The position of Kanakanavu and Saaroa within the Formosan languages revisited[1]

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Abstract

Ross (2009) suggests that PAn includes four primary offshoots: Puyuma, Tsou, Rukai, and all the other Austronesian languages falling into a single subgroup. This subgroup, called Proto-Nuclear Austronesian, is identified on the basis of the "nominalization-to-verb" innovation, whereby second generation suffixes PAn *-en, *<in>, *-an, *Sa-/*Si- which were only used in forming nominalization in PAn were expanded to encode verbal usage in PNAn (Ross 2009:304-306). According to him, Kanakanavu and Saaroa are both subgrouped under PNAn. His analysis implies that in these two languages, the use of PAn *<in>, *-en, *-an, *Sa-/*Si- has expanded to verbs.

The aim of this paper is to show that in Kanakanavu and Saaroa, earlier voice forms that were identified as UVL (Kan *ni-…-a*(*n*)/*<in>…-a*(*n*), *…-a*(*n*), Sar *lhi-…a*(*na*)) and UVC (Kan/Sar *si-*) are actually nominalized forms. In other words, Kanakanavu and Saaroa have only partially reanalyzed second generation suffixes, i.e.: while the reflex of *-en was reanalyzed as a verbal marker in Kanakanavu (encoding UV), the reflex of *<in> appears in verbal and nominal constructions in both Kanakanavu and Saaroa; on the other hand, reflexes of *-an, *Si- are still (and only) used as nominalizers and were never reinterpreted as verbal affixes.

This leads us to place Kanakanavu and Saaroa higher up in the subgrouping tree proposed by Ross (2009) and thus propose a new hypothesis for the higher phylogeny of the Austronesian languages. We admit that what is unsolved at this point is the relation between Tsou, Kanakanavu and Saaroa, but this new subgrouping hypotheses may help us re-consider their relationships in a near future.

Keywords: Kanakanavu, Saaroa, Tsouic, Proto-Austronesian, Proto Nuclear Austronesian, Phylogeny

1. Introduction

In the following sections, we introduce the geographical distribution of Kanakanavu, Saaroa and Tsou (§1.1), review previous studies on the so-called "Tsouic" subgroup (§§1.2-1.3),[2] and present the goals of the present paper (§1.4).

[1] The present paper provides preliminary results on a three-year (2013-2015) Thematic Project entitled "The internal relationships of "Tsouic" revisited" headed by Elizabeth Zeitoun, Stacy F. Teng and Hsiu-chuan Liao and sponsored by Academia Sinica (AS-102-TP-C05). Fieldwork was carried out between 26 January-7 February 2013, 8-18 March 2013, 3-15 December 2013, 5-14 and 27-31 March 2014 on Kanakanavu and on 19-20 April 2014 on Saaroa. We are grateful to our Kanakanavu and Saaroa language consultants, Kun Wong 翁坤 (born in 1933), Hsiu-hsiang Fan Wong 翁范秀香 (born in 1933), Feng-chiao Lan Hsieh 謝藍鳳嬌 (born in 1949) and Jen-kuei You 游仁貴 (born in 1948). We wish to thank the assistants working under this project, Hsuan-ru Chen 陳宣如, Yi-yi Hsieh 謝依伊 and Yi-juan Jiang 姜懿娟 for their help. We are also grateful to Rik De Busser, Raleigh Ferrell, Hsiu-chuan Liao 廖秀娟, Amy P. Lee 李佩容, Laurent Sagart, Maya Y. Yeh 葉郁婷 for comments and discussion. Special thanks are due to Wei-chen Huang 黃維晨 for his very careful reading and many criticisms of an earlier version of this article. None is responsible for our reinterpretation of the data and for any remaining errors and omissions.

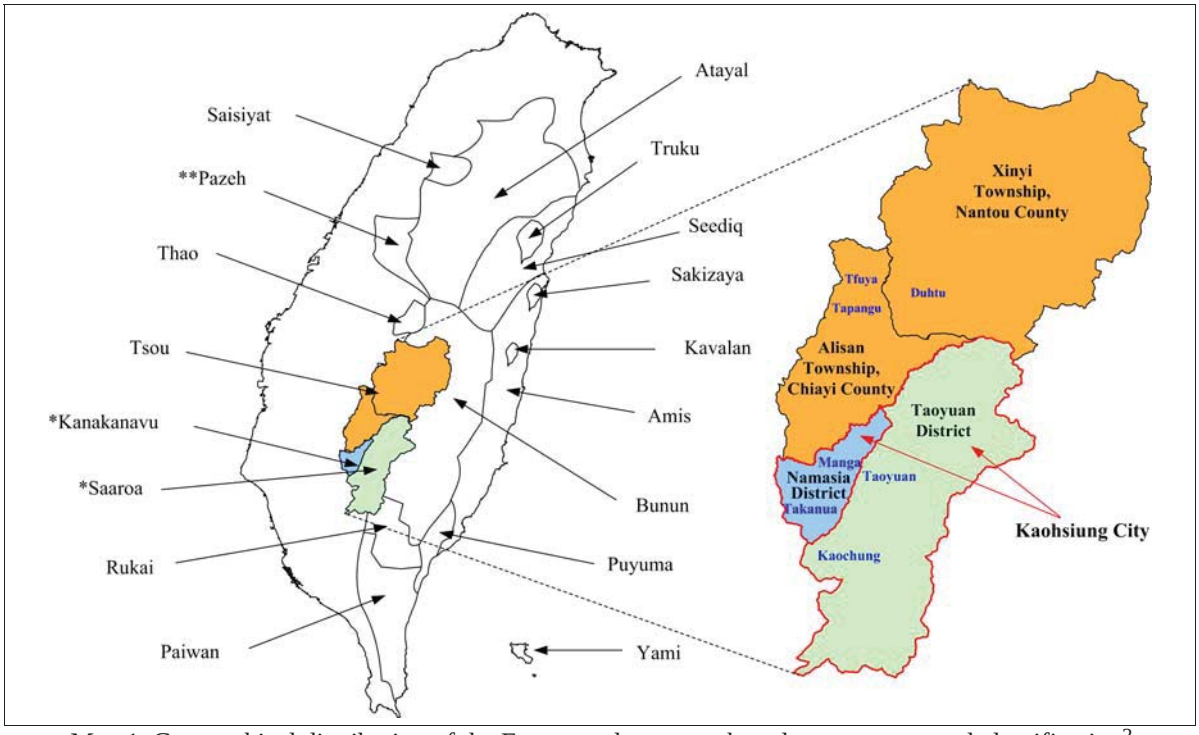
[2] Questions regarding the "Tsouic" subgroup are complex enough we need to make a careful review of previous studies (both phonological and morphosyntactic) before we expose our own point of view.

1.1. Geographical distribution

Tsou, Kanakanavu and Saaroa are part of the fourteen extant Formosan languages (see Map 1). To date, Kanakanavu and Saaroa have not been officially recognized as distinct languages and are subsumed under "Tsou(ic)" though they might gain recognition as the 15th and 16th languages/ethnic groups of Taiwan later this year. The present section provides a brief overview of the geographical distribution of these three languages/ethnic groups.

Tsou is spoken by around 4000 people living in Mt Ali, in the southwest of Taiwan. According to Tung et al. (1964), it consists of four dialects, Tapangu /tapaŋu/, Tfuya /tfuya/, Duhtu /ɗuhtu/ and Iimucu /imucu/, the last of which is now extinct. The Tapangu and the Tfuya dialects are spoken in some scattered villages in Mt Ali Township, Chia-yi County. The Duhtu dialect is spoken in only one village, located in Hsin-yi Township (Nantou County) in Central Taiwan but is now on the verge of extinction, because the village where it is spoken has gradually become a Bunun habitat (Tsuchida 1976 and 1995). These three dialects exhibit only a few lexical and phonological variations, no significant grammatical divergences having ever been reported (see Tung et al. 1964, P. Li 1972 and Tsuchida 1995).

Saaroa and Kanakanavu both have about 250 to 400 members who live in southern Taiwan, in the northeastern corner of Kaohsiung City. The Saaroa reside principally in the Taoyuan and Kaochung villages, Taoyuan District, Kaohsiung City (formerly Taoyuan Township, Kaohsiung County). The Kanakanavu live in the Manga and Takanua villages of Namasia District, Kaohsiung City (formerly Sanmin Township, Kaohsiung County).



Map 1. Geographical distribution of the Formosan languages based on governmental classification[3]

[3] The linguistic situation regarding the Formosan languages is a bit complex. Until the late 1990's, the government officially recognized only nine tribes (Atayal, Saisiyat, Bunun, Tsou, Rukai, Paiwan, Puyuma, Amis and Yami). Nowadays, 14 ethnic groups/languages are officially recognized (Atayal, Saisiyat, Thao, Bunun, Tsou, Rukai, Paiwan, Puyuma, Amis, Yami, Kavalan, Truku, Seediq and Sakizaya), leaving out Kanakanavu, Saaroa (both subsumed under Tsou and preceded by an asterisk in Map 1) and Pazeh (preceded by two asterisks) while singling out dialects of a particular family, viz. Truku is part of Seediq and Sakizaya is a dialect of Amis. Pazeh can be considered as an extinct language since it lost its last speaker in Oct. 2010, but it is still under question at this time whether speakers of Kaxabu (a dialect of Pazeh) still speak their language fluenty today (i.e. not through language acquisition but rather as a mother tongue).

1.2. "Tsouic": attempt at a definition

Tsou, Kanakanavu and Saaroa form small communalects among the Formosan languages, both in terms of population and geographical diffusion of the languages but they differ from other Formosan languages by their overall *linguistic* and *cultural* complexity. Ferrell (1969:36) notes: "[M]any features shared by the three Tsouic groups set them apart from all other Taiwan groups." Many things remain unclear: the linguistic and cultural relationships of these three ethnic groups, their migration and history.

To our knowledge, the term "Tsouic" was first used by Dyen (1965)[4] and rendered conventional by Ferrell (1969) though it seems that Tsou, Kanakanavu and Saaroa had already been recognized as a linguistic group by Ogawa & Asai (1935).[5] Though it has been demonstrated on the phonological and lexical level that Tsou, Kanakanavu and Saaroa form a subgroup, linguistic variations between these three languages have been known for years. Ferrell (1969:68) notes that "although the Saaroa are culturally Tsouic, their vocabulary resemblances to Siraya and Rukai are so numerous that one may wonder whether Saaroa is indeed a Tsouic language with extensive influences from neighboring Paiwanic[6] languages, or whether it may in fact be a Paiwanic language with heavy Tsouic overlay". It has been also acknowledged very early that structural complexities observed in Tsou are not found in Kanakanavu or in Saaroa (Ferrell 1972). To date, however, there are no in-depth linguistic studies that would allow us to reassess the validity of the Tsouic group. Such studies were already seen as necessary by Ferrell back in 1969: "It is obvious that these questions [related to the relationships between Tsou, Kanakanavu and Saaroa], as well as the problem of interrelationships with the Paiwanic languages, cannot be decided until structure and phonological studies in depth are completed." (Ferrell 1969:68)

The history of the Tsou, Kanakanavu and Saaroa remains also mysterious. P. Li (1995:6) notes that it is impossible to retrace the migration and the history of the Tsou, Saaroa and Kanakanavu. What can be ascertained is that their respective territories and population have drastically reduced in the past three hundred years for two reasons: (i) emigration and incursion from other tribes, most notably the Bunun from the East, the Chinese from the West and the Taivoan from the South; (ii) epidemic diseases from the plains that devastated the population. According to P. Li (1995), the homeland of the Tsouic people should be somewhere in Mt Ali, since the geographical distribution of Tsou, Kanakanavu and Saaroa is located around three rivers in the west, south and east of Mt Ali.

