

The morphological expression of location and motion in Siraya

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Siraya (a dormant Formosan language) makes use of so-called orientation prefixes to express notions of comitancy (*a-*), location (*i-*) and movement (*u-*) in verbs. Together with a verbal root these derivational prefixes form new verbal bases to which the usual verbal affixation applies.

Starosta suggested that a motion prefix *mu-* in various Formosan languages reflects the Proto Austronesian actor voice affix **um-/*<um>*. This is contested by Blust, who reconstructs a separate Proto Austronesian motion prefix **mu-* along with its causative counterpart **pu* as well as **pi-*, a prefix expressing ‘causative of location’. The evidence from Siraya clearly shows that Formosan *mu-* and Proto Austronesian **um-/*<um>* are not related. However, it also shows that *mu-*, *pu-* and *pi-* are in fact bimorphemic prefixes, as they are in various other Formosan languages. Proto Austronesian **mu-*, **pu-* and **pi-* should therefore also be analysed as bimorphemic prefixes **m-u-*, **p(a)-u-* and **p(a)-i-* respectively, combining the orientation prefixes (**u-* and **i-*) with prefixes expressing actor voice (**m-*) and causativity (**p(a)-*).

1. Introduction

The present paper discusses orientation prefixes in Siraya, a dormant Formosan language which used to be spoken in the south-western plains of Taiwan in and around present-day Tainan City. Orientation prefixes add notions of comitancy (*a-*), place (*i-*) and motion (*u-*) to verbal roots. An example of a comitative prefix is *a-keyül* (xvi:7) ‘to be provided with bread’ (derived from *keyül* ‘bread’); examples of location and motion prefixes are respectively *m-i-mala* (xxvi:69) ‘to be (located) outside’ and *m-u-mala* (xxvi:71) ‘to go outside’ (derived from *mala* ‘outside’).

In the context of Formosan comparative linguistics in general, Starosta (1995) suggested that the motion prefix *mu-* in some Formosan languages is historically related to the Proto Austronesian actor voice affix **um-/*<um>*. This relation is rejected by Blust (2003), who reconstructs a separate Proto Austronesian motion prefix **mu-* along with its causative counterpart **pu-*; he also reconstructs **pi-* as a prefix expressing ‘causative of location’. The evidence from Siraya presented in this paper clearly reaffirms that Formosan *mu-* and Proto Austronesian **um-/*<um>* are not related. However, it also shows that the Siraya segments *mu-*, *pu-* and *pi-* are in fact bimorphemic prefixes, as they are in various other Formosan languages. Proto Austronesian **mu-*, **pu-* and **pi-* should therefore also be analysed as bimorphemic prefixes **m-u-*, **p(a)-u-* and **p(a)-i-* respectively, combining the orientation prefixes (**u-* and **i-*) with prefixes expressing actor voice (**m-*) and causativity (**p(a)-*).

This paper is based on a 17th century translation of the Gospel of St Matthew, which is the only sizeable prose text in Siraya today (Gravius 1661). According to Blust (2009:30), Siraya, Basay-Trobiawan, Amis and Kavalan, together make up ‘East Formosan’, which is one of the ten first-order branches of Austronesian. In Sagart's classification based on shared numerals (in press), it is a first branch-off in a lower order subgroup of Formosan languages which is defined by sharing **enem* for ‘six’.

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The paper is organised as follows. Section 2 is a very short outline of Siraya grammar based on Adelaar (2011). Section 3 discusses the meaning and use of orientation prefixes. Section 4 critically assesses the theory that the directional orientation prefix *u-* is historically related to the actor voice affix **<um>/*um-*, which is realised as **um-* before initial vowels. It also critically evaluates the analysis of *mu-*, *pu-* and *pi-* in Formosan languages as unitary prefixes. Section 5 is a conclusion.

In the pages to follow, I present the Siraya data in a near-phonemic spelling in order to facilitate their reading and to give a better insight in Siraya phonology (see Adelaar 2011). Words and sentences from the Gospel of Matthew are followed by their source place between brackets. Source places consist of a Latin numeral indicating gospel chapter, and an Arabic numeral indicating verse, which are divided by a colon. A list of abbreviations is given at the end.

2. Some basic information about Siraya grammar

Siraya has a symmetric voice system, which means that it has actor voice - and undergoer voice alternations marked on the verb, neither of which is clearly the base form (Himmelmann 2005:112ff).

Syntactic relations are encoded through the following morphosyntactic devices: relative position within the verb phrase, voice affixes on the verb, case markers, and oblique suffixes on personal names and pronouns.

The verb usually occurs at the beginning of a verb phrase. It is followed by the subject, which is followed in turn by other constituents.

Verbal voice affixes indicate what part of the sentence is the subject. There are four verb classes, which differ in voice marking. They are basically formal classes, although some of them are affiliated with stative or dynamic meaning.

Class 1 verbs are usually stative; they have *m(a)-* for actor voice, and *k(a)-* in all other (verbal and nominal) derivations, compare:

(1) <u>actor voice forms</u>	<u>other derivations</u>
<i>ma-tukul</i> '(to be) unjust, unfair'	<i>ka-tukul-an</i> 'injustice'
<i>ma-vangey</i> '(to be) rich'	<i>pa-ka-vangey</i> 'collect treasures'
	<i>ka-vangey-an</i> 'treasure'
<i>ma-vāango</i> 'to love'	<i>ka-vāango-aw</i> 'love!' (UV)
<i>ma-limuk</i> '(to be) poor'	<i>ka-limuk-an</i> 'poverty'

Class 2 verbs have no dedicated voice prefixes. They do not belong to any particular semantic class. Examples of Class 2 verbs are *lūmad* 'to come/go, travel', *lupux* 'to kill', *itu-äwx* 'to follow', *tna-* 'to hear' (a bound verb, see below), *bukbuk* 'to beat', *thabul* 'to travel', *tīdaw* 'to call, invite'.

Class 3 verbs are usually dynamic. They are marked for actor voice with *m-* before initial vowels and *<m>* after initial consonants other than labials and nasals.¹ There is no dedicated undergoer voice marker (although undergoer voice can be morphologically expressed with the suffixes *-(ə)n* or *-an*, or with the portemanteau suffixes *-aw* or *-ay* marking undergoer voice as well as subjunctive. Examples:

¹ There are no Class 3 verb bases with initial labials and nasals.

