

中研院歷史語言研究所集刊論文類編

語言文字編 音韻卷 五

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ON COMPARATIVE TSOU*

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1. Introduction

The Austronesian languages in Formosa (Dyen 1963, 1969, Ferrell 1969) can be divided into three main groups. The Atayalic group in the north includes Atayal and Seediq. The Tsouic group in central Formosa includes Tsou(T), Kanakanavu (K), and Saaroa(S). The rest belong to the Paiwanic group, comprising Bunun, Rukai, Paiwan, Puyuma, Ami, Saisiyat, and all the "plains" tribe languages. Yami, spoken on the small island Botel Tobago (Lan Yü 蘭嶼) southeast of the Formosa island, is generally considered a Philippine language because of its close relationship to Ivatan, a northern Philippine language in northern Luzon.

The Proto-Formosan language (PF) as reconstructed by Ogawa and Asai (OA 1935:5-13) has nineteen consonant phonemes: p, b, m, t₁, t₂, d₁, d₂, n₁, n₂, k, ɣ, q, s, l, r₁, r₂, j(y), w, h(?); and four vowel phonemes: a, i, u, ɛ. A point of great interest to the Austronesian comparativists (cf. Dyen 1965:289) is that many Formosan languages agree in distinguishing three pairs of consonants with apical articulation, t₁ and t₂, d₁ and d₂, n₁ and n₂. For years, the Austronesian scholars had distinguished only one voiced stop pair d₁-d₂ evidenced by the other Austronesian languages (PA *Z and *D), but failed to distinguish the other two pairs. Evidence from the Formosan languages suggests that each member of the other two pairs has to be reconstructed as a Proto-Austronesian (PA) phoneme because they clearly contrast in the same environment. It has been suggested by Dyen (1965:289) that the distinction is between the

*An early version of this paper was written at the University of Hawaii in early 1969. This is a revised version incorporating data from Shigeru Tsuchida's (1971) "List of Words of Formosan Languages", a copy of which was kindly sent to me by Dr. Byron Bender. I wish to express my thanks to Professors George Grace, Fang Kuei Li, Stanley Starosta, Gary Parker, John Wolff and Shigeru Tsuchida for suggestions for improvement, although I alone am responsible for any mistakes.

dental stop and affricate for the pair $*t_1$ and $*t_2$, and between the dental and alveolar nasals for the pair $*n_1$ and $*n_2$.

One purpose of this paper is to reconstruct Proto-Tsouic (PT)¹. Our main interest is to find out the interrelationship of the three Tsouic languages and some of the specific developments in the individual languages. Since more information is available for Tsou, more can be said about the development of this particular language. In this study, we shall also trace back to PA and discuss its Formosan reflexes.

2. Historical Reconstruction

2.1 Comparative Vocabulary²

<u>Gloss</u>	<u>Tsou</u>	<u>Kanakanavu</u>	<u>Saaroa</u>	<u>Proto-Tsou</u>
and	ho	--	la	*Na
arrow ³	epacu	rupacu	ripasu	*rupaju
ashes	fu:	?a:vu	?avu?u	*?avu
bamboo shoots	--	cuvu?u	cuvu?u	*cuvu?u
banana ⁴	fuhufuhu	ta-vanuvana	ta-vuluvulu	*ta-vuNuvuNu
bark	eaptu	lapatu	--	*lapatu
bear	cmoi	cumai	cumi?i	*cumai
bee	--	a:nu	a?u?u	*aNu

1. The comparative work of this paper is based on second-hand sources: the descriptions of Tsou by Tung(1964), Kanakanavu by Yan (1964) and Sung(1966, 1969), Saaroa by Ting(1967), and the word lists for all the three languages by OA(1935 Appendix: 1-55), Ferrell(1969:75-418) and Tsuchida (1971:1-40). When there are discrepancies in the data given by the different investigators, I have made my own judgments in choosing the correct forms for comparison. In making a choice, the following factors came into consideration: (1) the linguistic background of the individual investigator, (2) the regular sound correspondences among the languages and the general development of the individual language, and (3) my personal field experience with other Formosan languages, particularly Rukai.