1.3. Linguistic assessment

The position of the Tsouic group among the Formosan languages remains rather unclear. Ferrell (1969) classifies the Formosan languages into three main groups: Atayalic (Atayal and Seediq), Tsouic (Tsou, Kanakanavu and Saaroa) and Paiwanic (all the remaining Formosan languages). P. Li (1972) provides a rather extensive lexical comparison of Tsou, Saaroa and Kanakanavu and reconstructs Proto-Tsouic (PT) phonemes and lexemes. Based on common phonological innovations and the degree of lexical cognacity, he posits that Saaroa and Kanakanavu are genetically closer to each other than they are to Tsou. Tsuchida (1976) argues that Tsouic is more closely related to Rukai and that they form an independent Rukai-Tsouic group. Ho (1983) and P. Li (1990) rejected such a subgroup and posited that Rukai is more closely related to Paiwan. Such divergent conclusions are partly due to the different comparative data used by these scholars: Tsuchida's (1976) analysis is based on a lexical comparison between Tsou and the geographically contiguous Rukai dialects belonging to the "Three-Lower Villages" (Maga, Mantauran and Tona), whereas Ho's (1983)

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4 In his (1965) article, Dyen argues that "[…] the Tsouic group (Tsou, Saaroa, Kanabu) of Formosa […] like the Atayalic groups, appears (by hand calculation) to show low critical percentages with the other Formosan languages and so can be expected to show no higher percentages with other Austronesian languages." (p. 56)

5 Dyen (1963:263) argues that Kanakanavu and Saaroa should not be regarded as dialects of Tsou, as asserted by Ogawa & Asai (1935:3f). Rather, "it appears more likely that their relation is that of closely related languages than of dialects of the same language". Also, he suggests that "whether they form a group or not, the […] comparisons [he gives] suggest a connection between the three languages." (p. 266)

6 Ferrell (1969) proposed that Paiwanic be split into two groups, Paiwanic I (Rukai, Pazeh, Saisiyat, Thao, Puyuma, and Paiwan) and Paiwanic II (Bunun, Siraya, Amis, Kavalan, and Yami). Ferrell (p.c) subsequently realized that his catch-all 'Paiwanic' category, which included all Formosan languages except Atayalic and Tsouic, was not a valid subgroup.

conclusions are founded on a lexical comparison between Tsou and Budai, a Rukai dialect geographically closer to Paiwan. Other hypotheses have, since then, been advanced, where Tsouic is treated as either a primary branch (Blust 1999) or a secondary offshoot (Starosta 2009[1995]) of Proto-Austronesian. More recently, Chang (2006) has reassessed the Tsouic Subgroup Hypothesis and concluded, based on syntactic evidence, that Tsou does not subgroup with Saaroa and Kanakanavu since many syntactic features are not found in Saaroa and Kanakanavu. His paper is flawed with methodological problems but really poses the question whether or not Tsou, Saaroa and Kanakanavu form a subgroup. Ross (2009, 2012) also suggests that the "Tsouic" group does not exist and hypothesize, based on the reassessment of the reconstruction of PAn verbal morphology, that Proto-Austronesian divides into four primary subgroups: Puyuma, Tsou, Rukai and Proto-Nuclear Austronesian (the rest of the Austronesian languages, including Kanakanavu and Saaroa). Sagart (To appear), on the other hand, argues for a Tsouic subgroup.

In the following sections, we will review these hypotheses in more detail.

1.3.1 Tsouic as a subgroup

We provide below a brief summary of the arguments advanced by Ferrell (1969), P. Li (1972), Tsuchida (1976) and Sagart (To appear) who believe that Tsou, Kanakanavu and Saaroa should be subgrouped together.

Ferrell's (1969) study consists of a brief introduction on the cultural and linguistic traits of the Formosan languages with a list of classified vocabulary. He assumes, based on Dyen (1965), that Tsou, Kanakanavu and Saaroa form a distinctive subgroup called "Tsouic". He is fully aware of the linguistic problems that such a hypothesis infer and in many places makes reference to the fact that:

(i) extensive borrowing must have taken place between Saaroa, Siraya and Rukai: "Saaroa is lexically as near to the (Paiwanic) Siraya as to Tsou, although the known close contacts between Saaroa, Siraya and Rukai make it most likely that extensive vocabulary resemblances with these languages are due to borrowing by Saaroa rather than indicated that Tsouic and Paiwanic languages are directly linked genetically." (Ferrell 1969:39)

(ii) Tsou is structurally more divergent than Kanakanavu and Saaroa are to each other: "Grammatically, lexically and phonologically, Tsou is by far the most aberrant of all Formosan languages, leading us to suspect that its separation from the ancestors of the other Formosan languages was at a very remote period indeed […] Tsou linguistic peculiarities are shared […] to a limited extent by Kanakana[v]u and Saaroa." (Ferrell 1969:ibid).

Li's (1972) study includes a list of two hundred basic words (i.e. Swadesh wordlist) with the reconstruction of each lexeme in Proto-Tsouic (PT), which is taken as a basis for his reconstruction of the following PT phonemes:

(i) 17~20 consonants: *p, *t, *c, *j, *k, *ʔ, *v/β, *w/v, *y/z, *s, *m, *n, *N, *ŋ, *Ø, *r, *l.

(ii) 4 vowels: *i, *u, *ʉ, *a

In the so-called Tsouic group, P. Li (1972:336) suggests to further group Kanakanavu and Saaroa together since they share more common innovations (six in all – represented in grey in Table 1 below) than with Tsou. Kanakanavu and Tsou are said to only share two innovations (see #3. and #6.) while Saaroa and Tsou share no innovation at all.

Table 1. Shared innovations in the Tsouic group

PT	Kan	Sar	Tsou
1. *v/ß	v	v	f
2. *w/v	Ø	Ø	v
3. *ɨ	c	s	c
4. *k	k	k	ʔ
5. *ʔ	ʔ	ʔ	Ø
6. *s	s	Ø	s
7. *r	r	r	r
8. *l	l	l	r
9. *a	a	a	o

Tsuchida (1976:1-10) holds the assumption, based on earlier literature review that Tsou, Kanakanavu and Saaroa form a distinctive subgroup called "Tsouic" and notes that Kanakanavu and Saaroa are more closely related to each other and form the "Southern Tsouic" subgroup. This claim, which has been made earlier, is corroborated by his reconstructions. Tsuchida (1976:17-18) is quite

critical of Li's (1972) reconstruction. He considers that Li's treatment of Tsou vowel reflexes is inadequate, that he has failed to recognize cognate sets, and that he has disregarded crucial differences between sets of correspondences, thus leading to erroneous conclusions. Tsuchida points out, for instance, that P. Li (1972) reconstructs PT *s as the reflex of both PAn *S and *s while these two phonemes are reflected differently in Kanakanavu PAn *S > Kan *s* and PAn *s > Kan *Ø*. Tsuchida's (1976) study goes far beyond P. Li (1972) as far as the synchronic data and the historical analysis is concerned. He (Tsuchida 1976:206ff) proposes the reconstruction of many more Proto-Tsouic (PT) phonemes than P. Li (1972). They include:

(i) 5 vowels: *a, *i, *u, *ə, *ã (final position only)

(ii) 30 consonants:[7] *p, *t, *c, *c_1, *k, *k_1, *K, *č, *v, *z (medial position only), *ž, *m, *n, *ñ, *ŋ, *ɬ, *l, *l_1, *r, *ř, *~~h~~, *s, *θ, *S, *ʔ$_1$, *ʔ$_2$, *ʔ$_3$, *ʔ$_4$, *y (final position only), *w.

While P. Li (1972) points out shared innovations between Kanakanavu and Saaroa, Tsuchida (1976:294) is interested in the fact that Kanakanavu and Saaroa exclusively share 6 mergers, in contrast to Tsou:

(1) Shared mergers in Kanakanavu and Saaroa

	PT	Kan	Sar	Tsou
1.	*c_1	c	c	t
	*c			c
2.	*č	c	s	c
	* ř			r
3.	*z	l	ɬ	Ø
	*ž			z
4.	*k	k	k	ʔ
	*K			k
5.	*s	Ø	Ø	s
	*w			v
6.	*a	a	a	o
	*ã			a

Tsou shares only one merger with Kanakanavu (2) and with Saaroa (3). Note that in the latter case, the merger consists of two phonemes which have undergone conditioned split under the same (kind of) environment:

[7] Diphtongs are also reconstructed, which will not be further discussed here.

(2) Shared merger in Tsou and Kanakanavu

PT	Tsou	Kan	Sar
*θ			s
	s	s	
*S			Ø

(3) Shared merger in Tsou and Saaroa

PT	Tsou	Sar	Kan
*ñ			ŋ
	n/_#	n/_#	
*ɬ	h elsewhere	ɬ elsewhere	n
	(where h → k /_s)		

Tsuchida (1976) also notes that:

(i) Nearly all syllables/words in Tsou, Kanakanavu and Saaroa end with an echo vowel (pp. 208-209). The structure of PT syllable is reconstructed as: *(C)V. The quality of the echo vowel depends on the preceding vowel and/or consonant. It is *i if the preceding vowel was *i, or if the final consonant was *y following *a or *e. It is *u if the preceding vowel was *u, or if the final consonant was *w following *a. It is *e if the preceding vowel was *e, or if it was *a when not followed by final *~~h~~. It is *a if the preceding vowel was *a followed by final *~~h~~.

(ii) Only Kanakanavu has a distinctive stress (pp. 210-211). The reconstruction of PT stress depends on the consistency between Tsou and Kanakanavu. If stress falls in the same position in Kanakanavu and Tsou, then it needs to be reconstructed as penultimate. When it does not fall in the same position, PT stress is reconstructed on the penultimate and on the last syllable "under the hypothesis that the difference of position was dialectally distributed or is due to an analogical change" (Tsuchida 1976:210).

(iii) The PT morpheme structure is reconstructed as *(C)V(C)v(C)V(C)v (where v = echo vowel) (pp. 211-212).

Ross (2012:1303ff) comments in detail the innovations that are taken by Tsuchida (1976) as being evidence for Tsouic:[8] 1. sibilant dissimilation, 2. paragogic vowels, 3. PAn *-an as PT *-a, 4. the PAn merger *C and *d as PT *c, 5. the merger of PAn *Z, *D_3, *D_2, *D_4 (and *C) as PT *c, 6. PAn *Z, *D_3, *D_2, *D_4 as Saaroa *c*, 7. PAn *k_2 and *g as PT *K, 8. PAn *R and *r as PT *r, 9. PAn *θ, *$θ_1$, *S_6 as PT *θ and 10. the loss of *x_1. He argues that "[a]n innovation has evidentiary value if it is reasonably certain (a) that it has not occurred independently in the different members of the subgroup and (b) that it has not copied across language boundaries." (ibid:1258) He concludes that: 1. innovations 1-3 show no inheritance from a putative Proto-Tsouic subgroup and thus fail the 'no-copying' condition, 2. Tsuchida's (1976) *d (innovation 4) and S_6 (innovation 9) did not occur, 3. innovations 5, 8, 10 could be interpreted as parallel development among the Tsouic languages and thus fail to satisfy the 'no independent innovation' condition, and 4. Saaroa *c* as a reflex of PAn *Z, *D_3, *D_2, *D_4 is not viable.

Sagart (To appear), responding to Ross (2012), argues that the Tsouic languages exclusively share at least one sporadic change and one irregular sound change. The first consists in the metathesis of PAn *pataS 'tattoo, write' as PT *tapaSə, reflected as Kanakanavu *tapásə*, Saaroa *taa-tapa-a*, Tsou *ta-tpos-a* 'pattern, design'. The second involves an irregular sound change, i.e. the split of PAn *C into PT *t and *C, cf. PAn *Caqi 'excrement' > PT *táʔ$_3$i (reflected as Kanakanavu *táaʔi*, Saaroa *tiiʔi*, Tsou *tʔee* 'excrement').

The foregoing discussion shows that:

(i) no exclusively shared phonological innovation has been convincingly found among the three languages that would characterize "Tsouic" as a subgroup.

(ii) exclusively shared phonological innovations between Kanakanavu and Saaroa show that

[8] For the sake of clarity, we have kept Tsuchida's (1976) annotations, which have been changed in Ross (2012).

they are more closely related.

(iii) few shared innovations between Kanakanavu and Tsou on the one hand and Saaroa and Tsou on the other cannot exclude the possibility that these three languages might be related.

(iv) there must have been extensive borrowing within the Tsouic group, and between Southern Tsouic and adjacent languages, in particular Bunun loans in Kanakanavu and Mantauran Rukai loans in Saaroa, an issue that will not be further pursued in the present study.

1.3.2 Tsou as opposed to Kanakanavu and Saaroa

A number of scholars (Harvey 1982, Starosta (2009 [1985]), (2009 [1995]), Szakos p.c., Chang 2006 and Ross 2009, 2012) have raised the possibility that Tsou does not form a subgroup with Kanakanavu and Saaroa. We summarize below stances by Starosta (2009 [1995]), Chang (2006) and Ross (2009), as their discussion offer a point of departure for the present study.

Starosta's (2009 [1995]) binary tree branch subgrouping – shown in Figure 1 – is based on his top-down morphosyntactic reconstructions. He proposes that Tsou constitutes the second off-shoot, Saaroa the third and Kanakanavu the fifth from a "Proto-Formosan" linguistic group that is ancestral to all the Austronesian languages.

Starosta's analysis is complex and requires understanding both the verbal morphology of PAn as well as that of daughter languages, in this particular case, Tsou, Saaroa and Kanakanavu. Major points are briefly summarized below. Starosta (2009:779[1995]) argues that Proto-Formosan was an ergative language, which had developed auxiliary verbs and bound pronouns. It had two complementizers (*ka and *a), two determiners (*i and *a) which were distinguished in terms of definiteness, nominalizers (*-an, *ta-…-an 'place of…', *-ana 'inhabitant of') and a number of verbal affixes (including AV *m- (realis), inchoative *ka-, causative *pa-, stative *m- and perhaps perfective *ni-/*<in>) and a C*a*-reduplicative process that marked imperfective verbs. Starosta (2009 [1995]) argues that an important development that took place in Proto Rukai was the development of the NAV suffixes *-a and *-i through the fusion of the determiners *a and *i onto the verb. He argues that Tsou resembled Rukai in many ways, except that it further elaborated a complex system of auxiliary verbs so that the earlier verbal marking was displaced. This had two consequences: many morphosyntactic features present in Rukai were lost in Tsou, among others the perfective marking (through *ni-/*<in>), the realis/irrealis distinction etc. and *m-forms were reanalyzed as marking intransitivity. In Saaroa, the primary innovation was, according to Starosta (2009 [1995]), the development of the prefix *saa-* marking instrument. The origin of this prefix is said to be unclear.[9] In Kanakanavu, the main innovation was the fusion of the locative demonstrative noun *na to the transitive perfective ***-**a, yielding to the form *-a-na* (whereby the final *a* was reanalyzed as an echo vowel). As a consequence the earlier prefix *-i that was found in earlier nodes (Tsou and Saaroa) to mark LV was displaced in subordinate clauses. Through analogy, *-en (innovated in F_3 – Chamorro) replaced the earlier PV *-a, which was also relegated to subordinate clauses. Another innovation was the lexicalization of the intransitive realis prefix *m- with a loss of its realis function.

