STEM-INITIAL CONSONANT ALTERNATION IN THE LANGUAGES OF EPI, VANUATU: A CASE OF ASSIMILATION?

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1. INTRODUCTION

Early scholars of the Island Melanesian languages such as Codrington (1885) and Ray (1926) observed alternations between certain consonants in certain Vanuatu languages, but without assigning any function to them. Ivens too noted such consonantal alternations in later studies (Ivens 1937-39, 1939-42). Here again the basis of the alternations was not really understood.

More recently a number of scholars have turned their attention to the phenomenon of consonant alternation within Oceania as a whole, but particularly in the languages of Vanuatu, for example Tryon (1973), Lynch (1975), Walsh (1982), Crowley (1982) and Clark (1985).

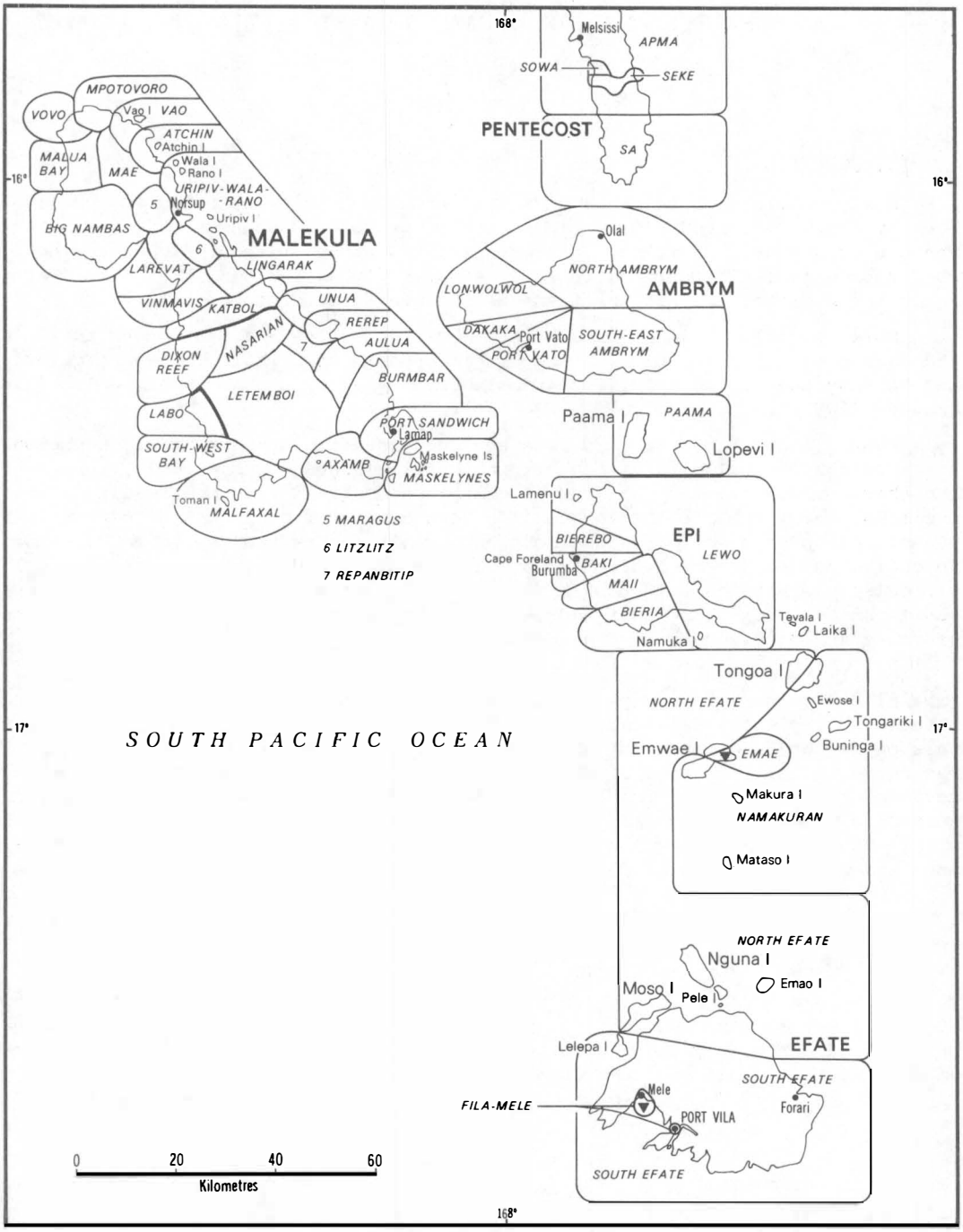
Lynch, among these writers, was the only one to propose a detailed explanation of consonantal alternation within Oceanic languages as a whole, in a hypothesis which claimed that the alternations observed were the result of the assimilation of the 'realis' prefix *ma to the initial consonant of certain verb stems, this prefix being found almost throughout central and northern Vanuatu. Beyond Vanuatu he found that alternations also resulted from a fusion of the 'irrealis' marker *na with the initial consonant of verbs. This latter fusion was found by Lynch to be confined to the Papua New Guinea area, in the languages of Yabem and Mapos Buang in the Morobe District.

Until the present, however, there has been no comparative study of stem-initial consonant alternation across languages within a single subgroup, largely because sufficiently detailed data have not been available at that level. In this paper the development of stem-initial consonant alternation is studied with reference to the languages of Epi, in central Vanuatu, and the fusion hypothesis advanced by Lynch (1975) considered with respect to these languages. The final section of the paper examines the extent and range of stem-initial alternations within Vanuatu and their value as subgrouping evidence within this geographical area and within Oceanic as a whole.