(2)	actor voice forms <i>m-ad</i> ‘to bring’ <i>m-ŭni</i> ‘to stay’ <i>k<m>an</i> ‘to eat’ <i>x<m>ilingix/m-ilingix²</i> ‘to hear’ <i>d<m>arang</i> ‘to go away’ <i>d<m>ikur</i> ‘to turn one’s back’ <i>l<m>awa</i> ‘to tolerate, suffer’ <i>s<m>aki-mala</i> ‘to throw out’ <i>t<m>urung</i> ‘to catch’	other derivations <i>ad, ad-ən, ad-an</i> ‘brought’ (UV) <i>ŭni</i> ‘to adhere to, remain with’ <i>kan-ən</i> (UV) <i>(x)ilingix-ən</i> ‘heard’ (UV) <i>darang-aw!</i> ‘go away’ (SJ+UV) <i>rikur</i> ‘back’ <i>-lawa</i> (tolerating, suffering) <i>saki-</i> (throwing), <i>mala</i> ‘outside’ <i>turung</i> (catching)
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In the following examples, the verb *(x)ilingix* ‘to hear’ occurs in actor voice form (3), in undergoer voice form without *-(ə)n* suffix (4) and in undergoer voice form with *-(ə)n* suffix (5):

- (3) *x<m>ilingix=ato* *ta* *ni-ma-tule*
 <AV3>hear=PRF NOM PST-AV1-deaf
 ‘the deaf hear’
- (4) *iru* *ka* *ni-ilingix* [*ta* *ata*] *ki* *maisasu ki Sibavaw*
 When LK PST-hear NOM this DM King
 ‘When the King heard this, ...’
- (5) *ni-ilingix-n-umi* *xnin* *ta* *ba-varux* *tin* [*ki* *Alid*]
 PST-hear-UV-2P.GEN now NOM RDP-slander 3S.GEN DM God
 ‘You heard his blasphemies’

Class 4 verbs have *m(a)-* as actor voice marker, and *p(a)-* in all other (verbal and nominal) derivations. (Other undergoer voice affixes are *-ən* and *-an*, and furthermore the portemanteau suffixes *-aw* and *-ay*). Class 4 verbs are often derived from nouns. Examples:

- | | | |
|-----|---|--|
| (6) | actor voice forms
<i>ma-dingi(-dingi)</i> ‘to send someone’

<i>(su</i> ‘word’), <i>ma-susu</i> ‘to say’
<i>(kulamux</i> ‘garment’) <i>ma-kulamux</i> ‘to dress’ | other derivations
<i>pa-da-dingi-ən</i> ‘to be sent forth’ (UV)
<i>pa-da-dingi-an</i> ‘apostle’
<i>pa-susu-ən</i> ‘to say’(UV)
<i>pa-pa-kulamux</i> ‘to dress someone’ (caus) |
|-----|---|--|

Case markers introduce noun phrases that have a common noun as head. With common nouns, the nominative marker *ta* introduces subjects, the locative marker *tu* introduces locations, directions and time, and the default marker *ki* introduces other grammatical relations (including possessor, actor, undergoer, instrument, purpose)³. *ki* also functions as a linker between a quantifier and its nominal head, and as a co-ordinator between noun phrases.

Other noun phrases are marked as follows. Personal names are introduced by nominative *ta* if they are subject, they have no overt (genitive) marking if they are actor and possessor, and they are suffixed with oblique *-an* in all other cases. Personal pronouns have a nominative form if they are subject, a genitive form if they are actor and possessor, and an oblique form suffixed with *-an* in all other cases. First and second person nominative and genitive pronouns are cliticised to the preceding verb or noun. In verbs, the actor (genitive)

² The initial *x-* is often not written.

³ Recipients are introduced with *tu* or *ki* (the difference in distribution remains unclear).

pronoun is cliticised immediately after the verb, followed by the subject (nominative) pronoun if there is one.

This is summarised in Table 1:

Common nouns	Nominative <i>ta</i>	Default <i>ki</i>	locative <i>tu</i>
Personal names	Nominative <i>ta</i>	Genitive Ø	Oblique with <i>-an, -än</i>
Pronouns	Nominative series	Genitive series	Oblique series with <i>-an, -än</i>

Table 1. Siraya case distinctions

Apart from the nominative, genitive and oblique series of pronouns mentioned above, there is also a set of free pronouns marking emphasis. The pronominal paradigm is shown in Table 2.

Person	Independent	Nominative	Genitive	Oblique
1S	<i>ĩau</i>	= <i>ko</i>	= <i>(m)au</i>	<i>ĩau-an</i>
2S	<i>ĩmhu</i>	= <i>kaw</i>	= <i>oho,</i> = <i>(m)hu</i>	<i>ĩmhu-an</i>
3S	<i>teni</i>	<i>ta teni</i>	<i>tin</i>	<i>tini-än</i>
1P.I	<i>ĩmĩta</i>	= <i>kĩta</i>	= <i>eta, =mĩta</i>	<i>ĩmitä-n</i>
1P.E	<i>ĩmian</i>	= <i>kame</i>	= <i>(m)ian,</i> = <i>(m)iän</i>	<i>ĩmian-än</i>
2P	<i>ĩmumi</i>	= <i>kamu</i>	= <i>(m)umi</i>	<i>ĩmumi-än</i>
3P	<i>neini</i>	<i>ta neini</i>	<i>nein</i>	<i>neini-än</i>

Table 2. Siraya personal pronouns

The linker *ka-*(/*k-*) functions as co-ordinator between verb phrases ('and; then'); it also introduces complement clauses, causal clauses ('because') and relative clauses ('which, who').

Siraya has two deictic elements, *ãta* 'this' and *ãna* 'that'. They can occur independently as nouns; when preceded by *ti*, they have a human referent. However, in most cases they are used attributively and are preceded by *k-*. They are matched by the deictic adverbs *hia* 'here' and *hĩna* 'there'. A more sporadic term for 'here' is *ãtaun*.

The personal article *ti* occurs before pronouns and nouns with a human referent. It can be preceded by *ta* but not by *ki*. It does co-occur with the oblique suffix *-an/ -än*.

na precedes the noun it is qualifying. It has a partitive meaning ('one/some of, among'), although in some cases it is difficult to interpret.