[9] Later, Starosta (2009:790[1996]) proposes the following origin for *saa-*: he proposes that *saa-* derives from temporal clauses of the type found in Rukai, which are introduced by *sa* 'when' (P. Li 1973:224), "with the optional -*a* suffix just the old transitive suffix that can be reconstructed all the way to the F_0 level."

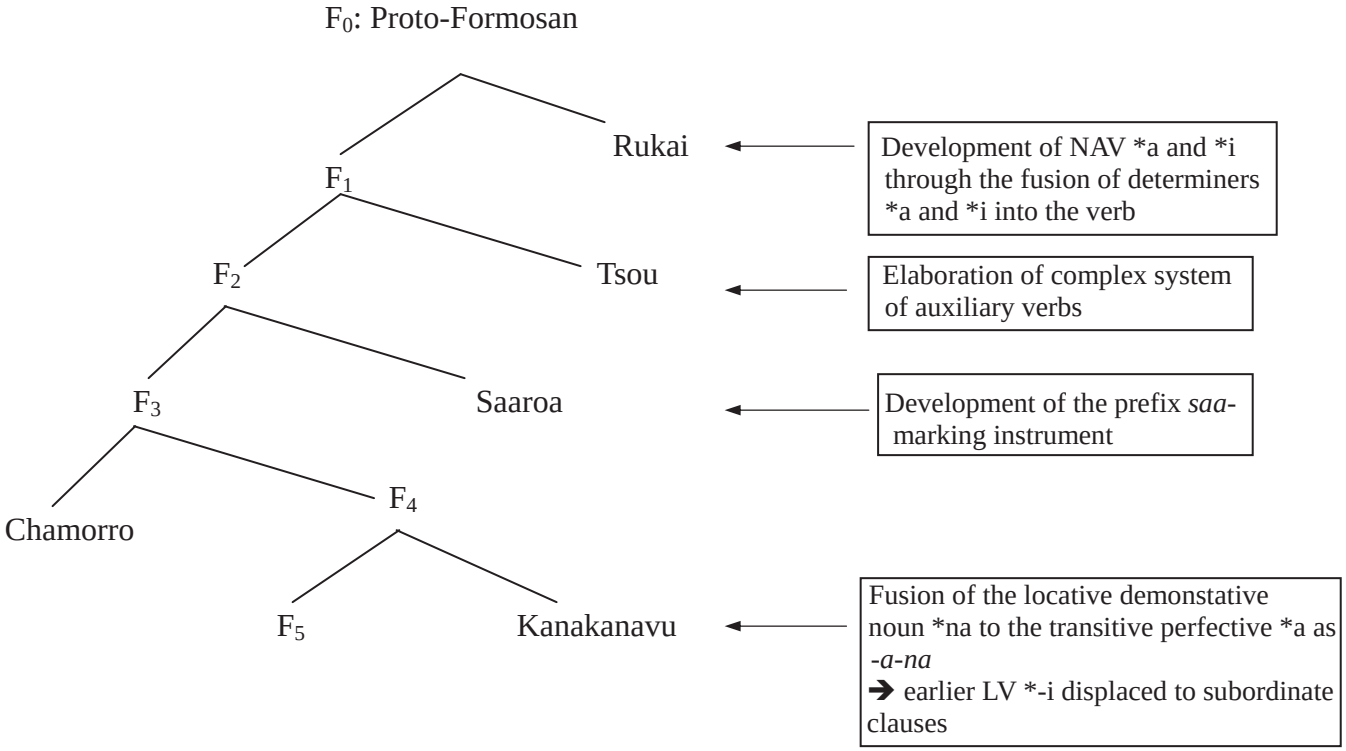

Figure 1. A grammar-based subgrouping (based on Starosta 2009:773[1995])

Chang (2006) proposes six morphosyntactic innovations in Tsou that are not attested in Kanakanavu and Saaroa and are treated as innovations that make Tsou distinct from Kanakanavu and Saaroa. These six morphosyntactic characteristics consist of:

(i) distinct focus morphology: Except for AV-marked verbs, verbs in Tsou are marked with the so-called dependent voice forms *-a* 'PV', *-i* 'LV', *-eni* 'I/BV'. The voice system of Kanakanavu and Saaroa is a reflex of the PAn voice system (as reconstructed in Ross 1995 and works preceding Ross 2009).

(ii) loss of Perf <*in*>: Tsou has lost the perfective PAn infix <*in*>, which is reflected as Kanakanavu <*in*>/*ni*- and Saaroa *ɬi*-.

(iii) focus harmony restriction: In Tsou, verbs occurring in serial verb constructions must agree with one another. In Kanakanavu and Saaroa, such a constraint is not observed. The second verb is always marked as AV.

(iv) NAF-only causatives: The PAn reflex of the causative prefix *pa- is *poa*- is Tsou and always occur in NAV constructions, selecting the causee (but not the causer) as the subject of the clause. Such a restriction is not found in Kanakanavu and Saaroa.

(v) obligatory occurrence of an auxiliary in clause-initial position: Each verbal clause starts with an auxiliary in Tsou but not in Kanakanavu and Saaroa.

(vi) emergence of a 3rd singular nominative bound pronoun: The overt realization of a 3rd singular nominative bound pronoun in AV clauses is reported to only occur in Tsou.

Table 2. Morphosyntactic innovations in Tsou
(Based on Chang 2006:579)

	PAn	**Tsou**	**Kanakanavu**	**Saaroa**
Focus morphology	***** ***-en** ***-an** ***si-**	**m-** **-a** **-i** **-eni**	**<um>, m-, mu-** **-ai, ni-, -un** **-a(n)** **se-**	**<um>, m-, mu-** **-a** **-a(na)** **sa(a)-**
Perfective marker	***<in>**	–	**ni-**	**lhi-**
Focus marking of lower verbs in verb sequences	*****	AF/NAF	**<um>**	**<um>**
Focus alternation of causative verbs	***pa-** + AF/NAF	**poa-**+NAF only	**pa-** + AF/PF	**pa-** + AF …NAF[10]
TAM-marking auxiliary	–	**mi-/i-** etc. **te-** etc. **la-**	**esi** **tia/te**	–
3rd singular nominative bound pronoun	–	**ta-**	–	–

Based on a very meticulous reconstruction of PAn verbal morphology, Ross (2009, 2012)[11] argues that Tsou constitutes one of the four off-shoots of PAn (along with Puyuma, Rukai and Proto Nuclear Austronesian, henceforth PNAn) and that Kanakanavu and Saaroa are part of Nuclear Austronesian. The main split between PAn and PNAn consists in the extension of PAn nominalizing affixes as PNAn verbal affixes.

Table 3. Ross' (2009:296-306) first-generation and second generation affixes

		Actor voice	Undergoer voice		
			Patient subject	Location subject	Circumstance subject
PAn	Realis (N only)	*M-stem	(*stem-en)	(*stem-an)	(*Sa-/)*Si-stem
	Realis	*M-stem-a	*stem-aw	*stem-ay	*an-ay + stem
	Opt / Hort				
PNAn	Realis (N/V)	*M-stem	*stem-en	*stem-an	*Sa-/*Si-stem
	Opt / Hort	*M-stem-a	*stem-aw	*stem-ay	*an-ay + stem

Ross (2009:311) notes that unlike Puyuma, "Tsou reflects only the PAn dependent [verb] forms and lacks reflexes of both verbal forms and nominalizing affixes (in both cases: *<in>, *-en, *-an and *Si-). Ross (2009:312-313) shows that both Kanakanavu and Saaroa have at least one reflex (Kan *-ai* and Sar *-a*) that is found at the PAn and PNAn levels. Ross (2009:313) concludes that the suffix *-ai* occurs in circumstances that are not clear but always in narrative and that there is no other evidence showing that Kanakanavu subgroups with Tsou at the highest level of the phylogeny. Regarding the suffix *-a*, Ross proposes two alternative hypotheses: (i) it is a reflex of PAn UVP dependent form *-a; (ii) it is an irregular reflex of PNAn *-en. The first hypothesis would entail that Saaroa split off from PAn, the second that it split off from PNAn. He concludes that the second hypothesis is the most probable for two reasons: (i) the suffix *-a* can co-occur with *lhi-* (< PAn *<in>); PAn *-en, on the other hand, never co-occurs with PAn *<in>; (ii) if *-a* was a reflex of PAn, it would have undergone a massive extension (from a dependent form to a form marking realis, imperfective, perfective and irrealis), which is highly improbable.

[10] Chang (2006:579) mentions that he "leave[s] the causative NAF forms blank because there is no relevant data available" to him.

[11] These two papers build on previous research by Malcolm Ross (see Ross 1995 and 2002). Starosta (2009[1996]) reassesses Ross' (1995) reconstruction of PAn verbal morphology and suggests that these morphemes should be reconstructed at a lower level, after the Rukai dialects and Tsou split off from Saaroa and the rest of the Formosan languages.

1.4. Goals of the present paper and outline

The above sections show that it is crucial to investigate and compare in-depth Tsou, Kanakanavu and Saaroa verbal morphology so that a better understanding may be reached as to how they split off and where from. In this paper, we concentrate in particular on a reassessment of voice in Kanakanavu and Saaroa. We show that, against what was assumed earlier (cf. the overview of focus (or voice) in previous studies is §2), the voice system of Kanakanavu is a binary system in that distinguishes only AV *vs.* UV, with no further distinction under UV, i.e. earlier voice forms that were identified as UVL *ni-…-a*(*n*)/*<in>…-a*(*n*), *-a*(*n*) and I(/B)F *si-* are actually nominalized forms as shown §3.1. Second, we tentatively argue in §3.2 that Saaroa exhibits two voices, actor voice (AV) and undergoer voice (UV), the latter UV subsuming UVP and UVC. The UVC is never marked by *saa-* (as has been supposed in some studies) but rather by *-ani*.

Note that this analysis implies that Kanakanavu only partially reanalyzed Ross' (2009, 2012) second generation suffixes, i.e. while the reflex of *-en was reanalyzed as a UV marker in Kanakanavu, the reflex of *<in> appears in verbal and nominal constructions; on the other hand, reflexes of *-an and *Si- are still (and only) used as nominalizers and were never reinterpreted as verbal affixes. It shows also that except for the reflex of *<in> used in AV clauses (as well as in nominal constructions), Saaroa reanalyzed Ross' (2009, 2012) second generation suffixes even more partially than Kanakanavu. The findings are, for the sake of clarity, summarized in Table 3.

Table 4. An overview of the function of second generation affixes in PAn, Kanakanavu and Saaroa

	*<in>	*-en	*-an	*Si-/*Sa-
PAn	N	N	N	N
Kanakanavu	$V_{AV/UV}$ /N	V	N	N
Saaroa	V_{AV}/N	–	N	N

These findings have some implications for subgrouping that we discuss in §4 where we also mention remaining problems.

2. Previous studies on focus (or voice) in Kanakanavu and Saaroa

The Kanakanavu and Saaroa focus (or voice) systems have been described to a more or lesser extent in a number of studies. The present section provides an overview of focus (or voice) in Kanakanavu and Saaroa. Note that Tsuchida (1976) represents the most authoritative study to date. To avoid unnecessary repetitions, we will thus focus on his analysis while pointing out discrepancies that appear between previous studies. We follow Ross (2009) in presenting the data in a more or less unified manner so that it can be easily compared despite the various analyses that have been proposed.

2.1 Previous studies on voice in Kanakanavu

There are a number of studies on Kanakanavu focus system (Ogawa & Asai 1935, Tsuchida 1976, Mei 1982, Ho 1997, Wu 2006 & 2014, Chang 2006, Ross 2009 and Liu To appear).[12]

Tsuchida (1976) analyzes Kanakanavu as displaying four foci, actor focus (AF), goal focus (GF), locative focus (LF) and special focus (SF), the last of which is only observed in narratives (p. 51).[13] GF, LF and SF are subsumed under NAF (non-actor focus). Tsuchida states that these foci interact closely with four aspects: neutral, imperfective, imperative and perfective, with "a future aspect marker marked in a few verbs" (p. 43). His analysis is tabulated in Table 5 and further illustrated in the examples that follow.[14]

[12] Chang's (2006) and Liu's (To appear) studies will not be summarized here. Chang (2006) provides a reassessment of Mei (1982) based on Wu (2006) and Liu's investigation focuses on Kanakanavu TAM.

