

THE SOUND SYSTEM OF PROTO-CENTRAL-PACIFIC

Paul Geraghty

1.1 INTRODUCTION

The theory that the languages of Fiji, Rotuma, and Polynesia form a closed subgroup was first proposed by Grace (1959). He later (1967) named the subgroup "Central Pacific", and the name has become generally accepted.

Blust (1976), Pawley (1972, 1979), Geraghty and Pawley (1981), and Wilson (1982), among others, have assumed the Central Pacific (CP) hypothesis, and some Proto-Central-Pacific (PCP) lexical items have been reconstructed in Blust 1976 and Geraghty and Pawley 1981.¹ However, as I have argued (Geraghty 1983:352-366), a compelling case for Central Pacific has yet to be made, all of the innovations claimed by Grace (1959) and Pawley (1972) to characterise PCP being either shared only by Polynesia and parts of eastern Fiji, or invalid in some other way. It is not my intention here to discuss further the validity of the CP subgroup, but to provide a firm basis for further discussion by attempting to reconstruct the sound system of PCP, and outlining its development in the daughter languages. No internal subgrouping is as yet assumed, so forms witnessed in two of the three major witnesses, or in any of these plus an external witness, are reconstructed.² This reconstruction is largely based on proposals made in Geraghty 1983 with respect to Proto-Eastern-Oceanic, with one additional phoneme, some phonetic and orthographic modifications, and considerable additional data, especially from Rotuman.

1.2 ORTHOGRAPHY AND SOURCES

Unless otherwise indicated, phonetic values in all data and reconstructions in this paper, regardless of source, are as follows: a,e,f,h,i,k,l,m,n,ñ,o,p,r,s,t,u,w,y,z,ʔ as written; b[mb],c[ɔ̃], d[nd], dr[ndr], g[ŋ], j[tʃ], q[ŋg], v[v] or [β], x[x]; vowel length is indicated by a macron.

All glosses are written according to the conventions described in Geraghty 1983:8-13.

In choosing symbols for reconstructed PCP phonemes, I have been guided by two major considerations: phonetic suitability (but with preference for single letters of the Roman alphabet over digraphs and exotic phonetic symbols), and orthographic usage in daughter languages.

Fijian data are from my fieldnotes, and written in the orthography described in Geraghty 1983:4-8. Proto-Fijian reconstructions are likewise my own.³ Note

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that one of the major differences between Proto-Fijian and Standard Fijian ('Bauan') is that Standard Fijian (SF) has undergone Eastern Fijian Apical Prenasalisation (Geraghty 1983:74-96), resulting in SF *d*, *dr*, and *s* from PFJ **t*, **r*, and **c*, respectively, in initial position in many common nouns.⁴

Proto-Polynesian (PPN) data are mostly from Biggs 1978, 1979, Ranby 1980, and Geraghty 1983.

Occasional reference is made to the following external witnesses: Proto-Southeast-Solomons (PSS) (Levy n.d.), Proto-Micronesian (PMC) (Bender et al n.d.), and Proto-North-Central-Vanuatu (PNCV) (based on data in Guy 1978, Clark 1985, and Walsh 1984).

Rotuman data are from Churchward 1940, with some additional definitions from informants. Diacritics for umlaut, which is predictable in all citation forms, are omitted. Unless otherwise stated, Rotuman forms cited are "directly inherited" (Biggs 1965), that is, not Polynesian loans. (PN?) after a form means that, on purely phonological grounds, it may be a Polynesian loan.

2.1 THE SOUND SYSTEM

The sound system proposed is shown in Table 1.⁵

Table 1: The PCP sound system

	bilabial		alveolar		palatal	velar	labio-velar	glottal
		dental	liquids	fricatives				
fricatives	v			c	z	x		
stops	p	t	r			k	kw	ʔ
prenasalised obstruents	b	d	dr	s	j	q	qw	
nasals	m	n	l		ɲ	g	gw	
glides	w				y			

Note that the table has been compressed somewhat, so the place and mode of articulation labels are not necessarily to be interpreted strictly. For example, it is not claimed that **s* was phonetically prenasalised, or that **l* was a nasal.

In the following sections, we will examine the system by place of articulation, discussing phonetic values and reflexes. Examples will, as far as data permit, illustrate reflexes of consonants in both initial and medial position, and before front, low, and back vowels.

2.2 BILABIALS

Table 2: The reflexes of the PCP bilabials

PCP	v	p	b	m	w
PFJ	v	p	b	m	w
PPN	f	p	p	m,∅	w
ROT	h,∅/?	p	p	m,∅	v

Examples:

v-

- **vitu seven*: PFJ **vitu*, PPN **fitu*, ROT *hifu*
 **vanua land*: PFJ **vanua*, PPN **fanua*, ROT *hanua*
 **vutu k tree, Barringtonia asiatica*: PFJ **vutu*, PPN **futu*, ROT *hufu*

-v-

- **avi fire*: PFJ **yavu burn*, PPN **afi*, ROT *rahi*
 **tuva k vine, Derris trifoliata*: PFJ **tuva*, ROT *fuha*
 **mava heavy*: PPN **mamafa*, ROT *maha*
 **tavu set fire*: PFJ **tavu*, PPN **tafu*, ROT *fahu*

p-

- **pisi-k squirt*: PFJ **pisi-k*, PPN **pisi-k*, ROT *pusi burst, splash*
 **pā trolling hook*: PFJ **pā*, PPN **pā*
 **popo (wood) rotten*: PFJ **popo*, PPN **popo*, ROT *popo (PN?)*

-p-

- **ripi sharp edge*: PFJ **ripi shin*, PPN **lipi*
 **sape (foot) malformed*: PFJ **sape*, PPN **sape*, ROT *tape (for *sape) kick w toe*

b-

- **bebe butterfly, moth*: PFJ **bēbē*,⁶ PPN **pepe*, ROT *pepe (PN?)*
 **bā wall, fence*: PFJ **bā*, PPN **pā*, ROT *pā (PN?)*
 **buto- navel*: PFJ **buto-*, PPN **pito*, ROT *pufa*

-b-

- **kabe string*: PFJ **kabe string from coconut stem*, ROT ?*ape*
 **tubā k land crab, Cardisoma*: PFJ **tubā*, PPN **tupa*,⁷ ROT *fupa*⁷
 **tubu grow*: PFJ **tubu*, PPN **tupu*, ROT *fupu*

m-

- **miji suck*: PFJ **misi*, PPN **miti*
 **mata- eye, face*: PFJ **mata-*, PPN **mata*, ROT *mafa*
 **moze sleep*: PFJ **moze*, PPN **mohe*, ROT *mose*

-m-

- **kumete bowl*: PFJ **kumete*, PPN **kumete*, ROT ?*umefe*
 **cama outrigger float*: PFJ **cama*, PPN **hama*, ROT *sama*
 **ñamu mosquito*: PFJ **ñamu*, PPN **namu*, ROT *ramu*

w-

- *wī *k tree*, *Spondias dulcis*: PFJ *wī, PPN *wī, ROT vī (PN?)
 *weka *bird*, *Rallus*: PPN *weka, ROT ve?a
 *waqa *canoe*: PFJ *waqa, PPN *waka, ROT vaka (PN?)