Verbal affixes other than those indicating voice are *ni-* (past tense), *ma-* (stative) and the subjunctive markers, which are *-a* (+actor voice), *-aw* and *-ay* (both +undergoer-voice); the subjunctive expresses a wish, an order or future tense. Post-clitic *-ato* basically indicates perfective aspect ('already') but in some cases it also indicates emphasis. *-ãpa* is an additive post-clitic ('and, also').

Reduplication exists in several forms and meanings and is omnipresent in Siraya. In general, the following characterisation applies. Disyllabic reduplication adds the notion of plurality, variety and similarity, to nominal bases. To verbal bases, it adds the notion of diffuseness (repetition of action, plurality of actants) or continuity (including state, process). First-syllable reduplication basically forms cardinal numbers and other count words with non-human referents (e.g. *tu-turu* ‘three’, in *tu-turu ki wāi* ‘three days’). Ca-reduplication (e.g. *sa-sulat* ‘to write’, *m-ĩ-ka-kua* ‘to last, always’) applies to verbs: it either forms deverbal nouns or marks progressive aspect or a state in verbs. It is also used with cardinal numerals and other count words if they have a human referent (e.g. *ta-turu* ‘three’, in *ta-turu ki vual* ‘three persons’).

Note that root-initial *r* sometimes changes to *d*, and *v* to *b*. This fortition is most clearly seen in Ca- and CV-reduplication, but is not limited to this morphological process, compare *vukĩn* ‘mountain, hill’ and *p-u-ba-vukĩn* ‘into the hills’; *ma-vana* ‘to know’ and *bana-vana* ‘to tell’; *-Dinux* (denoting unlimited time and space) and *m-ĩ-da-rĩnux* ‘eternal’. In some cases reduplicated forms with and without fortition freely alternate, e.g. *Duha* ‘two’ yields *ruha*, *da-ruha* (*/du-ruha*) and *ra-ruha* (*/ru-ruha*), all meaning ‘two’.

Siraya has many complex verb phrases. In these phrases, auxiliaries precede the lexical verb, obtain all the verbal marking and become effectively the head of the verb phrase. They seem to form an open class and assume many of the meanings that English would express by adverbs and adverbial constructions. An example is *ma-dĩs* ‘do immediately’ in the following sentence:

- (7) *ni-ma-dĩs* *mi-laklak* *ta* *lakāwungən*.
 PST-AV-immediately INCH-wither NOM fig tree
 ‘the fig tree instantly withered away’ (xxi:19)
 [lit. ‘the fig tree did immediately the withering away’]

Negators can also be the head, but they only attract person marking: other verb marking remains with the lexical verb, as demonstrated in the following sentence:

- (8) *ǎsey-ǎpa-mau ni-xĩlingix-ən ta taxlay*
 not-also-1S.GEN PST-hear-UV NOM clock
 ‘I have not yet heard the clock.’ (Adelaar 2006)

Other complex verb constructions in Siraya involve bound verbs, anticipating sequences and orientation prefixes. Orientation prefixes will be treated in Section 4. There are at least 34 bound verbs in the gospel text (Adelaar 2004:353-358). They are prefixed to a complement with which they form a compound verb. The complement can be another verb, a noun or an adverb (including an adverbial construction). The bound verb conveys a generalised – and sometimes rather opaque – version of the overall meaning of the verbal compound, whereas the complement makes the meaning more specific.

For instance, in the following compounds, *mǎtǎy-* has the general notion of ‘talking’ or ‘saying’ (note that *rĩx* and *vulas* are reduplicated):

- (9) *mama* ‘like, as’ --> *mǎtǎy-mama* ‘tell how’
ma-riang ‘(to be) good’ --> *mǎtǎi-riang* ‘to bless’
rĩx ‘mind’ --> *mǎtǎy-ra-rĩx* ‘talk within oneself’
vulas ‘(to be) sad’ *mǎtǎi-vula-vulas* ‘to utter sadness’

s<m>aki- implies ‘throwing’ or ‘casting’ and can form the following compounds:

- (10) *vaung* ‘sea’ --> *s<m>aki-vaung* ‘to cast into the sea’
tawax ‘(to be) far’ --> *s<m>aki-tawax* ‘to throw far away’
pänäx ‘the open; market place’ --> *s<m>aki-pänäx* ‘to cast out’

The overall meaning of the verbal compound can often be guessed from its constituent parts, but in some cases it is not immediately obvious, as in *s<m>aki-nanang* ‘to call, give a name’, which is derived from a noun *nanang* ‘name’.

Bound verbs like those with *mätäi-* and *s<m>aki-* are marked for voice (although some other bound verbs are not). Compare *mätäi-vula-vulas* and *pätäi-vulas-ən* the following pair of sentences:

- (11) *Ti Rachel ta ni-t<m>angi-tangi mätäi-vula-vulas*
 PA Rachel NOM PST-<AV3>cry-RDP say-RDP-sad
ki alak tñn
 DM offspring 3S.GEN
 ‘Rachel, weeping for her children’ (ii:18)

- (12) *aku-su ki pätäi-vulas-ən tu duma ïmhu-an*
 EXIST-word DM say-sad-UV LOC front 2S-OBL
ta täi-ä-para-hu
 NOM be.with-COM-together-2S.GEN
 ‘Your brother has something against you’ (v:23)

Anticipating sequences consist of a formal element (usually the initial syllable) of the lexical verb, which is prefixed to the head of a complex verb phrase. In the following example, *mu-* in *mu-ïmäd-kamu* is an anticipating sequence: it is a copy of the first syllable of the lexical verb *m-umxa*.

- (13) *mu-ïmäd-kamu kawa m-umxa ki äta*
 AS-all-2P.NOM perhaps AV3-understand DF this
 ‘do you understand all this?’ (xiii:51)

The anticipating sequence is not always a formal part of the lexical verb: it can also be an element that is semantically or iconically related to the meaning of the lexical verb. In sentence (14), *tna-* expresses the notion of listening and is probably derived from the noun *tangira* ‘ear’:

- (14) *Neni k-äna du ni-tna-kaha=’to m-ilingix ki ma-i-sasu ka*
 3P.NOM LK-that when PST-hear-finish=PRF AV3-hear DF king
Si-bavaw, ni-d<m>arang=atu=ra
 PST-<AV3>go.away=PRF=ADV
 ‘When they had heard the king they went their way’ (ii:9)

3. Siraya Orientation prefixes

There are three orientation prefixes:

- (1) comitative *a-* (or *ä-* as a result of non-phonemic palatalisation);
- (2) location prefix *i-* (or *ĩ-*);

(3) motion prefix *u-* (or *äw-* as a result of non-phonemic palatalisation).

