

Paper in progress: please do not quote without permission of the author

The Austronesian languages of Taiwan, with special reference to Siraya

Alexander Adelaar
Melbourne Institute of Asian Languages and Societies
The University of Melbourne

1. Introduction

This paper discusses the indigenous or Formosan (indigenous) languages of Taiwan, with special attention to Siraya. In Section 2, it provides a survey of these languages detailing their numbers of speakers, and in Section 3 it explains their genetic affiliations (vis-à-vis each other as well as within the wider context of Austronesian languages elsewhere).

In Section 4, the paper explains the great importance of these languages for Southeast Asian archaeology, and in Section 5 the increasing relevance of the Formosan population for Taiwanese politics and nationalism.

One of the Formosan languages, Siraya, is now extinct, although it was once one of the most widely spoken languages in south western Taiwan. Some indications on the location of this language are given in Section 6, and notes on the history and ethnography of its speakers are given in Section 7. Section 8 reports on the efforts that are being made for the revival of Siraya. Section 9 gives an overview of the linguistic data of Siraya. Finally, Section 10 discusses some unusual characteristics of Siraya grammar.

2. Formosan languages: numbers of speakers and vitality

In the seventeenth century there were at least 25 indigenous languages spoken on Taiwan, and they were all Austronesian. Today, ten of these have become extinct¹, and at least five others are on the verge of extinction²; languages that are not under immediate threat of extinction are those spoken by the Amis (168,548), Atayal (87,649), Bunun (46,783), Paiwan (79,497), Puyuma (1,090), Rukai (11,263), Saisiyat (5,477), Truku (7,844), Tsou (6,049) and Yami (3,572); (Council of Indigenous Peoples 2005)³.

The vitality of these languages clearly cannot be read from the numbers of their speakers alone. For instance, speakers of Truku are all above twenty years of age, and there is no younger generation to continue speaking the language (Tsukida 2005:29). A similar situation exists with regard to Puyuma, which has hardly any speakers under forty (Cauqelin 2004:322), and many other Formosan languages with large speech communities.

There are 456,062 Aboriginal Taiwanese (Council of Indigenous Peoples 2005). They make up somewhat less than 2% of the total population of 22,5 million, the

¹ To wit Babuza, Basay, Favorlang, Hoanya, Ketangalan, Kulon, Qauqaut, Papora, Siraya, and Taokas (Zeitoun 2004:41).

² To wit Kavalan, Kanakanavu, Pazih, Saaroa, and Thao (Zeitoun 2004:41); numbers of speakers of these languages run from several hundred (Saaroa, Kanakanavu), to less than fifteen (Thao, Pazih).

³ These are population figures which do not indicate how many speakers each ethnic group language has. I am grateful to Elizabeth Zeitoun (Academia Sinica, Taipei) for drawing my attention to the Council (2005) Website.

majority of which consists of Hoklo Chinese (70%); other large groups are Hakka Chinese (12-15%), and Chinese from various parts of the Chinese mainland, who migrated to Taiwan along with the Kuomintang regime in 1949, as well as their offspring (12-15%; Saillard 2004:362 fn.3).

3. The linguistic classification of Formosan languages

There are more than one thousand Austronesian languages. These languages belong to several primary branches of the Austronesian family tree. How many of these branches there are remains a matter of debate, and the numbers proposed vary between four and ten (see below). However, historical linguists generally agree that all Austronesian languages outside Taiwan belong to one branch only ('Malayo-Polynesian'), and that all other primary branches of this language family are represented exclusively by the indigenous or 'Formosan' languages of Taiwan. In other words, the Formosan languages of Taiwan represent several primary branches of Austronesian, whereas Austronesian languages outside Taiwan, which have become native languages all over Southeast Asia and the Pacific as well as on the island of Madagascar, all belong to one single branch of this language family. Only Yami belongs to the extra-Formosan Malayo-Polynesian branch, but then again, this language is actually not spoken on Taiwan itself but on Lan-yu (Botel Tobago), a small island off its southeast coast.

