a borrowing from either MGI or LAU although the latter is only suspicious because there is no evidence available on which to base a judgement. It is also assumed that MOR is not a probable source even though there are no data available for it as, even if it did reflect PMF *borere, it would be of the wrong form.

ITEM: 'knee₁'

SUMMARY CONCLUSION: AN(Mag?) + NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	туру(na)		MTU	.	
(O)	туру(na)		SIN	.	
DOM	.		KEA (H)	.	
MOR	.		(A)	.	
MA	.		(W)	.	
NEM	.		OUM	.	туру
BAU	.		YOB	туру	туру
LAU	туру		MAG (M)	туру	туру
DAG	.		(D)	туру	туру
			BIN	туру	туру
			SUA (G)	тури	
			(L)	тури	
			(K)	тури	
			(S)	тури	
			(Is)	?	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(OGC,EB) *туру 'knee' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. MAG } + { MGI
BIN } + { LAU
YOB }
OUM? }

Justification:

Given that the YOB, MAG and BIN forms are AN in origin the MGI and LAU ones must represent borrowings from the Oumic languages. Just which one of these is the source is not clear, however, as all are equally good, including OUM, assuming that it also had turu as expected (even though it now has a form giba'a which is a borrowing from DOM, MOR, MA or NEM as indicated in 'knee₂').

ITEM: 'knee₂'

SUMMARY CONCLUSION: NAN + AN (Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)		gibo(k, ' ,ϕ)a	MTU	.	
(O)			SIN	.	
DOM	gibo'a	gibo(k, ' ,ϕ)a	KEA (H)	.	
MOR	gibo'a	gibo(k, ' ,ϕ)a	(A)	.	
MA	gibo'a	gibo(k, ' ,ϕ)a	(W)	.	
NEM	gibo'a	gibo(k, ' ,ϕ)a	OUM	giba'a	
BAU	['opo]	gibo(k, ' ,ϕ)a	YOB	.	
LAU	.	giboha	MAG (M)	.	
DAG	.		(D)	.	
Proposed Reconstruction: PMF *giboka 'knee'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	?	
			Established Reconstruction(s): No obvious one(s).		

Borrowing Hypothesis:

NAN in origin.	DOM	} → OUM
	MOR	
	MA	
	NEM	

Justification:

Given that these forms do not reflect any so far suggested or established proto-AN form they are assumed to be NAN in origin. The OUM form must therefore be a borrowing from one of DOM, MOR, MA or NEM. It is not possible to distinguish between these as the most probable source, however, given the identity of forms. BAU is excluded as a probable source because it lacks initial g.

ITEM: 'mother'

SUMMARY CONCLUSION: NAN + AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	adei	ade[k, ' ,ϕ]i	MTU	.	
(O)	adei		SIN	.	
DOM	.	ade[k, ' ,ϕ]i	KEA (H)	.	
MOR	.	ade[k, ' ,ϕ]i	(A)	.	
MA	.	ade[k, ' ,ϕ]i	(W)	.	
NEM	.	ade[k, ' ,ϕ]i	OUM	.	
BAU	.	ade[k, ' ,ϕ]i	YOB	.	
LAU	.	ade[h]i	MAG (M)	ade'i	
DAG	.		(D)	ade'i	
Proposed Reconstruction: PMF *ade[k]i 'mother'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s).		

Borrowing Hypothesis:

NAN in origin. MGI → MAG

Justification:

Although present-day informants give tina for 'mother' in MAG (which is the expected reflex of POCGR(OMO(OC)) *tina 'mother') in 1917-18 they gave ade'i. And as ade'i is not a reflex of any so far suggested or established proto-AN form it is assumed to be NAN in origin. The MAG forms must therefore be borrowings from MGI, the only candidate.

ITEM: 'mouth'

SUMMARY CONCLUSION: AN(Oum) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	ma'a ('tooth')		MTU	.	
(O)	ma'a ('tooth')		SIN	.	
DOM	.		KEA (H)	.	
MOR	ma'a		(A)	.	
MA	ma'a		(W)	.	
NEM	ma'a		OUM	ma'a	ma(k?)a
BAU	.		YOB	.	ma(k?)a
LAU	.		MAG (M)	.	ma(k?)a
DAG	.		(D)	.	
			BIN	.	ma(k?)a
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(EG) *məŋa 'mouth'		
			Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. OUM → $\begin{cases} \text{MOR} \\ \text{MA} \\ \text{NEM} \end{cases}$

Justification:

Assuming that the OUM form is a reflex of proto-AN *məŋa 'mouth' forms in the MF languages must be AN in origin and borrowings from OUM, the only candidate. The MGI form is cognate with the other forms but now has a different, if allied, referent. It must therefore also be a borrowing although its immediate source is not clear.

ITEM: 'nape (of neck)'

SUMMARY CONCLUSION: AN(Mag) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	gedu		MTU	.	gedu
(O)	gedu		SIN	geru	g/geru
DOM	.		KEA (H)	.	keru
MOR	.		(A)	.	keru
MA	.		(W)	.	?
NEM	.		OUM	.	gedu
BAU	.		YOB	gedu	gedu
LAU	gedu		MAG (M)	gedu	gedu
DAG	.		(D)	gedu	gedu
			BIN	gedu	gedu
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	gedugedu	gedu
			(Is)	?	
Proposed Reconstruction: Nil			Established Reconstruction(s): PCP(Ross) *gedu 'nape (of neck)' POCGR(EB) *kesu 'nape'		
			Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. Unclear, but shows YOB, MAG and BIN in contact with MGI and LAU.

Justification:

Given that these forms are AN in origin the MGI and LAU forms must be borrowings from one or more of YOB, MAG, BIN and SUA(S), although the evidence does not point to a most probable source amongst them.

ITEM: 'naveɫ'

SUMMARY CONCLUSION: { NAN → AN (Oum)
NAN → AN (Mag)

ITEM: 'old (house)'

SUMMARY CONCLUSION: { NAN → AN (Mag)
NAN → AN (Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	inibu	iribu	MTU	.	
(O)	?		SIN	.	
DOM	inibu	inibu	KEA (H)	.	
MOR	inibu	inibu	(A)	.	
MA	iribu	iribu	(W)	.	
NEM	irip	iribu	OUU	inibu	
BAU	.		YOB	.	
LAU	iribu		MAG (M)	iribu	
DAG	?		(D)	iribu	
Proposed Reconstruction: PMF *iribu 'naveɫ'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	?	
			Established Reconstruction(s): No obvious one(s).		

Borrowing Hypothesis:

NAN in origin. Complex borrowing.

- Either a) DOM } → OUM, or b) DOM } → MGI → OUM
MOR } → MOR
- MGI? }
MA } → MAG
NAM }
LAU }
- DOM } → MGI
MOR }

Justification:

Given that these forms do not reflect any so far suggested or established proto-AN form they are assumed to be NAN in origin. In that case the OUM and MAG forms have different sources even if no most probable one can be distinguished in either case. Note, however, that the MGI form must also be a borrowing from either DOM or MOR as its expected reflex of PMF *iribu is iribu, not inibu. In that case MGI could have been a source for MAG (assuming it had the expected reflex iribu initially) and may also be one for OUM.

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	boae	bovae	MTU	.	
(O)	?		SIN	.	
DOM	.	bovae	KEA (H)	.	
MOR	bovae	bovae	(A)	.	
MA	.	bovae	(W)	.	
NEM	.	bovae	OUU	boae, boa'i	
BAU	.	bovae	YOB	.	
LAU	bohae	boh(/v?)ae	MAG (M)	bobai	
DAG	?		(D)	?	
Proposed Reconstruction: PMF *bovae 'old'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s): No obvious one(s).		

Borrowing Hypothesis:

NAN in origin.

- MGI → OUM
- MOR } → MAG
MGI? }

Justification:

Given that there is no suitable as yet suggested or established proto-AN form that these forms reflect, and given the distribution of them in MF languages we assume they are NAN in origin. In that case OUM has borrowed its form from MGI where boae appears to be a late form of bovae, the expected reflex of PMF *bovae. LAU is excluded as a source for OUM boae, boa'i because medial h in LAU should be borrowed as medial h in OUM. The origin of the MAG form is not so clear because of the medial b which should come from b in the MF languages. Since the MOR and LAU forms are the expected reflex of PMF *bovae the MAG form must be either a recording error or an innovation after some form bovae was borrowed. On present evidence the post probable source is MOR, although if boae in MGI is a recent innovation MAG may have borrowed bovae from that source before the innovation occurred.

ITEM: 'path, road'

SUMMARY CONCLUSION: AN(Oum) + NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	laea		MTU	dala	dala
(O)	.		SIN	dabara	raa
DOM	laea		KEA (H)	raopara	raa
MOR	laea		(A)	gara	rada
MA	lae		(W)	tara	?
NEM	.		OUM	laea	raya
BAU	.		YOB	?	'aya
LAU	.		MAG (M) ^A	rae	kaya
DAG	.		(D)	rae	kaya
			BIN	.	'aya
			SUA (G)		
			(L)		
			(K)		
			(S)		
			(Is)		
Proposed Reconstruction: Nil			Established Reconstruction(s): PEOPAWA *nsala 'path, road' PEPPAW *dala 'path, road' PCP(Ross) *DaRa 'path, road' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

- AN in origin.
- $$\text{OUM} \rightarrow \begin{cases} \text{MGI} \\ \text{DOM} \\ \text{MOR} \\ \text{MA} \end{cases}$$
 - and either 2. MA + MAG, or
 - $$\begin{cases} \text{OUM?} \\ \text{MGI?} \\ \text{DOM?} \\ \text{MOR?} \end{cases} \rightarrow \text{MAG (with subsequent loss of final a)}$$

Justification:

Given that the AN forms reflect PCP *DaRa 'path, road' then the MF forms must be borrowings from OUM, as there are no other candidates with the correct form to give the MF forms. In that case the MAG form is either an innovation, or a borrowing from MA, or a borrowing from OUM, MGI, DOM or MOR with subsequent loss of final a.

ITEM: 'pour out'

SUMMARY CONCLUSION: AN(Mag) + NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	bobobobo		MTU	bubu	bubu
(O)	bu'ebu'e		SIN	.	bubu
DOM	bobo		KEA (H)	.	pupu
MOR	.		(A)	.	pupu
MA	bobo		(W)	.	?
NEM	.		OUM	.	bubu
BAU	.		YOB	{ (gini-)bobo	bubu
LAU	.		MAG (M)	bobo	bubu
DAG	.		(D)	?	
			BIN	.	bubu
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	?	
Proposed Reconstruction: Nil			Established Reconstruction(s): PAND *bubu[h] 'pour out' Proposed Reconstruction: PCP **bubu 'pour out'		

Borrowing Hypothesis:

$$\text{AN in origin. } \begin{cases} \text{YOB} \\ \text{MAG} \\ \text{MTU} \end{cases} \rightarrow \begin{cases} \text{MGI (Is)} \\ \text{DOM} \\ \text{MA} \end{cases}$$

Justification:

Although the YOB, MAG and MTU forms do not absolutely reflect PAND *bubu[h] - they should reflect as vuvu, vuvu, and huhu respectively - they may be assumed to be AN on distributional grounds, if local in origin, and to reflect a PCP form **bubu 'pour out'. In that case the MF language forms are borrowings from either YOB, MAG or MTU. The evidence does not favour any one of these as the most probable source.

ITEM: 'sick'

SUMMARY CONCLUSION: AN(Oum) + NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	marai		MTU	-	
(O)	marai		SIN	-	
DOM	-		KEA (H)	-	
MOR	marai ('sore (n)')		(A)	-	
MA	-		(W)	-	
NEH	-		OUM	marai'i	marai
BAU	-		YOB	marahi	ma'a'i
LAU	marahae		MAG (M)	-	makaki
DAG	-		(D)	-	makaki
			BIN	marai	ma'a'i
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(EG,OC) *masaki(t) 'sick' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. OUM → {MGI
MOR}

Justification:

As the MF language forms are obviously AN in origin they must have been borrowed from either OUM or BIN. OUM is the most likely source as BIN has a form which differs from its expected reflex of POC *masaki(t) and so probably represents a borrowing from MF languages or from OUM.

ITEM: 'smoke₁ (of fire)'

SUMMARY CONCLUSION: NAN + AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	bautu	bautu	MTU	-	
(O)	bautu	bautu	SIN	-	
DOM	-	bauhu	KEA (H)	-	
MOR	-	bausu	(A)	-	
MA	-	bausu	(W)	-	
NEH	-	bauhu	OUM	-	
BAU	-	bauku	YOB	-	
LAU	bautu	bauhu	MAG (M)	bautu	
DAG	-		(D)	bautu	
			BIN	bautu	
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: PMF *bautu 'smoke (of fire)' (cf. also PMF *pi[y]omu 'smoke ₂ (of fire)')			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. {MGI
LAU} → {MAG
BIN}

Justification:

As the Magori and BIN forms are not derived from any so far suggested or established proto-AN ones they are assumed to be NAN in origin, in particular, borrowed from MGI or LAU where identical forms occur.

ITEM: 'smoke₂ (o, fire)'

SUMMARY CONCLUSION: NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	-	pi[?]omu	MTU	-	
(O)	-	pi[?]omu	SIN	-	
DOM	[piam], piram	pi[y,l]omu	KEA (H)	-	
MOR	[biou], bilo	pi[n,l]omu	(A)	-	
MA	[fiom]	pi[y]omu	(W)	-	
NEM	-	pi[y]omu	OUM	piomu	
BAU	-	pi[y]omu	YOB	piomo	
LAU	[piomu]	pi[?]omu	MAG (H)	-	
DAG	-		(D)	-	
			BIN	-	
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: PMF *pi[y]omu 'smoke (of fire)' (cf. also PMF *bautu 'smoke ₁ (of fire)')			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. $\left. \begin{matrix} \text{DOM} \\ \text{MA} \\ \text{LAU} \\ \text{MOR?} \end{matrix} \right\} + \left\{ \begin{matrix} \text{OUM} \\ \text{YOB} \end{matrix} \right\}$

Justification:

As these forms are not of AN origin they are assumed to be NAN in origin. The OUM and YOB forms must therefore be borrowed from one or more of DOM, MA, LAU and, less likely, MOR. It is not possible to say, however, which of these is the most probable source because no diagnostic sounds occur.

ITEM: 'snake'

SUMMARY CONCLUSION: NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	mio	mio(k, 's) (o, ei)	MTU	-	
(O)	mio	mio(k, 's) (o, ei)	SIN	-	
DOM	-	mio(k, 's) (o, ei)	KEA (H)	-	
MOR	mio'o	mio(k, 's) (o, ei)	(A)	-	
MA	me'ei	mio(k, 's) (o, ei)	(W)	-	
NEM	me'ei	mio(k, 's) (o, ei)	OUM	mio	
BAU	-	mio(k, 's) (o, ei)	YOB	-	
LAU	mio	mioh(o, ei)	MAG (H)	-	
DAG	-		(D)	-	
			BIN	-	
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: PMR *miok(o, ei) 'snake'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. $\left. \begin{matrix} \text{MGI} \\ \text{MOR} \\ \text{LAU} \end{matrix} \right\} + \text{OUM}$

Justification:

As these forms are not reflexes of any so far established or suggested proto-AN forms they are assumed to be NAN in origin. In that case the OUM form mio must be a borrowing from either MGI, MOR or LAU where the most similar combinations of sounds occur. There is no further evidence to suggest which is the most probable source amongst these, however.

ITEM: 'stand up, erect (v.tr.)'

SUMMARY CONCLUSION: NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	(va-)ida	ida(i,e)	MTU	.	
(O)	?	ida(i,e)	SIN	.	
DOM	idai	ida(i,e)	KEA (H)	.	
MOR	idai	ida(i,e)	(A)	.	
MA	(va-)idae	ida(i,e)	(W)	.	
NEM	(va-)idae	ida(i,e)			
BAU	(ma-)idae	ida(i,e)	OUM	.	
LAU	?	ida(i,e)	YOB	?	
DAG	?		MAG (M)	(va-)ida	
			(D)	?	
			BIN	(va-)ta(uolo)	
				(oog?)	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: PMF *ida(i,e) 'stand up, erect (v.tr.)'			Established Reconstruction(s): No suitable one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MGI → {MAG
BIN?}

Justification:

Given that these forms are not derived from any so far suggested or established proto-AN form they are assumed to be NAN in origin. In that case the MAG form is a borrowing most likely from MGI where an identical form occurs. Note, however, that the prefix va-, ma- 'causative' in MF languages is of AN origin, being derived from PANGR *pa- 'causative'.

ITEM: 'star'

SUMMARY CONCLUSION: AN(Mag) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	visiu		MTU	hisiu	vitiu
(O)	visiu		SIN	vitiugu	witiu
DOM	.		KEA (H)	givu	witiu
MOR	.		(A)	viu	witiu
MA	.		(W)	viu	?
NEM	.				
BAU	.		OUM	.	vihiu
LAU	vitiu		YOB	.	vitiu
DAG	.		MAG (M)	vitiriu visi-u (1917-18)	vitiu
			(D)	vitiriu	
			BIN	.	vitiu
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(OC,EB) *pituqu 'star' PCPPAW #viti(g)u 'star' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. MAG }
YOB? } → {MGI
BIN? } → {LAU

Justification:

Given that all these forms are AN in origin the MGI and LAU forms must have been borrowed from one of MAG, YOB or BIN. SIN is excluded as a probable source because of the medial g which, under normal circumstances, should have been borrowed as such by MF languages if/when borrowed. Note also that the MAG form has changed from visi-u (recorded in 1917-18) to vitiriu in the past fifty years.

ITEM: 'stone'

SUMMARY CONCLUSION: NAN + AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	baga ¹	baga	MTU	-	
(O)	-	baga	SIN	-	
DOM	-	baga	KEA (H)	-	
MOR	-	baga	(A)	-	
MA	baga	baga	(W)	-	
NEM	baga	baga	OUM	baga	
BAU	-	baga	YOB	-	
LAU	baga	baga	MAG (M)	-	
DAG	-		(D)	-	
			BIN	-	
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: PMF *baga 'stone'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. MA
NEM
LAU
MGI? } → OUM

Justification:

As these forms are not reflexes of any so far established or suggested proto-AN ones they are assumed to be AN in origin. In that case the OUM form has been borrowed either from one of MA, NEM or LAU or from MGI before *baga* underwent semantic changes in that language. There is no evidence to suggest which one of these is the most likely source, however.

¹In MGI *baga* means 'small stones, pebbles' and in modern Papua New Guinea, 'coin, money'.

ITEM: 'straight'

SUMMARY CONCLUSION: AN(Oum) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	'oro'oroni		MTU	maoro	roriro
(O)	-		SIN	rorogoto	lolilo
DOM	-		KEA (H)	rorirori	lolilo
MOR	unan		(A)	roiroi	lolilo
MA	'ora'oran		(W)	-	?
NEM	-		OUM	'oro'oro	roriro
BAU	-		YOB	-	roriro
LAU	?		MAG (M)	-	roriro
DAG	-		(D)	?	roriro
			BIN	-	roriro
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: Nil			Established Reconstruction(s): PCPPAW *roriro(r) 'straight' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. OUM + MF

Justification:

Given that the OUM and MF languages forms are AN in origin the MF languages must have borrowed from OUM where 'oro'oro represents an innovation. Note, however, that the borrowings in MF languages must be old, or at least old enough for the borrowing in MOR to have undergone the sound change *r->n-* as in inherited words.

ITEM: 'stump, base'

SUMMARY CONCLUSION: AN(Mag) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	-		MTU	dudu	tutu
(O)	tutu		SIN	tuguka(?)	tutu
DCM	-		KEA (H)	-	uu
MOR	-		(A)	-	uu
MA	-		(W)	-	?
NEM	-		OUM	-	tuhu
BAU	[kuku'a]		YOB	tutu'a	tutu
LAU	?		MAG (M)	tutu	tutu
DAG	?		(D)	?	tutu
			BIN	tutu	tutu
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: Nil			Established Reconstruction(s): PANDYTV *tuquD 'stump' Proposed Reconstruction: PCP **tutu 'stump'		

Borrowing Hypothesis:

AN in origin. YOB }
MAG } → MGI(O)
BIN }

Justification:

Assuming that the Oumic forms are AN in origin (an assumption that seems justified by the occurrence of apparent cognates in MTU and SIN) then tutu in MGI(O) must have been borrowed from either YOB, MAG or BIN. OUM is excluded as a probable source because even if it had a reflex of PCP **tutu it would have been of the wrong shape. The BAU form suggests in addition that this was an old borrowing in MF languages, at least old enough for t > k as in inherited words in BAU.

ITEM: 'sum₁'SUMMARY CONCLUSION: AN(Oum) → NAN
NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	nina		MTU	dina	dina
(O)	nina		SIN	-	rina
DOM	lina		KEA (H)	-	rina
MOR	lina		(A)	-	rina
MA	lina		(W)	-	?
NEM	-		OUM	-	ri(n,?)a
BAU	-		YOB	-	'i(n,?)a
LAU	-		MAG (M)	nina	ki(n,?)a
DAG	-		(D)	nina	ki(n,?)a
			BIN	-	'i(n,?)a
			SUA (G)	-	
			(L)	-	
			(K)	-	
			(S)	-	
			(Is)	-	
Proposed Reconstruction: Nil			Established Reconstruction(s): POCGR(OMB) *sina(R) 'sum' PCP (Ross) *DI(n,?)a 'sum' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

- AN in origin.
1. OUM → { DOM
MOR
MA
2. Sound change in MGI or MAG and then MGI ↔ MAG

Justification:

The MF language forms are clearly AN in origin. Not only that but the DOM, MOR and MA forms must have been borrowed from OUM which is the only Oumic language to have had the corresponding expected reflex. Since then OUM has borrowed a NAN form budiva from NEM (see item 'sum₂' below). Meanwhile either MGI borrowed lina from someone and changed it to nina and the MAG borrowed it from them replacing whatever form they had, or vice versa. Whatever the true picture, however, the correspondences show contact between MAG and MGI.

ITEM: 'suoi₂'

SUMMARY CONCLUSION: NAN + AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.	budiwa	MTU	.	
(O)	.	budiwa	SIN	.	
DOM	.	budiwa	KEA (H)	.	
MOR	.	budiwa	(A)	.	
MA	.	budiwa	(W)	.	
NEM	[butwa]	budiwa	OUM	budiwa	
BAU	.	budiwa	YOB	.	
LAU	.	budiwa	MAG (M)	.	
DAG	.		(D)	.	
			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: PMF *budiwa 'sun'			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. NEM + OUM.

Justification:

Given that these forms do not derive from any so far suggested or established proto-AN ones they are assumed to be NAN in origin. In that case OUM has borrowed its form from NEM, the only candidate. (But see also item 'sun₁' above.)

ITEM: 'sweat (n)'

SUMMARY CONCLUSION: AN(Oum) + NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.		MTU	varahu	vatara
(O)	.		SIN	.	watata
DOM	wahara		KEA (H)	.	waala
MOR	.		(A)	.	waala
MA	.		(W)	.	?
NEM	.		OUM	ahara	wahara
BAU	.		YOB	wota'ara	vatara
LAU	.		MAG (M)	votara	vatara
DAG	.		(D)	?	
			BIN	.	vatara
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: Nil			Established Reconstruction(s): No obvious one(s). Proposed Reconstruction: PCP **vatara 'sweat (n)'		

Borrowing Hypothesis:

AN in origin. OUM + DOM

Justification:

Given that these forms are AN in origin the DOM form must be a borrowing from OUM which must have originally had the expected reflex wahara of PCP **vatara (if the present-day given form is not a recording error).

ITEM: 'sweet potato'

SUMMARY CONCLUSION: AN(Mag) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.		MTU	.	moter[i,e]
(O)	.		SIN	mote	motel[i,e]
DOM	more		KEA (H)	motea	moel[i,e]
MOR	.		(A)	?	moel[i,e]
MA	modele		(W)	?	?
NEM	.		OUM	.	moher[i,e]
BAU	.		YOB	.	moter[i,e]
LAU	.		MAG (M)	{modeli (1917-18)	moter[i,e]
DAG	.		(D)	?	
			BIN	{modele	moter[i,e]
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction:			Established Reconstruction(s): No suitable one(s). Proposed Reconstruction: PCP **moter[i,e] 'sweet potato'		

Borrowing Hypothesis:

AN? in origin. Unclear, but seems to involve contact between MAG and BIN, and MA most directly.

Justification:

Given the distribution of these apparent cognates in AN languages the recorded forms are probably reflexes of a PCP form. In that case the MA one is a borrowing either from MAG or BIN on present evidence. The origin of the DOM form is unclear but cannot be a borrowing of SIN mote because SIN -t- should be borrowed as -t- by DOM.

ITEM: '(dog's) tail₁'

SUMMARY CONCLUSION: AN(Mag) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.		MTU	doru ('back')	doru
(O)	doru		SIN	.	
DOM	.		KEA (H)	.	
MOR	.		(A)	.	
MA	.		(W)	.	
NEM	.		OUM	.	doru
BAU	.		YOB	.	doru
LAU	?		MAG (M)	{doru	doru
DAG	.		(D)	{doru	doru
			BIN	.	doru
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction:			Established Reconstruction(s): No suitable one(s). Proposed Reconstruction: PCP **doru 'tail'		

Borrowing Hypothesis:

AN in origin. MAG }
MTU } → MGI(O)

Justification:

Given the distribution of doru in MTU and MAG we presume these reflect a PCP **doru 'tail'. In that case the MGI(O) form must be a borrowing from either MAG or MTU.

ITEM: '(dog's) tail₂'

SUMMARY CONCLUSION: NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	batuna	batuna	MTU	.	
(O)	.	batuna	SIN	.	
DOM	baruna	bahuna	KEA (H)	.	
MOR	bahuna	basuna	(A)	.	
MA	bahuna	basuna	(W)	.	
NEM	.	bahuna	OUM	bahuna	
BAU	.	bakuna	YOB	.	
LAU	?	bahuna	MAG (M)	.	
DAG	?		(D)	.	
Proposed Reconstruction: PMF *batuna 'tail'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s):		
Proposed Reconstruction:			Nil		

Borrowing Hypothesis:

NAN in origin. Multiple borrowing.

Either 1) $\left. \begin{matrix} \text{DOM} \\ \text{NEM} \\ \text{LAU} \end{matrix} \right\} \rightarrow \text{OUM}$

or 2) $\left. \begin{matrix} \text{DOM} \\ \text{NEM} \\ \text{LAU} \end{matrix} \right\} + \left. \begin{matrix} \text{MA} \\ \text{MOR} \end{matrix} \right\} \rightarrow \text{OUM}$

Justification:

As these cognates do not reflect any proto-AN form they are assumed to be NAN in origin. In that case OUM bahuna must be a borrowing either from the set of languages whose expected reflex of PMF *batuna is bahuna, i.e., DOM, NEM and LAU, even though this form is no longer retained in those languages, or it must be a borrowing from the set of languages that have that form today, i.e. MOR and MA, even though that form must also be a borrowing in those languages (because their expected reflex of PMF *batuna is basuna).

ITEM: 'ten'

SUMMARY CONCLUSION: NAN → AN(Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	nanau omu	nanau [omu]	MTU	.	
(O)	.		SIN	.	
DOM	.	nanau [omu]	KEA (H)	.	
MOR	.	nanau [omu]	(A)	.	
MA	?	nanau [omu]	(W)	.	
NEM	?	nanau [omu]	OUM	.	
BAU	?	nanau [omu]	YOB	?	
LAU	.	nanau [omu]	MAG (M)	nanau'ana	
DAG	.		(D)	?	
Proposed Reconstruction: PMF *nanau [omu] 'ten'			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
			Established Reconstruction(s):		
Proposed Reconstruction:			Nil		

Borrowing Hypothesis:

NAN in origin. $\left. \begin{matrix} \text{MGI} \\ \text{MA?} \\ \text{NEM?} \\ \text{BAU?} \end{matrix} \right\} + \text{MAG}$

Justification:

As these forms do not reflect any so far suggested or established proto-AN forms they are assumed to be NAN in origin. In that case the MAG form is most likely a borrowing from MGI, although MA, NEM, and BAU cannot be excluded as probable sources for lack of data.

ITEM: 'underneath₁'

SUMMARY CONCLUSION: NAN → AN (Mag)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	goda (na-de)	god(e,a)va	MTU	.	
(O)			SIN	.	
DOM	godewa (na-de)	god(e,a)wa	KEA (H)	.	
MOR	.	god(e,a)wa	(A)	.	
MA	.	god(e,a)wa	(W)	.	
NEM	.	god(e,a)wa	OUM	.	
BAU	.	god(e,a)wa	YOB	?	
LAU	?	god(e,a)ha	MAG (M)	godava (na)	
DAG	?		(D)	?	
			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	?	
			(S)	?	
			(Is)	?	
Proposed Reconstruction: PMF *god(e,a)va 'underneath'			Established Reconstruction(s): No suitable one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. DOM } → MAG
MGI?

Justification:

Given the restricted distribution of this form in AN languages and that it does not reflect any so far suggested or established proto-AN form we assume this to be NAN in origin. In that case the MAG form is most likely a borrowing from DOM, although it may well have been from MGI if at some time it had the expected reflex god(e,a)va of the PMF form.

ITEM: 'underneath₂'

SUMMARY CONCLUSION: AN (oum) → NAN

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.		MTU	.	
(O)	.		SIN	gabure-nai	g/gabule
DOM	.		KEA (H)	kapule-nai	kapule
MOR	gabila bohia		(A)		
MA	.		(W)		?
NEM	gable'una		OUM	gabila-i	gabure
BAU	.		YOB	?	gabure
LAU	?		MAG (M)	.	gabure
DAG	?		(D)	?	
			BIN	gabula-e	gabure
			SUA (G)	kai-gabi-na	
			(L)	kubu-na-nea	
			(K)	?	
			(S)	?	
			(Is)	?	
Proposed Reconstruction: Nil			Established Reconstruction(s): PCP(Ross) *gabule 'underneath' Proposed Reconstruction: Nil		

Borrowing Hypothesis:

AN in origin. OUM + { MOR
NEM

Justification:

Given that these forms are AN in origin the MOR and NEM forms are borrowings, most likely from OUM where the identical form occurs.

ITEM: 'village'

SUMMARY CONCLUSION: NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	mari	mari	MTU	.	
(O)	mari	marl	SIN	.	
DOM	mari dou	mari	KEA (H)	.	
MOR	mari	mani	(A)	.	
MA	.	mani	(W)	.	
NEM	.	mari	OUM	mari	
BAU	.	mari	YOB	.	
LAU	mari	mari	MAG (H)	.	
DAG	.		(D)	.	
			BIN	.	
			SUA (G)	.	
			(L)	., mari	
			(K)	.	
			(S)	?	
			(Is)	.	
Proposed Reconstruction: PMF *mari 'village'			Established Reconstruction(s): No suitable one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. Either 1) MGI } + OUM,
LAU }
or, more lately 2) DOM } + OUM
MOR }

Justification:

As these forms are not reflexes of any so far suggested or established proto-AN form they are assumed to be NAN in origin. Consequently OUM mari must be a borrowing from MF languages. However, since mari in DOM and MOR is not the expected reflex of PMF *mari - the expected reflex is mani - then either:

- OUM borrowed mari from MGI or LAU; or
- OUM borrowed mari from DOM or MA after these had themselves borrowed mari from some other MF language which had or still has it.

ITEM: 'wallaby'

SUMMARY CONCLUSION: NAN → AN(Oum)

NAN Languages			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	.	marau	MTU	.	
(O)	.		SIN	.	
DOM	.	manau	KEA (H)	.	
MOR	.	manau	(A)	.	
MA	?	marau	(W)	.	
NEM	?	marau	OUM	marau	
BAU	?	marau	YOB	.	
LAU	marau	marau	MAG (H)	.	
DAG	.		(D)	?	
			BIN	?	
			SUA (G)	?	
			(L)	?	
			(K)	?	
			(S)	?	
			(Is)	.	
Proposed Reconstruction: PMF *marau 'wallaby'			Established Reconstruction(s): No suitable one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. IAU } + OUM
MA? }
NEM? }
BAU? }

Justification:

Given that marau in OUM and LAU are cognates but that they do not reflect any established or suggested proto-AN reconstruction they are assumed to be NAN in origin. In that case the OUM form must be a borrowing from LAU or from one of MA, NEM or BAU where the expected reflex of PMF *marau is also marau but where necessary data are lacking.

NAN Languages*			AN Languages		
Language	Data	Expected Reflex	Language	Data	Expected Reflex
MGI (Is)	avesa	(t)aveta	MTU	.	
(o)	avesa	(t)aveta	SIN	.	
DOM	have	(h)avesa	KEA (H)	.	
MOR	aveha	(s)awesa	(A)	.	
MA	aveha	(s)awesa	(W)	.	
NEM	aveha	(h)aweha	OUM	aveha	
BAU	avaka	(s)aweka	YOB	.	
LAU	havet, avesa	(h)ahaha	MAG (M)	.	
DAG			(D)	.	
			BIN	.	
			SUA (G)	.	
			(L)	.	
			(K)	.	
			(S)	.	
			(Is)	.	
Proposed Reconstruction: PMF *(t)aveta 'woman, wife'			Established Reconstruction(s): No suitable one(s). Proposed Reconstruction: Nil		

Borrowing Hypothesis:

NAN in origin. Either 1) NEM } + OUM,
 DOM? }

or, more lately 2) MOR } + OUM
 MA }

Justification:

Given that these forms are not reflexes of any so far suggested or established proto-AN forms they are assumed to be NAN in origin. In that case the OUM form is a borrowing. However, since the MOR and MA forms are not the expected reflexes of PMF *(t)aveta – the expected reflexes are *(s)awesa – then either:

- OUM borrowed aveha from NEM or possibly DOM where have is a reduced form of the expected reflex (h)aweha which would correspond well with aveha if it occurred; or
- OUM borrowed aveha from MOR or MA which had themselves borrowed that form from some other MF language.

5. DISCUSSION OF RESULTS

The salient features of the results of the analysis of the data presented in section 4. above are:

1) There are at least two different levels of borrowing, AN → NAN and NAN → AN, and a historical sequence of borrowing in which NAN speakers first borrowed AN words from Oumic language speakers and then AN speakers in turn borrowed NAN words from Mailuan language speakers, sometimes even borrowing back what were once their own words in a different form. These conclusions are based on two pieces of evidence:

(a) the present sociolinguistic situation in which AN languages are small in number, dying, scattered and bilingual in Magi, a result according to oral tradition of repeated attacks by NANS on the ancestors of the present-day populations within the recent prehistorical past. In this situation it is not likely (according to assumption 6 in section 3.2. above) that NAN speakers would have seen any advantage in borrowing anything from them;

(b) a few lexical items which show that they must have been borrowed before NAN languages diversified. That is, there are lexical items which could not have been borrowed from ANs recently as they would then have been of a different form. The best evidence of this is to be found in the items '*bathe/wash*', '*cook/boil*' and '*head*', '*how many/much*' where an AN form has been borrowed by one or more Mailuan language(s) where they have undergone a sound change and are then subsequently borrowed back again by Ouma and Magori respectively. Two other items '*path/road*' and '*sun*₁' are variations on the same theme, except that the former is less certain (in that it could have been borrowed from Ouma by Magori and undergone an idiosyncratic sound change) and the latter involves replacement by a NAN form in Ouma. These forms thus give some time depth to the history of contact between ANs and NANS in the area under consideration. Although there is no way of dating this depth, if some of these items and other simpler ones like '*straight*' for example are old enough to have undergone sound changes in Mailuan languages along with inherited words they must be of considerable antiquity, probably in excess of several centuries;

2) Ouma and Magori have remarkably different borrowing and loaning patterns: Ouma's contacts have been with a range of languages now found around and inland of Cloudy Bay to the west and along the coast and inland of Baxter and Table Bays, while Magori's have been predominantly with Magi, and less certainly with Laua. This is nicely illustrated by items such as '*smoke*₁' and '*smoke*₂' for example, where each has borrowed different NAN forms from different languages, but is confirmed by a simple lexicostatistical type analysis of the individual hypotheses proposed for each item in section 4. above such as are given in Charts 3 and 4 below.

Thus although we must be wary of taking these statistics too strictly since there are certain complications in them (e.g. some calculations include other languages as possible sources) it would seem to be reasonably clear from Chart 4 that Magori has had closest contact with Magi, both as a donor of AN vocabulary and as a borrower of NAN words. The position of Laua and Ma are less clear — Ma simply because its figure is low and Laua because, even though it scores quite high, it will be seen that whenever it scores it scores in association with Magi. It is not clear just what this means at the moment — on the one hand it could simply indicate that, because of the sociolinguistic situation obtaining in Laua at the present time with Laua moribund and informants using Magi as their everyday language, these results are unusable; on the other hand it could mean, as oral tradition has it, that Laua is an offshoot of Magi, and therefore can be expected to score more or less the same as Magi. Consequently, and for the time being and until some more detailed work can be done on Laua, we must be suspicious of the implications of the Laua figures. The other languages in Chart 4 score so low with Magori that they can be disregarded.

In Chart 3, in which Ouma figures are presented, a completely different picture from the Magori one emerges. Here we have a cluster of values that are all very similar. There are some differences between the AN-as-origin values and the NAN-as-origin ones but with no one language outstanding as in the Magori case. Note, however, that the Laua figures are suspicious for the same reasons as in the Magori case just described, and the Magi ones are inflated in some respects, and appear to reflect a recent borrowing pattern (rather than an earlier one) in others, e.g. *'bathe, (woman's) clothes, crooked, old'* and *'snake'*. Thus Ouma would appear to have had quite a different history of contact with Magi from Magori, and a rather chequered one elsewhere, having been in contact most with Morawa and Ma whilst a donor of AN forms, and with these same languages, and possibly Neme'a, Domu, and Laua in addition, as a borrower of NAN forms. Subsequently it has been borrowing NAN forms from Magi.

Apart from these facts Charts 3 and 4 also show that both Ouma and Magori have borrowed and loaned very much the same kind of vocabulary. Thus about half of the words in each are of AN origin and half of NAN origin, and both have a similar range of borrowed and loaned basic vocabulary, including some items such as *'(woman's) clothes, cough, how many/much, navel'* and *'old'* in common.

Chart 3: Analysis of items in which Ouma shows contact with one or more Mailuan languages									
No	Item*	MGI	DOM	MOR	MA	NEM	BAU	LAU	Comments
1	'bathe, wash'	x							Recent borrowing
2	'BETELNUT'		x	x	x	x		?	
3	'(women's) clothes'	x						x	Recent borrowing(?)
4	'cook, boil'			x					
5	'COUGH'		x	x	x			?	
6	'CROOKED'	x							Recent borrowing(?)
7	'DOG'	x			x			x	MGI least probable
8	'FATHER ₂ '		x			x	x		
9	'GROUND'			x	x	x		x	
10	'hot ₁ '			x	x	x			Incl. YOB, BIN, MAG as possible sources
11	'how many/much'		x	?	x				
12	'jaw, chin'	x			x			x	Incl. SIN, KEA(H,A) as possible sources
13	'KNEE ₂ '		x	x	x	x			
14	'mouth'			x	x	x			
15	'NAVEL'		x	x					
16	'OLD'	x							Recent borrowing(?)
17	'path, road'	x	x	x	x				
18	'sick'	x		x					
19	'SMOKE ₂ (of fire)'		x	?	x			x	
20	'SNAKE'	x		x				x	
21	'STONE'	?			x	x		x	
22	'straight'	x		x	x				Old form
23	'sun ₁ '		x	x	x				
24	'sun ₂ '					x			
25	'sweat'		x						
26	'(dog's) TAIL ₂ '		x	x	x	x		x	Either MOR-MA as a set or DOM-NEM-LAU as most probable source
27	'underneath ₂ '			x		x			
28	'VILLAGE'	x	x	x				x	Either MGI-LAU as a set or DOM-MOR as most probable source
29	'wallaby'				?	?	?	x	No evidence in MA, NEM, BAU
30	'WOMAN, WIFE'		?	?	?	x			
SUMMARY									
AN in origin (15)		6	4	9?	8?	5?	1?	3	
NAN in origin (15)		6?	9?	10?	9?	7	1	9?	
TOTALS (30)		12	13	19	17	12	2	12	

* In this chart the capitalised words are NAN in origin.

Chart 4: Analysis of items in which Magori shows contact with one or more Mailuan languages

No	Item*	MGI	DOM	MOR	MA	NEM	BAU	LAU	Comments
1	'buttocks'	x						x	
2	'(men's) CLOTHES'	x			x		x	?	No evidence in LAU
3	'(women's) CLOTHES'	x		?	x				
4	'CLOUD, SKY'	x						x	
5	'COCONUT'	x			?	?	?		No evidence in MA, NEM, BAU
6	'COLD'	x							
7	'COUGH'	x							
8	'CUT'	x	x					?	No evidence in LAU
9	'ELBOW'	x							
10	'EYE'	x			x			x	
11	'FATHER ₁ '	x		x					
12	'fly (n)'	x						x	
13	'GARDEN'	x							
14	'hair'	x							
15	'head'	x							
16	'HEART'	x						x	Incl. YOB, SUA (G, L)
17	'HOT ₂ '	x							
18	'JOKE'	x						?	No evidence in LAU
19	'knee ₁ '	x						x	Incl. OUM?, BIN, YOB
20	'mother'	x							
21	'nape (of neck)'	x						x	Incl. YOB, BIN
22	'NAVEL'	?			x	x		x	
23	'OLD'	?		x					
24	'pour out'	x	x		x				Incl. YOB, MTU
25	'SMOKE ₁ (of fire)'	x						x	Incl. BIN
26	'STAND UP'	x							
27	'star'	x						x	Incl. YOB?, BIN?
28	'stump, base'	x							Incl. YOB, BIN
29	'sun ₁ '	x							
30	'sweet potato'				x				Incl. BIN
31	'(dog's) tail ₁ '	x							Incl. MTU
32	'TEN'	x			?	?	?		
33	'UNDERNEATH ₁ '	?	x						
SUMMARY									
AN in origin (13)		13	1	1	2	0	0	5	
NAN in origin (20)		19?	2	2?	6?	3?	3?	8?	
TOTALS (33)		32	3	3	8	3	3	13	

* In this chart the capitalised words are NAN in origin.

6. HISTORICAL IMPLICATIONS

Many historical conclusions can be drawn from the borrowing pattern described above and the present distribution and sociolinguistic situation of the remnants of the languages in question. We can be even more specific if facts provided by other disciplines and some additional linguistic analysis are taken into account, however. These additional facts are:

1) There was an expansion of the Magi language westwards about two hundred years or so ago when colonies were established by Mailu Islanders on the mainland coast between Amazon Bay in the east and Cloudy Bay in the west at the present-day villages of Kurere, Magaubo, Darava, Boru and Domara — see Map 2;¹²

2) Three at least of these colonies were formed by the amalgamation of mainland communities with incoming colonisers.¹³ These three were Domara, Magaubo and Darava. "Domara was formed partly from the mainland, the people went first to Burumai Point, then Dedele, and lastly to their present site" (Thomson 1975a:57); Darava and Magaubo villages were formed by Island dialect speakers "amalgamating with Ma speakers further west, Darava first and Magaubo later" (Thomson 1975a:57);

3) Present-day Ouma speakers at Labu, an appendix to one of these colonies, Darava, claim that their 'homeland' (that is, the position they occupied as far back as tradition goes) was a set of two low hills about fifteen kilometres west of their present position and inland of Table Point and Magaubo village, another of the Mailu Island colonies mentioned above.¹⁴ According to this tradition these hills were at that time islands.¹⁵ The tradition also says that their forefathers traded with Gavuone, Paramana and Aroma (Keapara speakers west of Cloudy Bay) whence they went on sailing canoes¹⁶ and on outrigger canoes to buy pigs. They used sago and nose bones (Motu: moki) and breast shells (Motu: mairi) as money for this purpose but not pots. The nose bones and mairi were later replaced by armshells (Motu: toea) made by the Mailu. They said they did not know the Aroma language well but only, as they say in Police Motu *sisina sisina* (lit. 'little little'), or 'only a little bit'. This was when the hills were islands. They made pots but only of the narrow necked, water carrying type that the Motu call *hodu* which were decorated

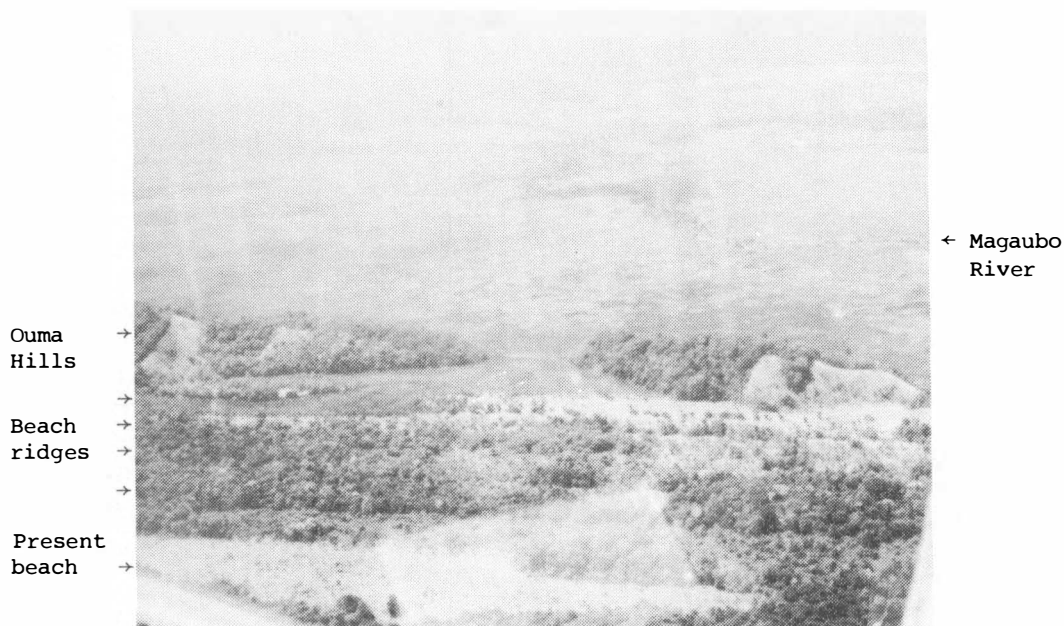



Plate 1: Ouma Hills

with simple square geometric patterns like this:  around the shoulder.¹⁷ They say there are plenty of sherds of these on the beach and hills. These pots are different from the Mailu ones they say and the Mailu pattern is different too, as is their tattooing pattern on women.

Present-day informants also claim that at the time they lived on their homeland hills Mailu Islanders lived there with them, but subsequently moved to Mailu Island itself to which they later took some Ouma speakers as captives. These subsequently married into the island population and never returned. Their descendants still live on that island and belong to the Diadudu clan. The remaining Ouma speakers were forced off their hills by local warring over land and pigs¹⁸ and had to flee from place to place in the swamps around the Bonua River until the process was interrupted by the arrival of the White Man;¹⁹

4) The Magori also have traditions of having been through somewhat the same experience as the Ouma (Dutton 1976c:589-590).²⁰ According to one account they have a tradition of coming from the west "from a site on a river named the Amini River, said to be close to Abau [=Cloudy Bay]" (Teasdale 1967:8-11).²¹ According to another, related to me by Dr N.P. Thomson,²² the Magori claim they used to live farther east over in the region of the Origuina River inland of the western end of Orangerie Bay. At the time of first European contact, however, the Magori were in a rather difficult social position and fighting for their lives at the hands of the so-called Velavelai from the interior, and the Magi along the coast. According to Saville (1926:308) they were close allies of the Maisi villages (Dagobo, Unevi and Borebo) and neighbouring ones in Mayri Bay and Millport Harbour to the east, and the true gara (from Magi gara 'spear, war') villages of the Mailu Islanders offshore. Saville (1926:208) says "It was among these people that the Mailu did their head-hunting". But the Magori also had allies in villages friendly with the Mailu, and even had "one sub-clan at Kurere [that] was related by marriage to Magori", though this did not necessarily protect Kurere from danger of attack by the Magori (Saville 1926:208). The Magori are also known to have been on a changing relationship with their nearest neighbours and relatives, Deba, whom they are known to have killed on occasions (Saville 1926:209). They also attacked Darava on the coast about ten miles west. They themselves were, however, regularly attacked, as already noted, by the Velavelai and the Magi. At time of contact they are known to have spoken Magi though few Magi know or knew Magori, claiming that (and Ouma like it) is too difficult.²³

Culturally the Magori were similar to those surrounding them although it is not known whether they once knew how to make pots. Saville (1926:209) reports that "inland from the shores of Amazon Bay I have found bits of pottery bearing different patterns from those of the Mailu. And the Mailu man tells me that long ago there were people living there who were potters, but that he 'finished them off'."²⁴ At the time of contact cooking pots were obtained from the Mailu Islanders who were the great traders in this commodity (Irwin 1978);

5) One section of Mailu Island village contains the descendants of several Ouma speakers said to have been kidnapped and taken there several generations ago as already noted. This section is called Diadudu and, interestingly, has the same name as one of the Magori clans (Teasdale 1967). Unfortunately it is not known at this time what the Magori have to say about this correspondence but the Mailu Islanders I spoke to corroborated the Ouma story in spirit although not in detail.²⁵

6) According to archaeological research the Amazon Bay-Mailu Island portion of the area of interest has been inhabited by pottery making and using peoples for about the last 2000 years. These people "practised a generalised gardening and fishing economy and lived in villages which were distributed along the coast and on offshore islands. Villages were apparently functionally unspecialized", each catering for itself in food and pottery needs (Irwin 1978:407). This situation

continued for something like a thousand years. Then something happened to cause an abrupt break in the continuity of style, similar to what has been found by archaeologists in the Yule Island and Port Moresby areas. Subsequently there was increasingly rapid development towards standardisation (in the size and structure of pots) and central control of the pottery industry, and the Mailu Islanders emerged for various geographical, logistical, and other reasons as the specialist traders and pottery manufacturers along the whole coast. This latter development/achievement probably took place several centuries ago. The changes in pottery style and trade were accompanied by social changes around the Amazon Bay area. Villages formerly located on the lowland near the beach moved up on to local ridges, presumably for defence purposes, as the Mailu Islanders become increasingly dominant;

7) The first Oumic language speaking peoples to come into contact with Mailuan language speaking peoples must have been sailors and traders. An analysis of terms having to do with present-day trading activities of Mailu Islanders shows that a significant subset of them are of AN origin, in particular from Ouma and/or Magori. It is not yet possible to be as precise about the origin and direction of borrowing as with the basic vocabulary analysed in the rest of this paper. This is principally because no data is available from any Mailuan language except Magi. But it is clear that the following terms must have been an important part of the AN culture the Magi came in contact with:

1) Sailing technology

English	Magi	Source
'outrigger) canoe'	wa'ona ²⁶	AN
'sail (n)'	laea	AN
'outrigger'	larima	AN
'steer'	'arisi ²⁷	AN
'sew'	suri(suri)	AN
'NW Monsoon'	avara	AN
'(canoe) pole (n)'	ivara	AN
'current (n)'	aruaru	AN
'salt water'	sari	AN
'coral'	lade	AN
'beach'	one	AN
'sorcery'	balau	AN (PCP)
'flag'	lagi	AN?

2) Trade items and contacts

'barter'	voivoi	AN
'how many/much'	liva	AN
'pig'	bora'a	AN
'salt'	sari	AN
'mat'	eba	AN
'sweet potato'	kanua ²⁸	AN
'chief'	vere	AN

Of these the word for 'sail' is particularly important not only because it shows that the ANs were seafarers but also because the forms for this in Morawa and Domu (with -n- corresponding to -r- in other languages) suggest that it is of considerable antiquity.