These prefixes are historically probably a subcategory of bound verbs (§5.13), but they are more grammaticalised. They often occur in combination with other morphology (including reduplication). Their contribution to the overall meaning of the resulting derivation is not always apparent, and their original meanings are often bleached (especially in the case of the location prefix).

3.1 The comitative prefix *a-* (/ *ä-*)

Derivations with the comitative prefix have meanings such as 'be with', 'take along', 'go along with' and 'obey'. Instances are few; they include:

- (15) *a-keyül* (xvi:7) 'to be provided with bread' (*keyül* 'bread')
a-para (xxv:4) 'to take along, be together with' (*para* 'together')
a-lam (ii:20) 'to take along' (*lam* 'with')
a-kua (vii:24) 'to obey', *pa-a-kua* (xxiii:3) 'to make obey' (*-kua* 'to be at, move')

3.2 the motion prefix *u-* (/ *äw-*)

Derivations with the motion prefix as a rule combine with voice marking affixes or the causative prefix *pa-*, which often appears in its reduced form *p-*; these derivations mean 'to move towards' or 'to be in motion, make (sudden) moves':

- (16) 'to move towards':
m-u-mala (xxvi:71) 'to go out' (*mala* 'outside')
m-u-vukī-vukīn (xviii:12) 'to go up the mountains' (*vukīn* 'mountain')
m-u-rarim (iii:16) 'to go down' (*rarim* 'bottom')
m-äw-äwma (viii:33) 'to go to the city' (*äwma* 'town, city') (with vowel palatalisation)
m-u-kua (viii:9) 'to go' (*-kua* 'be at, move'); *u-kua!* (viii:9) 'go!'
ni-u-Lītu (viii:16) [PST-MOT-Devil] '[entered by a devil =] possessed by a devil'
m-u-arux (viii:28) 'to cross over' (*-arux* 'opposite side')
m-u-ku-kua (i:16) 'to have as a future wife' (lit. 'to be going to': in the first years of marriage, husband and wife do not live together; to be with her, the husband has to steal his way into the wife's parental home) (with reduplication)
m-u-pänäx (viii:32) 'to come/go out' (*pänäx* 'outside; public place, market place')
p-u-pänäx (xii:35) 'to put forth, bring forth', (xiii:31) 'to propose' (*pänäx* 'the open; market place')
p-u-alak (xxiii:15) 'to produce a child (of men), beget' (*alak* 'offspring')
p-u-su (viii:8) 'to say, utter' [lit. 'produce words'] (*su* 'word')
u-paräx-ən (i:23) 'gone to by a man, have sex (said of a woman)' (*paräx* 'man, male') (undergoer voice form)
pa-u-tiri-ən ta hala (ix:17) 'wine is poured out' (*-tiri* '(to pour, run)'; *hala* 'wine')
- (17) 'to make (sudden) moves':
m-äw-äsäs ta vato (xxvii:51) 'the rocks rent' (*äsäs* '?rent'; *vato* 'rock'; with vowel palatalisation)
m-u-pto (ix:17, xii:20) 'to burst'
m-u-kiap (xix:25) 'to be astonished'

pa-u-bla (C175) ‘to break something’

3.3 the comitative prefix *i-* (/ ǎ-)

As indicated before, derivations with the location prefix are semantically less transparent than those with other orientation prefixes. They combine with voice affixation and the causative prefix *pa-* (in its unreduced form). Many derivations can be classified into the broad semantic domains of ‘location in space or time’. However, other derivations express actions causing physical activity, or they do not seem to belong to any specific semantic domain. This may be due to semantic bleaching, but it is also not excluded that some of the *i-* instances below are no location prefixes and need a different analysis (especially some cases in which *i-* occurs in conjunction with *ma-*).⁴

(18) ‘location in space or time’:

m-i-rung (iv:16) ‘to sit’
m-i-mala (xxvi:69) ‘to be outside’ (*mala* ‘outside’)
m-i-ka-kua (v:34) ‘always’ (*-kua* ‘be at, move’)
pa-ǎ-ka-kua (xxii:22, xxvi:44) ‘to leave behind’
i-ka-kua-ən (vi:6) ‘room’
i-ka-kua-an m-ǎ-da-rǎnux (vi:14) ‘eternity’ (*m-ǎ-da-rǎnux* ‘infinite’)
i-da-rǎnux-an (xii:32) ‘1. century (also: eternity, infiniteness); 2. world’
ǎ-la-limux-an (x:22) ‘the end’ (*limux* ‘limit’)
ma-i-vavaw (xii:49) ‘(to stretch out) over’ (*vavaw* ‘top’)
m-ǎ-ta-talax (viii:15) ‘to receive at home’ (*tǎlax* ‘house’)
pa-i-al-aley (xxi:17) ‘to place, put’
i-sa-saun-ən ki Lǎtu (iv:24) ‘possessed with devils’ (*ma-saun* ‘to exceed’; *lǎtu* ‘spirit demon’)

(19) ‘action involving physical activity’:

ma-i-alak (i:25) ‘to get a child’
ma-i-kua (xxvi:7) ‘to carry’, (iii:11) wear (clothes, shoes)’
ma-i-paringid (ix:23) ‘to play the flute’
ma-i-said ki rǎx (xviii:28) ‘to take by the throat’ (*said* ‘side’; *rǎx* ‘throat’)
mǎ-i-ǎ-ǎpo (vi:8) ‘to need’
pa-i-apǎngit (xvi:7) ‘to leaven’.

