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From ki-N 'get N' in Formosan languages to ki-V 'get V-ed' (passive) in Rukai, Paiwan and Puyuma

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1 Introduction¹

The Rukai dialects exhibit morphosyntactic features that are not found in other Formosan languages. One of the most interesting, and perhaps intriguing phenomena, lies in the development of an active/passive voice dichotomy. Depending on the dialect, the active voice is marked by *w-/u-/o-* and the passive by *ki-/i-*. The morpheme *ki-/i-* not only occurs on verbs, but also on different types of nouns, and can be glossed as 'to obtain/get N'. The other Formosan languages, Paiwan and Puyuma in particular, are characterised by a more complex voice system. In these two languages, *ki-* is also found with the same distribution as in Rukai: *ki-* attaches to nouns, and can be glossed as 'to obtain/get N' and it attaches to verbs. When it attaches to verbs, *ki-* usually conveys a passive meaning.

The present paper accounts for the wide distribution of *ki-N* 'get N' in the Formosan languages and the more restricted development *ki-V* 'get V-ed' (passive) in Rukai,² Paiwan³ and Puyuma.⁴ As this morphosyntactic device is found in three contiguous languages, all spoken in Southern Taiwan, it seems necessary to first provide an overview on the genetic relationships of Rukai, Paiwan and Puyuma (§1.1) before presenting the aims of this study (§1.2).

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² Rukai includes six major dialects, Maga, Tona, Mantaaran, Budai, Labuan and Tanan. Their internal relationships remain controversial. Among these, Budai is treated as the most 'conservative' and Mantaaran as the most 'aberrant'. It has been demonstrated in Zeitoun (2003, 2007, in preparation) that contrary to what has been earlier assumed, Mantaaran is actually genetically closer to the Labuan-Tanan-Budai cluster. The present paper draws on data from Tona.

³ Unless otherwise indicated, the data on which this paper is based are drawn from the dialectal variant of Northern Paiwan spoken in Sandimen (Pingtung County).

⁴ Puyuma is traditionally divided into two major dialects, Nanwang versus Katipul. This paper presents data from Nanwang Puyuma.

1.1 Notes on the genetic relationships of Rukai, Paiwan and Puyuma

There are fourteen extant Formosan languages, four of which are moribund. The latter are preceded with an asterisk in the list that follows: Amis, Atayal, Bunun, *Kanakanavu, Kavalan, Paiwan, *Pazeh, Puyuma, Rukai, *Saaroa, Saisiyat, Seediq, *Thao, and Tsou. A fifteenth language, Yami, is spoken on Orchid Island, which is politically part of Taiwan. Linguistically it is more closely related to the Philippine languages (Batanic subgroup).

Relationships amongst the Formosan languages are still a matter of controversy, particularly in areas where they are spoken by populations that have been in close contact for centuries, as is the case of Rukai, Paiwan and Puyuma. Various subgrouping hypotheses regarding the relationships of the Formosan languages have been advanced. Ferrell's (1969) hypothesis with a tripartite division of Formosan languages was prevalent until the 1990s. The three major subgroups included: Atayalic (Atayal and Seediq), Tsouic (Tsou, Kanakanavu and Saaroa) and Paiwanic (further divided into Paiwanic I [Rukai, Pazeh, Saisiyat, Thao, Puyuma and Paiwan] and Paiwanic II [Bunun, Siraya, Amis, Kavalan and Yami]). Since the mid-1990s, other hypotheses have emerged, based on different types of innovations: (i) phonological; (ii) morphological; and (iii) lexical. Currently, one of the most widely accepted subgrouping hypotheses, and the one we basically follow in this paper, is that of Blust (1999a). He argues, based on phonological evidence, that the Formosan languages should be classified as forming nine out of ten primary subgroups descending from Proto Austronesian (PAN) (see Figure 1). The nine groups are: Atayalic (Atayal and Seediq), East Formosan (Basay-Trobiawan, Kavalan, Amis and Siraya), Puyuma, Paiwan, Rukai, Tsouic (Tsou, Kanakanavu and Saaroa), Bunun, Western Plains (Taokas-Babuza, Papora-Hoanya, Thao) and Northwest Formosan (Saisiyat, Kulun-Pazeh). The tenth Austronesian (An) subgroup is composed of all the languages spoken outside Taiwan (Malayo-Polynesian). Blust (1999a:51) summarises the evidence regarding a possible genetic relationship between Paiwan and Puyuma as follows:

All in all [...] the evidence for a Puyumic subgroup which includes Puyuma and Paiwan is far from convincing, given the evidence for *longstanding* [our emphasis, EZ&ST] borrowing, and for now it is best to consider each of these languages a primary branch of the An family.

He does not make any comment, however, regarding the position of Rukai with respect to Paiwan and Puyuma, though he believes that this language also constitutes a primary subgroup. Four other major hypotheses have been postulated regarding the position of Rukai (as opposed to Paiwan and Puyuma) within the Formosan languages. Rukai has been viewed as: (i) subgrouping with Tsouic and forming a higher group labeled Rukai-Tsouic (Tsuchida 1976); (ii) being closer to Paiwan (Ho 1983); (iii) subgrouping with Tsouic, Paiwan, Puyuma, Amis and Bunun and forming a higher Walu-Siwaish group (Sagart 2004); and (iv) constituting the/one of the first offshoot(s) of the An family (Starosta 1994, 1995 and Ross 2009). Starosta's (1994, 1995) and Ross' (2009) views diverge in that Starosta (1994, 1995) believes that Rukai is distinct from both Tsouic and Paiwan and constitutes the first An offshoot (Starosta 1994, 1995) while Ross (2009) assumes that Rukai forms a distinct primary subgroup, as do Tsou and Puyuma in contrast to all other Austronesian languages, which form a fourth primary subgroup which he labels Nuclear Austronesian languages (see Figure 3).

1.2 Aims of the present study

The morpheme *ki-* can be glossed as 'obtain, get' as its 'core' meaning. It is prefixed to nouns (henceforth *ki-N*) and is found quite productively across the Formosan languages (see §2). *Ki-* can also be prefixed to verbs (henceforth *ki-V*), but in relatively few languages (to our knowledge, Kavalan, Rukai, Paiwan and Puyuma). The behaviour of *ki-V* is very similar in Rukai, Paiwan and Puyuma. In these three languages, *ki-* functions most notably as a passive (see §3).

The goals of the present paper are as follows:

- (i) to describe the distribution and function of the prefix *ki-* when followed by a noun in the Formosan languages and show that it is a viable candidate for reconstruction at the PAN level (§2).
- (ii) to describe and compare the distribution and functions of *ki-* when followed by a verb in Rukai, Paiwan and Puyuma (§3).
- (iii) to determine whether *ki-V* represents borrowing, shared innovation or parallel development in these three languages and to discuss the grammaticalisation path of *ki-* (§4).

2 *ki-N* 'obtain-N' in Formosan languages

As shown in (1)–(6) below, the prefix *ki-* 'obtain, get' followed by a noun is found productively in Saisiyat, Kavalan, Kanakanavu, Saaroa, Rukai, Puyuma and Paiwan. The derived form, *ki-N*, functions as verb in all these languages.