But this is not the total picture because there are several other items of importance which come out as being of NAN origin and so appear as counterexamples to the above. These are the following:²⁹

'(sailing) canoe'	orou	NAN
'cooking pot'	omu	unclear but assumed to be NAN ³⁰
'armshell'	oba	NAN
'sago'	odei	NAN

How do we explain the NAN origin of such basic modern trading terms as these? There is no obvious answer at the moment but presumably the only logical answer, given the above hypothesis about the age of the word 'sail' and the complex of other sailing and trading terms is that these must be innovations, that is, not the objects (except perhaps 'armshell'), but the terms used to refer to them;

8) The Magi have long been at home by the sea and had used it as a resource before the coming of the ANs. This is indicated by the analysis of another set of terms in Magi associated with knowledge of the sea, notably 'fish' (orebe), 'fish net' (arai), 'octopus' (guiva), 'crayfish' (avai), 'dugong' (opi), 'crab' (go(go)). This is so because all of these words are NAN in origin in Magi and it is most unlikely that if they had been introduced earlier by ANs all of them would have been replaced by NAN words. There are two others, however, which are AN in origin and which provide another perspective. These are 'fish hook' (kauri), and 'crocodile' (uaea). They indicate that line fishing must have been introduced by ANs and that the crocodile must have had some special significance for them which the NANS thought worth investing in. Presumably this was not because AN introduced crocodiles but rather it had something to do with sailing and the symbolic relationship between canoes and crocodiles.

When all of the above facts are taken into account, I think a clear picture emerges of what happened prehistorically between ANs and NANS in the Amazon Bay-Cloudy Bay area of coastal south-east Papua New Guinea. It is similar to what I suggested in Dutton (1978) on the basis of much less evidence. Briefly what I think happened was this:

The coastline between Amazon Bay and Cloudy Bay was once unoccupied before the coming of the ancestors of Oumic speaking peoples, except for Mailuan Family language speakers. The Mailuan speakers generally lived on the foothills of the main range and on the hills that come down towards the coast, in the Cloudy Bay area to the west and the Amazon Bay, Mayri Bay and Port Glasgow areas to the east. No one knows how long ago the Oumic speakers came or where they first settled. Presumably they were descended from the same group, or groups, of AN speakers who came to Central Papua and who are now represented by the larger languages farther west and to which they are most closely related, e.g. Motu, Sinagoro, Keapara. The fact that at least four languages still exist (although only just) clearly indicates that speakers of AN languages were once more widely distributed along the south-east coast of Papua than was thought before 1969 when they were first 'discovered' (Dutton 1971).³¹ And even though it is not possible at this stage to reconstruct in detail the sequence of events that led to their present distribution and parlous state it would appear that given that they are most closely related to languages immediately to the west (as already indicated) they presumably:

(a) settled on the coast first, as AN speakers elsewhere seem to have done and then spread inland as other circumstances necessitated;

(b) came with similar cultural traits to their closest relatives, but specifically with a knowledge of pottery making, canoe building and sailing. But whether knowledge of sailing also implies long distance trading is not clear although it would seem to be suggested by the fact that sails were a prominent part of AN culture acquired by the NAN Magi. Given further that Ouma has had closest contact with Morawa, Ma and Neme'a (and possibly Laua) who now live in the Cloudy Bay area while Magori had closest contact with Magi (and possibly Laua) the Ouma probably first settled near where they claim their homeland to be, that is, at or near Baxter Bay. The Magori settled somewhere near the Magi, presumably around the Amazon Bay area as until a few centuries ago, the Magi appear to have been concentrated in the area between that bay, Mayri Bay, and adjacent Port Glasgow. Colonies were then established in Table, Baxter and Sandbank Bays to the west. The Magori also presumably settled on the offshore islands as their more distant relatives did in the Milne Bay area and elsewhere. The Yoba and Bina probably settled in the same area but east of the Magori.

Presumably the Ouma and Magori eventually, if not immediately, came into contact with the Magi and other Mailuan language speakers just mentioned who mainly lived inland from them. If the record of the Motu-Koita contact around Port Moresby is any guide as to what happened in such situations (Dutton 1969:26-36) both presumably entered into some kind of close symbiotic relationship with each other attracted probably by the ANs' superior technology and trading activities. Eventually, the NAN learned the crafts of their seafaring AN 'friends' even to the point of participating in joint trading ventures such as the Koita did with the Motu (Seligman 1910:45). In doing this the NANs borrowed many items of basic vocabulary, contrary to what is supposed to happen, according to some linguistic tenets.

How long ago this was and how long the NAN continued to borrow from their AN 'friends' is not known but it was apparently before the development of an -r- to -n- sound change in Morowa and Domu languages, presumably a considerable time ago. This situation did not last, however, and some time ago there was a complete reversal in the relationship between the two groups of people and ANs began borrowing basic vocabulary from their former NAN 'friends', even in some cases borrowing back their own AN words which had changed form in the meantime. That this happened on a wide scale is evident from the fact that both the Ouma and Magori speakers borrowed very much the same kind of basic vocabulary independently and from different sources. There is no indication in the linguistic record of what this 'something' was but given the present parlous and dependent state of the ANs, and that they were forced to flee from their former homes into swamps and/or up on to hills, the stimulus for this borrowing was presumably not superior technology but survival. More specifically, it would appear that this reversal is to be tied to the recent rapid rise of Mailu Islanders to the position of pottery and trading kings in the area as documented in the archaeological record, and as manifested in their colonial expansion to the west.³² But how do we explain the fact that (present-day) Mailu Islanders are NAN language speakers, if, according to the linguistic evidence, it was the ANs who introduced them to sailing and trading and presumably also to pottery making?

The only possible explanation in my view that fits at all with the archaeological record of a continuous settlement on Mailu Island and of a continuous pottery sequence in the area going back two thousand years is that the present Mailu Island trading system represents a takeover of a former AN one by the NANs. In particular I think we are forced to conclude that Mailu Island was once occupied solely by AN speaking peoples, most probably the ancestors of present-day Magori, who were gradually joined on the island by Magi speakers from the mainland, specifically from the Amazon Bay area around Kurere and the present-day Government Patrol Post. Here the NANs learned the skills of the Magori and eventually became strong enough to take over their technology and trading system and to develop it to the position of eminence it was at the time of first contact.

And there we shall have to leave the reconstruction save to note that it is still possible that support for, or counterevidence against, the above conclusions may yet exist somewhere in the world in the form of as yet undiscovered vocabularies recorded by Franciscan priests or brothers on Torres' voyage through the Torres Straits in 1606, or some time afterwards. On that voyage Torres kidnapped fourteen children between the ages of six and ten years from Mailu Island (Stevens 1930:153) and took them to Manila "to make a better report" to the King (Stevens 1930:231). There they were "baptized to the honour and glory of God" and taught "the prayers of Pater Noster, Ave Maria, Credo and Salve Regina, and the commandments and articles of the catholic faith" (Stevens 1930:155). Although we do not know what eventually happened to these children it is likely that the Franciscan priests to whom they were entrusted during the voyage to Manila (Hilder 1980:14, 131), and presumably in Manila as well, recorded some of their vocabulary at some stage, especially as two of the captives' words, nina 'sun' and puri 'moon', are given in the published accounts of Torres' voyage. If such vocabularies exist and are ever located, and

then if they are found to be AN (specifically Oumic) in origin, this would support the above hypothesis and show that the NAN 'takeover' occurred within the last three hundred years. On the other hand if such vocabularies are found to be NAN (specifically Mailuan) in content, that would not necessarily negate the above conclusions — it would merely indicate that the island was already occupied by NANS at the time of Torres' visit. Unfortunately the two words given above are not sufficient to either support or deny the above conclusions,³³ and as no other relevant vocabulary items have so far been located nothing more can be added to what has already been said at this stage.

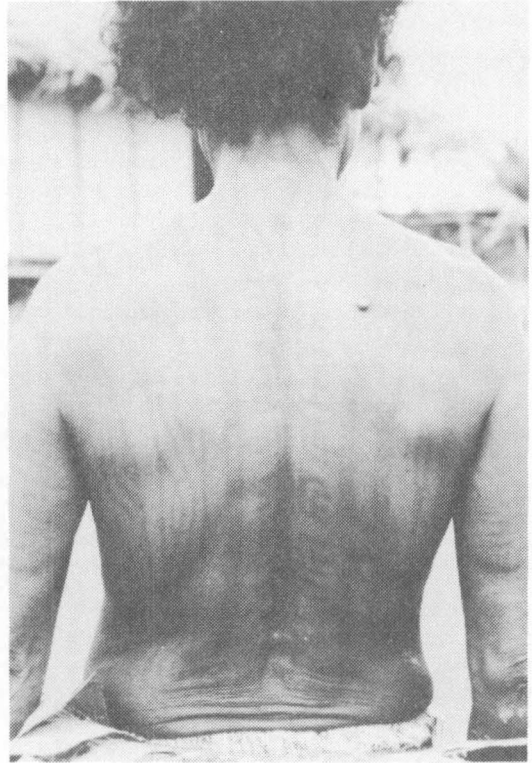
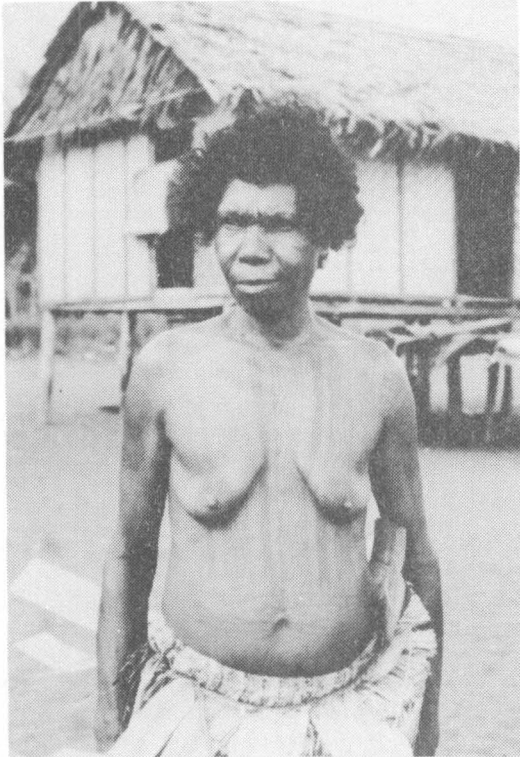
7. CONCLUSION

It has long been known that certain languages of the south-east coast of the mainland of Papua New Guinea contain many borrowings from one another although no-one has actually ever attempted to source these in any detail. In this paper I have attempted to take up the challenge implied in this situation and have focussed on the borrowings in selected languages of the two groups of languages involved, notably the AN languages of Ouma and Magori, and their NAN Mailuan neighbours. A sourcing analysis of sixty of the clearest cases of borrowings showed that:

- (a) these languages have borrowed from one another in a closed system (that is, there is negligible external borrowing);
- (b) Ouma and Magori have borrowed from different languages — Ouma from those presently located around and inland of Cloudy Bay and Magori from Magi now spoken along the whole coast and its offshore islands;
- (c) the borrowing between these AN and NAN languages was intense and ranged over the whole vocabulary including basic vocabulary;
- (d) there was a complete reversal in the borrowing pattern: firstly borrowing was from AN to NAN and then from NAN to AN.

Thus although much still remains to be done before the borrowing and loaning pattern in this and neighbouring areas can be said to have been well studied these were quite startling and unexpected results based as they are on the restricted data presently available. What is more they have profound implications for the prehistory of the area. In particular when taken together with other information that is presently available they suggest that there has been a complex and interesting interaction between the speakers of the two different types of languages presently found there. Thus it is clear from what has been said that after the arrival of ANs in the area NANS entered into a close relationship with them apparently attracted by their knowledge of sailing and trading. Some time later something happened to this relationship and the ANs were attacked and driven into the interior. Although it is not yet proven it would appear that the stimulus for this reversal in relations, if not a manifestation of it, was the rise to power of one group of NANS, notably the Mailu Islanders. They presumably learned the skills of the ANs *in situ* and somehow took over a system that the ANs had introduced to them and they developed it to the point of monopoly. As a result they could colonise areas left vacant by the now fugitive ANs and could expand their trade into new areas.

Although many questions are left unanswered I think the main outlines of what happened between ANs and NANS on the south-east coast of Papua New Guinea are now clear. How far linguistics can elucidate the picture further remains to be seen but I look forward to pursuing the problems raised herein further.



Ouma tattoo patterns (Labu Iduhu) on
Ogela Adau, Labu village (see p.155)

APPENDIX 1: MAIN REFLEXES OF POC AND OTHER CONSONANTS IN
SELECTED CENTRAL PAPUAN LANGUAGES AND SUAU

The following chart, compiled from information contained in Pawley (1975) and Ross (1979a,b), serves as a convenient display of word-initial and word-medial correspondences in the principal Central Papuan AN languages referred to in this paper, as well as in Suau, the next AN language to the east. It is to be noted, however, that some of the correspondences listed for the Oumic languages are based on very slim evidence and can therefore only be taken as tentative until the results of this paper are taken into account.

In the listing conditioned variants are bracketed and two reflexes of the same proto-phoneme, the distribution of which is unexplained at the moment, are separated by a comma. Languages and dialects are symbolised as elsewhere in this paper except that POM (for Proto-Oumic) is an addition.

The chart follows:

POC	PCP	POM				SUAU					
		MTU	SIN	KEA		OMA	YBA	MAG	BNA	SUA	
				HUL	ARM						
#	*p	p	p	p	p	*p	p	p	p	p	p
*mp	*b	b	b	p	p	*b	b	b	b	b	b
*p	*p	h	v(ɣ)	v	v	*v	v	v	v	v	h(w/_o)
*m	*m	m	m	m	m	*m	m	m	m	m	m
*w	*w	v	w	w	w	*w	[w]	v	v	v,w	w
*t	*t	t(s)	t	∅	∅	*t	t(h)	t	t	t	t(s/_i)
*nt,nj	*d	d	d(r)	r	r	*d	d	d	d	d	d
*s,ns	*D	d	r	r	r	*D	r	'	k	'	s
*l,y	*R	l(∅/_i)	∅	∅	ɛ	*y	∅(y)	y	y	y	{*l>l,n *y>y}
*d,nd,R	*r	r	l	l	l	*r	r	r	r	r	l
*n,ñ	*n	n	n	n	n	*n	n	n	n	n	n
#	#k	k,∅	k	k	∅	*k	∅,k	k	k	k	#
*ŋk	*g	g	g,ɣ	k	k	*g	g	g	g	g	g
*k,q	*q	ɣ,∅	ɣ	ɣ,∅	ɣ,∅	*∅,q	∅	'	k	'	{*k>' (/V_V) *q>k}
*ŋ	*ŋ	∅	ɣ	ɣ	ɣ	*[n]	?	?	?	?	n
#	*kw	kw	kw	kw	w	*kw	∅	k	∅	k	kw
*ŋm	*m	m	m	m	∅	∅	∅	∅	∅	∅	m

APPENDIX 2: MAILUAN PHONEMES AND THE RECONSTRUCTION OF PROTO-MAILUAN

In this Appendix I attempt to reconstruct the sound system of the language ancestral to all the Mailuan languages. In doing so, and until this can be revised in the light of the results of the present paper and further evidence, I treat all languages as of equal value in reconstructing forms and in attributing those to the proto-language, i.e. no subgrouping within the family is attempted and/or taken into account.

The reconstructions are based on tentative phonemic analyses of the individual languages, except for Magi, which has been well studied and whose phonemes are established and described by Thomson (1975b:602ff). The analyses are of necessity brief and unavoidably tentative since they are based on the limited lexical materials available and as described in section 2.1. They are, moreover, synchronic descriptions which, as far as it is possible to do so, have been made without comparing one language with another or without using the analysis of one language to guide that of another — comparison comes later when we attempt to make statements about the diachronic changes that have occurred in the individual languages. As they stand then these analyses include all sounds that occur in all words that are not obviously recent borrowings (e.g. masini 'machine' from English, solu 'salt' from Police Motu and/or English etc.) so that they probably include a number of sounds that have been borrowed at some other time but which may only become apparent when the languages are compared with one another as is done later in this appendix.

In general the synchronic phonologies of the languages are all very similar: they all have a set of five vowels i, e, a, o, u and a set of consonants which include the voiced stops b, d, g, nasals m and n, a voiceless stop t or fricative s depending on which allophone is taken as the norm to represent the phoneme, a liquid l or vibrant r, and voiced bilabial fricative v or semivowel w. They also contain a voiceless stop p or fricative f (= [p]), a voiceless velar stop k, a voiceless uvular fricative h, and a palatal fricative y in different combinations, although there is some uncertainty about the status of these as phonemes since

(a) glottal stop appears sporadically word initially and in some cases word medially, a situation that undoubtedly reflects transcription uncertainty in the data;

(b) k is of very low frequency and does not appear medially in any word in any language other than in Magi and is therefore very suspicious. As will be seen below comparative evidence suggests that this is because k is an old phoneme in Mailuan languages and is being replaced by glottal stop which in turn is being replaced by h or being dropped altogether;

(c) y only appears in a few words and then only before a and o;

(d) h occurs sporadically in some languages and may merely represent non-phonemic onset to voicing in some of these.

All languages have open syllables and there are no consonant clusters, except for Neme'a where k occurs before wa word initially. All languages also drop final vowels word finally after nasals and, in some languages, after other sounds.³⁴ The following chart lists apparent synchronic phonemes of the languages as herein determined. In this a '+' at the intersection of a row and a column indicates the presence of the relevant phoneme in the language shown and a # indicates the absence of such a phoneme.

Language	p/f	t/s	k	ʼ	b	d	g	h	m	n	l/r	v/w	y	i	e	a	o	u
Magi	+	+ ³⁵	+	+	+	+	+	#	+	+	+	+	+	+	+	+	+	+
Domu	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Morawa	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Neme'a	+	+	+	+	+	+	+	+	+	+	+	+	+ ³⁶	+	+	+	+	+ ³⁷
Bauwaki	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Laua	+	+	#	+	+	+	+	+	+	+	+	+ ³⁸	+	+	+	+	+	+

These phonemes correspond regularly (except for the cases to be discussed below) in apparent cognates in Mailuan languages as indicated on the following chart. In this chart blanks indicate that there is no regular correspondence in the available data and round brackets are used to mark off less regular correspondences, which, because of the distribution of some of the apparent cognates in which they occur, are assumed herein to indicate borrowings. Generalised reconstructions of Proto-Mailuan (PMF) sounds based on these correspondences are given at the head of each column:

PMF	*p	*t ³⁹	*k ⁴⁰
MGI	p, f-, -p, f-	t-, -t-	k, ʼ, ϕ-, -k, ʼ, ϕ-
DOM	p, f-, -p, f-	h-, -h-	k, ʼ, (g), ϕ-, -k, ʼ, ϕ-
MOR	p, f-, -p, f-	s-, -s(h)-	k, (g), ϕ-, -k, ʼ, ϕ-
MA	p, f-, -p, f-	s, (h)-, -s(h)-	k(g), ϕ, ʼ-, -ʼ, ϕ-
NEM	p, f-, -p, f-	h-, -h-	k(g), ϕ, ʼ-, -ʼ, ϕ, (s)-
BAU	p, f-, -p, f-	s(h)-, -k(s)-	k, ʼ, ϕ-, -ʼ, k-
LAU	p, f-, -p, f-	h(s)-, -h(s)-	k, g, ϕ-, -h, ʼ-

PMF	*b	*d	*g	*m
MGI	b-, -b-	d-,	g-, -g-	m-, -m-
DOM	b-, -b-	d-, -d-	g-,	m-, -m-
MOR	b-, -b-	d-, -d-	g-, -g-	m-, -m-
MA	b-, -b-	d-, -d-	g-, -g-	m-, -m-
NEM	b-, -b-	d-, -d-	g-	m-, -m-
BAU	, -b-	d-	ʼ(ɡ)-,	m-, -m-
LAU	b-, -b-	d-, -d-	g-, -g-	, -m-

PMF	*n	*r	*v	*y	*i
MGI	n-, -n-	r-, -r-	v/w-, -v/w-	? ⁴ ¹	i-, -i-, -i
DOM	n-, -n-	r-, -n(r)-	w-, -w(h)-	y-	i-, -i-, -i
MOR	n-, -n-	r-, -n- ⁴ ²	w-, -w-	n/l-	i-, -i-, -i
MA	n-, -n-	r-, -r-	w-, -w-	y-	i-, -i-, -i
NEM	n-, -n-	r-, -r-	w-, -w(h)-	y-	, -i-, -i
BAU	n-, -n-	(r-), -r-	w-, -v-	y-	i-, -i-, -i
LAU	n-, -n-	r(n,ϕ)-, -r-	w, h, v, p-, -v, h-	?	i-, -i-, -i

PMF	*e	*a	*o	*u
MGI	e('e)-, -e-, -e	a-, -a-, -a	o-, -o-, -o	u-, -u-, -u
DOM	e-, -e-	a-, -a-, -a	wa, o-, -a, o-, -o	u-, -u-, -u
MOR	e-, -e-, -e	a-, -a-, -a	o-, -o, a-, -o	(w)u--u-, -u
MA	e-, -e-, -e	a-, -a-, -a	o-, -o, a-, -o	u-, -u-, -u
NEM	e-, -e-, -e	a-, -a-, -a	wa(e)-, -a(o)-, -o	u-, -u-, -u
BAU	e-, -e-	a-, -a-, -a	wa-, -o-, -o	u-, -u-, -u
LAU	(h)e-, -e-,	a-, -a-, -a	(h)o-, o, a-, -o	(h)u-, -u-, -u

From this data it is apparent that:

(1) Proto-Mailuan (PMF) seems to have had a sound system containing the following phonemes:

*p	*t	*k
*b	*d	*g
*m	*n	
	*r	
*v	*y	
*i		*u
*e		*o
	*a	

the consonants of which had the following reflexes in Mailuan languages:

Language	*p	*t	*k	*b	*d	*g	*m	*n	*r	*v	*y
MGI	p	t	k, ' , ϕ	b	d	g	m	n	r	v	?
DOM	p	h	k, ' , ϕ	b	d	g	m	n	r(n)	w	y, l
MOR	p	s	k, ' , ϕ	b	d	g	m	n	r(n)	w	n, l
MA	p	s	k, ' , ϕ	b	d	g	m	n	r	w	y
NEM	p	h	k, ' , ϕ	b	d	g	m	n	r	w	y
BAU	p	s(k)	k, ' , ϕ	b	d	g	m	n	r	w	y
LAU	p	h	k, g, ϕ, (-h-)	b	d	g	m	n	r	h, v?	?

(2) The following innovations have occurred since the separation of the present daughter languages:

- a) *t > /h/ in DOM, NEM, LAU
 /s/ in MOR, MA, BAU
- b) *r > /n/ medially in DOM, MOR
- c) *y > /n,l/ initially in MOR
- d) *o > /wa/ initially in DOM, NEM

In addition there is a sound change *k > k > ' > \emptyset , h spreading throughout the Mailuan languages, and one r > n in Morawa;

(3) The Mailuan Family is either not very old or the languages have remained in contact with one another.

APPENDIX 3: OUMA AND MAGORI SOUND SYSTEMS^{4 3}

These two languages have very similar sound systems in the number of phonemes they possess and in the nature and distribution of their allophones. Thus both have conventional five-vowel systems (i, e, a, o, u) and both have the following consonants in common:

p t k
 b d g
 m n
 v r

Ouma has h in addition.

Their voiceless stop phonemes (excluding glottal) are usually aspirated and may be fricated so that /p/ may appear as [p, p^h, ø, f], /t/ as [t, ts, s], and /k/ as [k, x] or even [h] in Magori. /g/ in Magori is also sometimes fricated word medially. Glottal stop in both languages is a suspect sound as it occurs automatically between like vowel sounds (as it does in Magi) and has been noticed to occur in free variation with h word medially in Ouma. It has been recorded word initially in both languages but it is not certain whether it is functional there. /v/ in Magori is more a bilabial fricative but has the variant [w] before back vowels; in Ouma [w] is the more common sound although [b] occurs unconditionally. Finally /r/ in Magori is usually [r] with [l] occurring word medially; in Ouma [l] seems to be the more common. In both [y] is an allophone of /i/ word initially when a vowel follows.

There are no consonant clusters in Ouma or Magori, and all syllables are open.

APPENDIX 4: SOME EVIDENCE OF HOW SOME ENGLISH SOUNDS ARE
PRONOUNCED IN MAILUAN AND OUMIC LANGUAGES

In this chart I list all those words that appear in the data which indicate how some English sounds are pronounced in Mailuan and Oumic languages. The first two of these, 'salt' and 'machine' occurred spontaneously in basic vocabulary elicitation, the first with no English model, the second with the Police Motu model masini. The others were elicited deliberately mainly to see how speakers perceive and pronounce familiar and unfamiliar sounds, but mainly fricatives, in different positions with a view to helping to understand what speakers do with borrowings from nearby languages.

Language 1. 'salt' 2. 'machine' 3. 'matches' 4. 'visit' 5. 'heissen'⁴⁴

MGI					
Darava			[mækis]	[viliʃ]	[haisen]
Selai			[matsis]	[vizit]	[haisen]
DOM		[misini]			
MOR					
MA	[sol]	[misini]			
NEM	[solu]	[misiin]			
BAU	[solu]	[misini]			
LAU					
MAG	[tsolu]				
OUM			[masisi]	[bisisi] ⁴⁵	[haisen]

Language 6. 'piss' 7. 'tag'⁴⁴ 8. 'thacker'⁴⁴ 9. 'pith' 10. 'gona'⁴⁴

MGI					
Darava	[pis]	[ta]	[səka]	[pit]	[o'ona]
Selai		[ta]	[saka]	[pis]	[ona]
DOM					
MOR					
MA					
NEM					
BAU					
LAU					
MAG					
OUM	[pis]				

An analysis of this chart shows that the consonants that occur in the test items are pronounced as follows:

1) Initial

ENG	MGI	DOM	MOR	MA	NEM	BAU	LAU	MAG	OUM	Examples
s				s	s	s		s		1
m	m	m		m	m	m			m	2, 3
v	v								v	4
h	h								h	5
p	p								p	6, 9
t	t									10
ʔ	o', '									7
th	s									8

2) Medial

ENG	MGI	DOM	MOR	MA	NEM	BAU	LAU	MAG	OUM	Examples
l(t)				l(u)	l(u)	l(u)		l(u)		1
sh		s		s	s	s				2
n	n	n		n	n	n				2, 7
tsh	k,ts								s	3
z	l,z								s	4
s	s								s	5
k	k									8

3) Final

ENG	MGI	DOM	MOR	MA	NEM	BAU	LAU	MAG	OUM	Examples
s	s								s	3, 6
t	j,t								s	4
n	n								n	5
ʔ	φ/									10
th	t,s									9

That is, speakers have no difficulty with sounds that occur in their own languages (e.g. s, m, v, h, p, t, l, n, k) but interpret unusual sounds in terms of their 'nearest perceived' sound in their own language. Thus:

- i) 'English' [ʔ-, -ʔ] becomes [φ-, -φ] and then the word is glottalised initially in Magi;
- ii) English [th] in initial and final positions is reinterpreted as [s,t] in Magi;
- iii) English [-tsh-] is pronounced as [-k-] or [-ts-] in Magi and as [-s-] in Ouma;
- iv) English [-z] is pronounced as [-l] or [-z] in Magi depending on what the listener thinks the English speaker is trying to say. It becomes [-s] in Ouma;
- v) English [-sh-] becomes [-s-] in Police Motu and then [-s-] in Mailuan and Oumic languages.

APPENDIX 5: ANALYSIS OF DIFFERENCES BETWEEN EARLY RECORDS AND
MODERN ONES IN TWO MAILUAN LANGUAGES

If modern vocabulary lists in Morawa and Domu are compared with those of Strong (1919) they will be found to agree except in the following two respects:

1) where one sound has been substituted for another. Consider, for example:

- a) 'two' MOR sauna > hauna [Comment: [s] is the regular reflex of *t in MOR]
- b) 'path' MOR wage-z-iara > lara [Comment: All languages have cognates with [l-]]
- c) 'stone' MOR gaga > hağa [Comment: gaga is evidently a transcription or typographical error as other languages have бага]
- d) 'fish' MOR onebe > orebe [Comment: Recent borrowing from Magi because -n- is the expected reflex of *r in Morawa]

2) where there is a substitution of a completely new form in the modern materials which is unrelated to the 1919 one. Some of these are probably due to misunderstandings in elicitation or to different referents used in elicitation. Consider, for example:

- a) 'house' MOR mari > wun
- b) 'root' DOM nagai'i > i'ini
MOR i-in > nagasae
- c) 'sea' DOM ia-u > sali'a
- d) 'wife' DOM inaha > have
- e) 'wind' DOM bode-a > yagi
MOR bode-a > ani
- f) 'arrow' DOM wadai-i-haro > puhi
MOR owana > bome
- g) 'breast' MOR lan > ama
- h) 'bush' DOM anahuhu > douba
MOR ana > ewo

Others probably either (i) represent recent borrowings, as for example:

- a) 'yam' MOR o-a > maho (< Police Motu maho)
- b) 'ashes' DOM au > maena (< ?)
MOR kau > konunu (< Magi konunu)
- c) 'blood' DOM nabu > yara (< ? Magi lala)
MOR nabu > nana (< ?)
- d) 'bow' DOM oifa > peva (< Police Motu peva)
MOR koipisolo > peva (< Police Motu peva)
- e) 'butterfly' DOM aune > wa'ihaguri (< ?)
MOR au-ope > orapepe (< ?)
- f) 'finger' MOR euda-ali > didiba (< ?)
- g) 'five' MOR aunapau > ima'omu (< Magi ima'omu)
- h) 'ground' DOM momo > hano (< ? Police Motu is tano)
- i) 'betelnut' DOM адаbana > wa'e (< Ma, Neme'a wa'e)
MOR uwen > wa'e (< Ma, Neme'a wa'e)

or ii) are synonyms that occur because of word taboo:

- a) 'egg' DOM baha > baha, urim (< Morawa, Ma, Neme'a urim(i,u))

NOTES

1. These languages are Ma and Neme'a. On the basis of a preliminary lexico-statistical comparison I suggested (Dutton 1971b:21) that they were probably divergent dialects of a single language. Thomson (1975a) on the other hand using the same method but comparing two other communalects obtained lower percentages and so suggested that they were better regarded as separate languages. Diachronic phonological evidence presented in Appendix 2 of this paper also suggests that is how they are best regarded.
2. These figures are based on 1969 figures given in Dutton (1971a:20) and on those given in Thomson (1975a:37,41) and have been adjusted upwards and rounded off to the nearest hundred to allow for natural increases in the intervening years, except for Laua where there is believed to be still only one native speaker.
3. For a discussion of some of these see Appendix 5.
4. Name avoidance is also practised throughout the area although to what extent amongst other Mailuan languages is not known (Dr. Thomson, personal communication).
5. Although this is assumed to be generally true some additional support for the validity of such an assumption in this study is to be found in Appendix 4.
6. Some data were excluded because they (a) only involved Bina and Yoba and Mailuan languages; (b) did not discriminate between Ouma and Magori; (c) did not contain evidence from Keapara to the west; and (d) exhibited evidence from only one Mailuan language.
7. Sets with identical forms in Ouma and Magori are not usable as they do not discriminate between sources.
8. The sound laws for Oumic languages are still only tentative. With better reconstructions some of the doubtful statements in the following can probably be tightened up. Indeed, as I have already indicated, I hope this study will contribute to a better set of PCP reconstructions.
9. I have to say 'appears' because there may well be relevant ones available but not under the head words that I have searched through to date.
10. Gadaisu and Laimodo communalects are suspicious because, as already pointed out, Magi speakers have married into them.
11. Thus, for example, Bauwaki and Neme'a languages show contact with Abia, one of the Yareban languages, and the former community of O'oku (the whereabouts of whose members is not known) seems to have been originally a Yareban communalect with heavy borrowing from Laua and/or Magi (Dutton 1971).
12. Other Island dialect speakers moved to Gadaisu to live with Suau speakers as well but these are of little interest to us in this study.
13. The remaining two, Boru and Kurere, are "pure Mailu Island colonies" (Thomson 1975a:57).
14. The three high points (village sites?) on these hills are called (from left to right) OMOU'ORO, BAGA'ORO and SILO'ORO. See Plate 1, p.154.

15. There would seem to be some support for the claim that these hills were once islands in the fact that dune ridges can easily be seen from the air showing progressive prograding of the beach in this area (see Plate 1). However, even though beach prograding is a common feature of parts of coastal South-East Papua New Guinea (Loeffler 1977:114-18), rates of prograding vary according to local conditions of tide, wind, rainfall, etc. Consequently it is not possible at the moment to suggest a date at which the Ouma hills may have once been on, or very close to the beach. It may not have been all that long ago, however, as I am told by Dr Thomson (personal communication) that Urika Mission Station in the Gulf of Papua was originally built on the coast west of Orokolu about eighty years ago but the site is today almost a mile inland. Unfortunately I was not able to visit the Ouma hills at the time to make surface observations and to look for pottery sherds, stone artefacts and/or other clues to earlier habitation which the Ouma claim to be there.
16. Present-day informants said they went on lagatoi (the Motu name for trading canoe) but this could not have been their word for it, even if they did have similar vessels, by the sound rules used in this paper. Thus Motu lagatoi derives from a combination of POC *wan̄ka(ŋ) 'canoe' and POC *tolu 'three' the expected reflexes of which in Ouma are vaga and toyu.
17. I do not see any connection between this pattern and any of those unearthed by Irwin (1976) in his archaeological exploration of Mailu pottery.
18. Ouma enemies were said to be from the following villages: Ba'u (Bauwaki language), Doma (Neme'a language), Bamu (Neme'a language), Mada (Ma language), Velavelai (Bauwaki language), Oka'udi (Abia language), Dorivaida (Abia language), Oadeure (? language).
19. The following are the names of former villages given to me by present-day informants: U'ubi (or O'oubi), Obara, Godoa, Limu, Orimaguina, Ganema, Badana, Savaiaguina, Oviaguina, Darava, Ovesaguina, and Labu where the present informants (men of about their mid-50s) were born.
20. As have the other remnants of Oumic languages, Yoba and Bina, as well as those of the Laua language presently living in the village of the same name (Dutton 1976:588-92).
21. Acey Teasdale was an anthropologist who investigated land rights among the Magori for the Administration of Papua New Guinea in the late sixties.
22. Neil Thomson was a former medical superintendent of the Iruna Hospital at Amazon Bay.
23. This was the explanation given to me recently by Mailu Islanders (Dutton 1980) and expresses beautifully the relationship between these groups and supports assumption 6 used in interpreting the data for this paper. Clearly there is nothing to be gained by the Mailu from the Magori now although as the record shows this was not always the case. In marked contrast to this, however, they have learned to speak other AN languages such as Suau and Keapara, the languages of their trade partners (and similar in structure of Ouma and Magori).
24. Haddon (1932) subsequently compared this sherd with others of south-east Papua and found it to be distinctive.
25. My Mailu Island informants were two old men Igua Alabu and Vea Ogagama of the Diadudu clan. I have not had the opportunity of discussing this again with my Ouma informants.
26. This appears to derive from Ouma and literally means 'canoe(wa-)' 'one' ('ona) or 'one-hulled canoe'.

27. This form occurs in Darava and Selai (the only communalects I have information from). Mailu Island has mareva, although Dr Thomson informs me (personal communication) that they also have 'ari'ari '(to) sail'.
28. Note that this belongs to a different cognate set from that given for sweet potato in section 4. above.
29. There are also other items that come out as NAN in origin but these are all items that are local in origin and so provide no insight necessarily into sea trading. Take, for example, the following: 'SE wind' (bodea), 'island' (pomu), 'dog' (wa'ai), 'tobacco (native)' (lugu), 'knife (native)' (bau), 'axe' (gilo), '(men's) clothes' (ivari), '(women's) clothes' (baroa), 'string bag' (oisa), 'spear' (duabo), and 'beads' (bore).
30. This is assumed to be NAN because it does not reflect any so far suggested or established Proto-AN reconstruction for 'pot'. It may well, however, reflect POC *qumu '(stone) oven', especially as the expected reflexes of this form are of similar shape in some Oumic languages. Thus consider OUM umu, YBA and BNA 'umu, MAG kumu, although it is not known what present-day forms occur in these languages.
31. There may well be other remnants around this area as I have not visited many villages to ask, nor have I checked through the old literature again to see what I may have missed in earlier searches.
32. Note here that the expansion and formation of colonies in association with Ma speakers is a very unusual situation. I have no idea what could have given rise to this but the Ouma who had been originally friendly with the Ma may have had something to do with it. But why were the Ouma forced to become fugitives then?
33. Nina 'sun' is AN in origin and occurs in both present-day Magori and the Mailu Island dialect of Magi, although it is not clear whether the Mailu borrowed it from the Magori or vice versa (see item 'sun₁' in section 4.). Puri 'moon' does not appear to reflect any relevant Proto-AN form and does not occur in any present-day language of south-east Papua with the appropriate meaning. It is therefore of unknown origin. However, in the Mailu Island dialect of Magi, puri does occur with the meaning 'to grow, sprout' and it may be that when the children were asked (in sign language) for the word for 'moon' they used puri to refer to the phases of the moon either out of ignorance of what was being asked of them, or because 'moon' was a taboo word at that time (see section 3.1.(c)).
34. The following chart shows the range of instances observed in the presently available data:

Language	m	n	b	d	g	l/r	t/s
Magi	+						
Domu	+	+					
Morawa	?	+					
Ma	+	+	+			+	
Neme'a	+	+	+	+	+	+	
Bauwaki	+	+					
Laua	+	+		+		+	+

In this note: a) concerning the Magi row, that although Thomson (1975b) does not mention final vowel dropping and Saville's (1935a,b) vocabularies do not contain any examples Dr Thomson assures me (personal communication) that final vowel dropping does occur after m;

b) concerning the '+'s in the intersection of the b, d, and g columns of the Neme'a row that the final consonants that remain after the vowels have been dropped in this language then become devoiced to [p, t, k];

c) concerning the '+'s in the intersection of the d and l/r column of the Laua row that in these cases vowels seem to be always dropped before the suffixes bau and ba'a, and only irregularly otherwise;

d) concerning the '+'s in the intersection of the t/s column of the Laua row that vowels are dropped after [t] only irregularly and this may indicate that [t]s are in fact devoiced [d]s.

35. Thomson (1975b:603) notes that "/t/ is heard nowadays as either [t] or [s] although [ts] was apparently once more normal (Malinowski 1915) but is seldom heard in the contemporary situation."
36. This sound approaches [ɸ].
37. These languages also have [ɔ] which occurs occasionally and which is taken to be an allophone of /o/.
38. [w] may manifest a separate phoneme.
39. Evidence for the reconstruction of this sound is weak and the present display suggests that internal borrowing has affected the picture.
40. Evidence for the reconstruction of this phoneme is very weak because there are very few occurrences of k in the presently available data. Not only that but k is apparently sometimes erroneously recorded as g and glottal stop is not in many cases where it probably should be. The rather diffused set of correspondences in this chart can only be explained as evidence of a sound change that is still in process; that is that k is an old sound in those words in which it now occurs. Support for this conclusion is to be found in (a) that k is of very low frequency in the modern languages and unevenly distributed; and (b) that the forms in the following loans in Oumic languages can only be explained by claiming that these were borrowed at a time when k was a much more functionally important sound in these Mailuan languages:
- | | | | |
|----------------|--------------|--------|----------------------------------|
| 1. 'beach' | YOB, SUA (L) | kone | : MF 'one |
| 2. 'cassowary' | MAG | guiaga | : MF guia, guiae, guia'e, guiaha |
| 3. 'thigh' | OUM, MAG | gobe | : MF 'obe, waba |
| 4. 'wallaby' | MAG | magani | : MF man(i), hani |
| 5. 'left hand' | YOB, BIN | kebe | : MR 'ebe, eban, hebe |
| 6. 'liver' | BIN | kalame | : MF 'areme |
| 7. 'pot' | MAG | akomu | : MF 'omu, hohomu |
| 8. 'head' | YOB, BIN | kulu | : MF uru |
| 9. 'fish' | YOB, BIN | korebe | : MF 'orebe, warebe, 'onebe |
41. Evidence for the reconstruction of this sound is again weak but there are sufficient cases to justify keeping it for the moment at least. One problem is that no cases occur in which Magi y corresponds to anything in any other language because of the limited range of data presently available.
42. In Morawa n seems to be spreading to take over r. See Appendix 5.
43. This account is based on my own fieldwork.
44. These are nonsense words.
45. The informant said bisisi guri (lit. 'bisisi shell') thinking I was trying to say the Motu word bisisi 'shellfish'.

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PROTO-OCEANIC *aki(ni) AND THE PROTO-OCEANIC
PERIPHRASTIC CAUSATIVE

S.P. Harrison

1. INTRODUCTION¹

1.1. POC *-aki(ni) – the standard analysis

To my knowledge, the first reference in recent comparative Oceanic literature² to the form now usually reconstructed as POC *-aki(ni) 'remote transitive suffix' appears in Biggs (1965:414), who reconstructs PEO *-aki 'cause, instrument'. The reconstruction PEO *-(c)aki(ni) 'dative, instrumental' first appears in Pawley (1972). What will be termed the *standard analysis* of the history of POC *-aki(ni) is set out in Pawley (1973) and extended in Pawley and Reid (1979).³ Under that analysis, POC⁴ is assumed to have had two transitive suffixes, POC *-i and POC *-aki(ni), the former flagging such direct object roles as patient, goal, or stimulus and the latter flagging such roles as concomitant, cause, instrument, or beneficiary. These transitive suffixes are held to have shared a (pre-POC) historical source with the preposition POC *(q)i 'locative' and the prepositional verb POC *kini- 'by, with', respectively. The suffixes arose through a morphological 'capturing' of the lexically more independent preposition/prepositional verb, in some of their uses, by an immediately preceding verb. The standard analysis seems to suggest that affixal and non-affixal variants of the ancestral forms (PAN *i and *aken, respectively) were originally synonymous and only developed distinct functions, to the extent that they have, subsequently. It is not explicit with respect to the historical period at which the 'capturing' first took place, though Pawley and Reid (1979) suggest that the alternation may have been a PAN feature, or at least have arisen at a slightly later post-PAN but pre-POC period. They do not consider the possibility that the capturing might have taken place more than once, at different times in different branches of the family or on more than one occasion in the history of a given language or subgroup.

1.2. The trouble with *aki(ni)

The standard analysis holds that *-aki(ni)/*kini- functioned as an 'accessory' role marker. While this function is manifest in reflexes in a number of daughter languages, there are, in addition, other uses of and restrictions on such reflexes that do not obviously follow from the standard analysis. Among these are:

- i) an 'agentless' passive suffix in Micronesian languages

WOL 1a. go be wegiti ig la
2sg tns *tum-tr fish that*
'You must tum that fish'

Amran Halim, Lois Carrington and S.A. Wurm, eds *Papers from the Third International Conference on Austronesian Linguistics*, vol.1: *Currents in Oceanic*, 179-230. *Pacific Linguistics*, C-74, 1982.

- 1b. ig la ye bwe wegiteg
fish that 3sg tns turn-pass
'That fish must be turned'

ii) a suffix on reciprocal verbs in Polynesian

- SAM 2a. 'ua mā fīnau ma Pai i ai
 asp lpl.e argue with Pai prep adv
'Pai and I argued about it'
- 2b. 'ua mā fefīnau'i i ai
 asp lpl.e REC-argue-a'i prep adv
'We argued about it'

So far as I am aware, the use of a suffix reflecting *-aki(ni) with reciprocal verbs is lexically specified in most Polynesian languages.

iii) a causative suffix

- ROT 3a. 'imo *'to drink'*
 3b. 'iom'aki *'to make someone drink'*
- TON 4a. huu *'to enter'*
 4b. huumaki *'to make enter'*

iv) a distributive/dispersive suffix

- BAU 5. e ā veisokoyaki na cauravou
 3u tns REC-sail-yaki art youth
'The young man sailed hither and thither'

v) in de-nominal transitive verb derivation

- TON 6a. 'otua *'god'*
 6b. 'otua'aki *'to regard as a god'*
- 7a. tamai *'father'*
 7b. tamai'aki *'to have someone as a male relative'*
- MOK 8a. warah *'his vehicle'*
 8b. waranki *'to use something as a vehicle'*
- 9a. jamah *'his father'*
 9b. jamanki *'to regard someone as a father'*

vi) in de-stative transitive verb derivation

- MOK 10a. ling *'pretty'*
 10b. lingki *'to regard something as pretty'*
- 11a. mwehu *'good'*
 11b. mwehuki *'to like something'*

vii) alternating with the 'close' transitive, with no contrast in the role of the direct object

- BAU 12a. ilova *'to look at (reflection)'*
 12b. ilovaka *'to look intently at (reflection)'*
- GIL 13a. bwaroa *'to spill on something'*
 13b. bwaroakina *'to spill on something'*

The variety of functions of reflexes of *aki(ni), some of which, like i) above, are difficult to reconcile with the standard analysis of its function and some of which, like vii) above, appear in fact to contradict that analysis, has been largely ignored in the literature on Oceanic transitivity. The proposal to be put forward here attempts to provide an account of POC *aki(ni) that can be reconciled with such disparate functions of its reflexes as noted above.

1.3. The data and subgrouping

The data used in the present study is drawn, for the most part, from published sources and from the author's fieldnotes. The Oceanic data is far from representative as it is drawn almost exclusively from those languages which Grace (1955) included in his group 4 and which, following Biggs (1965) and Pawley (1972) have been termed Eastern Oceanic. A bias of this sort is regrettable but inevitable nonetheless, since data of the sort required is unavailable from other parts of Oceania. While I will refer to the language ancestral to the Oceanic languages considered in the present study as Proto-Oceanic, any conclusions drawn, if valid at all, may be valid only for a lower-order subgroup of Oceanic.

Any subgrouping assumptions are bound to be controversial in some quarters. In the present study it will be assumed that Micronesian is a valid subgroup. It is further assumed that Trukic (represented here by Trukese, Puluwatese, Ulithian, Woleaian, and Pulo Annian) and Ponapeic (Ponapean, Mokilese, and Pingelapese) are valid lower-order subgroups of Micronesian. More recent suggested revisions to the internal subgrouping of Eastern Oceanic (Pawley 1977) or to lower-order subgroups thereof (Geraghty 1978:327ff.) appear to be largely irrelevant to the claims of the present work. The non-Oceanic evidence used here is fragmentary and intended to enable some very tentative conclusions to be drawn regarding the PAN antecedent of POC *aki(ni). No internal subgrouping arguments will be used with reference to this material.

1.4. A new proposal and some remarks on method

We propose here that POC *aki(ni) was a lexical verb appearing in a serial construction⁵ with a preceding verb. The semantic governing these V-*akini constructions can be viewed as causative, in a sense to be made explicit in section 3. The main verb appearing with *akini in these constructions will be claimed to be an intransitive verb form of a particular semantic class (see section 2.4.). Only the somewhat grammaticalised interpretation 'to act on/with respect to' can be reconstructed for *aki(ni) itself, though it is likely that this sense is a result of a 'semantic bleaching' from an earlier, less grammatical, interpretation, but one not recoverable on the basis of available evidence.⁶

The change in the lexical status of reflexes of POC *aki(ni), from a verb to an enclitic and ultimately to a suffix, will be shown to have been a post-POC development, and one that is yet to occur in some functions in a number of the languages considered. Furthermore, this change will not be viewed as a single historical event. It will be argued that the development of *aki(ni) into a lexically less independent element (ultimately a suffix) has varied temporally along two axes:

- i) occurring at different times in different branches of the family
- ii) occurring at different times in different functions

The proposed non-uniqueness of the development of POC *aki(ni) into a suffix is noteworthy only because it represents a practical violation of Occam's Razor as applied to the investigation of historical change. Under the premise that any single occurrence of a given change is accidental, the most satisfying conclusion is always that identical developments in a number of related languages reflect a single development in some historical antecedent of those languages. While I would not wish to suggest that this premise be abandoned, I must point out that slavish devotion to it can easily lead to gross errors in grammatical reconstruction. The problems that arise in this regard follow from differences between the nature of linguistic signs themselves and the grammatical systems in which they are embedded. These differences are all too frequently ignored in applying historical methods appropriate to the former in investigating the latter.

The comparative method was devised to enable the reconstruction of lexical items (somewhat contentiously, atomic linguistic signs) under the assumption that, since the sign is an arbitrary form-content pairing, cross-linguistic similarity in the shape of signs is unlikely to be accidental. Absolute sign identity, of course, leads to no conclusions regarding change. The postulation of change depends on the recognition of patterned differences. Evaluated in terms of some theory, implicit or explicit, of what is a possible change, the recognition of these patterned differences leads directly to a reconstructed proto-sign. The principal difficulty in applying the method, as is well known, is that while we have some theory of form-form transitions, our understanding of content-content transitions is, at best, limited.

Lexical reconstruction is necessarily atomistic in that one reconstructs one sign at a time, until one has built up a listing of proto-signs. The notion of system intrudes into lexical reconstruction only insofar as one adopts a 'real language' approach to the proto-language. This approach demands that one view the proto-phonological inventory extrapolated from the reconstructed proto-signs as a possible natural language inventory, in accordance with some phonological theory. The same constraint ought to hold for proto-semantic systems, but is theoretically somewhat premature perhaps.

Grammatical reconstruction, it seems to me, cannot long proceed in this fashion before difficulties begin to arise, in view of the fact that morphosyntax is fundamentally a functional system. The syntactic patterns and morphological contrasts observed in language, except at risk of totally sterilising the descriptive exercise, cannot be viewed out of the context of the communicative functions they serve. The same may ultimately be true of lexical systems, but not to the same degree. Viewing a lexicon as a list may be a gross distortion of its nature, but does not preclude its investigation, either synchronically or diachronically. Viewing morphosyntax as a set of objects, uninterrelated, is tantamount to ignoring its existence.

Lexical items and grammatical systems are distinct in that the former have an independent form while the latter do not. The only true formal objects in a grammatical system are in fact the lexical items themselves. This observation constrains possible approaches to the comparison of grammatical systems, and to reconstruction therefrom. Similarity between formal (symbolic) objects, like lexical items, is unexpected and therefore not likely to be accidental. Similarity between functional systems, on the other hand, is to be expected, if all human languages can be assumed to be systems serving the same communicative needs, and is, therefore, much more likely to be accidental.

The established tradition of grammatical reconstruction in Oceanic (following Pawley 1972, 1973) typically does not focus on totally formless objects, like word order typology, but on problems of transitivity, case marking, possessive systems, etc. and their formal realisation. Given the considerations noted above, it is not surprising that this has been the case, nor that the approach adopted to reconstruction has been that appropriate to the reconstruction of symbols (lexical items) rather than icons (morphosyntactic systems).⁷ The practical consequences of this approach have been that:

- i) as with lexical reconstruction, the content (in this context more appropriately termed *function*) of purported cognates has not been compared with the same rigour as has their form
- ii) there has been a tendency towards atomism in reconstruction; reconstructing objects rather than systems
- iii) assumptions of parallel independent development of grammatical elements has been viewed in the same light as such assumptions would be viewed in the realm of phonological change; that is, as the least appealing hypothesis.