(20) (no specific semantic domain):

ta i-danga-ranga-aw=mau (xxii:4) ‘[what I intend to have for lunch=] my lunch’
i-kalawakaw-ən (xxiv:6) ‘rumour’
ma-i-ra-rarey (xi:20) ‘to reproach, upbraid’
ma-i-ringey (xvi:18) ‘to perform, build’ (*ringey* ‘work’)
m-i-saal ‘(do together)’: *m-i-saal m-avok* (xix:11) ‘to eat together’
ma-i-saal kǎtǎng (xviii:23) ‘to settle accounts (with one’s servants)’ (*kǎtǎng* ‘to count; to read’)
m-i-tǎdǎx (xii:23) ‘to hope’

⁴ The matter needs further research. Given the limited corpus of Siraya data, this will have to be done from a broader perspective bringing in other Formosan languages.

pa-pa-i-ä-voak (xxvi:31) ‘to be spread around, scattered around’

3.4 Combinations of two orientation prefixes

Some derivations appear to combine two orientation prefixes:

- (21) COM + LOC: *ä-i-ku'-n* ‘included’
 MOT + COM: *m-äw-a-kla ki rix* ‘to agree’ (*-kla* ‘join’, *rix* ‘mind’)
 MOT + LOC: *m-äw-i-saal* ‘to congregate, hold council’, *p-äw-i-saal-an* ‘council’,
p-äw-i-sa-saal-an ‘synagogue’ (*saal* ‘together’)

3.5 Orientation prefixes and bound verbs combined

In some other cases, orientation prefixes appear to combine with bound verbs. In one case, *p-u-täi-kidi-ən*, *p-u-ta-täi-kidi-ən* (C89v) ‘what is meant, thing signified’, the orientation prefix precedes the bound verb, whereas in another case, *täi-ä-para* (v:22) ‘brother’ (be.with-COM-together), it follows.

Bound verbs and verbs with orientation prefixes sometimes behave like prepositions (which they may do in conjunction with case markers), yielding a high level of deictic specificity. They constitute a particular instance of verb serialisation. Examples:

- (22) *tu* *kidi* *ki* *takàla-ey* *p-u-kua* *tu* *Babilon*
 LOC limit, time DF to exile-SJ.UV CAUS-MOT-be.at/move LOC Babylon
 ‘at the time of the exile to Babylon’ (i:17)

- (23) *ni-ad* *nein* *pa-u-kua* *tñi-än ta* *imid* *ka* *ma-alam*
 PST-bring 3P.GEN [CAUS-MOT-move/be.at=] to 3S-OBL NOM all LK AV1-ill
 ‘they brought to him all who were diseased’ (xiv:35)

4 The orientation prefixes *u-* and *i-* in historical perspective

Starosta (1995) speculated that the motion prefix *mu-* occurring in some Formosan languages evolved from Proto Austronesian **um-*, which is an allomorph of the actor voice affix **um-*/**<um>*⁵.

However, Blust (2003:525) points out some critical differences between these motion and voice affixes as they appear in various Formosan languages, and he concludes that they are separate entities.⁶

In the following subsections I test these viewpoints to the Siraya data. They do not support Starosta's suggestion that motional **mu-* and actor voice **<um>* are related. However, they also show that Blust's **mu-*, **pu-* and **pi-* prefixes should be re-analysed as bimorphemic: they are the orientation prefixes **u-* and **i-* preceded by respectively the actor voice affix **<m>*/**m-* and the causative prefix **p(a)-*.

⁵ In Indonesian this affix only occurs in fossilised form, e.g. as the initial *m/-* in *m/uda* ‘young’ and *m/asak* ‘cooked, ripe’, *m/andi* ‘to bathe’, *m/uncul* ‘to emerge’, and the /*əm*/ in *turun-t/əm/urun* ‘descendants’ and *tali-t/əm/ali* ‘cordage generally’.

⁶ See also Liao (2011:854-856) for a summary of these ideas.

4.1 On the alleged relationship between *mu- and the actor voice affix *<um>/*um-

Blust (2003:525) rejects the connection between the motion prefix *mu-* and Proto Austronesian *um- proposed by Starosta (1995). Using evidence from Thao, Puyuma and Paiwan, he shows that there are consistent formal, semantic and distributional differences between these affixes. He reconstructs a separate Proto Austronesian *mu- (a motion prefix) along with its causative counterpart *pu-. He also reconstructs Proto Austronesian *i- (a locative preposition) and *pi- (a causative locative prefix).

Here is a summary of his evidence.

Motion prefixes convey the notion of movement through space. Thao has a motion prefix *mu-* which occurs unchanged before a vowel and before any initial consonant. It has a causative counterpart *pu-*. Examples:

- | | | | |
|------|----------------------|--|---|
| (24) | <i>i-nay</i> ‘here’ | <i>mu-nay</i> ‘to come here’ | <i>pu-nay</i> ‘to put here, let someone come here’ |
| | <i>i-say</i> ‘there’ | <i>mu-say</i> ‘to go there’ | |
| | <i>laun</i> ‘shade’ | <i>mu-laun</i> ‘go into the shade’ | <i>pu-laun-in</i> ‘be put into the shade’ (UV) |
| | <i>taun</i> ‘house’ | <i>mu-taun</i> ‘to go home, enter the house’ | <i>pu-taun</i> ‘to put someone or something in a house’ |

Puyuma *mu-* and *pu-* are identical in form and general meaning:

- | | | | |
|------|---------------------|--------------------------------------|--|
| (25) | <i>enay</i> ‘water’ | <i>mu-enay</i> ‘to enter the water’ | <i>pu-enay</i> ‘to water, sprinkle water on something’ |
| | <i>ruma</i> ‘house’ | <i>mu-ruma</i> ‘to return home’ | |
| | <i>dare</i> ‘earth’ | <i>mu-dare</i> ‘to descend, to land’ | <i>pu-dare</i> ‘to throw or put on the ground’ |

Paiwan has no prefix *mu-*, but it has *pu-*, which agrees with Thao and Puyuma *pu-*. Examples:

- | | | |
|------|----------------------------|--|
| (26) | <i>buna</i> ‘sweet potato’ | <i>pu-buna</i> ‘to plant sweet potatoes’ |
| | <i>dawaz</i> ‘fishnet’ | <i>pu-dawaz</i> ‘to fish with a net’ |
| | <i>sazum</i> ‘fresh water’ | <i>pu-sazum</i> ‘to irrigate (rice paddy)’ |

Blust notes that these languages not only share *pu-* but also some complex cognate words that are derived with this prefix: compare Thao *pu-caqi* and Paiwan *pu-tsaqi* ‘to defecate, and Puyuma *pu-Taqi* ‘to spread manure on the fields’, which are based on a common Proto Austronesian root *Caqi ‘faeces’.