-w-

- *kauki *sand crab*: PFJ *kauki, PPN *kawiki, ROT ?avi?i
 *kawi *fish-hook*: ROT ?avi (POC *kawil)
 *tawa *k tree*, *Pometia pinnata*: PFJ *tawa, PPN *tawa, ROT fava

The reasons for reconstructing *v rather than *f are not strong, simply that *v is a more common cognate in external witnesses (PSS, PNCV) than *f (PMC). The distinction between PCP *b and *p is maintained only in PFJ, and only on evidence from parts of eastern Fiji, but is supported by evidence from the Solomons (Geraghty 1983:103-114).

Some instances of PCP *v become Ø or ? in Rotuman:

INITIAL

- *vaka-V causative > a?a
 *vu(cz)u *box*, *punch* > ?usu
 *vusi *tie in a bunch* > usi
 *vu?u- *tree* > u- prefix to some tree names

MEDIAL

- *V(cz)ivo *down* > sio
 *tovu *sugarcane* > fo?u
 *uvi *blow* > ui
 *vavine *woman* > haina

It is probably significant that the most common environment is before a high back vowel, with two before a high front vowel, and only one each before o and a. Both cases of glottal stop are before u.

Perhaps related to this change is the sporadic loss of intervocalic *m before *u, which occurs in both PPN and Rotuman:

- *kamu Iip > ROT ?au (Hale 1846:472 also recorded ?amu)
 *malumu *soft* > PPN *malū
 *N-mu III > PPN *-u, ROT -u

The same change occurs sporadically in Waidina, eastern Vitilevu (Geraghty 1983: 178-179).

2.3 DENTALS

Table 3: The reflexes of the PCP dentals

PCP	t	d	n
PFJ	t	d	n
PPN	t	t	n
ROT	f/j/s	t/j	n

Examples:

t-

*tinaʔe *intestines*: PPN *tinaʔe, ROT finae
 *taliga- *ear*: PFJ *taliga-, PPN *taliga, ROT faliga
 *tuna *Anguillidae, freshwater eel*: PFJ *tuna, PPN *tuna, ROT funa

-t-

*ʔoti *finished*: PFJ *oti, PPN *ʔoti, ROT ofi
 *mataʔu *right-hand*: PFJ *mataʔu, PPN *mataʔu, ROT mafau
 *ʔatu *line, row*: PFJ *yatu, PPN *ʔatu, ROT afu

d-

*degu *nod*: PFJ *deguvacu *raise eyebrows in assent (vacu eyebrow)*, ROT tegi
 *dagwa *loose, slack*: PFJ *dagwa, PPN *tagataga
 *dañudañu *fallow*: PFJ *da(nñ)uda(nñ)u, ROT taitai (POC, PPN *talu)
 *dui *different*: PFJ *duidui, ROT tū

-d-

*vidi *spring*: PFJ *vidi, PPN *fiti, ROT hiti *start w surprise*
 *voda *rocks in sea*: PFJ *voda, PPN *fota
 *mudu *cut off, sever*: PFJ *mudu, PPN *mutu, ROT mutu (PN?)

n-

*niu *coconut*: PFJ *niu, PPN *niu, ROT niu (PN?)
 *na(czs)u *roast, bake*: ROT nasu
 *natu *mash, knead*: PFJ *natu, PPN *natu
 *novo *sit, stay*: PFJ *novo *lie still*, PPN *nofo, ROT noho

-n-

*kini *pinch*: PFJ *kini, PPN *kini, ROT ʔini
 *kanace *k fish, Mugil, mullet*: PFJ *kanace, PPN *kanahe, ROT ʔanasi (for *ʔanase)
 *tunu *cook*: PFJ *tunu *reheat (food)*, PPN *tunu *cook on open fire*, ROT funu *cook by boiling*

The j and s reflexes in Rotuman are somewhat problematic. It appears that *t, before shifting to f (via an intermediate stage [θ], recorded by Hale (1846) and Turner (1884)), assimilated to a following j or s (from *c, *s, or *z):⁸

*ta(cz)i *sea* > sasi
 *tazi-ña *his/her younger sibling* > sasiga

*tali(cz) *e k tree, Terminalia catappa* > salisa *k edible almond-shaped fruit*
 *taji *shave* > jaji

There are no counter-examples in my data. The same rule applies to *d in the one eligible form:

*du(cj)(iu) *point* > juju

and to *s before *j:

*sije *k fish, Hemirhamphus, garfish* > jija

There are, however, two further cases of *d becoming Rotuman j where assimilation does not appear to be involved:

*dulɪ *k bird, plover* > juli

*donu *right, correct* > nojo (metathesis)

Two hypotheses suggest themselves. That j is the regular reflex of *d before *u is, however, contradicted by tū *different* (< *dui) and tutuʔu *k fish, small, black* (< *duku *k fish, Abudedefduf sp*). It is more likely that j reflects *d before l or n. Although not a particularly plausible environment, the only apparent counter-example, tulou *millipede* (< *dolou *earthworm*) may have been ineligible for the change because of stress placement, or may be a loan from an unknown source. The problem, of course, requires more data.

2.4 LIQUIDS

Table 4: The reflexes of the PCP liquids

PCP	r	dr	l
PFJ	r	dr	l
PPN	r,l	r,l	l
ROT	r/∅	t	l

Examples:

r-

*riki *small*: PFJ *riki, PPN *riki, ROT ririʔi (plural)

*rano *lake*: PFJ *(rdr)ano, PPN *rano +*swamp*, ROT rano *swamp*

*rua *two*: PFJ *rua, PPN *rua, ROT rua

-r-

*iri *fan*: PFJ *iri, PPN *iri, ROT iri (PN?)

*viri *plait*: PFJ *viri *lash (fence, raft+)*, PPN *firi, ROT hiri

*mara *fermented food*: PFJ *mara *stench*, PPN *mara, ROT mara (Hale 1846) (PN?)