- (1) TUNGHO SAISIYAT⁵

a. <i>kaehoey</i>	'tree, wood, brushwood'	<i>ki-kaehoey</i>	'gather, chop brushwood'
b. <i>pongaeh</i>	'flower'	<i>ki-pongaeh</i>	'pick flowers'
- (2) KAVALAN (PAN *k > Kav q; Li and Tsuchida 2006:229, 441)⁶

a. <i>paRin</i>	'tree, wood, brushwood'	<i>qi-paRin</i>	'gather firewood'
b. <i>tamun</i>	'vegetable'	<i>qi-tamun</i>	'pick vegetables'
- (3) a. KANAKANAVU (Ho 1997:240)

<i>tamemi</i>	'sweet potato'	<i>ki-tamemi</i>	'gather sweet potatoes'
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b. SAAROA (Li pers. comm)

<i>mairange</i>	'sweet potato'	<i>ki-mairange</i>	'gather sweet potatoes'
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⁵ The orthographic symbols employed in this paper include: e [ə] ae [æ], oe [œ], ' [ʔ], tr [tʃ], dr [dʒ], lr [lʃ], dh [ð], sh [ʃ], lh [ʎ], th [θ], tj [tʃ], ng [ŋ] and r [ʀ]. There is no attempt to distinguish between prefixes and clitics. Abbreviations are: AV - Actor Voice; CAUS - Causative; CV - Circumstantial Voice; DYN - Dynamic; EXCL - Exclusive; FIN - Finite; GEN - Genitive; INCL - Inclusive; INDF - Indefinite; IRR - Irrealis; Kav - Kavalan; LIG - Ligature; LV - Locative Voice; NAGTPASS - Non-agentive Passive; NAV - Non Actor Voice; NEG - Negation; NFIN - Non Finite; NOM - Nominative; OBL - Oblique; Pai - Paiwan; PASS - Passive; PERF - Perfective; PL - Plural; PROJ - Projective; PV - Patient Voice; REAL - Realis; RED - Reduplication; STAT - Stative; SUBJ - Subjunctive; TOP - Topic.

⁶ Both Tunggho Saisiyat and Kavalan exhibit at least one other prefix with a similar meaning. In Tunggho Saisiyat, *ki-N* means 'to gather, harvest (with an instrument)' as opposed to *ti-N* 'to gather, harvest (with one's hands)'. Kavalan has another prefix that means 'catch, get', cf. *Ri-* as in *Ri-baut* 'to fish' < *baut* 'fish', *Ri-alam* 'catch birds' < *alam* 'bird', *Ri-krisiw* 'get paid' < *krisiw* 'money', *Ri-szang* 'expose to the sun' < *szang* 'sun' (Li and Tsuchida 2006:19).

In Tona Rukai, Nanwang Puyuma and Northern Paiwan, *ki-* appears on a variety of nouns and means 'gather/harvest, fetch, get, hunt/kill etc.', as shown in (4)–(6) respectively.

(4) TONA RUKAI

a.	<i>becenge</i>	'millet'	<i>ky-a-becenge</i>	'harvest millet'
b.	<i>pagay</i>	'rice'	<i>ky-a-pagay</i>	'harvest rice'
c.	<i>'angato</i>	'brushwood, tree'	<i>ky-a-'angato</i>	'gather brushwood'
d.	<i>enay</i>	'water'	<i>ky-a-enay</i>	'fetch water'
e.	<i>paiso</i>	'money'	<i>ky-a-paiso</i>	'earn money'
f.	<i>baa</i>	'enemy'	<i>ky-a-baa</i>	'kill (an) enemy'
g.	<i>comay</i>	'bear'	<i>ky-a-comay</i>	'kill (a) bear'

(5) NANWANG PUYUMA (Teng 2008 and Cauquelin 1991)

a.	<i>'aputr</i>	'flower'	<i>ki-'aputr</i>	'pick flowers'
b.	<i>kawi</i>	'wood'	<i>ki-kawi</i>	'chop wood'
c.	<i>asepan</i>	'sugarcane'	<i>ki-asepan</i>	'hack sugarcane'
d.	<i>kuraw</i>	'fish'	<i>ki-kuraw</i>	'fish'
e.	<i>paisu</i>	'money'	<i>ki-paisu</i>	'earn money'
f.	<i>ni'en</i>	'neck'	<i>ki-ni'en</i>	'behead'
f.	<i>tranguru'</i>	'head'	<i>ki-tranguru'</i>	'behead'
g.	<i>'ala</i>	'enemy'	<i>ki-'ala</i>	'kill an enemy'
h.	<i>babuy</i>	'wild boar'	<i>ki-babuy</i>	'kill (a) wild boar'

(6) NORTHERN PAIWAN

a.	<i>va'u</i>	'millet'	<i>ki-va'u</i>	'harvest millet'
b.	<i>paday</i>	'rice'	<i>ki-paday</i>	'harvest rice'
c.	<i>kasiw</i>	'wood, brushwood'	<i>ki-kasiw</i>	'gather brushwood'
d.	<i>tevus</i>	'sugarcane'	<i>ki-tevus</i>	'hack sugarcane'
e.	<i>zalum</i>	'water'	<i>ki-zalum</i>	'fetch water'
f.	<i>paisu</i>	'money'	<i>ki-paisu</i>	'get/earn money'
g.	<i>'ulu</i>	'head'	<i>ki-'ulu</i>	'behead'
h.	<i>vavuy</i>	'wild boar'	<i>ki-vavuy</i>	'kill (a) wild boar'

It is reasonable to believe that the prefix *ki-* has undergone a semantic shift. In Isbukun Bunun and in Tungho Saisiyat, *ki-N* means 'remove from' but seems to be used specifically with nouns related to body parts, as shown in (7) and (8).

(7) ISBUKUN BUNUN

a.	<i>ngisngis</i>	'beard'	<i>ki-ngisngis</i>	'shave' (Lin et al. 2001:88)
b.	<i>saip</i>	'body hair'	<i>ki-saip</i>	'remove body hair from the face' (ibid. p.42)

(8) TUNGHO SAISIYAT

<i>nipen</i>	'tooth'	<i>ki-nipen</i>	'pull out a tooth' (Yeh 2003:44)
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In Thao, there seems *a priori* to be no prefix *ki-* meaning 'harvest, gather' but there is a prefix, cf. *kin-*, with such a meaning. It has two other allomorphs *kim-* (before bilabials) and *kig-* (before velars).⁷

⁷ Kaufman (2009) proposes that the *m-* (*-n-g-*) prefix refers to a plural.