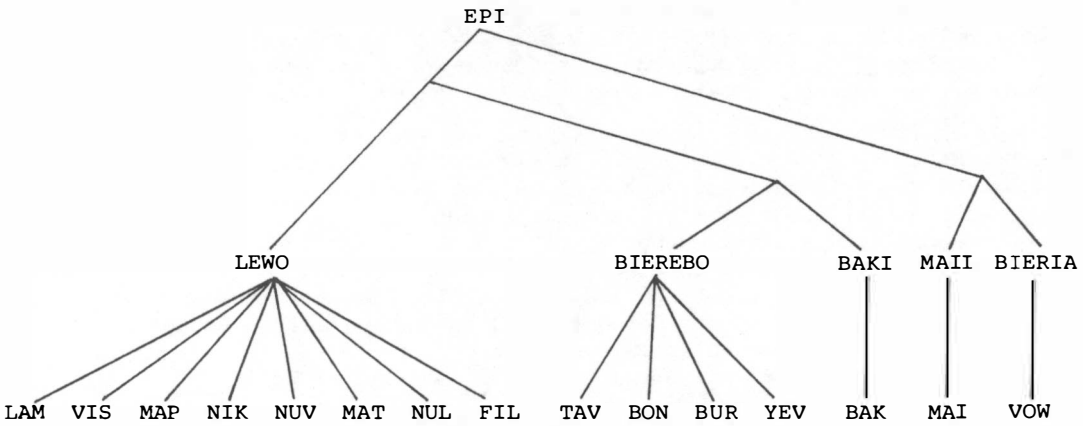
2. THE LANGUAGES OF EPI

There are currently five languages spoken on the island of Epi, namely Lewo, Bieria, Baki, Maii and Bierebo, as represented in Map 1. The languages and their principal dialects may be grouped according to the following family tree diagram, on both morphological and lexicostatistical evidence:

Paul Geraghty, Lois Carrington and S.A. Wurm, eds *FOCAL II: papers from the Fourth International Conference on Austronesian Linguistics*, 239-258. *Pacific Linguistics*, C-94, 1986.



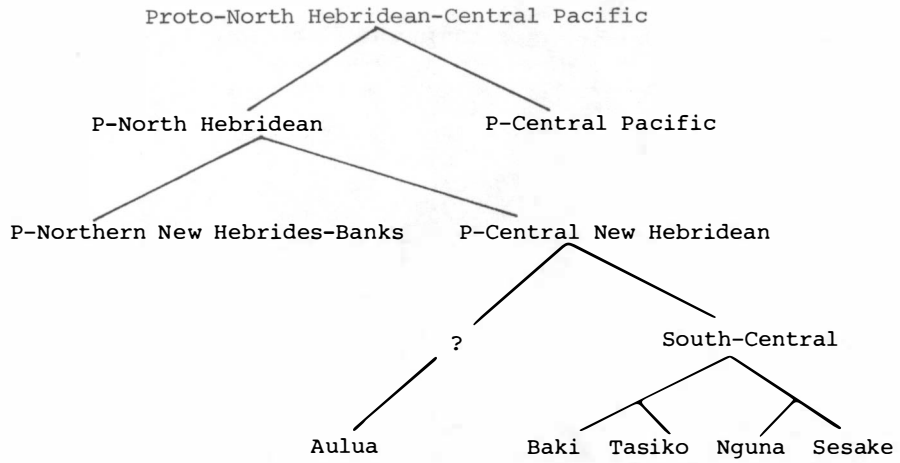
Map 1: Languages of Central Vanuatu



LAM	Lamenu	TAV	Tavio
VIS	Visina	BON	Bonkovia
MAP	Mapremo	BUR	Burupika
NIK	Nikaura	YEV	Yevali
NUV	Nuvi	BAK	Baki
MAT	Mate	MAI	Maii
NUL	Nul	VOW	Vowa
FIL	Filakara		

The family tree above does not represent the full extent of dialect variation within the languages of Epi, only the main dialects. Tables of sound correspondences are to be found in Table 2 (below).

In terms of their position within the Oceanic subgroup, Pawley (1972) considered that the Epi languages are members of a Central New Hebridean subgroup, which apparently also includes the languages of Malekula, as follows:



Pawley's classification, based on the tantalisingly little morphological data available at that time, has been developed by others more recently. The position of the Epi languages has remained relatively unaltered, however.

Tryon (1976), in a classification based largely on lexicostatistics, found that the languages of Epi form a single lower order subgroup within his East New Hebrides group, itself a subgroup of the huge North and Central New Hebrides group, the full extent of which his survey revealed for the first time.

Clark (1985) in a re-appraisal of the language situation in Vanuatu (formerly the New Hebrides), compared the subgroupings of Vanuatu languages put forward by Pawley and Tryon in their attempted classifications, re-examining the evidence. He concluded that all of the non-Polynesian languages of north and central Vanuatu constitute a single subgroup of Oceanic. With minor differences, then, Clark agreed with Pawley's interpretation of the available data. At the same time he found that the groupings indicated by the lexicostatistical evidence were largely supported by the morphological evidence which he adduced, with the exception of two lexicostatistically aberrant groups on Santo and Malakula, which are integrated in the North and Central Vanuatu group.[1]

With respect to the Epi languages, Clark considers that they are most closely related to the languages of the Efate area, and that they constitute a primary branching within a Central Vanuatu subgroup, which subgroup includes the languages of Malakula, Pentecost, Ambrym, Paama, Epi and the Efate area.