I view these trends as unfortunate, but can offer little in the way of a concrete alternative programme. I would only wish to stress here that linguistic functions are not arbitrary in the same manner as are lexical forms. Much of the current literature is focussed on just that observation; that language has a job to do and that historical changes will be such that the necessary jobs are, in some manner or other, done. Furthermore, it is commonplace in general discussions of linguistic systems to observe that they are designed to make broad (perhaps infinite) use of finite means. In practical terms, this characteristic is manifest in the observation that functional/grammatical/semantic contrasts of a given type are frequently brought to bear to mark other contrasts and, like the functions themselves, these functional extensions are not arbitrary but are potential in all linguistic systems.

The historical development of a grammatical system or subsystem must be viewed as a dynamic in terms of which the state of the system at any point in time is a response to an earlier state, governed by non-arbitrary (retrodictable if not predictable) functional/semantic changes. The present study is an attempt to investigate one such dynamic. The approach followed here is motivated, perhaps ingenuously, by the considerations outlined above. In their present state, these methodological views are so embryonic as not to deserve even the appellation 'programmatic'. I offer them, nonetheless, in an attempt to clarify as much as possible, my views regarding the nature of grammatical change.

1.5. Outline

In section 2, we outline the evidence that POC *aki(ni) was not a suffix, but a lexical verb. Some evidence for its non-suffixal status in pre-POC, on the basis of data from non-Oceanic languages, is also presented. Section 2.4. provides a first attempt at a reconstruction of the principal function of POC *aki(ni), here termed (following Arms 1974) the *confective/refective function*. Arguments are presented that, in this function, POC *akini was for the most part restricted to constructions with a particular semantic class of verbs, here termed *intradirectives*.

Section 3 provides a more detailed functional history of POC *aki(ni), in terms of which the original confective/refective function is viewed as an interpretation of what will be termed the *cause semantic*. Subsequent developments in the use of reflexes of POC *aki(ni) are seen, on the one hand, as extensions of the cause semantic and, on the other, as a shift towards an *act semantic*.

Section 4 considers briefly the problems posed by the occurrence of thematic consonants with reflexes of POC *aki(ni) in Central Pacific and suggests some possible accounts of their origin. Sections 5 and 6 are concerned with the status of the PAN antecedent of POC *aki(ni). In section 5, some non-Oceanic cognates are assessed. Section 6 proposes some possible prefixal reflexes of the PAN/POC item and considers the potential consequences of these reflexes for the study of PAN verb morphology.

2. THE VERBAL STATUS OF POC *aki(ni)

Introduction

In spite of the fact that the most widespread reflexes of POC *aki(ni) are suffixal, their distribution and function argue that the POC form itself was not a suffix but an independent lexical verb. In section 2.1., PMC *akini will be reconstructed as a lexical verb. Section 2.2. will consider reflexes of POC *aki(ni) in other Oceanic languages, evidence that is more ambiguous than the Micronesian evidence. It suggests, as Pawley (1972, 1973) concluded, that at least two forms must be reconstructed, one suffixal and the other not. Viewed together

with the PMC reconstruction, however, one is forced to conclude that these distinct reconstructions should not be postulated for POC itself. In section 2.3., some non-suffixal cognates of POC *aki(ni) in non-Oceanic languages are considered.

Section 2.4. proposes that the original function of POC *aki(ni) was what Arms (1974) terms confective/refective and suggests that POC *aki(ni) appeared for the most part with a semantic class of intradirective verbs in this use. It is this reconstruction of the function of POC *aki(ni) that leads to the conclusion that it was not a suffix in POC.

2.1. PMC *akini

PMC *akini can be reconstructed on the basis of cognates in all Micronesian languages except some eastern areas of the Trukic continuum, where the form appears to have been lost. The canonical shape of the reconstructed proto-form (regular loss of final vowels in some languages aside) is, however, preserved only in Gilbertese and Trukic:⁸

GIL -akina
 WOL (y)agili
 ULI yixili (~ -xili as a suffix on some verbs)
 PLA -akini
 PUL -(y)akin ~ -(y)ekin

In Ponapeic, Kosraean, and Marshallese the initial vowel of the proto-form is absent in putative cognates:

PON ki ~ kin (before vowels)
 MOK ki
 PNG kin
 KOS -kihn
 MAR kōn, -vk (see section 3.5.5.)

The fact that reflexes with and without initial PMC *a are complementary through the family (except for the minor variant -xili in Ulithian) and that all reflexes have similar functions (see section 2.4.) suggest that all have descended from the same proto-form, with irregular loss of PMC *#a in Ponapeic/Kosraean and Marshallese.

PMC *akini is reconstructed as a lexical verb, typically appearing with an immediately preceding verb in a serial verb construction.⁹ On the basis of available evidence,¹⁰ all reflexes of PMC *akini occupy immediate postverbal position when in construction with a verb:

- WOL 14. rig yagiliir lag sar kela
run yagili-3pl away child those
'Run away with those children'
- MOK 15. ngoah kosohkihdi peipahu jahrpas
lsg cut-ki-down paper-that knife-a
'I cut the paper with a knife'
- KOS 16. Sohn el sritaclkuhnlah mani ah
John 3sg play-kihn-away money the
'John gambled away the money'
- GIL 17. e tabetabeakina ana mmakuri
3sg busy-akina his work
'He's tied up with his work'

though, in Mokilese at least, ki may appear as an independent preposition, outside the verb phrase (in the sense of Pawley 1972:41ff):

MOK 18. ngoah kosohdi peipahu ki jahrpas
'I cut the paper with a knife'

Sentences like example 18 are less favoured than the corresponding example 15, becoming more acceptable as the distance between a VP-internal ki and its nominal complement increases.

Though the favoured position for PMC *akini appears to have been immediate postverbal, there are phonological arguments that, in both pre-PMC and PMC periods, it was not a suffix. In the course of their history all Micronesian languages have been subject to a process of final consonant deletion, to which appeal can be made in a reconciliation of such transitive/intransitive verb pairs as GIL wareka *'to calculate something'* and (ware)ware *'to calculate'*. The presence of a transitive suffix in the former 'protects' the historical final consonant from deletion. The fact that historical final consonants are never preserved before reflexes of PMC *akini (for example, GIL teboka *'to pour water on something'*, (tebo)tebo *'to dive, to bathe'*, teboakina *'to be insistent on something'* argues that *akini was not a suffix at the (pre-PMC) period in which final consonant deletion applied.

In the post-PMC period, most Micronesian languages have undergone a process of final vowel deletion.¹² As in the case of final consonant deletion, this process fails to apply to vowels 'protected' by a following suffix. Thus, for example, historical final vowels are lost in isolate forms of inalienable nouns but are preserved before possessive suffixes:

MOK 19a. kil 'skin' < POC *kulit, PMC *kuli
 19b. kilin 'his skin' < PMC *kulina
 19c. kilin 'skin of' < PMC *kulini

In languages in which PMC final vowels are lost, these vowels are not preserved before reflexes of PMC *akini:

KOS 20a. sihmihs *'to write something'*
 20b. sihm *'to write'*
 20c. sihmkihn *'to write with something'*
 MOK 21a. poaloa *'to chop something'*
 21b. poalpoal *'to chop'*
 21c. poalpoalki *'to chop with something'*
 PUL 22a. fatil *'to paddle'*
 22b. fatilákin *'to paddle with something'*

This observation suggests that reflexes of PMC *akini, whatever their subsequent history in individual languages, were not suffixes at the point at which final vowel deletion applied.

The synchronic status of reflexes of PMC *akini is variable. Ponapeic ki(n) is a verbal enclitic, as evidenced by the fact that it triggers junctural lengthening phenomena (see Harrison forthcoming) that true suffixes, such as the nominal possessive suffixes, do not. Thus:

MOK 23a. ngoah koso peipahu
 lsg cut paper-that
'I'm trying to cut that paper'
 23b. ngoah kosohkihdi peipahu jahrpas
 lsg cut-ki-down paper-that knife-a
'I cut that paper with a knife'

where the final vowel of koso *'to cut something'* is lengthened before enclitic ki, as is the final vowel of ki itself before enclitic di *'down'*. As noted above (example 18), Mokilese ki can also appear as an independent preposition.

Woleaian *yagili* and Ulithian *yixili* have been analysed (Sohn 1975 and Sohn and Bender 1973), in most of their uses, as *prepositional verbs*, non-affixal relational elements taking verbal object suffixes. There is evidence that, in some uses, they are suffixed. The non-suffixed status of these Trukic forms is particularly clear in examples like:

ULI 24. gaag senseye bo yixiliire yaramata
 1sg teacher COMP yixili-3pl person
 'I am a teacher for the people'

where ULI *yixili* appears with the complementiser *bo* 'that'.

The only evidence that Gilbertese *-akina* is, synchronically, anything other than a verbal suffix comes from some rather impressionistic observations regarding stress, whereby *-akina* and the verb to which it is suffixed appear to be stressed independently to some degree. Thus:

GIL 25a. bwáro 'to spill'
 25b. bwàróa 'to spill on something'
 25c. bwaròingkàmí 'to spill on you (pl)'
 25d. bwároàkína 'to spill on something'

where the *-akina* transitive 25d. appears to have two main stresses. This observation awaits confirmation, however. Descriptions of other Micronesian languages with reflexes of PMC **akini* provide no concrete arguments for the status, suffixal or non-suffixal, claimed for them therein.

On the basis of the evidence presented above I conclude that, regardless of the synchronic status of its reflexes, PMC **akini* itself was not a suffix. The fact that its reflexes take verbal object pronouns in those languages where PMC object pronouns are reflected argues, moreover, that it was a transitive verb:

WOL 26. i sa ker yagilig
 1sg asp happy yagili-2sg
 'I am proud of you'

GIL 27. e ngareakinai
 3sg laugh-akina-1sg
 'He laughed at me'

2.2. Other Oceanic languages

2.2.0. Introduction

This section considers the lexical status of reflexes of POC **aki*(ni) in non-Micronesian Oceanic. Section 2.2.1. treats the Fijian *long transitive suffix*, as representative of apparently cognate suffixes throughout non-Micronesian Oceanic. Section 2.2.2. considers PPN **aki* and Fijian *kina*.

2.2.1. The Fijian long transitive suffix

The long transitive suffix has two distinct forms in most Fijian dialects. In standard Fijian, for example, it has the shape *-Caki* in intransitive clauses and in transitive clauses with pronominal and proper name objects, and the shape *-Caka* elsewhere. In Wayan, it has the shape *-Caki* in intransitive clauses and *-Cakini* in transitive clauses. The first alternative, in each of these cases, can be taken to reflect POC **aki*, without object agreement, and the second, POC **akini*, with object agreement. For some discussion of the phonological history of these forms in Fijian,

see Geraghty (1978:252-253); for their syntax in standard Fijian, see Arms (1974: ch.2).

In what Arms (1974) terms *standard Fijian*, the long transitive suffix is found with nine 'thematic' consonants: -yaki, -taki, -vaki, -caki, -maki, -naki, -laki, -raki, -kaki. These variants are not of equal relative frequency; in Arms' sample -caki, -maki, -naki, and -kaki are significantly under-represented. Individual suffixes, or groups thereof, tend to be associated with distinct functions, an observation whose significance will be considered below. We might note, at this point, only that some roots can occur with more than one suffix, often with distinct semantics. For example:

- FIJ 29a. seretaki 'to sing (a song)'
 29b. serevaki 'to sing about something'

The synchronic status of Fijian -Caki as a suffix is not open to question, except in the case of -yaki which, if suffixal, appears to have become so only very recently. Arms (1974:95-96) notes the rather ambiguous status of thematic /y/, in view of the fact that this consonant is found otherwise only before word-initial /a/. Furthermore, unique among long transitive suffixes, -yaki carries primary stress and the verb to which it is suffixed secondary (or co-primary):

- FIJ 30a. vēisòkoyáki 'to sail around'
 30b. vēisókoyáki 'to sail around'
 30c. sókotàki 'to sail with something'

Arms concludes that the form yaki, used only together with the reciprocal prefix ve- in what he terms the *dispersive function* (see section 3.5.3.) was, at least until very recently, a separate word rather than a suffix.

Geraghty (1978:255) notes that the most frequent *confective* suffix (see section 2.4.), -vaki, has external cognates in Mota -vag and 'Are'are -ha'i(ni) in the same function. He points out, further, the existence of 'Are'are ha'ini- 'with, in the company of', a prepositional verb, and ha'i 'together, simultaneously', an adverb. Mota -vag is itself separable from the verb to which it would otherwise be suffixed (Codrington 1885:281-282):

- MOT 31a. o rere mwera we mulevag o tapera
 art boy tns go-vag art dish
 'The boy is going with a dish'
- 31b. ni we mule raveaglu e o tinesara vag o tapera
 3sg tns go through art yard vag art dish
 'He is going through the yard with a dish'

While it is for the present arguable whether the more independent *confective* forms in Mota and 'Are'are are the result of reanalysis of an older suffix or vice versa, these data show nonetheless that the presence of a thematic consonant is not incompatible with non-suffixal status. Were we to postulate a non-suffixal pre-Fijian *confective* *vaki, however, some account must then be given of the origin of the initial consonant. We return to this question in section 4.

2.2.2. PPN *aki and Fijian kina

PPN *aki 'instrumental' and FIJ kina 'anaphoric adverb' under the standard analysis (Pawley 1972, 1973) are reflexes of POC *-aki(ni) and POC *kini-, respectively. Under the view adopted here they will be interpreted as reflexes of a single verb POC *aki(ni), with the same irregular loss of initial *a in the Fijian form as was seen in Ponapeic/Kosraean and Marshallese reflexes of PMC *akini. The semantics of these forms will be considered in section 3.5.1.

All the forms in question function as anaphoric adverbs: instrumental anaphors in Polynesian and general oblique anaphors in Fijian. Tongic reflexes of PPN *aki are also used as prepositions, however, as in:

TON 32. 'oku ngaohi eni 'aki e mohuku
asp *made this* 'aki art *grass*
'This is made of grass'

Churchward (1953:119-120) presents two arguments for earlier verbal status for Tongan 'aki:

- i) the fact that its complement is frequently preceded by the absolutive marker 'a, unlike other prepositions
- ii) the fact that it is preceded by the preverbal conjunction kae 'but' rather than its alternative ka

To these arguments one might add the observation that TON 'aki can appear in immediate postverbal position, separated from its complement.

TON 33. fō 'aki ho'u kofū ha vai mafana mo ha koa
wash 'aki *your clothes* art *water warm and* art *soap*
'Wash your clothes with warm water and soap'

in a manner reminiscent of the behaviour of Mokilese ki (see example 15 above). These arguments suggest that the antecedent of Tongan 'aki (one assumes PPN *aki) functioned as a 'prepositional' verb flagging instruments in a serial construction with a preceding verb and, thus, agrees closely with lexical status and syntax proposed here for POC *aki(ni).

2.3. Non-suffixal cognates in non-Oceanic languages

While all the putative non-Oceanic cognates considered in Pawley (1973:122-125) of the form reconstructed here as POC *aki(ni) are in fact suffixes, there is evidence that Malay -kan and Wolio -aka are developments from earlier, more independent forms. Grammars of Malay consider the suffix -kan to have developed from an independent source surviving in the preposition akan, now used only in literary Malay:

MAL 34a. di-ikutkan-nya akan kijang itu
3sg *follow* 3sg akan *deer that*
'He followed after the deer'

34b. murka akan patek
angry akan lsg
'angry with me'

34c. menguchap shukor akan Allah
pre-give thanks akan *God*
'give thanks to God'

The examples in 34 (Winstedt 1914) show MAL akan in a function that we will describe below as *reflective*. It can also be used modally, to mark intention or prediction, as in:

MAL 35a. tiada akan cukup
neg akan *sufficient*
'It will not be sufficient'

MAL 35b. betapa akan bahagiannya?
what akan *fortune-3sg*
'What will be his fortune?'

This modal function of MAL akan is suggestive of verbal status.

As in most Oceanic languages, PAN final consonants have been lost in Wolio but are preserved before a following suffix. For example:

- WOL 36a. kompas*i* 'to climb something' (< kompa 'to climb')
 36b. tadami 'to sharpen something' (< matada 'sharp')
 36c. abaki 'to ask someone' (< aba 'to ask')
 36d. tanjisi 'to cry over someone' (< tanji 'to cry')

Though Anceaux (1952) considers WOL -aka to be a suffix in all of its occurrences, it appears that PAN final consonants are preserved before -aka only in a minority of cases. Compare examples 37a-b, where a PAN final consonant is preserved, with examples 38a-c, where it is not:

- WOL 37a. tumbulaka 'to set something in ground' (< tumbu 'to come up')
 37b. mendeusaka 'to forbid' (< mendeu 'unwilling')
 38a. abaaka 'to enquire about something' (cf. 36c.)
 38b. tanjaka 'to bewail something' (cf. 36d.)
 38c. tutuaka 'to pound for someone' (cf. tutuki 'to pulverise something')

The most obvious account of the failure of PAN final consonants to be preserved before -aka in these forms is that -aka was not a suffix, in most of its uses, at the period at which final consonant deletion took place in Wolio.

2.4. Confective/reflexive function and intradirectiveness

The standard analysis of POC *-aki(ni), as pointed out in section 1.1., holds it to have functioned as an accessory role marker, flagging concomitant, cause, instrument, or benefactive objects. We have already noted (section 1.2.) that its reflexes also have other functions, distinct from role marking, in a number of daughter languages. The most widespread of the functions, of POC *aki(ni) and its reflexes, and the only one reconstructible for all the lower order subgroups of Oceanic recognised here, is the one described by Arms (1974) as *confective/reflexive*. The present study claims this to have been the primary function of POC *aki(ni), in a sense to be modified somewhat in section 3, from which the other functions of its reflexes have evolved.

Confective and reflexive are two of the five functions Arms distinguishes for Fijian -Caki.¹³ These two functions are in complementary distribution according to the semantics of the verb root, so that it is undoubtedly not accidental that both are associated with the same thematic variants of -Caki (usually -vaki, but also -maki, -caki, or -naki). Confective function applies for the most part to *motion verbs* (and to some *affective transitives* – see section 3.1.); reflexive function, for the most part, to verbs of *psychological state or activity*. The object of a Fijian confective transitive is typically a *concomitant*, less frequently an *instrument*, as in:

- FIJ 39a. i) ladevi 'to jump over something'
 ii) ladevaki 'to jump with something'
 39b. i) silimi 'to dive for something'
 ii) silimaki 'to dive with something, to dowse (net) for first time'
 39c. i) karavi 'to pole a boat to somewhere'
 ii) karavaki 'to pole something'
 39d. i) curumi 'to enter something'
 ii) curumaki 'to insert something'
 39e. i) viriki 'to throw at something'
 ii) viritaki 'to throw something'

The object of a reflexive transitive is typically a *stimulus* (source, cause, reason,

or beneficiary), as illustrated in:

- FIJ 40a. cudruvaki 'to be angry at something'
 40b. tagicaki 'to cry because of something'
 40c. dredrevaki 'to laugh at something'
 40d. rerevaki 'to be afraid of something'
 40e. serevaki 'to sing about something'
 40f. sorovaki 'to make an offering for someone'

Like Fijian -Caki, reflexes of PMC *akini can be found in a variety of functions, most restricted to particular languages of internal subgroups. The only function common to all languages in the family, and the only one reconstructible for PMC, is its occurrence in V_1 -*akini constructions with broadly connective/reflexive interpretation. Some examples are:

- WOL 41. i sa ker yagilig
 lsg asp happy yagili-2sg
 'I'm proud of you'
42. rig yagiliir lag sar kela
 run yagili-3pl away child those
 'Run away with those children'
43. i gabetaagili John be ye be lag
 lsg CA-deaf-agili John COMP 3sg mod go
 'I yelled for John to go'
44. ye mmwutaagili metta?
 3sg vomit-agili what
 'What did he vomit?'
- MOK 45. ih mehkihdi johmwehuini meleisik
 3sg die-ki-down sickness-of heart
 'He died of a heart attack'
46. ngoah kupwurohkihla mehk ma ngoah wia
 lsg sorry-ki-away thing-those REL lsg do
 'I'm sorry about what I did'
47. ih koaulki koaulpas
 3sg sing-ki song-a
 'He sang a song'
- KOS 48. tuhlihk ah pwacrkihn wanihsr laltahl ah
 child the happy-kihn parcel their the
 'The children are happy with their parcel'
49. Sepe el arlac tuhpwekkihn suhtuh se lal ah
 Sepe 3sg very ashamed-kihn mistake this her the
 'Sepe is very ashamed of her mistake'
50. kuht kahengkihn mwet nihmnihm ah
 3pl.e run-kihn person RED-drink the
 ?'We ran away with the drunk' (no gloss given in source)
- GIL 51. e wiinrangiakina kaubwaina
 3sg boast-akina wealth-his
 'He boasted of his wealth'
52. e ngareakinai
 3sg laugh-akina-lsg
 'He laughed at me'
53. ti maiuakina te akawa
 lpl live-akina art fishing
 'We live by fishing'

The confective and reffective functions exemplified in examples 39 through 53 can be found with reflexes of POC *aki(ni) throughout Oceania.

If we accept for the moment that the original function of POC *aki(ni) was in fact the confective/reffective one outlined broadly above then it follows that if we can identify the class of verbs occurring with reflexes of *aki(ni) in this function we can assume that it was this class of verbs that occurred with *aki(ni) in POC. Most available descriptions of Oceanic languages do not, however, consider in any detail what restrictions, if any, hold on the class of verbs occurring with *aki(ni) reflexes in these functions. In Fijian, as already noted, the confective interpretation for -Caki transitives is largely restricted to motion verbs and the confective to psychological state verbs. Examples 41-53 above reveal a similar pattern for reflexes of PMC *akini. (It might be noted that the confective use of reflexes of PMC *akini is more limited than is that use of its Central Pacific cognates - see section 3). As a first step towards a delimitation of the class of verbs occurring with *aki(ni) in POC let us now consider the semantics of those verbs with -akina transitives in Gilbertese.

Verbs with -akina transitives in Gilbertese fall into a number of apparently disparate semantic classes, among them:

- i) motion verbs (e.g. borau 'to navigate', nakonako 'to walk', biri 'to run', bwaka 'to fall')
- ii) stance verbs (e.g. tei 'to stand', wene 'to lie')
- iii) perception verbs (e.g. noo 'to see', matakau 'to look', ongoraa 'to listen', mii 'to admire, to dream')
- iv) cognition and other psychological state verbs (e.g. iango 'to think', nibwaraa 'to be agitated', botu 'to be bored, fed up', kukurei 'to be happy')
- v) 'life force' verbs (e.g. maiu 'to live', mate 'to die')
- vi) communication verbs (e.g. me 'to shout', wiinrang 'to boast', ngure 'to grumble')
- vii) 'executive' verbs (e.g. tabe 'to be busy', kaangai 'to do thus', aua 'to dawdle', tabo 'to have recourse')
- viii) verbs of inherent reciprocity (e.g. ikakarabwakau 'to discuss', boobwai 'to trade/deal', uaia 'to compete', mwaio 'to meet')

Many of these verbs fall into a natural semantic class that will be termed *intradirective*.¹⁴ Intradirective predications are those in which a state/location or a change of state/location arises or is maintained within the entity in the state/location or undergoing the change of state/location. Cardinal intradirectives (motion, stance, and inherent reciprocal predications), then, are those in which the entity in question is both controller and undergoer. This characterisation can be extended to psychological (perception, cognition, and psychological state) predications, in which the entity (consciously) maintains a psychological state or event, though impinged upon by some external stimulus.

In a broader sense, that cannot be fully explicated here, these predications could be characterised as semantically (conceptually) intransitive: cardinal intradirectives because the controller and undergoer and the same entity (the typical 'object' being a goal or location); psychological predicates, ignoring the sense in which the same entity is both their controller and undergoer, because their 'object' is not an undergoer but a stimulus. Semantic intransitivity, in various senses, is a property of the remaining verb classes as well. 'Executive' verbs ('adverbial' predicates) are operators on clauses; communication verbs have cognate

objects, in the sense of Austin (1980). We will continue to employ the term *intra-directive* for the entire class here, however.

All Gilbertese verbs with -akina transitives are intradirective in this sense, though it does not appear to be the case that all semantically intradirective verbs (where the controller and the undergoer are the same entity) have -akina derivatives. (The majority appear to, however.) A similar restriction seems to hold on -akini transitives in Pulo Annian. For example:

PLA 54a.	dongaakini	'to be angry at'
54b.	ngi ^s akini	'to be tired of'
54c.	ma ^l akini	'to sleep because of'
54d.	kkeleakini	'to be pleased with'
54e.	ddoliakini	'to bark at'
54f.	li ^d akini	'to be surprised at'
54g.	mmaniakini	'to laugh at'
54h.	ya ^{ng} a ^{ng} aakini	'to despise'

As already noted, confective/refective functions of reflexes of POC *aki(ni) in other languages considered are similarly restricted. It is impossible to judge whether POC *aki(ni) occurred freely with all intradirectives, as appears to be more or less the case in Gilbertese, or was restricted to some subclass(es) thereof. Furthermore, while there appears to be no obvious reason why *aki(ni), in the function in question and viewed in isolation, should have been so restricted, we will attempt to demonstrate (section 3.) that, in terms of a broader view of the POC causative system, this restriction emerges as a natural one. We might note, finally, that the instrumental confective function (as in example 39e. above) does not follow from the account presented here, since the verbs used with *aki(ni) reflexes in this function are not intradirective. We claim below that this function is in fact an innovation.

2.5. POC *aki(ni) as verb

The standard analysis of the history of POC *aki(ni) arose, it seems to me, primarily as a result of an unavoidable data bias, in that the majority of the languages for which descriptions were then available clearly reflected it as a suffix. There was no evidence at that time that it was anything other than a suffix in POC. In the best described Oceanic languages, notably Fijian, this suffix alternated with reflexes of POC *-i for a majority of verbs (75 percent of the verbs in Arms' (1974) Fijian sample). From this observation arose that component of the standard analysis that holds POC *-i and *-aki(ni) to have been contrasting role-marking suffixes. It was not observed, however, that reflexes of these two forms do not alternate with this frequency in most Oceanic languages nor that, even in Fijian, many of the alternations do not involve role marking. On these grounds alone, the standard analysis becomes suspect.

In the previous subsections we have argued that there is ample evidence that the form reconstructed in the standard analysis as POC *-aki(ni) was, at some point in its history, a lexical verb. Where the present analysis differs from the standard one on this issue is in claiming that it had verbal status in POC. This conclusion is based on two premises:

- i) that the original function of POC *aki(ni) was the confective/refective one considered in section 2.4.
- ii) that, in the Micronesian subgroup of Oceanic, the form reconstructible in this function was not a suffix but a verb PMC *akini

Were we to assume a POC suffix with confective/refective function, as does the

standard analysis, we would first be forced to account for its demise without trace in PMC. More damaging, however, is the fact that such an account leads to the conclusion that, following the loss of this putative suffix in PMC, a verb with, ultimately, the same historical source was taken over in precisely this function. One is left to speculate what the function of this verb was before the suffix was lost. While it is of course possible that the suffix and the verb alternated in the same confective/refective function in POC, this conclusion strikes me as less plausible than the view that the suffix developed subsequently. An account of this development will be presented in section 3.

3. THE POC PERIPHRASTIC CAUSATIVE

3.0. Introduction

In this section, we develop an account of the function of POC *aki(ni) as a causative marker. If POC *aki(ni) was a verb, as argued in the previous section, then POC V-*aki(ni) constructions were a type of periphrastic causative. In section 3.1. the syntax and semantics Oceanic A-verb/P-verb contrast are reviewed. An attempt is made to demonstrate that the typical A-verb behaviour of intradirectives is a natural consequence of their semantics. Section 3.2. considers the functions of the POC *paka- 'causative', noting that it can be interpreted under two distinct semantics, as a valency-increasing device under the *cause semantic* and as an actorhood-increasing device under the *act semantic*. Arguments are given that the latter was the original function of POC *paka-, although it is likely that *paka-derivatives of some statives had a *cause semantic* interpretation. Section 3.3. argues that the confective/refective function reconstructed for POC *aki(ni) was itself a development from an earlier *cause semantic*. It is in this sense that POC *aki(ni) is claimed to have been a causative marker, restricted to constructions with intradirective predicates. Section 3.4. treats the PMC agentless passive as an extension of the *cause semantic* for POC *aki(ni). In section 3.5. the development of other functions for reflexes of POC *aki(ni) is considered in terms of the spread of an *act semantic*. Final sections discuss reflexes of *aki(ni) as productive transitive devices and the Rotuman suffix -'aki.

3.1. A- and P-verb semantics

Syntactically, the contrast between Oceanic A- (agent-oriented) and P- (patient-oriented) verbs is manifested in the choice of subject in intransitive clauses. For A-verbs, intransitive and transitive subjects are identical in role; for P-verbs, the intransitive subject is identified with the transitive object. Thus:

- FIJ 55a. e ā gunu na gone
 3u tns *drink* art *child*
 'The child drank'
- 55b. e ā gunuva na wai na gone
 3u tns *drink-tr* art *water* art *child*
 'The child drank the water'
- 55c. *e ā gunu na wai
- FIJ 56a. e ā dola na kātuba
 3u tns *open* art *door*
 'The door opened/was open'
- 56b. e ā dolava na kātuba na gone
 3u tns *open-tr* art *door* art *child*
 'The child opened the door'

FIJ 56c. *e ā dola na gone

So far as I am aware this contrast, in some form or other, is present in most Oceanic languages. Most verbs with both transitive and intransitive forms will belong unambiguously to one or the other class, though there will be some verbs that follow both patterns.

It has frequently been observed that, although it is impossible to predict with complete accuracy on the basis of its inherent semantics the class to which a given verb will belong, there is a strong correlation between process semantics and P-verb behaviour, in which the transitive object/intransitive subject (*undergoer* or *neutral entity*) undergoes a change of state. Intradirectives (motion verbs and psychological, emotional, conceptual, or perceptual verbs) and action verbs (see below) *tend* to be A-verbs.

The lexicalisation of a particular situation type as, for example, a process involves imposing a point of view on that situation or situation type. Consider, for example, a situation in which a man picks up a hammer and directs it toward a vase such that the hammer makes contact with the vase and the vase, in some sense, decomposes. In English, and most languages, we are offered two single-verb coding choices, the well-documented 'hitting' and 'breaking' contrast (Fillmore 1970). It would thus appear that, fundamental to human conceptualising, is a binary choice between adopting as one's point of view for such situations some intended or observed effect or result and adopting as one's point of view the means, mechanism, or course of action followed. The former is termed *effective* in Fillmore (1968) and *factitive* in Lyons (1977); the latter, *affective* and *operative*, respectively. Languages will frequently present lexical or grammatical options reflecting this contrast.

This choice of point of view has other consequences. In an effective predication the focus of interest, in what I hope is an obvious sense, will be the *undergoer* (or *neutral entity*), while in an affective predication it will be the *actor* (or *controlling entity*). It is clearly this conceptual distinction that lies at the heart of the Oceanic P-verb/A-verb contrast. Moreover, in effective (process) predication, the situation is being described in terms of its end point or, more broadly, as a whole. In affective predication, on the other hand, the point of view is that of the events leading up to, but not necessarily including, the end point. In an obvious sense, then, the effective/affective conceptual distinction can be correlated directly with such notions as telicity and the perfective/imperfective aspectual dichotomy.

The fact that intradirective predications exhibit A-verb (affective) behaviour is perhaps surprising in view of the fact that archetypical intradirectives, motion verbs, are, in the broadest sense, processes. They involve not changes of state, but of location. Intradirectives are distinctive, however, in that the entity controlling the change of location and the entity undergoing the change of location are the same. An intradirective verb with a single nominal can thus be viewed as adopting both effective and affective points of view simultaneously.

Intradirective situations are, furthermore, self-maintaining. They continue, in the case of motion verbs, until the controlling/neutral entity ceases motion. Thus, even if viewed as effective, they are not necessarily being viewed in terms of the end point of the situation (that is, are not telic).¹⁵ In this sense they are typically more affective than effective. The end point of a motion situation is arrival at a goal. It is this goal that is then coded as object, if the motion verb is being used transitively. Such objects are, however, semantically distinct from objects (undergoers) of non-intradirective processes. They are, in view of the nature of intradirectiveness, the end point of action rather than an effect resulting therefrom. In this sense they are more like the objects of affective transitives like 'to hit'. The A-verb behaviour of intradirectives in Oceanic thus follows naturally from their semantics, in spite of the fact that many of them are in a real sense processes.

3.2. The Oceanic causative

In his discussion of Fijian causatives¹⁶ in vaka- (vā- before velars), Arms (1974:81ff.) observes a contrast between what we will term the *cause semantic* and the *act semantic*.

The cause semantic is the interpretation linguists usually associate with structures termed *causative*. A causative, under this semantic, is a valency-increasing device through which a new actor (causer), which is not an argument of the causativised predicate, is introduced. The cause semantic can be schematised:

57. z-cause (x - v - (y))

where Z is the actor introduced into the predication (x - v - (y)), as in the interpretation of Fijian vaka- in cases like:

FIJ 58a. era ā gunu
3pl tns *drink*
'They drank'

58b. era ā gunuva na yaqona
3pl tns *drink-tr art kava*
'They drank the kava'

58c. au ā vāgunuvi ira (e na yaqona)
1sg tns CA-*drink-tr* 3pl *at art kava*
'I made/let them drink (the kava)' or 'I provided them with (kava to) drink'

Fijian vaka- is interpreted under the cause semantic with some A-verbs, as in example 58 above, and is also usual for what Arms would term de-adjectival¹⁷ and de-nominal causatives (examples 59a.-c.) and for A-verb root causatives (intransitive A-verb forms vaka-V_A without a transitive suffix), as in example 60:

FIJ 59a. vakabalavutaki 'to lengthen' (< balavu 'long')
59b. vakamārautaki 'to entertain' (< mārāu 'happy')
59c. vakavaletaki 'to house' (< vale 'house')

60. na ivacu ni vakamoce
art *punch of CA-sleep*
'the knock-out punch'

Some examples of the cause semantic in Gilbertese for causatives in ka- derived from roots similar to those of 58-60 above are:

GIL 61a. a amwarake ataei (n te ika)
3pl *eat children at art fish*
'The children ate the fish'

61b. i kaamwarakeiia ataei (n te ika)
1sg CA- -3pl *children at art fish*
'I fed the children (the fish)'

62a. e kukurei tamau
3sg *happy father-my*
'My father is happy'

62b. i kakukureia tamau
1sg CA-*happy-tr father-my*
'I made my father happy'

63a. e kamaamate te iti
3sg CA-RED-*die art electricity*
'Electricity is dangerous'

63b. e kangongo te baa aei
3sg CA-*itch art leaf this*
'This leaf causes itching'

The act semantic is less frequently regarded as a function of causative structures because it does not involve an increase in valency. The 'causer', in this function, is an argument of predicate to be causativised, schematically:

64. x - act - (x - v - (y))

Causativisation, under the act semantic, does not change the valency of a predication. It increases the actorhood of the causer argument, indicated that that it is a more conscious, active, volitional participant (see also section 3.5.2.), as in:

- FIJ 65a. e ā rongo
3u tns *hear*
'It was heard'
- 65b. era ā rogoca
3pl tns *hear-tr*
'They heard it'
- 65c. era ā vakarogoca
3pl tns CA-*hear-tr*
'They listened to it'

The act semantic is applicable to Fijian P-verb causatives, as in example 65 and to Fijian P-verb root (intransitive) causatives, as in:

- FIJ 66a. e ā kau na meli
3u tns *carry art mail*
'The mail was carried'
- 66b. e a kauta na meli ko koya
3u tns *carry-tr art mail art 3sg*
'He carried the mail'
- 66c. e se vākau tiko na meli
3u yet CA-*carry stay art mail*
'The mail is still being carried'

Though no actor is expressed in examples like 66c., one can infer the existence of an actor expressible as the actor of a simple transitive sentence like example 66c. These examples contrast sharply with examples like 58b.-c., in which the actors are clearly distinct.

Though some Fijian A-verb causatives, as noted above, follow the cause semantic, others, like vakatarogi 'to ply someone with questions' (< taro-gi 'to ask someone'), follow the act semantic. Still others, like vakalakovi 'to tour over, to make someone go', are ambiguous. Some de-adjectival root causatives also follow the act semantic, as in:

- FIJ 67. e ā cici vakatotolo ko koya
3u tns *run CA-quick art 3sg*
'He ran quickly'

a function Arms terms *adverbial*.

Though Arms suggests no basis by which it is possible to predict which semantic a particular de-adjectival causative will follow, Gilbertese evidence (see below) suggests that most statives (both physical and mental) follow the cause semantic, while those statives that name characteristics of actions (like 'quick', 'careful', etc.) follow the act semantic. It is likely that the particular semantic followed by a given stative/adjective is in part context sensitive, as in:

- GIL 68a. e aaintoa
3sg *tough*
'He's tough'

- 68b. e kaaintoa
3sg CA-tough
'He's acting tough'
- GIL 68c. ti na kaaintoaa
1pl tns CA-tough-tr
'We'll toughen him up'

In both Gilbertese and Fijian, some roots have distinct cause and act causatives:

- FIJ 69a. raici 'to see something'
69b. vakaraici 'to inspect something'
69c. vakaraitaki 'to show someone'
- GIL 70a. rau 'calm'
70b. karaua 'to act calmly to/in'
70c. karauaka 'to calm something'

The causative is not common with the Gilbertese analogue of Fijian P-verbs (process predicates with non-causative transitives) but in those few cases of which I am aware such causatives follow the act semantic, as in Fijian:

- GIL 71a. e uruaka te wintoo
3sg smash-tr art window
'He smashed the window'
- 71b. e kauruaka te wintoo
3sg CA-smash-tr art window
'He smashed the window'

The act semantic can be found for de-stative causatives in Gilbertese, as in example 68 above and:

- GIL 72a. a rangi ni rabwakau
3pl very COMP knowledgeable
'They are very skilled'
- 72b. a kakarabwakau n te mwaneaba
3pl RED-CA-knowledgeable in art meeting house
'They're conversing in the meeting house'
73. e teirake Nei Taina ni karaurau
3sg stand-up Ms. Taina COMP CA-calm
'Nei Taina stood up carefully'

We might note, finally, the existence of derived causatives for which it is difficult to judge which semantic is being applied, as in:

- GIL 74a. i waekoa ni katiaa te mmakuri
1sg quick COMP CA-finished-tr art work
'I finished the job quickly'
- 74b. i kawaekoaai ni katiaa te mmakuri
1sg CA-quick-1sg COMP CA-finished-tr art work
'I worked quickly to finish the job'

Example 74b. shows a reflexive transitive causative that, it seems to me, is potentially interpretable under either semantic.

On the basis of evidence at present available, the act semantic does not appear to be common for reflexes of PMC *ka- 'causative prefix' in other Micronesian languages. Examples like the following are, however, suggestive of an act semantic:

- MAR 75. ne kwōj ttōr iturun aujpitōl kwōj aikuj kadikdik
when 2sg-tns drive by hospital 2sg-tns must CA-RED-small
'When you drive by a hospital, you should slow down'

as are:

- MOK 76a. koaronge 'to listen to' (< rong 'to hear')
 76b. koadoahkoa 'to work on' (< doadoahk 'to work')
- PLA 77a. kapwaiki 'to see' (< pwaiki 'to see')
 77b. kanne 'to see' (cf. nneaki 'to be seen', GIL noo 'to see', MAR llo)

If the discussion of Tongan faka- (Churchward 1953) is representative, then it would appear that the act semantic for reflexes of POC *paka- 'causative prefix' is well attested in Polynesian. Thus, alongside the cause semantic for cases like:

- TON 78a. fakamohe 'to put to sleep' (< mohe 'to sleep')
 78b. fakalelei 'to repair' (< lelei 'good')
 78c. fakafo 'surprising' (< ofo 'surprised')
- TON 79a. fakafanongo 'to pay heed' (< fanongo 'to hear')
 79b. fakafehu'i 'to make enquiries' (< fehu'i 'to ask')
 79c. fakatu'i 'regal' (< tu'i 'king')
 79d. fakafetaulaki 'to go to meet' (< fetaulaki 'to meet')
 79e. fakaalaala 'to be careful' (< ala 'to touch')

On the basis of such evidence (and ignoring the obvious difficulties in reconciling PMC *ka- and POC *paka-) it would appear that the act semantic, as well as the cause semantic, was a function of POC *paka-. While, as already noted, there is often some ambiguity regarding which semantic applies in a particular instance and, not infrequently, instances of both semantics applied (often with different forms) to causatives derived from the same root, the following generalisations can be made regarding the distribution of the two semantics:

- i) the cause semantic applies to transitive causative derivatives of 'pure' states (non-transitives)
- ii) the act semantic applies to causative derivatives of 'adverbial' statives, used both transitively (with reflexive interpretation) and intransitively, though this semantic is frequently context determined
- iii) the act semantic applies to causative derivatives of P-verbs
- iv) the act semantic typically applies to causative derivatives of experiencer subject A-verbs ('psychological' intradirectives) like 'to see', while the cause semantic applies to agent subject A-verbs ('physical' intradirectives) like 'to go'. The former appear to be the verbs most likely to have two distinct causatives (see below)

This somewhat confused state of affairs is likely to have held in POC. There is, however, some evidence relating to how such a situation may have arisen, in the POC or pre-POC period, albeit somewhat beclouded by post-POC developments.

I hypothesise that, at some point in its history, POC *paka- or its antecedent functioned only with an act semantic and that it has taken on a cause semantic over time. With an act semantic, schematically:

80. x - act - (x - v - (y)) => x - *paka+V - (y)

POC *paka- or its antecedent could be expected to have been used with either transitive or intransitive verb forms (for example, Fijian 65, 66, and 67 above).

In cases where two derived causatives (from the same root) are found synchronically, one with an act semantic, the other with a cause semantic, it is the form with the act semantic that appears to be the more conservative. Thus, in Fijian, cause-semantic forms in such cases employ the productive transitive suffix -taki, while act-semantic forms employ a transitive suffix with what we might take to be a more conservative thematic, typically that of the non-causative transitive. For example:

- FIJ 81a. raici 'to see something'
 81b. vakaraici 'to inspect something'
 81c. vakaraitaki 'to show someone'

In Mokilese, act-semantic causatives preserve historical final vowels in their transitive forms and show morphophonemic changes suggestive of some antiquity, while the corresponding cause-semantic causatives take the productive transitiviser -i (or, frequently, no transitive suffix) and show no morphophonemic changes. Thus:

- MOK 82a. doadoahk 'to work'
 82b. kadoahkoa 'to work on something'
 82c. kadoadoahki 'to make someone work'
 83a. rong 'to hear'
 83b. koaronge 'to listen to something'
 83c. karongi 'to make someone hear'

As noted above, causatives derived from 'pure' statives (non-transitives) follow the cause semantic (for example, Fijian 59 and Gilbertese 63 above). When such causatives are used transitively, it is, in the vast majority of languages, the language-specific productive transitive suffix that is employed. In Mokilese, moreover, many such causatives can be used without a transitive suffix, as in:

- MOK 84a. oaio kunla
fire-that blind-away
'The fire has gone out'
 84b. ngoah kakunla oaio
 1sg CA-blind-away fire-that
'I put out the fire'
 84c. ngoah kakunihla oaio
 1sg CA-blind-tr-away fire-that
'I put out the fire'

The fact that the productive transitivising suffix is used with such causatives may simply reflect the fact that more conservative transitive forms are extant in derived causatives only when they were available in the language; that is, when the causative root had a non-causative transitive form. This would not have been the case for the statives in question. However, the fact that the productive transitivising suffixes employed are language specific suggests that the pressure to mark these forms as transitive (in addition to causative) may not have existed in the proto-language; that is, that these causatives originally carried no transitive suffix at all (as is still possible to some degree in Mokilese). I would further hypothesise that the model on which these de-stative cause-semantic causatives was first analogised was one where the absence of a transitive suffix was not anomalous; that model being those 'adverbial' statives (like FIJ vakatotolo 'quickly') with derived act-semantic causatives. We can conclude, on the basis of these arguments, that the cause semantic for POC *paka- developed subsequent to and as an extension of a more conservative act semantic (see further below).

3.3. The cause semantic and confective/refective *akini

In section 2 we argued that the confective/refective (semantic) function must be reconstructed for POC *aki(ni) and, moreover, that this was likely to have been its only function in POC. In a number of languages, however, there are forms reflecting POC *aki(ni) that show, at least ambiguously, a cause semantic where we would expect a confective one (that is, for some motion and stance verbs). For example:

- FIJ 85a. curumaki 'to insert something' (< curu-mi 'to enter (into)')

- FIJ 85b. silimaki 'to douse (net) for the first time, to dive with something'
(*< sili-mi 'to dive (for)'*)
- 85c. dromucaki 'to push something under water, to take down when sinking'
(*< dromu-ci 'to sink (into)'*)
- TON 86a. hūmaki 'to insert' (*< hū 'to enter'*)
- 86b. haofaki 'to rescue' (*< hao 'to escape'*)
- 86c. akonaki'i 'to instruct' (*< ako 'to learn'*)
- MOT 87a. saromag 'to sheathe' (*< saro 'to go in'*)
- 87b. lilqag 'to spread' (*< lil 'to unfold (of flower)'*)
- KWA 88a. olita'i 'to return something' (*< oli 'to return'*)
- 88b. loloma'i 'to submerge something' (*< lolomo 'to sink'*)
- 88c. likita'i 'to spill something' (*< aliki 'to be split'*)

The cause semantic for these forms is particularly clear in cases like Fijian *curumaki* 'to insert something', where one infers that the causer does not accompany the causee into the orifice in question. It is this contrast, as will be seen in section 3.4., that is the principal difference between cause and confective semantics.

I hypothesise that the cause semantic observed in examples 85-88 was in fact the function of *aki(ni) or its antecedent in (pre-)POC times, from which the confective function reconstructed above had developed or was in the process of developing in the POC period. Under this hypothesis, moreover, it is possible to give an account of the complementarity between confective and reflexive functions observed in section 2.4.

Dixon observes (1979:117-118) that, in a number of Australian languages, a single derivational mechanism is involved in structures of the following sort:

- i) $A_z - V_a\text{-aff} - O_x$ (*< S_x - V_a*)
- ii) $A_x - V_b\text{-aff} - O_y$ (*< S_x - V_b*)

where the intransitive subject (S) of some verbs (V_a) becomes the derived transitive object (O) under the process in question, but, with others (V_b), it becomes derived transitive subject (A). The semantic associated with structure i) is the cause semantic and the verbs involved are motion and stance verbs (for example, YidinY *wanda-n* 'to fall down', *wanda-ŋa-l* 'to make someone fall down'). The semantic associated with structure ii) is the reflexive semantic and the verbs involved, though Dixon does not characterise them explicitly, appear to be those for which we would expect a reflexive function for reflexes of POC *aki(ni) (for example, YidinY *badi-n* 'to cry', *badi-ŋa-l* 'to cry over/on account of something'). The parallel between the Australian situation observed by Dixon and that hypothesised here for (pre-)POC, in which a single derivational mechanism is used in similar complementary functions with, roughly the same two semantic predicate classes, is unlikely to be an accident.

Both the causer in a cause semantic and the reason/stimulus/beneficiary in a reflexive one are, in a broad sense, causes, in that these arguments account for or 'explain' the proposition expressed in the root predication. Though in some cases the contrast between the two semantics may not be totally discrete, it can be characterised in terms of degree of agency (actorhood). Causers are more agentful, reasons/stimuli/beneficiaries less so. The complementarity between the two semantics, as observed by Dixon and proposed here for (pre-)POC, in terms of inherent verb semantics is not a necessary one. It is, of course, possible to conceive of motions or stances as being motivated by reasons and to conceive psychological states or activities or their physical manifestations (like 'laughing', 'singing', 'being busy') as being impelled by causers or causes. One might speculate that the source of the complementarity is in the fact that more 'physical' intradirectives are more agentive, involving a conscious act of will, so that any cause external of the entity

in a stance or in motion is also likely to be interpreted as agentive (as a causer). More 'psychological' intradirectives are, in the same sense, less agentive, so that any external cause is more likely to be interpreted as a stimulus or reason. The fact that causers emerge as transitive subjects in these constructions while reasons/stimuli emerge as transitive objects may be attributable to an actor=transitive subject constraint, where causers are higher in actorhood than causees and experiencer/actor controllers higher in actorhood than stimuli.

Much more difficult to account for on universal grounds is the restriction of such causative constructions (what we can now view as the (pre-)POC periphrastic causative,¹⁸ as well as devices of the sort noted by Dixon) to intradirective predicates. One might first suggest that these devices in the languages in question (be they verb serialisation or affixation) are primarily transitivising mechanisms; that is, the resulting constructions are single transitive clauses. (For a discussion of the single clause nature of some serial verb constructions see Foley and Olson (1982).) As such, the restriction of these devices to intransitive verbs is not unexpected, though certainly not necessary. There is no absolute restriction on single clause causatives formed on transitive clauses (as, for example, in the case of French *faire* constructions), in which the non-causative transitive subject receives oblique coding in the causative construction. One can only observe that Oceanic languages, at any rate, do not appear to permit such constructions.

That (pre-)POC *aki(ni) causatives were not used with stative/adjective predicates can, on the simplest level, be accounted for by noting that another causativising device, POC *paka-, was used in such cases. This observation, of course, begs some account of the 'need' for two devices; again a matter of no absolute necessity. It might be suggested in this instance that (pre-)POC V-*aki(ni) serial constructions required that the first element be a verb and that, at least at the period in which these constructions arose, the statives/adjectives in question were not verbs.

Finally, one might enquire as to why *aki(ni) was not used with Oceanic P-verb intransitive forms. Such verbs, however, already had available transitive forms with, it can be observed, a cause semantic. Were *aki(ni) to be used with these verbs in any case, it seems to me that the likely contrast between the simple transitive and the causative would have been one of degree of actorhood of the subject. Any such contrast, however, suggests an act, rather than a cause, semantic; more appropriately marked, given the act/cause system of (pre-)POC as reconstructed here, by *paka-. As already noted in section 3.2., such forms are in fact extant.

Having eliminated transitive verbs, statives/adjectives, and P-verb intransitives as potential complements of (pre-)POC *aki(ni) in periphrastic causative constructions, what remains are A-verb intransitives, the majority of which are, in fact, intradirective.

3.4. PMC *-aki 'agentless passive'

All Micronesian languages reflect a verbal suffix that can be reconstructed as PMC *-aki:

GIL	oreaki	'to be hit' (< orea 'to hit something')
MAR	limek	'folded' (< lim 'to fold something')
KOS	oulyuhk	'to be washed' (< oul 'to wash something')
MOK	kurujuk	'to grind/be ground' (< kuruj 'to grind something')
PON	irisek	'to be rubbed' (< iris 'to rub something')
ULI	suuxuyex	'to be opened' (< suuxu- 'to open something')
WOL	filetag	'to be stirred' (< fileti 'to stir something')
PLA	dingitiaki	'twisted' (< dingiti 'to twist something')

Reflexes of PMC *-aki derive intransitive verb forms from transitive stems, preserving a POC final consonant. Common to all its reflexes is a resultant state or 'agentless passive' interpretation, though in Mokilese (and possibly Pingelapese - see Welley and Good 1976) the reflex -ek functions as a productive de-transitivising suffix in agentless passive, unspecified object, and incorporated object constructions. This wider use of reflexes of PMC *-aki appears to be an innovation from an original agentless passive, as argued in Harrison (1976:133ff.).