(9) THAO (Blust 2003:104)

a.	<i>bailu</i>	'beans'	<i>kim-bailu</i>	'pick beans'
b.	<i>bukay</i>	'flower'	<i>kim-bukay</i>	'pick flowers'
c.	<i>fatu</i>	'stone'	<i>kin-fatu</i>	'gather stones'
d.	<i>lapat</i>	'guavas'	<i>kin-lapat</i>	'pick guavas'
e.	<i>lhuzush</i>	'plums'	<i>kin-lhuzush</i>	'gather plums'
f.	<i>rusaw</i>	'fish'	<i>kin-rusaw</i>	'catch fish, fish'
g.	<i>kucun</i>	'shrimp'	<i>kig-kucun</i>	'collect shrimps'
h.	<i>qati</i>	'bamboo shoots'	<i>kig-qati</i>	'gather bamboo shoots'

To date, *ki-N* has not been reported in Pazeh (Blust 1999b; Li and Tsuchida 2001), Atayal (Egerod 1999), Seediq (Pecoraro 1979) or Amis (Fey 1986).⁸

A summary of the data provided in this section is given in Table 1.

Table 1: Distribution of the prefix *ki-N* in the Formosan languages

Language	Form	Meaning	
		1. 'to get, harvest'	2. 'to remove'
Kavalan	<i>qi-</i>	+	–
Kanakanavu	<i>ki-</i>	+	–
Saaroa	<i>ki-</i>	+	–
Rukai	<i>ki-</i>	+	–
Puyuma	<i>ki-</i>	+	–
Paiwan	<i>ki-</i>	+	–
Saisiyat	<i>ki-</i>	+	+
Bunun	<i>ki-</i>	–	+
Thao	(<i>kin-</i>)	+	–
Pazeh	–	–	–
Atayal	–	–	–
Seediq	–	–	–
Amis	–	–	–

A conclusion imposes itself at this point: whether we follow Blust's (1999a), Sagart's (2004) or Ross' (2009) classification of Austronesian languages, the distribution of *ki-N* in the Formosan languages shows that it should be reconstructed for PAN, as demonstrated by Figures 1, 2 and 3 where the distribution of *ki-* across the Formosan languages (bolded) can be seen.

⁸ In Nataoran Amis, there is a prefix *li-* meaning 'to get, to obtain' as shown as follows:

<i>li-tinaiq</i>	'get/take intestines'	<	<i>tinaiq</i>	'intestines'
<i>mi-li-pida</i>	'get a salary'	<	<i>pida</i>	'money'
<i>mi-li-panay</i>	'harvest rice'	<	<i>panay</i>	'rice'
<i>mi-li-tangal</i>	'kill (i.e. go headhunting)'	<	<i>tangal</i>	'head'

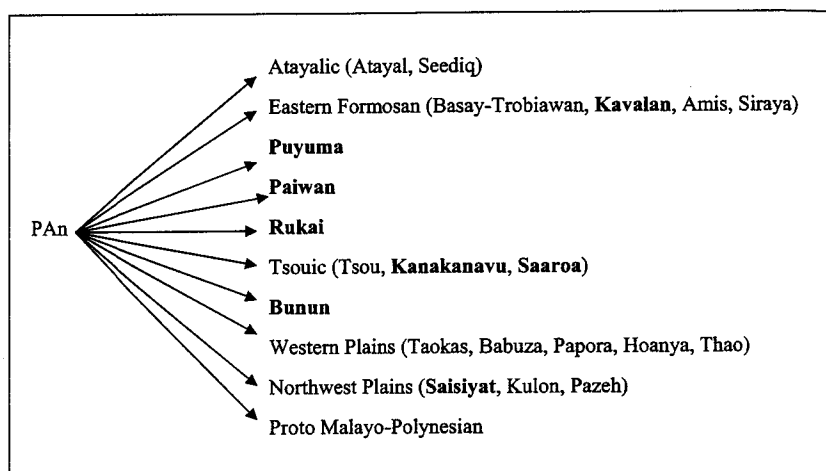


Figure 1: Blust's (1999:45) subgrouping hypothesis

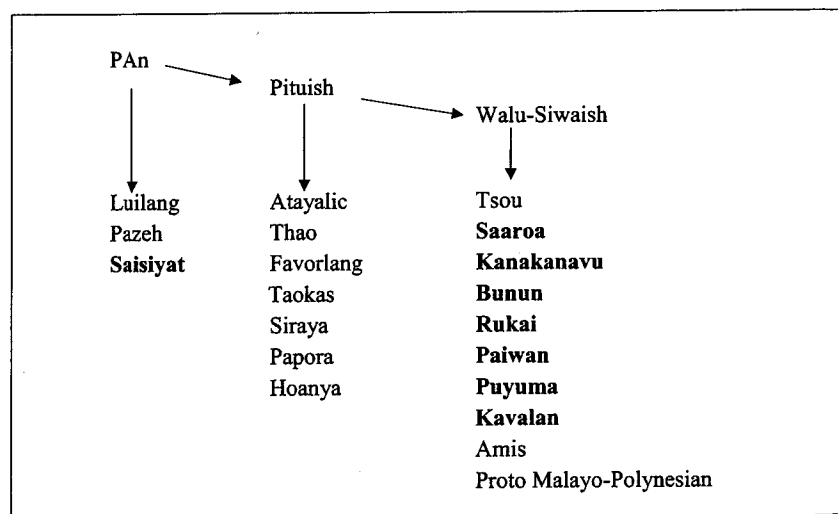


Figure 2: Sagart's (2004:421) subgrouping hypothesis

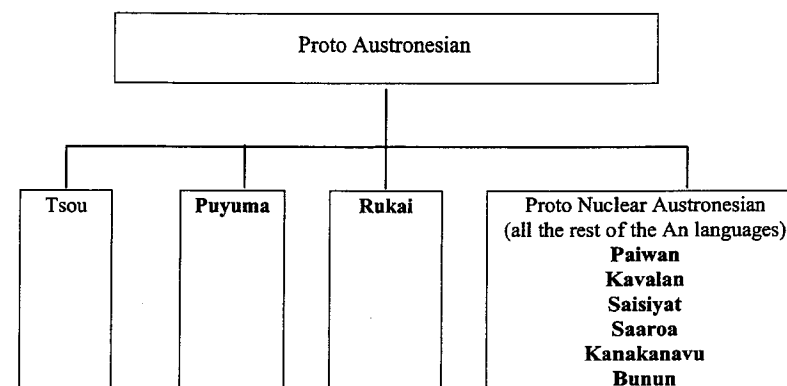


Figure 3: Ross' (2009) subgrouping hypothesis

3 Distribution and functions of *ki-V* in Rukai, Paiwan and Puyuma

The major distinction between Rukai, Puyuma and Paiwan lies in their voice system. Rukai displays an active/passive voice dichotomy while the other Formosan languages — Puyuma and Paiwan in particular — are characterised by a more complex voice system. Two major voices are found in these two languages: A(ctor) V(oice) and N(on) A(ctor) V(oice),⁹ which further includes the following subtypes: P(atient) V(oice), L(ocative) V(oice), and C(onveyance) V(oice).¹⁰ An overview of the voice distinctions in Rukai, Puyuma and Paiwan is further given in §3.1.