While the Epi languages indeed share a few innovations with Efate, of a morphosyntactic nature, and while it appears likely that future research will confirm the existence of an Epi-Efate subgroup, the Epi languages share in two phonological developments which serve to separate them from the Efate languages, and indeed from most other languages in Clark's Central Vanuatu subgroup, namely the merger of POC *s and *ns as Ø in all of the Epi languages except Bieria where they merge as /h/, and the merger of POC *d and *l as /l/, whereas *d and *l do not merge in the Efate area.

3. THE ALTERNATIONS

The stem-initial consonant alternations in the languages of Epi are summarised in the following table:

Table 1: Summary table of consonant alternations

	LEWO	NUL	BIEREBO	BAKI	MAII	BIERIA
1.	p/v	p/Ø	p/v	mb/v	mb/v	mb/v
2.	pw/w		pw/w			
3.			nd/t	c/t	md/t	nd/t
4.			nj/c	c/s		
5.			ŋg/k			
6.	miV/V	miV/V	miV/V	miV/V	miV/V	miV/V
7.	mC/C	mC/C	mC/C	mC/C	mC/C	mC/C
8.	C/C	C/C	C/C	C/C	C/C	C/C
9.						m̥/h

It should be noted that Nul has been included with the other languages even though it is only a dialect of Lewo, as it contains one alternation which differs from Lewo, namely p/Ø instead of p/v.

The left hand member of the alternation pair indicates the 'realis' in the languages listed, while the right hand member denotes an 'irrealis'. Examples

are given for each alternation in each language. Numbers beside the examples match the alternation number given in the summary table (Table 1). Examples:

(1) LEWO:

1. nakonevæ ne-pisu yaru nene
   yesterday I-see(R) *man that*
   I saw that man yesterday.

   peni ne-visu yaru nene
   tomorrow I-see(IRR) *man that*
   I'll see that man tomorrow.

2. nakonevæ no-pwere kilika
   yesterday I-pull(R) *rope*
   I pulled the rope.

   peni no-were kilika
   tomorrow I-pull(IRR) *rope*
   I'll pull the rope.

6. ne-m-iuveve
   I-R-*breathe*
   I breathed.

   ne-uveve
   I-breathe(IRR)
   I shall breathe.

7. ne-m-loru
   I-R-*fall*
   I fell.

   ne-loru
   I-fall
   I shall fall.

8. nakonevæ ni-mærau
   yesterday I-fear
   I was frightened yesterday.

   peni ni-mærau
   tomorrow I-fear
   I'll be frightened.

(2) NUL:

1. konea ne-pen vila
   yesterday I-go(R) *Vila*
   I went to Vila yesterday.

   pen n-en vila
   tomorrow I-go(IRR) *Vila*
   I'm going to Vila tomorrow.

6. ne-m-iu-ia kap
   I-R-*blow*-O *fire*
   I blew on the fire.

   ne-iu-ia kap
   I-blow(IRR)-O *fire*
   I shall blow on the fire.

7. konea ne-m-leru
   yesterday I-R-fall
   I fell down yesterday.

   pen ne-leru
   tomorrow I-fall(IRR)
   I shall fall tomorrow.

8. konea ne-mælio
   yesterday I-sleep
   I slept yesterday.

   pen ne-mælio
   tomorrow I-sleep
   I shall sleep tomorrow.

(3) BIEREBO:

1. ne-ptali-a-kuñu
   I-laugh(R)-O-*me*
   I laughed at myself.

   ne-vtali-a-kuñu
   I-laugh(IRR)-O-*me*
   I'll laugh at myself.

2. ŋeñowa na no-pwəl tebaka ia stoa
   yesterday dem. *I-buy*(R) *tobacco at store*
   I bought tobacco at the store yesterday.

   pen na no-wəli-a
   tomorrow dem. *I-buy*(IRR)-O
   I'll buy some tomorrow.

3. nalə a-ndika namburu
   they they-live(R) *Namburu*
   They live at Namburu.

   pen na ne-tika paama
   tomorrow dem. *I-live*(IRR) *Paama*
   I'll stay on Paama tomorrow.

4. ne-njoŋi-a
   I-hear(R)-O
   I hear it.

   ne-coŋo lemawa
   I-hear(IRR) *try*
   I'll try to hear it.

5. kuli ŋgiriri
   dog Ø-run(R)
   The dog ran.

   pen na kuli kiriri
   tomorrow dem. *dog Ø-run*(IRR)
   The dog will run.

6. ko-m-iliwi ku-mbano va-tano
   you-R-*stoop you-go*(R) loc-*down*
   You went underneath.

pen na ne-iliwi ne-vano va-tano
tomorrow dem. *I-stoop*(IRR) *I-go*(IRR) loc-*down*
I'll go underneath tomorrow.

7. ŋeñowa na ne-m-lae yumwa
yesterday dem. *I*-R-*make house*
I made a house.

pen na ne-lae yumwa
tomorrow dem. *I-make house*
I'll make a house.

8. ŋeñowa na ne-sei kərtiti
yesterday dem. *I-wash baby*
I washed the baby.

pen na ne-sei kərtiti
tomorrow dem. *I-wash baby*
I'll wash the baby.

(4) BAKI:

1. niovo nə-mbio-cau
yesterday I-call out(R)*-you*
I called to you yesterday.

pen nə-vio-cau
tomorrow I-call out(IRR)*-you*
I'll call to you tomorrow.