Reflexes of PMC *-aki remain productive only in a few languages: Gilbertese, Kosraean, Mokilese, and possibly Pingelapese and Pulo Annian. In other languages it is fossilised or otherwise non-productive. The expression of an overt agent with verb forms reflecting PMC *-aki is permitted only in Gilbertese and Kosraean:¹⁹

- GIL 89a. a orea te kamea ataei akekei
 3pl hit-tr art dog child those
 'Those children hit the dog'
- 89b. e oreaki te kamea irouia ataei akekei
 3sg hit-pass art dog by-3pl child those
 'The dog was hit by those children'
- KOS 90a. ninac el otwelah fohtoh se
 mother 3sg weave-away basket this
 'Mother wove this basket'
- 90b. fohtoh se otweyuhklac sin ninac
 basket this weave-pass-away by mother
 'This basket was woven by mother'

There does not appear to be any strong evidence for reconstructing a 'full' passive, with a possible oblique agent phrase, for PMC. We can then consider such constructions, as in examples 89 and 90 above, to be innovations of the languages in question.

The close formal correspondence between PMC *-aki and the item reconstructed in section 2.1. as PMC *akini is suggestive of a common pre-PMC source (as first noted, to my knowledge, in Jacobs 1976). I hypothesise that this common source was POC *aki(ni), innovated in PMC as an agentless passive suffix.

Under this hypothesis, the pre-PMC antecedent of the PMC agentless passive was a serial verb construction of the following form:

91. V_i - *aki - NP_U

where V_i was an intransitive form (without transitive morphology) of an (A- or P-) transitive verb and where NP_U was the nominal that would otherwise appear as transitive object. The agentless passive function can be viewed as a natural extension of the cause semantic for (pre-)POC *aki(ni) to transitive predications (involving distinct actor and undergoer) in order, I would suggest, to permit actor suppression without a concomitant change in aktionsart. For P-verbs, the construction 91 provided a contrast between the process or state non-transitive interpretation of P-verb intransitive forms and a suppressed (but inferable) actor interpretation, as the -ek suffix does in Mokilese examples like the following:

- MOK 92a. ngoah sipwangla rahu
 1sg break-away branch-that
 'I broke the branch'
- 92b. rahu sipwla
 branch-that break-away
 'The branch broke/is broken'
- 92c. rahu sipwangekla
 branch-that break-pass-away
 'The branch was/has been broken'

For A-verbs, the construction 91 permitted otherwise impossible intransitive clauses with undergoer subjects, as in:

- MOK 93a. ih daurdi penno
 3sg climb-down coconut-that
 'He climbed for that coconut'
- 93b. *penno doaudi
 coconut-that climb-down
- 93c. penno daurekdi
 coconut-that climb-pass-down
 'That coconut was climbed for'

Following from the cause semantic of its pre-PMC source, the PMC *-aki agentless passive suffix can be interpreted not as introducing a causer but as leaving a 'trace' of a suppressed/unexpressed causer.

Two additional problems must be addressed in any reconciliation of PMC *-aki and PMC *akini. Perhaps a minor problem is the observed difference in canonical shape. If we take PMC *-aki to reflect the intransitive form of POC *aki(ni), without transitive morphology and subject to final consonant deletion, and PMC *akini to reflect the transitive form of POC *aki(ni), their distinct canonical shapes present no great difficulty.²⁰

Somewhat more serious is the problem posed by the fact that one PMC reflex of POC *aki(ni) appears as a suffix, the second as a verb. One would, of course, appeal to the well-documented though as yet poorly understood phenomenon of suffixal 'capturing' in accounting for this development. What remains unclear is why (pre-)PMC reflexes of POC *aki(ni) should have been captured in the agentless passive function in advance of other functions.

A possible account of the early capturing of pre-PMC *aki in construction 91 can be given in terms of the class of verb appearing in this construction, as compared to pre-PMC NP_S - V - *akini - NP_O constructions. In the latter, all V's, it was claimed in section 3.3., were A-verbs (intradirectives), which occurred freely with an NP_S identical to that of the *akini serial construction in intransitive clauses of the form NP_S - V.²¹ In the case of V - *aki agentless passive constructions, however, at least one class of V, the A-verbs, could not occur in intransitive clauses with a nominal identical to that occurring in the *aki construction, since that nominal was an undergoer. The independent verbal status of the two verbal elements in these distinct constructions was, therefore, not equally transparent. Only the *akini construction could be analysed in all its occurrences as a serial construction of two verbs with like subjects. The fact that *aki constructions were not thus analysable may have provided impetus for a reanalysis of *aki as a suffix.

3.5. The spread of the act semantic

3.5.0. Introduction

In previous sections it has been proposed that, in immediate pre-POC times and perhaps extending into the POC period, the verb *akini appeared in serial constructions with verbs that were for the most part intradirective. With motion and stance verbs these constructions were interpreted under a cause semantic. With 'psychological' intradirectives they were interpreted under a reflexive semantic. The prefix POC *paka-, originally used to impose an act semantic on experiencer subject verbs, 'adverbial' predicates, and possibly P-verbs, had come to function as a transitiviser for 'pure' states/adjectives under a cause semantic. Subsequent developments appear to involve the spread of a cause semantic for *paka- and its reflexes and a complementary shift of *akini and its reflexes to an act semantic.

The potential for this realignment of functions was, in two senses, already present in the system. First, the meanings of *paka- and *akini were not fixed, in the sense that *paka- meant 'act' and *akini 'cause'. At the historical period in question both were 'grammatical' items. Whatever had been their original lexical content, they appear to have survived only as broadly derivational devices, in both cases adding some degree of increased actorhood. That *paka- is described here as functioning with an act semantic can be related to its original specialisation to like actor constructions of the form $x_A - *paka - (x_A - V - (y_U))$. That *akini is described here as functioning with a cause semantic is in some sense an artifact of its transitivity, appearing with distinct actor and undergoer. Both items involved *acting*; in the former case, an actor acting for itself, in the latter, acting on/ with respect to something else.

Second, though the reflexive function of *akini is interpretable as a cause semantic, the syntax of such constructions is parallel to that of *paka- derivatives with an act semantic. In both cases, the actor of the root predicate is the transitive subject (actor) of the derived form (A=S in Dixon's terms). The reflexive function is thus open to ambiguous interpretation under either a cause or an act semantic.

Figure 1 (opp) summarises one likely course of development in the realignment of functions for *paka- and *akini and their reflexes. Stage I represents the (pre-)POC situation hypothesised in section 3.3. Stage II represents the first spread of the cause semantic for *paka- and Stage III the development of confective function for *akini. Stage IV, a complete shift to an act semantic for *akini is, so far as I am aware, a development unique to Gilbertese. Other variations will be considered in the sections to follow.

3.5.1. Confective and instrumental function

The shift from a cause to an act semantic involves an extension of the scope of the causer. Under a cause semantic the causer is actor of the predicate 'cause' only; under an act semantic it becomes actor of the root predicate also. This change results in a reinterpretation of the semantic role of the cause semantic causee. Under an act semantic for earlier physical (motion and stance) intradirectives, it is interpreted as a *concomitant*. For earlier affective causatives, it is interpreted as an *instrument*.

The extent to which reflexes of *akini serve as instrument markers should, then, be a function of the degree to which causative *akini appeared with non-intradirective A-verbs (that is, with affectives). On present evidence, this use was rather limited. The shift to an act semantic can, however, be viewed as increasing the potential for reflexes of *akini to take on an instrumental function. This development appears to have occurred independently in several places in Oceania.

The use of reflexes of PMC *akini to flag instruments is restricted to Ponapeic and Kosraean. I consider this function to be an innovation of these languages and do not reconstruct it for the PMC item. In Kosraean it is limited to intransitive verbs:²²

KOS 94. nga owokihn sop ah
1sg wash_i-with soap the
'I washed with soap'

95. kom kuh in ikackkihn kain ki se
2sg can COMP open_i-with kind-of key this
'You can open (something) with this kind of key'

*akini					*paka-			
intradirective			adverbial	adjective	intradirective		adverbial	adjective
	physical	psychological			physical	psychological		
Stage I	z-V-akini-x (< x-V)	x-V-akini-y (< x-V)	*	*	*	x-paka-V-(y) (< x-V-(y))	x-paka-V (< x-V)	z-paka-V-x (< x-V)
Stage II	z-V-akini-x (< x-V)	x-V-akini-y (< x-V)	*	*	*	x-paka-V-(y) (< x-V-(y)) z-paka-V-x (< x-V)	x-paka-V (< x-V)	z-paka-V-x (< x-V)
Stage III	x-V-akini-y (< x-V & y-V)	x-V-akini-y (< x-V)	*	*	z-paka-V-x (< x-V)	z-paka-V-x (< x-V)	x-paka-V (< x-V)	z-paka-V-x (< x-V)
Stage IV	x-V-akini-y (< x-V)	x-V-akini-y (< x-V)	*	*	z-paka-V-x (< x-V)	z-paka-V-x (< x-V)	x-paka-V (< x-V)	z-paka-V-x (< x-V)

Figure 1: Realignment of cause and act semantics

- KOS 96. Sohn el kahkkih ah soko
John 3sg tie_i-with rope a
'John is using a rope to tie (something)'

Ponapeic ki(n) marks instruments in both transitive and intransitive clauses:

- MOK 97a. ih pihniki parnijjo
3sg paint-with varnish-that
'He's painting with the varnish'
- 97b. ih pihnihki sehpihwa parnijjo
3sg paint-tr-with table-the varnish-that
'He's painting the table with the varnish'
- 98a. ngoah insingki nah pehnno
1sg write-with his pen-that
'I'm writing with his pen'
- 98b. ngoah insingehki kijinlikkoauoaw nah pehnno
1sg write_t-with letter-a his pen-that
'I'm writing a letter with his pen'

Given that PMC *akini was used only with (intransitive) intradirectives, then its extension, under an act semantic, as an instrument marker with all intransitive verbs is a natural development. Its subsequent development as an instrument marker in all clauses in Ponapeic is similarly straightforward.²³ Note, moreover, that this proposed sequence of development for the instrumental function might be considered somewhat odd on theoretical grounds. On usual interpretations of the nature of instrumentality, together with the view that semantic roles like 'instrument' are not primitive but are complex functions of the inherent semantic of clausal elements, particularly the predicate (see Van Valin and Foley (1980)), then one would expect the instrumental function to be associated with transitive clauses at least as frequently, if not more so, as with intransitive ones. The only plausible account, it seems to me, of the observation that a particular instrument flag developed first in this function in intransitive clauses is one in which instrument marking was not its original function, as in the account of POC/PMC *akini put forward here.

As noted in section 2.2.2., an instrumental function for independent (non-suffixal) reflexes of POC *aki(ni) appears to have developed in Central Pacific, though whether this function arose in PCP or developed subsequently and spread through western Polynesian and Fijian is at present arguable. The Fijian form kina functions as an anaphoric adverb for oblique nominals removed from their clause, on evidence available to me, by fronting processes:

- FIJ 99. na waqa eratou ā lako kina ki Suva...
art canoe 3pl tns go adv to Suva
'The canoe in which they went to Suva...'
100. e na yabaki sā oti eratou ā vuli vosa kina
3u art year nts finish 3pl tns learn language adv
'Last year they were learning languages'

This general anaphoric function for FIJ kina I take to be a development from a narrower instrumental anaphoric function observed for Tongan 'aki and Samoan a'i:²⁴

- TON 101. na'a ne to'o 'a e maea 'o ne ha'i 'aki hoku ongo nima
tns 3sg take abs art rope and 3sg tie adv my two hand
'He took a rope and tied my hands with it'
- SAM 102. 'au mai se to'i e vavae a'i le lā'au
bring hither art axe tns cut adv art tree
'Bring an axe to cut the tree with'

a function I further assume to be related to the wider instrumental use of TON 'aki

discussed in section 2.2.2.

3.5.2. Gilbertese -akina transitives

In Gilbertese we observe a complete shift to an act semantic for its reflex of *akini (Stage IV of Figure 1 p.205). The confective semantic has been lost and the reflexive subsumed under a more general act semantic. Since they appear to be unique in this respect we will consider Gilbertese -akina transitives in some detail.

At present some ninety Gilbertese verbs with transitive forms in -akina have been identified. All are intradirective and have A-verb syntax, occurring in intransitive clauses with subjects identical to those of the corresponding transitive clauses. When used intransitively they may take an oblique complement flagged by the preposition *n* or, more rarely, by some other preposition, directional, or relational noun. The semantic role of the oblique complement is identical to that of the corresponding transitive object. Some examples are:

- GIL 103a. e ngare (n anne)
3sg laugh prep that
'He laughed (at that)'
- 103b. e ngareakinna
3sg laugh-akina-3sg
'He laughed at it'
- 104a. e mate te kamea (n te bwaitin)
3sg die art dog prep art poison
'The dog died (from poison)'
- 104b. e mateakiniia mooa te kamea
3sg die-akina-3pl chickens art dog
'The dog is mad about chickens'
- 105a. a ikakarabwakau (n taekan te katau mwani)
3pl REC-RED-CA-knowledgeable prep about art budget
'They had a discussion (about the budget)'
- 105b. a ikakarabwakauakina te katau mwani
3pl discuss-akina art budget
'They discussed the budget'
- 106a. e wene te uea (iaon te robwa)
3sg lie art king on art mat
'The king is lying down (on the mat)'
- 106b. e weneakina te koro karewe te uea
3sg lie-akina art cut toddy art king
'The king is tied up cutting toddy'
- 107a. a borau (nako Tarawa)
3pl voyage to Tarawa
'They voyaged (to Tarawa)'
- 107b. a borauakina Tarawa
3pl voyage-akina Tarawa
'They were voyaging to Tarawa'

A minority of -akina transitives have a second transitive form in -a, -na or, rarely, -ra. Since transitives with these terminations are distributionally less restricted than -akina transitives, they will be referred to as *primary transitives*.

Recent literature on transitivity has suggested a number of possible functions

served by transitive/intransitive coding contrasts, among them:

- i) 'pure' valency change, whereby a transitive clause has an argument not expressible in the corresponding intransitive clause
- ii) increasing the pragmatic salience of an oblique nominal to make it accessible to pragmatic passive or to potentially pragmatically sensitive processes like relativisation
- iii) encoding aspect, degree of referentiality, degree of affect of similar contrasts

Pure valency change is not a function of primary or -akina transitivity in Gilbertese for the verbs in question since all have the option of encoding the -akina or primary transitive object as an oblique nominal. The oblique/direct object contrast available in such cases does, in some sense, entail a change in the pragmatic salience of the nominal in question but since the semantic interpretation of such contrasting clauses is frequently quite distinct this pragmatic salience is not simply a matter of discourse topicality or any similar notion. The nature of this semantic contrast is difficult to characterise explicitly; it is rather more subtle than aspect or degree of affect as discussed, for example, in Hopper and Thompson (1980). Consider, for example, the following intransitive/primary transitive contrasts for Gilbertese verbs with -akina transitives:

- GIL 108a. i mii iroun te aine aarei
 1sg surprised by art woman that
 'I marvelled at/was struck by that woman'
- 108b. i mii te aine aarei
 1sg surprise-tr art woman that
 'I dreamt about that woman'
- 109a. e tei imwaain te auti n aoraki
 3sg stand before art house of sick
 'He stood in front of the hospital'
- 109b. e teina te auti n aoraki
 3sg stand-tr art house of sick
 'He is on duty at the hospital'
- 110a. e biri ma te ben
 3sg run with art coconut
 'He ran with/holding the coconut'
- 110b. e biria te ben
 3sg run-tr art coconut
 'He snatched/ran off with the coconut'

In these examples a close approximation of the semantic contrast between the a. and b. examples might be that, in the latter, the direct objects are being viewed less as attendant circumstances. They are more situationally relevant or pragmatically salient in the sense that they are being viewed as more of an integral part of the situation described by the verb than are the corresponding peripheral/oblique nominals of the a. examples. Both a. and b. sentences might be used to describe the same real world situations, the choice reflecting a decision on the part of the speaker as to the degree of relevance of the non-subject nominal.

While this contrast is relatively clear from the English glosses in examples 108-110 above, for examples like the following this is not the case:

- GIL 111a. e bwaro te ran iaon te taibora
 3sg spill art water on art table
 'The water spilled on the table'

- GIL 111b. e bwaroa te taibora te ran
3sg spell-tr art table art water
'The water spilled on the table'
- 112a. e bwee nako Tarawa te waa
3sg steer to Tarawa art canoe
'The canoe is on course to(wards) Tarawa'
- 112b. e bweea Tarawa te waa
3sg steer-tr Tarawa art canoe
'The canoe is on course to/for Tarawa'

One can only infer that distinctions similar to those more easily lexicalised in English in examples like 108.-110. hold for these cases also.

The interpretation of -akina transitives is similar to that of primary transitives for the same set of verbs with respect to the situational relevance of the object. However, -akina transitives involve the additional dimension of increased actor involvement. In some instances, -akina transitives suggest purposeful intentional action towards a salient object (higher actor perspective in the sense of Van Valin and Foley (1980)), paraphrasable as 'to act in a manner x with respect to NP'. In others, the degree of actor involvement is more potential, paraphrasable as 'to treat/regard NP as something worth V'ing'. Consider the following -akina transitives, corresponding to examples 108.-112. above:

- GIL 113. i miiakina to aine aarei
'I'm mad about/captivated by that woman'
114. e teiakina te auti n aoraki
'He guarded the hospital'
115. e biriakina te aine
'He eloped with the woman'
116. e bwaroakina te taibora te ran
'The water is/was spilling on the table' or 'The water spilled on the table'
117. e bweeakina Tarawa te waa
'The canoe is on course for Tarawa'

Example 113. suggests that the speaker regards the woman in question as someone worth marvelling at, and that his actions reflect that fact, rather than that she entered his consciousness by accident or in spite of himself, as might be the case in example 108. Example 115. (cf. example 110b.) appears to have a similar, culture-specific interpretation, suggesting that the person in question acted towards the woman as something to be snatched and run off with. Example 114. involves a more highly motivated activity with respect to the hospital than does the corresponding example 109.

Example 116. is more difficult to interpret since water cannot engage in purposeful, wilful, or intentional activity. Some informants stress the immediacy of the event described in example 116. and insist on an imperfective gloss in English. (For a similar contrast, see section 3.5.3.). It has been suggested to me that example 116. is as much a statement about what happened to the water as what happened to the table, in contrast to example 111b. which, this informant claimed, has more to do with the table. Example 117. implies that Tarawa is indeed the intended destination of the canoe or that those on board performed some action that resulted in this course, in contrast to example 112., where neither of these implications need hold. Finally, we might note the contrast between:

- GIL 118a. ti noora te takaakaro²⁵
1pl see-tr art play
'We saw the entertainment'

GIL 118b. ti noakina te takaakaro
 1pl see-akina art play
 'We attended/were an audience for the entertainment'

where 118a. may have been accidental, while 118b. suggests advanced planning or at least more immediate attention.

With those -akina transitives having no corresponding primary transitive, similar contrasts are observed. Consider:

GIL 119a. e muti n ana mmakuri
 3sg careful prep his work
 'He is careful in his work'

119b. e mutiakina lobi lehova
 'The Lord accepted Job's prayer' (Job 42:9, perhaps more literally rendered as: 'The Lord treated Job solicitously')

120a. ti mwaiee n te bino
 1pl amuse prep art bino
 'We amused ourselves with the bino'

120b. ti mwaieeakina te bino
 1pl amuse-akina art bino
 'We performed the bino'

GIL 121a. e wiinrang ibukin kaubwaina
 3sg boast because wealth-his
 'He boasted/is boastful because of his wealth'

121b. e wiinrangiakina kaubwaina
 3sg boast-akina wealth-his
 'He boasted of his wealth'

where the b. examples involve both a situationally relevant object and some overt, active manifestation of solicitude, amusement, and boastfulness, respectively.

The increased actor involvement characteristic of -akina transitives may suggest only the viewpoint of the actor with respect to the relevance of the object nominal to the situation described. In this regard, consider:

GIL 122a. i aki botu n au mmakuri
 1sg NEG bored prep my work
 'I'm not bored with my work'

122b. ko aki botuakina am mmakuri?
 2sg NEG bored-akina your work
 'Aren't you bored with your work?'

122c. ?i aki botuakina au mmakuri

Most informants considered example 122c. to be infelicitous. Under the analysis of -akina semantics presented here, while it is possible to contrast a subjective judgement regarding the source of another's boredom (botu n) with a claim that, from that other person's point of view, his boredom in fact had the source in question (botuakina), it would be infelicitous to draw such a contrast about oneself (example 122c.). This actor viewpoint interpretation of -akina transitives is common for both verbs of psychological state and verbs of motion, as in example 117. above and:

GIL 123a. e nakonako nako Bikenibeu
 3sg walk to Bikenibeu
 'He walked to Bikenibeu'

GIL 123b. e nakonakoakina kaekaeān te tia rabwakau
 3sg walk-akina search-of art actor knowledgeable
 'He went in search of an expert'

The semantics of -akina transitivity is, thus, governed completely by an act semantic. These transitives contrast with corresponding primary transitives in the degree of actorhood of their subjects, and with corresponding intransitives (with oblique complements) both in degree of actorhood and degree of object/undergoer relevance. So far as I am aware, this is a development, for *akini reflexes, that is unique to Gilbertese.

3.5.3. Dispersive and intensive -Caki in Fijian

As already noted in section 2.2.1., what Arms (1974) terms the dispersive form in Fijian involves the reciprocal prefix *vei-* and the long transitive suffix *-yaki* (on the basis of evidence presented in section 2.2.1., less obviously a suffix than other -Caki variants). According to Geraghty (1978:255) the form is limited to eastern dialects. Some examples are:

- FIJ 124. e ā veisokoyaki na cauravou
 3u tns REC-sail-yaki art youth
 'The young man sailed hither and thither'
125. e ā veikauyaki na kato
 3u tns REC-carry-yaki art box
 'The box was carried here and there'
126. era dui veiraiyaki
 3pl all REC-see-yaki
 'They are all looking in different directions'

Dispersive forms suggest multiple occurrences of the same situation, in terms of motion or orientation in different directions. They are usually intransitive though Arms (1974:95) claims that some P-verb dispersives can be used transitively.

The intensive function of Fijian -Caki is typically associated with the long transitive suffixes *-laki* or *-raki* or, in a small number of cases, *-kaki*. The intensive semantic is similar to the dispersive insofar as it involves repeated or protracted (or intense or violent) action, but without the directional implications of the dispersives. Some examples are:

- FIJ 127a. vaculaki 'to punch something repeatedly'
 127b. dresulaki 'to tear something to shreds'
 127c. moitaki 'to twist something repeatedly'
 127d. bitalaki 'to hurl something'
 127e. ilovaki 'to look intently at something'
 127f. guutaki 'to strain at/be earnest for something'

Arms (1974:94-95) is at pains to account for the fact that Fijian -Caki, which he analyses as a transitive suffix, is used in what he terms dispersive/intensive functions to mark repeated or protracted activity. Similar difficulties would be evident under any analysis of POC *aki(ni) or its reflexes as an accessory role marker. Under the present analysis these functions can be viewed as a manifestation of the extension of the act semantic for reflexes of *aki(ni). As has been noted in many places in recent literature (Dixon 1979:93ff, Hopper and Thompson 1980, Comrie 1976:98ff, Foley 1980), constructions associated with actor orientation (as opposed to patient/undergoer orientation), like antipassives and other contrasting transitivity patterns with oblique objects, frequently suggest some degree of imperfectivity (for example, duration or repetition). The fact that Fijian -Caki

carries such interpretations in some uses, as is also true, it will be recalled, of some Gilbertese -akina transitives, thus can be seen to follow directly from the act semantic.

3.5.4. De-nominal and de-adjectival transitive derivation

Reflexes of POC *aki(ni) are employed in a number of languages to derive de-nominal and de-adjectival/stative transitives. For example:

- FIJ 128a. kutaritaki 'to hoe something' (< kutari 'hoe')
 128b. waitaki 'to irrigate something' (< wai 'water')
 128c. matataki 'to represent someone' (< mata 'representative')
 128d. lasutaki 'to deceive someone' (< lasu 'false')
- TON 129a. 'otua'aki 'to worship/deify' (< 'otua 'God')
 129b. 'olunga'aki 'to use as a pillow' (< 'olunga 'pillow')
- KOS 130. eltahl sengseikihn kom
 3pl teacher-kihn 2sg
 'They consider you a teacher'
131. Sepe el olakihn pwepuh se
 Sepe 3sg diaper-kihn paper a
 'Sepe is using a piece of paper as a diaper'
132. kuht retiokihn retio sac
 lpl.e radio-kihn radio the
 'We're using the radio'
133. nga kahtokihn lohm uh liki lohm sihk ah
 lsg pretty-kihn house this from house my the
 'I consider this house prettier than my house'
134. kuht puhlakfohnkihn lah eltahl tiyac ut lacsac
 lpl.e stupid-kihn COMP 3pl NEG enter left
 'We consider it stupid that they didn't enter from the left'
- MOK 135. ngoah jamanki woallo
 lsg father-ki man-that
 'I regard that man as a father'
136. ih waranki pohsso
 3sg vehicle-ki boat-that
 'He owns that boat'
137. rioaio pirin painki liho
 sibling-my-that MOD spouse-ki woman-that
 'My brother is going to marry that woman'
138. ngoah mwehuki inoangpase
 lsg good-ki story-a-this
 'I like this story'
139. ih apwalki doadoahkko
 3sg difficult-ki work-that
 'He found that job difficult'

In Micronesian, this use of reflexes of *akini is restricted to Ponapeic and Kosraean and, in Fijian, according to Geraghty (1978:255) is the preferred derivational mechanism only in eastern dialects.

In western Fijian dialects, the preferred productive transitiviser (for de-nominal/adjectival transitives and for other uses) is a suffix -ni, which is also available

for de-nominal/adjectival transitives in standard Fijian (Arms 1974:118-119), as in:

- FIJ 140a. katonu 'to put something in a box, to record something' (< kato 'box')
 140b. maloni 'to put paper mulberry on something' (< malo 'paper mulberry')
 140c. qatoni 'to put bracelets on someone' (< qato 'bracelet')
 140d. duvani 'to poison (fish)' (< duva 'plant name')
 140e. lasuni 'to deceive someone' (< lasu 'false')

A similar formant -n derives de-nominal transitives in Trukic and Gilbertese:

- TRU 141a. waani 'to own (a vehicle)' (< waa 'vehicle')
 141b. semeni 'to regard/have someone as a father' (< saam 'father')
 141c. paani 'to use something as bait' (< paa 'bait')
 GIL 142a. ueana 'to have someone as king' (< uea 'king')
 142b. mwaena 'to use/wear something as a garland' (< mwae 'garland')
 142c. nanona 'to mean, to have something in mind' (< nano 'interior, meaning')

We might note, further, that in Mokilese (and in other Ponapeic languages so far as I am aware) possessive classifiers used as the root of de-nominal transitives appear in an -n final form, as in examples 135.-137. above (cf. MOK jamah 'his father', warah 'his vehicle', pahioa 'his spouse').

The Micronesian data suggest that the use of reflexes of PMC *akini in de-nominal and de-adjectival transitive derivation is an innovation of Ponapeic/Kosraean and, moreover, that a suffix PMC *-n+obj was the original device used in this function. On the basis of the Fijian evidence, one might want to postulate a suffix POC *-ni in the same function. Such evidence, together with the fact that in both Fijian and Polynesian it is the productive alternative of -Caki that is used in de-nominal/adjectival transitive derivation (FIJ -taki, TON -'aki), suggests that all such uses of reflexes of POC *aki(ni) are post-POC innovations.

Oceanic de-nominal and de-adjectival transitives are governed by one of two semantics; the first approximating an act semantic and the second, a cause semantic. In the case of de-nominal/adjectival transitives reflecting the putative POC *-ni, both semantics are often found in the same language. For example:

- BAU 143a. lasuni 'to deceive' (< lasu 'false')
 143b. yagani 'to use' (< yaga 'useful')
 GIL 144a. karakina 'to tell someone a story' (< karaki 'story')
 144b. tamana 'to treat someone as a father' (< tama 'father')

The interpretation of the a. examples resembles an act semantic in that the nominal/adjectival root is predicated (in a possessive or attributive relationship) of the subject (actor) of the derived transitive (Dixon's S=A). Thus:

145. (x - N/A) & x act on y => x - N/A-ni - y

The interpretation of the b. examples resembles a cause semantic in that the nominal/adjectival root is predicated of the object (undergoer) of the derived transitive (Dixon's S=O). Thus:

146. z - cause/treat (y - N/A) => z - N/A-ni - y

Both semantics can also be found with de-nominal/adjectival transitives reflecting POC *aki(ni) though, on available evidence, not in a single language. Thus, Fijian derivatives in -taki follow an act semantic (as in example 128. above), while Tongan, Kosraean, and Mokilese derivatives (in -'aki, -kihn, and -ki, respectively - see examples 129.-139.) follow a cause semantic. Both semantics are compatible with the analysis of the history of POC *aki(ni) presented here. I can, however, offer no account of the fact that some languages use a more conservative semantic with reflexes of *aki(ni) in this function and others a more innovative one.

3.5.5. Reflexes of *aki(ni) as a productive transitiviser

A logical final step in the evolution of the act semantic for reflexes of POC *aki(ni) is the loss of its contrastive act interpretation and its development into a productive transitiviser. Reflexes of POC *aki(ni) appear to have followed this course, in some of their uses at least, in Fijian and in Marshallese. In the former, the -Caki variant -taki,²⁷ as already noted in sections 3.2. and 3.5.4., is a productive device for deriving causative transitives (in vaka-) and de-nominal/adjectival transitives. It is also used with loanwords and in lexically complex derived transitives, as in:

- FIJ 147a. ripeataki 'to repair something'
 147b. vosavosaiyalonataki 'to murmur something to oneself' (vosavosa 'speak' - i 'at' - yalona 'his spirit')

We have hitherto assumed the regular Marshallese reflex of PMC *akini to be the preposition MAR kōn, concerning whose properties little information is at present available. In a study of Marshallese transitive morphology, however, Bender (forthcoming) discusses a class of verbs he terms *weak thematic* whose transitives are formed with the desinence -Vk, where V is a high vowel the frontness of which is governed by that of the preceding vowel:

- MAR 148a. mukko 'cargo net'
 148b. mukkouk 'to hoist something in a cargo net'
 149a. tuwā 'to spear fish underwater'
 149b. tuwāik 'to spear something underwater'
 150a. lōlō 'to stick with a pointed object'
 150b. lōlōikʌlōlōuk 'to stick something with a pointed object'

MAR -Vk is a productive device for deriving transitive forms from roots that are vowel final (under Bender's analysis, semi-consonant final).

Bender (forthcoming) suggests that many items now belonging to the weak thematic class may in fact be reanalysed thematic transitives originally of the shape ...Vk-suf, where V is high. An account of the synchronic productivity of -Vk would not follow were this its only source, however. Bender proposes that -Vk may have arisen through a metathesis of an earlier *ki, a common development for minor category monosyllables in Marshallese (for example, MAR in 'construct particle' < PMC *ni, MAR bwe'veb 'complementiser' < PMC *pwa/pwe, MAR em 'and' < PMC *ma, and MAR eok '2sg object' < PMC *ko). If this analysis is correct, then -Vk may be a second Marshallese reflex of PMC *akini that, uniquely in the Micronesian family, has developed into a productive transitivising suffix.

One can only speculate as to the sequence of events that might have led to the split of PMC *akini into two distinct elements in Marshallese, pre-Marshallese *kina (> MAR kōn)²⁸ and pre-Marshallese *ki (> MAR -Vk). The irregular loss of PMC *n in only the latter remains problematic under any account. The catalyst for the split of PMC *akini in Marshallese and for the reanalysis of pre-Marshallese *ki as a transitiviser may have been its use as a transitiviser for some inalienable nouns, as in:

- MAR 151a. jemāik 'to care for someone as a father' (< jema- 'father')
 151b. wawaik 'to use something as a vehicle' (< wa 'vehicle')
 151c. nājiik 'to treat something as a child/pet' (< naji 'child')

The extension of this derivational mechanism to roots of the same (vowel-final) canonical shape would, then, have been a possible development. The historical priority of the de-nominal use of -Vk (in example 151.) is not, of course, necessary and may in fact reflect only the synchronic productivity of the suffix.

3.5.6. Rotuman -'aki

As noted in Biggs (1965) the Rotuman suffix -'aki is a borrowing from Polynesian,²⁹ given that POC *k is reflected as ROT // in native items. In some of its occurrences it parallels Tongan -'aki, with a reflexive interpretation or as a de-nominal transitiviser. For example:

- TON 152a. mo'ui'aki 'to live for' (< mo'ui 'to live')
 152b. tamai'aki 'to have as father' (< tamai 'father')
 ROT 153a. maur'aki 'to live for' (< mauri 'to live')
 153b. ö'fā'aki 'to have as father' (< ö'fā 'father')

Two of its uses, however, are not typical of its Polynesian source, its use in derived causatives and its use with statives in what Churchward terms moderate forms:

- ROT 154a. siag'aki 'to push over' (< siga 'to fall')
 154b. mao'aki 'to lose' (< mao 'to disappear')
 154c. al'aki 'to kill' (< ala 'to die')
 154d. 'imo'aki 'to make someone drink' (< 'imo 'to drink')
 155a. lelei'aki 'moderately good' (< lelei 'good')
 155b. mia'aki 'reddish' (< mi'a 'red')
 155c. luak'aki 'somewhat short' (< luka 'short')

It is difficult to know how to interpret the causative function of Rotuman -'aki. It may reflect the fact that, at the time at which it was borrowed, the Polynesian source itself had a causative function. It seems to me more likely that this was not the case; that it was borrowed from Polynesian as a serial verb and innovated in Rotuman as a causativiser. In any case, there does not appear to be any evidence available that bears directly on this issue.

While the moderate function of ROT -'aki has no exact parallels elsewhere in Oceania so far as I am aware, it seems to me a not unlikely extension of an act semantic form. There are somewhat analogous uses of the causative form, under an act semantic, in Gilbertese and Tongan:

- TON 156. fakafuofua 'to estimate' (< fua 'to measure')
 GIL 157. e kakarabwakaua n akawa
 3sg RED-CA-skilled-tr COMP fish
 'He claims to be skilled at fishing.'

in the use of the English verb 'to act' in 'to act smart' or 'to act sick', and in English 'get' causatives:

- 158a. 'I killed him'
 158b. 'I got him killed'

Where the latter suggests accident rather than intention. Just as act semantic forms can be used to mark aspectual imperfectivity, it appears that they can be used to express 'hedges' of various sorts; less than total agency, less than total certainty, and less than total ascription of a property. A similar function for what may be reflexes of *aki(ni) will be considered in section 6.

4. THEMATIC CONSONANTS WITH REFLEXES OF POC *aki(ni)

In section 2.5. we argued, on the basis of the functional parallelism between suffixal and non-suffixal reflexes of POC *aki(ni), that, in contrast to the position held under the standard analysis, the POC source was not a suffix but a verb, in all its uses, and has developed suffixal reflexes in the post-POC period. (Major suffixal and non-suffixal reflexes of POC *aki(ni) in PMC, PPN, and Fijian are summarised in Figure 2.)

	Suffixal	Non-suffixal
PMC	i) agentless passive *-aki	i) confective/refective *akini ii) innovated as a de-N/A transitive in Ponapeic/Kosraean (? and Marshallese) iii) innovated as an instrumental marker in Ponapeic/Kosraean iv) innovated as a productive transitive in Marshallese
Fijian	i) confective/refective with evidence of independent *vaki ii) innovated as intensive -laki/-raki iii) innovated as de-N/A (productive) transitive -taki	i) anaphoric adverb kina ii) dispersive -yaki with vei-V, an innovation and only recently suffixed
PPN	i) confective/refective ii) dispersive with *fe-V, an innovation	i) instrumental prepositional verb/instrumental anaphor ii) de-N/A transitive 'aki in Tongan, probably only recently suffixed

Figure 2: Major reflexes of POC *aki(ni)

The process of final consonant deletion in Oceanic seems to permit a delimitation of the historical period at which these suffixal reflexes developed. If historical final consonants are preserved with suffixal reflexes of POC *aki(ni), then the suffixation must have preceded final consonant deletion; if they are not, then the suffixation undoubtedly followed final consonant deletion. Thus, for example, the suffixation of the Gilbertese passive suffix -akina, before which historical final consonants are not preserved.

This observation leads to the following paradox with respect to reflexes of POC *aki(ni):

- i) PMC *akini 'conjective/refective' was a verb
- ii) PCP *-Caki(ni) 'conjective/refective' was a suffix, an innovation of PCP
- ∴ iii) POC *aki(ni) 'conjective/refective' was a verb
- but iv) final consonant deletion is evidenced in both PMC and PCP and, it is assumed, had taken place in the language ancestral to both
- ∴ v) PCP thematic consonants with *-Caki(ni) arose after POC final consonants had been lost

There are three possible resolutions of this paradox:

- a. *akini was in fact a suffix in the language ancestral to PMC and PCP
- b. the thematic consonants of PCP *-Caki(ni) do not in fact reflect POC final consonants

- c. final consonant deletion did not apply in the language ancestral to PMC and PCP

The first of these proposals, as already considered in section 2.5., can be discounted on the grounds that were pre-PMC/PCP *aki(ni) a suffix, we would expect it to be reflected as such on similar forms and in similar functions. This is not the case. PMC *-aki 'agentless passive' is not a plausible direct cognate of PCP *-Caki(ni) since neither the functions nor the distribution of the forms are parallel and, moreover, the consonant preceding reflexes of PMC *-aki, if any, is always identical to that of the corresponding primary transitive, unlike the thematic of PCP *-Caki(ni) reflexes, which is more often than not distinct from that of related PCP *-Ci reflexes. Given that suffixal 'capturing' is a natural historical process there is no reason to assume, in the face of evidence to the contrary, that, in the history of a given form in any given language family, it necessarily took place only once.³⁰

Proposal b. above is of greater interest. There can be little doubt that, in the case of Fijian -Caki for example, many of the thematic consonants are not historical in view of the widely reported observations that the majority of -Caki thematics are distinct from the corresponding -Ci thematics (sixty-six percent non-correspondence in Arms' (1974) sample) and that the -Caki variants are much more closely correlated to particular functions than are the -Ci variants.

The origin of these non-historical consonants is problematic. One possibility is that they were analogised from the consonantism of -Ci suffixes. Were that the case, however, we would perhaps expect a greater than thirty-three percent correspondence between -Ci and -Caki forms of the same root and would probably not expect a relatively high frequency form -laki with no corresponding -li. The workings of analogy are, of course, little understood and, hence, the possibility that it played a role in the development of -Caki thematics cannot be ruled out. Any appeal to analogy remains far from satisfying, however.

IF POC *aki(ni) was a verb, as is argued here, then the further possibility suggests itself that the consonantism of reflexes of POC *aki(ni) are the fossilised remains of POC or pre-POC prefixal verb morphology. In this regard we might note that it is possible to reconstruct a prefix PAN *p(e,a)-, widely attested in western Austronesian, as a potential source for the thematic in, for example, FIJ -vaki and MOT -vag. The prefixes POC *ma- and *ta- have been reconstructed as 'stativisers' in Pawley (n.d.). While this hypothesis might hold some promise it would not be productive to pursue it at length here in view of the present state of our understanding of (pre-)POC prefixal morphology. We will reconsider it briefly, however, in section 6.

Independent of the considerations noted above, it remains a possibility that at least some of the thematic consonants in suffixal reflexes of POC *aki(ni) in Central Pacific are historical final consonants (or in some way modelled thereon) and, further, that they were preserved before a following *-aki(ni) suffix, as the standard analysis maintains. If such a hypothesis is tenable then final consonant deletion must have followed the suffixation of *aki(ni), at least in PCP.

What emerges from this hypothesis, however, is a second paradox:

- i) given that *aki(ni) was not a suffix in the language immediately ancestral to both PCP and PMC
- and ii) given that final consonants are preserved before *aki(ni) in PCP, but not in PMC
- and iii) given that final consonant deletion has applied in both PCP and in PMC
- then iv) final consonant deletion applied before the suffixation of *aki(ni) in PMC but after it in PCP

This paradox can be resolved if we assume that final consonant deletion applied independently at least twice after the break-up of POC, once in the history of Micronesian languages and once in the history of Central Pacific languages.

Dempwolff (1934) was the first to suggest that the loss of PAN final consonants was a defining characteristic (as a shared innovation) of POC. It was later observed, however, that these consonants are in fact preserved in a number of western Oceanic languages. Final consonant deletion could, then, no longer be maintained for POC, though it is widely accepted to be a defining characteristic of a lower-order subgroup Eastern Oceanic. One wonders, however, whether final consonant deletion need be accepted as a shared innovation for a subgroup consisting exhaustively of all the languages in which it has taken place. I would suggest, by contrast, that if we are to maintain the hypothesis that the thematic consonants of *-Caki(ni) forms in Central Pacific are historical, in the face of strong evidence that not only was POC *aki(ni) a verb, but so was its reflex in the language immediately ancestral to PCP and PMC, then we must conclude that final consonant deletion took place at least twice, as proposed above.

The history of thematic consonants with reflexes of POC *aki(ni), given the facts of their distribution and function, is problematic even under the standard analysis in which the POC form is assumed to have been a suffix. Their history is, however, no less problematic under the present analysis in which the POC form is held to have been a verb that developed into a suffix independently on several occasions in the post-POC period. Indeed, if an account of their history in terms of (pre-)POC verb morphology proves fruitful, their origin becomes less mysterious under the present account.

5. FUNCTIONS OF NON-OCEANIC COGNATES

As noted in section 2.3., Pawley (1973:122-125) suggests that suffixes like the following are likely non-Oceanic cognates of POC *aki(ni):

JAV	-qaken (Ngoko -qaké)
MLY	-kan (akan - see section 2.3.)
TOB	-hon [~] -kon [~] -pon
WLO	-aka

On the basis of these forms and POC *aki(ni), Pawley and Reid (1979) reconstruct PAN *aken. In section 2.3., we considered the evidence that Malay -kan and Wolio -aka were lexical verbs at some earlier period. In the present section we will attempt to demonstrate that the functions served by the non-Oceanic cognates of POC *aki(ni) considered here add support to the causative analysis of (pre-)POC *aki(ni) proposed in section 3.

JAV -qake(n) is interpreted under a cause/reflexive semantic, much as postulated for (pre-)POC *aki(ni). A cause semantic is used with motion and stance verbs, as in:

JAV 159a.	ngelunggohaké	'to seat someone' (< -lunggoh 'to sit')
159b.	nangeqaké	'to set something up' (< -tangi 'to get up')
159c.	nekaqaké	'to send for someone' (< tekô 'to come')
159d.	ngetôqaké	'to put someone out' (< wetu 'to go out')

but, unlike the situation postulated for (pre-)POC, is also used with statives, as in:

160a.	ngadəmaké	'to cool something' (< -adəm 'cold')
160b.	mbodoqaké	'to make a fool of someone' (< -bodo 'stupid')
160c.	ngeđohaké	'to separate' (< -đoh 'far')
160d.	mareqaké	'to fill someone' (< -wareq 'full, satisfied')

Its reflexive use, on available evidence, is for the most part benefactive, as in:

- JAV 161a. ngadôlaké 'to sell for someone' (< -dôl 'to sell')
 161b. ngakônaké 'to give orders for someone' (< -kôn 'to order')
 161c. masagaké 'to cook for someone' (< -masaq 'to cook')

though, with some verbs, other interpretations are found:

- 162a. ndongèngaké 'to tell something' (< -dongèng 'to tell')
 162b. ngerasaqaké 'to experience something' (< -rôsô 'to feel')
 162c. ngerungôqaké 'to listen to something' (< -rungu 'to hear')

In the following case, JAV -qake(n) appears to function under an act semantic:

163. ngelaleqaké 'to try to forget' (< -lali 'to forget')

The causative/reflexive functions of MLY -kan, TOB -hon, and WLO -aka are, for the post part, similar to those of JAV -qake(n):

- MLY 164a. datangkan 'to cause/bring about' (< datang 'to come')
 164b. turunkan 'to lower' (< turun 'to descend')
 164c. murahkan 'to cheapen' (< murah 'cheap')
 164d. mendalamkan 'to deepen' (< dalam 'deep')
- TOB 165a. paulakkon 'to return something' (< ulak 'to return')
 165b. pasohotton 'to cease something' (< sohot 'to stop')
 165c. manadikkon 'to leave someone behind' (< nadik 'to stay')
 165d. mamaluhon 'to hit with something' (< malu 'to hit')
- WLO 166a. tumbulaka 'to set in ground' (< tumbu 'to come up')
 166b. mendeusaka 'to forbid' (< mendeu 'unwilling')

where examples 164.-166. are interpreted under a cause semantic, and

- MLY 167a. tertawakan 'to laugh at' (< tertawa 'to laugh')
 167b. belikan 'to buy for' (< beli 'to buy')
- TOB 168a. marsuraehon 'to quarrel over' (< surae 'to quarrel')
 168b. manangihon 'to listen to/for' (< nangi 'to hear')
 168c. maulahon 'to work for' (< ula 'to work')
- WLO 169a. abaaka 'to inquire about something' (< aba 'tôask')
 169b. tajaki 'to bewail something' (< taji 'to cry')
 169c. tutuaka 'to pound for someone' (< tutu 'to pound')

where examples 167.-169. are interpreted under a reflexive semantic.

We have already noted (section 2.3.) the use of MLY akan as a modal marking intention or prediction (examples 35a.-b. above). Under the standard (role marking) analysis of PAN *akan/POC *aki(ni), this function is mysterious. Although the nature of the semantic involved is not totally clear, it seems to me that the modal use of MLY akan can be better understood in terms of the same semantic governing such uses of English 'make' as:

170. 'I make it about five miles'

possibly an actor-orientation semantic parallel to some uses of Gilbertese -akina considered in section 3.5.2.

Although my data on this use is scant, there is evidence of a further act semantic interpretation of MLY -kan, parallel to the Fijian intensive -laki/-raki, when used with some transitive verbs, as in:

- MLY 171a. tutup pintu 'close the door'
 171b. tutupkan pintu 'close the door'

Hopper and Thompson (1980:261) suggest that, in example 171b., "the door is more affected, the action is more completely carried out, or is done with more force". Additional data on the construction is necessary.

In his discussion of WLO -aka Pawley (1973:123) considers only its causative/reflexive interpretation. He fails to note three additional functions described in Anceaux (1952):

- i) ordinal derivation
- ii) comparative marking
- iii) temporal clause enclitic, as in:

- WLO 172a. 'iseaka 'to be first' (< 'ise 'one')
- 172b. limamiaaka 'to be fifth' (< limamia 'five (men)')
- 173a. maogeaka 'to be greater' (< maoge 'great')
- 173b. matauaka 'to know more' (< matau 'to know')
- 173c. cilakaaka 'more unlucky' (< cilaka 'unlucky')
- 174a. aumbaaka i kob'uru...
3sg-arrive-aka at graveyard
'when it arrives at the graveyard...'
- 174b. i banuaaka...
at house-aka
'when (he is) in the house...'
- 174c. abariaka mia i daoa...
many-aka person at market
'when there were many people at the market...'

It is difficult to know how to interpret these functions. The first is reminiscent of the use of reflexes of POC *paka- 'causative prefix' in ordinal derivation in Oceanic languages. Both these uses may be explicable under an act semantic. The comparative function of WLO -aka is somewhat analogous to the moderative use of Rotuman -'aki, though the fine semantics of the two constructions are quite distinct (one implying less than total ascription, the other more). The nature of the semantic involved remains unclear to me.

The temporal function of WLO -aka is less transparently related to other functions of PAN *aken/POC *aki(ni) considered thus far. I might, however, speculate that such a function could have evolved from a cause semantic in the following manner: The assertion that a situation is caused/brought about implies, under the most straightforward interpretation of cause-effect assertions, that that situation holds at some temporal reference point. If the cause itself is not mentioned, this implication nonetheless remains. It was precisely this sort of semantic change that gave rise to the PMC *-aki agentless passive (see section 3.4.). In Wolio, it would appear, a similar change has given rise to a marker for temporally backgrounded clauses.

6. PREFIXAL REFLEXES AND THE SYNTAX OF PRE-POC *aki(ni)

Thus far we have tried to establish a case for a POC periphrastic causative construction of the form V-*akini, where V was intradirective and where *akini itself was a lexical verb. These constructions were transitive and were interpreted under a causative/confective or a reflexive semantic, depending on the inherent semantics of V. One can infer that intransitive structures of the form V-*aki(n), with some nominal unspecified, were also possible. 'Purely' intransitive uses of *aki(ni) appear to have been later innovations, concomitant with the spread of an act semantic for its reflexes. In the present section I want to speculate on the existence of a

second construction, whose form we may give tentatively as *aki-V, governing an act semantic and, therefore, not a valency increasing device.

The evidence for such a construction is tenuous and equivocal, and any conclusions drawn therefrom are, for that reason, quite speculative. The evidence in question involves the prefixes:

- Ponapeic ak- 'acting, feigning'
 Kosraean ahk- 'causative'
 Rotuman a'- 'causative, adverbial, moderative'³¹

which are similar enough in form to *aki(ni) and, in function, to the developments from *aki(ni) proposed here to suggest that they may be reflexes of the (pre-)POC item.

Ponapeic ak- derives intransitive verbs from statives under an act semantic, in a manner parallel to act semantic functions of reflexes of POC *paka- considered in section 3.2. For example:

- MOK 175a. aksihkei 'to feign strength' (< sihkei 'strong')
 175b. aklaplap 'cocky' (< laplap 'important')
 175c. aksohrohr 'to adopt an independent attitude' (< sohrohr 'different')

Rotuman a'- can have a similar interpretation (example 176.) and, in addition, is used in adverbial and ordinal/frequentative derivation (examples 177. and 178., respectively) as, we might note, is Fijian vaka-. It can also be used, like ROT -'aki, in moderative forms (with the suffix -ga - example 179.) and in derived causatives (either alone or together with -'aki). Thus:

- ROT 176a. a'mosmose 'to feign sleep' (< mose 'to sleep')
 176b. a'fekfeke 'to feign anger' (< feke 'angry')
 177a. a'lelei 'well' (< lelei 'good')
 177b. a'raksa'a 'badly' (< raksa'a 'bad')
 178a. a'rue 'second' (< rua 'two')
 178b. a'mea'me'a 'for a short time' (< -mea')
 179a. a'masmasiga 'salty in places' (< masmasi 'salty')
 179b. a'in'ineaga 'to know in part' (< 'inea 'to know')
 179c. a'rurūaga 'to be somewhat painful' (< rū 'painful')
 180a. a'hele' 'to make happen' (< hele' 'to happen')
 180b. a'raksa'a 'to injure' (< raksa'a 'bad')
 va'raksa'aki

Kosraean ahk- is the regular causative prefix in that language, functioning in the same manner as reflexes of PMC *ka- in other Micronesian languages:

- KOS 181. Sohn el ahkosakye tuhlihk se
 John 3sg CA-limp-tr girl the
 'John made the girl limp'

As noted above, in most of their uses these prefixes follow an act semantic. Were they in fact of some antiquity, then, they would have been in competition with POC *paka- (or its reflexes), which they appear to have displaced in Kosraean and Rotuman.