In these three languages, *ki-* followed by a verb stem has two different (though related) meanings: (i) it refers to a passive, and (ii) it indicates a reflexive.¹¹ The distribution and

⁹ In Puyuma, AV clauses are analysed as intransitive as opposed to NAV clauses (for a detailed discussion on this matter, see Ross and Teng 2005 and Teng 2008).

¹⁰ As demonstrated in earlier papers (cf. Zeitoun et al. 1996; Zeitoun and Huang 1997), voice (or focus) interacts closely with mood and aspect. In the present section, we provide examples in the realis mood only.

¹¹ The use of the same marker as a passive or a reflexive has been widely discussed in general linguistics. Shibatani (1985:825) shows that that '[i]n several Indo-European and American Indian languages, the passive/reflexive/reciprocal correlation is well known. [...] the same morphology is employed for all three constructions, or for a passive and one other construction' and further argues 'that the passive/reflexive/reciprocal correlation arises largely from a semantic property of these constructions: in all of them, surface subjects are affected. In the passive, the subject is affected by an external agent; in the reflexive, by itself; in the reciprocal, by the partner.'

It is instructive to note that:

(a) *ki-* 'self' has only been reported in two Rukai dialects, Budai and Tanan (see examples in (i); Li 1975:260), but in these two dialects, *ki-* competes with another reflexive form, cf. Budai *ngi-*, which occurs much more productively, e.g. Budai *ngy-a-pa-pa-pacay* 'kill oneself' (< *ngi-* 'self', *a-* 'realis', *pa-* 'reduplication', *pa-* 'Caus', *pacay* 'die');

(i) BUDAI RUKAI

a. *vavavange* 'play' *ky-a-vavavange* 'play by oneself'
b. *papacay* 'kill' *ky-a-pa-papacay* 'kill oneself'

(b) in Paiwan, *ki-* has been shown to exhibit an array of functions (cf. Ferrell 1982 and Chang 2006), including 'reflexive', as in (ii); and

functions of *ki-V* as passive are further discussed in §3.2. *Ki-V* clauses will be compared, on the one hand, to *ki-N* clauses (§3.3), and to NAV clauses on the other (§3.4). The reflexive function of *ki-* will not be discussed in this paper, as the complexity of the linguistic data observed needs to be further investigated.

3.1 Overview of the voice distinctions in Rukai, Puyuma and Paiwan

In Tona Rukai, dynamic verbs are marked by *w-* in the active voice (realis), as in (10a). Other prefixes might also be used, but far less productively. Stative verbs are commonly marked by *ma-*, as in (10b).

- (10) TONA RUKAI
- a. *a-nakay soa'a ka w-a-ka'ace na atho.*
TOP-that snake TOP DYN.FIN-REAL-bite OBL dog
'That snake bit a dog'
- b. *ma-boti'i na ngiaw.*
STAT.FIN-blind NOM cat
'The cat is blind.'

There are two passive forms in Tona Rukai. The first is agentive, as in (11a) and the second is agentless, as in (11b). The agentive passive is realised as *ki-*,¹² the agentless passive as *'i-*.

- (11) TONA RUKAI
- a. *a-nakay atho ka ky-a-ka'ace na soa'a.*
TOP-that dog TOP PASS-REAL-bite OBL snake
'That dog was bitten by a snake.'
- b. *'y-a-silape-nga makasi i-okono kiname.*
NAGTPASS-REAL-look for-already but NEG-DYN.NFIN:find 1PL.EXCL.NOM
lit: 'It was looked for but we did not find it'

Two major voices are found in Puyuma: AV and NAV. The latter has three subtypes: PV *-aw*, LV *-ay*, and CV *-anay*, as shown in (12):

- (12) NANWANG PUYUMA
- a. *tusuk-ku dra lrutung.*
<AV>pierce-1SG.NOM INDF.OBL monkey
'I speared a monkey.' (Ross and Teng 2005:749)

- b. *ku-tusuk-aw na lrutung.*
1SG.GEN-pierce-PV NOM monkey
'I speared the monkey.'
- c. *ku-tusuk-ay dra da'um nantu tranguru' kana lrutung.*
1SG.GEN-pierce-LV INDF.OBL needle NOM:3P head DEF.OBL monkey
'I pierced the monkey's head with a needle.'
- d. *ku-tusuk-anay na derederan dra lrutung.*
1SG.GEN-pierce-CV NOM spear type INDF.OBL monkey
'I speared monkeys with the *derederan* (-kind of spear).'

Two major voices are also found in Paiwan: AV versus NAV, which further divides into: PV <*in*>/-*en*-, LV *-an*, and CV *si-*, as shown in (13). Stative verbs are either unmarked or marked by *ma-*, as illustrated in (14).

- (13) NORTHERN PAIWAN
- a. *tekelr ta vava ti kui.*
drink<AV>drink OBL wine NOM Kui
'Kui drinks/drank wine.'
- b. *t<in>ekelr-anga a vava ni kui.*
drink<PV:PERF>drink-already NOM wine GEN Kui
'Kui has already drunk the wine.'
- c. *pa-tekelr-an ti su-kaka tuazua zalum.*
CAUS-drink-LV NOM 2SG.GEN-elder sibling OBL:that water
'That (glass of) water is for your elder brother/sister to drink.'
- d. *si-tekelr ta cemelr.*
CV-drink OBL grass
'(This glass) is used to drink medicine.'
- (14) a. *Ø-tengelray ti kui tai muni.*
STAT.FIN-love NOM Kui OBL Muni
'Kui loves Muni.'
- b. *ma-lreva ti 'umi.*
STAT.FIN-happy NOM Umi
'Umi is happy.'

3.2 Notes on the distribution and functions of *ki-V* in Rukai, Puyuma and Paiwan

In Rukai, the passive prefix *ki-* can occur with dynamic and stative verbs, as shown in (15). Only inherently transitive verbs can be passivised. Note that although passive forms can be easily elicited in the Rukai dialects, and in Tona in particular, they are not frequently found in texts.

- (15) TONA RUKAI
- (i) *ki-* 'agentive' passive' in co-occurrence with (transitive) dynamic verbs
- | | | | |
|---------------------|-----------------|-------------------|----------------------|
| a. <i>w-a-aba</i> | 'carry on back' | <i>ky-a-aba</i> | 'be carried on back' |
| b. <i>w-a-do'o</i> | 'cook' | <i>ky-a-do'o</i> | 'be cooked' |
| c. <i>w-a-elebe</i> | 'close' | <i>ky-a-elebe</i> | 'be closed' |

(ii) NORTHERN PAIWAN

- | | | | |
|----------------------|-------------|-------------------|---------------------------------|
| a. <i>pacay</i> | 'die' | <i>ki-pacay</i> | 'commit suicide' |
| b. <i>se'as</i> | 'chop' | <i>ki-se'as</i> | 'chop oneself' |
| c. <i>mavanaw</i> | 'bathe' | <i>ki-pavanaw</i> | 'bathe oneself' |
| c. <i>ngua'ngua'</i> | 'beautiful' | <i>ki-lengua'</i> | 'dress up beautifully, make up' |

(c) in Puyuma, *ki-V* has been glossed as a reflexive by Cauquelin (1991:20), cf. *natay* 'die' ~ *ki-natay* 'commit suicide' but our own informants reject such a construction.