Many errors in the manuscripts have been corrected with the help of Tsuchida's word list. I would also like to take the opportunity to thank Ting for making his Saaroa word list available to me.

2. Since stress mostly falls on the penultimate syllable in all the Tsouic languages, it is left unmarked in the comparative vocabulary. It can be assumed that PT also had the stress in the penult position.

3. The Tsou form means to draw a bow or slingshot.

4. The Tsou form refers to wild bananas.

<u>Gloss</u>	<u>Tsou</u>	<u>Kanakanavu</u>	<u>Saaroa</u>	<u>Proto-Tsou</u>
belly	cfu?o	vucuka	civuka	*cuvuka, *vucuka
betel nut	fi?i	aviki	--	*aviki
bird	zomu	alamu ¹	ałamu	*azamu
bitter	maemu maramu	--	maramu	*maramu
blood	hmueu	nimuru?u	--	*Nimuru?u
boat	--	cara?u ?avaŋu	cara?u ?avaŋu	*cara?u *?avaŋu
bone	cuehu curxu	--	culału	*culaNu
bottle	pania	pania	pania	*pania
bow	fsueu fsuru	--	vu:ru	*vusuru
bracelet	--	pituka	pituka	*pituka
brain	punu:	--	punu?u	*punu?u
buffalo	--	kalavuŋu	kalavuŋu	*kalavuŋu
burn	--	muacunu	muacułu	*muacuNu
buy	--	pu?a	pu?a	*pu?a
cake	--	cunuku	cułuku	*cuNuku
camphor	c?osu	cakusu	--	*jakusu ²
cat	ŋiau	ŋiau	ŋiau	*ŋiau
charcoal	--	vara	vara?a	*vara
cheek	--	cimi?i	cumi?i	*cumi?i
chicken	teoua tro?ua	tariku:ka	turuku:ka	*tarukuka
chopsticks	--	aratiŋi	aratiŋi	*aratiŋi
claw	hu?o	?anuka	?ałuku	*?aNuka

1. The Kanakanavu form alamu means "meat", while those in the other two languages mean "bird". I am indebted to Shigeru Tsuchida for identifying the Kanakanavu form with this cognation.

2. The Saaroa cognate has been lost, so the other Tsouic languages provide no clue as to whether the initial is PT*c or *d. Nevertheless, the same cognate in the other Formosan languages such as Tanan Rukai Dakusu, Pazeh dakes, and Bunun dakos indicate that the initial is PF *d₂ and PA *D, so it must be PT *j. (See §2.2 and §2.3.)

<u>Gloss</u>	<u>Tsou</u>	<u>Kanakanavu</u>	<u>Saaroa</u>	<u>Proto-Tsou</u>
clothes	--	tikuru	tikuru	*tikuru
cold	soeumu sorma	--	ma-sarumu	*ma-sarumu ¹ *ma-jarumu
comb	--	siariakucu	siriakucu	*siriakucu
crab	--	?apasu	?apasu	*?apasu
dance	--	musurauvu	musuarauvu	*musurauvu
deer	--	vutunu	vutuŋu	*vutuNu
deer (pygmy)	--	tauruŋu	tauruŋu	*tauruŋu
die	mcoi	ma-macai	maci?i ma-maci	*macai
dog	--	tacau	tasau	*tajau
door	phiŋi	ta-piniŋ-a	--	*piNiŋi
dream	ce:i	--	salili	*jalili
drink	mimo	mi:ma	mima	*mima
eel	--	varuŋa	varuŋa	*varuŋa
egg	fcueu fcuru	?icu:ru	--	*?icuru *vicuru
eight	voeu	a:lu	ku-alu	*walu
evening	eofna	ruvana	ruvana	*ruvana
eye	--	vuaini	vulaiŋi	*vulaiNi
far	covihi	ara-caini	ma-saiŋa	*ma-jawiNi
fat/pork	simeo simro	--	?imaru	*simaru
father	amo	--	ama?a	*ama
feather	eopuŋu ropuŋu	?a:puŋu	?alapuŋu	*?alapuŋu
field (wet rice)	chana	cana:	--	*caNana
field (swidden)	--	?u:ma	umu:ma	*?uma