He then shows that in contrast, voice affixes do not convey the notion of motion through space and have several allomorphs. In Thao, the voice affix has various allomorphs and is realised as *m-* before a vowel e.g. *musha* (go) : *m-usha* ‘to go’), as zero before initial *f-* (*fariw* : *fariw* ‘to buy’), through substitution of *m-* for initial *p-* (*patash* ‘writing’ : *matash* ‘to write’), and as an infix <*m*> in stems with initial *k-*, *s-*, or *t-* (*kan* ‘(eating) : *k<m>an* ‘to eat’). The equivalent voice affix in Puyuma is also different from the motion prefix, having the allomorphs *mə-* and <*əm*>, as in the instances *qalup* ‘(hunt game)’ : *mə-qalup* ‘to hunt game’; *dirus* (bathe) : *d<əm>irus* ‘to bathe’; *kan* ‘(eating) : *k<m>an* ‘to eat’.

To illustrate the difference between the motion affix and voice affix, he presents the following contrastive example ‘based on *tuqris*, the Thao word for ‘noose trap’:

- | | |
|------|---|
| (27) | + actor voice prefix: <i>t<m>uqris</i> ‘to catch with a noose trap, of a hunter trapping an animal’ |
| | + motion prefix: <i>mu-tuqris</i> ‘to enter a noose trap, be snared by a noose trap, of an animal that is caught’ |

Of the three languages under scrutiny, Thao and Puyuma are phylogenetically very distant and are spoken in areas that do not seem to have had connections in the past. Blust sees this as another argument to use their evidence for the reconstruction of a Proto Austronesian basic motion prefix *mu- together with its causative counterpart *pu-.

The Siraya data are basically in support of Blust's reconstructions of Proto Austronesian *mu- and *pu-, be it that Siraya *m-u-* and *p-u-* are bimorphemic prefixes rather than unitary ones. Siraya *m-u-* is not a voice affix but the combination of a voice prefix *m-* and a motion prefix *u-*: its first component is an allomorph of Siraya *m-/<m>* (Section 2) and as such a reflex of Proto Austronesian *um-/*<um>, but its second component is a distinct prefix. Likewise, *p-u-* combines two distinct elements, causative *p(a)-* and motion *u-*.

Verbs sometimes have different derivations contrasting the affixation of an actor voice prefixes and a motion prefix:

(28)	Forms with actor voice affix	Forms with actor voice + motion prefixes
	<i>d<m>ikur</i> 'to turn one's back'	<i>m-u-rikur</i> 'to follow (someone) from behind'
	<i>m-aring</i> 'to throw'	<i>m-u-aring</i> 'to fall on/into (something)'
	<i>d<m>uma-duma</i> 'to go out to meet'	<i>m-u-duma</i> '(to go) against' (someone/something)'

As shown in Section 2, the distribution of the actor voice affix is clearly subject to constraints: <*m*> appears after initial consonants other than labials and nasals, and *m-* appears before initial vowels. On the other hand, no such constraints apply to the prefixation of *m-u-*, as seen in the previous and following examples:

(29)	root	Forms with motion prefix
	<i>aring</i> (throwing)	<i>m-u-aring</i> 'to fall on/into (something)'
	<i>mutus</i> 'mouth'	<i>m-u-mutus</i> 'to enter into the mouth'
	<i>-piri</i> (chosing)	<i>m-u-piri</i> 'to distinguish'
	<i>vatung</i> 'sea'	<i>m-u-vatung</i> 'to go to the sea'
	<i>näi</i> 'earth'	<i>m-u-näi</i> 'to go down to the ground'.

Semantically, verbs containing *u-* are motion verbs and indicate a movement or direction. This basic notion is reasonably transparent. On the other hand, actor voice prefixes indicate voice and generally do not have such a lexical meaning attached to them, as in *h<m>a* 'to hide', *k<m>alang* 'to know', *d<m>ingding* 'to judge'. One could of course argue that a verb such as *d<m>arang* 'to go away' (from *darang* 'road, path') involves motion and direction. However, in such a case this notion is a function of the basic meaning of the verbal root in combination with its pragmatic use, whereas the affix only indicates actor voice in all verbs in which it occurs.

In conclusion, the formal, semantic and distributional differences between *m-/<m>* and bimorphemic *m-u-* clearly show that the Siraya motion prefix *m-u-* is very different from the voice affixes. It is not a reflex of Proto Austronesian *um-/*<um>.

4.2 On the bimorphemic history of *m-u-*, *m-i-*, *p(a)-u-* and *p-i-*, in Formosan languages

Blust (2003) reconstructs a locative preposition *i and four unitary orientation prefixes *mu-, *mi-, *pu- and *pi-, for Proto Austronesian (see above). He is aware that Siraya orientation prefixes allow a bimorphemic analysis, but he finds no corroborating evidence for it in other Formosan languages. In a footnote (p.454, fn.4), he argues that Formosan

languages other than Siraya are not amenable to this bimorphemic analysis, although he concedes that it may have been applicable at some pre-Proto Austronesian stage.

In the descriptive overview in Section §3 it already appeared that Siraya *m-u-* is bimorphemic: it consists of the actor voice prefix for Class 3 verbs *m-* followed by *u-*, which is the motion prefix proper. Although the latter is usually preceded by the actor voice prefix *m-* or the causative prefix *p(a)-*, this is by no means always the case. The following sentences illustrate the paradigmatic relation between *u-*, *m-u-* and *p-u-*, on the basis of *kua* with a motion prefix: sentence (30) contains an imperative and actor voice form, sentence (31) has an undergoer voice form, and sentence (32) an (undergoer oriented) causative form:

(30) *Ka tau=äpa=ko ka ni-a-ku'-n pa-pa-i-sasu* [ki
LK person=also=1S.NOM LK PST-COM-be.at/move-UV CAUS-V4-LOC-command DF

ra-ruma] *ka si-darim äau-an ta tama-ma-cit;*
RDP-other LK to.rank-bottom 1S-OBL NOM person-AV4-fight

ka matäi-küma=ko-hia ki su ti äta-n, U-kua, ka
LK say-(say)like=1S.NOM-here DF word PA this-UV MOT-be.at/move, LK

m-u-kua: *ki pani=äpa, I-ru'-a, ka i-rua:* *ki*
AV3-MOT-be.at/move DF other=also LOC-arrive-SJ LK LOC-arrive DF

ra-rawey=äpa=mau, ma-i-ringey-a ki äta, ka ma-i-ringey=ra.
RDP-child=also=1S.GEN AV4-LOC-work-SJ DF this LK AV4-LOC-work=ADV