¹² *ki-* is realised as *ky-*, and *'i-* as *'y-* when followed by the realis marker *a-*.

d.	<i>w-a-igo'o</i>	'know'	<i>ky-a-igo'o</i>	'be known, be famous'
e.	<i>w-a-ka'ace</i>	'bite'	<i>ky-a-ka'ace</i>	'be bitten'
f.	<i>w-a-lapo</i>	'raise (an animal)'	<i>ky-a-lapo</i>	'be raised'
g.	<i>w-a-pii</i>	'choose'	<i>ky-a-pii</i>	'be chosen'
h.	<i>w-a-pwalra</i>	'catch'	<i>ky-a-pwalra</i>	'be caught'
i.	<i>w-a-salaa'a</i>	'chase'	<i>ky-a-salaa'a</i>	'be chased'
j.	<i>w-a-sititi</i>	'beat'	<i>ky-a-sititi</i>	'be beaten'
k.	<i>w-a-tobi</i>	'cry'	<i>ky-a-tobi</i>	'beg'

(ii) *ki-* '(agentive) passive' in co-occurrence with (transitive) stative verbs

a.	<i>ma-dalame</i>	'like, love'	<i>ky-a-ka-dalame</i>	'be liked, loved'
b.	<i>ma-ga'aoco</i>	'scold'	<i>ky-a-ka-ga'aoco</i>	'be scolded'

As in Tona Rukai, *ki-* can attach to different types of verbs in Puyuma and in Paiwan.

(16) NANWANG PUYUMA (Teng 2008; Cauquelin 1991)

(i) *ki-* in cooccurrence with dynamic verbs

a.	<i>abak</i>	'fill in'	<i>ki-abak</i>	'be filled'
b.	<i>adras</i>	'lift'	<i>ki-adras</i>	'be lifted'
c.	<i>alrak</i>	'take'	<i>ki-alrak</i>	'be taken away'
d.	<i>asal</i>	'move'	<i>ki-asal</i>	'be moved'
e.	<i>atrab</i>	'cover'	<i>ki-atrab</i>	'be covered'
f.	<i>baluk</i>	'wake'	<i>ki-baluk</i>	'be waken up'
g.	<i>bekas</i>	'attack'	<i>ki-bekas</i>	'be attacked'
h.	<i>beray</i>	'give'	<i>ki-beray</i>	'be given, ask for'
i.	<i>bulras</i>	'exchange'	<i>ki-bulras</i>	'borrow'
j.	<i>da'ul</i>	'inform'	<i>ki-da'ul</i>	'be informed'
k.	<i>dirus</i>	'wash'	<i>ki-dirus</i>	'be washed'
l.	<i>drimutr</i>	'catch'	<i>ki-drimutr</i>	'be caught'
m.	<i>kasu</i>	'bring'	<i>ki-kasu</i>	'be brought'
n.	<i>lrelrep</i>	'catch up'	<i>ki-lrelrep</i>	'be caught up'
o.	<i>na'u</i>	'see'	<i>ki-na'u</i>	'be seen, looked after'
p.	<i>padek</i>	'carry'	<i>ki-padek</i>	'be carried'
q.	<i>pilang</i>	'lead'	<i>ki-pilang</i>	'be led'
r.	<i>retra'</i>	'put down'	<i>ki-retra'</i>	'be discarded'
s.	<i>sabana</i>	'cheat'	<i>ki-sabana</i>	'be cheated'
t.	<i>salraw</i>	'surpass'	<i>ki-salraw</i>	'be surpassed'
u.	<i>tarama</i>	'bully'	<i>ki-tarama</i>	'be bullied'
v.	<i>tenges</i>	'tie up'	<i>ki-tenges</i>	'be tied up'
w.	<i>tuludr</i>	'put s.t in s.o's hands'	<i>ki-tuludr</i>	'be put in one's hands, accept, receive'
x.	<i>trakaw</i>	'steal'	<i>ki-trakaw</i>	'be stolen'
y.	<i>trangis</i>	'cry'	<i>ki-trangis</i>	'beg'

(ii) *ki-* in cooccurrence with stative verbs

a.	<i>bangabang</i>	'be busy'	<i>ki-bangabang</i>	'kill time'
b.	<i>laman</i>	'pity'	<i>ki-laman</i>	'be pitied, receive pity from others'

c.	<i>litek</i>	'be cold'	<i>ki-litek</i>	'catch a cold'
d.	<i>sagar</i>	'like'	<i>ki-sagar</i>	'be liked, receive love from others'

(17) NORTHERN PAIWAN

(i) *ki-* in cooccurrence with dynamic verbs

a.	<i>pangulr</i>	'beat'	<i>ki-pangulr</i>	'get beaten'
b.	<i>zurung</i>	'push (down)'	<i>ki-zurung</i>	'get pushed (down)'
c.	<i>pasedjan</i>	'lend'	<i>ki-pasedjan</i>	'borrow'
d.	<i>'aung</i>	'cry'	<i>ki-'aung</i>	'beg'

(ii) *ki-* in cooccurrence with stative verbs

<i>madodo</i>	'scold'	<i>ki-kadodo</i>	'be scolded'
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3.3 Major distinctions between *ki-N* clauses and *ki-V* clauses in Rukai, Puyuma and Paiwan

There are major distinctions between *ki-N* clauses and *ki-V* clauses in Rukai, Puyuma and Paiwan. They include the marking of nominal arguments (§3.3.1) and the co-occurrence of *ki-* with different verbal affixes (§3.3.2).

3.3.1 Marking of arguments

In the three languages, the *agent* is the nominative argument in *ki-N* clauses, as shown in (18).

(18) *ki-N* clause-type

- a. TONA RUKAI
 ... *ky-a-cila-cilay* *kake* *silape* *na* *acilay*
 get-REAL-RED-water 1S.NOM DYN.SUBJ:look.for OBL water
m-wa 'ongolo.
 DYN.SUBJ-go DYN.SUBJ:drink
 '... I would fetch water to drink.' (FLA DRUTo_11_010_b)¹³
- b. NANWANG PUYUMA
ki-'aputr-ku-la.
 get-flower-1SG.NOM-PERF
 'I have picked flowers.'
- c. NORTHERN PAIWAN
na-ki-va'u-aken.
 PERF-get-millet-1SG.NOM
 'I harvested millet.'

In *ki-V* clauses, on the other hand, the nominative argument is the *patient* and the agent is marked as oblique, as illustrated in (19).

¹³ Example from the Formosan Language Archive (FLA), see <http://formosan.sinica.edu.tw>.

(19) *ki-V* clause-type

a. TONA RUKAI

ki-cengele kake 'osam-ane m-ya.

PASS-see 1SG.NOM king-OBL SUBJ.DYN-so

'I said: "I was seen by the king."' (FLA DRUTO_08_006_b)

b. NANWANG PUYUMA

ki-drimutr i senayan kana kinsas.