1. A prefix (or suffix) is set apart from its stem by a hyphen, while an infix is indicated by slashes.

<u>Gloss</u>	<u>Tsou</u>	<u>Kanakanavu</u>	<u>Saaroa</u>	<u>Proto-Tsou</u>
fire	puzu	apulu	apuʔu	*apuzu
fish	--	vutukulu	vutukuʔu	*vutukuzu
five	eimo	li:ma	ku-lima	*lima ¹
flea	timeo	?atimua	?atimula	*?atimula
flesh	--	tina?anu	tiʔa?aiʔu	*tiNa?aNu
foot	caphu	--	sapaʔu	*japaNu
forehead	--	taucu?u	taucu?u	*taucu?u
four	suptu	su:pata	pa:tʔu	*supatu
foxtail	piho	pi:ni	piʔi?i	*piNi
fruit	--	macu?u	masu?u	*maju?u
go	--	muaca	muasa:la	*muajala
gourd	tofu	tavu	tavu?u	*tavu
grandchild	--	na:mu	ʔamu	*Namu
grandfather	--	ta:mu	ta:mu/tamu?u	*tamu
gun	--	nantu	ʔaʔitu	*NaNitu
hair(head)	fʔusu	vukusu	vuku:	*vukusu
hair(body)	--	kunucu	?ukuʔucu	*kuNucu
hand	emucu/mucu	ramucu	ramucu	*ramucu
hat	ceopuŋu	carapuŋu	sarapuŋu	*jarapuŋu
head	fŋu:	na-vuŋu	vuŋu?u	*vuŋu
hear	--	t/um/a-timana	t/um/a-timaʔa	*t/um/a-timaNa
heart (organ)	tʔuhu	tukunu	--	*tukuNu

1. Like many other Formosan languages, the Tsouic languages have three different forms for each numeral with different uses: cardinal, things and people. In this comparative vocabulary, we shall list only the cardinal form for each numeral. In Saaroa the numerals from five to ten have the prefix ku- (ku- in ku-numa "nine" due to the vowel assimilation).

Gloss	Tsou	Kanakanavu	Saaroa	Proto-Tsou
heavy	ecvuh _u recvuh _u	ma-icu:nu	ma-li:su _u	*ma-lijuwəN _u
hemp fibre	ŋei ŋri:	ŋi:ri	--	*ŋiri
high	--	ma-ləŋucai	laŋuca	*ma-ləŋucai
hoe	taimau	talimau	talimau	*talimau
hot	--	ma-cici	ma-cici	*ma-cici
how much	pio /pizo	u-pia-ini	u-pia-ini	*pia
I	naʔo /aʔo	i:ku /-ku	iʔaku /-aku	*aku
intestine	sru:	si:u	iluʔu	*silu
iron	--	numanu	ɬumanu	*Numanu
kill	o-pco ₁	pai-pacai mia-pacai	pa-paci pa-papaci	*pa-pacai
know	bochio	--	macaʔia	*macaNia
language	--	ka:ri	kari	*kari
laugh	cocvo	ma:-caca	ma-ca:ca:	*ma-cacawa
leaf	ehəŋu	ranəŋu	raʔəŋu	*raNəŋu
left	vei-na vri-na	i:ri	iri	*wiri
leopard	euʔho rʔuxo	ukunau ukunu	lukuɬu	*lukuNau ¹
lightning	--	ʔa:palatu	ʔa:palata	*ʔapalatu
lime	hapueu	ʔapuru	ʔapuru:ɬu	*ʔapuru
louse (head)	ʔcu:	ku:cu	kucuʔu	*kucu
louse (body)	--	caracu	caracu	*caracu
mat	--	sikamu	sikamu	*sikamu
mirror	--	aniŋu	aʔiŋu	*aNiŋu
money/ silver	--	vanituku	vaʔituku	*vaNituku
moon	feohu	vuana	vulaɬu	*vulaN _u

1. Cf. Paiwan and Puyuma rikulau, Rukai (Tanan and Budai) Likulau, where the first vowel is i. There may have been an assimilation of *i to *u in pre-Tsouic.