[13] We do not include a detailed discussion on allomorphs of each of these morphemes, unless necessary (see Tsuchida 1976 for details)

[14] Examples and explanations are taken from Tsuchida (1976).

Table 5. Kanakanavu focus and aspect according to Tsuchida (1976:44)[15]

	AF	NAF		
		GF/LF		SF
Perfective	**ni**-**M**-STEM **M**<**in**>STEM	**ni**-STEM(-**a**) <**in**> STEM(-**a**)	**ni**-STEM-**a**(-**nu**)[16] <**in**>STEM-**a**(-**nu**)	–
Neutral	**M**-STEM	STEM(-**a**)		STEM-**ai**
Imperfective	RED-**M**-STEM **a**-**M**-STEM	STEM-~~**unu**~~		–
Future	–	–	**a**-STEM-~~**unu**~~	
Negative	**M**-STEM	–		
Imperative	**M**-STEM-**a**	STEM-**au** STEM-**i**		

(4) a. AF – the subject is the actor of the action (p. 47)
ni-m-ia-pacaí=ku sua tutúi na ta-u-canúm-a.
kill:AV-PFV=I OBL pig LOC place-draw-water
'I killed a pig at the place to draw water.'

b. GF – the subject is the object (goal) directly affected by the action (p. 48)
ni-p-ia-pacái=máku sua tutúi na ta-u-canúm-a.
kill:GF-PFV=by-me OBL pig LOC place-draw-water
'The pig was killed by me at the place to draw water.'

c. LF – the subject is a location (p. 49)
ni-p-ia-pacal-an-áku sua tutúi sua ta-u-canúm-a.
kill:LF-PFV by-me OBL pig NOM place-draw-water
'The place of drawing water is were I killed a pig.'

d. SF – the agent of the action, when a pronoun, is marked as OBL (p. 50)
p-ia-pacál-ai[17] 'inía sua tutúi na ta-u-canúm-a.
kill:SF him OBL pig LOC place-draw-water
'The pig was killed *by him* at the place to draw water.'

Tsuchida (1976:54) notes that the perfective aspect expresses a completed action (5a). The "neutral aspect" expresses no specific time. It occurs as an attribute to a verb, a subordinate clause beginning with *mia=* 'when (past)', *nuu=* or *nu=* 'if, when (future)', after the negator *kuu=* 'never' and in narrations (5b). The imperfective aspect expresses an incomplete action, whether "it is momentary or durative, past, present or future" (p. 52), (5c).

(5) a. Perfective aspect (p. 54)
ni-m-ú-ca =káni '<um>ánupu.
go:AF-PFV is-said hunt-with-dogs:AF-NEUT
'He has gone hunting [and has not come back yet].'

---

[15] For the sake of convenience, we adopt a Romanized orthography rather than IPA symbols as in earlier studies, whereby *'* stands for the glottal stop *ʔ*, *ng* for the velar nasal *ŋ*, *c* for the affricate *ts*, *lh* for the lateral fricative *ɬ*, ~~*u*~~ for schwa *ə*. We have slightly changed the display of the examples taken from earlier studies, whenever necessary, e.g. we have replaced the sign + by = to indicate that the morpheme in question is a clitic. With the exception of the following, abbreviations follow those given in the Leipzig Glossing Rules: AF 'Actor Focus', AV 'Actor Voice', COS 'Change of State', GF 'Goal Focus', I/BF 'Instrument/Beneficiary Focus', IV 'Instrument Voice', Lig 'Ligature', LF 'Locative Focus', NEUT 'Neutral', MOD 'Modality', PART 'Particle', PF 'Patient Focus', Red 'Reduplication', SF 'Special Focus', UV 'Undergoer Voice', UVC 'Undergoer Voice – Circumstantial', UV 'Undergoer Voice', UVP 'Undergoer Voice – Patient'.

[16] Tsuchida (1976:49) mentions that GF and and LF are formally distinguished only in the perfective aspect. LF is marked by *-a*, which has three allormophs, *-an*, followed by *-ini* 'his/her/their' (e.g. *ni-p-aka-'ulu-án-ini* 'was arrived at him first'), *-an~~u~~* followed by *=cu* 'already' (e.g. *ni-p-aka-'ulu-an~~u~~=cu* 'was arrived at already first') and *-a* elsewhere (e.g. *ni-p-aka-'ulú-a* 'was arrived at first').

[17] Tsuchida (1976:51) mentions two allomorphs: *-i* and *-ai*. The former occurs when the base ends in *a*, e.g. *c~~u~~'~~u~~ra-i* 'see (SF, Neut)' and the later elsewhere.

b. Neutral aspect (p. 51)
m-u-caán~~u~~=kaní=cu um-ávici sua talísi.
go:AF-NEUT=is-said=already carry:AF-NEUT OBL rope
'They went carrying the rope with them.'

c. Imperfective aspect (p. 52)
m-u-á-ca=kani '<um>ánupu.
go:AF-IPFV=is-said hunt-with-dogs:AF-NEUT
'He went hunting/he goes hunting/he is going hunting.'

The "imperative aspect" expresses a command and is marked by *-a* (AF) and *-au* (GF) (6a-b). If followed by *=pa* 'still' or *'ai* 'uncertainty', it expresses a mild request (7b). In co-occurrence with the pronoun *=kita* '1PL.INCL.NOM' (6c), it expresses hortative, while in occurrence with the first person pronoun *=kia*, it expresses a strong desire (6d).

(6) a. k<um>á~~u~~n-a!
eat:AF-IMP
'Eat!' (p. 53)

b. ka~~u~~n-áu=pa!
eat:PF-IMP=still
'Eat it more/Please eat it!' (p. 53)

c. k<um>a~~u~~n-á=ci=kíta!
eat:AF-IMP=already=1PL.INCL.NOM
'Let's eat now!' (p. 53)

d. m-u-cáan-a=ci=kía=k~~uu~~c~~u~~=máamia um-ánguru.
go:AF-IMP=already=I=wish=just escape:AF-NEUT
'I'll just run away [at all costs].' (p. 53)

The future is marked in a few verbs with the prefix *a-*, but only in LF, e.g. ***a-****u-kusá-~~u~~n~~u~~* 'will come (LF.Fut)' (p. 55).

Mei (1982) follows mostly Tsuchida's analysis. He departs in the following respects: NAF is said to subsume object focus (OF1 *-~~u~~n* and OF2 *-ai*) and time/location focus (T/LF), i.e. according to Mei (1982), there is no I/BF.

Wu (2006, 2014) provides two different views on the Kanakanavu focus system, but reasons for these analytical changes are not given. In an earlier publication, Wu (2006) recognizes four foci, AF, PF, LF, and B/IF, as shown in Table 6. Wu (2006) is actually the first to have ever (and wrongly) identified *si-* as a focus marker. This was not done in previous studies, but his analysis is partially followed in later studies (e.g. Chang 2006, Liu To appear). In a later manuscript (Wu 2014), on the other hand, he assumes that Kanakanavu lacks Locative Focus (LF), while his earlier B/IF is reinterpreted as IF and restricted to only affirmative sentences, as further shown in Table 7. Another difference concerns the fact that he makes explicit the distinction between dynamic verbs and stative verbs.[18]

Table 6. Kanakanavu focus system according to Wu (2006:112)
(After Chang 2006, based on Mei 1982, Tsuchida 1976)

	AF	PF	LF	B/IF
Neutral	UM	**-ai**	**-a**(**n**)	**se-**
Perfective	(**um-**/**mu-**/<**um**>)	**ni-**		
Imperfective	**m-**	(**p-**)-**~~u~~n**		

[18] We have omitted details here about his analysis of causative forms.

Table 7. Kanakanavu focus system according to Wu (2014:26)

	AV		PV		IV	
	Dyn	Stat	Dyn	Stat	Dyn	Stat
Affirmative	**ni**-STEM **M**-STEM	**(ni-)ma**-STEM **(ni-)**Ø-STEM	**ni**-STEM STEM-~~**un**~~	**pa-ka**-STEM-~~**un**~~ **pa-ra**-STEM-~~**un**~~	**si**-STEM	**si-ka**-STEM
Negative	**M**-STEM	**ma**-STEM Ø-STEM	STEM-**ai**	**pa-ka**-STEM-**ai** **pa-ra**-STEM-**ai**	–	–
Imperative	**M**-STEM-**a**	**ka**-STEM-**a**	STEM-**(a)u**	**pa-ka**-STEM-**au** **pa-ra**-STEM-**au**	–	–
Optative/Hortative	**M**-STEM-**an**	–	STEM-**aun**	–	–	–

Ross (2009) considers that Kanakanavu exhibits a voice dichotomy, AV-UV, and that UV subsumes UVP, UVL and UVC. He reinterprets certain forms – Tsuchida's neutral form is reinterpreted as realis – and posits new categories (narrative, dependent and durative). He treats Tsuchida's SF *-ai* as narrative UVP. What is crucial for us here, is the fact that Ross (2009) does not identify any UVC verbal form; rather, *si*-STEM is analyzed as a nominalized form. Ross (2009), however, does not seem to measure the consequence of his observation. i.e. that Kanakanavu must have only partially reanalyzed first generation suffixes.

Table 8. Kanakanavu voice system according to Ross (2009:318)

	Actor Voice	Undergoer voice		
		Patient subject	Location subject	Circumstance subject
Realis	**M**-STEM	STEM-~~**unu**~~	STEM-~~**unu**~~	–
Future			**a**-STEM-~~**un**~~	–
Imperfective	**M**-C**a**-STEM			–
Perfective	<**in**>**M**-STEM	<**in**>STEM	<**in**>STEM-~~**anu**~~	–
Nominal	–	<**in**>STEM	**ta**-STEM-~~**anu**~~	**si**-STEM
Narrative		STEM-**ai**	–	
Imperative	**M**-STEM-**a**	STEM-**au/-i**	STEM-**au/-i**	–
Dependent		STEM	–	–
Durative	**M**-CV-STEM	–	–	–

2.2 Previous studies on focus (or voice) in Saaroa

There are a few studies on Saaroa focus (or voice) system. Studies we were able to review include Ogawa & Asai (1935), Tsuchida (1976), P. Li (1997), Chang (2006),[19] Ross (2009), C. Li (2009, 2010) and Pan (2012).

Tsuchida (1976) analyzes the Saaroa focus system as identical to that of Kanakanavu. It features four foci, actor focus (AF), goal focus (GF), locative focus (LF) and special focus (SF), the last of which differs from GF in that the agent of the action is expressed by an NP preceded by the Oblique marker *ka* (while in GF the agent is expressed by an NP marked by *na* 'Obl'). GF, LF and SF are subsumed under NAF (non-actor focus). His analysis is summarized in Table 9 and further illustrated in the examples that follow.

Table 9. Saaroa focus and aspect according to Tsuchida (1976:70-71)

		AF	NAF		
			GF	LF	SF
Perfective		**lhi**-**M**-STEM	**lhi**-STEM**(-a)**	**lhi**-STEM-**a(na)**	–
Neutral		**M**-STEM	STEM**(-a)**	–	**saa**-STEM**(-a)**
Imperfective		RED-**M**-STEM / **a**-STEM	RED-STEM**(-a)**	RED-STEM-**a(na)**	–
Future		–	**a**-STEM**(-a)**	**a**-STEM-**a(na)**	
Negative	Neutral	STEM	–		
	Imperfective	RED-STEM / **a**-STEM	–		
Imperative		**M**-STEM-**a**	STEM-**u**	STEM-**i** STEM-**ani**	

[19] P. Li's (1997) and Chang's (2006) studies will not be summarized here. Chang (2006) cites P. Li (1997) who only provides a rather restricted picture, when compared to Tsuchida (1976), of focus in Saaroa.

(7) a. AF

m-~~u~~-l~~u~~vi =cu =isana =ami rumalha~~u~~
go-by means of:AF-NEUT=already =it:OBL =is-said then
m-uu-capi na ’ulutii.
drop:AF-NEUT LOC underground-world
‘They went down by means of [a ladder of horns tied together] then came down to the underground world.’ (p. 74)

b. GF

um-ala na kiu’u m-ia-an~~u~~ na lhi-kali
take:AF-NEUT OBL tree pound:AF-NEUT OBL dig:GF-PFV
’areme p~~utu~~-’~~utu~~-’~~utu~~nga.
pangolin hit-hard:AF-NEUT
‘[The monkey] took a piece of wood to pound hard the thing dug by the pangolin.’ (p. 75)

c. LF

m-i-ng~~utu~~lh~~u~~=ami ka lhi-tali
be-cut-off:AF-NEUT=is-said NOM tie-together:GF-PFV
ka ’uungu lhi-~~u~~-l~~u~~v~~u~~-ana =isa.
OBL horn go-by-means-of:LF-PFV=by-her
‘The ladder, on which she was climbing, broke.’ (p. 75)

d. SF

t-um-anguura=ami ka racu’u. m-ata-ka-kua
grow:AF-NEUT=is-said NOM bamboo wind-toward:AF-IPFV
na alhaina=isa. sa-a-l~~u~~v~~u~~-a =ami
LOC woman=her go-by-means-of:SF-NEUT =is-said
m-uu-capi na alhaina=isa.
drop:AF-NEUT LOC woman=her
‘The bamboo grew up. It grew up meanderingly toward her mother. She came down on it to her mother.’ (p. 75)

Ross (2009) basically follows Tsuchida’s (1976) analysis (see Table 10) but posits, as for Kanakanavu, two voices, actor voice (AV) and undergoer voice (UV), the latter UV subsuming UVP, UVL and UVC. Future is reanalyzed as irrealis. Ross (2009) recognizes an irrealis form *a-* for Actor voice, not mentioned by Tsuchida (1976:79). Tsuchida (1976:78) makes a distinction between neutral and imperfective in negative constructions. This distinction is not recognized by Ross (2009) perhaps because the example given by Tsuchida (1976:78) is not extremely convincing in term of aspectual distinctions. Furthermore, two affixes *-a*[*na*] and *-ani* are viewed as respectively carrying over UVC (rather than LF, as in Tsuchida 1976) irrealis and imperative functions.