PASS-seize NOM Senayan OBL policeman

'Senayan was seized by the policeman.'

c. NORTHERN PAIWAN

ki-zurung-aken tay kina.

PASS-push-1SG.NOM OBL mother

'I was pushed by mother.'

The contrast in the marking of nominal arguments in *ki-N* and *ki-V* clauses is tabulated as follows:

Table 2: Contrast in the marking of nominal arguments in *ki-N* and *ki-V* clauses

	<i>ki-N</i>		<i>ki-V</i>		
	No. of arguments	Marking of AGENT	No. of arguments	Marking of AGENT	PATIENT
Rukai Puyuma Paiwan	1	NOM	2	OBL	NOM

3.3.2 Co-occurrence of *ki-N* and *ki-V* with different verbal affixes

In Rukai, Paiwan and Puyuma, denominal verbs like those in (20)–(22) do not occur with any voice affixes. In other words, *ki-N* forms belong to the class of verbs in which the active voice (in Tona Rukai)/AV (in Puyuma and Paiwan) is zero-marked.

(20) TONA RUKAI

- | | | | |
|----------------------|--------------------|------------------------|-------------------------|
| a. <i>ki-becenge</i> | 'harvest millet' | <i>*w-a-ki-becenge</i> | <i>*ky-a-ki-becenge</i> |
| b. <i>ki-'angato</i> | 'gather brushwood' | <i>*w-a-ki-'angato</i> | <i>*ky-a-ki-'angato</i> |
| c. <i>ki-paiso</i> | 'earn money' | <i>*w-a-ki-paiso</i> | <i>*ky-a-ki-paiso</i> |

(21) NANWANG PUYUMA

- | | | | |
|---------------------|------------------|-----------------------------|----------------------|
| a. <i>ki-'aputr</i> | 'pick flowers' | <i>*ki-'aputr</i> | <i>*ki-'aputr-aw</i> |
| b. <i>ki-kawi</i> | 'hack woods' | <i>*ki-kawi</i> | <i>*ki-kawi-aw</i> |
| c. <i>ki-asepan</i> | 'hack sugarcane' | <i>*ki-asepan</i> | <i>*ki-asepan-aw</i> |

(22) NORTHERN PAIWAN

- | | | | |
|--------------------|-------------------------|----------------------------|---------------------|
| a. <i>ki-va'u</i> | 'get or harvest millet' | <i>*ki-va'u</i> | <i>*ki-va'u-en</i> |
| b. <i>ki-kasiw</i> | 'chop woods' | <i>*ki-kasiw</i> | <i>*ki-kasiw-en</i> |
| c. <i>ki-tevus</i> | 'hack sugarcane' | <i>*ki-tevus</i> | <i>*ki-tevus-en</i> |

One major distinction between Puyuma and Paiwan is that Puyuma distinguishes three sets of *ki*-derived verbs. While denominal verbs like those in (21) do not occur with any voice affixes, certain denominal verbs, like *ki-lengaw* can appear with NAV voice affixes, but cannot occur with the AV ** (23a-b), while yet other denominal verbs like *anger* 'thought', *rami* 'root' can take both AV and NAV voice affixes, as shown in (24a-b).

(23) NANWANG PUYUMA (from Teng 2008)

- a. *tu-ki-lengaw-ay i tinataw.*
3GEN-get-sound-LV SG.NOM his mother
'He listened to his mother.'

- b. **ki-lengaw i senayan kana sinsi.*
get<AV>-sound SG.NOM Senayan OBL teacher

(24) a. *an ki-anger-ta i, ...*
when get<AV>-thought-1PL.INCL.NOM TOP
'When we thought about it ...'

- b. *tu-ki-anger-aw tu-pi-amanay-an*
3GEN-get-thought-PV his.NOM-have-what-NMZ
'He thought about what he had.'

Note that in Nanwang Puyuma, when *ki-* is followed by a verb, it does not occur with any voice affixes, as shown in (25). This constraint is also observed in Paiwan, cf. (26).

(25) NANWANG PUYUMA

- a. **ki-drimutr i senayan kana kinsas.*
PASS<AV>seize NOM Senayan OBL policeman
- b. **tu-ki-drimutr-aw i senayan kana kinsas.*
3GEN-PASS-seize-PV NOM Senayan OBL policeman

(26) NORTHERN PAIWAN

- a. **ki-zurung-aken tay kina.*
PASS<AV>-push-1SG.NOM OBL mother
- b. **k<in>i-zurung-aken ni kina.*
PASS<PV.PERF>-push-1SG.NOM GEN mother

In the three languages, *ki-V* can occur with other verbal affixes. For example, *si-* 'raise', *pa-* 'Caus' in Tona (27), *pa-* 'Caus-' and *pu-* 'CausMvt' in Puyuma (28), *pa-* 'Caus', *pu-* 'CausMvt' and *su-* 'remove' in Paiwan (29).

(27) TONA RUKAI

- | | | | |
|----------------------|---------------------|------------------------|--------------------------|
| a. <i>si-valake</i> | 'raise (a child)' | <i>ky-a-si-valake</i> | 'be raised' |
| b. <i>pa-'ongolo</i> | 'make...drink' | <i>ky-a-pa-'ongolo</i> | 'ask for a drink' |
| c. <i>pa-kane</i> | 'feed' | <i>ky-a-pa-kane</i> | 'ask for food' |
| d. <i>pa-dakili</i> | 'make...kneel down' | <i>ky-a-pa-dakili</i> | 'be asked to kneel down' |

(28) NANWANG PUYUMA

- | | | | |
|----------------------|------------------|----------------------|-------------------------------------|
| a. <i>pa-takesi</i> | 'educate, teach' | <i>ki-pa-takesi</i> | 'be taught, receive (an) education' |
| b. <i>pa-trekelr</i> | 'make...drink' | <i>ki-pa-trekelr</i> | 'ask for a drink' |
| c. <i>pa-kan</i> | 'feed' | <i>ki-pa-kan</i> | 'be fed' |

- d. *pu-ngalradr* 'give a name' *ki-pu-ngalradr* 'ask s.o to give a name'
 e. *pu-walak* 'make pregnant' *ki-pu-walak* 'get pregnant'
- (29) NORTHERN PAIWAN
- a. *pa-kim* 'make...look for' *ki-pa-kim* 'be looked for'
 b. *pa-tekelr* 'make...drink' *ki-pa-tekelr* 'ask for a drink'
 c. *pa-kan* 'feed' *ki-pa-kan* 'ask for food'
 d. *pu-cemelr* 'put grass on' *ki-pu-cemelr* 'have grass put on, get cured'
 e. *su-alis* 'pull out tooth' *ki-su-alis* 'have a tooth removed'

Table 3: Co-occurrence of *ki*-N with verbal affixes

Language	<i>ki</i> <AV>N	<i>ki</i> -N-NAV
Tona Rukai	—	—
Nanwang Puyuma		
<i>kawi</i> 'wood' etc.	—	—
<i>lengaw</i> 'sound'	—	+
<i>anger</i> 'thought'	+	+
Northern Paiwan	—	—

Table 4: Co-occurrence of *ki*-V with verbal affixes

Language	<i>ki</i> <AV>V	<i>ki</i> -V-NAV	<i>ki</i> - <i>pa</i> -V	<i>ki</i> - <i>pu</i> -V
Tona Rukai	—	—	+	—
Nanwang Puyuma	—	—	+	+
Northern Paiwan	—	—	+	+

3.4 Major distinctions between *ki*-V clauses and NAV clauses in Puyuma and Paiwan

In Paiwan and Puyuma, NAV clauses are distinguished from *ki*-passive clauses syntactically and semantically. As shown below, on the syntactic level, *ki*-passive clauses differ from NAV clauses with respect to the case marking of the agent (see examples (30)–(31)) and whether it can function as a shared argument or not (see examples (32)–(33)).