*curu *enter, go through*: PFJ *curu, PPN *huru, ROT suru

dr-

- *driudriu *k small ant*: PFJ *driudriu, ROT tuitui (metathesis)
 *dram(iu) *chew*: PFJ *dram(iu) *lick*, PPN *lam(iu), ROT tami
 *dranu *bathe in fresh water*: *dranu, PPN *ranu
 *drumani *k edible sea-anemone*: PFJ *dr(ou)mani, PPN *rumane, ROT nunami (metathesis and assimilation)

-dr-

- *vadra *Pandanus*: PFJ *vadra, PPN *fara, ROT hata
 *madra *cooked, fermented*: PFJ *madra, PPN *mara
 *tadruku *Chiton*: PFJ *tadruku (PSS *tadux(iu))

l-

- *lima *five*: PFJ *lima, PPN *lima, ROT lima
 *lago *k insect, fly*: PFJ *lago, PPN *lago, ROT laga
 *lua *vomit*: PFJ *lu(ae), PPN *lua, ROT lua *spit*

-l-

- *taliga- *ear*: PFJ *taliga-, PPN *taliga, ROT faliga
 *zala *path, road*: PFJ *zala, PPN *hala, ROT sala
 *walu *eight*: PFJ *walu, PPN *walu, ROT valu

PCP *r apparently becomes Rotuman Ø between high vowels, though there is some contradictory evidence:

- *buru *present food*: PFJ *buru(a), PPN *pulu(a), ROT pū
 *puru- *abdomen, thorax*: PFJ *poro-, ROT pū (PMC *pur(iu)a *aesophagus, gullet, stomach*)
 *riri *shed, hut*: PFJ *riri, ROT rī *house*
 *tiri: PPN *ti(ri)i (*woman*) *fertile*, ROT fī (*woman*) *prolific*
 *turu- *knee*: PFJ *turu-, PPN *turu, ROT fū
 *xuru *rumble*: PFJ *kuru, PPN *ʔulu, ROT ʔū *bang*

The contradictory data are:

- *curu *enter, go through*: PFJ *curu, PPN *huru, ROT suru
 *viri *plait*: PFJ *viri *lash (fence, raft+)*, PPN *firi, ROT hiri
 *vuvuru *catch (fish, animal) w hand*: PFJ *buburu,⁹ ROT huhuru

There is no evidence that PCP *r and *dr remained distinct in PPN; *dr, like *d and *q, merged with its non-prenasalised counterpart. The resultant *r merged partially with *l, under conditions yet to be determined. The merger was completed in Proto-Nuclear-Polynesian, but not in Proto-Tongic, where *r became Ø. Data available offer some suggestions as to conditions for the merger, but as yet no clear pattern can be discerned.

Examples of PCP *r and *dr > PPN *l:

r-

- *riri *boil*: PFJ *riri, PPN *lili
 *rau- *leaf*: PFJ *rau-, PPN *lau, ROT rau
 *rogo *quiet, silent*: PFJ *rorogo, PPN *logo

-r-

*marari *k fish, wrasse*: PPN *malali, ROT marari (PN?) (PMC *merari)
 *gara *scream, howl*: PFJ *gara, PPN *gala
 *turu *drip*: PFJ *turu, PPN *tulu

dr-

*dreu *ripe*: PFJ *dreu, PPN *leu, ROT toutou
 *dranu *fresh water*: PFJ *dranu, PPN *lanu, ROT tanu *water*
 *druma *shy*: PFJ *druma, PPN *luma

-dr-

*modri *smooth, hairless*: PFJ *modri, PPN *molemole
 *(cz)(eo)dra *asthma*: PFJ *(cz)odra, PPN *sela

2.5 ALVEOLAR FRICATIVES

Table 5: The reflexes of the PCP alveolar fricatives

PCP	c	s
PFJ	c	s
PPN	h,s	s
ROT	s	s/j

Examples:

c-

*cina *illuminate, fish by torchlight*: PFJ *cina, PPN *hina, ROT sina
 *cakau *coral reef*: PFJ *cakau, PPN *hakau, ROT sa?au *rocks and coral on sea bottom*
 *cucu- *breast*: PFJ *cucu-, PPN *huhu, ROT susu

-c-

*kanace *k fish, Mugil, mullet*: PFJ *kanace, PPN *kanahe, ROT ?anasi
 *vuca *rotten*: PFJ *vuca, ROT husa *pus*
 *cucu- *breast*: PFJ *cucu-, PPN *huhu, ROT susu
 *vacu- *eyebrow*: PFJ *vacu-, ROT hasu

s-

*sikwa *net-needle*: PFJ *sikwa, PPN *sika, ROT si?a
 *saga: PFJ *saga *attempt, work on*, PPN *saga *work, make, do*, ROT saga *act quickly* (PN?)
 *sua *scull*: PFJ *sua, PPN *sua, ROT sua (PN?)

-s-

*asi *k tree, Santalum, sandalwood*: PFJ *yasi, PPN *asi
 *wasa *open sea*: PFJ *wasa, PPN *wasa, ROT vasa *far out at sea*
 *lasu: PFJ *lasu *false, tell lie*, PPN *lasu *trick, deceive*

PCP *s, like *t and *d, assimilates to a following *j in Rotuman:

*sije *k fish, Hemirhamphus, garfish* > jija

As with PCP *r > PPN *r,l, there is no obvious conditioning for PCP *c > PPN *h,s - the partial merger of PCP *c with *s in PPN. PFJ *c is taken as a true witness to PCP *c because of its close correlation with cognates in the Southeast Solomons (see Geraghty 1983:130-148).

Examples of PCP *c > PPN *s:

c-

*cici *k edible mollusc, inc. Neritidae*; PFJ *cici, PPN *sisi, ROT sisi
 *cakule *search for lice*: PFJ *cakule, PPN *sakule, ROT saʔule
 *cunu: PFJ *cunu *steam (st)*, PPN *sunu *singe*, ROT sunu *hot*

-c-

*cici *scoop out, gouge out, peel*: PFJ *cici, PPN *sisi, ROT sisi *peel, strip off (skin)*
 *macaki *illness, disease*: PFJ *macake *k disease, thrush*, PPN *masaki, ROT masaʔi

Note that PCP *c is considered to be the non-prenasalsed member of the *c-s pair. The reasons are that *c occurs as the final consonant in PCP bases while *s, like the phonetically prenasalsed obstruents, does not; and that when East Fijian Apical Prenasalisation occurred, *c became s under exactly the same conditions that *t and *r became phonetically prenasalsed (Geraghty 1983:90-95). This view was in fact held, for Fijian, by Dempwolff (1934-1938:II:138), but later reversed, apparently by Elbert (1953), followed by Biggs (1965:385) and Pawley (1972:27), presumably for phonetic reasons, the voiced member taken to be more likely to reflect a prenasalsed obstruent. The old position here re-affirmed has more recently been argued for by Milke (1961), Hockett (1976:191-192), and Haudricourt and Ozanne-Rivierre (1982:31).