Reconciling the phonological shape of these prefixes with POC *aki(ni) is far from straightforward. One would expect them to be reflexes of an intransitive form *aki, with a final high front vowel. The fact that that vowel is not reflected in these prefixes might be attributed to regular processes of final vowel loss in the languages in question, before the forms were prefixes. However, it is typical for reflexes of POC *a to be raised/fronted before a historical *i#, as in MOK -ek and KOS -yuhk 'passive' (PMC *-aki). The fact that this raising/fronting is not attested

in these prefixes makes any reconciliation with an earlier *aki problematic. The shape of the prefixes suggests that, if they do in fact have a disyllabic source, the historical final vowel was more likely to have been *a. Our present understanding of the phonological dynamic governing prefixation is so limited that it is difficult to know how to interpret these observations.

Thus, while these prefixes may reflect POC *aki(ni), they may have a totally different source. A particularly appealing hypothesis is that they are the result of metathesis of an earlier *ka-. In the case of KOS ahk-, this analysis would account for the fact that PMC *ka- 'causative' is not otherwise reflected in that language. Under this view, however, Ponapeic ak- becomes problematic, since PMC *ka- is regularly reflected as ka- in Ponapeic. Borrowing aside, the conditions under which some reflexes of *ka- metathesised in Ponapeic, while others did not, remain totally opaque. I know of no arguments with any strong bearing on a metathesis interpretation of ROT a'-, beyond the fact that metathesis is a well-attested process in that language. We can only conclude that, while these prefixes may have a historical source common with reflexes of *aki(ni), significant problems remain in establishing a strong case for cognacy.

Following the suggestion made in section 4. that at least some of the thematic consonants found with suffixal reflexes of POC *aki(ni) in Central Pacific have their source in PAN prefixal morphology, we might further speculate that some prefixes of the shape Caki- are reflexes of an earlier *aki-V act semantic serial construction. Four possible candidates come to mind:

i) MOK pak- 'to contest, to do in turns'³²

MOK 182a. pakwailel 'to have a shooting contest' (< wailel 'to be a sharpshooter')
182b. pakroairoai 'to compare heights' (< roairoai 'long, tall')

an act semantic interpretation involving reciprocity, a semantic that may be related to the restriction of postposed *akini to intradirectives, under which reciprocals also fall

ii) PAL beke- 'good at' (characteristic state), an interpretation compatible with imperfective interpretations of an act semantic, as in:

PAL 183a. bekerurt 'good at running' (< rurt 'to run')
183b. beketungel 'keen sense of smell' (< tungel 'smell')
183c. beketekoi 'talkative' (< tekoi 'word')
183d. bekureor 'hard-working' (< ureor 'to work')
183e. beketaut 'be a good shot' (< taut 'to aim')

iii) TAG paki-~maki- 'polite imperative'

TAG 184a. pakibasa mo sa akin ang kuento
imp-read 2sg C 1sg C story
'Please read me the story'
184b. makitawag ka ng doktor para sa akin
imp-call 2sg C doctor prep C 1sg
'Please call me a doctor'

a not unlikely development from an act semantic

iv) POC *paka- 'causative' itself, whose history has been demonstrated to have been closely tied to that of *aki(ni).

Two major problems remain in reconciling these prefixes with (pre-)POC *aki(ni):

- i) as noted earlier, the fact that many of them suggest a final *a, rather than a final *i
- ii) the fact that the non-Oceanic forms do not show the final *n of the reconstructed PAN *aken

I can only suggest that a possible resolution of these problems might lie in PAN verb morphology. In the case of the first problem, we might appeal to a *-i/*-a suffix alternation, as observed in the transitive morphology of a number of Oceanic languages (the well-attested -i transitiviser, and -a transitive forms found in Micronesian languages, standard Fijian, and Rotuman — see Harrison 1978). In the case of the second, I would suggest (cf. note 16) that the final *n of the PAN reconstruction might not be a historical final consonant, but a suffix antecedent to the suffix POC *-ni reconstructed in section 3.5.4. (A possible candidate is the suffix PAN *-en 'locative focus', as suggested in Harvey 1982.)

These suffixes, together with a monosyllabic root PAN *-ak- and PAN prefixal verb morphology, permit the derivation of all the forms considered here. Of course, these suggestions are in the realm of rank speculation, and perhaps raise more questions than they answer. They do not seem to me, however, to be totally implausible, and I offer them in the hope that they will stimulate more thorough investigation of the issues raised here.

NOTES

1. I am grateful to Joel Bradshaw, Alan Dench, Paul Geraghty, Andy Pawley, and Ken Rehg for comments on an earlier draft of this paper. The usual disclaimers apply.
2. The cognancy of the Oceanic forms on which this reconstruction is based and forms in Western Austronesian languages like Malay has been recognised at least since Kern's work.
3. The form *akini is held to have appeared before object pronouns and to have been the result of a reanalysis of an earlier *akin (PAN *aken), followed by the POC personal article *i. In most Oceanic languages, the final *n was lost through a regular phonological process when not followed by *i.
4. Abbreviations of language names:

FIJ	Standard Fijian	PTRK	Proto-Trukic
GIL	Gilbertese	PUL	Puluwatese
JAV	Javanese	ROT	Rotuman
KOS	Kosraean	SAM	Samoan
KWA	Kwara'ae	TAG	Tagalog
MAR	Marshallese	TON	Tongan
MLY	Malay	TRU	Trukese
MOK	Mokilese	ULI	Ulithian
PAL	Palauan	WLO	Wolio
PAN	Proto-Austronesian	WOL	Woleaian
PCP	Proto-Central Pacific		
PEO	Proto-Eastern Oceanic		
PLA	Pulo Annian		
PMC	Proto-Micronesian		
PNG	Pingelapese		
POC	Proto-Oceanic		
PON	Ponapean		
PPN	Proto-Polynesian		

5. The term *serial verb construction* is used here as in Foley and Olson (to appear: 3) to refer to 'constructions in which verbs sharing a common actor or object are merely juxtaposed, with no intervening conjunction'.
6. We can conjecture that the 'semantic bleaching' of *aki(ni) was concomitant with its restriction to serial verb constructions. Main verb reflexes of *aki(ni) are, to my knowledge, limited to a small number of Micronesian languages - see note 9.
7. This characterisation follows Anttila 1972:355ff.
8. The final -a of the Gilbertese reflex is the singular NP object termination. Other paradigm forms have -i. (See Harrison 1978). The Marshallese suffix -Vk, following Bender (forthcoming), is assumed to be a metathesis of an earlier *ki (see section 3.5.5.).
9. Ponapeic languages have a main verb ki-, obligatorily carrying a directional or other verbal enclitic, and interpreted as 'to give', 'to take', 'to move', depending on the enclitic selected:

MOK kioang 'to give'
 kihla 'to take'
 kihdi 'to leave behind'
 kihpene 'to gather'

While it is more than likely that Ponapeic ki- is a reflex of PMC *akini, its limited distribution as a main verb suggests that it may be an innovation of Ponapeic.

10. In western Trukic, however, reflexes of PMC *akini are found after reflexes of the complementiser PMC *pwa/*pwe, as in example 24 below. This construction appears to be limited to western Trukic. Relevant data on the syntax of MAR kōn is not available.
11. KOS kuhn is a morphophonemic variant of kihn.
12. In Gilbertese, only final short high vowels immediately preceded by nasals have been deleted. In western Trukic languages like Woleaian and Pulo Annian short final vowels are devoiced only.
13. Other functions will be considered in sections 3.5.3.-3.5.5.
14. The term *intradirective* is adapted from Wilson (1973) who, as reported in Pawley (1973:126), uses it for a class of verbs in Hawaiian (motion and stance verbs) in which, in Pawley's terms, the same actant is both *actor* and *experiencer*. Predicates of this sort are cardinal intradirectives. It is likely that the remaining predicate classes here termed 'intradirective' (perception and cognition predicates, 'life force' predicates, communication predicates and 'executive' predicates) are somewhat more subtly related to cardinal intradirectives, in terms of a more accurate and detailed taxonomy of predicate semantics, than is suggested here. It is impossible to undertake such an analysis within the confines of the present study, however, significant classes of non-intradirective predicates, under the characterisation used here, include processes like 'closing' or 'breaking', actions like 'hitting' or 'throwing', which are typically controlled/maintained by an entity distinct from that 'closed', 'broken', 'hit', or 'thrown (at)', and states like (non-transitives) 'bigness', 'redness', or 'length', which are neither controlled nor in any sense consciously maintained. These classes will be considered in more detail in section 3.1.
15. Some motion verbs are, in a sense, telic, in that they focus on the termination of the motion activity; for example, English arrive or Gilbertese roko 'come', which could be characterised as punctual. Note that the end point focussed on, in terms of the single obligatory nominal, is the termination of the motion and not the arrival at some goal.

16. The term 'causative' is used here to refer to a morphosyntactic construction, a derivative with a reflex of POC *paka- or, in a context to be specified below, POC *v-aki(ni) constructions and some of their reflexes. Though the term suggests a particular semantic interpretation (here termed the *cause semantic* – see below), this is not a necessary interpretation of these forms. Although misleading in this respect, the term 'causative' is retained in the following discussion for want of a better alternative.
17. Arms characterises the category *adjective* in terms of the intersection of such properties as stative semantics, NP internal occurrence, and exclusively causative transitive forms. The validity of such a category is irrelevant here.
18. It has been objected (Bradshaw, personal communication) that a periphrastic causative construction with the order verb-aux, as opposed to aux-verb, is unlikely. I take the substance of Bradshaw's objection to be not that the order verb-aux is to be ruled out on typological grounds in a VO language like POC, since such structures underlie Oceanic verb-directional (< motion verb) constructions. Rather, a periphrastic causative of this sort appears to violate some principle of natural serialisation whereby events are serialised in the order in which they occur (action-goal, cause-effect, etc.) and not, in the case at issue, in the order effect-cause.

If POC *aki(ni) was a verb, as claimed here, it is likely it was a P-verb, given the agentless passive reflex of V-*aki in PMC (see section 3.4.). An appropriate gloss for intransitive POC *aki is, thus, '*caused (by)*'. Underlying P-verb (process) semantics is a more general patient/result/effect prominence. If this orientation extended beyond the syntax and semantics of individual verbs, as manifest in their choice of intransitive subject, to the structure of complex cause-effect constructions, then it seems to me not unlikely that the effect should be treated as more prominent than the cause and, therefore, coded in the more prominent first position.

I regard Bradshaw's objection as a significant one to which I have already given a rudimentary response here. Its implications, I feel, go beyond the analysis of the construction in question and would require a separate paper to answer fully.

19. Jacobs (1976) suggests that some Trukic languages may allow an overt agent with reflexes of PMC *-aki.
20. In section 3.5.4. we reconstruct a non-thematic transitivising suffix POC *-ni. If this formant proves to be reconstructible for PAN (see section 6), we might then propose an earlier *ake/*aki, transitivised by *-ni.
21. Under a cause semantic the actor of a V-*akini serial construction for motion and stance verbs is not referentially identical with that of V, i.e. the one who seats someone is not the one who sits. Once a confective semantic becomes established for such constructions, the two actors in question are referentially identical – see Figure 1.
22. In Kosraean, the preposition ke is used to mark instruments in transitive clauses:

KOS pahpah el patihkyac osra soko ke acmuhr se
father 3sg hit-down nail the with hammer a
'Father hit the nail with a hammer'

Its source is not clear. Unlike typical *akini reflexes (for example KOS kihn), it occurs freely in positions separated from the main predicate of the clause in which it occurs. Pro-complements of ke are marked by nominal possessive suffixes, rather than by verbal object pronouns. Whatever its source, and possible relationship to *akini at some greater time depth, it does not appear to be a reflex of PMC *akini.

23. Instruments are marked in Gilbertese by the preposition n:

GIL e orea te kamea n te kai
 3sg hit-tr art dog with art stick
 'He hit the dog with a stick'

In Trukic, available evidence suggests that reflexes of the prepositional verb PTRK *ngani (originally a verb 'to give') mark instruments:

TRU John e awata Mary ngeni efóch wóók
 John 3sg hit Mary with a stick
 'John hit Mary with a stick'

No examples are available to me from Marshallese.

24. The non-instrumental anaphor in the Polynesian languages in question is a reflex of PPN *i-ai (see Chapin 1974), cognate with the PMC anaphoric adverb *iai.
25. Most informants are uncomfortable with intransitive (oblique complement) coding for this verb; that is, *noo n NP*, though not to the point of judging such codings ungrammatical.
26. No similar contrasts between clauses with reflexes of PMC *akini and other, transitive or intransitive, clause types have been reported for other Micronesian languages. One wonders, however, whether such contrasts may in fact exist, as in the following Kosraean examples:
- KOS Sepe el engankihn wanihsr sac
 Sepe 3sg happy-kihn parcel the
 'Sepe is happy with the parcel'
- Sepe el engan ke wanihsr sac
 'Sepe is happy because of the parcel'
27. FIJ -taki accounts for forty percent of the -Caki forms listed in Arms (1974). While most of its occurrences are as a productive transitiviser in the senses described here, it can also be found in confective/refective and intensive functions.
28. MAR kōn, apart from its failure to reflect the initial syllable of PMC *akini, is a regular reflex of the third singular NP object form of that verb (see Harrison 1978 and Harrison 1977:208 fn.2).
29. Possible direct reflexes of POC *aki(ni) in Rotuman will be considered in section 6.
30. Several examples from Micronesia of the identical form 'captured' as a suffix at different times in the history of related languages or, in a few cases, more than once in the history of the same language, are discussed in Harrison 1977, 1978.
31. ROT a'-, unlike ROT -'aki and Rot fak- which have been indirectly inherited from Polynesian, shows the direct glottal stop reflex of POC *k. Some Rotuman forms show a fossilised prefix 'ak-, as in 'aklala'i 'cautiously' and 'aklo'aki 'to coil/fold roughly' (cf. lo'u 'to fold/bend'), whose origin is unclear. It may or may not be a conservative form of ROT a'-. In poetic style this prefix has the form 'aka-. If related to a'-, then these forms may have some bearing on the historical shape of the prefix in question; if of Polynesian or some other origin, they have little bearing on the issue.

32. Compare PUL -ppak^v-ppakúw, a suffix marking simultaneity:

PUL féérippakúw 'to do at the same time'
 yapahappakúw 'to talk at the same time'
 fayilippak 'to go side by side'

If the Puluwatese suffix and the Mokilese prefix are in fact cognate, as both their form and meaning strongly suggest, then their distinct syntax further suggests that they arose from an earlier non-affixal form.

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VARIATION OF VERB-INITIAL CONSONANTS IN SOME EASTERN OCEANIC LANGUAGES

D.S. Walsh

1. THE PHENOMENON

The phenomenon under consideration consists of syntactically conditioned variation of the initial consonant phoneme in some verb forms in a number of Eastern Oceanic languages.¹ The pattern and conditions of this variation, stated in general terms, are as follows: for a specifiable pair of consonant phonemes (C1 and C2) in a given language, one member (C2) occurs verb-form initially when the form in question is in a context which is syntactically marked for a specifiable minority subset of the language's total range of tense/aspect/mood features, while the other member (C1) occurs in all other contexts. This latter member (C1) is here regarded, because of its wider distribution, as being the dominant member of the pair and as indicating the synchronically basic phonemic manifestation of the verb form in which it occurs.

2. THE EVIDENCE

The quality of the evidence ranges from inference on the basis of brief statements about consonant variation in particular languages to systematic and detailed description of patterns of verb-form-initial consonant variation supported by examples.

The evidence is presented in chronological order of appearance of the various sources, an order which corresponds broadly with a progression from one extreme of the quality range to the other.

The languages for which evidence is cited are all from the central and northern regions of Vanuatu (formerly the New Hebrides). The locations for these languages are as follows: Ambrym — north-west Ambrym; Apma — central Pentecost/Raga/Arag; Fate — Efate; Lobaha — north-east Aoba/Lepers' Island; Nguna — Nguna/Montagu Island; Raga — north Pentecost/Raga/Arag; Sesake — Emae/Three Hills Island.

2.1. Evidence from Codrington (1885)

2.1.1. Raga

This description of Raga was based on data from some native speakers with whom Codrington had contact on Norfolk Island and on some biblical and liturgical texts translated into Raga from Mota by a Mota speaker for whom Raga was a second language.

Amran Halim, Lois Carrington and S.A. Wurm, eds *Papers from the Third International Conference on Austronesian Linguistics*, vol.1: *Currents in Oceanic*, 231-242. *Pacific Linguistics*, C-74, 1982.

The relevant data are as follows:

d is sometimes pure d, sometimes nd. The same person will use both t and d indifferently in the same word, but the same will not use both d and nd.

b is sometimes pure, sometimes mb; the same person will not use both, but the same person will use p, b, v, indifferently, either according to fancy, or by association with neighbouring sounds, *pev*, *bev*, or *vev*. These variations of ... d and nd, b and mb, are individual, or belong to families or groups; they are not local and dialectical. But the variation is so frequent and characteristic that words must be spoken and written indifferently with... t and d, p, b, and v.... (432).

In the light of a later phonemic analysis (Walsh 1966:12-16) Codrington appears to have been hearing variation between /b/ [b ~ p ~ mb] and /v/ and between /d/ [d ~ nd] and /t/. He does not state that the variation was confined to verb-form-initial position, but the few examples he provides do have this feature, viz. "*pev*, *bev*, or *vev* ['say']" (432), "*nam dogo* I sit, *gom dogo* thou sittest... *ma dogo* ['he sits']" (436) and "*nom hagav vi togo alumai* let thy mercy rest [i.e. 'sit'] upon us" (437). No effective positive inference as to any conditioning for this variation can be made from Codrington's data.

2.1.2. Ambrym

This brief descriptive sketch was based on a very small corpus of written material, and was "not put forth as correct, but as giving an interpretation which is probable". (450).

The relevant data are as follows:

The language is characterized by the indifferent use of certain Consonants, f, b, v, p, and n [ŋ], g.... (450).

The indifferent use of p, b, v, f, has been noticed, and the constant change of one for the other has to be calculated on in interpreting the words. (450).

.... t and r are used indifferently in some words, as *ro* and *to*. To strengthen r, d = nd is frequently prefixed to it; the words, therefore, *to*, *ro*, *dro*, are forms of the same.... (450).

These [auxiliary] Verbs are 1. *ro* = to sit, stay, remain; 2. *ho* also to remain; 3. *va* to go.... *ro* becomes *dro*; and v changes to b, p, f. (454).

The most that can be inferred here is that Codrington detected, in his written sources, variation among p, b, v and f, between n and g, and between t, r and dr — variation which, in his few examples, is confined to verb-form-initial position. No inference can be made as to any conditioning for this variation.

2.1.3. Sesake

This description was based on Patteson's 1866 vocabulary and phrase-book. Codrington considered that "Bishop Patteson was well acquainted with the Sesake language" and that "In any work of Bishop Patteson's at any rate correct rendering of sounds may be depended on, and the sentences he has given are written with a fair

colloquial knowledge of the language." (459).

The relevant data are as follows:

The change of Consonants, within certain limits, in this language is characteristic, as of *k* and *g* [ŋg], *t* and *d*... (459-460).

.... The three sounds [*k*, *g* and *g*] interchange; a word is indifferently sounded with *g* or *g*, *k* or *g*, *goroi* and *goroi* wife, *kinau* and *ginau* I.

There is also an interchange of *d* and *t*; *tu* and *du* to sit....

The change of *p* and *v* is continual, *pasa* and *vasa* to speak.... the change is even made in one sentence, *tava varau e parau qia* high hill is high indeed. Sometimes, at least, *p* is strengthened by *m*, *mpula*, *mpurapura*; *b* is always *mb*." (460).

Prefixes;—1. Causative, *vaka* or *paka*; *mauri* to live, *pakamauri* to save alive; *dautau* white, *pakadautau* to whiten... (465).

Auxiliary Verbs.... They are *du*, *tu*, to stand, *to*, *do*, to sit, to abide, *pa*, *va*, to go. (465).

The variation of *t* and *d*, *p* and *v*, which Codrington here describes is, in terms of his few examples, confined to verb-form-initial position. It is not clear whether or not the total range of variation among *k*, *g* and *g* includes verb-form-initial position. No syntactic conditioning for consonant variation can be effectively inferred from the Sesake data provided by Codrington.

2.1.4. Fate

This brief description was "compiled from a translation of the Gospel of St. Luke printed in 1877. It makes therefore no pretension to completeness or accuracy, but is useful for comparison. In order to avoid confusion the orthography is here accommodated to that of the other languages represented; with some mistakes probably". (471).

The relevant data are as follows:

.... *d* is not used; *t* alone represents the sound, which is sometimes strengthened by *n*, *e ntano* on the ground; *t* also strengthens *r*; *ra trua* they two, for *rarua*, *in tra* blood, for *in ra*.... *p* is not used, nor *v*; it may be conjectured that the sound sometimes *v*, sometimes *b*, sometimes *p*, in Sesake, is here symbolized by one character, *b*; this changes with *f*, *bisa* or *fisa* to speak. (471-472).

If Codrington's 'normalisation' of his Fate orthography is borne in mind, it can here be inferred that there *may* have been variation between *t* and *d* and among *p*, *b* and *v*. Nothing can be inferred as to position or conditioning of any such variation.

2.2. Evidence from Ray (1926)

2.2.1. Nguna

This description was based on a relatively extensive corpus of translated biblical and liturgical material.

The relevant data are as follows:

3. INTERCHANGE OF SOUNDS. Those found are between *g* and *k*, *p* and *v*, *d* and *t*, *ḡ* [described by Schütz (1969:15) as 'a bilabial lenis implosive stop with varying degrees of labialization'] and *w*, *d* and *r*. The changes appear to have no grammatical signification. (204).

33. CAUSATIVE. The causative prefix is *paka*, *vaka*. A short form *pa* is also used: *pakavuro*, *vakavuro*, to fill (*pura*, full).... *vakasusu*, *pakasusu*, to suckle, nurse (*susu*, breast, to suck); *vagani*, to feed (*gani*, *kani* to eat)....

34. RECIPROCAL AND REFLEXIVE.... Some verbs have a prefix *pi*, *vi* which appears to be similar to the Fiji reciprocal *vei*: *dua*, *tua*, to give; *pitua*, *vitua*, to give up.... (212).

Despite Ray's opinion that the variation within certain pairs of consonants appeared to have no grammatical signification, it is apparent from his examples, *vide supra* and "*Doa*, *roa*, to turn round.... *Vasa*, *pasa*, to say" (213) and "*dika*, *tika*, to lack" (214), that the *p* and *v*, *t* and *d*, and *d* and *r* variations do occur verb-form-initially.

2.3. Evidence from Ivens (1937-39 and 1939-42)

2.3.1. Raga (1937-39)

This description was based on a relatively extensive corpus of translated biblical and liturgical material and on a manuscript dictionary.

The relevant data are as follows:

3. Consonantal changes in verbs. There are two main consonantal changes which occur frequently in the texts: (1) initial *t* to *d*; (2) initial *v* to *b*.

Examples of (1) are: *to*, *do* 'to stand', 'be'; *togo*, *dogo* 'to abide', 'dwell'; *taltale*, *daltale* 'to be foolish'; *tahuli*, *dahuli* 'to hide'; *tabe*, *dabe* 'to make a free gift', 'to love'; *tai*, *dai* 'to chop'; *turuturui*, *durudurui* 'to be wise', 'subtle'. This latter word shows a medial change of consonant as well. An analysis of the changes shows that they occur when the consonants *d*, *k*, *ngg*, *l*, *m*, *n* immediately precede. Instances occur of the retention of the original consonant where one would expect a change: *tanon togo-togo* 'a dwelling place', *gin tovtovo* 'with the measure'. [It should be noted that neither *tovtovo* nor *togotogo* are functioning as verbs in these examples.]

Examples of (2) are: *ve*, *vev*, *be*, *bev* 'to speak', 'judge'; *vano*, *bano* 'to go', 'onward', 'beyond'; *vora*, *bora* 'to be born', 'to be'. The changes occur when the consonants *b*, *d*, *k*, *l*, *m*, *n*, *t* immediately precede; a variation is seen in *gitol van* 'go ye (three)', *gida van* 'let us go'. It would appear that *d* is preferred to *t* and *b* to *v*, even without the influence of a certain preceding consonant.

That one is justified in speaking of the *t* and *v* forms as being basic in the above mentioned changes appears from the fact that the words in question appear in the *t* and *v* forms in other Melanesian languages; also that the changes do not usually take place in the second member in cases where reduplication occurs. (735-736).

Causative. The causative prefix is *va*, (*ba*), *vava: mate* 'to die', *vamate*, *bamate* 'to kill' (748).

Ivens, then, has detected that variation between *t* and *d*, and between *v* and *b*, does occur verb-form initially in his data, and he considers these variations to be phonologically conditioned.

2.3.2. Lobaha (1939-42)

This description was based on a corpus of translated biblical and liturgical texts.

The relevant data are as follows:

5. There is an interchange of consonants, in a small degree, similar to what obtains in Lam. [i.e. Lamalanga, the name of a Raga-speaking village]: e.g. *k* to *g* [velar fricative], *kalikeli*, *galigeli*, to deceive; *v* to *b* [mb] after a preceding *v*, or after *h*, *m*, *n*: *vava* to give birth to, *vi bava na maresu*, she shall bring forth a son [but cf. "*vi vora*, he shall be born again" (356)]; *ra he bababa te tau*, they had not yet borne children; *vora*, *bora*, to become; *vava*, *bava*, to speak [but cf. "*gon veve*, speak!" (357)]. (347).

Ivens indicates here that his Lobaha data manifest, to some extent at least, patterns of consonant variation verb-form initially which resemble those he has described for Raga, and, as with the Raga case, he considers these variations to be phonologically conditioned.

2.4. Evidence from Schütz (1969)

2.4.1. Nguna

This description is based on a corpus of informant-derived grammatical data (3).

The articulatory values of the Nguna consonant phonemes are summarised as follows (13):

	labial	dental	velar
stops	p ɸ	t	k
spirants	v	s	
nasals	m ɱ	n	g
lateral		l	
glides	w	r	

/ɸ/ is described as "a bilabial lenis implosive stop with varying degrees of labialization" (15), and /t/ has voiced and voiceless allophones "in free fluctuation, except in those environments described for the morphophonemic alternation between certain consonant pairs". (14).

The relevant data on consonant variation are as follows:

1.4 Morphophonemic alternation of initial consonants

Four pairs of consonants show word-initial alternation: *v*, *p*; *w*, *ḡ*; *k*, *g*; and *r*, *t*. The second of each pair occurs under the following conditions:

(1) Directly after all of the set of verbal-pronoun markers:

<u>Base</u>	<u>Secondary Form</u>
<i>vano</i> 'go'	<i>e pano</i> 'He goes.'
<i>warua</i> 'big'	<i>eu ḡarua</i> 'They're big.'
<i>kani</i> 'eat'	<i>a ganikani</i> 'I eat.'
<i>rogo</i> 'hear'	<i>ku togo</i> 'You hear.'

(2) Within this construction, any tense or aspect marker can be inserted between the verbal-pronoun marker and the verb, except *ḡa* imperative, *ga* intentional, and *pe* 'if', which require the base form.

<i>ḡa vano</i>	'Go!'
<i>a ga vano</i>	'I'm going.'
<i>e pe vano</i>	'if he goes'

Transformed verb phrases modifying nouns.... take the base form; those modifying verbs take the secondary form.

The voiceless and voiced allophones of /t/ pattern like the above pairs of consonants, with [d] occurring as the secondary form.

Some bases with *k*- do not change to *g*-, for example:

<i>e kiiki</i>	'It's small.'
<i>e kasua</i>	'It's strong.' (21-22).

When this description of the pattern and conditioning of consonant variation is considered in conjunction with the section on the verb phrase (24-40), it is apparent that the variation occurs only verb-form initially, and that the secondary form, which has initial C2 (ref. Section 1. *supra*), occurs in a context range which is syntactically marked for a specified minority subset of the total number of verb-marking possibilities, while the base form, which has initial C1, occurs in all other contexts.

2.5. Evidence from Walsh

2.5.1. Raga

This account is based on a description of Raga phonology and phrase structure (Walsh 1966) and a lexical card file of about 8,000 entries (Walsh and Leona n.d.), both of which are informant derived.

The articulatory values of the consonant phonemes are summarised below (V = voicing, L = labio-velarisation, P = homorganic pre-nasalisation):

	BILABIAL	LABIODENTAL	LABIOVELAR	ALVEOLAR	VELAR	PHARYNGEAL
STOPS						
-V				t	k	
+V				d		
±V		b				
+V+L		bw				
+V+P					ḡ	
FRICATIVES						
-V				s		h
±V		v			g	
±V+L		vw				

	BILABIAL	LABIODENTAL	LABIOVELAR	ALVEOLAR	VELAR	PHARYNGEAL
NASALS						
+V	m			n	\bar{n}	
+V+L	mw					
TRILL						
+V				r		
LATERAL						
+V				l		
SEMI-VOWEL						
+V			w			

The pairs from among these phonemes whose members (C1 and C2) are involved in syntactically conditioned morphophonemic variation verb-form initially are: /v/ and /b/, /vw/ and /bw/, /t/ and /d/, /g/ and / \bar{g} /. Three of these pair members - /b/, /bw/ and /d/ - have phonologically conditioned homorganically pre-nasalised allophones.²

Any verb base form that occurs un-prefixed and un-reduplicated with an initial C1 from any of these pairs will have that initial consonant in all contexts except: (a) those in which it is directly preceded by the action-in-progress marker; (b) those in which it is preceded by any verb-aspect marker \pm hav 'negation' + mom 'still, yet'; (c) those in which it is preceded by ba 'verb ligature' when the verb preceding ba is in a context marked for action-in-progress. In any of these three contexts the verb base form in question will have the appropriate C2 as initial consonant. For example, vano \sim vano 'go' occurs as vano after (a) -m \sim mwa \sim - ϕ 'action-in-progress' (na-m vano 'I go', mwa vano 'he/she/it goes', ra-m vano or ra- ϕ vano 'they go'); (b) + verb-aspect marker \pm hav + mom (mwa mom vano 'he/she/it still goes', ra-m hav mom van(o) tehe 'they are not still going', gi-n hav mom van(o) tehe 'you (pl) did not still go'); and (c) + action-in-progress marker + verb + ba (ra-m domare ba vano 'they arise and go'), and occurs as vano in all other contexts.

The rule which has just been described for simple verb base forms applies also to complex multimorphemic forms that can occur with initial C1, viz. (a) wholly or partly reduplicated C1 \sim C2 initialled verb bases; (b) va- 'causative' + verb base; (c) vi- 'reciprocal' + verb base; (d) C1 \sim C2 initialled simple verb base form or reduplicated verb form + -ana \sim -na (1)³ 'impersonal/"passive" transformative'; (e) C1 \sim C2 initialled simple verb base or reduplicated verb form + -ana \sim -na (2)³ 'gerund formative'; (f) C1 \sim C2 initialled simple verb base form or reduplicated verb form + -va 'nominaliser'. Some examples of these types of multimorphemic form are: (a) na-m ban-vano 'I keep on going, I am continually going', na-n van-vano 'I used to keep on going, I went continually', atat van-vano 'man who is always "missing"', ra-m du-tunu 'they are cooking on hot stones', ra-n tu-tunu 'they cooked on hot stones' (cf. tunu \sim dunu 'burn'); (b) na-m ba-lala-e 'I make it wild', na-n va-lala-e 'I made it wild' (cf. lala 'be wild'), ra-m ba-moru wa \bar{g} a huahua 'they cause (the) canoe to sink', ra-n va-moru wa \bar{g} a huahua 'they caused (the) canoe to sink' (cf. moru 'sink'); (c) ra-m bi-van-vano 'they are going in all directions', ra-n vi-van-vano 'they went in all directions' (cf. vano \sim vano 'go'); (d) mwa bweru-ana na gai '(the) stick is bent double', nu vweru-ana na gai '(the) stick was bent double' (cf. vweru \sim bweru 'bend double'); (e) no- \bar{g} u vano-ana 'my going' (cf. vano \sim vano 'go'); (f) ga-k(u) tu-tunu-va 'my food that has been cooked on hot stones' (cf. tu-tunu \sim du-tunu 'cook on hot stones').

While any verb base form that occurs with an initial C1 in some contexts will occur with an initial C2 in other contexts as described above, there are some verb base forms that occur with an initial C2 in all contexts (e.g. bute 'disembark', bwalo 'fight', dada 'look up', \bar{g} elesi 'carry hanging from hand'). There are also, of course, many verb base forms that occur with an initial consonant other than one that is involved in a C1 \sim C2 pairing, and there are some that occur with an initial vowel.

2.5.2. Apma

This account is based on a brief informant-derived description of Apma phonology and core grammar and a vocabulary of about 1,600 entries (Walsh, Bule and Tabi n.d.).

The articulatory values of the consonant phonemes are summarised below (V = voicing, L = labio-velarisation):

	BILABIAL	LABIOVELAR	ALVEOLAR	VELAR	PHARYNGEAL
STOPS					
-V			t ⁵	k	
+V			d	g	
±V	b				
+V+L	bw				
FRICATIVES					
-V			s		h
+V	v				
NASALS					
+V	m		n	ñ	
+V+L	m̥w				
TRILL					
+V			r		
LATERAL					
+V			l		
SEMI-VOWEL					
+V		w			

The pairs from among these phonemes whose members (C1 and C2) are involved in syntactically conditioned morphophonemic variation verb-form initially are: /v/ and /b/ (before /a/, /e/ or /i/) ⁶, /w/ and /b/ (before /o/ or /u/) ⁶, /w/ and /bw/ (before /a/, /e/ or /i/) ⁶, /k/ and /g/. Three of these pair members - /b/, /bw/ and /g/ - have phonologically conditioned homorganically pre-nasalised allophones. ⁷

The range and quality of the data available for Apma are much more limited than is the case for Raga. All that can be said at present is that any verb base form that occurs un-prefixed and un-reduplicated with an initial C1 from any of these pairs directly after the completed-action marker -t ~ te will occur with the appropriate initial C2 when directly following the action-in-progress marker -m ~ mwa ~ ø. ⁸ Some examples are: na-t van 'I went', te van 'he/she/it went', na-m ban 'I go'; te veb 'he/she/it said', ra-t veb 'they said', na-m beb 'I say'; ra-t vinhi 'they thought', ra-m binhi 'they think'; te woo 'he/she/it was born', ra-m boo 'they are born'; ra-t wulki 'they counted', na-m bulki 'I count'; ra-t waha 'they broke...', na-m bwaha 'I break...'; te weewee 'he/she/it was full', na-m bweewee 'I am full'; ra-t wih 'they stooped...', na-m bwih 'I stoop...'; ra-t ket 'they lied', na-m get 'I lie', te kani dam 'he/she/it ate yam', mwa gani dam 'he/she/it is eating yam'.

The rule described above for simple verb base forms applies also to complex multimorphemic verb forms that can occur with an initial C1, viz. (a) wholly or partly reduplicated C1 ~ C2 initialled verb bases; (b) C1 ~ C2 initialled simple verb base or reduplicated verb form + -an (1) 'impersonal/'passive' transformative'; ⁴ (c) C1 ~ C2 initialled simple verb base or reduplicated verb form + -an (2) 'gerund formative'. Some examples of these types of multimorphemic form are: (a) te val-valtoo 'he/she/it walked with legs spread apart', na-m bal-valtoo 'I walk with legs spread apart' (cf. valtoo ~ baltoo 'stand with legs spread apart'); te wiri-wiri 'he/she splashed water on face repeatedly', na-mwa bwiri-wiri 'I splash water on face repeatedly' (cf. wiri ~ bwiri 'splash water on face'; te kaha-kahaabe 'it (ref. bird) went from branch to branch', mwa gaha-kahaabe 'it (ref. bird) goes from branch to branch' (cf. kahaabe ~ gahaabe 'go from one tree or branch to another without

touching ground'; (b) *te vilis-an... 'was paddled...'*, \emptyset *bilis-an... 'is paddled...'* (cf. *vilis* \sim *bilis* 'paddle (v)'); *te wut-an... 'was trusted...'*, \emptyset *but-an... 'is trusted...'* (cf. *wut* \sim *but* 'trust'); *te koro-an na mateete 'fowl(s) was/were driven away'*, *mwa goro-an na mateete 'fowl(s) is/are driven away'* (cf. *koro* \sim *goro* 'drive away'); *te kan-an na dam 'yam was eaten'*, *mwa gan-an na dam 'yam is being eaten'* (cf. *kani* \sim *gani* 'eat'); (c) *no-k vilis-an 'my paddling'* (cf. *vilis* \sim *bilis* 'paddle (v)'); *no-k vil-an 'my looking for (shellfish) with a torch'* (cf. *vil* \sim *bil* 'look for (shellfish) with a torch'); *no-k valtor-an 'my standing with legs spread apart'* (cf. *valtoo* \sim *baltoo* 'stand with legs spread apart'); *no-k wut-an 'my trusting'* (cf. *wut* \sim *but* 'trust'); *no-k wor-an 'my growing (up)'* (cf. *woo* \sim *boo* 'grow (up)'); *no-k kukur-an 'my swearing'* (cf. *kukuu* \sim *gukuu* 'swear').

2.6. Summary comment on the evidence

The evidence from Schütz and from Walsh establishes the occurrence of the phenomenon in the Nguna, Raga and Apma languages. Given this fact, on the basis of the kinds of statement about consonant variation in Raga that are present in Codrington's description it is both possible and likely that the phenomenon also occurs in the Ambrym, Sesake and Fate languages which he described. Similarly, on the basis of the kinds of statement about consonant variation in Raga that are present in Ivens' description it is both possible and likely that the phenomenon also occurs in the Lobaha language which he described. That observers of the calibre of Codrington and Ivens did not discover the pattern of verb-form-initial consonant variation in Raga, and similarly that Ray did not discover the pattern in Nguna, both languages for which the phenomenon has now been attested, raises the distinct possibility that variation of this kind may be present, but as yet undetected, in other languages of central and northern Vanuatu, and perhaps also in some languages of the southern Solomon Islands.

3. SOME HISTORICAL IMPLICATIONS OF THE EVIDENCE

3.1. The positions of Raga, Apma and Nguna within Eastern Oceanic

Definitive subgrouping of the Eastern Oceanic languages has not yet been achieved. Pawley (1972:98) has proposed two highest order subgroups — Southeast Solomonian and North Hebridean-Central Pacific. Within this latter group he proposed two highest order subgroups — North Hebridean (comprised of two subgroups, Northern New Hebrides-Banks, which includes Raga, and Central New Hebridean, which includes Nguna) and Central Pacific (comprised of two subgroups, viz. Polynesian and Fijian). Tryon (1976:79-93), in an exhaustive internal subgrouping of the languages of Vanuatu, has proposed a New Hebridean Family with six highest order subgroups, the largest of which, North and Central New Hebrides (77 languages) has, among its highest order subgroups, East New Hebrides (29 languages, including Raga and Apma) and Central New Hebrides (three languages, including North Efate, of which he regards Nguna as a dialect).

Any feature, then, which can be reconstructed for Proto-Raga-Apma may also eventually turn out to be reconstructable for Tryon's East New Hebrides grouping, and any feature which can be reconstructed for Proto-Raga-Apma-Nguna may also eventually turn out to be reconstructable for Tryon's North and Central New Hebrides grouping (and for Pawley's North Hebridean grouping).

3.2. The reconstructability of the phenomenon

3.2.1. Reconstructability for Proto-Raga-Apma

The following sets of presumed cognates provide grounds for reconstructing verb-form-initial consonant variation in the bilabial (\pm labio-dental?) and velar positions for Proto-Raga-Apma:

RAGA	APMA	GLOSS
vinihi ~ binihi	vinhi ~ binhi	'think'
varahi ~ barahi	vahri ~ bahri	'step heavily'
vano ~ bano	van ~ ban	'go'
veve ~ beve	veb ~ beb	'say'
vora ~ bora	woo ~ boo	'be born'
voha ~ boha	waha ~ bwaha	'break nut with stone'
gubwi ~ ḡubwi	kubwa ~ gubwa	'throw so that missile spins on horizontal axis'
gita ~ ḡita	kita ~ gita	'see'
gigi ~ ḡigi	kiki ~ giki	'rub fire-making stick on grooved piece of wood'
gani ~ ḡani	kani ~ gani	'eat'
gubwa ~ ḡubwa	kubu ~ gubu	'eat to satiety'
gomo ~ ḡomo	komo ~ gomo	'chew with mouth shut'
geli ~ ḡeli	kili ~ gili	'dig'
gasi ~ ḡasi	kati ~ gati	'bite'

3.2.2. Reconstructability for Proto-Raga-Apma-Nguna

The following sets of Nguna forms, when considered in conjunction with the corresponding sets of Raga and Apma forms cited in section 3.2.1., provide some grounds for reconstructing verb-form-initial consonant variation in the bilabial and velar positions for Proto-Raga-Apma-Nguna:

NGUNA	GLOSS
vano ~ pano	'go'
kani ~ ganikani	'eat'
kili ~ gili	'dig'
kati ~ gati	'bite'

3.2.3. Reconstructability for higher levels within Eastern Oceanic

The above-mentioned Raga-Apma-Nguna cognates give some grounds for reconstructing verb-form-initial consonant variation in the bilabial and velar positions for the language ancestral to Tryon's North and Central New Hebrides grouping, since Raga and Apma on the one hand, and Nguna on the other, are in different highest order subgroups of Tryon's above-mentioned grouping.

With the exception of the Ambrym, Sesake, Fate and Lobaha languages mentioned in section 2.6., no variation of verb-form-initial consonants has been described as yet for other Vanuatu languages or for languages of the southern Solomon Islands, and such variation has not been found in the well-described languages of Fiji and Polynesia. There are, therefore, no direct grounds for reconstructing the phenomenon for levels higher than that of Tryon's North and Central New Hebrides grouping. However, when the possibility (ref. section 2.6.) that the phenomenon may be present, but as yet undetected, in one or more languages of the southern Solomon Islands is taken into consideration, the reconstructability of verb-form-initial consonant variation at the level of Proto-Eastern-Oceanic should be regarded as dependent on further investigation of these languages.

NOTES

1. The composition of the Eastern Oceanic subgroup is summarised in Walsh 1978:3.
2. These allophones occur after *nasal + vowel (+ vowel)*. When /b/ is pre-nasalised it is realised as +V rather than ±V.
3. The -na allomorph occurs when the preceding verb base ends with /a/.
4. This gloss is provisional, and does require refinement.
5. Apma /t/ is realised as the affricate [ts] before /i/ or /u/.
6. These restrictions are consistent with the general constraints on the distribution of Apma /v/ and /bw/.
7. The conditioning for these allophones may be provisionally stated as a preceding *nasal + vowel*.
8. The actual range of allomorphs is greater, but does not need to be fully described in this context.

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TOWARDS A THEORY OF THE ORIGIN OF THE OCEANIC POSSESSIVE CONSTRUCTIONS

John Lynch

0. INTRODUCTION

The notion that, in Oceanic (OC) languages, the nature of the possessive construction was determined by the 'gender' of the possessed nominal was finally dispelled in 1973 in Lynch (1973) and Pawley (1973). As Pawley summarised the discussion at that stage:

In these languages we are not dealing with a true gender system, but with a system which marks several kinds of possessive relationships, and which allows a noun to occur as head with as many different kinds of possessive markers as makes sense to the speakers of the language. The grammar of the system is thus more comparable to that governing verb-object relationships than to a gender system (Pawley 1973:167).

However, the analysis proposed (especially in Lynch 1973) failed in at least one important respect to provide an adequate alternative theory: no real attempt was made to account for the *morphology* of the possessive constructions in OC. This paper is an attempt to begin to remedy that deficiency.¹

Even when regarding the Polynesian and Micronesian systems as recent, isolated developments, there are still problems in beginning a description of the morphosyntax of possession in Proto-Oceanic (POC). One such problem is that, although there appears to be a common super-system, there are many morphosyntactic variations on this common theme. Another, interrelated, difficulty is that the first-order subgrouping of OC is still ill defined, which makes reliable reconstruction difficult. A third problem area concerns the possibility that what has already been reconstructed for POC may reflect the peculiarities of the better-known languages, and may not necessarily be identical with a system reconstructed when other languages in the area become better known. These difficulties force us to be somewhat tentative in morphosyntactic reconstruction in Oceanic.

Because of these difficulties, the reconstruction of the POC system is beyond the scope of this present paper; hence the title "*Towards a theory ...*". Rather, I will try to develop (more formally than has been done before) the idea proposed by Lynch (1973) and Pawley (1973) that possessive constructions in POC derive in some way from verb-object relationships. I will attempt to explain the morphological similarities between object and possessive suffixes in many OC languages, and will try to account for the *forms* of the so-called 'possessive markers' in terms of this verb-object relationship. I will use as a framework for discussion Pawley's (1973) reconstruction of the POC possessive system, and will concentrate most heavily on the

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system as it operates in a number of OC languages, particularly Motu (Lister-Turner and Clark n.d.a, n.d.b), Lenakel (Lynch 1978a), and Fijian (Milner 1972, Geraghty 1978);² these three languages have been chosen partly because of relative genealogical distance, and partly because of my familiarity with them.

1. BACKGROUND

The POC possessive system has been most clearly summarised by Pawley (1973, esp. 153-169). In POC,

contrast between types of possession was marked primarily by a 'possessive particle' or 'possessive marker'. Three particles which can be definitely attributed to POC had the basic shapes **na-*, **ka-*, and * \emptyset (zero). Since these markers may have had alternants in POC, as their reflexes do in certain contemporary languages, it will be convenient to sometimes use **na*, **ka*, and zero as abstract representations of the cognate forms in discussing both POC and contemporary Oceanic languages (Pawley 1973:154).

In this section of the paper, I will present Pawley's analysis with little or no modification, and will show the modern correlates of the various reconstructed POC constructions. I will also introduce the terminology that will be used in the remainder of this paper, justifying it in those areas where it differs from the more generally used terminology.

1.1. *Zero-marking: direct possession

This is the construction-type most generally referred to in the literature as inalienable possession: "the majority of Oceanic languages have a type of possession in which the possessor is marked by a pronoun suffixed directly to the head noun" (Pawley 1973:154). The form of this suffixed pronoun is usually different from that of the free/focal pronoun - cf. POC **au* 'I', but *-*ŋku* 'my'. I feel in sympathy with Geraghty (1978:229), however, when he suggests that "the term 'inalienable' be used to refer to all nouns with which an expressed possessor is obligatory - a class considerably larger than the class of directly possessed nouns" which, in Fijian at least (the language Geraghty was concerned with), are those nouns which take a suffix marking the person and number of the possessor. I will thus use the term 'direct possession' to refer to Pawley's *zero-marked construction. Some examples are given below from Fijian (FIJ), Motu (MTU), and Lenakel (LEN):³

- FIJ (1) *na tama-qu*
 art *father-1sg*
 'My father'
- MTU (2) *ima-na*
hand-3sg
 'His/her hand(s)'
- LEN (3) *nelu-m*
tooth-2sg
 'Thy tooth/teeth'

Note that in these examples (where the possessor is a pronoun), the possessive marker is zero, the possessive pronoun being suffixed directly to the head nominal.

1.2. *na-marking: active manipulative possession

This construction-type often goes under one of the names 'alienable', 'general', or 'neutral' in the literature on OC languages; or again, "*na-marking indicates what can loosely be called 'dominant possession'" (Pawley 1973:158). I prefer the term 'active manipulative' (suggested to me by Terry Crowley): 'active' because it not only implies the idea of dominance that Pawley is talking about, but also because it contrasts nicely with 'passive' possession (see 1.3.2. below); and 'manipulative' because it contrasts the kind of dominance expressed in this construction-type with the more specialised kinds of dominance expressed in active *eating* and active *drinking* possession (see 1.3.1. and 1.4. below). In *na-possession, suffixes are attached to this possessive marker and not to the head noun, e.g.

FIJ (4) na no-qu vale
art poss.lsg house
'My house'

MTU (5) e-gu ruma
poss-lsg house
'My house'

LEN (6) nimwa taha-k (or taha-k nimwa)
house poss-lsg
'My house'

1.3. *ka-marking

Constructions with the possessive marker *ka are similar in structure to those with the possessive marker *na. However, in the case of *ka-marking, Pawley reconstructs two quite distinct kinds of relationship which are marked by the same marker.

1.3.1. Active eating possession

One relationship marked by POC *ka is that the referent of the possessed noun has been, is being, or is to be eaten by the referent of the possessor:

FIJ (7) na ke-mu dalo
art poss-2sg taro
'Thy taro (to eat)'

MTU (8) a-gu gwarume
poss-lsg fish
'My fish (to eat)'

LEN (9) nuw niki-k (or niki-k nuw)
yam poss-lsg
'My yam (to eat)'

Note that the important thing in these constructions is the fact or intention of eating, not the edibility of the referent of the head nominal, and hence the name *eating* rather than *edible* possession. Thus constructions like (7) through (9) are only used if the possessor is eating the food, or is intending to do so, or is viewing it as a food item (and not, for example, as something to be sold, traded, etc.).⁴ (See section 1.5. below for an elaboration).

1.3.2. Passive possession

The other relationship marked by *ka in POC is possibly best termed 'passive': "actions over which the possessor has no control (where he is the patient, target, or involuntary experiencer) were evidently marked as such by the use of *ka-" (Pawley 1973:162). This kind of construction is also marked by ke in Fijian:

FIJ (10) na ke-mu itukutuku
 art poss-2sg story
 'Thy story (the one told about thee)'

The construction is rarely, if ever, used in Motu.⁵ The construction-type appears in Lenakel, but a different possessive morpheme is used from that used in active eating possession (see section 4 for clarification), e.g.

LEN (11) nouanage in io
 story poss I
 'My story (the one about me)'

1.4. *ma-marking: active drinking possession

Various OC languages (or groups of languages) show a variety of other kinds of possession marking. With one exception, none of these can be attributed to POC (Pawley 1973:163-165). The exception involves constructions marked by *ma, which behaves syntactically like *na and *ka. This construction-type, which indicates the fact or intention of drinking the possessed nominal, does not occur in Motu, which uses *ka-possession for both eating and drinking; but it "is reflected in the Fijian languages, in Mota and most other Northern New Hebrides languages, ...and in Vanikolo and Utupua of the Santa Cruz group" (Pawley 1973:164), as well as in the languages of Tanna and Aneityum of Southern Vanuatu (formerly New Hebrides).

*ma-marking in Fijian and Lenakel is illustrated below:

FIJ (12) na me-qu yagona
 art poss-1sg kava
 'My kava (to drink)'

LEN (13) n̄kava n̄mw̄i-n (or n̄mw̄i-n n̄kava)
 kava poss-3sg
 'His kava (to drink)'

The question of whether *ma-possession actually occurred in POC is a moot one; Pawley (1973:164) notes that it "has a long history and is possibly POC". For the sake of argument, I will assume that *ma-marking is in fact assignable to POC; but even if this is incorrect, it makes no real difference to the hypothesis I am putting forward here.

1.5. Relations, not gender

It should be clear from the above, and also from Lynch (1973) and Pawley (1973), that the various possessive constructions in POC and in Fijian, Motu, and Lenakel mark semantic relations between two nominals in a possessive construction, and not the gender of the possessed nominal (an earlier interpretation). Fijian is typical of most OC languages in allowing many nouns to occur as possessed nominals with more than one kind of possessive marking, depending on the relationship involved; compare (14) and (15), and also (16), (17), and (18) which are taken from Pawley (1973:168):

- FIJ (14) na yaca-qu
 art name-1sg
 'My name (the name I bear)'
- (15) na no-qu yaca
 art poss-1sg name
 'My namesake', 'My name (which I bestow)'
- (16) na ke-na maqo
 art poss-3sg mango
 'His mango (for eating) - green mango'
- (17) na me-na maqo
 art poss-3sg mango
 'His mango (for drinking/sucking) - ripe mango'
- (18) na no-na maqo
 art poss-3sg mango
 'His mango (as property, e.g., which he is selling)'

Recall now Pawley's statement that the grammar of the possessive system of POC is "more comparable to that governing verb-object relationships than to a gender system" (Pawley 1973:167). The analysis proposed in Lynch (1973) attempted to exploit this idea, but on reflection it seems to me that, although I showed clearly enough that POC possession was not a gender-based system, the analysis I proposed did not in any real way account for the *morphology* of POC possession, and only superficially scratched the surface of the underlying syntax. In the sections which follow, I will try to remedy this deficiency by accounting for the structure and the morphology of the possessive system of POC and the systems of the languages under discussion here.