3. niovo ne-celan kia-mu tavak
yesterday I-light(R) Cl-*your tobacco*
I lit your cigarette.

pen ne-telan kia-mu tavak
tomorrow I-light(IRR) Cl-*your tobacco*
I'll light your cigarette.

4. ne-cen iup
I-eat(R) *yam*
I ate the yam.

ne-sen iup
I-eat(IRR) *yam*
I'll eat the yam.

5. nə-m-ial-cau
I-R-*see-you*
I saw you.

pen ne-al-cau
tomorrow I-see(IRR)*-you*
I'll see you tomorrow.

7. niovo nə-m-we kuli
yesterday I-R-*hit dog*
I hit the dog.

pen nə-we kuli
tomorrow I-hit dog
I'm going to hit the dog.

8. niovo nə-mro ka kuli
   yesterday I-fear Inst *dog*
   I feared the dog.

   pen nə-mro ka kuli
   tomorrow I-fear Inst *dog*
   I'll fear the dog.

(5) MAII:

1. ləmbaŋə mbuar ilə-ŋ
   dog Ø-*bite*(R) *leg-my*
   The dog bit my leg.

   tə ləmbaŋə vuar-tnau
   fut. *dog* Ø-*bite*(IRR)-*me*
   The dog will bite me.

3. nə-m-duluwa
   I-R-*call out*
   I called out.

   tə nə-ruluwa
   fut. *I-call out*
   I shall call out.

6. nə-m-iop
   I-R-*see*
   I see/saw.

   tə n-o·p
   fut. *I-see*
   I shall see.

7. inəvəmə nə-m-ləŋə n-tai m-dum
   yesterday I-R-*hear* art-*sea* Ø-R-*roar*
   I heard the sea roar yesterday.

   tə nə-ləŋə ra·mbiə
   fut. *I-hear tomorrow*
   I'll hear it tomorrow.

8. inəvəmə nə-ma n-top
   yesterday I-eat art-*sugarcane*
   I ate sugarcane yesterday.

   tə nə-ma n-top ra·mbiə
   fut. *I-eat* art.*sugarcane tomorrow*
   I'll eat sugarcane tomorrow.

(6) BIERIA:

1. nove no-mbek va
   yesterday I-go(R) *home*
   I went home yesterday.

   tambia ne-vek va
   tomorrow I-go(IRR) *home*
   I'm going home tomorrow.

3. nove no-ndokosan
yesterday I-sit down(R)
I sat down yesterday.

tambia ne-tokosan
tomorrow I-sit down(IRR)
I shall sit down tomorrow.

6. nove no-m-iat mbukah
yesterday I-R-tie pig
I tied up the pig yesterday.

tambia ne-at mbukah
tomorrow I-tie pig
I'll tie up the pig tomorrow.

7. nove no-m-te lakai
yesterday I-R-cut wood
I cut the wood yesterday.

tambia ne-te lakai
tomorrow I-cut wood
I'll cut the wood tomorrow.

8. nove no-matak
yesterday I-fear
I was frightened yesterday.

tambia ne-matak
tomorrow I-fear
I shall be frightened tomorrow.

9. nove no-m̥-ul le-ŋ
yesterday I-R-rub leg-my
I rubbed my leg yesterday.

tambia ne-hul le-ŋ
tomorrow I-rub leg-my
I'll rub my leg tomorrow.

Before moving on to discuss the development of the alternation system within the languages of Epi, a few comments on the examples presented above are given which are relevant to this discussion.

In all of the Epi languages there is a realis marker of the form *mV which occurs, potentially, between the subject marker and the verb stem. Thus we have a common verb phrase structure for realis as follows:

SM + mV + verb Stem ± Trans.Suffixes etc.

However, the realis marker is only used with a certain number of verb-stem initial consonants. In other cases, there is no overt reflex of *mV, but rather an alternation, usually of an oral/nasal grade nature, between stem-initial consonants. This process has been fully illustrated in the examples given above, from all of the languages. The distribution of the alternations and/or overt realis marker will be discussed below. Suffice it to say at this point that the Epi realis/irrealis marking system is quite regular.

It should be noted that Bieria has developed a double indication of realis/irrealis in that the vowel of the subject marker differs from realis to irrealis. Thus:

no-matak *I am afraid*
ne-matak *I shall be afraid*

This distinction is maintained in Bieria also in cases where there is a verb-stem initial consonant alternation, as the examples above show. This feature has also been noted with some verb stems in Baki. An explanation will be offered in the next section, on the historical development of the alternations.

The consonantal alternations are not restricted to verb stems, but also apply in other environments within the verb phrase. In Maii, for example, they appear with the multiplicative mbaka-/vaka-, and with the inceptive mba·lik/va·lik. Examples:

fuŋgo[2] mbaka-tol
Ø-do mult-*three*
He did it three times.

tə fuŋgo vaka-tol
fut. *Ø-do* mult-*three*
He will do it three times.

nə-frei əvrə ndə mba·lik
I-write thing only start(R)
I began to write things.

mə-mbənmə iə ndə ukau ŋei mba·lik
we exc-*come*(R) *in only year this start*(R)
We came and started only this year.

nə-fluŋ ndə nə-vənmə vila va·lik nə
I-want only I-come(IRR) *Vila start*(IRR) *this*
I just want to come to Vila for the first time.