2.6.1 Palatals

Table 6: The reflexes of the PCP palatals

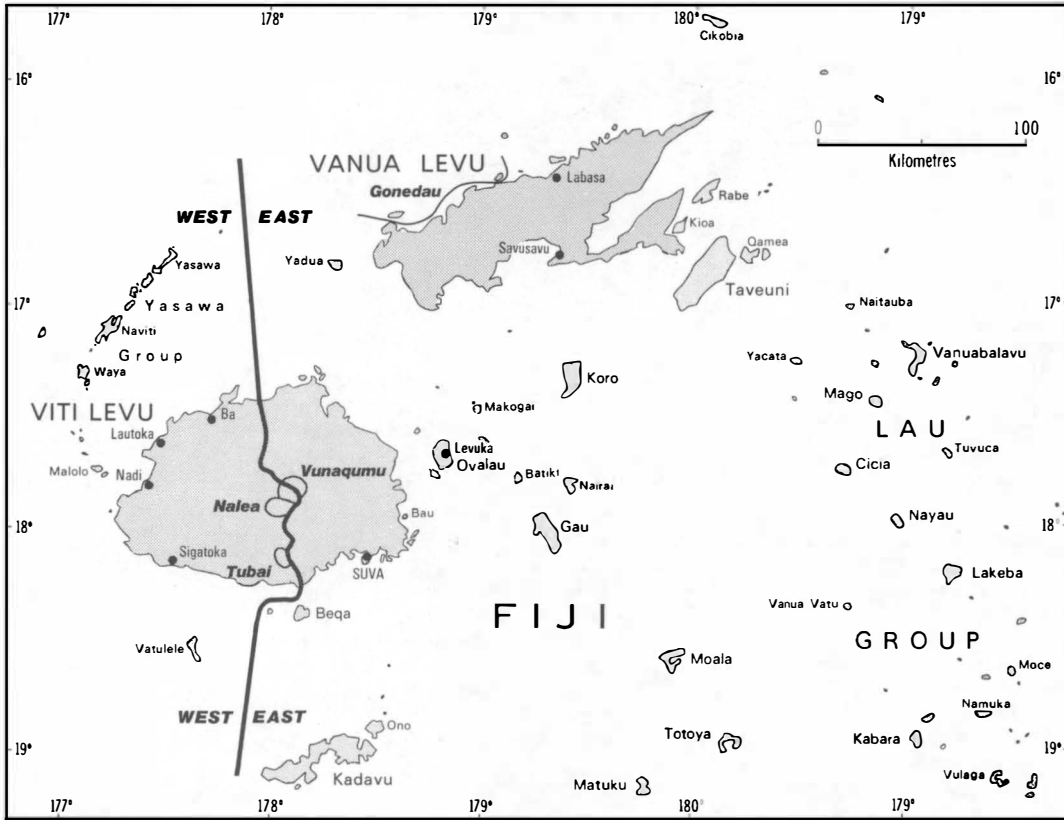
PCP	z	j	ñ	y
PFJ	z	s	ñ/n	c
PPN	h,s	t,s	n	∅
ROT	s	j	∅/r,g,n	∅/r

Only in PFJ is *z distinguished from *c, since both yield *h,s in PPN and s in Rotuman. The evidence for PFJ *z was first presented in Geraghty 1983:125,126, 153-155, where it was tentatively labelled *C. In most Fijian communalects it is regularly realised as c, which is also the reflex of PCP *c. Where *z differs from *c is that in four communalects, two belonging to the Western subgroup, two to the Eastern, it is realised as s (or y/∅), not c. The two Western communalects, Nalea and Tubai, are historically closely related, but now separated.

Tubai is not a totally reliable witness, containing many loans from both Eastern and Western communalects acquired during the prehistoric wanderings of its speakers. One of the Eastern communalects, Vunaqumu, is contiguous to Nalea, but is considered an independent witness because it belongs to a different first-order subgroup of Fijian. Data from Vunaqumu are, however, sketchy, because the last speaker died about 50 years ago, and the data have been culled from the memories of old people who heard it in their youth. The fourth witness is Gonedau, spoken on the islands of Yaqaga, Galoa, Tavea, and Macuataiwai, off the northern coast of Vanualevu. Map 1 shows the locations of these witnesses to PCP *z, and the evidence is presented in Table 7. Reconstructions based only on y in Vunaqumu or Tubai and c elsewhere are not very secure, since y is also a fairly common sporadic reflex of PFJ *c (Geraghty 1983:126-128). Since PCP *z becomes either c or s, but can hardly have been either, [z] seems to be a reasonable guess at its phonetic nature.

There are five instances of PCP *z becoming PPN *s, rather than the usual *h: PPN *tagi-s *cry*, *fusi *irrigated taro bed*, *kese (doublet *kehe) *different*, *masa (doublet *maha) *dry*, and *sole (for *sola) *carry on shoulder*. It is not possible to tell whether or not the PPN *s reflex of *z occurs under similar conditions to the *s reflex of *c.

PCP *j is the reflex of PEO *j as proposed in Geraghty 1983:149-153 on the basis of the correspondence: Fiji s, PPN *t or *s, Rotuman *j, PSS *d.¹⁰ It approximates to the POC *nj proposed by Milke (1968), and the PCP *c of Blust (1976). Only in Rotuman is it retained as a distinct phoneme. In PSS it merges with the reflexes of *d and *dr, in PFJ with *s, and in PPN with *s and *t or *d. Given this pattern of mergers, it seems likely that *j was the 'prenasalised' counterpart of *z. PCP *j was probably [tʃ] or [ts], like its only unique reflex, Rotuman j (Churchward 1940:13,83). The evidence for PCP *j is presented in Table 8. A number of items included in Geraghty 1983 only on the strength of external evidence, usually PSS *d, are omitted here. As with PCP *r, *c, and *z, the PPN split reflex is problematic. There is no obvious conditioning, only a tendency to *t before back vowels and *s before front vowels.



Map 1: Fiji

showing the East-West language division,
and the approximate location of the com-
munalects crucial to the reconstruction
of PFJ *z

Table 7: Evidence for PFJ *z

Forms that are only reconstructable to Proto-Western-Fijian or Proto-Eastern-Fijian are marked (W) and (E), respectively. Forms in brackets are presumed to be borrowed. A dash means the form with that meaning is not cognate.