<u>Gloss</u>	<u>Tsou</u>	<u>Kanakanavu</u>	<u>Saaroa</u>	<u>Proto-Tsou</u>
mortar	suhŋu	--	ɬu:ŋu	*suNuŋu
mother	ino	c-i:na	inaʔa ina	*ina
navel	--	puɬuku	puɬuku	*puʔuku
near	--	ara-cani	ma-sali	*ma-jaNi
necklace	suku:	sinuʔu	iɬuʔu	*siNuʔu
new	faeva	vaʔurua vu:rua	varuʔa varuʔu	*varuwa *vaʔuru
night	feŋna fruŋna	vu:rua vu:ruana	vu:ruana	*vu:ruana
nine	sio	si:a	ku-sia	*sia
one	coni	ca:ni	ca:ni	*cani
onion	--	aumaŋ	aumaŋ	*aumaŋ
orange	fuvʔo	vuaʔu	--	*vuwaʔu *vuwaʔu
paper	--	sunatu	sulatu	*suNatu
person	cou	ca:u	--	*cau
pestle	pŋei pŋiri	--	paŋiri	*paŋiri
pig(wild)	fuzu	vavulu	--	*vavuzu
pigeon	--	tavaru	tavaru	*tavaru
pine tree	seoŋu	aloŋu	aloŋu	*saluŋu
plant (poisonous)	--	tuncu	tuɬucu	*tuNucu
pus	fuʔu	vu:ku	vu:kuʔu	*vu:ku
rabbit	--	lituka	lituka	*lituka
rain	c/um/oeh mucha	ʔucanu	usaɬu	*ʔujaNu
rainbow	--	varanuvana	varaɬuvaɬu	*varaNuvaNu
rice (husked)	fuesu fursu	--	uvurau	*vurasu
rice (cooked)	na-veu na-vru	u:ru	ʔu:ru	*wuru
right	vhona	ananu	aɬanu	*waNanu
river	cʔoeha	cakurana	sakuraɬu	*jakuraNu
road	ceonu	ca:nu	salaʔa	*jalanu

<u>Gloss</u>	<u>Tsou</u>	<u>Kanakanavu</u>	<u>Saaroa</u>	<u>Proto-Tsou</u>
rock	fatu	va:tu	vatu?u	*vatu
root	emisi rmisi	ramisi	rami:	*ramisi
rope	te:si tresi	talisi	tali: ¹	*talisi
rotten	cmo?u	--	cumaku	*cumaku
sacred place	--	cakuaru	cakuaru	*cakuaru
saliva	ŋeoi	ŋa:i	ŋali?i	*ŋalai
sand	fueufu?u fuefu?u	lavuku	lavuku	*lavuku
sea	--	tunumu	tunumu	*tunumu
seed	tutu	--	tutu:	*tutu
seven	pitu	pi:tu	ku-pitu	*pitu
sharp	--	ta-varuvaru	ma-varuvaru	*ma-varuvaru
shoot	pono, (pna:)	mua-pana-u panantu	ua-pana pa:laʔitu	*pana *paNaNitu
sibling (older) sing	ohaeva oxarva --	-- cani	aʔaʔua saʔi	*aNaluwa *jaNi
sit	--	tuapuru	tuapuru	*tuapuru
six	nomu	nu:mu	ku-numu	*numu
sky	eŋuca ŋuca	ka:ŋuca	laŋica	*laŋuca
snake	fkoi	vunai	vuʔi?i	*vuNai
sneeze	pasuŋi	--	ma:uŋu	*masuŋu, *pasuŋu
snow	euho	urana	uruʔa	*uruNa, *uruNa
soul	hicu	--	iʔicu	*iNicu
star	coneoha	--	acaŋalaʔa	*acaŋalaNa
stone	skuzu	sanulu	ʔaʔulu	*saNuzu
straight	sŋucu suŋcu	--	mauŋucu	*ma-suŋucu
sugar cane	tufusu	--	tuvusu	*tuvusu