‘For I am also a man under authority [of others], with soldiers under me; and I say to one, ‘Go,’ and he goes, and to another, ‘Come,’ and he comes, and to my slave, ‘Do this,’ and he does it.’ (viii:9)

(31) *hahey-koh ki u-ku'-ey-m-au siuro*
allow-1S.NOM DF MOT-go-SJ.UV-LIG-1S.GEN first

r<m>avak ki Raraman-au
<AV3>bury DF Father-1S.GEN

‘Allow me to go and bury my Father first’ (viii:21)

(32) *Ra p-u-kua-n ta hala ki karäwmatäx ka vahäw*
but CAUS-MOT-be.at/move-UV NOM wine DF grape LK new

tu vānak ka vahäw, ka ru-ruha k-äna ka-saal-ən
LOC (leather?)bag LK new LK RDP-two LK-that V1-one-UV

h<m>a pa-i-da-rie.
<AV3>hide,keep CAUS-LOC-RDP-old

‘... but new wine is put into fresh wineskins, and so both are preserved.’ (ix:17)

Other instances showing the independent status of *u-* are *u-paräx-ən* [MOT-man-UV] ‘to be gone to by a man’ (15) and *ni-u-Litu* [PST-MOT-Devil] ‘[entered by a devil =] possessed by a Devil’ (15). Doublets such as *p-u-kua* and *pa-u-kua* (presented in sentences 22 and 23)

show that *p-u-* is still identified as a combination of *p(a)-* + *u-* rather than as a unitary causative **pu-*.

The following sentences illustrate the paradigmatic relation between *i-*, *m-i-* and *pa-i-*, on the basis of *kua* with a location prefix. Note that *<ĩ-ka-kua>* has the general notion of ‘to exist, be located in time or space’. The following sentences illustrate the actor voice form *m-ĩ-ka-kua* (33), the undergoer-oriented nominal derivation *ĩ-ka-kua-n* (34 and 35), and the causative form *pa-ĩ-ka-kua* (36):

- (33) *tu apuy ka m-ĩ-ka-kua m-ĩ-da-rĩnux*
 LOC fire LK AV3-LOC-RDP-be.at/move AV3-LOC-RDP-have.no.limit
 [in fire that exists continuously =] ‘Into everlasting fire’ (xviii:8)
- (34) *tu ĩ-ka-kua-n m-ĩ-da-rĩnux*
 LOC LOC-RDP-be.at/move-UV AV3-LOC-RDP-have.no.limit
 [in an unlimited state, in eternity =] ‘For ever’ (v1:13)
- (35) *du maku-Ali-lid=kaw, mu-rbo-a*
 when AV4.invoke-RDP-God=2S.NOM AV3-MOT-inside-sj

tu ĩ-ka-kua-ən-hu ka tu rbo
 LOC LOC-RDP-be.at/move-UV-2S.GEN LK LOC inside
 ‘When you pray, go into your room’ (vi:6)
- (36) *ru pa-ĩ-ka-kua tĩni-än, ni-d<m>arang ta neni*
 when caus-LOC-rdp-be.at/move 3S-OBL PST-<AV3>go.away NOM 3P.FREE
 ‘They left him and went away’ (xxii:22)

The following sentences provide examples of the comitative prefix *a-kua* ‘to obey’ and its causative counterpart (note that this orientation prefix seems to have no cognate forms in other Formosan languages):

- (37) *dĩk tĩni-än ka a-kua ki ka-muyən ti Rama-au*
 Only 3S-OBL LK COM-be.at/move DM V1-will-UV PA Father-1S.GEN
 ‘Only (s)he who does the will of my Father [will enter the Kingdom of Heaven]’
 (vii:21)
- (38) *Āna ta kamamang ka pa-susu-ey nein pa-a-kua*
 therefore whatever LK UV4-command-SJ.UV 3PL.GEN CAUS-COM-move,be.at

ĩmumi-än, a-kua-aw-mumi-ra pa-am’t-aw-[ā]pa
 2PL-OBL COM-move,be.at-SJ.UV-2PL.GEN-but CAUS-happen-SJ.UV-ADDITIVE

ta āna, ra na rĩngey nein āsi a-kua-aw
 NOM that but PARTITIVE activity 3PL.GEN not COM-move,be.at-SJ.UV
 [lit.: So anything they order you to obey, just obey and do it, but don't do the things
 they do -->] ‘So you must do everything they tell you, but do not do what they do’
 (xxiii:3)

The examples above show that Siraya *m-u-* is indeed bimorphemic and consists of the actor voice prefix *m-* followed by the motion prefix *u-*.

The bimorphemic analysis is also favoured by the fact that Siraya **pai-* has maintained the full causative prefix **pa-*, and **mi-* is sometimes reflected as *ma-i-*.⁷ In other words, *ma-i-*, *pa-i-* and also the previously mentioned *pa-u-* exhibit causative *pa-* and actor voice *ma-* (appearing in Class 4 verbs) in their unreduced form. The only combination in this series which is not attested in the Siraya data is **ma-u-*: this is most likely due to the fact that motion verbs are as a rule Class 3 verbs, which receive the actor voice marker *m-* (never *ma-*) before an initial vowel. The various combinations are shown in the following paradigm:

	Motion	Location	Comitative
Verb base (imperative etc.)	<i>u-</i> (/äw-)	<i>i-</i> , (/ĩ-)	<i>a-</i> , (/ä-)
With Actor voice prefix <i>m-</i>	<i>m-u-</i> (/m-äw-)	<i>m-i-</i> (/m-ĩ-) <i>ma-i-</i> (/ma-ĩ-)	?
With Causative prefix <i>p(a)-</i>	<i>pa-u-</i> (/p-u-, <i>p-äw-</i>)	<i>pa-i-</i> (/pa-ĩ-)	<i>pa-a-</i> (?pä-ä-)

Table 3. Orientation prefixes combined or not with an actor voice prefix or an causative prefix

Other Formosan languages also favour a bimorphemic analysis, be it that the evidence is more patchy than in Siraya. Whereas Blust considers Puyuma *m-u-* a unitary prefix, Teng (2008:181) treats it as a combination of the intransitive marker *m-* with the motion prefix *u-*. The independent status of *u-* appears in undergoer and imperative constructions. Compare sentence (39) expressing active voice with sentence (40) expressing undergoer voice, and sentence (41) illustrating imperative mood:

(39) *an m-u-sabak i ruma' i, ...*
 when intransitive-go-inside LOC house topic marker
 'When he went into the house, ...'