2. DIRECT POSSESSION

There are grounds for assuming that POC made a distinction between two types of direct possession: reciprocal and non-reciprocal. Reciprocal possession involves a relationship between possessor and possessed which may be re-expressed as another directly possessed construction with the roles reversed: thus if X is *A's father*, A is *X's child*, the italicised phrases being examples of what I call reciprocal possession. Non-reciprocal constructions do not allow this reversal of roles. Thus reciprocal constructions generally involve kinship terms or terms expressing a similar kind of relationship, while non-reciprocal constructions are generally partitive, the relation of possessed-possessor being that of part-whole.

There is a considerable amount of evidence which suggests that reciprocal and non-reciprocal constructions were distinct in POC. First, languages of western Fiji show a contrast between kin nouns (reciprocal), which take *suffixed* possessive pronouns, and other directly possessed nouns (non-reciprocal), which take *prefixed* possessive pronouns. Compare the standard (eastern) Fijian examples (19) and (20) with their equivalents in Wayan, a western dialect, given in (21) and (22) (all examples from Pawley and Sayaba 1971:422):

- FIJ (19) na tina-mu
 art mother-2sg
 'Thy mother'
- (20) na ulu-mu
 art head-2sg
 'Thy head'

- WAYAN (21) o mna-m
art mother-2sg
'Thy mother'
- (22) m-ulu
2sg-head
'Thy head'

Second, in Kwamera (of Tanna, Vanuatu), the third person singular possessive suffix occurs as -ni after a noun in a reciprocal construction but as -n after a noun in a non-reciprocal construction;⁶ thus:

- KWAMERA (23) rem-ik 'my father'
rem-ni 'his father'
mwipw-ik 'my grandchild'
mwipw-ni 'his grandchild'

but:

- (24) neram-ik 'my tongue'
neram-in 'his tongue'
nite-k 'my blood'
nite-n 'his blood'

Third, some relics of this distinction are still preserved in (West) Futuna-Aniwa (WFU), a Polynesian Outlier language of Southern Vanuatu (Capell 1960). Some kin terms still take direct suffixation:

- WFU (25) ta mupu-ku 'my grandchild'
tama-u 'thy father'
šina-na 'his mother'

Three other kin terms (and no other words in the language) are possessed by the possessive marker te plus pronoun suffix:

- (26) te-ku tama 'my child'
ta-u nofune 'thy wife'
te-n nuane matua 'her husband'

A few kin terms, however, behave like some other directly possessed (non-reciprocal) terms, prefixing ta plus pronoun suffix (with ta-u 'thy' > to, and other morpho-phonemic changes in other environments); compare:

- (27) tu-ku soa 'my sibling of same sex'
to kave 'thy sibling of opposite sex'
ta-no safe 'his wife's brother'

with:

- (28) tu-ku rima 'my hand'
to vae 'thy leg'
ta-no mata 'his face'

(Note that non-direct possessive constructions in WFU suffix possessive pronominal forms to the possessive markers ti-o- (passive) or ti-a- (active):

- (29) ti-i-ku hlava 'my loin-cloth'
ti-a-ku pakasi 'my pig').

Fourth, in Maisin (of the Northern Province, Papua New Guinea), all nouns take a possessive prefix:⁷

- MAISIN (30) au-teiti
lsg-son
'My son'

MAISIN (31) ari-vaa
3pl-house
'Their house'

Only body parts (i.e. non-reciprocals) have the option of showing *in addition* a pronoun suffix:

(32) ai-isu-ŋ (also ai-isu)
2sg-nose-2sg
'Thy nose'

(33) ari-isu-u (also ari-isu)
3pl-nose-3pl
'Their noses'

This option is denied kin terms (reciprocals):

(34) *ai-teiti-ŋ
2sg-son-2sg

The evidence presented above is, I feel, sufficient to allow us to at least hypothesise that POC made some kind of distinction between reciprocal and non-reciprocal direct possession. Accordingly, I will discuss each of these subtypes of direct possession separately in beginning my analysis of the POC possessive system.

2.1. Reciprocal

There is considerable similarity between reciprocal possessive constructions and transitive verbal constructions in OC languages. In many of these languages – for example, Motu – possessive suffixes to nouns and person/number-of-object suffixes to transitive verbs are formally similar or, in many cases, identical, e.g.

- MTU (35) tama-gu
father-lsg
'My father'
- (36) (ia) lau e-ita-gu
(he) I 3sg-see-lsg
'He sees/saw me'
- (37) sina-mu
mother-2sg
'Thy mother'
- (38) (lau) oi na-ita-mu
(I) you.sg lsg-see-2sg
'I see/saw thee'

Fijian and Lenakel, unlike Motu, have no object suffixes to verbs which are radically different in form from focal pronouns. However, there are other similarities between reciprocal possessive constructions and transitive constructions in Fijian. Firstly, appropriate transitive verbs may participate in the reciprocal construction, which is marked by the prefix *vei-* and the object-marking suffix *-i*:⁸

- (39) keirau sa vei-kila-i
we.excl.dual aspect recip-know-obj
'We two (exclusive) know each other'
- (40) erau sa vei-yawak-i
they-dual aspect recip-far-obj
'They are far away from each other'

Nouns which may occur as the head of a reciprocal possessive construction may also occur as heads in this essentially verbal construction. Thus beside such constructions as:

- (41) na wati-qu
art spouse-lsg
'My spouse'
- (42) na gane-na
art sibling.opp.sex-3sg
'His sister', 'Her brother'

we can also find:

- (43) erau vei-watin-i
they.d recip-spouse-obj
'They are husband and wife'
- (44) erau vei-ganen-i
they.d recip-sibling.opp.sex-obj
'They are brother and sister'

The intrusive *n* in forms like *vei-watin-i*, *vei-ganen-i*, etc., admits of a ready explanation. The alternation *-a/-i* is a grammatically conditioned one in Fijian verbs (e.g. *yawak-a*, *yawak-i*, *vei-yawak-i*). It is not difficult to imagine that this alternation was extended to reciprocally possessed nominals, so that beside 'nominal' *wati-na* 'one' finds 'verbal' *vei-watin-i*.

Secondly, proper possessives in reciprocal constructions and proper objects of transitive verbs both undergo a process which Geraghty (1978) calls 'proper noun incorporation'. While common objects belong to a NP distinct from the VP (as in (45)), proper NPs are incorporated into the VP (as in (46)); the diagonal slash marks a phrase boundary:⁹

- FIJ (45) au sã raic-a oti / na gone ogō
I aspect see-obj already / art boy this
'I have already seen this boy'
- (46) au sa raic-i Seci oti /
I aspect see-obj Seci already /
'I have already seen Seci'

Proper nominal possessors are also incorporated into the preceding phrase:

- (47) na tamo i Seci
art father poss? Seci
'Seci's father'

Further, it will be noted that proper objects and proper possessives are marked by *i*, either as a suffix to the verb or in a position following the head. (Note here that the fact that *i* in (47) is written separately from the preceding noun does not necessarily imply that it is not a suffix; however, I have no evidence as to whether this *i* is better treated as a suffix or as a separate particle).

Although there is little evidence to be adduced from Lenakel in support of this hypothesis, the data from languages like Fijian and Motu suggest that there is more than a passing resemblance between transitive constructions and reciprocal possessive constructions. These formal similarities lead me to propose the following hypothesis. Reciprocal possessive constructions are nominalisations of sentences in which (i) the verb carries the semantics of the relationship, (ii) the subject is co-referential with the possessed nominal, and (iii) the object is co-referential with the possessor nominal. Thus in POC the structure of the sentences underlying such possessive phrases as 'my father' or 'this woman's father' would be:

(48)	Posse S	Relationship V	Possessor O	
a)	(he)	father	me	= 'my father'
b)	(he)	father	this woman	= 'this woman's father'

What is meant by saying that these structures *underlie* the possessive constructions in OC languages? I do not mean to imply that such structures are part of the deep structure of modern OC languages, although that case could well be argued. What I do mean is that there is good evidence that modern reciprocal possessive constructions derived from nominalisations of sentences in POC (or in pre-POC) which were something like (49a, b) in form:

POC (49) a) ******(ia) / tama-i-ŋku / (au)
 (he) / father-transitive-me/ (I)

b) ******(ia) / tama-i-ña / pine DEM
 (he) / father-transitive-her / woman this

There is evidence, first of all, that POC did allow/require both transitive suffix and objective suffix following the verb, although most of its daughter languages have opted for the less redundant transitive suffix only, or objective suffix only. Part of the evidence comes from a Motu paradigm:

MTU (50) a) e-utu-gu 'he cut/cuts me'
 e-utu-mu 'he cut/cuts thee'
 e-utu-a 'he cut/cuts him/her/it'

b) e-bota-gu 'he hit/hits me'
 e-bota-mu 'he hit/hits thee'
 e-bota-ia 'he hit/hits him/her/it'

The Motu third person singular objective suffix is -a. However, after verbs ending in -a, the suffix is -ia. I agree with Pawley (1973:121) that the i in the form -ia is historically the close transitive suffix (POC *-i), which is now retained in Motu only in the environment a _____ -a. In most other contexts,

when a word ending in a is followed by a word beginning in a or e, the first a is elided There is one important exception to this rule of elision When the second person particle *ba* (or *a*) is followed by a verb beginning with a, the two a's are not elided, as in other similar cases, but a *v* is inserted; e.g., *ba atoa* becomes *bavatoa*. This is the exception to the rule of elision referred to. (Lister-Turner and Clark n.d.a:9,11).

Since it cannot be argued that the i in forms like e-bota-ia in (53b) is a regular Motu device to break up geminate clusters of low vowels, we can safely interpret this i as a relic of the transitive suffix *-i.

There is good reason to reconstruct for POC a set of object suffixes formally similar, if not identical, to the suffixes used in direct possession, but radically different from the free/focal pronouns. For POC, the singular forms are:

POC (51)

	Free/focal	Objective/possessive
1sg	*au	*-ŋku
2sg	*ki(e)	*-mu
3sg	*ia	*-ña

Most Oceanic languages, however, have not retained both the transitive suffix and the objective suffix. Some, like Motu have retained the objective suffixes, but have dropped the transitive suffix (except in the environment mentioned above). Others, like Lenakel, have retained the transitive suffix but lost the objective

suffixes; Lenakel uses free/focal pronouns in both (emphatic) subject NP and object NP positions. Still others, like the Eastern Oceanic (EO) languages, show retention of the transitive suffix and a *drift* towards loss of the objective pronouns. Pawley (1972) reconstructs the following singular pronouns for PEO:

PEO	(52)	Free/focal	Possessive	Objective
	1sg	*i-nau	*-ŋku	*-au, *nau
	2sg	*i-koe	*-mu	*iko, *koe
	3sg	*ia, *i-nia	*ña	*-a, *-nia

However, certain EO languages retain the OC objective pronoun forms, sometimes in alternation with the EO-type objectives, sometimes not. Three languages of the San Cristobal-Malaita region – Arosi, Lau, and Oroha – retain OC-type objective pronouns (Pawley 1972). I will illustrate from Arosi only; (I have not been able to discover the conditioning factor in the alternations in the objective forms):

AROSI	(53)	Free/focal	Possessive	Objective
	1sg	inau	-gu	-gu
	2sg	i'oe	-mu	-'o, -mu
	3sg	ia	-na	-a, -na

The simplest explanation of forms like those in Arosi and other EO languages is that PEO (itself a more immediate ancestor of Fijian than POC) retained the OC-type suffixed objective-possessives, but that the system was undergoing change whereby the suffixed pronouns were being replaced by the free pronouns when used as objects of verbs. These pronouns subsequently underwent reduction in a number of EO languages.

According to the hypothesis being presented here, then, possessive structures like '*my father*', '*this woman's father*' should have the same underlying structure as 'true' verbal structures like '*he sees me*', '*he sees this woman*'. The underlying forms of the hypothesised possessive structures, given above as (49), are repeated for convenience here as (54):

- POC (54) a) ***(ia)* / tama-i-ŋku / (au)
 (he) / *father-transitive-me* / *(I)*
 b) ***(ia)* / tama-i-ña / pine DEM
 (he) / *father-transitive-her* / *woman this*

The underlying forms of the 'true' verbal structures would be something like those in (55):

- (55) a) ***ia* / kite-i-ŋku / (au)
 he / *see-transitive-me* / *(I)*
 b) ***ia* / kite-i-ña / pine DEM
 he / *see-transitive-her* / *woman this*

Let us now examine the structures of the three modern languages being used in this paper.¹⁰ In Fijian, the structures are:

- FIJ (56) a) na tama-qu '*my father*'
 b) na tama ni yalewa ogō '*this woman's father*'
 c) e raic-i au '*he sees me*'
 d) e raic-a na yalewa oqō '*he sees this woman*'

The pairs (56a, c) show that, under nominalisation, the transitive suffix is lost and the objective suffix is retained, whereas in a 'true' verbal construction the reverse obtains. Presumably, this difference of treatment of transitive + objective occurred at an early stage in the history of Fijian – quite possibly in a pre-PEO stage. Note also that the free pronoun au is deleted in the possessive (56a), presumably under identity with the suffix, but is not deleted in the verbal (56c).

The pairs (56b, d), however, show two important differences: first, the possessive (56b) shows a marker *ni* which is, in surface terms, neither the transitive *i* nor the possessive/objective suffix *-na*; and second, the verbal (56d) shows a transitive suffix *-a* which differs from the suffix *-i* found in (56b). I will attempt to account for both of these below.

Firstly, the marker *ni* might be explained as follows. In PEO, the POC objective suffix **-ña* had become something like **-nia* (cf. (52) above). This development means that, in pre-Fijian, the equivalent of (54b) might have been something like (57):

Pre-FIJ (57) ***na tama-nia na yalewa oqo*
 art *father-3sg* art *woman this*

(presuming that by this stage the transitive suffix had been lost). It is at least conceivable that phonological reduction of the sequence *nia na* yielded the form *ni*, particularly since this corresponds phonologically to a considerable extent with a similar case – the incorporation of proper objects and possessors discussed in relation to (45)-(47) above.

Secondly, the form *-a* in (56d) admits of an even readier explanation. The rule of objective suffix deletion applies to sentences like (55b), but this then leaves the number of the object unspecified. Modern Fijian specifies non-singular NP objects by incorporating into the VP a non-singular third person object pronoun of the appropriate number:

FIJ (58) *e raic-i ira / na yalewa oqō*
 aspect *see-transitive* 3pl / art *woman this*
 '*He sees these women (pl)*'

I suggest as a possibility that singular NP objects were marked in this way as well; i.e. that the third person singular pronoun *ia* (possibly in the form *ya* – cf. Fijian *koya*) was incorporated into the verb phrase. Thus the singular equivalent of (58) in Pre-Fijian would have been:

Pre-FIJ (59) ***e raic-i ia / na yalewa oqō*
 aspect *see-transitive* 3sg / art *woman this*

Phonological reduction would then have applied to *raic-i ia* yielding (by way of *raic-ia*) the modern form *raic-a*.¹¹

The hypothesis therefore explains the form of the Fijian reciprocal constructions, providing that we accept the initial assumption – that, in a language ancestral to Fijian, an early distinction was made between nominalised and 'true' verbal sentences, with the former then undergoing loss of the transitive suffix and the latter loss of the objective suffix.

In Motu, the structures which correspond to the underlying sentences (54) and (55) are:

MTU (60) a) (lau) *tama-gu* '*my father*'
 b) *hahine ina tama-na* '*this woman's father*'
 c) (ia) (lau) *e-ita-gu* '*he sees me*'
 d) (ia) *hahine ina e-ita-ia* '*he sees this woman*'

Motu loses the transitive suffix in all cases (except between verb-final a and objective a), and retains the suffix in all cases. In addition, Motu fronts the object to a pre-verbal position in both types of construction; i.e. objects of 'true' verbal constructions appear before the verb, and nominal possessors appear before the possessed noun. This is important, since it provides yet another significant parallel between 'true' verbal and possessive constructions. In fact, with one exception the only difference between the possessive (60a, b) and verbal (60c, d) is the fact that the verbal structures show person-of-subject and tense/aspect affixes;

and if the possessive structures are again conceived of as nominalisations of verbal structures, this difference is not in the least unexpected.

The exception noted above refers to that fact that, in Motu, the third person singular possessive is *-na* while the third person objective is *-a*. (Something similar occurs in a number of OC languages). In the context of the hypothesis I am presenting, this is an important difference, and needs to be accounted for. For although there are some similarities with the Fijian case discussed above (cf. (58) and (59)), the two cases are not identical, since Motu retains objective suffixes in all other persons and numbers as well, whereas Fijian does not.

A possible explanation is as follows. In many OC languages, third person singular is treated as the unmarked category, so much so that the suffix for third singular possessive or third singular object is zero.¹² In such languages, after the loss of the transitive suffix before the object suffix, the third singular suffix was then itself lost. Thus an underlying sentence like:

- (61) ****(ia) / kite-i-ñā / ia
 (he) / see-transitive-3sg.obj / him
 'He sees him'

would have first lost its transitive suffix:

- (62) ****(ia) / kite-ñā / ia

and then, according to this hypothesis, substituted a zero morpheme for the third singular object suffix:

- (63) ****(ia) / kite-ϕ / ia.

Since the third person singular free pronoun object would have very often occurred immediately after the verb, it is distinctly possible that it merged phonologically with the verb, as a suffix *-ia*; but, since most POC verbs in any case end in *i*, the sequence *XYZi-ia* would very quickly have become *XYZi-a*; thus (63) would have developed into:

- (64) ****(ia) / kite-a / (ia)

which then explains the suffix in Motu and other languages with the same distinction.

The Lenakel structures which correspond to the underlying sentences (54) and (55) are:

- LEN (65) a) rimi-k *'my father'*
 b) rimi peravɪn uk *'this woman's father'*
 c) r-am-aamh io *'he sees me'*
 d) r-am-aamh peravɪn uk *'he sees this woman'*

Like Fijian, Lenakel loses the transitive suffix in the nominalised constructions but retains the objective suffix; in the verbal constructions, on the other hand, the objective suffix is lost and, in verbs which are obligatorily transitive (like *aamh 'see'*) the transitive suffix is also lost. (However, verbs which are optionally transitive, like *ɪŋn 'be afraid'*, retain the transitive suffix when used transitively). Thus Lenakel may be seen to have undergone rules which are similar to, though perhaps not as complex as, Fijian: the original order is retained in both possessive and verbal structures.

I have shown in this section how the reciprocal direct possessive constructions may be seen as deriving from underlying sentences, and I have attempted to account for the morphology of these constructions. This analysis has the advantage of explaining why pronoun suffixes used in reciprocal direct possession are formally related to, and often identical with, the suffixes used to mark the objects of transitive verbs in many OC languages.

2.2. Non-reciprocal

Apart from the few examples given earlier, where I drew the distinction between the two types of direct possession, non-reciprocal possessive constructions in most OC languages are generally formally identical with reciprocal possessive constructions. However, while it makes some kind of semantic sense to derive 'my father' from a structure like (66), it makes rather less sense to derive 'my hand' from (67):

- | | | | |
|------|---------------|---------------|-----------|
| (66) | (<i>he</i>) | <i>father</i> | <i>me</i> |
| | Subject | verb | Object |
| (67) | ? | <i>hand</i> | <i>me</i> |
| | Subject | verb | Object |

Further, if there are indeed differences between these two types of possessive constructions in OC languages, and if we are prepared to accept the suggestion that these differences go back to POC, then we would need to require that the original structures were different — i.e. the hypothesis would be that, if the reciprocal/non-reciprocal dichotomy is acceptable, and if (66) is the structure which underlies structures like 'my father', then (67) can not underlie 'my hand'. There is, I believe, a fairly simple resolution of this problem which explains the formal similarities between reciprocal and non-reciprocal constructions in most OC languages but which, at the same time, allows us to posit a different syntactic/semantic origin for each construction-type.

Pawley (1973:142) reconstructs for POC a preposition *(q)i which he glosses 'stationary position, in, at, on'. I suggest that non-reciprocal constructions derive from noun phrases in which the head and the possessor are joined by this preposition, and also that the appropriate objective pronoun was suffixed to this preposition. Thus parallelling the structures in (49) above which underlie the reciprocal constructions, I would posit the structures in (68) as underlying the non-reciprocal constructions.

- POC (68) a) **lima (q)i-ŋku au
hand on-me I
- b) **lima (q)i-ña pine DEM
hand on-her woman this

The equivalents in the modern languages are:

- FIJ (69) a) na liga-qu
 art *hand*-lsg
 'My hand'
- b) na liga ni yalewa oqō
 art *hand* poss *woman this*
 'This woman's hand'
- MTU (70) a) ima-gu
hand-lsg
 'My hand'
- b) hahine ena ima-na
woman this hand-3sg
 'This woman's hand'
- LEN (71) a) nelmi-k
hand-lsg
 'My hand'
- b) nelm† perav†n uk
hand woman this
 'This woman's hand'

The formal similarities between reciprocal and non-reciprocal constructions will be obvious: compare (56) with (69) in Fijian, (60) with (70) in Motu, and (65) with (71) in Lenakel. What is more interesting is the phonological similarity between the structures in (49) underlying reciprocal constructions and the structures in (68) which underlie non-reciprocal constructions. In the former case, we find *NP + pronoun suffix + i + NP*, while in the latter *NP + (q)i + pronoun suffix + NP*. This formal near-identity could well explain why both construction-types underwent the same changes in a large majority of OC languages.

There is one potential difficulty with this hypothesis: Pawley states that POC **(q)i* did not take pronominal suffixes. However, let us examine Pawley's argument a little more closely. He first reconstructs none "prepositions and preposition-like forms" for POC (Pawley 1973:142). Three of these, he says, "appear to have occurred only in nominal possessive constructions in POC" — i.e., the aforementioned **na* and **ka*, which I will account for below, and also **ni* (illustrated in examples (56) and (69) above, and which I have already attempted to account for). Most of the others are reconstructible as "prepositional verbs":

The term "prepositional verb" was first used by Codrington and other early grammarians of certain disyllabic forms which connect a verb with its grammatical object. ... such forms are always followed by an object pronominal suffix. (Pawley 1973:142)

In fact, "only one true preposition with case-marking functions is reconstructible on the available data" (Pawley 1973:143). And while he does not clearly state there and then what the one "true preposition" is, its identity is clear from his later discussion; for in the section on prepositions (as distinct from prepositional verbs) we find two forms discussed: **ta* 'of a place (or person?)', and **(q)i*. Further, "evidence from Kuanua, Roviana, Babatana and Nggela [and probably also the Tanna languages:JL] suggests that **ta* differed from **(q)i* in occurring with object pronominal suffixes" (Pawley 1973:149). I interpret this, I believe correctly, as stating that the "one true preposition" in POC which could not take pronominal suffixes was **(q)i*.

It seems somewhat unusual that POC had a (comparative) wealth of prepositions which could take pronominal suffixes, and only one preposition which could not take such suffixes — not impossible, of course, but unusual. I would like to propose an alternative analysis: that **(q)i*, like the other POC prepositions, did in fact take pronominal suffixes; that these suffixes occurred in constructions like (68); that, because of the morphological similarity between these constructions and transitive constructions like (49) which underlie reciprocal possession, the two types underwent the same development; and that, subsequent to this change, other cases of **(q)i + pronoun suffix + NP* underwent the same change as cases of *transitive suffix + pronoun suffix + NP* — i.e. loss of pronoun suffix — again due to phonological identity. This explains why there are now no cases of reflexes of **(q)i* taking suffixes, and at the same time it allows us to posit a single set of POC prepositions whose morphological behaviour is identical.

This hypothesis has a number of advantages. In particular, it both accounts for the underlying differences between reciprocal and non-reciprocal constructions and yet explains why such structures are similar, often identical, in OC languages. As well as this, it also allows us to make a rather broader set of generalisations regarding the POC prepositions.

3. ACTIVE POSSESSION

3.1. Manipulative

In the previous section, I accounted for the formal similarity between possessive pronoun suffixes and object suffixes in many OC languages by suggesting that the possessor was in fact the object in the underlying construction – either the object of the verb (in reciprocal constructions) or the object of a preposition (in non-reciprocal constructions). It is difficult, however, to see how this idea can be extended to active manipulative or *na-possession, since the essence of this construction-type is generally agreed to be the active or dominant role exerted by possessor over possessed – a role not normally associated with direct objects.

An examination of the common morphemes used to mark active manipulative possession gives us a clue to a possible hypothesis. It appears that three such morphemes are widespread enough to be reconstructed with some antiquity:

(a) *na. This is the form that Pawley (1973) chose to represent the active manipulative marker in POC. With considerable (assimilatory?) variation in the vowel, reflexes of this form are found in Fiji, in Northern Vanuatu (e.g. Mota), in the Solomons (Kia, Roviana, Babatana, Sa'a), and in New Guinea (Manam, Gedaged). The form often has a preceding vowel: e.g. Paamese eno, ono (Terry Crowley personal communication).

(b) *qa. This form is found mainly in New Guinea Oceanic (e.g. Kuanua, Wedau); in many of these languages, the vowel is raised (e.g. Motu and other Central Papuan languages have e, ɛe). The form is also found in Utupua, and as an alternate to na in Roviana.

(c) *ta. This form has already been referred to. Pawley (1973) reconstructed it as a preposition meaning '*of a place (or person?)*' and noted that it possibly had possessive function. It is found in many languages of Northern Vanuatu, possibly in Lenakel of Southern Vanuatu, and "in Roviana, some New Britain languages, and possibly Nada" of Milne Bay (Pawley 1973:166).

The interesting thing about all three forms is their close resemblance to articles reconstructed for POC or inter-stage languages. The form *na has been reconstructed as a common article for POC by Blust (1973), and for PEO by Pawley (1972). Pawley also reconstructs PEO *a as a common article, and PEO *(q)a as a personal article (Pawley 1972:58). The form *te has been reconstructed as a Proto-Nuclear Polynesian article (Biggs, Walsh and Waqa 1970). Thus a tenable hypothesis is that the first part of Fijian no-qu, Motu e-gu, and Lenakel taha-k, all meaning '*my*' (active manipulative), is an historical article and not (as Pawley suggests (1973:142)) a preposition.

But why is the objective pronoun suffixed to the article? I believe that in this case the suffix represents, not the direct object, but the *indirect* object of some stative/active verb which does not appear in the modern possessive constructions. It is distinctly possible that, when a POC sentence contained two objects, it was the indirect object which was marked as the suffix to verbs. This is the case in a number of OC languages; for example, Motu:

MTU (72) sivarai ta me-mero e-hamaoro-dia
story one pl-boy 3sg-tell-3pl
 'He told the boys a story'

(73) tau ese buka e-heni-gu
man subj book 3sg-give-1sg
 'The man gave me a book'

and Banoni (Lincoln 1976:201ff):

- BANONI (74) ke man-a vai nna borogho toom
complete give-1sg it 3sg pig two
'He gave me two pigs'
- (75) ke vake-nobe-ria
complete work-again-3pl
'She made it for them again'

Thus assuming that this was indeed the case in POC, we might suggest that active manipulative constructions like Fijian *na no-qu vale*, Motu *e-gu ruma*, and Lenakel *taha-k nimwa*, all meaning *'my house'*, had as their origin a sentence with unspecified subject like (76):

- POC (76) ** () / X-iŋku / au / { (pale)
 (sub*j*) / X-intransitive-me / I / house

in which the pronoun suffix *-ŋku* is co-referential with the indirect object *au* and not the direct object (*pale* or *Ruŋmaq*), and in which the constituent 'X' represents some kind of stative verb which I will not further specify just yet.

I will show in a moment how this proposal accounts for the morphology of the active manipulative possessive constructions in POC. Before doing so, however, it is necessary to justify the relationship of indirect object with active possessor. The connection between a noun marked with dative/benefactive case and a (non-direct) possessor is fairly close in many languages (e.g. English *'It is for me'* and *'It is mine'*). In Lenakel both benefactive (77) and active manipulative possession (78) are marked by the same form, *taha*:

- LEN (77) a) r-im-ol taha in+i-n
3sg-past-do benefactive mother-3sg
'He did it for his mother'
- b) r-im-asumw taha-k
3sg-past-garden benefactive-1sg
'He gardened for me'
- (78) a) nimwa taha in+i-n
house poss mother-3sg
'His mother's house'
- b) kuri taha-k (or taha-k kuri)
dog poss-1sg
'My dog'

In addition to this connection, the hypothesis explains why it is that, although the possessor cannot be equated with the direct object in the underlying construction, the objective forms of the pronoun are nevertheless used.

Now let us attempt to account for the morphology of the OC active manipulative constructions. Assuming that 'X' was deleted upon nominalisation — and this may be a preposterous assumption, but assume it anyway for the moment! — then nominalisation of (76) would give us one of the following forms:¹³

- (79) a) **na-i-ŋku / au / pale
 b) **qa-i-ŋku / au / Ruŋmaq
 c) **ta-i-ŋku / au / Ruŋmaq

The transitive suffix *i* was deleted by general rule before the pronoun suffix (but possibly not before having some effect on the preceding vowel — e.g. raising *qa* to *qe* in languages like Motu and other Central Papuan languages, for example); also, the indirect object pronoun *au* was optionally or obligatorily deleted under identity with the suffix. Although various idiosyncratic changes took place in the phonology

of the morphemes *na, *qa, and *ta, these changes are idiosyncratic and not part of the development at the POC or early post-POC stage, and they therefore need not concern us here.

Thus the system as proposed seems eminently natural, except, of course, for the major imponderable: the nature of 'X' in the underlying construction (76). What was the verb in a sentence like (76)? Was there in fact a verb at all? Can we posit a zero verb? If not, can we posit a verb which is deleted wholesale when the sentence it occurs in is nominalised? Whatever the form of the verb, what were its semantics? These are difficult questions. I will try to give an answer here, but I feel that further research and further thought is necessary before we fully understand what underlies this construction-type.

We are familiar, of course, with copular sentences without verbs in OC languages. Lenakel is interesting in this regard, since it requires no verb in a positive copular sentence, but does require a verb - ol 'to do, make' - in a negative copular sentence:

- LEN (80) in uk Natou
he this Natou
'He/this is Natou'
- (81) in uk r-is-ol-aan Natou
he this 3sg-neg-do-neg Natou
'He/this is not Natou'

Motu is also interesting in using the negative verbal prefix asi without a verb in possessive-type sentences. Compare the use of asi as a prefix to a verb in (82) with sentence (83), where asi occurs without a verb:

- MTU (82) asi-na-gini
 neg-lsg.nonfuture-stand
'I don't stand'
- (83) ai na asi e-mai ira
 we.exc art? not poss.l.exc axe
'We (exc) have no axes'

In one sense at least, then, both of these languages (and of course many others in the OC region) could be said to have zero verbs in the general semantic area of being/having.

Remembering that Lenakel uses a form of the verb 'do' in the negative copula, one aspect of Fijian is also of interest in this regard. Fijian has a verb ia 'to do, to perform, to carry out', with transitives ia and ia-taka (Capell 1968:73). What is especially interesting about this verb is its phonological form; Geraghty (personal communication) notes probably only one other Fijian verb of the form VV - ua-ca, 'to beat with a stick'. A possible interpretation is that ia is historically not a verb at all, but a transitive suffix attached to a zero verb.¹⁴ That is, there was a transitive verb ϕ 'do, have' which in the environment of a singular common object in pre-Fijian, had the form ϕ -i ia NP. Although other verbs reduced the -i ia to -a (cf. the discussion concerning (58) and (59) above), this zero verb may well have reduced -i ia only to ia.

There is thus some support for the idea of a zero verb in the general semantic area covered by being/having/doing. If our 'X' verb was in fact a zero verb, then we could propose that it had these semantics; i.e. we could rewrite (76), the sentence underlying active manipulative constructions, as (84):

- POC (84) ** () / ϕ -i-ŋku / au / { pale
 Ruŋmaq
 (subj) / be/have-transitive-me / I / house

The underlying sentence (84) would mean something like 'There is to me a house'. If

this hypothesis is acceptable, then the POC system is explained very easily, since once again the same set of rules which applied to the transitive and object suffixes in direct constructions will apply again here; if it is not acceptable – i.e. if we need to posit a non-zero verb which was first reduced, then wholly deleted, in this environment – then the hypothesis is less acceptable, because it is more contrived. However, I am loath to reject the whole proposal out of hand at this stage, since it applies very neatly to the other two types of active possession, to which I now turn.

3.2. Eating and drinking

These are subtypes are similar in many ways, which is why I want to discuss them together here: they both imply control for a specific purpose by possessor over possessed; unlike *na-possession, there is much greater consistency in the forms of the morphemes used throughout OC; and the forms of these morphemes bear a phonological resemblance to the verbs 'eat' and 'drink'.

The first point – specific control by possessor over possessed – suggests that both types of possession should be treated roughly in the same way as active manipulative possession which, although less specific, implies the same kind of control. I therefore tentatively suggest that, in OC eating and drinking possession, the possessor was originally the indirect object, in the same way as the possessor was derived from the underlying indirect object in *na-possession.

The second and third points should be taken together, since I feel that the similarity between the possessive markers and the semantically corresponding verbs explains the relative phonological uniformity of shape of the markers in OC languages. That is, I am suggesting that the possessive markers derive from the verbs 'eat' and 'drink'. With the former there is little difficulty: possessive marker *ka and verb *kani 'eat' are very similar – more so if the verb is interpreted as *kan-i, for which there seems to be considerable evidence which I will not detail here.

The formal relationship between what has been reconstructed as possessive marker *ma and verb *inum 'drink' is less obvious at first sight. However, the following facts suggest that both reconstructions should be modified, and it will be seen that the relationship between the modified forms is much closer.

a) First, Lynch (1978b:769) suggests that, on the basis of forms like Lenakel nɪmw- (better, nɪmwɪ-) 'marker for drinkable possession', the form *ma should be modified as *ŋma. Note also that Tangoa shows ŋa for this marker.

b) Second, there are also grounds for reconstructing a POC form *ŋminum 'drink' which would either replace *inum or be reconstructed as a doublet. Besides Malay minum, we find in Tanna forms such as Lenakel amnumw, Whitesands amɪm (where the a is a fused prefix). Fijian has gunu (where the vowel of the first syllable is irregular but may be due to assimilation). Now in many cases, Fijian shows the velar nasal g < POC *ŋm: e.g. *ta-ŋmane > tagane 'man', *li(ŋ)ma > liga 'hand'; *ŋmata > gata 'snake', and so on.¹⁵

If these two reconstructions are accepted, then the phonological connection between the 'new' possessive marker *ŋma and the 'new' verb *ŋminum seems considerably closer than the phonological connection between *ma and *inum.

Eating and drinking possessive constructions can thus be accounted for in an almost identical way as active manipulative constructions. The possessor in an eating construction derives from the indirect object in a sentence with *kan-i as the verb. Thus Fijian na ke-mu dalo, Motu a-mu taro, and Lenakel nɪkɪ-m nite 'thy taro' would all derive from a sentence with unspecified subject like (84), which would mean something like 'There is for thee to eat the taro':

POC (84) ** () / kan-i-mu / ko(e) / ntalos
(subj) / *eat-transitive-thee / thou / taro*

Exactly the same deletions and movement transformations apply to this sentence as applied to the various other underlying sentences that have been postulated in this paper. Given the loss of *i* before the object suffix, the consonant cluster in the resultant form *kan-mu would reduce to *ka-mu. Other further changes are language specific (e.g. loss of *k* in Motu, *a* > *e* in Fijian, fusion of article *nɪ* and *a* > *ɪ* in Lenakel).

Similarly, an active drinking construction like Fijian *na me-mu wai*, Lenakel *nɪmwɪ-m nu*, '*thy water*', would derive from a sentence like (85):

POC (85) ** () / ŋminum-i-mu / ko(e) / waiR
(subj) / *drink-transitive-thee / thou / water*

Again, the same rules apply. The verb *ŋminum undergoes considerable phonological reduction, but on the analogy of *na/*qa/*ta and *ka one can easily imagine its being reduced to *ŋma.

We are on slightly shaky ground with both these suggestions, and also with the suggestions posed in the previous section. However, I feel that they have some merit in that they explain a number of features of Fijian and OC possession which have not so far been adequately accounted for: (i) the formal similarity of the possessive pronouns in active and direct possessive constructions, and the formal similarity of both to the objective pronoun suffixes; (ii) the formal similarity between the morphemes marking eating and drinking possession and the semantically appropriate verbs; and (iii) the relation between indirect objects and possessors. Whatever the validity of the hypothesis proposed in this section, I feel that it at least explains more of the facts of active possession than other analyses.

4. PASSIVE POSSESSION

In Fijian, passive possession is marked in exactly the same manner as active edible possession, with the possessive marker *ke*; compare the active edible construction (86) with the passive construction (87):

FIJ (86) *na ke-na dalo*
art poss-3sg *taro*
'*His taro (to eat)*'

(87) *na ke-na itukutuku*
art poss-3sg *story*
'*His story (the one told about him)*'

This is so in quite a number of OC languages. The following examples are taken from Pawley (1973:161-162):

MOTA (88) *ga-na o nam*
'*his yam (as food)*'

(89) *na-ga-na o gatia*
'*his arrow (intended for him, with which he was shot)*'

NGGELA (90) *na ga-na beti*
'*his (drinking) water*'

(91) *ga-dira na vahagi*
'*their sicknesses*'

The general impression, then, is that active edible and passive possession were, at the very least, formally identical construction-types in POC. Some writers go

even further, suggesting (either by implication or more directly) that the two constructions may have been semantically/structurally identical in POC. Geraghty, for example, states that, in eating possession,¹⁶

the possessor eats or suffers the head nominal. ... The 'suffer' meaning ... is important because it constitutes the middle ground between passive and eat possession, and helps explain why the two types are usually marked in the same way. It would be reasonable to consider the following as examples of passive possessed deverbal nouns:

S[tandard] F[ijian]
 kemu i-cage 'your kick' (you are kicked)
 kemu i-roba 'your slap' (you are slapped)

were it not for the fact that they appear to be somehow related to the verb *kana* 'eat, suffer', as exemplified below in these attested sentences:

 kana i-cage 'suffer kicking, get kicked'
 kana i-roba 'suffer slapping, get slapped'
 (Geraghty 1978:236-237; emphasis mine).

Pawley, however, is more cautious about this relationship between active edible and passive possession:

*ka- marked other relationships which are difficult to connect semantically with the edible one. ... We are perhaps dealing with two independent formatives, *ka₋₁ (edible) and *ka₋₂ (subordinate or uncontrolled). ... It is tempting to postulate a common meaning uniting all the uses of *ka-, but it is doubtful whether this can be justified. (Pawley 1973:162-163).

There are two kinds of evidence which suggest that passive and eating possession derive from different underlying structures, and which also suggest an alternative historical analysis. The first comes from languages like those of the Central Province of Papua New Guinea; I will use Aroma rather than Motu as an example of these, since some of these data have already appeared in print elsewhere (Lynch 1973). Aroma shows the normal Central Papuan contrast between active manipulative (92) and active eating (93) constructions:

- AROMA (92) a) (goi) ge-mu vanua
 (thou) poss.2sg village
 'Thy village'
 b) (goi) ge-mu pae
 (thou) poss.2sg pig
 'Thy pig'
 (93) a) (goi) ga-mu ganigani
 (thou) poss-2sg food
 'Thy food (to eat)'
 b) (goi) ga-mu pae
 (thou) poss-2sg pig
 'Thy pig (as food)', 'Thy pork'

However, passive possession in Aroma is not structurally identical with eating possession but, rather, with direct possession. Compare the following pairs of constructions:

- (94) a) (thau) valavu-ku
 (I) idea-lsg
 'My opinions (relatively fixed)'

- (94) b) (thau) ge-ku valavu
 (I) poss-1sg idea
 'My (passing) thoughts'
- (95) a) (goi) rauparaupa-mu
 (thou) picture-2sg
 'Thy picture (the picture taken of thee)'
- b) (goi) ge-mu rauparaupa
 (thou) poss-2sg picture
 'Thy picture (the one in thy possession)'

In Aroma and its congeners, then, passive possession is formally identical with direct possession (cf. Aroma thau ama-ku 'my father', goi ama-mu 'thy father') and not with active edible possession.

The second piece of evidence comes from the languages of Tanna. I will take Lenakel as typical, again since it has been documented elsewhere (Lynch 1973). Lenakel shows the distinction between direct (96), active eating (marked by *nik+*) (97), and active manipulative (marked by *taha*) (98):

- LEN (96) nelu-k
 tooth-1sg
 'My tooth'
- (97) nuw niki-k
 yam poss-1sg
 'My yam (to eat)'
- (98) nimwa taha-k
 house poss-1sg
 'My house'

Passive possession (termed 'semi-alienable' in Lynch (1973)), however, is marked in none of these three ways; rather, it is marked by the locative preposition *le* or *by* the transitive suffix *in*. The status of *in* as a transitive suffix is first of all established below:

- LEN (99) r-am-ign
 3sg-continuous-fear
 'He is afraid'
- (100) r-am- gn-in io
 3sg-continuous-fear-trans I
 'He is afraid of me'

Now examine the contrast between active manipulative possession (in the (a) sentences) and passive possession (in the (b) sentences):¹⁷

- LEN (101) a) nouanage taha-k
 story poss-1sg
 'My story (which I tell)'
- b) nouanage in io
 story trans I
 'My story (the one about me)'
- (102) a) nau taha-m
 blade poss-2sg
 'Thy knife'
- b) nau in iik
 blade trans you.sg
 'Thy shoulder-blade(s)'

This use of transitive-type constructions in both Central Papua and Tanna to express passive possession is interesting, especially if one considers (a) the relationship between possessed and possessor in such constructions, and (b) the difficulty of trying to fit such constructions into sentences where the possessor was object/indirect object of the verb *kani 'eat'. The evidence from these two groups of languages, which almost certainly belong to different first-order groups of Oceanic, also suggests that POC must have marked passive possessive constructions differently from all other possessive-types, including active eating. I will suggest here that passive possessive constructions in OC do indeed derive from transitive sentences; but whereas active constructions derive from ditransitive sentences where the possessor is the indirect object, and direct constructions derive from transitive sentences where the possessor is the direct object and the verb takes the 'short' or 'close' transitive suffix *-i, passive possessive constructions, I suggest, derive from transitive sentences where the possessor is the direct object but where the verb takes the 'long' or 'remote' transitive suffix *-aki ~ *-akini. In other words, what I am suggesting is that, for example, a Fijian passive possessive construction like na ke-mu itukutuku 'thy story (the one told about thee)' derives from a sentence with unspecified subject like (103):

- (103) () / tukutuku-akini-mu / ko(e)
 (subj) / tell.story-transitive-thee / thou

which underwent subsequent nominalisation and, in the process, underwent many of the changes that other possessive constructions have undergone.

What evidence is there for this speculation? I put forward the following. First, nouns possessed passively are in many cases deverbal — i.e. derived (or at least logically derivable) from verbs which are, of course, capable of taking a transitive suffix. Second, the form of the morpheme which marks passive possession in the Tanna languages appears to be cognate with POC *-akini (that form of the long transitive suffix which is used before an object suffix (Pawley 1973:120)): e.g. Nivhall and South-west Tanna kin, Lenakel in.¹⁸ Third, POC *-akini is lost in Aroma, which provides an explanation for the identical treatment of passive (remote transitive) and direct (close transitive) possessive constructions. Fourth, and perhaps most important, the underlying form of the markers of passive and edible possession are phonologically very similar. From (84) above, 'thy edible' would have been something like *kan-i-mu; according to the hypothesis presented here, 'thy passive' in (103) would have been something like *akini-mu. With both of these forms undergoing the kinds of phonological reduction natural in this environment, it does not seem surprising that both merged as **ka-mu in a very large number of OC languages.

It is difficult to pin down the semantics of POC *-akini. Pawley attempts to do so, and assigns to *-akini such roles as concomitant, cause, instrument, and beneficiary (as opposed to the roles of place, goal, stimulus, experiencer, patient, product which he assigns to POC *-i) (Pawley 1973:128). However,

no simple correlation of semantic relation with case form is possible, ... so that a simple gloss for each suffix, such as 'patient' marker for *-i and 'instrument' marker for *-aki [~ *-akini:JL] would be misleading. Each suffix marks several different semantic relations. (Pawley 1973:125-126).

Thus while the investigation of the roles of *-i and *-akini does not throw a great deal of light on the topic, neither does it invalidate the present hypothesis.*

* See Harrison in this volume for further discussion.

5. CONCLUSION

What I have attempted to do in this paper is to put forward a set of hypotheses which go rather further into the semantics, the syntax, and especially the morphology of the possessive constructions in OC languages than previous studies of OC possession (e.g. Lynch 1973, Pawley 1973) had done. In other words, rather than merely stating that there seems to be 'something verbal' about OC possession, I have tried to show rather more exactly what that 'something verbal' might have been, and have attempted to account for the morphological structure and the forms of the morphemes which appear in the various construction-types.

In particular, I feel that this hypothesis accounts for two facts which I have always considered striking, but which have never really been satisfactorily explained. One is the similarity between possessive suffixes and object suffixes in most of those OC languages which show both sets of pronominal forms, and the fact that, although the role of the possessor varies from one construction-type to another, the same set of possessive suffixes is usually used. The other fact is the formal similarity between the transitive suffix, the verb 'eat', and the verb 'drink' on the one hand, and various morphemes marking particular possessive construction-types on the other. The set of hypotheses presented here attempts to account for these facts.

There are, of course, a number of areas which may seem somewhat suspect — perhaps most notably the analysis of active manipulative possession in section 3.1. — but as a coherent whole I feel that the hypothesis is worth consideration. There are also a number of questions left unanswered at this stage, such as the manner of the development of Polynesian and Micronesian-type systems from this proposed POC system, and the relationship of this system to any system reconstructed or reconstructible for Proto-Austronesian. Answers to these must await further research.

NOTES

1. This paper began to take shape in 1976 when Peter Lincoln paid an extended visit to University of Papua New Guinea. I am grateful to him for many insights, a number of which have been incorporated here; to Terry Crowley and Paul Geraghty, for perceptive comments on an earlier draft; and to members of both Departments of Linguistics at the Australian National University for comments on a seminar on this topic which I presented there in October, 1979.
2. References simply to 'Fijian' imply Standard Fijian. Other Fijian 'languages' will be mentioned specifically by name (e.g. Wayan Fijian).
3. Examples will be kept to a minimum in this section, on the assumption that readers have at least a passing familiarity with the structure of possession in OC languages. The English forms 'thee' and 'thy' will be used for second person singular forms.
4. Eating (and also drinking — cf. section 1.4.) are culturally defined in most OC languages. For example, tobacco in Fijian is possessed with an eating construction: na ke-na tavako '*his tobacco (to smoke)*'. Oysters are possessed by a drinking construction: na me-qu dio '*my oysters (to eat)*'.

5. But cf. the following examples from Lister-Turner & Clark (n.d.a), where the same morpheme as is used for eating possession (a-) is also used for passive possession: a-gu inai 'my enemy/enemies', a-na uru 'his generation'. This construction-type, however, is quite uncommon in modern Motu.
6. Data are from my own field notes. The vowel /i/ is obligatorily inserted between the two members of what would otherwise be a word-final consonant cluster: thus the underlying forms of the first and third examples in (23) are /rem-k/ and /mwipw-k/; similarly, the underlying forms of the first two examples in (24) are /neram-k/ and /neram-n/.
7. Data are again from my own field notes. While there is some question about the genetic status of Maisin, Lynch (1977) argues that Maisin is in fact an Austro-nesian (and therefore Oceanic) language, although it has been subjected to heavy Papuan influence. The distinction between reciprocal and non-reciprocal possession in Maisin is not paralleled, to my knowledge, in any of the Papuan languages which are likely to have influenced Maisin, and can not therefore be attributed to borrowing or to Papuan substratum influence.
8. Most of the examples (39) through (44) are taken, either directly or with some slight modification, from Milner (1972:111-113).
9. I have not tried to differentiate the suffixes -i and -a in Fijian transitive constructions, nor have I attempted to be specific in glossing them. I have also followed recent practice in analysing, for example, raica in (45) as raic-a and not as rai-ca or rai-c-a; although in its free form the verb is rai and not *raic, it is now customary to treat the so-called 'thematic consonant' as part of the underlying form and not as part of the suffix.
10. The fact that, for example, Fijian yalewa 'woman' is not cognate with POC *pine 'woman' need not concern us here; we are more interested in structural comparisons.
11. This may also help to explain the notorious -Cia suffix in Polynesian languages.
12. Eromangan is one OC language which shows zero for third singular object, while Gitua is an example of an OC language which has a zero third singular possessive suffix.
13. I have simplified matters slightly in (79) by choosing that reconstructed etymon for 'house' which is reflected in each of the three languages. That is, Fijian, which has vale < *pale, uses the form of the possessive morpheme which derives from *na(79a); Motu has ruma < *Ruŋmaq, and uses that form of the possessive morpheme which derives from *qa (79b); while Lenakel, with nimwa < *Ruŋmaq, has a possessive morpheme deriving from *ta (79c).
14. There should be no intrinsic difficulty with accepting the concept of a zero verb. Such verbs are found in the New Guinea area: e.g. ϕ = 'go' in Maisin (Austronesian), ϕ = 'be' in Gahuku (Papuan), etc.
15. Why, then, one might ask, is the Fijian drinking possession marker me and not ga or ge, if the POC form is *ŋma and if POC *ŋm > FIJ g? There appear to be at least some cases of *ŋm > m as well: *taŋmata > tamata 'person', *li(ŋ)ma > lima 'five', and so on. These suggest that both m and g in Fijian can be considered as reflexes of POC *ŋm. The whole area of the POC labiovelars is still poorly understood.
16. Geraghty has subsequently pointed out to me (personal communication) that his remarks are not intended as making any historical claim. However, statements such as that being made by Geraghty have been made as historical claims in the past, and I thus present Geraghty's remarks here unaltered.

17. For convenience, I ignore the structure with *le*. Note also that Lenakel has no object suffixes; free form pronouns occur as objects in (100), and in the possessive constructions (101b) and (102b).
18. POC *k is sporadically lost in Lenakel. Thus besides *kani > kin 'eat', *kapika > ni/kivik 'Malay apple', and *ñamuk > mu/muk 'mosquito', we also find *kali > il 'dig', *makumpu > mwipwi- 'grandchild', and *tansik > tehe 'sea'. Thus the absence of k in the reflex of *akini, though unpredictable, is not unexpected in Lenakel. Nor, in fact, is the presence of k any more predictable or expected in the Nivhaal reflex of *akini; the Nivhaal reflexes of the six POC forms above are respectively *kani > aan, *kapika (no reflex), *ñamuk > mu/muk, *kali > kil, *makumpu > mukupu-, and *tansik > tahik. (See Lynch 1978b for further details).