1. The Saaroa form refers to an ornament on a woman's forehead.

<u>Gloss</u>	<u>Tsou</u>	<u>Kanakanavu</u>	<u>Saaroa</u>	<u>Proto-Tsou</u>
sun	hie	taniaru	taɬiaria	*taNiaru
swim	--	makanaju	makaɬaju	*makaNaɬu
tail	civ(i)ci	ici:ci	isi:si	*ijiwiiji
take	maeo	uma:la	uma:la	*u-mala
ten	--	ma:nu	ku-maɬu	*maNu
thick	--	makicimuru	makisumuru	*ma-kijumuru
thin	xipsi	ma-nipi	ma-ɬipi:	*ma-Nipisi
thorn	cumu	--	ta:sumu	*tajumu
thou	su: na-su	i:ka-su	iɬa-u	*kasu
three	tueu	tu:lu	tu:lu	*tulu
throw	--	matupunu	mata:punu	*matapunu
thunder	--	sululuɲa	sululuɲa	*sululuɲa
tongue	--	?avasɯ	?avasɯ	*?avasɯ
tooth/fang	hisi	anisi	aɬi:	*aNisi
turn around	--	takusu:lu	takuasu:lu	*takuasulu
two	euso	cu:sa	su:a	*jusa
urine	sifu	i:vu	ivu	*sivu
vein	veocu	uracu	?uracu	*?uracu
village	hosa	ta-nasɯ	ta-ɬa:	*ta-Nasɯ
vomit	teavto	--	ta:ruta	*tarawuta
walk	travto coicoinu	mua-ca:ca	mua-sa:sala	*mua-jajala
wash (limbs)	co:co:nu emucu	ma-ramucu	ma-ra-ramucu	*ma-ramucu
water	chumu	canumu	saɬumu	*jaNumu
we (exc.)	a-?mi	i-kimi	--	*kimi
we (inc.)	na-?mi a-?to	i:-kimi i-kita	iɬa-ta	*kita
weave	na?-to --	i-ki:ta t/um/a-tinunu	t/um/a-tinu:n	*t/um/inunu
weep	--	t/um/a-taɲi	t/um/a-taɲi: t/um/aɲi:	*t/um/aɲi

<u>Gloss</u>	<u>Tsou</u>	<u>Kanakanavu</u>	<u>Saaroa</u>	<u>Proto-Tsou</u>
white	--	ta-pu:ni-a	ma-puɬi	*ma-puNi
wind	poepe	paraipara	--	*paraipara
wing	pvoʔo	pa:ku	puaku	*pawaku
worm/insect	eoi roi	kulai	kuliʔi	*kulai
ye	mu: na-mu	i:ka-mu	iɬa-mu	*kamu
year	--	cainana	caiɬa	*caiNa
yellow	hofʔoea xofʔora	ta-navikaru	--	*ma-Navikaru

2.2 Sound Correspondences

In the sound correspondences listed below, the PA phonemes follow Dyen (1965, 1969b), the PF phonemes follow OA(1935:5-13), and the PT phonemes are reconstructed as based on the comparative vocabulary listed above.