Table 10. Saaroa voice system according to Ross (2009:318)

	Actor voice	Undergoer voice		
		Patient subject	Location subject	Circumstance subject
Realis	**M**-STEM	STEM-**a**	STEM-**a**[**na**]	**sa(a)**-STEM[-**a**]
Imperfective	**M**-C**a**-STEM	C**a**-STEM-**a**	C**a**-STEM-**a**[**na**]	–
Perfective	**lhi**-**M**-STEM	**lhi**-STEM-**a**	**lhi**-STEM-**a**[**na**]	–
Irrealis	**a**-STEM[20]	**a**-STEM-[**a**]	**a**-[21]	STEM-**a**[**na**]
Imperative	**M**-STEM-**a**	STEM-**u**	STEM-**i**	STEM-**ani***
Negative	STEM	–	–	–

*rare

C. Li’s (2009, 2010) investigation of voice in Saaroa is very brief, but important in at least two respects. First, he posits only three voices, actor voice (AV), patient voice (PV) and locative voice (LV) and argues against the existence of instrumental/beneficiary voice. In doing so, he reanalyzes,

[20] There must have been a typo here, as the **M**-form is expected, hence it should be **a**-**M**-STEM rather than **a**-STEM.

[21] Similarly, **a-** should be **a**-STEM.

after Ogawa & Asai (1935:703) and Radetzky (2009),[22] the *sa*(*a*)- prefix as a third person genitive pronoun, co-occurring with the UVP marker *-a*. Against other authors that have advanced or adopted the same analysis (Radetzky 2009 and Pan 2012 respectively), C. Li (2009, 2010) provides syntactic tests to prove his point. These include the fact that (i) *sa*(*a*)- cannot co-occur with a first or second person non-subject actor (genitive) pronoun (8a-b),[23] (ii) the selected argument as subject is never an instrument or a beneficiary but rather a patient (9a-b),(iii) a transported theme (selected subject) is grammatically marked on the verb by a PV form not an I/BV form, as in other Formosan languages (10a-b).

(8) a. sa-anu-a ka mamaini ka vutukulhu.
3SG/PL.GEN-eat-PV OBL child NOM fish
'The fish was eaten by the child.'
(Li 1997:281, cited in C. Li 2009:176; 2010:50)

b. * sa-anu-a **a** **alhiku** a vutukulhu.
3SG/PL.GEN-eat-PV GEN 1SG NOM fish
'The fish was eaten by me.' (C. Li 2010:50)

(9) Based on C. Li (2009:177, 2010:51)

a. * saa-cavu-a a pi'i a vutukulhu **a** **ralh~~u~~ngu**.
3SG/PL.GEN-wrap-PV GEN Pi'i DEF fish NOM leaf
Expected meaning: 'Pi'i wrapped the fish in a leaf.'

b. saa-cavu-a a pi'i na **a** **vutukulhu**.
3SG/PL.GEN-wrap-PV GEN Pi'i DEF NOM fish
'Pi'i wrapped the fish.'

(10) Based on C. Li (2009:178; 2010:52)

a. Paiwan
ku-si-vai tjanusun a paisu.
1SG.GEN-IV-give 2SG.OBL NOM money
'I gave you money.'

b. Saaroa
ngasa lhi-vura=u pi'i na?
what PFV.PV-give=2SG.GEN Pi'i PART
'What did you give to Pi'i?'

Pan (2012:204ff) generally follows Tsuchida (1976) and Ross (2009) though his analysis seems to be most influenced by C. Li (2009, 2010). Like C. Li, Pan (2012) considers that Saaroa exhibits Actor voice (AV), Patient voice (PV) and Locative voice (LV) and refutes the existence of Instrument/beneficiary voice. He goes a step further in reanalyzing (without providing any strong evidence, though) the *sa*(*a*)- suffix as an agreement marker (p. 212ff, 232-234). His discussion on voice is extremely short (only seven pages, cf. pp. 204-210) and his analysis of mood/aspect a bit confusing. For one thing, he provides different glosses for the same form, e.g. *lhi-* is analyzed both as a "perfective" and an "experiential" marker. For another, the interaction between voice, mood and aspect is not discussed. Nonetheless, as Pan (2012) provides more data and paradigmatic examples than C. Li (2009, 2010), we have, for the sake of comparison, summarized relevant data in a tabular form below while avoiding to completely reinterpret Pan's examples (this is done in §3.2).

[22] Radetzky (2009) mentions that "*sa*(*a*)- is a device for overtly mentioning two (or more) 3rd person participants in a clause." (p. 1)

[23] We have avoided to change C. Li's (2009, 2010) glosses except for *sa*(*a*)- glossed as 3SG.GEN everywhere.

Table 11. Saaroa voice system based on Pan (2012)

			Actor Voice	Patient Voice	Locative Voice
Realis	(Neutral)[24]		**M**-STEM	STEM(**-a**)	STEM-**a**(**na**)
	Perfective/Experiential		**lhi**-**M**-STEM	**lhi**-STEM(**-a**)[25]	**lhi**-STEM-**a**(**na**)
	Progressive/Continuous/ Iterative/Habitual		**M**-(C)**a**-RED-STEM[26]	–	–
Irrealis			**M**-(C)**a**-STEM	**a**-STEM-**a**	**a**-STEM-**i**
Imperative		Polite	**M**-(C)**a**-STEM(=**kia**)	–	–
		Strong	**M**-STEM-**a**(=**mau**)	STEM-**u**	STEM-**i**/STEM-**ani**
Negation		Predicative	STEM	–	–
		Imperative	**a**-STEM	–	–

We note a couple of differences between Pan (2012) and Tsuchida (1976)/Ross (2009). For one this, he focuses on two forms for AV imperatives, a polite imperative, encoded by *M*-(C)*a*-…=*kia* (where =*kia* is glossed as 'polite request'), as in (11a) and a strong imperative marked by *M*-…-*a*=*mau* (where =*mau* is glossed as 'strong request'), as in (11b).[27]

(11) Based on Pan (2012)

a. *m*-aa-*maa*-maini-*a*=**kia** m-ima mapaci!
AV-drink-RED-small-IMP.AV=polite request AV-drink wine
'Please drink wine a little bit!' (p. 331, ex. 9.55b)

b. *m*-aa-maini-*a*=**mau** m-ima mapaci!
AV-drink-small-IMP. AV=Strong request AV-drink wine
'Drink wine a little bit!' (p. 336, ex. 9.63d)

Another difference is that Pan (2012) suggests (whithout mentioning it explicitly though) that there is an aspectual/mood distinction encoded through different reduplication patterns. Basically, the progressive, continuous, iterative and habitual aspects are rendered by partial (CV-, CV:-)/disyllabic ((C)V(C)V-) reduplication or triplication (C_1V_1-C_1V_1-) coupled with (C)*a*- (Pan, 2012:196-200). This is illustrated in (12a-d). When the stem does not undergo partial/dissyllabic reduplication or triplication, (C)*a*- is usually associated with an adverb of frequence (12e). (C)*a*- alone encodes the irrealis mood (12f).

(12) Based on Pan (2012)

a. *t*<um>*a*-ta-tapa~~u~~=aku.
RED<AV>RED-draw=1SG.NOM
'I am drawing.' (p. 259, ex. 7.102b)

b. tu*a*puupuru a mamaini alhaina kani'i=na. (< tu-a-puu-puru)
sit NOM child woman this=DEF
'This girl keeps on sitting.' (p. 198, ex. 6.36)

c. puri*a*ngusungusu a tautau=na maaci malusap~~u~~. (< puri-a-ngusu-ngusu)
snore NOM Tautau=DEF when AV:sleep
'Tautau snores when sleeping.' (p. 200, ex. 6.47a)

d. taku*a*lililiungu a mamaini=na tamu-isa. (< taku-a-li-li-liungu)
patrol/work NOM child=DEF grandparent-3SG/PL.GEN
'The children are visiting their grandparents.' (p. 197, ex. 6.32)

e. **kar~~u~~ku~~u~~lh~~u~~** a mamaini *l*<um>*a*-l~~u~~v~~u~~ng~~u~~ valhituku.
often NOM child RED<AV>conceal money
'We will eat meat.' (p. 225, ex. 7.13)

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[24] Pan (2012) does not mention the "neutral" category, but it seems simpler to put such a category for comparison sake.

[25] If the stem is only prefixed by *lhi*- 'Perf', Pan (2012) considers that the PV marker is ∅.

[26] (C)*a*- refers to the morphemes *a*- and <*a*> as well as C*a*-/C*aa*-reduplication.

[27] This distinction seems to be encoded primarily through clitics, and it is not certain at this stage how much verbal morphology (*M*-(C)*a*- also marking the irrealis vs. *M*-…-*a* also marking "plain" imperatives) plays a role. This raises the problem of what should be recognized as grammaticalized and what is not.

f. um-*a*-u=amu papa'a.
AV-IRR-eat=1PL.EXCL.NOM meat
'The children often conceal money.' (p. 191, ex. 6.10)

2.3 Summary

Previous analyses of Kanakanavu and Saaroa focus (or voice) system are summarized schematically – functional divisions are indicated, not forms – in a tabular form below.

Table 12. A comparison of Kanakanavu focus (or voice) system in previous studies (Tsuchida 1976, Mei 1982, Wu 2006 and 2014, Ross 2009)

Focus				
Tsuchida (1976)	actor focus	non-actor focus		
	AF	PF	LF	SF
Mei (1982)	AF	OF	T/LF	–
		OF1 OF2		
Wu (2006)	AF	PF	LF	I/BF
Wu (2014)	AF	PF	–	IF (in declarative affirmative sentences only)
Voice				
Ross (2009)	AV	UV		
	AV	UVP	UVL	–[28]

Table 13. A comparison of Saaroa focus (or voice) system (Tsuchida 1976, Ross 2009, C. Li 2009, 2010 and Pan 2012)

Focus				
Tsuchida (1976)	actor focus	non-actor focus		
	AF	PF	LF	SF
Voice				
Ross (2009)	AV	UV		
	AV	UVP	UVL	UVC
C. Li (2009, 2010) Pan (2012)	AV	PV	LV	–

3. A reassessment

We provide below a reassessment of voice in Kanakanavu (§3.1) and in Saaroa (§3.2). We show that in Kanakanavu, the voice system is binary and distinguishes only AV vs. UV. Saaroa exhibits two voices, actor voice (AV) and undergoer voice (UV), the latter UV subsuming UVP and UVC. We further demonstrate that what was earlier identified as LF or UVL (Kan *ni-…-a*(*n*), <*in*>*…-a*(*n*), *-a*(*n*) and Sar *lhi-…a*(*na*), *-a*(*n*)) and I(/BF) (Kan/Sar *si-*) are actually nominalized forms.

3.1 A reassessment of voice in Kanakanavu

The voice system of Kanakanavu, which features a binary dichotomy, AV-UV as illustrated in (14a-b), interacts closely with mood and aspect. This is depicted schematically in Table 14 and further illustrated with the verb 'see' in Table 15 (see Zeitoun 2014 and Zeitoun & Teng In preparation for a detailed discussion).

(13) a. AV
c<in><m>~~u~~'~~u~~ra=ku 'avia.
<PFV><AV>see=1SG.NOM Avia
'I saw Avia.'

[28] As mentioned above, *si-* is treated as a nominalizer.

b. UV
c<in>ʉ’ʉra=maku ’avia misoni.
<PFV.UV>see=1SG.GEN Avia just/a while ago
‘I just saw Avia/I saw Avia a while ago.’

We follow Ross (1995) in positing a distinction between the indicative and non-indicative mood, whereby the indicative mood is used to make an assertion or ask a question, and the non-indicative mood, which is used to make a command, a request, a wish, or a suggestion, Kanakanavu being partially subject to negative polarity. Unlike most Formosan languages which are mood-prominent languages, Kanakanavu distinguishes between perfective (encoded through <*in*> in both AV and UV clauses) and imperfective (marked by C*a*-reduplication in AV clauses and unmarked in UV clauses). Note that the occurrence of two auxiliaries, *tia*/*te:*= ‘HAB/FUT’[29] and *’e:si* ‘PROG’ allows the distinction between different aspects.