Consonantal alternations also occur with the morphemes indicating indirect object and accompaniment, as in the following:

m-kun mbikin-tnau
Ø-R-*give to-me*(R)
He gave it to me.

tə kun vikin-tnau
fut. *Ø-give to-me*(IRR)
He will give it to me.

nə-m-i·mbə mblaken a-ŋ ləmbaŋə
I-R-*go with*(R) Cl-*my dog*
I went with my dog.

tə n-i·və vlaken a-ŋ ləmbaŋə
fut. *I-go with*(IRR) Cl-*my dog*
I shall go with my dog.

The base form of the consonantal alternations in the languages of Epi is the irrealis, for this is the unmarked form. It is also from this form that nouns are formed from verb bases, for example, Maii:

mbivi/vivi *to work* vivi-yanə *work*
mbelau/velau *proud* velo-wanə *pride*

(Note: the /y/ form of the noun formative is used following non-back vowels, while the /w/ form is used elsewhere.)

With negatives, the irrealis form of the verb stem is used, as in the following examples from Maii:

nə-vuk voi suksuk
I-read(IRR) *not book*
I did not read the book.

nə-ta voi lakai
I-cut(IRR) *not wood*
I did not cut the wood.

4. DEVELOPMENT OF STEM-INITIAL CONSONANT ALTERNATIONS

Lynch (1975) proposed a series of five steps to account for the development of stem-initial consonant alternations in Nguna (Vanuatu) as follows:

1. PHC *ma is a free preverbal particle marking realis:
   Thus: Pre-Nguna *ma doŋo (realis *hear*)
2. PHC *ma becomes a clitic (normally prefixed to the verb):
   Thus: Pre-Nguna *ma-doŋo (realis *hear*)
3. The vowel of the prefix is lost:
   Thus: Pre-Nguna *m-doŋo (realis *hear*)
4. The /m/ assimilates to the following consonant:
   Thus: Pre-Nguna *n-doŋo (realis *hear*)
5. Prenasalised consonants may undergo subsequent sound changes:
   Thus: Nguna toŋo (realis:*hear*)

Lynch thus explains the development of the alternating Nguna pair roŋo/toŋo as follows:

irrealis	realis	
*doŋo	*m(V)-doŋo	
*doŋo	*n-doŋo	(assimilation)
roŋo	toŋo	(change *d > r *nd > t)

The above analysis of a language with really very little consonant alternation, and based on not a great deal of data, suggested that the languages of Epi, where stem-initial consonant alternation plays a major part, should be investigated with respect to this feature. Examples from all of the Epi languages have been presented above. In order to trace the development of the alternations within Epi, a large number of verb stems from each of the languages was examined in terms of their derivation from proto-Epi, the sound correspondences for which are given in Table 2. The derived pairs are set out in Table 3 below. Some reconstructed forms are given in Table 4.

A comparison of the sound correspondences and the alternating pairs of verb stems in Table 3 shows that the irrealis stem forms (the left hand member of each pair) are regular reflexes of the proto-forms, while the realis verb stem forms do not follow the regular sound correspondences. Indeed, the phonemic status of the voiced members of the consonant pairs in the languages of Epi may be questioned according to some phonological theories since it is extremely difficult to discover voiced/voiceless stop oppositions which do not involve realis/irrealis verb stem oppositions.

Table 2: Epi sound correspondences

POC	*p	*mp	*t	*nt	*k	*ŋk	*d	*nd	*q	*ŋp
PEP	*p	*b	*t	[*d]	*k	*g	*l	*l	Ø	*pw
LAM	v,p		t,s	[s]	k		l	l	Ø	p
VIS	v,p	p	t	t	k		l	l	Ø	p
MAP	v,p	b	t	t	k	k	l	l	Ø	p
NIK	v,p	p	t	t	k	g	l	l	Ø	p
NUV	v,p	p	t		k		l	l	Ø	p
MAT	Ø,p	p	t	t	k		l	l	Ø	pw
NUL	Ø,p	p	t	t	k		l	l	Ø	pw
FIL	Ø,p	p	t	t	k		l	l	Ø	pw
TAV	v,p	p	t	t	s,k[1]	g	l	l	Ø	v
BON	v,p	p	t	t	s,k[1]	g	l,c[2]	c[3]	Ø	v
BUR	v,p	b	t	t	s,k[1]	g	l,c[2]	c[3]	Ø	p
YEV	v,p	b	t	t	k	g	l,c[2]	c[3]	Ø	p
BAK	v,p	b	t	t	s,k[1]	k	l,c[2]	l	Ø	bw
MAI	v,p	b	t	[d]	k	k,ŋ	l	l	Ø	p
VOW	v,p	b	t,s	[r]	k	k,ŋ	l	l	Ø	b

POC	*s	*ns	*m	*n	*ñ	*ŋ	*l	*R	*w	*y
PEP	*h	*h	*m	*n	*ñ	*ŋ	*l	*R	*w	Ø
LAM	Ø	Ø	m	n	n	ŋ	l	l,Ø	w	
VIS	Ø	Ø	m	n	n	ŋ	l	l,Ø	w	
MAP	Ø	Ø	m	n	n	ŋ	l	l,Ø	w	
NIK	Ø	Ø	m	n	n	ŋ	l	l,Ø	w	
NUV	Ø	Ø	m	n	n	ŋ	l	l,Ø	w	
MAT		Ø	m	n	n	ŋ	l	l,Ø	w	
NUL	Ø	Ø	m	n	n	ŋ	l	l,Ø	w	
FIL	Ø	Ø	m	n	n	ŋ	l	l,Ø	w	
TAV	Ø	Ø	m	n	n	ŋ	l	l,Ø	w	
BON	Ø	Ø	m	n	ñ	ŋ	l,c[2]	l,Ø	w	Ø
BUR	Ø	Ø	m	n	ñ	ŋ	l,c[2]	l,Ø	w	
YEV	Ø	Ø	m	n	ñ	ŋ	l,c[2]	l,Ø	w	
BAK	Ø	Ø	m	n	ñ	ŋ	l,c[2]	l,Ø[4]	w	
MAI	Ø	Ø	m	n	n	ŋ	l	Ø	w	Ø
VOW	h	h	m	n	n	ŋ	l,Ø	Ø	w	