(40) *tu=u-sabak-ay dra unan tu=ruma'*
 3.GEN=go-inside-UV indefinite.OBL snake 3.GEN=house
 'A snake went into their house'

(41) *adri u-sabak i drekal*
 don't go-inside LOC village
 'don't go into the village!'

In Mantauruan Rukai, locative nouns can be made into verbs by prefixing *i-* 'be at', *pi-* 'put (at)', *m-o-* 'go (to)' and *po-* 'bring (back)' to them (Zeitoun 2007:225-226). Zeitoun presents *m-o-* as a bimorphemic prefix (segmenting *m-* and *o-*), although she does not

⁷ These prefixes also occur with short vowels, hence *m-ĩ-*, *ma-ĩ-*; vowel length is rarely contrastive (Adelaar 2011:24, 31, 51).

comment on the morphemic structure of these prefixes, and she treats *po-* as a unitary prefix.

In the following examples, sentence (42) shows *o-* co-occurring with *m-*, sentence (43) has *o-* preceded by another prefix, and sentence (44) is an illustration of the causative motion prefix *po-* :

(42) *m-o-dha'ane dhona 'olra'a, 'aa-ocao-nga*
 Dynamic.Finite-to-house that snake become-person-already
 'The snake entered the house and turned into a person'

(43) *Amo-o-valrio-nga-lrao*
 irrealis-Dynamic.NonFinite:to-village-already-1S.NOM
 'I'm returning back home'

(44) *o-dha'olo mani ki-dholro-lrao*
 Dynamic.Finite-rain then not-Dynamic.NonFinite:can.1S.NOM

po-latadhe topa'ai 'i-vecenge-li!
 causative.movement-outside Dynamic.Subjunctive:dry harvest-millet-1S.GEN
 'It rains so I can't put outside the millet I have gathered!'⁸

Li (2009:208) considers Saaroa *m-u-*, *p-u-* and *m-i-* as bimorphemic. He describes *u-* 'move' as a motion prefix. In his examples it is combined with the active voice marker *m-* or the causative marker *p-*, as in *m-u-sala* 'go, walk' and *a-p-u-sala* 'send'⁹; *m-u-sakesakelahle* 'move along the river' and *a-p-u-sakesakelahle*¹⁰ 'tell someone to move along the river'. The prefix *i-* denotes 'actions concerning location' and is also combined with *m-* and *p-*. Examples of *m-* + *i-* are *m-i-kakua* 'put on' and *m-i-a-a'alivate* 'lodge'. Unfortunately, Li does not include instances of *i-* or *u-* prefixed by themselves (nor does he provide instances with *p-i-*), leaving it for our present purpose undecided whether the Saaroa evidence is in support of a bimorphemic analysis.

Generally speaking, however, the evidence from Siraya, Puyuma and Mantauran Rukai and possibly Saaroa is in support of a bimorphemic reconstruction of *mu-* in these languages. It is also in support of the reconstruction of a separate orientation prefix **u-* rather than **mu-* in Proto Austronesian.

A final argument for analysing **p-u-* and **p-i-* as bimorphemic is that it avoids the reconstruction of an unnecessarily high number of causative prefixes for Proto Austronesian. Blust (2003:451-455) distinguishes four Proto Austronesian causative prefixes:

- *pa- (causative)
- *paka- (causative prefix occurring with stative verbs)
- *pu- (the causative counterpart of the motion prefix **mu-*)
- *pi- (the causative counterpart of the locative prefix **mi-*, or 'causative of location' prefix).

⁸ A more literal translation would have been 'It rains so I can't put out to dry the millet I have gathered!'

⁹ The Saaroa prefix *a-* remains unexplained (cf. Li:2009:181-182 + fn.11)

¹⁰ Ibidem.

All of these prefixes can be analysed as consisting of a causative prefix *p(a)- in itself or in combination with another prefix. Zeitoun and Huang (2002) already demonstrated that *paka- was in fact a combination of causative *pa- and stative *ka-, an analysis accepted by Blust (2003:465-466), which leaves us with three causative prefixes. The Siraya evidence presented in this paper, together with the evidence from Mantaaran Rukai, Saaroa and Puyuma, strongly supports the re-analysis of *pu- as a combination of *p(a)- + a motion prefix *u-, and *pi- as a combination of *p(a)- + a location prefix *i-. Otherwise, the reconstruction of separate Proto Austronesian causative prefixes *pa-, *pi- and *pu- would imply that these prefixes were re-analysed along very similar lines (as bimorphemic prefixes) in four Formosan languages that are not particularly closely related to one another, which is an unlikely course of events.

5. Concluding remarks

In this paper I gave a presentation of the Siraya orientation prefixes *a-* (+comitative), *u-* (+motion) and *i-* (+location). The Siraya evidence suggests Blust's claim that the motion prefix in Formosan languages is historically independent from the Proto Austronesian affix *um-/<um> indicating actor voice. However, it does not support his reconstruction of *mu-*pu- and *pi- as unitary prefixes but calls for a bimorphemic analysis. In Siraya, *u-* and *i-* are monomorphemic prefixes, although they can of course be combined with the actor voice prefixes *m-* and *ma-* or the causative prefix *pa-* to form the prefix combinations *m-u-*, *m(a)-i-*, *p(a)-u-* and *p(a)i-* respectively). As such, these prefixes agree with some of their cognates in other Formosan languages.

Abbreviations

1, 2, 3	1st/2nd/3rd person	LOC	location prefix; locative
AS	anticipating sequence	MOT	motion prefix
AV	actor voice	NOM	nominative
AV1	Class 1 actor voice prefix	OBL	oblique
AV3	Class 3 actor voice prefix	P	plural
CAUS	causative	PA	personal article
COM	comitative prefix	PST	past tense
DF	default case marker	RDP	reduplication
GEN	genitive	S	singular
INCH	inchoative	SJ	subjunctive
LIG	ligature	UV	undergoer voice
LK	linker	UV4	class 4 undergoer voice prefix
		V1	Class 1 verb

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