Table 14. A bird’s eye view of Kanakanavu voice, mood and aspect
(Zeitoun 2014, Zeitoun and Teng In preparation)

			AV	UV
Indicative	Affirmative	Perfective	**ni-M-**STEM / <**in**>**M-**STEM	**ni-**STEM / <**in**>STEM
		Imperfective	C**a-M-**STEM	STEM-**ʉn**
	Negative	Predicative **ka’an**		
		Imperative **nomani**		
Non-indicative	Affirmative	Imperative	**M-**STEM-**a**	STEM-**(a)u/-o**
		Directive	**M-**STEM-**an**	
		Dependent	**M-**STEM	STEM-**(a)i/-e**
	Negative	Predicative **kuu**	**M-**STEM	STEM-**e**
		Imperative **’akuni**		

Table 15. Exemplification of Kanakanavu voice, mood and aspect
with the verb *cʉ’ʉra* ‘see’

			AV	UV
Indicative	Affirmative	Perfective	**c<in><m>ʉ’ʉra**	**c<in>ʉ’ʉra**
		Imperfective	**c<um>a-cʉ’ʉra**	**cʉ’ʉr-ʉn**
	Negative	Predicative **ka’an**		
		Imperative **nomani**		
Non-indicative	Affirmative	Imperative	**c<um>ʉ’ʉr-a**	**cʉ’ʉr-o**
		Directive	**c<um>ʉ’ʉr-an**	
		Dependent	**c<um>ʉ’ʉra**	**cʉ’ʉr-e**
	Negative	Predicative **ku:**	**c<um>ʉ’ʉra**	**cʉ’ʉr-e**
		Imperative **’akuni**		

As shown in Teng and Zeitoun (2014), there are at least three syntactic tests that show that what was earlier identified as as focus (LF and SF/I(/B)F) should actually be analyzed as nominalization (Patient nominalization[30] and Instrument nominalization). Note, in passing, that we make a distinction between patient nominalization (PATNMLZ), encoded through two formatives, *ni-…-a*(*n*) / <*in*>*…-a*(*n*) (PFV) and *-a*(*n*) (NPST), e.g. *ni-kaʉn-a* ‘food’ and *kaʉn-a* ‘food’ (< *k<um>a-kaʉn* ‘eat’) and locative nominalization (LOCNMLZ) marked (among others) by *ta-…-a*(*n*), e.g. *ta-sima’-a* ‘running field, touristic area’ (< *s<um>a-sima’ʉ* ‘play’). These three tests involve: (i) the complementary distribution of the third person genitive pronouns, cf. *-ini* ‘3SG/PL.GEN’ and *=ke* ‘3SG/PL.GEN’, (ii) the non-movement of 1st and 2nd person pronouns onto the auxiliary verb when they occur with a nominalized verb, and (iii) the occurrence of *sua*. These tests are discussed in turn below.

[29] For lack of a better term/analysis, we choose to provide only one gloss for *tia*/*te:* ‘NPST’.

[30] Though it usually marks patient nominalization, there is syncretism between patient and locative nominalization to some extent.

For 1st and 2nd person pronouns, there is no distinction between a non-subject actor and a possessor, both encoded by the same genitive forms, as shown in (14a-b). There is such a distinction, however, for 3rd person pronouns, as was first shown by Tsuchida (1976:40). This is illustrated in (14c-d).

(14) a. Non-subject actor (1st person genitive pronoun)
te:=maku vu-un kasua viki.
NPST=1SG.GEN give-UV 2SG.OBL betel nut
'I (will) give you the betel nuts.'

b. Possessor (1st person genitive pronoun)
te:=ku mo:vua manu=maku viki.
NPST=1SG.NOM AV:give child=1SG.GEN betel nut
'I (will) give my child betel nuts.'

c. Non-subject actor (3rd person genitive pronoun)
(sua) tamtitu=ia, tia mana:su=cu vu-un=ke/*-in kimia.
puppet=TOP NPST perhaps=COS give-UV=3SG/PL.GEN 1PL.EXCL.OBL
'As for the puppet, he/she/they will certainly give it to us.'

d. Possessor (3rd person genitive pronoun)
ca:u=ia pa-pe:n manu-in/*=ke?
person=TOP RED-how many child-3SG/PL.GEN
'As for that person, how many children does she have?'

Verb stems marked by *ni-…-a*(*n*) and *si-* cannot co-occur with *=ke*, but are grammatically correct in co-occurrence with *-in*(*i*). Compare the grammaticality of (15a-b) and (15c-d).

(15) a. ni-pasikukuce:n manu-in. (< *ni-pasikukuc-a-in*(*i*))
PFV-pinch:PATNMLZ:3SG/PL.GEN child-3SG/PL.GEN
'place where his/her/their child was pinched.'

b. * ni-pasikukuc-an=ke manu-in.
PFV-pinch-PATNMLZ=3SG/PL.GEN child-3SG/PL.GEN

c. va:tu i:si=ia tia si-patupun-in tacau.
stone this=TOP NPST INSNMLZ-throw-3SG/PL.GEN dog
'As for this stone, it is used to throw at the dog.'

d. *va:tu i:si=ia tia si-patupun=ke tacau.
stone this=TOP NPST INSNMLZ-throw=3SG/PL.GEN dog

Note, on the contrary, that in UV clauses, the occurrence of *=ke* is possible, not that of *-in*(*i*). This is exemplified in (17a-b) and (17c-d).

(16) a. ni-pasikukucu=ke manu-in.
PFV.UV-pinch=3SG/PL.GEN child-3SG/PL.GEN
'He/she/they pinched his/her/their child.'

b. * ni-pasikukucu-in manu-in.
PFV.UV-pinch-3SG/PL.GEN child-3SG/PL.GEN

c. va:tu i:si=ia ni-ropaca=ke matupun tacau.
stone this=TOP PFV.UV-use=3SG/PL.GEN AV:throw dog
'As for this stone, it is used to throw at the dog.'

d.* va:tu i:si=ia ni-ropaca-in matupun tacau.
stone this=TOP PFV.UV-use-3SG/PL.GEN AV:throw dog

Based on (16) and (17), we have no other issue than to consider *ni-…-a*(*n*) and *si-* marked verb stems as nominalized forms.

There is another asymmetry between 1st and 2nd person genitive pronouns vs. 3rd person genitive pronouns when they encode a non-actor subject. In UVP clauses, if an auxiliary (e.g. *te:*= 'HAB/FUT' or *'e:si* 'PROG') is present, 1st and 2nd person genitive pronouns need to move up and be cliticized onto the auxiliary (18a). They cannot stay in-situ, as shown by the ungrammaticality of (18b). The third person genitive pronoun *=ke*, on the other hand, cannot move up and must stay in situ (18c-d).

(17) a. te:=*maku* **ka~~u~~n-~~u~~n** tanali i:si.
NPST=1SG.GEN eat-UV peanut this
'I will eat these peanuts.'

b. * te: **ka~~u~~n-~~u~~n**=*maku* tanali i:si.
NPST eat-uv=1SG.GEN peanut this

c. 'e:si **ka~~u~~n-~~u~~n**=*ke* tanali i:si.
PROG eat-uv=3SG/PL.GEN peanut this
'He is eating these peanuts.'

d.* 'e:si=*ke* **ka~~u~~n-~~u~~n** tanali i:si.
PROG=3SG/PL.GEN eat-UV peanut this

With *-a*(*n*)[31] and *si-* marked verb stems, even if an auxiliary is present, none of genitive pronouns – in our mind, they encode the possessor, since we treat these forms as nominalized – can move onto the auxiliary.

(18) a. ne:n sua **tia** oran-an=*su*?
who NOM NPST help-PATNMLZ=2SG.GEN
'Whom will you help?' (Based on Teng 2013:8, ex. (7c))

b. * ne:n sua **tia**=*su* oran-a(n)?
who NOM NPST=2SG.GEN help-PATNMLZ

c. **tia** se-v~~u~~a=maku kasua viki
NPST INSNMLZ-give=1SG.GEN 2SG.OBL betel nut
'the betel nuts I will give you'

d.* **tia**=maku se-v~~u~~a kasua viki.
NPST=1SG.GEN INSNMLZ-give 2SG.OBL betel nut

The nominative marker *sua* can occur before *ni-…-a*(*n*) and *si-* marked verb stems as shown by the (un)gramaticality of (19a-b) and (19c-d).

(19) a. c<in>a'~~u~~r~~u~~=ke (**sua**) ni-paca-a-in.
<PFV.uv>sprinkle=3SG/PL.GEN (NOM) PFV-pass-LOCNMLZ-3SG/PL.GEN
'She sprinkled salt where she passed.'

b. * **sua** c<in>a'~~u~~r~~u~~=ke (**sua**)
NOM <PFV.UV>sprinkle=3SG/PL.GEN (NOM)
ni-paca-a-in.
PFV-pass-LOCNMLZ-3SG/PL.GEN

c. (**sua**) si-pu'a-in vu:ra=ia vantuku manu=maku.
(NOM) INSNMLZ-buy-3SG/PL.GEN rice=TOP money child=1SG.GEN
'As for the rice he/she/they bought, (he/she/they) used my child's money .'

d. * **sua** ni-pu'a=ke vu:ra.
NOM PFV.UV-buy=3SG/PL.GEN rice

d'. ni-pu'a=ke vu:ra.
PFV.UV-buy=3SG/PL.GEN rice
'He bought rice.'

There are two major distinctions between *ni-…-a*(*n*) / <*in*>*…-a*(*n*) and *si-* marked verb stems. First, a nominalized verb through *ni-…-a*(*n*) cannot usually take a possessor, whether it is encoded through a pronoun, as in (20a-a') or a noun, as in (20b-b') while there is no such restriction with a nominalized *si*-verb (20c-d).

(20) a. * **ni**-kesunal-**an=cu**=maku.
<PFV>ask-PATNMLZ=COS=1SG.GEN

[31] Such a test is not applicable with a verb stem marked by *ni-…-a*(*n*) since the prefective marker *ni-* prevents the occurrence of an auxiliary.

a’. **ni-**kesunal-**an=cu**=∅.
<PFV>ask-PATNMLZ=COS=∅
‘It was asked.’

b. * **ni-**s~~u~~’~~u~~**-an=cu** cu:ma paici na pania.
<PFV>put-PATNMLZ=COS father wine LOC bottle

b’. **ni-**s~~u~~’~~u~~**-an=cu** ∅ paici na pania.
<PFV>put-PATNMLZ=COS ∅ wine LOC bottle
‘The wine was put on the table.’

c. **si-patupun** ma:nu i:si vatu tacau.
INSNMLZ-throw child this stone dog
‘The child used a stone to throw at the dog.’

d. ka:ru i:si=ia **si-po’ocip**=aku ’u:ru.
wood this=TOP INSNMLZ-cook=1SG.GEN rice
‘As for the wood, I used it to cook rice.’

Second, a nominalized verb through *ni-…-a*(*n*) can take an undergoer (marked as nominative) (21a-b) – it can have its own argument structure – while we have no such data for nominalized *si*-verb.

(21) a. **ni-**’oran-**an**=kara=cu=kasu?
<PFV>help-PATNMLZ=Q=COS=2SG.NOM
‘Were you helped?’

b. **ni-**’oran-**an**=kara=cu nguain?
<PFV>help-PATNMLZ=Q=COS 3SG/PL.NOM
‘Was/were he/she/they helped?’

We will have, in the future, to account for such a discrepancy between PATNMLZ and INSNMLZ. We believe that this reflects a distinction between lexical vs. syntactic nominalization, but it is behind the scope of the present article to tackle this question.

3.2 A reassessment of voice in Saaroa

In Saaroa, two voices, AV (Actor Voice) and UV (Undergoer Voice), can be distinguished morphologically and syntactically. UV further divides into UVP (Patient Undergoer Voice) and UVC (Circumstantial Undergoer Voice). Consider (22a-c).

(22) a. AV
t<um>a-tin~~uunu~~ a ~~uluku~~ vanukanuka cu-ruvana.
RED<AV>-weave/stitch NOM Eleke pants IRR-evening
‘Eleke will weave pants this evening.’ (Pan 2012:69, ex. 3.42b)

b. UVP
tin~~uu~~n-a=cu a ilhaku a tikuru ki-ruvana.
weave/stitch-UVP=COS GEN 1SG. NOM clothes REAL-evening
‘I wove/stitched the clothes last evening.’

c. UVC
tin~~uu~~n-ani=cu a ilhalhamu a tikuru=na
weave/stitch-UVC=COS GEN 1PL.EXCL NOM clothes=DEF
~~uluku~~.
Eleke
‘I wove/stitched the clothes last evening.’

The voice system of Saaroa is depicted schematically in Table 16 and further illustrated with the verb ‘weave, stitch, embroider’ in Table 17. Note that we posit a distinction between the indicative and non-indicative mood. The indicative further divides into realis/irrealis. Non-indicative mood subsumes imperative, dependent and negation.