PFJ	Nalea	Tubai	other Western	Vunaqumu	Gonedau	other Eastern
INITIAL						
<i>zava what</i>	sava	yava	cava	yava	sava	cava
<i>zei who</i>	sei	(cei)	cei	yei	sei	cei
<i>ziqi divide (food) w fingers (W)</i>	siqi	siqi	ciqi	-	-	-
<i>zālevu path, road¹</i>	sālevu	yālevu	cālevu	sālemu	sālevu	sālevu ²
<i>zola live (W)</i>	solo	-	col(ao)	-	-	-
<i>zavu pronounce, men- tion</i>	savu	yavu	cavu	savu	(cavu)	cavu
<i>zō call (W)</i>	sō	-	cō	-	-	-
<i>zola carry on soulder</i>	-	soya	-	sola	-	cola
<i>zai copulate (E)</i>	-	-	-	yai	-	cai
<i>zaka do, make (E)</i>	-	-	-	yaka	-	caka
MEDIAL						
<i>moze sleep</i>	mose	mose	moce	-	mose	moce
<i>tazi- younger same-sex sibling</i>	tasi-	tai-	taci-	tai-	tasi-	taci-
<i>viza how many</i>	visa	(vica)	vica	visa	visa	vica
<i>yaza- name</i>	yasa	(yaca)	yaca	ya-	yasa	yaca-
<i>buzobuzo white</i>	busobuso	buyobuyo	bucobuco	buyobuyo	-	-buc
<i>la(zy)a sail³</i>	-	laya	la(cy)a	-	lasa	laca
<i>maza empty of liquid, (tide) low</i>	masa	masa	maca	masa	(maca)	maca
<i>māmaza dry</i>	māmasa	masamasa	macamaca	-	(māmaca)	māmaca
<i>naiza when</i>	-	-	-	-	nesa	naica
<i>uza when</i>	-	-	-	-	usa	uca
<i>Vkeze only, alone</i>	-	-	-	-	kese	kece
<i>kuza how</i>	-	-	ku(cy)a	-	kuse-	kuca
<i>vuzi irrigated taro bed</i>	vusi	(vuci)	vuci	vusi	-	vuci
<i>maziV again, adversa- tive</i>	masi	-	maci	-	-	maci
<i>Vwaza only, merely</i>	-	was	-	-	-	waca
FINAL						
<i>lua-z vomit - on</i>	lua-s	lua-∅	lua-c	-	lua-s	lua-c
<i>mT-z urinate - on</i>	mT-s	mT-∅	mT-c	-	mimi-s	mT-c
<i>veka-z defecate - on</i>	veka-s	veka-∅	veke-c	-	veka-s	veka-c
<i>tagi-z cry - for</i>	tagi-s	tagi-∅	tagi-c	-	tagi-s	tagi-c
<i>wavu-z run - for</i>	wavu-s	-	wavu-c	-	ovu-s	-
<i>liga-z see</i>	liga-s	-	liga-c	-	-	liga-c
<i>b(ou)i-z smell</i>	bui-s	bui-∅	bui-c	-	-	boi-c
NOTES						
1. From *zala + *levu <i>big</i> (Vunaqumu lemu <i>big</i>).						
2. s from earlier c by East Fijian Apical Prenasalisation (Geraghty 1983:90-95).						
3. Other than Gonedau, all evidence points to *laya, so the Gonedau form is probably irregular.						

Table 8: Evidence for PCP *j

PCP	PFJ	PPN	ROT
INITIAL			
jamu(?)a (palm) fruit stem	sāmoa	taume spathe (met.)	jamu?a
jamu scraps of food	sabusabu	samu	jamujamu
jao spear	sā	tao	jao
jara slip, slide	sara	tala put on (clothes)	jara
jau strike, beat	sau +tattoo	tatau tattoo	jau
je(?) (ei) k insect	-	se(?)e locust	jei cricket
jei tear, rip	sei	(sae)	jei
jevu splash water	sevu	-	jehu drizzle
je(?)a k bird, Lalage sp	sea	(hs)e(?)a	jea
jexejexe k fish, Arothron spp.	sekeseke	te?ete?e	-
jī k plant, Dracaena	-	tī	jī
jiko- kingfisher	sikorere Artamus, woodswallow	tikotara	-
jila look sideways, squint	-	sila	jila
jila (canoe) sheet	sila	tila	-
jiji slip	sisi	-	jiji creep, crawl
joli pick, gather	-	tolī	joli
jona yaws, (octopus) sucker	sona	tona	jona
jopu nod	sopu	-	jopu
jou (sea) rough	sou splash	sou	jou ripple
jo(bp)u dive	-	sopu	jopu
jove k shellfish	sove barnacle	tofe	
MEDIAL			
baja close together	basa meet, opposite	-	paja
duji point	du(cs)i	tus(iu)	jūju
guju- mouth	gusu-	gutu	nuju
gwajala k fish, Epinephelus	kasala (*gwasala)	gatala	vajala
kaja- (kava) stem	kasa-	kata	-
ikajo, kiajo outrigger boom	ikaso	kiato	-
keju- back of head	kesu-	-	?eju
laja tame	lasa	lata	-
laje coral	lase	lase	laje
majaga- (road+) fork	basaga-	māsaga twin	majaga
maja(?)u clever, expert	-	mata(?)u	majau
miji suck	misi	miti +lick	-
muju cut off	musu	mutu	-
sije Hemirhamphus, garfish	sise	(ise)	jija
taji shave	tasi	tasi	jaji
uja transport, carry (cargo)	usa	uta	-
xujim(ai), xumij(ai) crave fish or seafood	kusima	?umiti	-

2.6.2 The source of PCP *z and *j

It was suggested in Geraghty 1983:154-155 that PCP *z may reflect PAN (Proto-Austronesian) *j, notwithstanding certain irregularities, there being some support in the fact that POC (Proto-Oceanic) did distinguish *j (Blust 1978). No PAN source was suggested for PCP *j. With the increase in data, we are now in a better position to look into the PAN source of both PCP *z and *j, along with the other PCP phonemes that derive from the PAN palatal obstruents.

The following list shows the PAN sources for all PCP items with unequivocal *c, *s, *z, and *j. I do not distinguish here between PAN and PMP (Proto-Malayo-Polynesian), and some final consonants have been omitted or simplified.