[1]With pronouns.
[2][c] initial; [l] intervocalic.
[3]Examples reflect *nd in word-initial position only.
[4]POC *R reflected as /l/ throughout Epi only reflecting a few POC items; otherwise *R is reflected as zero.

Table 3: Epi stem-initial consonant alternations

	LEWO	NUL	BIEREBO	BAKI	MAII	BIERIA
1. *p/*m-p	v/p vano/pano *go*	ø/p en/pen *go*	v/p vtali/ptali *laugh*	v/mb vio/mbio *call out*	v/mb vuar/mbuar *bite*	v/mb vek/mbek *go*
2. *pu/*m-pu	w/pw were/pwere *pull*		w/pw weli/pweli *buy*			
3. *t/*m-t	s/s [*tu] suluia/suluia *sew* t/t taŋi/taŋi *cry*	s/s [*tu] smalu/smalu *stand* t/t te/te *cut*	t/nd teŋi/ndeŋi *cry* tika/ndika *stay*	t/č teŋi/čeŋi *cry* telan/čelan *light*	t/md ta/m-da *cut* t/mt tul/m-tul *sew*	t/nd tokosan/ndokosan *sit* t/mt te/m-te *cut* s/ms [*tu] sul/m-sul *sew*
4. *d/*m-d	l/ml loŋea/m-loŋea *hear*	l/ml loŋea/m-loŋea *hear*	č/nǰ čoŋo/nǰoŋo *hear*	č/mč čoŋ/m-čoŋ *hear*	l/ml ləŋə/m-ləŋə *hear*	l/ml loŋo/m-loŋo *hear*
5. *k/*m-k	k/k karia/karia *bite* kilia/kilia *know*	k/k kania/kania *eat* kilia/kilia *know*	s/s sani/sani *eat* sari/sari *bite*	s/č sen/čen *eat*	k/mk kan/m-kan *eat*	k/mk kan/m-kan *eat*
6. *g/*m-g			k/ŋg kiriri/ŋgiriri *run*			
7. *s/*m-s						h/m̥ hul/m̥ul *rub*
8. *V/*mi-V	V/miV uveve/mi-uveve *breathe*	V/miV iu/mi-iu *blow*	V/miV iliwi/mi-iliwi *stoop*	V/miV al/mi-al *see*	V/miV op/mi-op *see*	V/miV at-mi-at *tie*
9. *l/*m-l	l/ml lilua/m-lilua *vomit*	l/ml lualua/m-lualua *vomit*	č/nǰ čulua/nǰulua *vomit*	č/mč čuluo/m-čuluo *vomit*	l/ml lualuə/m-lualuə *vomit*	l/ml luawa/m-luawa *vomit*
10. *w/*m-w	w/mw we/m-we *hit*	w/mw we/m-we *hit*	w/mw we/m-we *hit*	w/mw we/m-we *hit*		
11. *m/*m-m	m/m mai/mai *be sick*	m/m munia/munia *drink*	m/m mrau/mrau *fear*	m/m mun/mun *drink*	m/m mar/mar *die*	m/m mat/mat *die*

Table 4: Some proto-Epi verb root reconstructions

POC	PEP	Bierebo	Baki	Lewo	Nul	Maii	Bieria
*-	*te *[cut]*	nde/te	ce/te	te/te	te/te	da/ra	te/te
*toka	*toko *[be]*	ndo/to	co/to	to/to	te/te	də/rə	doko/toko
*taŋis	*taŋi *[cry]*	ndeŋi/ teŋi	ceŋi/ teŋi	taŋi/ taŋi	taŋi/ taŋi		
*pano	*vano *[go]*	mbano/ vano	mbano/ vano	pano/ vano	pen/en	mbəne/ vəne	mbek/vek
*puti	*vuto *[pull]*	pur/wur	mburo/ vuro	pure/ vure	pur/ur		
*-	*ve *[be]*	pe/ve	mbe/ve	pe/ve	pe/e	mbe/ve	
*-	*vuyu *[climb]*		mboyo/ voyo	puyu/ vuyu	pu/u		
*poli	*vuli *[buy]*	puli/ wuli	mbulio/ vulio	pulia/ vulia		mbul/vul	
*putu	*vut(o,e) *[flee]*	mbure/ wure	mburo/ vuro	pure/ vure			
*kani	*kani *[eat]*	sania/ sania	cen/sen	kania/ kania	kania/ kania	kan/kan	kan/kan
*kati	*kati *[bite]*	sari/ sari	cer/ser	karia/ karia	karia/ karia		
*-	*kup̄ari *[scratch]*	spar/ spar	cubwar/ cubwar	kuparia/ kuparia	kupwaria/ kupwaria		
*-	*kove *[throw]*	sovea/ sovea		kovenia/ kovenia	koenia/ koenia	kəvək/ kəvək	kovok/ kovok
*doŋo	*loŋo *[hear]*	njoŋ/ coŋ	coŋ/coŋ	loŋea/ loŋea	loŋoia/ loŋoia	ləŋə/ləŋə	loŋo/loŋo
*luaq	*lualua *[vomit]*	njulua/ culua	culuo/ culuo	lilua/ lilua	lualua/ lualua	lualuə/ lualuə	luawa/ luawa
*-	*loru *[fall]*	njoru/ coru	coru/ coru	loru/ loru	leru/ leru		
*-	*kitikit *[run]*	ŋgiriri/ kiriri	cikiti/ tikiti	kiriri/ kiriri	kiriri/ kiriri	kirkir/ kirkir	kitikit/ kitikit