Table 16. A reassessment of Saaroa voice, mood and aspect system

			Actor voice	Undergoer voice	
			AV	UVP	UVC
Indicative	Realis	Perfective	**lhi-M**-STEM	STEM-**a**	STEM-**ani**
		Imperfective	**M**-(C)**a**-RED-STEM		
	Irrealis		**M**-(C)**a**-STEM	–	–
Non-indicative	Imperative		**M**-STEM-**a**	STEM-**u**	STEM-**ani**
	Dependent		**M**-STEM	(STEM-**i**)	–
	Negation	Predicative	STEM	–	–
		Imperative	**a**-STEM	–	–

Table 17. Exemplification of Saaroa voice, mood and aspect system with the verb *tin~~uun~~* 'weave/stitch/embroider'

			AV	UVP	UVC
Indicative	Realis	Perfective	**lhi-t<um>in~~uun~~a**	**tin~~uun~~-a**	**tin~~uun~~-ani**
		Imperfective	**t<um>a-tii-tin~~uun~~a**		
	Irrealis		**t<um>a-tin~~uun~~a**	–	–
Non-indicative	Imperative		**t<um>in~~uun~~-a**	**tin~~uun~~-u**	**tin~~uun~~-ani**
	Dependent		**t<um>in~~uun~~a**	–	–
	Negation	Predicative	**tin~~uun~~a**	–	–
		Imperative	**a-tin~~uun~~a**		

Our own understanding of Saaroa voice, mood and aspect system differs from previous analyses in a number of respects. One major distinction is that we only recognize *-a* as one UVP suffix[32] and consider that *lhi-…-a* and *a-…-a* are nominalized forms (respectively 'PFV.PATNMLZ' and 'IRR.PATNMLZ'). Our claim that only *-a* functions as a UVP suffix and *lhi-…-a* and *a-…-a* as nominalized forms is based on two syntactic tests.

First, genitive pronouns in Saaroa can encode the possessor, independent pronouns cannot (23a-b). Independent pronouns, on the other hand, may be used to refer to non-subject actors (23c-c').

(23) a. t<um>a-tii-tin~~uun~~a a tamu=ku lhalhusa
RED<AV>-RED-weave/stitch NOM grandparent=1SG.GEN male
na vanukanuka.
OBL pants
'My grandfather is stitching pants.'

a'. * t<um>a-tii-tin~~uun~~a a tamu a ilhaku
RED<AV>-RED-weave/stitch NOM grandparent GEN 1SG.
lhalhusa na vanukanuka.
male OBL pants

b. lhi-tin~~uun~~-a=cu=mu=i?
PFV-weave/stitch-PATNMLZ=COS=2PL.GEN=Q
lhi-tin~~uun~~-a=cu=**lhamu**.
PFV-weave/stitch-PATNMLZ=COS=1PL.EXCL.GEN
'Have you stitched the clothes? We have already stitched (them).'

b'. * lhi-tin~~uun~~-a=cu=mu=i?
PFV-weave/stitch-PATNMLZ=COS=2PL.GEN=Q
lhi-tin~~uun~~-a=cu **a ilhalhamu**.
PFV-weave/stitch-PATNMLZ=COS GEN 1PL.EXCL

[32] A close inspection of our data shows that *-a* does not occur when the stem ends with a /a/ vowel. That could mean that either vowel (that of the stem or the UVP suffix) is deleted. But in any case, we do not posit a zero-marked UVP form.

c. cu=mu kita-a=cu=i sulhat~~u~~? kita-a=cu
Q= 2PL.GEN see-UVP=COS=Q write see-UVP=COS
a ilhalhamu.
GEN 1PL.EXCL
'Have you read the book? We have already read it.'

c'. * cu=mu kita-a=cu=i sulhat~~u~~? kita-a=cu**=lhamu**.
Q=2PL.GEN see-UVP=COS=Q write see-UVP=COS=1PL.EXCL.GEN

1st and 2nd non-subject actor pronouns can move up onto an interrogative marker; pronouns marking possessor cannot.

(24) a. cu=mu **kita-a**=cu=i sulhat~~u~~?
Q=2PL.GEN see-UVP=COS=Q book
'Have you read the book?'

b. * cu=mu **lhi-kita-a**=cu=i sulhat~~u~~?
Q=2PL.GEN PFV-see-PATNMLZ=COS=Q book

c. **lhi-kita-a**=cu=mu=i sulhat~~u~~?
PFV-see-PATNMLZ=COS=2PL.GEN=Q book
'Have you read the book?'

Another distinction is that we recognize *-ani* as one UVC suffix occurring in indicative and imperative clauses, as illustrated in (26a-b).

(25) a. vur-ani=cu a ilhaku a sulhat~~u~~ ~~u~~l~~u~~k~~u~~.
give-UVC=COS GEN 1SG. NOM book Eleke
'I gave the book to Eleke.'

b. sulhat-ani a tautau=na sulhat~~u~~!
write-UVC NOM Tautau=DEF book
'Write a letter for Tautau!'

We tentatively agree with previous analyses that treat *sa(a)=* as a 3rd person pronoun (marking non-subject actor)[33] rather than a voice marker but we are aware that in so doing we need to account for the high restrictive distribution of *sa(a)=*, which can only occur with UVP-marked verbs (26a-d).

(26) a. *saa*=sulhat-a=cu=i? *saa*=sulhat-a=cu!
3SG/PL.GEN=write-UVP=COS=Q 3SG/PL.GEN=write-UVP=COS
'Did he/she/they write it (down)? He/she/they have already written it (down).'

b. * sulhat-a=cu=*isa*=i? sulhat-a=cu=*isa*!
write-UVP=COS=3SG/PL.GEN=Q write-UVP=COS=3SG/PL.GEN

c. lhi-tin~~uu~~n-a=c=*isa* a kani'i alulhi=na.
PFV-weave/stitch-PATNMLZ=COS=3SG/PL.GEN NOM this (traditional) skirt=DEF
'He/She/They already stitched the (traditional) skirt.'

d. * *saa*=lhi-tin~~uu~~n-a=cu a kani'i alulhi=na.
3SG/PL.GEN=PFV-weave/stitch-PATNMLZ=COS NOM this (traditional) skirt=DEF

While there seems to be no distinction between perfective and imperfective in UVP and UVC clauses, we make such a distinction for AV-marked verbs, as earlier mentioned in Tsuchida (1976) and Ross (2009). However, we somehow follow C. Li (2010) and Pan (2012) in that we believe there is a distinction between imperfective and irrealis in terms of morphological marking: *M*-(C)*a*-RED-STEM marks the imperfective (27a) and *M*-(C)*a*-STEM encodes the irrealis (27b). Our analysis differs from C. Li (2010) and Pan (2012) in assuming that the different aspects that were recognized earlier (including progressive, habitual, continous, repetitive) should all be subsumed under "imperfective" as there is no morphological distinction between these (28a-b).

[33] In other words, we do not believe that Saaroa *saa-* should be treated as a reflex of PAn *Sa-.

(27) a. k<um>a-kii-kita mamaini a kana'a sulhat~~u~~.
RED<AV>- AV-see child OBL that book
'The child is reading that book.'

b. k<um>a-kita mamaini (mataata) a kana'a sulhat~~u~~.
RED<AV>-see child (tomorrow) OBL that book
'The child will read that book.'

(28) a. t<um>a-tii-tin~~uunu~~ a kana'a=na tikuru.
RED<AV>-RED-weave/stitch NOM that=DEF clothes
'That (person) is stitching clothes.'

b. t<um>a-tii-tin~~uunu~~=kia tikuru.
RED<AV>-RED-weave/stitch=? clothes
'(We) should often stitch clothes.'

For reasons outlined above (see footnote 27), we do not believe necessary to distinguish between a "polite" and "strong" imperative form and thus follow Tsuchida's (1976) analysis. Imperative forms include the following suffixes, AV *-a*, UVP *-u* and UVC *-ani*.

(29) a. t<um>in~~uun~~-a tikuru=na!
<AV>weave/stitch-IMP.AV clothes=DEF
'Stitch these clothes!'

b. tiniin-u a tikuru=na!
weave/stitch-IMP.UVP NOM clothes=DEF
'Stitch the(se) clothes!'

c. tiniin-ani a kana'a=na tikuru!
weave/stitch-UVP.UVC NOM that=DEF clothes
'Help him stitch the clothes!'

We posit "dependent" (for use of a better term) forms, cf. AV *M-* and UVP *-i*. Verbs marked with such forms occur in different contexts: when an AV verb occurs in second position in a serial verb construction (31a-b), or when a UVP verb is found in a narrative (31c).

(30) a. *marumuku* a mamaini a kana'a=na k<um>ita 'alhingu.
STAT:like NOM child LIG that=DEF <AV>see TV
'That child likes to watch TV.' (Pan 2012:65, ex. 3.31)

b. *um-ala* ina=ku na tikuru t<um>in~~uunu~~.
AV-take mother=1SG.GEN OBL clothes <AV>weave/stitch
'Mother takes clothes to stitch.'

c. maaci miamilhi=cu ia, aal-i= cu=ta maatara~~su~~.
STAT:like dry=COS TOP take-UVP=COS=1PL.INCL.GEN AV:cut
'If (it is) dry, we take (it) to cut.' (Pan 2012:127, ex. 4.16a; p. 292, ex. 8.43b)

Tsuchida (1976:78) makes a distinction between neutral and imperfective in negative constructions. We believe that there is a distinction but that *a*-marked verbs, when preceded by the negator *kuu* actually express modality.

(31) a. **ku**=aku tin~~uunu~~ tikuru (ki-ruvana).
NEG=1SG.NOM weave/stitch clothes (IRR-evening)
'I did not stitch clothes last evening.'

b. **ku**=aku a-tin~~uunu~~ tikuru (cu-ruvana).
NEG=1SG.NOM MOD-weave clothes (REAL-evening)
'I do not want to stitch clothes tonight.'

In other words, we assume that there is an opposition between two forms which look alike. C*a*-Reduplication (e.g. *c<um>a-culhu* 'will burn') and *a-*/<*a*> (e.g. *m-u-a-sala* 'will go') can be treated as allomorphs. A priori, in (predicative and imperative) negative constructions, we believe that *a-* (e.g. *a-culhu* '(do not want to/don't) burn') – sometimes also rendered by C*a*-reduplication,

e.g. *u-sa-siparu* '(do not want to/don't) wade' – should be treated as a marker of modality.

4. Summary and implications for subgrouping

We summarize in a tabular fashion our findings by first comparing our analysis of voice in Kanakanavu and Saaroa with that of Tsuchida (1976). Tables 17-18 allows a schematic comparison of our analytical differences, Tables 19-20 permits a comparison in terms of forms and functions.

Table 18. A comparison of Kanakanavu focus (or voice) system with Tsuchida (1976)

Focus				
Tsuchida (1976)	actor focus	non-actor focus		
	AF	PF	LF	SF
Voice				
Zeitoun & Teng (this paper)	AV	UV		

Table 19. A comparison of Saaroa focus (or voice) system with Tsuchida (1976)

Focus				
Tsuchida (1976)	actor focus	non-actor focus		
	AF	PF	LF	SF
Voice				
Zeitoun & Teng (this paper)	AV	UV		
	AV	UVP	UVC	

Table 20. A contrast between Kanakanavu and Saaroa focus, mood and aspect systems according to Tsuchida (1976:44, 70-71)

Focus / **Mood, aspect**	AF		PF		LF		SF	
	Kanakanavu	Saaroa	Kanakanavu	Saaroa	Kanakanavu	Saaroa	Kanakanavu	Saaroa
Neutral	*M*-stem	*M*-stem	stem(-*a*)	stem-*a*	*a*-stem(-*a*)	–	–	–
Perfective	*ni*-*M*-stem *M*<*in*>stem	*lhi*-*M*-stem	*ni*-stem(-*a*) <*in*>stem(-*a*)	*lhi*-stem-*a*	*ni*-stem-*a*(*n~~a~~*) <*in*>stem-*a*(*n~~a~~*)	*lhi*-stem-*a*(*na*)	stem-*ai*	*saa*-stem(-*a*)
Imperfective	Red-*M*-stem *a*-*M*-stem	*M*-C*a*-Red-stem	stem-~~*unu*~~	*a*-Red-stem-*a*	stem-~~*unu*~~	Red-stem-*a*(*na*)	–	–
Future	–	*M*-C*a*-stem	–	*a*-stem-*a*	*a*-stem-~~*unu*~~	*a*-stem-*a*(*na*)		
Imperative	*M*-stem-*a*	*M*-stem-*a*	stem-*au* stem-*i*	stem-*u*	stem-*au* stem-*i*	stem-*i* stem-*ani*		

Table 21. A contrast between Kanakanavu and Saaroa voice, mood and aspect systems according to our own reassessment

Voice / **Mood, aspect**		AV		UVP		UVC	
		Kanakanavu	Saaroa	Kanakanavu	Saaroa	Kanakanavu	Saaroa
Indicative	Realis neutral	–	–	–	stem-*a*	–	stem-*ani*
	Realis perfective	*M*-<*in*>stem	*lhi*-*M*-stem	<*in*>stem-*a*			
	Realis imperfective	*M*-C*a*-stem	*M*-C*a*-Red-stem	stem-~~*un*~~			
	Irrealis		*M*-C*a*-stem		–		
Non-indicative	Imperative	*M*-stem-*a*	*M*-stem-*a*	stem-*(a)u/-o*	stem-*u*		stem-*ani*
	Directive	*M*-stem-*an*	–	–	–		–
	Dependent	*M*-stem	*M*-stem	stem-*(a)i/-e*	stem-*i*		–

Ross (2009) provides an overview of PAn and PNAn verbal morphology, reproduced below.