PCP *c

aca *rub, grate* < *Sasaq *sharpen (blade)*
 cabo *hold in hand* < *saŋpe
 caga *span* < *zaŋan (or *saŋa *bifurcation*)
 cake *climb* < *sakay
 cala *wrong, err* < *salaq
 cama *outrigger float* < *(cs)a(R)man
 cavu-t *pull up, uproot, pull out* < *cabut
 i/cawa/i *parent-in-law* < *qa(cs)awa *spouse*
 caʔa-t *bad* < *zaqat
 cici *k edible mollusc, inc. Neritidae* < *sisi
 ci(kq)o-v *catch w hands* < *cikep
 cila (*sun+*)*shine* < *silak, *cilak*
 cina *torch* < *sinaR *ray of light*
 ciwa *nine* < *siwa
 i/coka *house-beam* < *se(ŋ)kaŋ *crossbar*
 cucu- *breast* < *susu
 cula *sew, pierce* < *sulam *prick, pierce*
 culi- (*taro, banana*) *sucker* < *suliq
 (g)icu *nose* < *ijun (or *ŋusu *upper lip*)
 kanace *k fish, Mugil, mullet* < *kanasay
 mac(eo)ru *hiccough* < *se(dD)u
 toci *cut (leaf) into strips* < *testes *tear up*
 v(iu)cov(iu)co *navel, umbilical cord* < *pusej
 voce *paddle* < *be(R)(cs)ay

PCP *s

(vb)oso *squeeze in hand* < *becel
 lasu *tell lie, deceive* < *la(n)cu
 los(ei) *squeeze, wring out* < *leciŋ *squeeze out, squirt out*
 pisi-k *squirt* < *picik *splash, spray, sprinkle*
 saba-k *slap* < *ca(m)pak
 saqa-t *oppose, crash into* < *ca(ŋ)kaŋ *contradict, oppose*
 saqu-m *snatch* < *ca(ŋ)kem *grasp*
 si(bp)a *cut into strips* < *si(ŋ)pak *split*
 somo *mud* < *cemeD *impure*
 sova *pour, dump* ? < *sebar *scatter about*
 sulu *put on clothes* < *(cs)ulu
 vuso *foam* < *buseq

PCP *z

(?)aza- *name* < *ajan
 maza *dry (tide)low* < *maja
 moze *sleep* ?< *pezem *close eyes, sleep*
 (nñ)a(?)iza *when* < *qizan
 tagi-z *cry - for* < *taŋis
 tazi- *younger same-sex sibling* < *tV-Sua(n)ji
 viza *how much* < *pija
 z(ae)i *who* < *(cs)ai
 zala *path, road* < *Zalan
 zava *what* < *apa, *sapa
 zaʔi-t *copulate* ?< *zaqit *sew, join*
 ʔuza *rain* < *qu(ŋ)ZaN

PCP *j

baja *close together* < *banzar *row*
 duji *point* < *tunzuk
 guju- *mouth* < *ŋusu *upper lip* (or *ijun *nose*)
 laja *tame* < *Najam
 majaga- (*road+*) *fork* < *saŋa
 taji *shave* ?< *ta(zZ)im *sharpen*
 uja *transport, carry (cargo)* < *(Rl)ujan (cf. Proto-Philippines *lújan *ride, load* (Zorc 1985))

The evidence now accumulated requires a revision of my tentative proposal of 1983, to include PAN *z and *Z with *j, and to include in their reflexes PCP *j as well as *z. The hypothesis now proposed is, therefore, that PAN *s and *c became PCP *c/s, and that PAN *j, *z, and *Z became PCP *z/j. Of the 55 examples above, only eight are in any way contradictory.

If the above hypothesis holds, and if Blust's (1978) claim that POC distinguished *j from the other palatal obstruents is true, then POC must have distinguished three palatal obstruents, the only mergers being of *c and *s, and *z and *Z. Moreover, given the high correlation between PAN *s and PCP *c, and PAN *c and PCP *s, there may yet be a strong case for the retention of the PAN *c/s distinction in POC.

2.6.3 PCP *ñ

PCP *ñ is reconstructed as distinct from *n because of its reflexes in Rotuman (∅/r,g,n rather than n) and Western Fijian (y/n rather than n). The evidence for PCP *ñ is shown in Table 9.

In Western Fijian, PCP *ñ becomes n before u, y before a. In Rotuman, it becomes r initially, and ∅ medially, usually fronting or raising the following vowel; the n and g reflexes appear to be sporadic. In Eastern Fijian and Polynesian, *ñ merges with *n as n.

Table 9: Evidence for PCP *ŋ

PCP	PWF	PEF	PPN	ROT
ñamu <i>mosquito</i>	yamu	namu	namu	ramu
N-ñā IIII	-ya	-na	-na	-na, -ga ¹
dañudañu <i>fallow</i> ²	danudanu	danudanu	-	taitai
mañawa <i>spirit</i>	-	-	manawa	maeva
meña (<i>breadfruit</i>) <i>ripe</i> ³	meme	-	-	mea
moña- <i>brain</i>	moya	mona	-	-
voñu <i>turtle</i>	-vonu ⁴	vonu	fonu	hoi
voñu <i>full</i>	-	-	fonu	hoi
waña <i>k sea-urchin</i>	-	-	wana	vaevae

NOTES

1. -na is productive, but -ga is fossilised in: sasiga *younger same-sex sibling* (*tazi-ñā), ma'piga *grandparent, grandchild* (*makubu-ñā), uluga *top, summit* (*?ulu-ñā), laloga *inside* (*lalo-ñā).
2. Apparently distinct from POC *talū *fallow*, reflected by PPN *talū.
3. External witness: PSS *me(nñ)a *ripe*.
4. Reflected in tuvonu *k turtle*, *Caretta caretta*.

2.6.4 PCP *y

PCP *y is realised as PFJ *c, PPN Ø, and Rotuman r-/-Ø-. The fact that initial *y becomes r in Rotuman, and that intervocalic *y affects the following vowel in exactly the same way as intervocalic *ñ, suggests that PCP *ñ and *y merged as pre-Rotuman *y. The evidence for PCP *y is presented in Table 10.

Table 10: Evidence for PCP *y

PCP	PFJ	PPN	ROT
yagi <i>wind</i>	cagi	agi (<i>wind</i>) <i>blow</i>	ragi <i>breeze, breath</i>
yago <i>k plant, Zingiber sp.</i>	cago	ago	raga
yavā <i>storm</i>	cavā	afā	-
yavo <i>fishing-line</i>	cavo	afo	-
kayu <i>wood, tree</i>	kacu	lākau	?ai
laya <i>sail</i>	la(cz)a	lā	lae
maya <i>ashamed</i>	-	mā	mae
?ayawa <i>k tree, Ficus sp.</i>	yacawa	?awawa	aeva

2.7 VELARS

Table 11: The reflexes of the PCP velars

PCP	x	k	kw	q	qw	g	gw
PFJ	k	k	kw	q	qw	g	gw
PPN	ʔ	k	k	k	k	g	g
ROT	∅/?	ʔ	ʔ	k	k	n/g	v

PCP *x has not been reconstructed before. It is distinguished from *k by the reflexes PPN *ʔ (or occasionally a ʔ/k doublet) rather than *k (as reported in Geraghty 1983:160-161), and Rotuman ∅ or ʔ rather than ʔ. It may perhaps turn out to be the result of an incomplete change, rather than an actual PCP phoneme; but it is convenient at this stage to catalogue it as *x, and its inclusion lends symmetry to the system, since the velar series now parallels the labial. The evidence for PCP *x is presented in Table 12. What little Rotuman evidence there is points to the reflex ∅ before a and ʔ before u, with the reflex before o equivocal.