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METATHESIS IN AUSTRONESIAN: RIRIO AND OTHER CASES

Don Laycock

Among Austronesian languages, a widespread form of metathesis involves reversing CV to VC – usually, but not always, the final CV. This type of metathesis is fairly common in language families other than AN when the consonant is a liquid, or when the vowel is high (and becomes a semivowel after metathesis); but all the examples involving other consonants and vowels given by Ultan (1978) come from AN languages. If we take this as a representative sample, we have a form of metathesis that is common in AN, but rare in other language families.

Evidence for the metathesis comes from cognate forms in other languages, or from reconstructed proto-forms; or else from unmetathesised forms in the same language, when the metathesised forms have a syntactic or stylistic function. Clear-cut examples of such metathesis are found from Timor (Timorese, reported also for Mambai and Helong) to Rotuma, with a number of 'metathesising languages' being found in the central and western Solomon Islands. Supporting data come from additional languages outside this area.

Some examples will show the type of metathesis involved:

Timorese (Middelkoop 1950)

a/o	falo	'earring'	fau
	kano	'plait'	kaun
	mafo	'shade'	mauf
a/u	mafu	'drunk'	mauf
e/a	lèkat	'end'	lèkte
e/i	napeni	'he gets'	napein, napen
e/o	mèto	(unglossed)	mèot, meot
e/u	tenu	'three'	teun
	ameput	'worker'	ameupte
i/o	simo	'receive'	sium
	timo	'poteka'	tium
i/u	hitu	'seven'	hiut
	nitu	'guest'	niut
	titu	'watch'	tiut
o/i	totis	'attempt'	toitse
u/i	buti	'roll into a ball'	buit
u/u	lulut	'end'	lulte

Amran Halim, Lois Carrington and S.A. Wurm, eds *Papers from the Third International Conference on Austronesian Linguistics*, vol.1: *Currents in Oceanic*, 269-281. *Pacific Linguistics*, C-74, 1982.

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(The difference between the forms is syntactic, but Middelkoop provides no further information, or data. Note that forms originally ending in a consonant acquire an epenthetic *-e*, but do not otherwise seem to affect the metathesis.)

Kwara'ae, Malaita (Deck 1934, Fox 1950)

a/a	tala ana fanga 'food'	talan fang
a/e?	saema (? misprint for saena)	sean
a/i	aliali bania 'that one' karangia ofodangi	ailail bain kareng ofdaing
a/i, a/u	sasi akau	sasi ako
a/o	kafo	kaf
a/u	taifiliaku aabu siramu	taifilauk aub siraom
e/a	leka 'go' ta'ena	leak taen
i/a	Pita 'Peter'	Piat
i/o	likotai	lioktai
u/i	buli kusi 'NEG'	buil kuis
u/u	nau ku ... 'I + PV'	nauk

(An undescribed register of Kwara'ae; both authors say only 'rapid speech'. Forms unglossed in sources; some glosses have been added from indications elsewhere in Deck ('PV' means 'preverbal marker'). Note apocope where $V_1=V_2$. Metathesis operates on roots rather than on suffixes (likotai), and prior to reduplication (aliali).)

Sissano, NW Papua New Guinea (Laycock 1976)

POC *manu(k)	main	'bird'
*ndanu(m)	rain	'water'
*kutu	te'uit	'louse'
*kani	'ain	'eat'
*ŋpoŋi	poin	'night'

(Metathesis of final /i/ only, after development of original *u to *i. Final alveolar consonants are non-phonemically palatalised; the sequence /ui/ is realised as [ü].)

Rowa, Banks Is (Fox 1950)

Mota liwo	'tooth'	liew
lito	'firewood'	liet
singa	'shine'	sieng
siwo	'down'	siew

(Described by Fox as "Mota transposed". Rowa is listed by Tryon (1972), but in his 1976 classification is equated with Lehalurup - which, for the first two of the above forms shows lowo-k 'my tooth', lew 'tusk', lyet 'firewood'.)

Lolsiwoi, Aoba, New Hebrides (Tryon 1976)

Ngwatua	ngweta	ngweat	'taro'
Lolomatui	mbaeko	mbaeak	'breadfruit'
Ngwatua	fula	vuol	'moon'
Ngwatua	uha	wuos	'rain'
Ngwatua	fila	viel	'lightning'
Ngwatua	fohe	voas	'paddle'
Ngwatua	fuhu	vus	'bow'
Wailengi	ngwaloana	ngwaloan	'fight'
Lolomatui	maeto	maeat	'black'
Lolomatui	manoka	manak	'cooked'
Lolomatui	mamaha	mamas	'dry'
Lolomatui	mava	mav	'heavy'
Ngwatua	ka-tolu	ke-tol	'three'
Ngwatua	ka-vati	ke-vet	'four'
Ngwatua	ka-lima	ka-lim	'five'
Ngwatua	ko-ono	ke-on	'six'
Ngwatua	ka-mbitu	ke-mbit	'seven'
Ngwatua	ka-kwalu	ke-kwol	'eight'
Ngwatua	ka-hikwa	ke-siok	'nine'
Ngwatua	haŋvulu	saŋvul	'ten'
Ngwatua	naŋahe	naŋes	'when'
Ngwatua	ka-viha	ke-vies	'how many'
Ngwatua	mavuka	mavok	'tomorrow'
Ngwatua	mboŋi	mboŋ	'night'
Ngwatua	ningo	niok	'thou'
Ngwatua	kita	kiet	'we (pl.incl)'
Ngwatua	mbete	mbet	'give'
Ngwatua	roŋo	roŋ	'hear'
Ngwatua	maraka	marak	'stand'
Ngwatua	maturu	matur	'sleep'

(A selection of examples showing both apocope and metathesis; cognate forms shown from various other languages of Aoba. Original data slightly modified for typographical convenience, by replacing β by v and lowering superscribed prenasalisation and labialisation. Scattered instances of similar metathesis occur in other languages of the New Hebrides.)

Nengone, Loyalty Is (Leenhardt 1946)

lae	ale
ni bua	uba in
yoselo	soyeol
niŋetilu ome ri	ŋine tuil moe ir
bua co kanon te jeu'ore koe ni retok	uba oc nakoned uejon uki in terok
lengelo'a thu dai co kodaru	ngeleolo'a uth adi oc dokaru
Menaku	Em'nanuk
Titi	Itit
Ro	Or

(Scattered examples, and village names, from examples in Nengone and Cara [čara], a secret language based partly on the chiefly language of Iwatenu (Iwateno). Only examples showing CV reversal have been selected; but it is clear that a more important mechanism is syllable-interchange, with occasional phonetic reversal and consonant transposition — see Laycock 1972 for an account of these mechanisms.)

Dehu, Loyalty Is (Leenhardt 1946)

lēpi lolōē the 'mi te kē	ēleip ololeēō eth iṭi 'me ēk
'out quickly - no slacking!'	
puaka 'pig'	akaup

(A secret language similar to the preceding, based partly on the chiefly language of 'Umeng (Humeng). Most examples given show syllable-interchange, phonetic reversal, and consonant transposition – the only instances of CV metathesis appear to be those above.)

Rotuman (Churchward 1940; Biggs 1959, 1965; Haudricourt 1958a,b; Milner 1972)

a/a	haga [haga] 'feed'	hag [hag]
a/e	laje [lɛje] 'coral'	laej [lɛj]
a/i	kami [kɔmi] 'dog'	kaim [kəm]
a/o	rako [rako] 'learn'	raok [rak]
	maho [maho] 'get cold'	maoh [mah]
a/u	hagu [hɔgu] 'wake'	hag [hɔg]
e/a	seseva 'erroneous'	seseav
e/e	eŋe 'coconut pulp'	eŋ
e/i	tepi [tɛpi] 'slow'	teip [tɛp]
e/o	(sources say -eCo > -eC, but no examples given)	
e/u	hefu [hɛfu] 'star'	heuf [hɛf]
i/a	lima 'five'	liam
i/e	(sources say -iCe > -ieC, but no examples given)	
i/i	tokiri 'roll'	tokir
i/o	tiko 'flesh'	tiok
i/u	timu 'heavy rain'	tim
o/a	hosa 'flower'	hoas
o/e	mose 'sleep'	moes [mɛs]
o/i	hoti 'embark'	hoit [hɔt]
o/o	hoto 'jump'	hot
o/u	fo'u [fɔ'u]	fo' [fɔ']
u/a	Rotuma 'Rotuma'	Rotuam
u/e	pure 'rule'	puer
u/i	futi 'pull'	fuit fyt
u/o	(sources say -uCo > -uOC, but no examples given)	
u/u	tuturu 'post'	tutur

(Rotuman is the classic citation for AN metathesis. Difference between forms is syntactic – 'indefinite' versus 'definite', or list forms versus phrasal forms. Examples taken from all sources – but I follow Haudricourt for the phonetics, and Milner for the phonemic respelling. Note that reduplication operates after metathesis (roromi 'rush' > rōrōm) and that the umlauting effect may extend to other vowels in the word (furfuruki 'pimple' > fūrūrūk), causing a problem for Milner's phonemicised orthography – given the fact that vowel sequences ai, oi and ui occur in the language with normal (un-umlauted) values. Biggs regards sequences ea, io,

oa and ue as reducing to /ya/, /yo/, /wa/, /we/; if this extends throughout the series, there would be homophony between metathesised forms of oa/ua and ia/ea. In the Haudricourt analysis homophony is found only in the metathesised forms of -iCi/-iCu and -eCe/-eCo - but -eCo perhaps does not occur.)

The case of Ririo

Ririo, a dying language of Choiseul in the western Solomon Islands, differs from all preceding instances (except perhaps that of Rowa and/or Lolosiwoi) in that there is no alternation between metathesised and unmetathesised forms within the language. To find unmetathesised forms, one has to turn to the closely-related language of Babatana, or, occasionally, to other languages of Choiseul. (For this paper, it has proved necessary only to use Sengga; forms in the left column are therefore always Babatana, unless otherwise specified. The forms in the right-hand column are Ririo.)

When I carried out fieldwork in Susuka village on Choiseul in 1978, there were only eighteen surviving native speakers of Ririo - sixteen of whom were then resident in Susuka. All Ririo speakers used Babatana as their normal language of daily intercourse, and their children and other family members spoke only Babatana. The full history of Ririo speakers has not been established, but it seems that they sought refuge among Babatana speakers some time toward the end of the nineteenth century, after their population had been reduced by headhunting raids from Vella Lavella; they returned to their original villages in the 1920s or 1930s, but again sought refuge with Babatana speakers during World War II. This close interaction has led speakers of both Babatana and Ririo to regard Ririo as a kind of 'funny Babatana'.

Babatana has an established orthography based on Roviana (in turn based upon Fijian); the Ririo orthography in turn I based on Babatana, in consultation with informants, and is the same as that of Babatana with the addition of two vowels and two consonants. In this account, the few examples cited from Sengga are written in the same orthography.

Ririo orthography (with phonetic values)

p [p]	t [t]	c [ts]	k [k]	' [ʔ]
b [mb]	d [nd]	j [ndz]	q [ŋg]	
v [v,β]	r [r]	z [z,zʷ]	g [ɣ]	
m [m]	n [n]		ñ [ɲ]	
	l [l]	s [s]		
	i [i]		u [u]	
	e e	ü [ø]	o [o]	
	è [ɛ]	ö [œ]	ò [ɔ]	
		a [a]		

Among the consonants, Babatana lacks /c/ and /ʔ/, and in earlier versions of the orthography /j/ was often written nz. Babatana /ü/ (nowadays more usually written /ö/) represents both [ø] and [œ] (or [ɨ], according to Whaley (1962)). Ririo has in addition the two lowered vowels /è/ and /ò/, which arise principally from metathesis. Whaley also claims contrastive vowel length for Babatana, but I am not entirely sure that this is not a function of stress and/or open versus closed syllables.

Many Babatana words have cognates in Ririo that show a metathesis of root-final

CV; other words are identical in the two languages, but those that should have metathesised, according to the table below, are regarded as borrowings from Babatana. Even without the metathesis, the languages differ considerably in lexicon and syntax, so that Ririo is not just a 'metathesised Babatana'.

Because of the metathesis, many Ririo words end, in their basic form, in a consonant; all consonants except /v/ may occur finally, but final /k/ arising from metathesis (but not always apocope) becomes /'/. All words ending in a consonant have a form with an optional echo-vowel; this echo-vowel is frequent in fluent spoken Ririo, but at the suggestion of informants is not written. Similar echo-vowels occur in roots which end in a consonant, and are deleted when a suffix beginning with a vowel is added; the echo-vowels are also not written in this instance. (Examples: *kapt* [ka.pat] 'skin', *kapte* [kapte] 'his skin'; *körs* [kæræs] 'hand', *körse* [kærse] 'his hand'.) This causes no ambiguity, as no consonant clusters can occur within the syllable in Ririo.

Most, but not all, instances of /c/ are before high vowels /i/ and /u/, and are pronounced by some older Ririo speakers as /t/ in some instances (except where there are minimal pair contrasts between /c/ and /t/: *tin* 'give', *cin* 'say'); this might suggest that it is a recent development in Ririo, but this appears contradicted by some of the metathesised examples (see below).

In the following table, examples of metathesis involving all the five basic vowels /a e i o u/ of Babatana are given; a few instances are given involving Babatana /ü/, but no rules can be given for these, as the vowel is of rare occurrence in Babatana, and is rarely followed by any vowel other than itself. (In Babatana many occurrences of /ü/ appear to arise from an umlauting of (backed) /a/ before high vowels; the Methodist Bible translation in Babatana writes *qözö* (qüzü) for 'tree' and *töbö* (tübü) for 'forbidden'; but my Babatana lists have *qazu* and *tabu* — with which last compare Ririo *tòb*.)

Babatana and Ririo forms compared:

a/a	<i>madaka</i>	'blood'	<i>madak</i>
a/e	<i>pade</i>	'house'	<i>pèd</i>
a/i	<i>saqi</i>	'bear young'	<i>sèq</i>
a/o	<i>vato</i>	'manner'	<i>vòt</i>
a/u	<i>kasu</i>	'areca nut'	<i>kòs</i>
e/a	<i>qela</i>	'cry'	<i>qial</i>
e/e	<i>seqe</i>	'wash'	<i>seq</i>
e/i	(no instances; probably no metathesis, or apocope)		
e/o	<i>neqo</i>	'fifty'	<i>niqo</i>
e/u	(no instances; I predict no metathesis)		
i/a	<i>niqa</i>	'egg'	<i>niqa</i>
i/e	<i>sire</i>	'housefly'	<i>sire</i>
i/i	<i>viru</i>	'tobacco'	<i>vir</i>
i/o	<i>pito</i>	'black'	<i>pito</i>
i/u	<i>piru</i>	'wild'	<i>piur</i>
o/a	<i>rota</i>	'vein'	<i>ruat</i>
o/e	<i>bose</i>	'man'	<i>bues</i>
o/i	(no instances; I predict no metathesis)		

o/o	boko	'pig'	bo'
o/u	lotu	'church'	lut (only instance)
u/a	rupa	'darkness'	rupa
u/e	kule	'frog'	kule
u/i	vumi	'beard'	vuim
u/o	(no instances; I predict no metathesis)		
u/u	susu	'breast'	sus
ü/e	küke	'one'	kik
ü/i	güki	'eat'	gek
ü/ü	külü	'call'	küi

Some additional subrules for metathesis also need to be given.

1) In roots of more than two syllables, where the final vowels of the Babatana word are identical, the metathesis affects the first two non-identical vowels:

	komala	'village'	kuamal
(Sengga)	saruku	'morning'	sòrk
	kasuku	'fog'	kòsk
	naboko	'widow'	nòbk

2) Reduplication and pronominal affixation is usually subsequent to metathesis:

(Sengga)	saruku	'morning'	sòrsòrk	'early morning'
	sosole	'naked'	susuel	
	vali-o	'kill you'	vèl-o	

3) With the suffixed pronominal possessors -uq 'my', -um 'your', (Babatana -qu, -mu), however, the suffixes may metathesise first:

	mataqu	'my eye'	matòq
	matarami	'our eyes'	matarèm

4) The affrication of /t/ to /c/ before high vowels usually precedes the metathesis, but in the final instance below must have developed after it:

	natu	'Burckella tree'	nòc
	vutu	'louse'	vuc
	vitu	'seven'	ziuc
	vati	'four'	vèc
	masi	'sea, salt'	mèc (? earlier *mati)
(contrast:	vakasi	'canoe'	vakès)
(Sengga)	tona	'bow'	cuan

5) Final /k/ resulting from metathesis usually becomes /'/ but remains /k/ after apocope of all final vowels except /o/; final /v/ is lost after metathesis, but changes the sequence -ava to -ò:

	toka	'adze'	tua'
	roroko	'bird'	roro'
	puka	'go up'	pua'
	nava	'leg'	nò
	tava	'day'	tò
	kave	'spider'	kè
	leke	'person'	lek

(Note that -uCa metathesises only when the C is k.)

The following additional examples of irregular metathesis would seem to show that Ririo metathesis is not operating directly on Babatana, but on a form of language ancestral to both:

nupi	'grasshopper'	nip
baku	'fruit bat'	bük
vutini	'know'	vesn
nanana	'love (intr)'	non
nüni	'love (trs)'	
karakone	'sand'	karkuin
moro	'sick'	muar
vui	'hit'	vi
jope	'mouth'	juap
sükü	'want'	siò' (? earlier *siaku)
kañaso	'thirsty'	kõns

Explanations for metathesis

In looking for explanations for these widespread instances of metathesis, it is first necessary to ask whether we are dealing with one phenomenon, or many. There are clearly some similarities between the metathesis rules of one language and those of another; nevertheless, there are striking dissimilarities. If the Ririo and Rotuman systems are compared with each other (Table I), there are probably more dissimilarities than similarities, even though a simple inspection of the metathesised forms makes the two languages look remarkably similar:

		Ririo					Rotuman				
Second vowel →		a	e	i	o	u	a	e	i	o	u
First vowel ↓											
a		A	Mr	Mr	Mr	Mr	A	Mr	Mr	Mr	Mr
e		Mw	A	X?	Mw	X?	M	A	Mr	A?	A
i		X	X	A	X	M	M	M	A	M	A
o		Mw	Mw	X?	A	M	M	Mr	Mr	A	M
u		X	X	M	X?	A	M	M	Mr	M	A

(X = no metathesis; A = apocope (deletion of final vowel); M = metathesis; Mr = metathesis with reduction of the resulting cluster - including Rotuman examples where the resulting vowel differs from that produced by apocope); Mw - raising of a mid-vowel to the corresponding high vowel or semivowel; resulting homophonous forms boxed.)

It will be readily seen that on this analysis Ririo and Rotuman are similar only in their treatment of /a/, and in the apocope of final echo-vowels. The treatment of /i/ and /u/ is almost diametrically opposed in the two languages. The similarities are slightly increased if Biggs' (1965) view of the semivowel development of /i e o u/ before lower vowels in Rotuman is correct; but this would seem to give rise to two more homophonous forms (collapsing /ea/ and /ia/, and /oa/ and /ua/) for which there is no evidence in Churchward's (1940) account. The Kwara'ae system may turn out to be similar to that of the Ririo one, but data is incomplete. Very little

can be said of the Timorese system, but in the raising of /o/ following /a/ and /i/ it does not closely resemble either Ririo or Rotuman. Nothing much can be said of the other systems cited, but it seems that apocope of final echo-vowels is widespread.

If the systems of metathesis are not the same, it does not seem entirely reasonable to search for a single explanation to account for them – apart from the fact that it is *a priori* unlikely that a single explanation could account for languages so distant from each other, both in geography and subgrouping. For Rotuman, the suggestion has been made by Churchward (1953), and again by Haudricourt (1958a,b) that the metathesis may have its basis in something like the stress-shifting rule in Tongan, where the stress shifts to the final vowel in definite forms of nouns (corresponding to the unmetathesised forms in Rotuman) (see also Thompson 1969). But no explanation of this type will work for Ririo, which has essentially the same stress patterns as Babatana.

There may be a clue in the Kwara'ae 'rapid speech' metathesis. In rapid speech, anticipations of later segments is common, resulting in umlauting (a special case of CV metathesis: note Gothic *gastins*, OHG *gesti*, perhaps from an earlier **gaisti*; NHG *Gäste* 'guests'), and metathesis with echo-vowels (which may then be deleted under the echo-vowel deletion rule; thus Babatana *ziru* 'they two', Ririo *ziur*, perhaps from an earlier **ziuru*, Rotuman *puer* < **puere* < *pure*).

But in such cases we might also expect umlauting in the unmetathesised forms in Rotuman – [høti] for *hoti*, and [mese] for *mose*. Also, in Ririo, the final optional echo-vowels which are current in the language are the modified vowels, not the original vowels – though this could be accounted for by postulating a later sound-change of progressive assimilation:

Babatana *pade* 'house' > **paede* > Ririo *pèdè*, *pèd*
(perhaps: *pade* > **paede* > **pède* > *pèdè*, *pèd*)

There is some difficulty in assumptions of regular sound-change in the treatment of loanwords in Ririo and Rotuman. The loanwords from English (or Fijian, in one Ririo instance) can hardly be older than about a hundred years, and yet they show the metathesis. Either the metathesis is quite recent (perhaps even a matter of living memory), or the loanwords have been artificially modified, by analogy with existing metathesised forms. Note:

Rotuman *jaku* [jɔku] 'jug'
jaku [jɔku] 'chalk'
uaj 'watch' (unmetathesised form *uja*)

Ririo *kias* 'cash' (Babatana *kesa*)
lut 'church' (Babatana *lotu*)
manob 'papaya' (Babatana *manep* < **maniapa* < **mamiapa* 'marmee apple' – irregular metathesis)

In Rotuman, where the metathesis is still productive, it is not unreasonable for loanwords to participate in both directions in the metathesising process – though it is not at all clear why 'jug' should have been borrowed with a mid back vowel (if the borrowing does not antedate the raising of /a/). This may however reflect a borrowing from a particular dialect of British English.

In Ririo, however, if the loans entered the language after the metathesis, there is no reason why they should not have been borrowed in unmetathesised forms; unmetathesised -eCa and -OCu occur, often as (probably recent) loans from Babatana. It is possible that the loanwords were metathesised by analogy with similar words which were perceived to be metathesised between Babatana and Ririo, which would argue for a certain amount of deliberateness in the metathesis in at least this instance.

Is there then a case for 'deliberate' metathesising - that is, a form of play-language of the 'pig-latin' type - in any of the languages with CV reversal? It is certainly a tempting explanation, and has been invoked more than once, both for the languages under discussion (e.g. K.J. Hollyman in the discussion of Biggs 1959), and to account for other forms of metathesis in AN languages (e.g. Fox 1950, Schuhmacher 1972). But the authors of these remarks do not make it clear what kind of metathesis they are discussing. The documented AN 'play-languages', or secret languages, or special registers, usually make use of interchange of adjacent syllables, or asymmetric transposition of syllables, or word-reversal by syllable, or interchange of successive (rarely non-successive) consonants, or word-reversal by phonemes (predominantly written) - plus some other non-metathesising forms, often involving arbitrary suffixation, or devices based on written forms of the language. (For explanation of these mechanisms, and examples from Javanese, Tagalog, Malay, Marquesan, Manam, Nengone, and Dehu, see Laycock 1972, and also Ultan (1978) for Toba, von den Steinen (1905) for Marquesan, and Schultz (1905) for Samoan. D.J. Prentice has supplied me with an additional example for Murut. Examples could be multiplied; but such forms of play-language have no bearing on the CV metathesis described here, and seem to have little effect on the regular languages - though this would need to be examined further. There is certainly no instance of an AN language which has a consistent syllable-interchange throughout, either as a separate language, or as a grammatical (as opposed to a register) variant of the normal language.

More importantly, there is no clear-cut evidence of any play-language in any AN group that consistently makes use of CV reversal. The sporadic instances for Nengone and Dehu cited above may be considered significant (although I think the CV reversal is an artefact of other mechanisms, such as phonemic reversal), and the Kwara'ae case comes close, if we can learn more about the conditions under which the special register operates. The Rowa examples may just possibly be an instance of a play-language form of Mota. But without further data on these languages it is not possible to postulate a widespread play-language based on CV reversal.

In the Ririo case, however, there is some evidence for at least modern deliberate-ness about the metathesising. I have cited the loanwords; a few additional socio-linguistic facts are relevant. Imperfect speakers of Ririo (such as the children of native Ririo speakers) will, if asked for a Ririo word, give a metathesised Babatana word, which often differs from the true Ririo word. Thus, one such informant, in an older wordlist of 'Ririo', gave as the word for 'tree' the form qòz, which is a metathesised form of Babatana qazu; however, all true speakers of Ririo agree that the Ririo word is the non-cognate ve. Further, I travelled down the coast of Choiseul with a Ririo speaker, who named all the villages we passed in metathesised form: Zòr for Zaru, Nuatòb for Nuatabu. These villages are well outside the normal Ririo-speaking area, and are unlikely to have formed part of the normal Ririo vocabulary; I believe they were deliberately metathesised by analogy. Such analogous metathesising may also account for some of the anomalous metatheses in Ririo.

It is also worth observing that, in Ririo, metathesis does not usually occur in the sequences -iCa and -uCa. Metathesised forms of these sequences would be homophonous with the metatheses of -eCa and -oCa. It seems a lot to expect of a phonologically-motivated sound-change that it would cease to operate just where ambiguity would occur, and one may wish to see a human consciousness in this. (It is obvious that metathesised forms in a language cannot give rise to too much homophony without drastically altering the structure, or the lexicon of the language. Ririo does permit homophonous forms to arise from the metathesis of -aCe/-aCì and -aCu/-aCo only, and Rotuman restricts its homophony - pace Biggs - to the metathesis of -eCi/-eCu.)

A final remark. I am grateful to Jacques Guy (ANU) for the observation that CV metathesis results in no loss of information (unless homophony results) in languages

whose structure is predominantly (C)VCV(C) — unlike syllable-transposition and consonant interchange, which can easily give rise to forms homophonous with other words in the language. But it is still unclear how we can make use of this insight in explaining CV metathesis in Austronesian languages.

ADDENDUM

Thanks to comments made by participants at the Third International Conference on Austronesian Linguistics in Bali, it is now possible to add a little additional data on Timorese and Kwara'ae. For the former R.A. Blust adds the following examples from his fieldnotes (personal communication):

Atoni (Timorese)

mēse?	'one'	mēs
nuā	'two'	nuā
tēnū	'three'	tēun
hítu	'seven'	hítut
fánū	'eight'	fáun
nātun mēse	'one hundred'	nāūt mēs
nīmā	'hand'	nīmā?
?at mánī	'to laugh'	?at máīn
?	'dead'	māēt
mānū tek?	'bird's egg'	māūn tek?
nāka	'head'	nāka

He comments further that there appear to be no examples of metathesis involving final -a or a?, and that the metathesised forms are to be regarded as 'normal' speech, the underlying forms as 'careful speech', with no syntactic difference between them.

Gary Simons adds the following phonetic corrections and glosses to the Kwara'ae data:

tala 'ana	'himself'
sae-na	'its inside' (metathesised form probably saean)
'ali'ali	'quickly' (metathesised 'ail'ail)
karangia	'near' (metathesised karaing)
'ofodangi	'morning'
sasi akau	(perhaps = sasi-a kau 'do it thither'; in any case the /o/ for /au/ is a normal fast-speech contraction, not metathesis)
kafo	'water'
taifilia-ku	'I alone'
abu	'holy'
sira-mu	'your belly'
ta'ena	'today'
likotai	'quickly'
buli	'cowrie shell'
kusi	'1st sg neg'

He confirms that the metathesised forms are the normal ones in 'normal rapid speech', whereas the underlying forms are used in careful speech, and singing. The statement

that "metathesis operates on roots rather than suffixes, and prior to reduplication" is not strictly correct; metathesis is conditioned rather by the stress patterns of Kwara'ae (penultimate syllable and every second preceding syllable); the metathesised syllables are those following stress. For further details see Simons' mimeo paper 'A Kwara'ae spelling list' (Working Papers for the Language Variation and Limits to Communication Project No.6, 1977).

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BASES FOR NEW METHODS IN GLOTTOCHRONOLOGY

Jacques B.M. Guy

This paper was drafted on DEC-KL10 using VIDED, a display-oriented text editor written by Jacob Palme, of the Swedish National Defense Research Institute. All software referred to in the paper was written by the author in SIMULA, an ALGOL-based language developed by the Swedish National Defense Research Institute and the Norwegian Computing Center. Numbers in square brackets refer to figures and tables.

INTRODUCTION

This paper is at the same time a very condensed report of past work (Guy 1980) and an outline of work in progress which originated in a tentative clarification of the internal and external relationships of the languages of the New Hebrides contributed to the paper presented by Tryon at the Second International Conference on Austronesian Linguistics held in Canberra in 1978. To quote him:

...Guy (forthcoming) has proposed that a new technique involving linear regression might well be applied and prove more worthwhile than the lexicostatistical techniques that have become traditional. The technique has been applied to the percentages computed for the languages considered in this paper, and appears as Chart IV. (895)

The idea of seeking entirely new methods for classifying languages had stemmed from an earlier dissatisfaction with the results produced by traditional lexicostatistics. Having collected 22 of the 40 wordlists representing Santo in Tryon's internal classification of the New Hebrides languages (Tryon 1976), and become fluent in the two Sakao dialects and in Tolomako, I could only strongly disagree with techniques that set up an East Santo group containing Sakao as distinct from the North and Central New Hebrides as Tanna is. To me, Sakao was clearly a Santo language, although I would have been at great pains to substantiate this purely impressionistic judgement.

Possibly in this case the method was sound but, owing to the sheer amount of data produced (15,753 cognate percentages), it had not been possible to apply it properly.

A survey of the literature on the practice and theory of lexicostatistical methods, far from providing any solutions, suggested that the methods in current use rested on unsound foundations. In 1962 Bergsland and Vogt presented conclusive evidence that retention rates could vary greatly across languages. In 1965 Dyen, James and Cole had calculated the retention rates of the individual items of a standard sample wordlist, which were also found to vary.

Amran Halim, Lois Carrington and S.A. Wurm, eds *Papers from the Third International Conference on Austronesian Linguistics*, vol.1: *Currents in Oceanic*, 283-314. *Pacific Linguistics*, C-74, 1982.

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THE ASSUMPTIONS OF GLOTTOCHRONOLOGY EXAMINED

Glottochronology is based on a hypothesis expressed by the formula

$$t = \frac{\log c}{2 \log r} \quad (1)$$

where c is the proportion of cognates between two languages which have split t units of time ago and have since evolved at such a rate that any item of the sample word-list had a chance r (such that $0 < r < 1$) to survive, unreplaced, through a unit period of time.

To quote Swadesh:

The mathematical formula is

$$i = \frac{\log C}{2 \log r}$$

in which i stands for indicated periods of depth, C is the percentage of basic vocabulary in common and r is the percentage of basic vocabulary retained after one standard period of time. The basic theory leading to this formula is presented in the next section.

[...]

2.1. Assuming a constant average rate of drift in the basic vocabulary, the effect of elapsing time on an original vocabulary will be to reduce the vocabulary by a given percentage at the beginning of that period. If 85% is left after one period of time, then there will be 85% of 85%, or 72%, after a second equal period. After the third period there will remain 85% or 72% (that is 61%) of the original and so on for each additional period. (Swadesh 1950:158)

Swadesh's basic theory is expressed in somewhat obscure terms. What is a constant average rate? Swadesh obviously did not mean a constant rate, or he would not have used the word 'average'. An analogy may provide a hint of what he meant:

'we drove from **** to **** at a constant average speed of 90km/h'

At first this sentence seems to contain a contradiction in terms, but, on further reflection, one possible meaning emerges:

'we drove from **** to ****, calculating our average speed on several legs of the trip; we got an average of 90km/h every time.'

Which prompts the comment:

'either you drove at a constant speed, or you decided to call it the end of a particular leg of your trip when you had calculated that your average speed would be precisely 90km/h for that leg, or this is a very extraordinary coincidence indeed.'

It is quite unreasonable to hold that language families allow their members to split only at those times when their average rates of drift happen to be equal to a certain constant value. Since Swadesh did not hold that rates of drift were constant one can only conclude that his fundamental assumption is that basic vocabulary drifts (i.e. gets replaced) at a rate which fluctuates within narrow, constant limits.

Consider now a case where the retention rate is 90% for one half of the basic vocabulary and 10% for the other. After one period of time 90% of one half will be left, and 10% of the other half, i.e. 50% of the total basic vocabulary. You might expect 50% of 50%, or 25%, to be left after two periods of time. Not at all. 90%

of 90%, or 81%, of one half will be left, and 10% of 10%, or 1%, of the other half, i.e. 41% of the total basic vocabulary. And after three periods of time 36.5% will be left, not 12.5%. A second assumption, that the rate of drift is the same (or about the same) for all parts of the basic vocabulary, has to be made.

The findings of Bergsland and Vogt and of Dyen, James and Cole belie both assumptions.

Import of Bergsland and Vogt's findings

The variations which Bergsland and Vogt have observed in the retention rates of closely related languages or dialects (East Greenlandic and West Greenlandic for instance) are so great that, even assuming that the probability of survival of individual items is equal throughout a given wordlist, time depths calculated according to formula (1) are subject to such large errors that they become utterly useless. Thus for instance, if told that languages X and Y split 1000 years ago, relying on a retention rate of 86% per millennium (the one generally used for the Swadesh 100-item wordlist), one would confidently predict that their most likely percentage of shared cognates should be around 73.96%. If however X and Y had had the bad taste of evolving at the same rates as East and West Greenlandic (53.7% and 97.2% retention per millennium respectively), they would most probably share 52.2% cognates. Neither would the practice of calculating a range of error for a 95% level of confidence help in the least: on a 100-item wordlist 73.96% and 52.2% are just about four standard deviations apart, which would require a confidence level of over 99.99%.

Bergsland and Vogt's study, which showed beyond reasonable doubt that a percentage of shared cognates is not an accurate enough measure of the genetic distance between two languages, should have brought about drastic, if painful, revisions in the lexicostatistical method. It was ignored.

Import of Dyen, James, and Cole's findings

Any linguist who has collected or perused sample wordlists from Austronesian languages is bound to have noticed that certain words (e.g. 'two', 'five', 'eye', 'die', etc.) are extremely stable throughout Austronesia.

Dyen, James, and Cole have calculated the retention rates (which should more accurately be called chances of survival) for 196 items of a sample wordlist from 46 pairs of Austronesian languages. In the table they give (Dyen 1967:153-154), chances of survival are not listed as such, but plodding through the text eventually shows that the chance of survival of an item through 1000 years can be calculated from the formula:

$$r = e^{-\frac{1}{2.1382\tau}} \quad (2)$$

where e is the base of the natural logarithms (2.78128...), and τ a time value the inverse of which is given for each item of the wordlist.

Survival chances thus extend from 0.9918 per thousand years for 'five' down to 0.5857 for 'to play'. Their values are normally distributed, without any sign of skewness, kurtosis, or any other irregularities, with a mean value of 0.7916 (i.e. 79.16% survival chance through 1000 years) and a standard deviation of 0.0942.

The standard deviation is an arithmetic quantity which expresses how far from their mean a set of values spreads. Here the spread is about three times as large as could be attributed to chance alone.

How does this affect the fundamental formula (1) of glottochronology?

Consider a wordlist consisting of n items, with survival chances $r_1, r_2, r_3, \dots, r_n$ for language L and $r'_1, r'_2, r'_3, \dots, r'_n$ for language L'. If L and L' have split t time units ago the most probable proportion of shared cognates (call it c) between them is given by the formula

$$c = \frac{1}{n} (r_1^t r_1'^t + r_2^t r_2'^t + r_3^t r_3'^t + \dots + r_n^t r_n'^t) \quad (3)$$

or, in more compact notation:

$$c = \frac{1}{n} \sum (r r')^t \quad (3a)$$

It is only in the very special case where all items have the same chance of survival that the above formula reduces to

$$c = \frac{1}{n} (r_1^{2t} + r_2^{2t} + r_3^{2t} + \dots + r_n^{2t}) = \frac{1}{n} n r^{2t} = r^{2t} \quad (4)$$

from which follows

$$t = \frac{\log c}{2 \log r}$$

Disregarding the findings of Bergsland and Vogt and working on the assumption that the chance of survival of any one item of the wordlist is the same for all languages, the general formula (3) becomes

$$c = \frac{1}{n} (r_1^{2t} + r_2^{2t} + \dots + r_n^{2t}) = \frac{1}{n} \sum r^{2t} \quad (5)$$

But, under the false hypothesis that the survival chances of individual items are equal, we would calculate c as

$$c = p^2 \quad (6)$$

where p is the proportion of vocabulary each of the two lists is most likely to have retained since the split of the languages they represent, and is given by

$$p = \frac{1}{n} (r_1^t + r_2^t + r_3^t + \dots + r_n^t) \quad (7)$$

From (6) and (7) we have

$$c = \frac{1}{n^2} (r_1^t + r_2^t + \dots + r_n^t)^2 = \frac{1}{n^2} (\sum r^t)^2 \quad (8)$$

The error on the calculation of c is the difference between (5) and (8)

$$\frac{1}{n} \sum r^{2t} - \frac{1}{n^2} (\sum r^t)^2 \quad (9)$$

which happens to be the square of the standard deviation of r^t .

From Dyen 1967 we know that, on his 196-item list, with t equal to 1000 years, and the values of r (i.e. the individual chances of survival) observed, the standard deviation of r^t is 0.0942. Told that languages X and Y split 1000 years ago, one would therefore estimate their most likely proportion of shared cognates at present as

$$0.7916^{2t} = 0.6266, \text{ i.e. } 62.66\%$$

whereas in actual fact their most likely proportion of shared cognates would be

$$0.7916^{2t} + 0.0942^2 = 0.6355, \text{ i.e. } 63.55\%$$

a negligible error of less than one percentage point.

For greater time depths, however, the error increases sizably, as the standard deviation of r^t is given by

$$\sigma \approx \frac{(0.7916 + 0.0942)^t - (0.7916 - 0.0942)^t}{2} \tag{10}$$

Thus for instance:

Time depths	Percentages of shared cognates predicted	
	by formula (8)	by formula (5)
2000 years	39.3	41.5
3000 years	24.6	27.8
4000 years	15.2	19.0
5000 years	9.7	13.3

The error introduced by disregarding the fact that items of a sample wordlist do not usually stand equal chances of survival remains minimal compared to the enormous misevaluations of time depths caused by ignoring Bergsland and Vogt's findings.

GLOTTOCHRONOLOGY (ALMOST) WITHOUT RETENTION RATES

Abstracting the effects of Bergsland and Vogt's findings

Imagine a language L splitting into communalects X and Y ([1]). One thousand years later, X has retained 90% of its vocabulary whereas Y, for some reason or other, has retained only 30%. X and Y are the only two surviving descendants of L, but have many 'cousins' (parent languages derived from an ancestor of L). X will score on the average three times as many cognates with any cousin as Y with this same cousin (you are urged to verify this statement by doing the calculation yourself). Let us now draw a graph ([2]) where each of X and Y's cousin languages is represented by a point the co-ordinates of which are its percentages of shared cognates with A1 and A2, so that if a language Z has 42% cognates with X and 13% with Y it is represented by a point 42mm from the X axis and 13mm from the Y axis. The percentage score x of any cousin language with X being on the average 3 times its score y with language Y, these points will tend to be found along the straight line corresponding to the linear equation

$$y = \frac{1}{3} x$$

Now let Y split into a number of communalects Y1, Y2, etc., which start replacing vocabulary at different rates. Assuming that all survive, consider the situation after 1000 years ([3]). The scores of any of Y's descendants with its cousins (B, C, D, ... Z) will still tend to be in a constant ratio with the scores of X's descendant with those same cousins, *whatever their individual retention rates* for the past 1000 years. If their scores with X's descendant and any given descendant of Y are again plotted as in [2], cousin languages will now again be represented by points closely clustered along a straight line, yielding a high, positive linear correlation co-efficient; if now plotted in the same manner onto the same graph, the sister languages of Y1 (Y2, Y3, etc.) will tend to be scattered off that main line or to cluster along secondary lines. Whichever the case, their addition to the graph obscures the single-line pattern and the linear-correlation co-efficient drops accordingly. The lower correlation between X and Y1 is brought about by the fact that they no longer have a common immediate ancestor. Thus high linear-correlation co-efficients point to the most recent splits of all, whatever the individual past retention rates.

An algebraic quantity called linear correlation co-efficient expresses how close to a line a set of points clusters. Its sign indicates in which direction the line slopes and its absolute value can vary from 1 (all points exactly on the line) down to 0 (no linear pattern at all). The basis for its computation is the square of the distance of each point to the line along which they all appear to cluster. The computational short cut for finding the line that passes closest to all points, such that the sum of the squares of their distances to it is lower than it would be for any other straight line, is called linear regression.

Graph [4] shows the proportions of cognates for 176 lists from the New Hebrides (taken from Tryon 1976) plotted against Sakao (list 64) and Shark Bay (list 67). Sakao and Shark Bay belong to an East Santo group (Tryon's classification, 1976:86-87). Note how the overwhelming majority of points cluster about line OA, and how the five points representing the other five lists taken from the East Santo languages cluster off the main line, about a nearly horizontal line, in the Shark Bay half of the diagram. The Sakao half of the diagram, on the other hand, is empty: list 64 (Sakao, Port Olry dialect) is the only representative of the Sakao subgroup.

Graph [5] shows again the proportions of cognates for 176 lists plotted this time against Sowa (list 33, south Pentecost) and Hukua (list 34, north-west Santo). Sowa and Hukua are not closely related (Tryon assigns them to two different subgroups - West Santo and East New Hebrides - within the same North and Central New Hebrides group). Note how the majority of the dots now swarm within a roughly triangular area, with eight dots clearly outside that area: Seke, Apma, and Sa (three languages and dialects from Pentecost) on the Sowa side, and Piamatsina, Vunapu, Tasmate, Nokuku, and Valpei (five languages and dialects from north-west Santo) on the Hukua side.

Graph [6] shows all non-Santo lists plotted against Akei (south-west Santo) and Sakao. Here again a clear linear pattern shows up; the spread of the dots representing the non-Santo lists off line OA is about the same as that of the non-East Santo lists in graph [4]. In other words, Sakao and Akei are as closely related within Santo as Sakao and Shark Bay are within East Santo. Line OA in diagram [6] is quite steep: its slope is about 1.4, which means that the percentage of cognates between Akei and any related language X outside Santo is approximately equal to 1.4 times that of Sakao with X, or that the average resistance to change of Sakao since their separation has been only about 70% than that of Akei. According to Tryon Akei and Sakao have 33.55% basic vocabulary in common. Call S the proportion of vocabulary retained by Sakao from its immediate common ancestor with Akei, and A that retained by Akei. Their most likely proportion of cognates is then

$$c = S \times A = 0.7 A^2 \quad (\text{since } S = 0.7 A)$$

of which the value of 33.5% observed is the best (and only!) estimate we can hope to have. The most likely proportion of vocabulary retained by Akei since the split is therefore:

$$A = \sqrt{\frac{c}{0.7}} = 0.6918 \quad \text{i.e. about 69\%}$$

and by Sakao:

$$0.7 \times 0.6918 = 0.4843 \quad \text{i.e. about 48\%}$$

If assumed to have evolved at the rate generally accepted in glottochronology (81% vocabulary survival per millennium), Akei would then have separated from Sakao around 1750 B.P., whereas the standard formula of glottochronology would have given a date of 2595 B.P. It is not surprising that Tryon, relying on current lexicostatistical methods, should have been led to classify the East Santo languages in a group as distinct from the rest of Santo as are, for instance, the languages of Tanna.

Abstracting the effects of Dyen, James and Cole's findings

The error introduced by disregarding Dyen, James and Cole's findings is negligible for fairly high percentages of shared cognates, but increases for lower and lower percentages. As they show in their article, it is possible to obtain an estimate of the individual retention rates of the different items of a sample wordlist. From these, one can then calculate what the proportion of cognates between two wordlists would have been if all items had had the same retention rate. The procedure is within the capacity of a small modern computer even though it is quite complex, involving lengthy computations and iterations, and would have to be modified to take into account unequal overall retention rates across languages.

Since the error is so small in absolute terms, it may be possible to disregard it in practice. Better still, when computing proportions of shared cognates, one should discard items with extremely high or extremely low retention rates: lexical innovations are the clues to past language splits; those items with extremely high retention rates, being so seldom replaced, provide little evidence (if any at all: it is a rare Austronesian language indeed which does not have some reflex of *dua* for 'two' or *mata* for 'eye'), whereas the evidence from items often replaced gets constantly overwritten by later innovations. Lexical items which show extreme retention rates are therefore devoid of information and are advantageously ignored.

CONCLUSION

Reliability of the method

Since the method rests on much less restrictive hypotheses than the traditional lexicostatistics, its results can only be as good or better than those of lexicostatistics as currently practised. This is not to say that they are absolutely reliable. Traditional lexicostatistical methods are rather unreliable (Guy 1980) even when applied to data produced under ideal conditions: no borrowings, no semantic shifts, and a uniform, constant retention rate, equal for all items and all lists. With hindsight, such failures are not surprising: in classifying languages, glottochronologists rely on very small samples indeed; after all, a 200-item wordlist does not represent even 1% of the active lexicon of a language. Lengthening the standard wordlist to a more substantial 1000 items would greatly increase the reliability of the classifications, although not fivefold. But the purpose of lexicostatistics applied to language taxonomy must be kept in mind: to provide a simple, quick method for classifying a large number of ill-known communalects. Advocating the use of 1000- or 2000-item wordlists runs directly against this aim.

Guidelines for practical applications

From the examples of scatter diagrams given thereabove (Sakao-Shark Bay, Sakao-Akei, Sowa-Hukua), it should be clear that the more lists from which percentages of shared cognates have been computed, the more reliable the method is.

It is difficult to give an absolute, practical minimum number of lists under which the method should not be applied. I certainly would not contemplate using it on just a dozen lists. Furthermore, the more distantly related the languages to be classified, the more should be represented in the sample. For instance, whereas I would feel reasonably confident about a classification of the New Hebrides languages from thirty well-chosen lists, I would see a classification of Austronesian or Indo-European based on thirty lists as seriously inadequate.

The calculation of correlation co-efficients is a tedious task, even with the

help of one of the many pocket calculators now available with inbuilt linear-regression facilities, all the more so that the method can be fruitfully applied only to large tables of percentages (the larger the table, the more diversified the percentages, the better). A computer should be used whenever possible, not so much to save time as to eliminate the element of human error due to fatigue and sheer boredom.

It is out of the question that one should draw (or even have drawn by computer) diagrams such as graphs [4], [5], and [6] for each language pair. But one should certainly not fail to do so for a few selected pairs, and preferably by hand: this very exercise somehow seems to bring one valuable insights.

Having obtained a table of linear-correlation co-efficients and a few graphs from a table of percentages of shared cognates, one is still left with the task of interpreting this new set of data. Low-level groupings will be immediately evident from the table of correlations, but high-level ones are normally far from obvious. Several methods are developed and tested in Guy 1980, one of which recommends itself by its greater reliability. Although the calculations it requires can be carried by hand, the use of a computer is recommended, again to avoid human errors. An alternative method, highly commendable for its speed and ease of execution, is the single-linkage algorithm (Hartigan 1974:193-194). Unfortunately, it is not specifically designed to produce phylogenetic reconstructions.

A wider viewpoint and some critiques

The classification of languages by lexicostatistical methods is but a special case of a much more general problem which can be expressed in these terms:

A message is input at the root of a tree-shaped communication network, from which it travels forward to the leaves. The further it travels, the greater its chances of being distorted by noise in the network. From the garbled versions of the original message collected at the leaves, reconstitute the network.

In the model used in this paper, the message was a string of symbols; the set of all possible symbols – the alphabet of the message – was the set of all possible word shapes in the proto-language; there was only one kind of distortion: a symbol affected by noise being replaced by a symbol randomly chosen from the alphabet of the message; the probability of a symbol being affected by noise at any given point of the network was proportional to the product of the amount of noise at that point by its stability, the latter being a function of the meaning of the symbol (i.e. its position in the message); finally, the alphabet of the message was taken to be infinite.

The model presents the following discrepancies with reality:

The alphabet of the message is not infinite. No language may draw from an infinite vocabulary, unless its number of phonemes is infinite, or its possesses words of infinite length, both impossible conditions. But it is very large, so that the probability of a symbol being replaced by itself or by a symbol which happens to occur in the same position in some other version of the message somewhere else in the network, is – hopefully – low enough to constitute only a minor disturbance.

The stability of a symbol is not necessarily solely a function of its position in the message (i.e. of its meaning). I, for one, would rather see it also as a function of phonological decay resulting in an annoyingly large number of homophones.

Distortions of the message can occur in other ways than in the model: semantics swaps (symbols of the message exchanging positions), borrowing or convergence

(interferences, cross-talk, poor channel separation). When these play a major role, the model does not apply, and it is especially to be hoped that the method presented will never be used in a tentative classification of Interlingua, Esperanto, Volapuk, Pidgin English, and the Chinook Jargon. When they play a minor role, the reliability of the method is only reduced (certain algorithms, based on the direct examination of the wordlists reduced to reconstructed proto-forms, stop in the presence of false cognates such as may arise from accidental cognate-like forms, borrowings, semantic swaps, etc., and may some day provide a solution to this problem).

APPENDIX: EXAMPLES OF APPLICATION

Ideally, the method should be tested on data from language families the evolution of which has been ascertained beyond reasonable doubt on the basis of extralinguistic evidence such as written history and archaeological findings.

Unfortunately, there are no published tables of shared-cognate percentages for such language families (such as Indo-European) that are based on enough wordlists for the method to be applicable.

New Hebrides

The only set of data involving an undoubtedly large enough number of wordlists was published in Tryon 1976 in his classification of the New Hebrides languages. Having written the computer program which was to produce those sixty pages of cognate percentages, collected a number of wordlists from Santo, and attempted reconstructions of Proto-New Hebridean from languages of Santo, Aoba, and the Banks, I could hardly resist the temptation of testing the method on this set of data, even though next to nothing is known about the prehistory of the New Hebrides, and even though it involved entering 15,743 cognate percentages by hand, since, despairing of ever being able to have them analysed automatically, I had rather stupidly overwritten the tape containing the original data. Although no correction could be applied to counterbalance the effects of unequal item retention rates (as the necessary coded wordlists were erased when the original tape was overwritten), judging from the nature of the data and of the algorithms used, I do not believe that the classification would have been any different, had the proper corrections been applied.

The classification obtained is vastly different from that achieved by current lexicostatistic methods (Tryon 1976, 1978). Table [7] gives the output from the n -way splitting algorithm described in Guy 1980, applied to the linear correlation co-efficients computed from Tryon's percentages. Each wordlist is identified by the name and number (the latter in parentheses) used by Tryon, and is followed by a string of digits showing to which successive groups and subgroups it was assigned by the algorithm. The lists are arranged in such an order that lists belonging to the same subgroup are found next to each other. The corresponding genealogical tree was added by hand.

According to this classification the languages of the New Hebrides fall into four great groups.

Group 1, call it North New Hebridean, encompasses the Banks and Torres islands, Santo and its offshore islands, Aoba, Maewo, and Pentecost.

Group 2, call it Central New Hebridean, contains Malekula and its offshore islands, Ambrym, and Epi.

Group 3, call it Hebrido-Polynesian, comprises the Shepherd Islands, Efate, and the Polynesian Outliers (Makatea in the Shepherd Islands, Fila-Mele on Efate, and Futuna and Aniwa islands much further south).

Group 4, call it South New Hebridean, consists of the three southernmost islands, Erromanga, Tanna, and Aneityum.