<u>PA</u>	<u>PF</u>	<u>PT</u>	<u>T</u>	<u>K</u>	<u>S</u>	<u>Examples</u>
*p	*p	*p	p	p	p	feather, fire, how much, kill, seven, shoot
*t	*t ₁	*t	t	t	t	flea, four, seven, stone, three
*C	*t ₂	*c	c	c	c	bear, bone, die, hand, person, vein
*Z	*d ₁	*j	c	c	s	foot, hat, heavy, river, road, sing, tail
*D	*d ₂					
*k	*k	*k	ʔ	k	k	belly, betel-nut, claw/fingernail, hair, louse(head), river
*q	*h	*ʔ	∅	ʔ	ʔ	ashes, claw, egg, necklace
*b	*b	*v/β	f	v	v	ashes, belly, hair, head, moon, rice (husked), rock
*w	*w	*w/v	v	∅	∅	eight, far, heavy, laugh, left, orange, rice(cooked), right, sibling(older), tail
*y	*y	*y/z	z	ɭ	ɭ	bird, fire, pig(wild), stone
*S	*s	*s	s	s	∅	bow, four, hair, intestine, root, straight, tooth, two, village
*m	*m	*m	m	m	m	drink, father, five, flea
*n	*n ₁	*n	n	n	n	bathe, bottle, mother, one, six

PA	PF	PT	T	K	S	Examples
*N	*n ₂	*N	h/x ¹	n	ɿ ²	claw, leaf, moon, right, river, tooth, water
*ŋ	*ŋ	*ŋ	ŋ	ŋ	ŋ	cat, feather, hat, head, leaf, night
*j	*r ₁	*ø	ø	ø	ø	how many/much, name, rice plant
*R	*r ₂	*r	e/r ³	r	r	egg, hand, leaf, left, lime, rice (husked), river, root
*l	*l	*l	e/r ³	l	l	five, hoe, pine tree, rope, sand, take, three
			e/r ³	ø	l	bone, feather, flea, intestine, leopard, moon, road, saliva
*i	*i	*i	i	i	i	drink, five, flea, left, mother, seven
*u	*u	*u	u	u	u	claw, hair(body), hand, pig(wild), seven, stone
*e	*ẽ	*u	u	u	u	hair, pine tree, six, sugar cane, vein
*a	*a	*a	o	a	a	drink, eight, father, five, flea, mother, person
			a	a	a	bark, bottle, cat, father, lime, sky, stone

2.3 Discussion

Variants have been reconstructed for some items. Some suspicious cognates are left un-reconstructed because of the complications involved. Some of the reconstructed PT forms listed in this paper may not go back to the PA forms as reconstructed by Dempwolff or Dyen.

Based on the regular sound correspondences, the following phonemes are reconstructed for Proto-Tsou, 16 consonants: p, t, c, ɟ, k, ʔ, v/β, w/v, y/z, s, m, n, N, ŋ, l, r; 4 vowels: i, u, ʉ/ə, a.

The following regular sound correspondences present no problem in reconstructing PT phonemes:

1. The Tsou reflexes are /h/ in the Tapanu and Tfuea dialects but /x/ in the Duhtu dialect, as transcribed by Ogawa and Asai (1935:Appendix) and Tsuchida (1971).
2. The symbol /ɿ/ stands for the voiceless lateral ɿ in Saaroa.
3. Tsou reflexes are /e/ in the Tapanu and Tfuea dialects as transcribed by Tung (1964) but /r/ in the Duhtu dialect as recorded by Tung (1964) and Tsuchida (1971).

<u>PT</u>	<u>T</u>	<u>K</u>	<u>S</u>	<u>PT</u>	<u>T</u>	<u>K</u>	<u>S</u>
*p	p	p	p	*ŋ	ŋ	ŋ	ŋ
*t	t	t	t	*r	e/r	r	r
*c	c	c	c	*i	i	i	i
*k	ʔ	k	k	*u	u	u	u
*s	s	s	∅	*u	u	u	u
*m	m	m	m	*a	a	a	a
*n	n	n	n				

2.3.1 Stops and Affricates

The t-t-t correspondence contrasts with that of c-c-c in the same positions: initially, e.g. "hoe" and "one", "three" and "bear", medially, e.g. "deer" and "head louse", "rock" and "die", finally (if the final weak vowels are not treated as phonemic), e.g. "four" and "vein". As Dyen (1965:289) pointed out, the phonemic distinction should go back to PA, although it is not found in any other Austronesian languages outside Formosa. The reflex of the new phoneme in the Tsouic languages is invariably the voiceless dental affricate /c/, hence it is reconstructed as PT*c¹.