Table 12: Evidence for PCP *x

PCP	PFJ	PPN	ROT
INITIAL			
xa(bp)a <i>(house) wall</i>	ka(bp)a	(ʔ)apa(ʔ)apa	-
xana-N <i>past</i>	kana-	ʔana-	-
xanusu <i>spit</i>	kānusi	ʔanusu	anusu (PN?)
xata <i>make mark, show clearly</i>	kata	ʔata <i>shadow, reflection; (tattoo) bright (REN)</i>	afa
x(a)ua <i>don't, cease</i>	kua	(kʔ)aua	ʔuʔua
xavelu, vaxelu <i>wipe anus</i>	kāveʔlu	faʔelu	-
xoda <i>eat raw (flesh)</i>	koda	ʔota	-
xoia	kolia <i>split (fire-wood)</i>	ʔola <i>wedge</i>	ʔolo <i>chop, cut</i>
xota <i>dregs, refuse</i>	kota	ʔota	mofa ¹
xōtai <i>fruit salad</i>	kōtai	ʔōtai	-
xū-t <i>bite off</i>	kū-t	ʔū-t	-
xujim(ai), xumij(ai) <i>crave fish or seafood</i>	kusima	ʔumiti	-
xuru <i>rumble</i>	kuru	ʔuʔulu	ʔū <i>bang</i>
MEDIAL			
axa- <i>jawbone</i>	yaka- <i>mouth</i>	aʔa	-
boxoi <i>k pudding</i>	bokoi	poʔoi	poʔoi (PN?)
jexejexe <i>k fish, Arothron</i>	sekeseke	teʔeteʔe	-
maxavu <i>Magellan's clouds</i>	makavu	maʔavu	-
maxota <i>k tree, Dysoxylum</i>	mākota	maʔota	-
mexe <i>dance</i>	meke	meʔe	-
noxa <i>tie up, tether</i>	noka	noʔa	-
saxalo <i>scraper (coconut)</i>	i/sakalo <i>coconut scraper</i>	saʔalo, sākalo	-
tānoxu, tāxona <i>k bowl</i>	tākona	tānoʔa	-
vaxa-V <i>often</i>	vaka-	faʔa-	-
vaxo <i>peg, nail</i>	vako	faʔo	-
NOTE			
1. Sporadic prothesis of m before back vowels in Rotuman is not unlikely; the prothesis of r and g before initial a will be discussed below.			

PCP *kw, *qw, and *gw are reconstructed as distinct from *k, *q, and *g, respectively, because of their reflexes kw (or xw), qw, and gw in Western Fijian and the south-east Vitilevu area of Eastern Fijian (see Geraghty 1983:42-50). The labiovelars (*kw, *qw, *gw) only occur before a and, far less frequently, e. PCP *gw is the reflex of POC *mw, and is distinguished also in Rotuman as v, rather than n/g from PCP *g. PCP *qw may be a conditioned reflex of PEO *bw (in addition to PCP *b (Geraghty 1983:120-124)), but the evidence is as yet only suggestive, and is not presented here. External cognates of PCP *kw are the same as those of *k. Some examples of PCP *k, *kw, *q, *qw, and *g are given below, and the evidence for PCP *gw is presented in Table 13.

k-

*kini *pinch*: PFJ *kini, PPN *kini, ROT ?ini
 *kati *bite*: PFJ *kati, PPN *kati, ROT ?afi
 *kuli- *skin*: PFJ *kuli-, PPN *kili, ROT ?uli

-k-

*kauki *sand-crab*: PFJ *kauki, PPN *kawiki, ROT ?avi?i
 *coka *husk (coconut)*: PFJ *coka, PPN *hoka, ROT so?a
 *(cz)akule *search for lice*: PFJ *(cz)akule, PPN *sakule, ROT sa?ule

kw-

*kwai *say, tell*: PFJ *kwai, PPN *kai *tell story*, ROT ?ea (?< *kwai+a)

-kw-

*sikwa *net-needle*: PFJ *sikwa, PPN *sika, ROT si?a
 *bekwa *fruit-bat*: PFJ *bekwa, PPN *peka

q-

*qiriqiri *gravel*: PFJ *qereqere (for *qiriqiri), PPN *kilikili
 *qau *swim*: PFJ *qau, PPN *kau, ROT kau *wade*
 *qumuqumu *k crab*: PFJ *qumuqumu, ROT kumkumu

-q-

*leqileqi *k tree, Xylocarpus*: PFJ *leqileqi, PPN *lekileki, ROT lekileki (PN?)
 *waqa *canoe*: PFJ *waqa, PPN *waka, ROT vaka (PN?)
 *(y)aqo *learn*: PPN *ako, ROT rako

qw-

*qwalae *k bird, Porphyrio, swamphen*: PFJ *qwalā, PPN *kalae, ROT kalae
 *qwele *earth, dirt*: PFJ *qwele, PPN *kele, ROT kele *black, blackish*

-qw-

*nuqwa *k tree, Decaspermum fruticosum*: PFJ *n(iu)qwa, PPN *nukanuka

g-

*gi(czs)a: ROT nisa *mock, jeer* (PNCV *gigica *smile, grin*)
 *gara *scream, cry loud*: PFJ *gara, PPN *gala
 *guju- *mouth*: PFJ *gusu-, PPN *gutu, ROT nuju

-g-

- *tagi *cry*: PFJ *tagi, PPN *tagi, ROT fagi
- *taliga- *ear*: PFJ *taliga-, PPN *taliga, ROT faliga
- *togo *mangrove*: PFJ *togo, PPN *togo, ROT fogo

Table 13: Evidence for PCP *gw

PCP	PFJ	PPN	ROT
gwaʔane <i>male</i>	-gwane	-gaʔane	vavane <i>husband</i>
gwa(cz)a(cz)i <i>k fish, Parupuneus</i>	g(w)a(cz)a(cz)i	-	vasasi
gwalu <i>wave, surf</i>	-	galu	valu
gwajala <i>k fish, Epinephelus</i>	kasala (*gwasala)	gatala	vajala
gwata <i>snake</i>	gwata	gata	-
dagwa <i>loose, slack</i>	dagwa	tagataga	-
regwa <i>turmeric</i>	reregwa	rega	-

2.8 GLOTTAL AND ZERO

Table 14: The reflexes of the PCP glottal and zero

PCP	ʔ	∅/#_a
PFJ	∅/y(/#_a)	y
PPN	ʔ	∅
ROT	∅/?	r, g

The above interpretation is innovative with respect to Rotuman. Biggs (1965: 408-409) claimed Rotuman simply lost PCP *ʔ, and made no reference to prothesis before *a.