The course of development proposed by Lynch for Nguna appears to be substantiated in the case of the languages of Epi. If, for example, one were to consider the development of the consonantal pairs set out in Table 3, one would recognise that they follow a regular developmental sequence, as follows:

(a) With all Epi languages a form *mV preceded all verb stems to indicate realis, becoming prefixed throughout.

(b) In the case of a number of stem-initial consonants, especially those reflecting proto-Epi *p, *t, *d and to a lesser extent *k and *g, stem-initial alternations developed as a result of the interaction of the realis marker and the initial consonant of the verb stem.

(c) With other stem-initial consonants, especially those reflecting proto-Epi *l, *w and *m, the presence of the realis marker produced only the sequences m-l, m-w and m-m.

The expected phonological developments detailed in the Lynch-proposed developmental sequence will be seen to have taken place in the Epi languages, individually at least, for example:

*m+p > mv > mb > mp > p (Lewo: vano/pano *go*)
*m+t > md > nd > nt > t (Bierebo: teŋi/ndeŋi *cry*)[3]

While the current Epi languages may be presumed to have followed the path of assimilation of the initial /m/ of the realis marker *mV to the initial consonant of the verb stem, once the vowel of the realis marker was lost (which would be normal in unstressed position, no single set of developmental phonological rules has been worked out which covers all of the languages. This suggests that the stem-initial consonant alternations in Epi are likely to have been independent phonological developments within the island. As such, then, the alternations per se may not be of very great value as subgrouping evidence. On the other hand, the fact that it is the irrealis form which is unmarked and which is demonstrably the base form may well prove a useful piece of evidence in this regard, especially when languages outside the Epi-Efate subgroup are considered.

It will have been observed, also, that while the development of the stem-initial consonant alternations has proceeded regularly within the Epi languages, there are irregularities within both Maii and Bieria with respect to the development of *m+t, as follows:

(a) In Bieria, incidentally the most closely related language to Maii, as well as the t/nd stem-initial alternation, from *t/*m-t, we also have a few t-initial stems where the collocation of *m+t has not produced a consonantal alternation. Rather the assimilatory chain has not developed past stage one. Thus we have, for example:

	ne-tokosan	*I shall sit down*
	no-ndokosan	*I sat down*
but:	ne-te	*I shall cut*
	no-m-te	*I cut*

As noted above, Bieria doubly marks realis/irrealis with many verbs first by the stem-initial consonant alternation but also by the vowel of the subject marker. This latter phenomenon may well have developed as a device to distinguish tense/aspect with verb stems whose initial consonants do not participate in the alternation process, for example those beginning with m-, l- or w-.

(b) In Maii, Bieria's neighbour, we have the same situation, only one stage earlier than in Bieria. For in Maii we have the same lack of development with respect to some t-initial verb stems, namely *m+t remains unaltered. Thus:

ne-tul *I shall sew*
ne-m-tul *I sewed*

At the same time, many t-initial verb stems have taken the next step in the developmental process, namely *m-t becomes Maii /md/, for example:

nə-ta· lakai
I-cut(IRR) *wood*
I shall cut the wood.

nə-m-da· lakai
I-R-*cut wood*
I cut the wood.

The picture in Maii and Bieria, then, suggests that in respect of those two languages at least the developmental process has been caught in midstream and that it is therefore still an active process and that the phenomenon of stem-initial consonant alternation in the languages of Epi is a relatively recent development.

5. STEM-INITIAL ALTERNATIONS OUTSIDE EPI

Stem-initial consonant alternations occur in a number of languages outside Epi. They are quite rare outside Vanuatu, having been reported only for Yabem and Mapos Buang in Papua New Guinea among the Oceanic subgroup of Austronesian (Lynch 1975:91). They are not of direct concern here as the alternations in those languages result from the assimilation of an irrealis marker *na with initial consonants of the verb stems. Within Vanuatu, they all appear to have originated as a result of the assimilation of a realis marker *mV to the initial consonant of some verb stems.

Within Vanuatu stem-initial consonant alternations are encountered in Erromango, and in a geographical continuum from Efate to Pentecost and Ambae (Aoba).

- In Efate one has, for example:

e pano *he goes*
e pe vano *if he goes* (Schütz 1969)

- In Namakura (in the Efate area) one has, for example:

ni-mboh naim *I build a house*
ni-mba-woh naim *I shall build a house*
ni-ndah *I come back*
ni-mba-rah *I shall come back* (own data)

However, in Namakura one has also verb phrases such as:

ni-mba-maha-mboh
I-fut.-*again-do*(R)
I shall do it again.

ni-mba-maha-ndah
I-fut.-*again-come back*(R)
I'll come back again.