Table 22. Reconstruction of Proto-Austronesian and Proto Nuclear Austronesian verbal morphology (Ross 2009:296, 306)

PAn				
		Undergoer voice		
	Actor voice	Patient subject	Location subject	Circumstance subject
Realis (N only)	**M*-stem	(*stem-*en*)	(*stem-*an*)	(**Sa*-/)**Si*-stem
Realis perfective (N only)	**M*-<*in*>stem	*<*in*>stem	*<*in*>stem-*an*	*<*in*>*Si*-stem
Irrealis (N only)	*C*a*-stem	*C*a*-stem-*en*	*C*a*-stem-*an*	(**Sa*-/)**Si*-C*a*-stem
Realis	**M*-stem	*stem-*aw*	*stem-*ay*	**an-ay* + stem
Optative/hortative	**M*-stem-a			
Realis imperfective	**M*-C*a*-stem	*C*a*-stem-*aw*	*C*a*-stem-*ay*	* *an-ay* + C*a*- stem
Imperative	*stem	*stem-*u*	*stem-*i*	**an-i* +stem
Dependent	**M*-stem	*stem-*a*		**an-i* + stem
Irrealis	*C*a*-stem	*C*a*-stem-*a*	*C*a*-stem-*i*	**an-i* +stem
PNAn				
		Undergoer voice		
	Actor voice	Patient subject	Location subject	Circumstance subject
Realis (V/N)	**M*-stem	*stem-*en*	*stem-*an*	**Sa*-/*Si*-stem
Realis perfective (V/N)	**M*-<*in*>stem	*<*in*>stem	*<*in*>stem-*an*	*<*in*>*Si*-stem
Realis imperfective	**M*-C*a*-stem	*C*a*-stem-*en*	*C*a*-stem-*an*	**Sa*-/*Si*-C*a*-stem
Irrealis (V/N)	*C*a*-stem			C*a*-stem
Optative/hortative	**M*-stem-a	*stem-*aw*	*stem-*ay*	**an-ay* + stem
Imperative	*stem	*stem-*u*	*stem-*i*	**an-i* +stem
Dependent		*stem-*a*		

If we work out through Ross' (2009) reconstructions, we obtain the following:

1. In Kanakanavu:

(a) The voice system is binary. It distinguishes only AV *vs.* UV. The AV form *M-* is a reflex of PNAn *M. The UV form ~~*un*~~(~~*u*~~) is a reflex of PNAn *-en.

(b) The reflex of <*in*> is found in both nominal and verbal constructions.

(c) Earlier voice forms that were identified as UVL (*ni-…-a*(*n*), <*in*>*…-a*(*n*), *-a*(*n*)) and I(/B)F (*si-*) are actually nominalized forms.

(d) PAn optative/hortative *M-…-a was reanalyzed as AV imperative.

(e) PAn realis and optative/hortative *-*aw* was reanalyzed as UV imperative.

2. In Saaroa:

(a) The voice system distinguishes between AV and UV, UV subsuming UVP and UVC.

(b) PAn AV, UVP and UVC dependent forms *M-, *-a and *an-i seem to have been reanalyzed as indicative forms while PAn UVL *-i remains a dependent form.

(c) PAn UVP and UVC imperative suffixes *-u and *an-i were preserved in Saaroa.

(d) Earlier forms that were identified as UVP/UVL (*lhi-…-a*(*na*), *a-…-a*(*na*)) are actually nominalized forms.

(e) Saaroa also displays the instrumental nominalization prefix *si-*, as recognized in earlier studies (e.g. Ross 1995, 2002, 2009).

(f) PAn optative/hortative *M-…-a was reanalyzed as AV imperative.

3. In both languages:

We further posit syncretism between Patient nominalization and Locative nominalization.

We conclude that Kanakanavu has only partially reanalyzed second generation suffixes, i.e.: the reflex of *-en was reanalyzed as a verbal marker in Kanakanavu (encoding UV), and the reflex of *<in> can function as a perfective and a UV voice marker/nominalizing formative in Kanakanavu.

In Saaroa, the reflex of *<in> co-occurs with AV-marked verbs and in nominal constructions. Reflexes of *-an and *Si- are still (and only) used as nominalizers and were never reinterpreted as verbal affixes. The fact that the reflex of *-an is still used as a nominalizer in Saaroa explains the possible co-occurrence of *lhi-* and *-a*(*na*).

We map these findings onto Ross' (2009) PAn and PNAn verbal morphology (see Table 23).

Table 23. A comparison between the Kanakanavu/Saaroa verbal morphology and that of PAn and PNAn (Based on Ross 2009:296, 306)[34]

PAn			Undergoer voice		
		Actor voice	Patient subject	Location subject	Circumstance subject
PAn	Realis (N only)	**M*-stem	(*stem-*en*)	(*stem-*an*)	(**Sa*-/)**Si*-stem
Kanakanavu		–	stem-*a*(*n*)		*si*-stem
Saaroa		–	stem-*a*(*na*)		*si*-stem
PAn	Realis perfective (N only)	**M*-<*in*>stem	*<*in*>stem	*<*in*>stem-*an*	*<*in*>*Si*-stem
Kanakanavu		–	*ni*-stem-*an* <*in*>stem-*an*		–
Saaroa		–	lhi-stem-*a*(*na*)		–
PAn	Irrealis (N only)	*C*a*-stem	*C*a*-stem-*en*	*C*a*-stem-*an*	(**Sa*-/)**Si*-C*a*-stem
Kanakanavu		–	–	–	*si*-(*a*-)stem
Saaroa		–	–	–	*si*-(*a*-)stem
PAn	Realis	**M*-stem	*stem-*aw*	*stem-*ay*	**an-ay* + stem
Kanakanavu		–	–	–	–
Saaroa		–	–	–	–
PAn	Optative/hortative	**M*-stem-a	*stem-*aw*	*stem-*ay*	**an-ay* + stem
Kanakanavu	➔Imperative	*M*-stem-a	stem-*au*/-*o*	–	–
Saaroa		*M*-stem-a	–	–	–
PAn	Realis imperfective	**M*-C*a*-stem	*C*a*-stem-*aw*	*C*a*-stem-*ay*	* *an-ay* + C*a*- stem
Kanakanavu		*M*-C*a*-stem	–	–	–
Saaroa		*M*-C*a*-Red-stem	–	–	–
PAn	Imperative	*stem	*stem-*u*	*stem-*i*	**an-i* +stem
Kanakanavu		–	–	–	–
Saaroa		–	stem-*u*	–	stem-*ani*
PAn	Dependent	**M*-stem	*stem-*a*	*stem-*i*	**an-i* + stem
Kanakanavu		*M*-stem	–	stem-(*a*)*i*/-*e*	–
Saaroa		*M*-stem	stem-*a*	stem-*i*	stem-*ani*
Tsou		*M*-stem	stem-*a*	stem-*i*	stem-*eni*
PAn	Irrealis	*C*a*-stem	*C*a*-stem-*a*	*C*a*-stem-*i*	**an-i* +stem
Kanakanavu		*M*-C*a*-stem	–	–	–
Saaroa		*M*-C*a*-stem	–	–	–

PNAn				Undergoer voice	
		Actor voice	Patient subject	Location subject	Circumstance subject
PNAn	Realis (V/N)	**M*-stem	*stem-*en*	*stem-*an*	**Sa*-/*Si*-stem
Kanakanavu		*M*-stem	stem-~~*un*~~	–	–
Saaroa		–	–	–	–
PNAn	Realis perfective (V/N)	**M*-<*in*>stem	*<*in*>stem	*<*in*>stem-*an*	*<*in*>*Si*-stem
Kanakanavu		*M*<*in*>stem *ni*-*M*-stem	<*in*>stem *ni*-stem	–	–
Saaroa		*lhi*-*M*-stem	–	–	–
PNAn	Realis imperfective	**M*-C*a*-stem	*C*a*-stem-*en*	*C*a*-stem-*an*	**Sa*-/*Si*-C*a*-stem
Kanakanavu		–	–	–	–
Saaroa		–	–	–	–
PNAn	Irrealis (V/N)	*C*a*-stem	*C*a*-stem-*en*	*C*a*-stem-*an*	C*a*-stem
Kanakanavu		–	–	–	–
Saaroa		–	–	–	–
PNAn	Optative/hortative	**M*-stem-a	*stem-*aw*	*stem-*ay*	**an-ay* + stem
Kanakanavu		–	–	–	–
Saaroa		–	–	–	–
PNAn	Imperative	*stem	*stem-*u*	*stem-*i*	**an-i* +stem
Kanakanavu		–	–	–	–
Saaroa		–	–	–	–
PNAn	Dependent	*stem	*stem-*a*	*stem-*i*	**an-i* +stem
Kanakanavu		–	–	–	–
Saaroa		–	–	–	–

[34] We add Tsou for the relevance of comparison.

This leads to place Kanakanavu and Saaroa higher up in the subgrouping tree proposed by Ross (2009) and thus propose a new hypothesis for the higher phylogeny of the Austronesian languages. We reach, for different reasons, the same conclusions as Starosta (2009[1995]:773), and posit that Saaroa and Kanakanavu appear at different levels, between Proto-Austronesian and Proto-Nuclear Austronesian.[35]

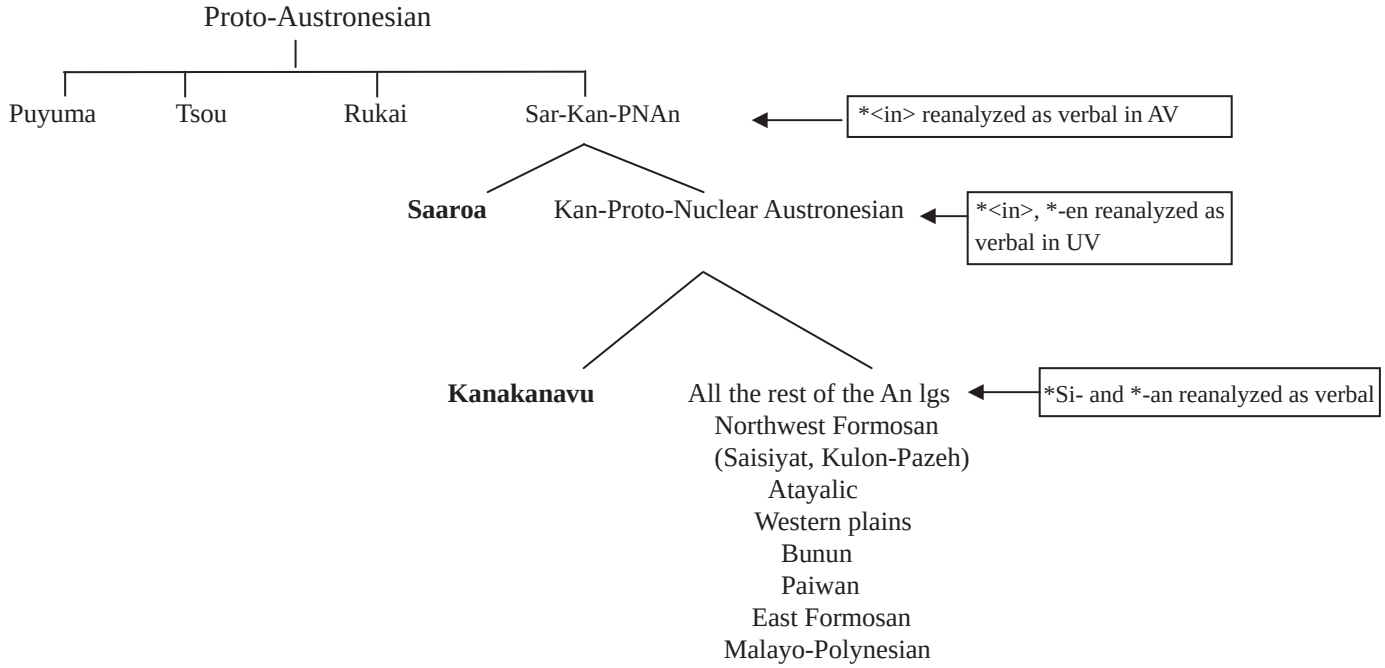

Figure 2. Ross' (2009) subgrouping hypothesis revisited

However, based on phonological and lexical evidence proposed by Tsuchida (1976), another subgrouping is plausible (and certainly more in phase with previous studies) that would treat Kanakanavu and Saaroa as part of the same subgroup. We admit that what is also unsolved at this point is the relation between Tsou, Kanakanavu and Saaroa, but this new subgrouping hypothesis may help us to re-consider their relationships in a near future.

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