In Nanwang Puyuma, the patient, *Senayan* in (30), is marked nominative both in *ki*-passive clauses and in NAV clauses, as shown in (30a–b). The agent in these clauses, *kinsas* 'policeman', is marked oblique in both constructions, but in a NAV clause the oblique-marked agent is always cross-referenced on the verb with a genitive pronoun, as shown in (30b–b').

- (30) NANWANG PUYUMA
- a. *ki-drimutr i senayan kana kinsas*.
 PASS-seize NOM Senayan OBL policeman
 'Senayan was seized by the policeman.'

- b. *tu-drimutr-aw i senayan kana kinsas*.
 3GEN-seize-PV NOM Senayan OBL policeman
 'The policeman seized Senayan.'
- b'. **Ø-drimutr-aw i senayan kana kinsas*.
 Ø-seize-PV NOM Senayan OBL policeman

In Northern Paiwan, the agent is marked as genitive in NAV clauses as in (31a), but is marked as oblique in *ki*-passive clauses, as in (31b):

- (31) NORTHERN PAIWAN
- a. *d<in>ame' ti kai nua kisacu*.
 seize<PV>seize NOM Kai GEN policeman.
 'Kai was seized by the policeman.'
- b. *ki-dame' ti kai tua kisacu*.
 PASS-seize NOM Kai OBL policeman
 'Kai was seized by the policeman.'

The agent of a NAV clause can function as the shared argument of each verb in a serial verb construction, i.e. the argument expressed as agent of the first verb and co-referential with the deleted subject of the second verb. The agent of a *ki*-clause cannot be such a shared argument. In (32a), the agent *sinsi* 'teacher' is the shared argument of *drimutr* 'to serve' and *pa-karun* 'to make work'; (32b) with *ki*-, on the other hand, is not acceptable. The same restriction is found in Northern Paiwan, as illustrated in (33a–b).

- (32) NANWANG PUYUMA
- a. *tu-drimutr-aw kana sinsi pa-karun*.
 3GEN-seize-PV OBL teacher CAUS-work
 'The teacher seized him to make him work.'
- b. **ki-drimutr kana sinsi pa-karun*.
 PASS-seize OBL teacher CAUS-work

- (33) NORTHERN PAIWAN
- a. *s<in>ekaul a pa-ka-sengseng nua sinsi ti kai*.
 send<PV>send LIG CAUS-STAT-work GEN teacher NOM Kai
 'The teacher sent Kai to work.'
- b. **ki-sekaul a pa-ka-sengseng tua sinsi ti kai*.
 PASS-send LIG CAUS-STAT-work OBL teacher NOM Kai

In addition to the syntactic differences discussed above, on the semantic level, the patient of these two constructions exhibits different degrees of volition. The patient of a *ki*-passive clause is highly volitional and strongly intends the action to be carried out, while there is no such implication in a NAV clause, as illustrated by (34) and (35). Furthermore, a *ki*-passive verb can appear after verbs denoting strong intention/desire, such as 'go to' or 'want' and form a serial verb construction, while a NAV verb cannot appear in the same position.¹⁴

¹⁴ The ungrammaticality of (34c) and (35c) results from the restriction imposed on serial verb constructions, whereby non-initial verbs must be marked as AV/intransitive. In this sense, *ki*-marked passive verbs seem to be morphologically intransitive.

- (34) NANWANG PUYUMA
- a. *a-uka-ku ki-tusuk-a.*
IRR-go-1SG.NOM PASS-pierce-PROJ
'I am going to get vaccinated.' (Cauquelin 1991:216)
- b. *ku-tusuk-aw na lrutung.*
1SG.GEN-pierce-PV NOM monkey
'I speared the monkey.' (Ross and Teng 2005:749)
- c. **a-uka-ku tusuk-aw na lrutung.*
IRR-go-1S.NOM pierce-PV NOM monkey
- (35) NORTHERN PAIWAN
- a. *vaik-aken a ki-pangulr.*
go-1S.NOM LIG PASS-beat
'I went to get beaten.'
- b. *ku-p<in>angulr ti kivi.*
1SG.GEN-beat<PV.PERF>beat NOM Kivi
'I beat Kivi.'
- c. **vaik-aken p<in>angulr ti kivi.*
go-1S.NOM beat<PV.PERF>beat NOM Kivi

Note that the volition of the nominative argument in *ki*-passive clauses is higher in Puyuma and Paiwan than in Rukai, where it is unmarked.

Table 5: Contrast between *ki*-clauses and NAV clauses in Puyuma and Paiwan

	<i>ki</i> -clauses				NAV-clauses			
	Argument marking		Shared argument	Volition of PAT	Argument marking		Shared argument	Volition of PAT
	PAT	AGT			PAT	AGT		
Nanwan Puyuma	NOM	OBL	no	higher	NOM	OBL + GEN prn	yes	lower
Northern Paiwan	NOM	OBL	no	higher	NOM	GEN	yes	lower

4 *ki*-V in Rukai, Paiwan and Puyuma: borrowing, shared innovation or parallel development?

The fact that *ki*-V 'passive' occurs in three contiguous languages, namely Rukai, Paiwan and Puyuma, leads to a question regarding its origin: does this use of *ki*- represent a shared innovation, a loan, or a parallel development?

Besides the fact that in many subgrouping hypotheses (cf. §1.1), there is no other evidence that Rukai, Paiwan and Puyuma form a subgroup, there are two other reasons to reject the hypothesis that *ki*-V 'passive' represents an exclusively shared innovation in these three languages.

First, *ki*-N 'obtain/get-N' is found in several Formosan languages and apparently already existed in PAN. It is thus not exclusively found in Rukai, Paiwan and Puyuma.

Second, the grammaticalisation to *ki*-N to *ki*-V represents a natural development cross-linguistically, as shown most notably in Heine and Kuteva (2002:145–146). To give but one example, in Rodrigues Creole (French-based), *gay* (cf. French 'gagner') is used as 'get' in (36a) but as a passive in (36b).

- (36) RODRIGUES CREOLE (Corne 1977:164–165, quoted from Heine and Kuteva 2002:146)
- a. *mo fin gay sa avekli.*
1SG CPL get it with3SG
'I got it from him.'
- b. *lisiē i gay morde ek pis.*
dog 3SG get bite with flea
'Dogs get bitten by fleas.'