- To the north of the Epi-Efate subgroup, one finds in Paama, for example:

a-daasili
they-disperse(R)
They dispersed.

i-taasili
they-disperse(IRR)
They will disperse. (Crowley 1982)

In Paama, however, Crowley notes that there are irregularities in the system, whereby the same initial consonant produces different alternations. He cites, for example:

titilu Class 1 *sew* (d- (R)/t- (IRR))
titilu Class 5 *drip* (t- (R)/t- (IRR)) (1982:121)

It may be, however, that the initial /t/ in the two forms derives from two different proto-phonemes.

- In the languages of North Ambrym, stem-initial alternations are also present, as in:

na-m-tivi
I-R-*cut*
I have cut.

na-te-rvi
I-past-*cut*
I cut (past).

na-ŋa-rvi
I-fut.-*cut*
I shall cut. (own data)

- On Pentecost, alternations are found throughout the languages. In Apma, for example, Walsh (1982:238) reports:

na-m-beb
I-act. in prog.-*say*
I say

ra-t-veb
they-comp.act.-*say*
They said

na-m-ban
I-act. in prog.-*go*
I go

na-t-van
I-comp.act.-*go*
I went

In Raga, further to the north, Walsh provides very full evidence of a number of stem-initial consonant alternations, for example:

na-m-bano
I-act. in prog.-*go*
I go

ra-m-bano
they-act. in prog.-*go*
They go

na-n-van-vano
I-cont.-*go*-*go*
I used to keep on going. (Walsh 1982:237)

- Alternations are also reported on Ambae (Aoba) by Ivens, for the Lobaha dialect (N.E. Ambae), citing forms such as:

vava/bava *to speak*
vora/bora *to become* (Ivens 1939-42:356)

- In southern Vanuatu, outside the Northern-Central Vanuatu language subgroup, Sie, on Erromanga, also exhibits stem-initial vowel and consonant alternation. Lynch (1975:91) records, for example:

past	non-past	
oɣhi	aŋhi	*to see*
okili	aŋkili	*to know*
oruh	aduh	*to swim*
ovelam	ampelam	*to come*
etur	antur	*to stand*

Within the Northern-Central Vanuatu subgroup it is significant that the verb base from which nouns are formed reflects the oral grade consonant throughout. Examples:

Nguna:	na-vasa-ana	*speaking*	(vasa/pasa)
Namakura:	tokean	*village*	(tok/ndok) [*stand*]
	na-worean	*story*	(wor/mbor)
Maii:	vivi-anə	*work*	(vivi/mbivi)
Paama:	hilu-ene	*cough*	(hilu/vilu)
Raga:	noɣu vano-ana	*my going*	(vano/pano)

6. CONCLUSION

A number of conclusions may be drawn from the data presented above, the principal ones being:

(1) Within Vanuatu a distinctive verb-stem initial consonant alternation occurs, within the Northern-Central Vanuatu subgroup area, in a geographical continuum stretching from Efate in the south to Ambae in the north. There is also a suggestion (Pawley 1972, Clark 1985) that the alternations may have once been present or perhaps remain to be discovered in the almost undescribed languages of Malakula, where traces appear in the numerals and with certain adjectives.

(2) Vowel and stem-initial consonant alternations also occur in Sie (Erromanga). Sie is outside the Northern-Central Vanuatu subgroup, being part of the Southern Vanuatu subgroup (Lynch 1978). The Sie alternations appear to be unrelated to and rather different from those observed in some Northern-Central Vanuatu languages, as do those reported for Yabem and Mapos Buang in Papua New Guinea.

(3) The alternations arise from the presence of a 'realis' marker *mV preceding the verb stem. The data presented from the Epi languages shows that there is no single integrated developmental process from proto-Epi to the present day languages, suggesting strongly that the consonant alternations there and by implication elsewhere in Vanuatu are the result of independent parallel development.

(4) Evidence from outside Epi, particularly that from Pentecost (Raga and Apma) and Ambrym, shows that the alternations have a phonological rather than a morphological basis, for wherever one finds a reflex of *mV preceding a verb stem (given that alternations occur only with certain consonants in any given language) an alternation follows, despite the fact that other realis/past markers co-occur in the same language.

(5) Despite the fact that the stem-initial consonant alternations are probably the result of independent parallel development, the fact that the base or unmarked form, and the form from which nouns are derived from verbs, is the irrealis throughout the languages manifesting consonant alternation is rather remarkable and one which will prove valuable as the languages of the Northern-Central Vanuatu subgroup become better known. For while the alternations are now known to extend beyond the Central Vanuatu subgroup (Clark 1985) into the Northern Vanuatu subgroup, the possibility still exists that the phenomenon may be discovered beyond the Northern and Central Vanuatu subgroup and may be assigned to some higher level subgrouping within Oceanic. Indeed, Lynch and Tryon (1985) have shown that reflexes of the 'realis' marker *mV extend beyond Vanuatu, increasing the possibility of further discoveries in terms of form and/or function of stem-initial consonant alternations within Oceanic.

NOTES

1. The quantitatively based groupings fit remarkably well with those based on qualitative evidence, with the two minor exceptions mentioned. Since morphological evidence of the type adduced by Clark, and before him Pawley, is more weighty than lexicostatistical evidence, and since that evidence points to the inclusion of the Interior Malekula and East Santo in the Northern-Central subgroup, it is preferable to include both of those lexicostatistically indicated subgroups within Northern-Central Vanuatu.
2. f-initial stems do not undergo alternation in Maii.
3. The Bierebo forms exemplify an interstage development; others may be found in the examples set out in Table 4.

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