Still another set of correspondence c-c-s also contrasts with that of c-c-c in the same environments, e.g. "water" and "one", "laugh" and "walk". Now that c-c-c has been reconstructed as *c, c-c-s cannot be reconstructed as *c; nor can it be reconstructed as *s because the dental fricative has to be reserved for the correspondence s-s-∅ (see §2.3.2). What, then, is the PT form for the correspondence c-c-s? It corresponds to /d/ and /D/ in the other Formosan languages such as Rukai, Paiwan and Puyuma; that is to say, there are historically two different sources for the correspondence: PF *d₁ and *d₂, viz. PA *ʒ and *D, but merged in PT. If it is reconstructed as *d for PT, that does not explain the fact that it has been merged with the dental affricate in both Tsou and Kanakanavu; Saaroa is the only language that distinguishes the two correspondences c-c-c and c-c-s. Judging from the phonetic

1. Cf. the reflexes in the other Formosan languages are /s/ in Atayal, Saisiyat and Pazeh, /θ/ in Thao, /T/ (retroflexed dental stop) in Puyuma, also /c/ in Paiwan and Rukai. Dyen (1965) reconstructed it as PA *C.

value of the reflexes in the Tsouic group, all the three languages indicate that it is a dental, affricate in Tsou and Kanakanavu but fricative in Saaroa, and it is very close to the voiceless dental affricate. Historically it is derived from the voiced dental stop or fricative *d/Z and voiced retroflexed stop *D. It can then be inferred that the PT phoneme is probably the voiced dental affricate *j, different from *c only in voicing. The voicing quality has been lost in the modern Tsouic languages, thus *j is rendered /c/ in Tsou and Kanakanavu, with the stop quality further lost in Saaroa /s/.

As mentioned above, PT *j is derived from two different sources: PF *d₁ (PA *Z) and PF *d₂ (PA *D). For example, the items "road", "rain" and "water" are derived from PF *d₁, whereas the items "foot", "fruit", "river" and "camphor" are derived from PF *d₂. They have completely merged in the Tsouic languages, although the distinction is kept in the other Formosan languages such as Rukai. Perhaps the only trace of the distinction in the Tsouic languages is the item "two", for which we get the correspondence e/r-c-s, distinct from c-c-s. But this is only an exception that could be thrown out as a doubtful cognate. Ogawa and Asai's (1935:11) statement of the sound change PF *d₂ > Tsou j (Tapaŋ) or ɕ is based on only one example -- the exceptional case¹. It is neither theoretically sound nor systematically economical to set up a new phoneme for PT based on only one such example.

The correspondence ʔ-k-k is quite regular and can be reconstructed as PT *k, derived from PA *k. In other words, the velar stop regularly changed to the glottal stop in Tsou proper.

The correspondence ʔ-ʔ-ʔ is also fairly regular and thus reconstructed as PT *ʔ, for which Ogawa and Asai reconstructed PF *h and Dyen reconstructed PA *q.

2.3.2 Fricatives

As mentioned in the previous section, the correspondence s-s-ʔ can be reconstructed as PT *s, derived from PF *s and PA *S. The fricative is generally lost in the Saaroa language, but kept in the

1. The symbols /j/ and /ɕ/ used in Ogawa and Asai are equivalent to /e/ in Tung and /r/ in Tsuchida. Tung has /r/ for Duhtu also.

item ku-sia/u-sia/sa-sia "nine" for unknown reasons. As for the items ?apasu "crab" and ?avasü "tongue", the Saaroa forms may have been borrowed from Kanakanavu since they are identical in the two languages.