The first hypothesis having been rejected, any similarities among these three languages must be the result of diffusion through contact or parallel development, and neither of these two possibilities can be so easily dismissed. We discuss these two hypotheses in turn.

4.1 Diffusion through contact

Diffusion through contact implies the transfer of certain linguistic traits from one language to another. Heine and Kuteva (2005:4) state that

transfer tends to be based on [...] some way of equating a grammatical concept or structure Mx of language M (= the model language) with a grammatical concept or structure Rx of language R (= the replica language).

While this hypothesis is appealing, there are at least two reasons for not endorsing it completely.

First, to posit the transfer of *ki*-V from one language to another would require that we first identify the language M and the two languages R. This seems difficult at this point, as it is well known that through their history there has been evidence for *longstanding* [Blust's (1999a) term] borrowing between Puyuma and Paiwan, Paiwan and (Budai) Rukai and (Tanan) Rukai and Puyuma.

Second, it is also well-known from published material that *ki*-V has different meanings in these three languages, namely 'intention', 'passive' and 'reflexive' in Paiwan (Ferrell 1982), 'passive' and 'reflexive' in Rukai, and 'passive', 'change of direction', 'middle' and perhaps 'reflexive' in Puyuma (Teng 2008). In other words, *ki*-V has evolved differently in these three languages and such a grammaticalisation process makes us believe that it might have occurred as a drift in these three languages.

4.2 Parallel development and the grammaticalisation path of *ki*-V 'passive'

While *ki*-N is found in a number of Formosan languages, it is clear that it is most productive, i.e., *ki*- attaches to the widest range of nouns, in Rukai, Paiwan and Puyuma. We may hypothesise that while these three languages exhibit parallel constructions, *ki*-V 'passive' underwent similar pathways of grammaticalisation in these three languages, but independently and not through contact.

We show in the following section that the grammaticalisation path of *ki-V* 'passive' in Paiwan and Puyuma might differ from that in Rukai.

4.2.1 Grammaticalisation path of *ki-V* 'passive' in Paiwan and Puyuma

One reason that can be advanced for the parallel development of *ki-V* 'passive' in Paiwan and Puyuma is as follows. In these two languages, *ki-* can attach to nouns and to verbs, as well as to precatatorial roots, which can be defined as

lexical bases which do not occur without further affixation or outside a compound in any syntactic function and from which items belonging to different morphological or syntactic categories (nouns and verbs, for example) can be derived, without there being clear evidence that one of the possible derivations from a given root is more basic than the other one(s). (Himmelman 2005:129).

(37) PUYUMA (Teng 2008)

- | | | | | |
|----|---------------|-------------------------------|------------------|------------------------------------|
| a. | <i>tubang</i> | 'answer, to answer' | <i>ki-tubang</i> | 'get an answer, get answered' |
| b. | <i>sabung</i> | 'compensation, to compensate' | <i>ki-sabung</i> | 'get compensation, be compensated' |
| g. | <i>turu</i> | 'warning, to warn' | <i>ki-turu</i> | 'get a warning, be warned' |

(38) NORTHERN PAIWAN

- | | | | | |
|----|----------------|---------------------|-------------------|-------------------------------------|
| a. | <i>valra</i> | 'authorise, permit' | <i>'i-valra</i> | 'pay a call (i.e., get permission)' |
| b. | <i>tevelra</i> | 'answer' | <i>'i-tevelra</i> | 'get an answer' |

We believe that in these two languages, the fact that *ki-* could attach to nouns and to precatatorial roots may have led the way for the affixation of *ki-* with verb bases.

What appears more intriguing is the occurrence of a 'passive' in languages that have other well-established morphemes to indicate a speaker's viewpoint, namely AV versus NAV affixes. However, the function of *ki-* as a valency-changing morpheme does not overlap with the other voice markers in Paiwan and Puyuma.¹⁵ Indeed, as we have shown above, *ki-V* and NAV-marked verbs contrast both syntactically and semantically.

On the syntactic level, we have demonstrated that:

- (i) *ki-Vs* are syntactically intransitive, while NAV-marked verbs are syntactically transitive;
- (ii) the undergoer (or patient argument) is marked as nominative in both *ki-V* and NAV clauses, but the marking of the agent argument differs: it is marked as oblique in Puyuma and in Paiwan in *ki-V* clauses; it is marked as oblique and cross-referenced on the verb with a genitive pronoun in Puyuma; and it is marked as genitive in Paiwan; and
- (iii) the agent of a *ki-V* clause cannot function as a shared argument in a serial verb construction. It can in NAV clauses.

Semantically, the patient of *ki-V* clauses exhibit a higher degree of volition than that of NAV-clauses.

4.2.2 Grammaticalisation path of *ki-V* 'passive' Rukai

While the development of *ki-V* 'passive' is only partial in Paiwan and in Puyuma, it has been fully grammaticalised in the Rukai dialects. For one thing, none of the Rukai dialects have reflexes of the voice markers which are found in all the other Formosan languages (PAN **<um>*, **-en*, **-an* and **Si-/Sa-*). However, they do exhibit reflexes of these same forms as nominalising affixes (Zeitoun and Huang 2006). Thus, it can be hypothesised that at some point in the history of the Rukai dialects *ki-* took over functions usually carried out by NAV affixes. Based on recent findings by Malcolm Ross (pers.comm.), possible steps in the development of *ki-V* as a passive in Rukai are:

- (i) *ki-V* evolved from *ki-N* as a passive;
- (ii) its function expanded and it came to replace the PAN indicative verbal NAV affixes, cf. **-aw*, **-ay* and **-anay* according to Ross' (2009) reconstruction;
- (iii) consequently, Rukai never underwent — as most the other Formosan languages did (except Puyuma and Tsou) — the 'verb-from-nominalisation' shift, whereby the earlier PAN nominalising affixes **<um>*, **-en*, **-an* and **Si-/Sa-* were reanalysed as verbal affixes; rather in Rukai these affixes are preserved with their nominalising functions; and
- (iv) another passive construction, the agentless passive, emerged in all the Rukai dialects except in Mantauran.

5 Conclusions

We have shown in this paper that the distribution of *ki-N* as 'obtain, get' in several Formosan languages supports its reconstruction for PAN. Its function as a passive in Rukai, Paiwan and Puyuma is not a product of a shared innovation, and thus we posit that the grammaticalisation of *ki-N* 'get *N*' as *ki-V* 'passive' occurred after the diversification of the Formosan languages. We postulated two hypotheses: (i) diffusion through contact, such that *ki-V* as 'passive' may have been borrowed from one language to another, explaining its similar function in geographically close languages; or (ii) parallel development, i.e., the grammaticalisation path of *ki-V* as 'passive' is a natural process that might have occurred in a parallel fashion in these three languages. We concluded that the latter hypothesis appears to be the most plausible, at this stage.

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¹⁵ Shibatani (1985:835) notes that '[i]t is not uncommon for a language to have two or more types of passives, but it is doubtful that they have the same distribution and function.'

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