All instances of PCP initial *a reflected in Rotuman show a prothetic r or, in two cases, g:

- *agi *give instructions, urge on* > ragi
- *aka *k vine, Pueraria lobata* > gaʔa
- *atu *large number* > rafu (POC *Ratu *hundred*)
- *aqo *learn* > rako
- *au *Il* > gou/a
- *ava *handle* > hara (met.)
- *avi *fire* > rahi

Forms showing initial a in Rotuman derive from PCP *ʔa or *xa:

- *ʔayawa *k tree, Ficus* > aeva
- *ʔate *liver* > afe
- *ʔatu *line, row* > afu
- *ʔatule *k fish, Selar crumenophthalmus* > afule
- *ʔa(cz)o *sun* > asa
- *ʔanuve *caterpillar* > aniha

*xanusī *spit* > anusī
 *xata *make mark, show clearly* > afa

The fate of PCP *ʔ in other environments is less clear. It is usually lost:

INITIAL

*ʔo(cz)o *provisions for journey* > oso
 *ʔoti *finished* > ofi
 *ʔulu-ña *its top, summit* > uluga
 *ʔunavi *scale (fish)* > unehi
 *ʔuta *inland* > ufa
 *ʔuza *rain* > usa

MEDIAL

*liʔo *voice* > lio
 *mataʔu *right-hand* > mafau
 *matuʔa *old* > mafua
 *raʔa *branch, twig* > rā
 *taʔo *cook* > fao
 *taʔu *year* > fau
 *tinaʔe *intestines* > finae
 *tuʔa *ridge, (leaf) midrib* > fua
 *tuʔu *stand* > fū
 *vaʔa *stalk* > hā
 *vetaʔu *k tree, Calophyllum inophyllum* > hefau

In some cases, however, PCP *ʔ appears to be retained:¹¹

*ʔuvi *yam* > ʔuhi
 *ʔo- *possessive (PPN *(ʔ)o- (Wilson 1982:73))* > ʔo-
 *ʔi *at, in, on* > ʔe
 *suʔi *pour water on* > suʔi

In the light of changes posited earlier in this paper, there now appear certain parallel developments which are best explained by two important mergers in the early history of Rotuman.

(1) PCP *ʔ, *x, and some cases of *v (probably via *h) merged as pre-Rotuman *ʔ. This phoneme must have been present at the time of r/g prothesis. Subsequently, *ʔ was lost before a, but retained in some cases before other vowels, especially u.

(2) PCP *ñ, *y, and *∅/#_a merged as pre-Rotuman *y, rarely *g. Subsequently, *y became r initially. Medial *y changed following a to e and u to i, and then was lost.

NOTES

1. Hockett (1976) reconstructed a phonology and a large number of lexical items for "Proto Fiji Polynesian", the language ancestral to Fijian and Polynesian, but did not consider Rotuman.
2. Pawley has claimed (1979:13) that there is enough evidence to support a Rotuman-Fijian subgroup exclusive of Polynesian.
3. There are also problems relating to the reality of Proto-Fijian - Geraghty and Pawley (1981) have suggested that some features now widespread in both major subgroups of Fijian, Eastern and Western, may be the result of diffusion after the break-up of Proto-Fijian.
4. Failure to see this development led Biggs (1965) to posit Rotuman *f* as the regular reflex of PCP **nt* in initial position. The examples cited were all in fact of PCP **t*.
5. A five-vowel system, with phonemic length, is also indicated by the evidence. Its development, though not entirely straightforward, will not be discussed in detail here. A major feature of Rotuman is the lowering of final **o* and **e* to *a* (noted in Pawley 1979), under conditions yet to be determined.
6. Vowel lengthening is a common sporadic development in Proto-Fijian. Parallel to this example are **mīmī* *urinate* (< **mimi*) and **qōqō* *narrow* (< **qoqo*). PFJ **vāō* *k tree*, *Ochrosia* (< PEO **vaRo*) seems to result from avoidance of the vowel cluster **ao* (Geraghty and Pawley 1981), instead of the usual simplification. Especially common is the lengthening of pretonic **a*, as in PFJ **kānusi* *spit*, **kāvelu* *wipe anus*, **q(w)ālotu* *egg*, and **mā(cz)awa* *space between*.
7. Other examples of final long vowels shortened in PPN and Rotuman:
 **dulī* *plover*: PPN **tuli* (but SAM *tulī*), ROT *juli*
 **takū*- *back*: PPN **tak(uū)* *tortoiseshell*, ROT *faʔu*
 **vetuʔu* *star*: ROT *hefu*
 **tulū* *k small land crab*: PPN **tulu*
8. A similar assimilation has applied in nunami *k edible sea-anemone* (< **drumani*, with metathesis), and hahiʔa *Malay apple* (< **kavika*); and optionally in the loanword *saujia*, *jaujia* *soldier*.
9. PCP **v* is sporadically reflected as **b* in PFJ (or parts of Fiji), e.g.: *bā taro stem* (< **vaʔa*), *bō squeeze* (< **vō*), *buka firewood* (< **vuka*).
10. Probably also Levy's PSS **j*, which seems to me may turn out to be a conditioned reflex of **d*. Note also my suggestion (Geraghty 1983:193) that PCP **j* has a distinct cognate in PSS, because the Sandfly Passage dialect of Nggela, according to Fox (1955), often shows *s* for *d*, and the cases cited include cognates of PCP **j*, not of PCP **d* or **dr*.
11. These, however, may not be genuine retentions, but cases of intrusive glottal stop, as shown in these forms:
 **ifi* *k tree*, *Inocarpus fagiferus* > ?*ifi* (PN)
 **jamua* (*palm*) *fruit stem* > *jamuʔa*
 **mea reddish* > *mea*, *miʔa* (PN?)
 **tea white, pale* > *fea*, *feʔa*
 **tulou* *word of apology* > *turoʔu* (PN)

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