These groups subdivide as follows:

North New Hebridean

A. North-east New Hebridean

1. Northern subgroup
 - a. Torres (Hiw, Toga)
 - b. Motan (Ureparapara, Mota, Motlav, Vanua-Lava)
 - c. Gauan (Gaua, Merlav, Merig)
2. Southern subgroup
 - a. Maewo
 - b. Aoban (Aoba and northernmost tip of Pentecost)
 - c. Pentecostan (rest of Pentecost)

B. Santo

1. North-west Santo (Valpei, Nokuku, Hukua, Vunapu, Piamatsina, Tasmate)
2. North-east Santo
 - a. Sakao
 - b. Shark Bay
 - c. Vanafo-Luganville (the Butmas and Tur dialects have long been spoken in Vanafo, and Polonombauk village is just north of Luganville)
3. South Santo
 - a. South-west Santo
 - West Coast (Wusi with an inland enclave: Nonona)
 - North Coast (Tolomako, spoken from south of Piamatsina to the mouth of the Jordan river)
 - South Coast and Inland (includes a very aberrant language: Roria)
 - b. South-east Santo
 - Mainland
 - Offshore Islands (including a mainland enclave: Tambotalo)

Central New Hebridean

A. Malekula

1. North Malekula
 - a. Big Nambas (Maragus, Unmet, and Leviamp)
 - b. East Coast Islands (Atchin, Wala, Rano, Uripiv, Uri, with two mainland villages: Pinalum, Tautu)
 - c. North Coast (north of Big Nambas, and Vao island)
2. South Malekula
 - a. South-east Coast (the southern half of the east coast of Malekula, and the eastern half of its south coast, with the offshore islands)
 - b. Mainland (the rest of south Malekula, Windua and Labo excepted)
 - c. Windua and Labo villages

B. Ambrymese

1. Mainland (all Ambrym except Maat and Toak)
2. Offshore (Paama with, on south-east Ambrym, Maat and Toak, and on east Epi, Laul)

C. Epi

1. South-west Epi (two communities: Mae-Morae and Vowa)

2. Main
 - a. East Epi (one language, Lewo, with dialect chaining)
 - b. West Epi (two languages, Bierebo and Baki)

Hebrido-Polynesian

- A. New Hebridean Component
 1. Namakura (one language spoken in the Shepherd islands)
 2. Efatese (on Efate and parts of the Shepherd islands)
- B. Polynesian Component (Makatea in the Shepherd Islands, Fila-Mele on Efate, and Aniwa-Futuna much further south, east of Tanna)

South New Hebridean

- A. East Erromangan (Ura)
- B. West Erromangan (Sie)
- C. Aneityum
- D. Tanna
 1. North Tanna
 - a. North-east Tanna
 - b. North-west Tanna
 2. South Tanna
 - a. East Coast (Port Resolution, Yatukwey, and Iarkei)
 - b. Mainland (rest of the southern half of Tanna)

On the hypothesis that areas of greater linguistic diversity tend to betray centres of diffusion, a tentative map of prehistoric migrations can be drawn [8]. The enterprise is not without its pitfalls, for it is sometimes difficult to decide where the area of greater linguistic diversity lies. Within the southern subgroup of North-east New Hebridean for instance, there seems to be no clear possible choice between Aoba or Maewo, or even Pentecost. However, for North New Hebridean the area of greatest linguistic diversity is clearly Santo (and for Santo, south Santo), for Central New Hebridean it is Malekula (and probably, for Malekula, south Malekula), and for South New Hebridean, it is Tanna. The migrations thus reconstructed within North and Central New Hebridean suggests that the present-day populations of the New Hebrides came from the west. On the information provided by Tryon's percentages of shared cognates alone, there is no way of telling that the so-called Polynesian Outliers do not belong in the New Hebrides. The fact that the method classified them as a subgroup of Hebrido-Polynesian, rather than as a fifth group on the same footing as, say, North New Hebridean, suggests three possible interpretations:

1. Extensive, undetected borrowing has taken place between the New Hebridean and the Polynesian components. Which way the borrowing mainly went could only be discovered, if at all, by processing a table of proportions of shared cognates between a number of New Hebridean and Polynesian lists, including those Hebrido-Polynesian lists.
2. The New Hebridean component is an extremely aberrant branch of Polynesian.
3. The Polynesian component is an extremely aberrant branch of New Hebridean.

I do not consider the third hypothesis to have the slightest chance of being true, and the second hypothesis seems somewhat far-fetched. It is therefore most likely that extensive undetected borrowing did take place within Hebrido-Polynesian. Before a valid grouping of the New Hebridean component can be obtained, Polynesian loanwords should therefore be identified in the lists, the affected items discarded, proportions of shared cognates computed afresh, and the new table reprocessed. The New Hebridean component might then turn out to have joined one of the other three great groups or to have remained on its own.

Even in the absence of reliable information on the prehistory of the New Hebrides, it is possible to make a few non-trivial remarks.

The oft encountered subgrouping into offshore islands (usually with mainland enclaves) against mainland corresponds to a real settlement pattern: the inhabitants of offshore islands would, and in many cases (e.g. Vao and Wala) still do, keep gardens on the mainland.

The northward migration pattern postulated for Santo is corroborated by Sakao toponymy, tradition, and semantics.

The Sakao word for '*to go south*', is a reflex of Proto-North New Hebridean *ŋwule* (Guy 1978), reflexes of which are found in the Banks (Lehali, Mota), on Aoba (Lolopuepue, Lolowai, Nangire), and on Santo (Tolomako, Tangoa) everywhere with the meaning '*to return home*'.

A Sakao tradition claims that Araki island (off the south Santo coast, opposite Wailapa) 'fled south', followed by all the other offshore islands (Tangoa, Malo, etc. up to Thion, right opposite Port Olry); this suggests a seaborne migration along the Santo coast and a settlement beyond Thion, very probably on Sakao island itself.

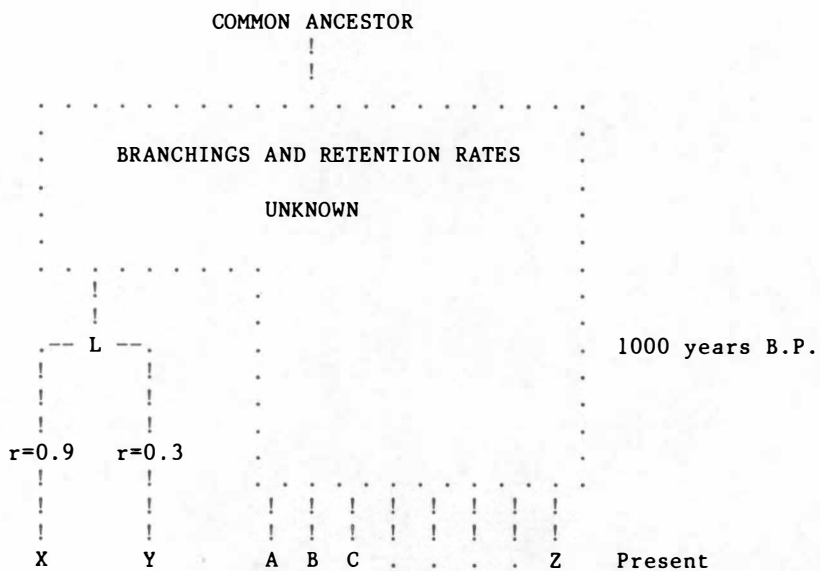
Finally Araki is the only island off the south coast of Santo to have, in Sakao, a proper Sakao name (Reg), regularly derivable from 'Araki', whereas all other islands have names (Aure, Malo, Tutupa, Ais, Mavea) alien to Sakao phonology and obvious, very recent borrowings; the name Araki must therefore have been part of the Sakao toponymy since a very early time, i.e. before the first consonant shift of Sakao (Guy 1978:790), which strongly suggests that the ancestors of present-day Sakao speakers left their original settlements on Araki and on the nearby mainland at a time when their communalect had barely diverged from Proto-North New Hebridean.

Polynesia

A number of tables of proportions of shared cognates have been published for the Polynesian languages. These tables exhibit a striking amount of disagreement between authors (thus Elbert gives 73% cognates between Maori and Tahitian, Dyen and Biggs 40.5% and 41% respectively), as different criteria of cognation were used (Elbert used the multiple-cognate, Dyen and Biggs the single-cognate method). The difficulty is compounded by the fact that no two tables involve the same languages, and that one (Kirk and Epling 1972:22) is composite, in part averaged from Dyen's, Elbert's, and Emory's counts, and in part recomputed to obtain best-distance estimates. Finally, the tables involve relatively few languages and dialects and thus the classifications which can be obtained by the linear-correlation method are all very much open to question. Nevertheless, the corresponding language groupings obtained using the *n*-way splitting algorithm are given in diagrams [9] to [13].

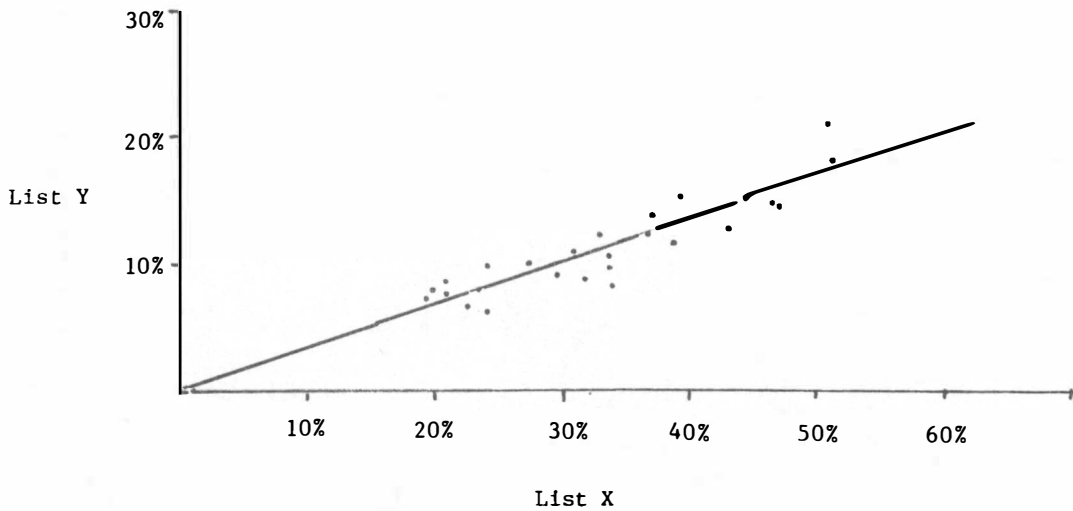
Twenty-five Austronesian languages

The figures are taken from Tryon 1978. Diagram [14] gives groupings obtained. Even though 25 lists are far too few for the method to be reliably applied, it can be pointed out how much better the groupings are than those obtained by current lexicostatistical methods (compare with Tryon 1978:892,894): not only do all the languages of the New Hebrides now form a distinct group on their own, with the three southernmost languages in a separate subgroup, but Xaraci (New Caledonia) and Nengone (Loyalty Islands) are also grouped together.



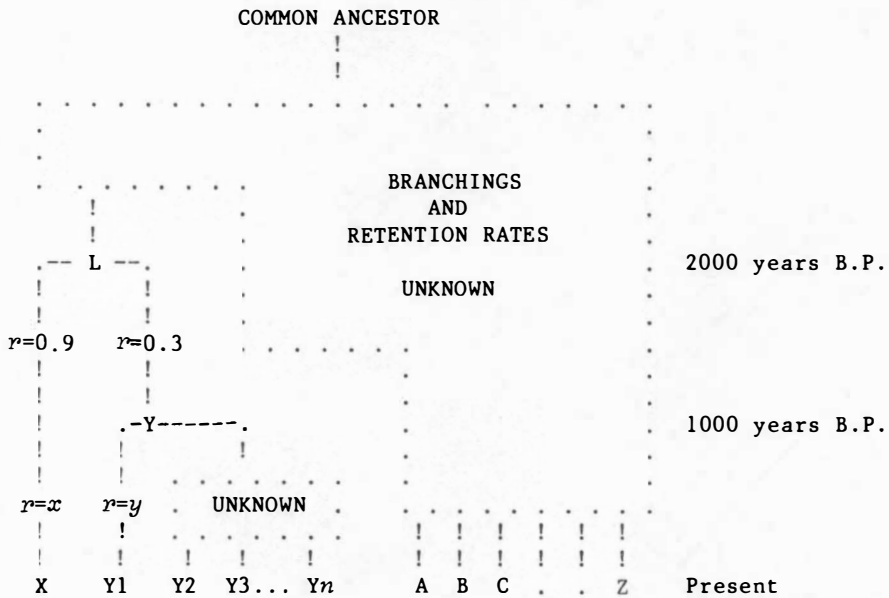
[1]

Whatever the branchings and the retention rates in the black box the proportion of cognates shared by X with any cousin language (A, B, C,... Z) will be around three times that of Y with that language.



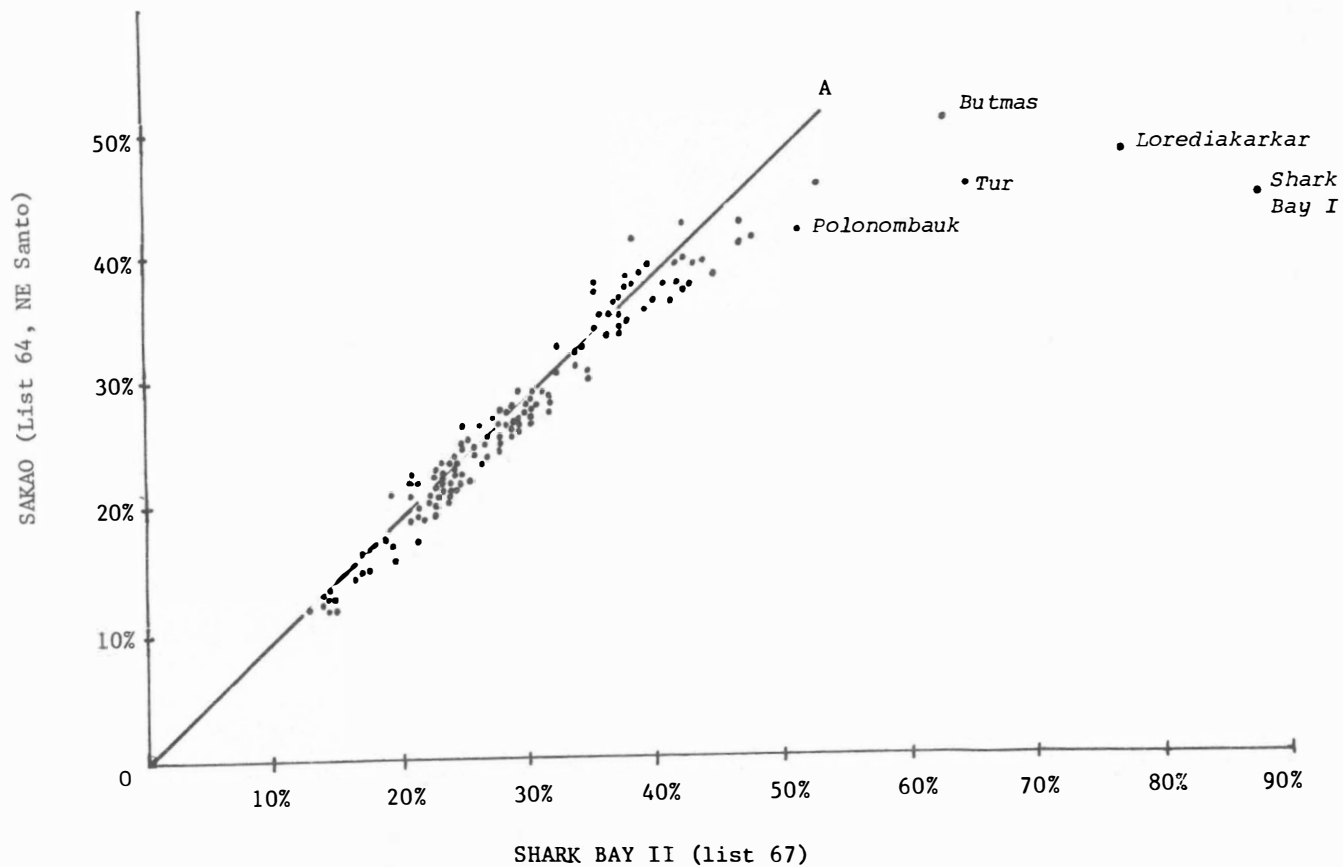
[2]

(See text p.287)



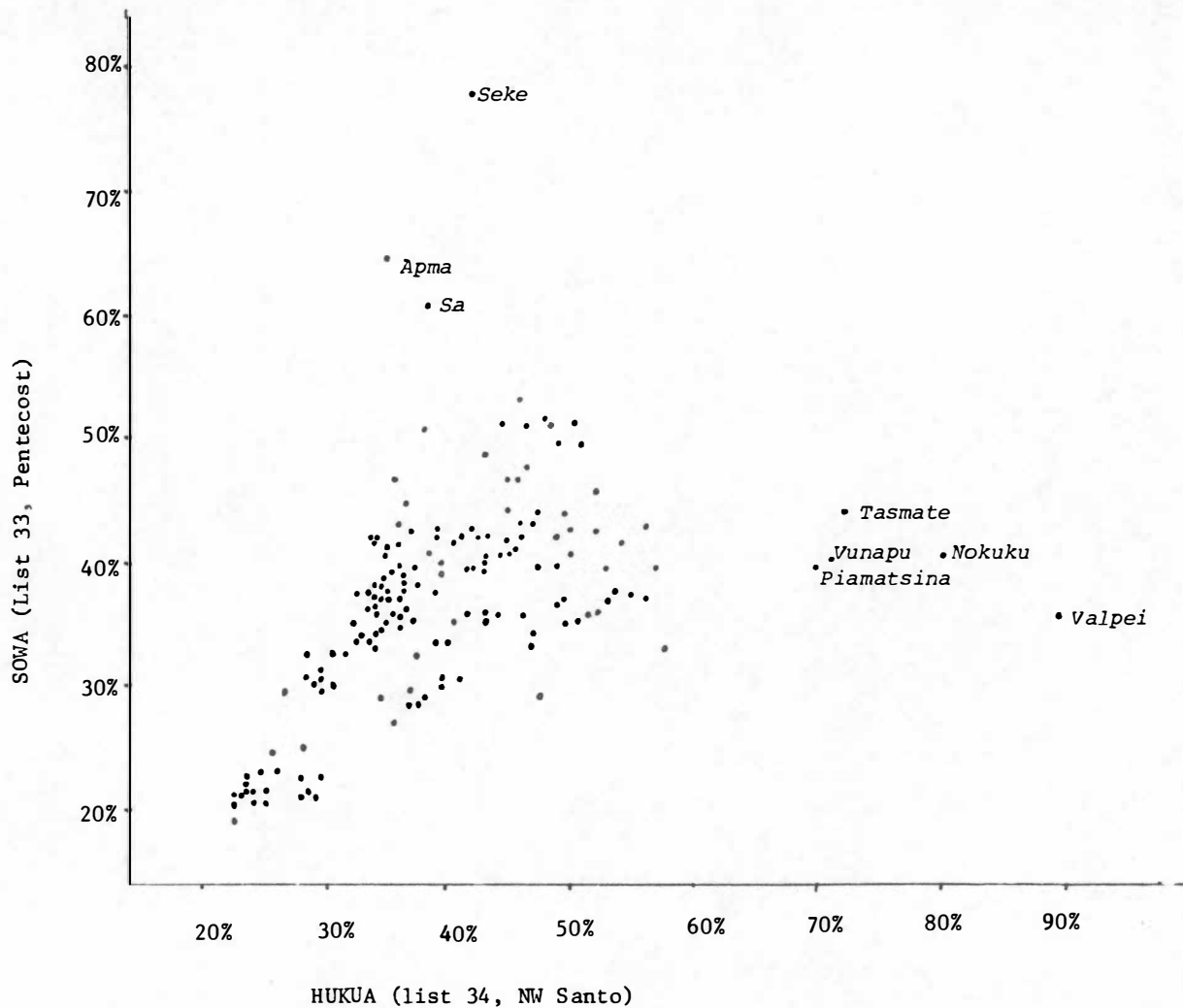
[3]

Whatever the branchings and the retention rates in the black box the proportion of cognates shared by X with any cousin language (A, B, C, ... Z) will be around $3x/y$ times that of Y1 with that language. But the proportion of cognates shared by X with any of the other descendants of Y (Y2, Y3, ... Yn) will be a variable ratio of the proportion of cognates shared by Y1 with that language, which ratio will depend on the branchings and retention rates between Y and its other descendants Y2, Y3, ... Yn.



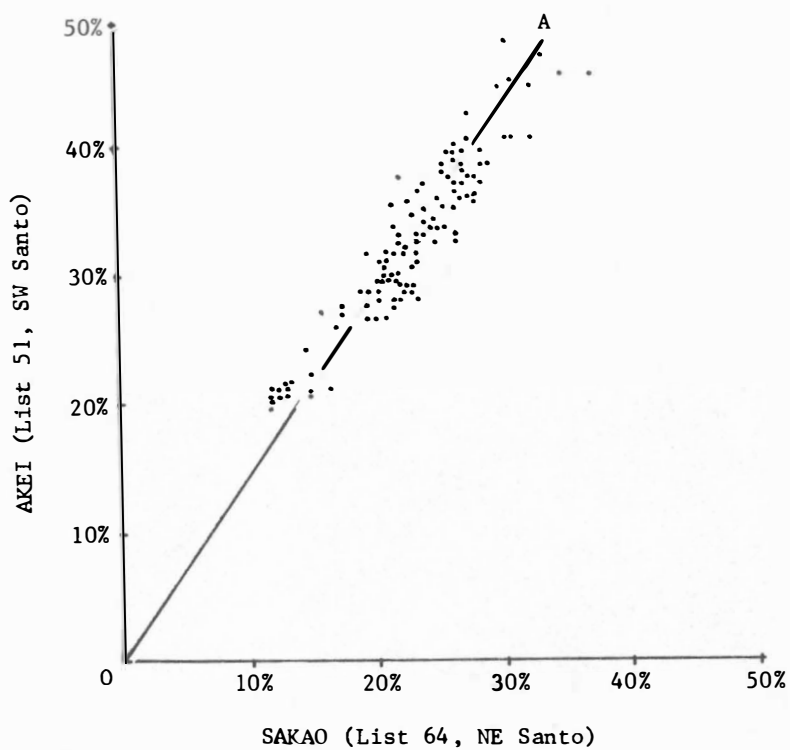
[4]

New Hebrides languages and dialects plotted against Sakao and Shark Bay



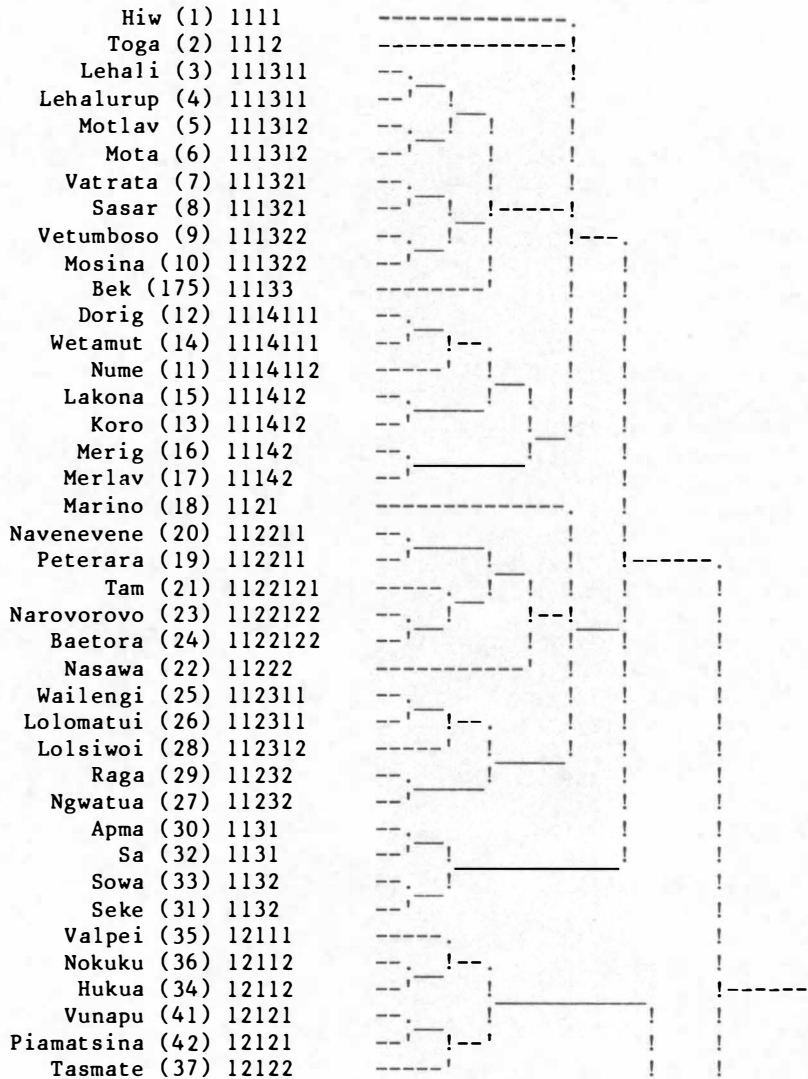
[5]

New Hebrides languages and dialects plotted against Sowa and Hukua



[6]

New Hebrides languages and dialects outside Santo
plotted against Sakao and Akei



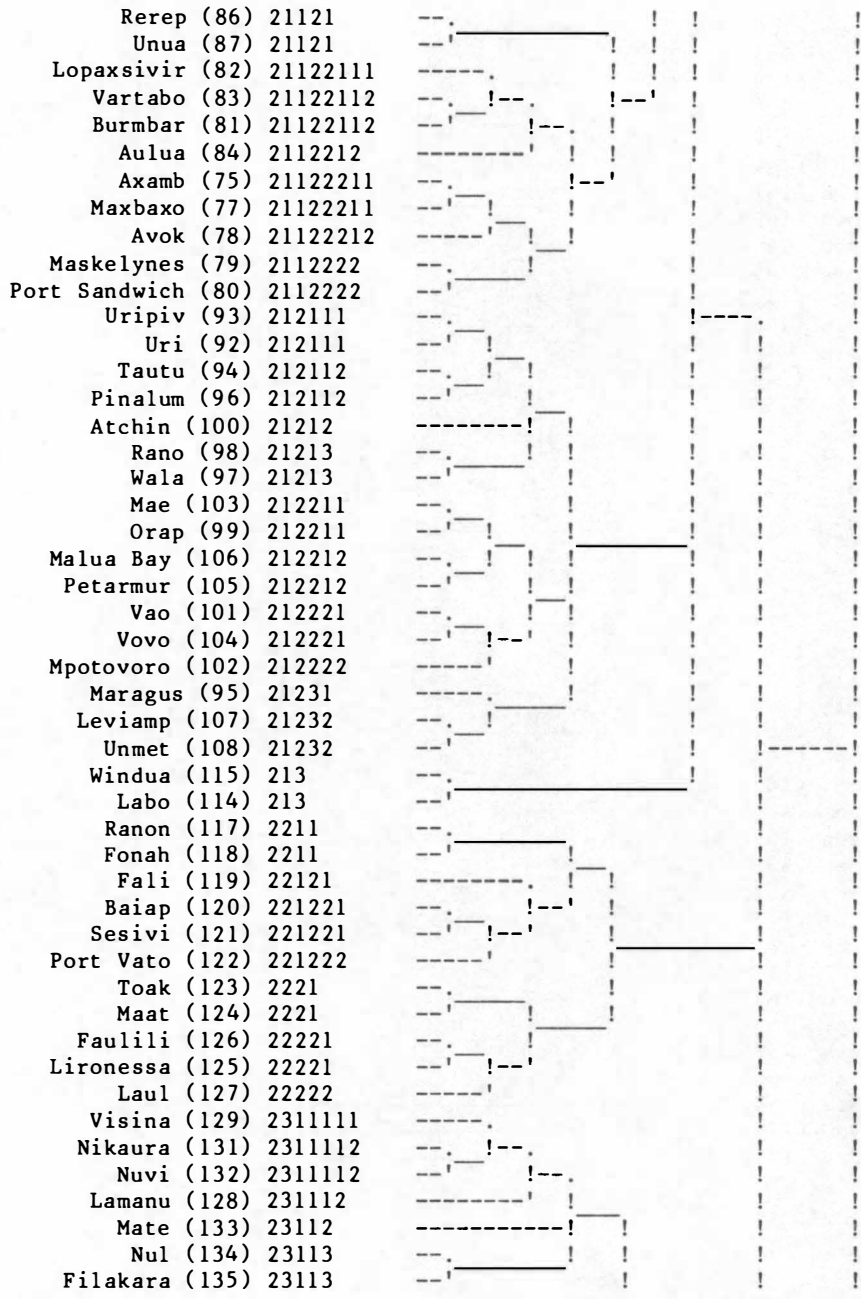
[7.1]

Reconstructed genealogy of the New Hebrides languages and dialects (cont...)

Kerepua (40)	122111	---	!	!	!
Wusi II (39)	122111	---	!	!	!
Wusi I (38)	122112	---	!	!	!
Nonona (45)	122112	---	!	!	!
Tolomako (43)	12212	-----	!	!	!
Navut (46)	1221311	---	!	!	!
Matae (50)	1221311	---	!	!	!
Lametin (47)	1221312	---	!	!	!
Malmariv (44)	1221312	---	!	!	!
Wailapa (55)	1221321	---	!	!	!
Tasiriki (54)	1221321	---	!	!	!
Akei (51)	1221322	---	!	!	!
Penantsiro (53)	1221322	---	!	!	!
Roria (56)	122133	---	!	!	!
Fortsenal (52)	122133	---	!	!	!
Morouas (48)	12221111	-----	!	!	!
Batunlamak (49)	12221112	---	!	!	!
Amblong (57)	12221112	---	!	!	!
Narango (58)	1222112	-----	!	!	!
Nambel (62)	122212	-----	!	!	!
Mafea (68)	12222111	---	!	!	!
Tambotalo (63)	12222111	---	!	!	!
Tangoa (73)	12222112	---	!	!	!
Malo North (71)	12222121	---	!	!	!
Tutuba (69)	12222122	---	!	!	!
Aore (70)	12222122	---	!	!	!
Araki (74)	122222	-----	!	!	!
Malo South (72)	122223	-----	!	!	!
Tur (61)	12311	---	!	!	!
Butmas (60)	12311	---	!	!	!
Polonombauk (59)	12312	---	!	!	!
Shark Bay II (67)	12321	---	!	!	!
Shark Bay I (66)	12321	---	!	!	!
Lorediakarkar (65)	12322	---	!	!	!
Sakao (64)	1233	-----	!	!	!
Letemboi (76)	211111	---	!	!	!
Repanbitip (85)	211111	---	!	!	!
Dixon Reef (111)	211112	---	!	!	!
Vinmavis (110)	2111211	---	!	!	!
Lingararak (89)	2111211	---	!	!	!
Litzlitz (91)	2111212	---	!	!	!
Larevat (109)	2111212	---	!	!	!
Timbembe (88)	211122	---	!	!	!
Katbol (90)	211122	---	!	!	!
Lembinwen (112)	211131	---	!	!	!
Benour (113)	211131	---	!	!	!
Malfaxal (116)	211132	---	!	!	!

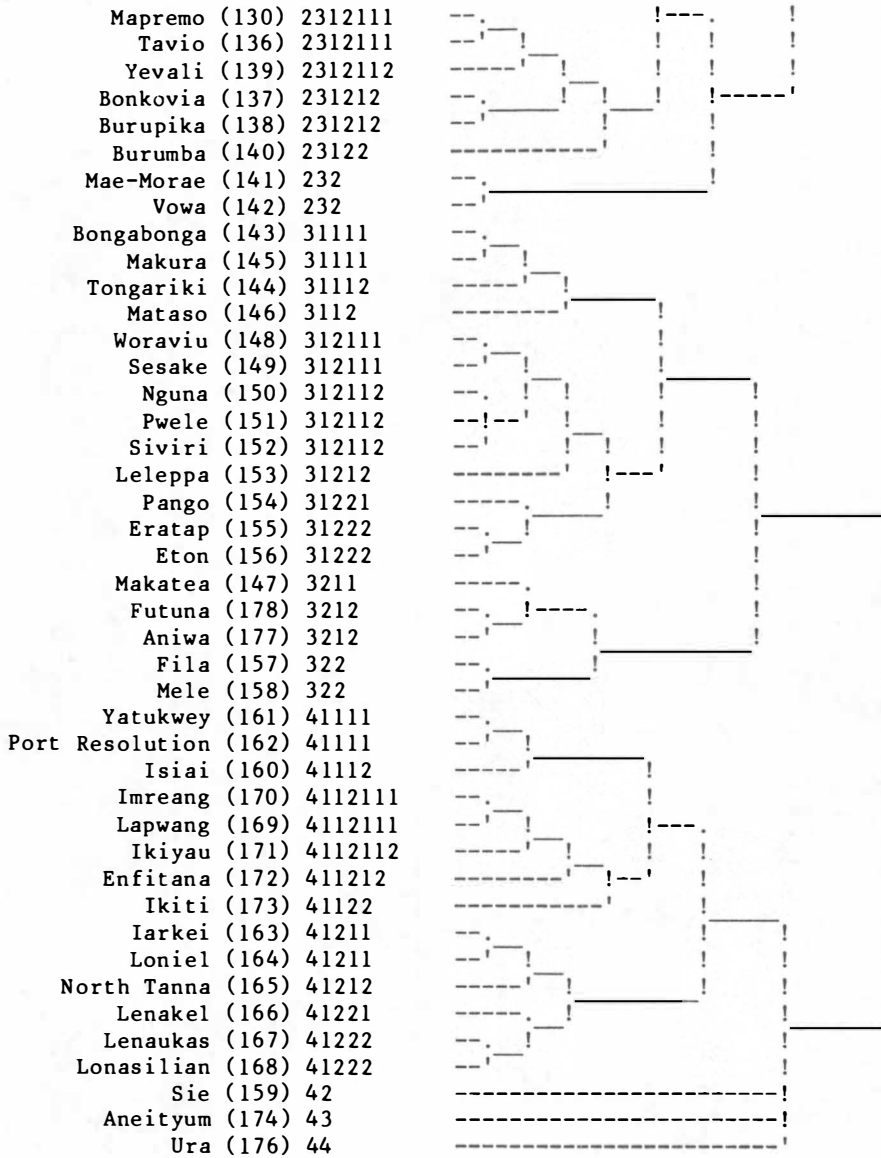
[7.2]

Reconstructed genealogy of the New Hebrides languages and dialects (cont...)



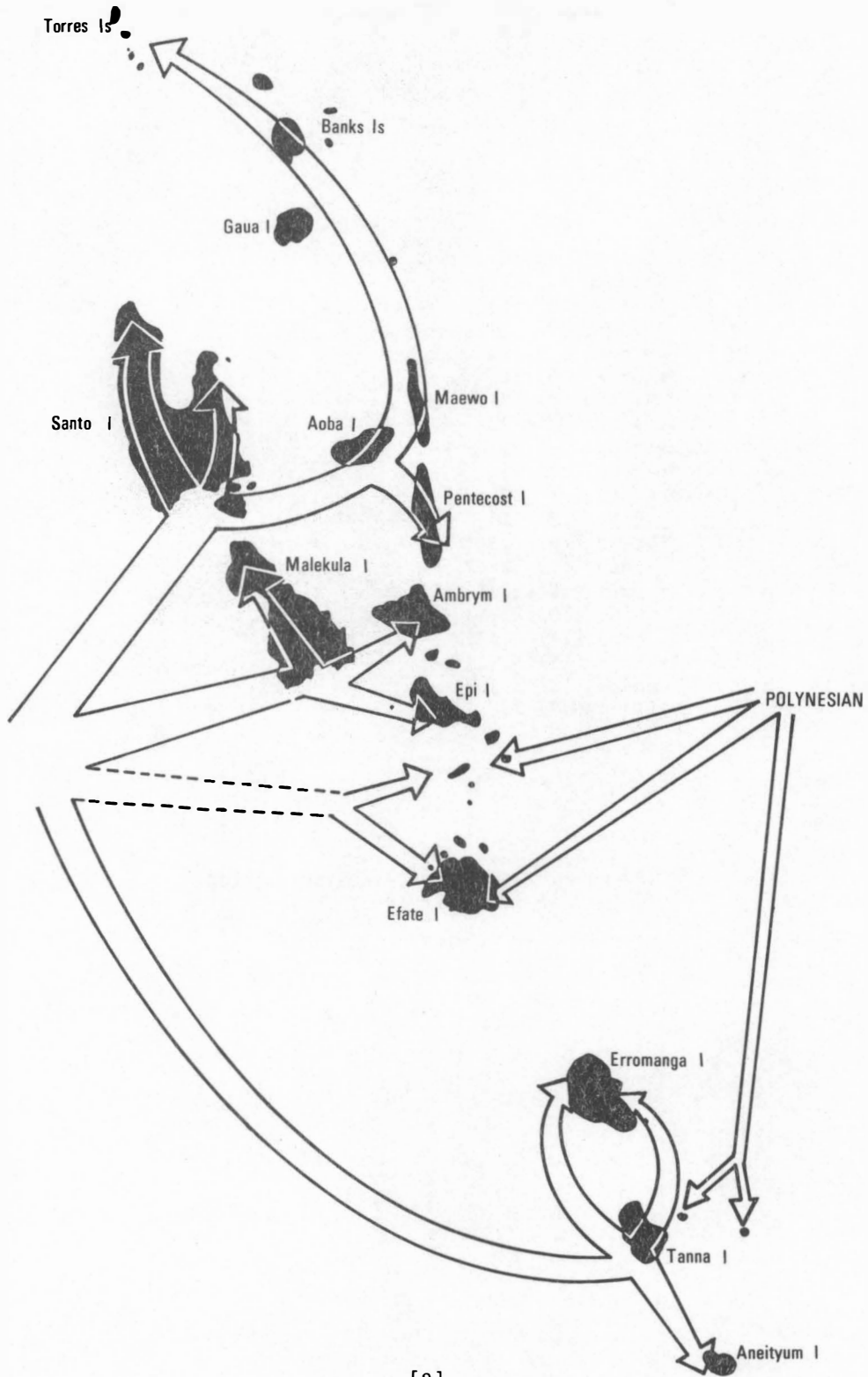
[7.3]

Reconstructed genealogy of the New Hebrides languages and dialects (cont...)



[7.4]

Reconstructed genealogy of the New Hebrides languages and dialects



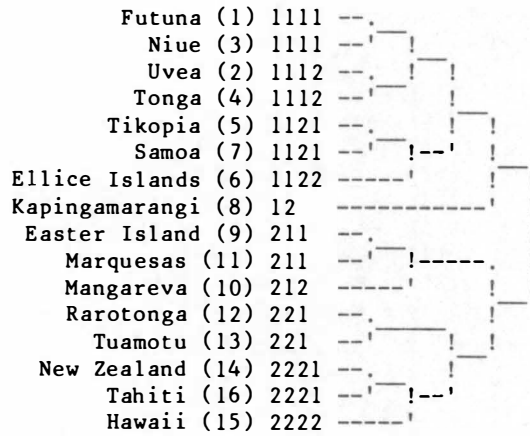
[8]

Tentative reconstruction of prehistoric migrations in the New Hebrides

Tahiti (1)	11111	--,						
Tuamotu (4)	11111	--,'	!--,					
New Zealand (3)	11112	-----'	!--,					
Hawaii (2)	1112	-----'	!--,					
Rarotonga (5)	112	-----'	!--,					
Marquesas (6)	121	--,						
Easter Island (8)	121	--,'	!-----'					!
Mangareva (7)	122	-----'	!					!
Kapingamarangi (9)	21	--,						!
Nukuoro (10)	21	--,'	-----'					!
Ontong Java (11)	221	-----'	!					!
Fila (12)	222	-----'	!					!
Futuna (20)	22311	-----,	!--!					!
Tonga (17)	22312	--,	!-----'					!
Uvea (19)	22312	--,'	!-----'					!
Niue (18)	22313	-----'	!--'					!
Samoa (14)	22321	-----,	!					!
Ellice Islands (15)	22322	--,	!-----'					!
Tikopia (16)	22322	--,'	!-----'					!
Sikiana (13)	23	-----'	!					!

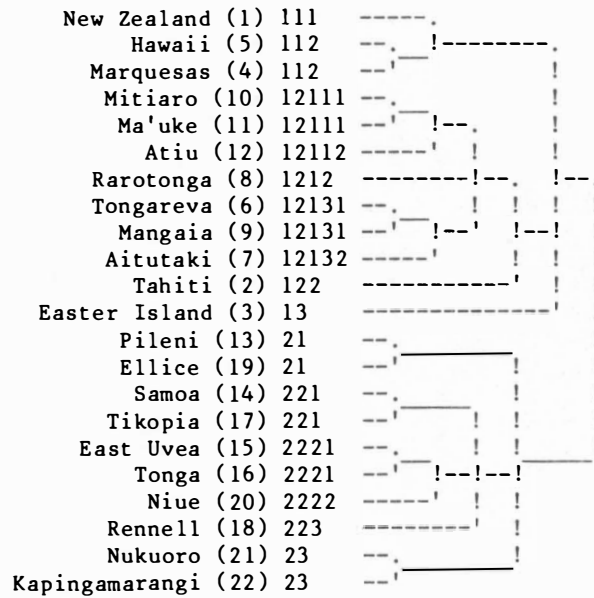
[9]

Reconstructed genealogy of 20 Polynesian languages
(data from Elbert 1953)



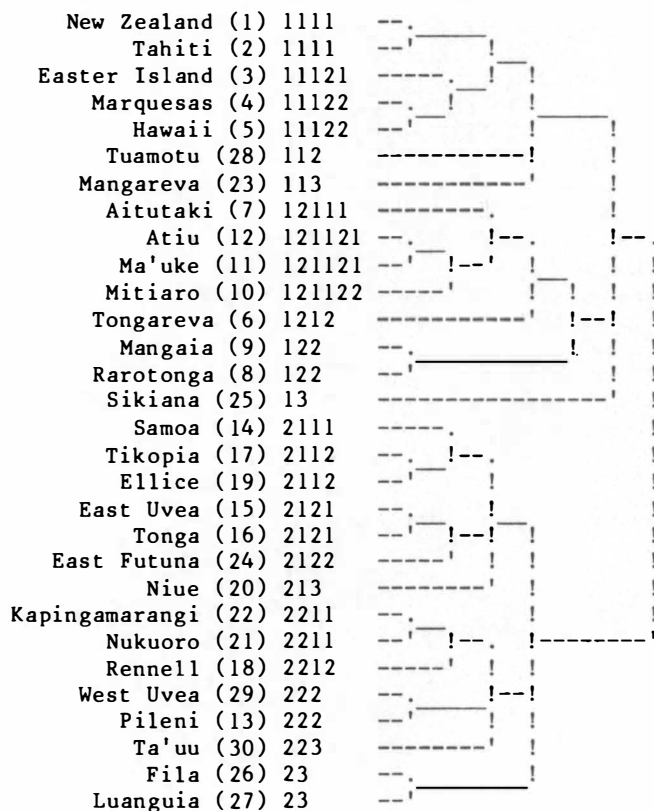
[10]

Reconstructed genealogy of 16 Polynesian languages
 (data from Milke 1965)



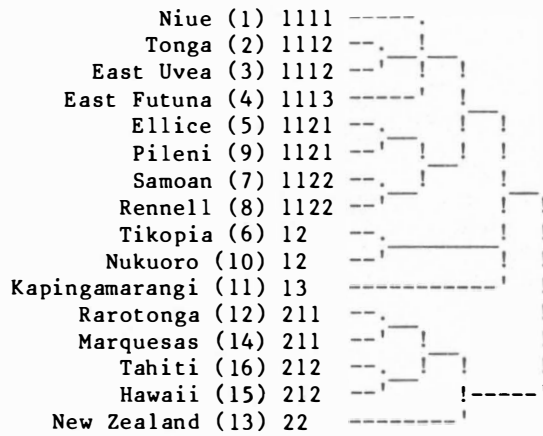
[11]

Reconstructed genealogy of 22 Polynesian languages
 (data from Dyen, in Kirk and Epling 1972)



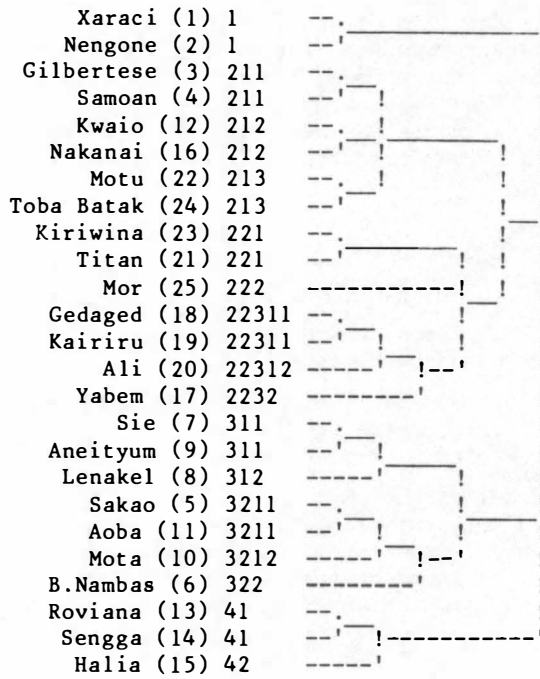
[12]

Reconstructed genealogy of 30 Polynesian languages
 (data from Dyen, Elbert, and Emory in Kirk and Epling 1972)



[13]

Reconstructed genealogy of 16 Polynesian languages
 (data from Biggs 1978)



[14]

Reconstructed genealogy of 25 Austronesian languages
 (data from Tryon 1978)

APPENDIX

Comment by Dr. R.A. Blust, Leiden University:

The conclusion that Tanna is the area of greatest linguistic diversity in the southern New Hebrides is inconsistent with the hierarchy of splits proposed on p.293. If South New Hebridean divides into four primary branches of which two are found on Erromanga and only one on Tanna, then the area of greatest diversity (and hence the probable centre of dispersal) of the South New Hebridean group is not Tanna, but Erromanga. This conclusion is in no way affected by the fact that there may be more distinct languages on Tanna.

Reply to Dr. R.A. Blust:

As far as I can recollect, the reasons which led me to posit a centre of diffusion on Tanna rather than Erromanga were as follow:

1. There is a large number of reasonably diversified communalects on Tanna, only two on Erromanga. Evidence for a centre of dispersal on Erromanga thus seemed slim, resting on the survival of a single Erromangan language.
2. The lengths of the branches of the phylogenetic trees obtained by the methods outlined in the paper are not proportional to time depths: the trees are topological, not geometric, figures. Experiments on computer-produced language families (Guy 1980), had shown that, in accordance with the properties of topological figures, branches could be spurious (i.e. connect two nodes not separated in time). The branch connecting the Tannese node to the Sie-Aneityum-Ura node could thus be spurious.

However, the following possible counter-arguments have since occurred to me:

3. The dearth of present-day Erromangan communalects is due to extensive extinction, not lack of past diversification. Therefore, had most of them survived, Erromanga would probably have shown more than two languages as distant from one another as Sie and Ura are from each other now.
4. The other two centres of diffusion (South Santo and South Malekula) suggest a settlement pattern whereby the largest islands were populated first – perhaps because most likely to be spotted first. Erromanga also happens to be larger than either Tanna or Aneityum.

My choice of Tanna for a diffusion centre thus stemmed from a reluctance to fully trust my own methods: at the time the paper was written, I was aware of their many weaknesses, as I hope was made amply clear in the paragraphs entitled "A wider viewpoint and some critiques", and of what folly it would be to expect their blind application to yield final answers.

Dr. Blust's objection, however, is based on impeccable formal grounds and, after careful consideration, and taking into account counter-arguments 3 and 4 above, it no longer seems that points 1 and 2 are strong enough to warrant the exception I made. Let me, therefore, stand corrected.

Objection: by R.A. Blust

Page 287/288: Your discussion on p.287 suggests that graph [2] describes a theoretical model rather than an attested situation. But if this is true why should there be any scatter at all? As it is defined the linear equation is a function of differences in retention rate. If this is *all* that is being graphed in [2] then the scatter is unexplained. I gather that the scatter is in fact intended to represent the play of 'uncontrolled variables' (as intimate borrowing) which contribute to the results obtained in the real world. But then [2] is not graphing the theoretical model, but some approximation of what one might actually expect to find. Is it possible that you have conflated two different types of representation here?

Answer:

A function of differences in retention rates is *all* that is being graphed in [2], and the scatter does *not* represent the play of uncontrolled variables such as intimate borrowing!

If languages X and Y have, since the time they split, retained, say, 60% and 20% of their inherited vocabulary as represented by a sample wordlist, then the *most probable* amount of cognates shared between them is $0.6 \times 0.2 = 0.12 = 12\%$. But this figure, although the most probable one, is in fact very unlikely to be the one observed: X and Y might have as many as 20% cognates and as few as none at all (true cognates, not apparent cognates due to intimate borrowing). Toss a fair coin 100 times. The most probable number of heads is 50, but it will be a rare occurrence indeed when you get *exactly* 50 heads. The scatter in [2] is meant to express this fact: if X and Y have retained 60% and 20% of their inherited vocabulary, they may share between 0% and 20% cognates, but, if you are forced to take a guess at the exact proportion that they indeed share, then your best bet is 12% (but you'll need very long odds indeed to make this a fair betting proposition).

Objection: by R.A. Blust

Page 294: You take the results illustrated in diagram [14] as commending the procedure adopted to achieve them. The cases you choose as supporting the validity of the method may seem intuitively probable, but there are at least two two-language subgroups in diagram [14] which are intuitively improbable: 1) Motu + Toba Batak, 2) Kiriwina + Titan. One of these (Motu + TB) is demonstrably in error, as it is contra-indicated by substantial phonological, lexical and grammatical evidence that Motu belongs with *all* other languages in diagram [14] apart from TB and Mor (the only non-Oceanic languages in the sample). If the Eastern Malayo-Polynesian hypothesis is correct the Oceanic languages + Mor further subgroup together as against Toba Batak. Error is more difficult to demonstrate in the second case, but I know of no qualitative evidence that Kiriwina and Titan subgroup together. When I wrote *The Proto-Oceanic palatals* I made a fairly serious effort to determine the position of the Admiralty subgroup within Oceanic, and failed to uncover support for any larger grouping short of Oceanic itself. Your results in the Polynesian cases similarly fail to agree with the generally accepted qualitative arguments advanced by Pawley (1966) that the first split within PN is between Tongic (Tongan, Niue) and Nuclear Polynesian (the rest).

Reply:

You are right. You must remember that my paper says that results obtained from a small number of languages should be viewed with extreme suspicion. The only Polynesian data set of reasonable size (30 lists, Kirk and Epling 1972) is far from reliable as it is a mixture of straight cognate counts, averages, and results of some mathematical transformation.

As for the Austronesian set, it is too small (25 lists) for such a motley sample, and is unbalanced (e.g. only one representant of Polynesian, but seven of New Hebridean).

Since writing this paper (May-June 1980), I have discovered that a result of the properties of linear-correlation co-efficients is that an isolated language is likely to be randomly misclassified with some other language. Thus for instance the two non-Oceanic languages in the sample of 25 Austronesian languages used are likely to be wrongly grouped within some Oceanic subgroups.

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