The correspondence of the labial fricatives f-v-v can be reconstructed as PT *v. Since it is derived from the voiced bilabial stop PA *b, that would mean the change of two features [continuant] and [strident] from PA to PT, and Tsou proper involves the further change of still another feature [voice]. An alternative reconstruction for the correspondence would be PT *β. There are three justifications for this alternative: (1) The change *b > *β involves only a single feature [continuant] and thus it is simpler. (2) The phoneme /v/ in Kanakanavu and Saaroa has the variant [β] preceding the round vowel /u/ and in the final position (Yan 1964:137), and in fact it has a strong "bilabial colouring" in the other positions (Ting 1967:919)¹. (3) There is another correspondence v-ø-ø which can be reconstructed as PT *v only if the correspondence f-v-v is not also reconstructed as PT *v. The two sets of correspondence contrast in items such as "rock" and "eight" in the initial position and "evening" and "orange" in the medial position. Perhaps it could be claimed that a disadvantage of reconstructing *β is that it is not a very common sound. But it is found in some Austronesian languages such as Fijian. If the second alternative reconstruction is accepted, then the evolution of Tsou proper has involved a reasonable series of sound changes: *b > *β > *v > f.

As stated in the preceding paragraph, the correspondence v-ø-ø can only be reconstructed as PT *v provided that the correspondence f-v-v is not reconstructed as PT *v, or else the former will have to be reconstructed as PT *w, which is also derived from PA and PF *w. Now that the PT phoneme has been lost in two languages and kept as /v/ only in Tsou proper, it would seem a little far-fetched³ to reconstruct it as PT *w, exactly identical with PA and PF². An-

1. Cf. the phonetic symbol b was originally used in Tsuchida's field notes transcribing Saaroa (see Ferrell 1969:83-400), but later he changed it to v in his wordlist (Tsuchida 1971).

2. Cf. the parallel sound change from PA *w to Rukai v, e.g. *walu > valu "eight", *waRih > vai "sun, day", *wanaN > vanal "right", *wiRih > viri "left".

3. But note Tsou may have w~v and y~z alternations.. (See §2.4.1).

other defect of reconstructing PT *w would be the lack of symmetry if there was not also a PT *y, and the latter involves the reconstruction of the correspondence z-l-l̥.

The correspondence z-l-l̥ is derived from PA and PF semivowel *y¹. However, to reconstruct it as PT *y would ignore the phonetic features as reflected in the modern Tsouic languages. The proto-phoneme has three different reflexes in the three languages: the voiced fricative /z/ in Tsou, the voiced lateral in Kanakanavu, and the voiceless lateral /l̥/ in Saaroa. It cannot be reconstructed as *l because the lateral is for the correspondence e-l-l̥ (see §2.3.3). Neither can it be appropriately reconstructed as *l̥ since the voiceless lateral is an uncommon speech sound. The only alternative, then, is to reconstruct it as PT *z.

As a summary, there are two alternatives for the reconstruction of the three correspondences:

<u>PT</u>	<u>T</u>	<u>K</u>	<u>S</u>
*v/β	f	v	v
*w/v	v	∅	∅
*y/z	z	l	l̥

Either of the alternatives is equally reasonable. The phonetic value of a proto-phoneme is indeterminable. As long as the reconstructed sound system looks like that of a real language, we would have to be contented with that. The main purpose of the reconstruction is to identify the sound correspondences and determine the internal relationships of the genetically related languages.

2.3.3 Liquids

PF *r₁ is completely lost in PT, and there is no trace in any of the modern Tsouic languages². PF *r₂, viz. PA *R, comes down.

1. OA's symbol for the palatal semivowel is /j/.

2. The j-j-j̥ (glide) correspondence is observed in the items "how much" and "rice plant" if based on the data given by Ogawa and Asai (1935). However, their transcription is not phonemic. The glide [j̥] is phonetically predictable, hence it is treated as non-phonemic in the Tsouic languages by all the other investigators (Tung, Yan =Sung, Ting and Tsuchida).