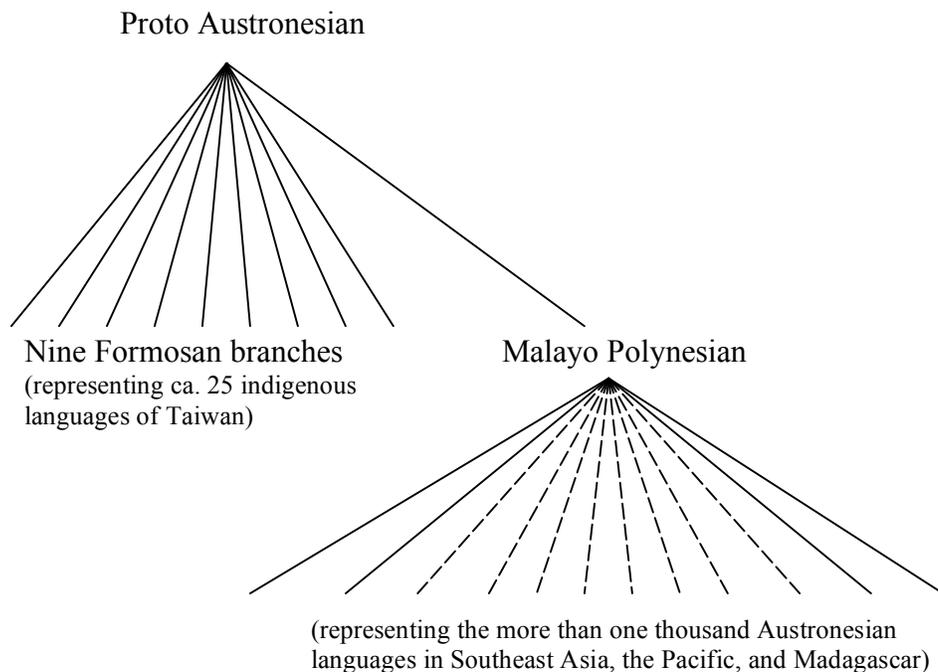


Figure I : primary branches of the Austronesian language family tree

The fact that all but one of the primary branches of Austronesian are represented in Taiwan only makes the Formosan languages of particular interest to historical linguists: as a consequence of their genetic diversity, the twenty-some languages theoretically encode much more information about the ancestral Proto-Austronesian stock language than all other Austronesian languages together. Moreover, it makes Taiwan of great

archaeological value as a stepping stone for the spread of Austronesian speakers, who came from the South Chinese mainland and migrated to Southeast Asia and the Pacific some 6,000 years ago. The idea that the Austronesians began to spread out from Taiwan is based on a theory originally launched by Edward Sapir in 1968. According to this theory, the area with genetically the greatest linguistic variety relative to its size within the territory of a language family is the most likely point of demographic dispersal, all things being equal. With regard to Austronesian languages, this theory was applied for the first time to Taiwan by Isidore Dyen in 1965.

The number of primary branches they represent has often been set to four, after Ferrell's (1969) distinction of an Atayalic branch (consisting of Atayal and Seediq), a Tsouic branch (Tsou, Kananavu and Saaroa), a Paiwanic branch (containing Paiwan and all other Formosan languages), and a Malayo-Polynesian branch. It has however become increasingly clear that this classification is not accurate. Whereas there may be some justification for the Atayalic and Tsouic branches, Paiwanic is basically a heterogeneous ragbag for all other Formosan languages, the genetic affiliations of which are much more difficult to establish. Several other classifications have been proposed (see Blust 1995 for a discussion). Blust's (1999) recent classification is of particular interest. The number of branches that he distinguishes (ten) seems to be on the high side, and more extensive research is needed to test such a great diversity. However, the merit of his classification is that it is based on a rigorous application of phonological criteria, and it is free of syntactic considerations that are not proven to be of historical importance. Blust reaches a division into the following primary branches, nine of which are exclusively Formosan: 1. Atayalic; 2. East Formosan, with a Northern branch (Basai-Trobiawan and Kavalan), a Central branch (Amis), and a Southwest branch (Siraya); 3. Puyuma; 4. Paiwan; 5. Rukai; 6. Tsouic; 7. Bunun; 8. Western Plains consisting of Central Western Plains with Taokas-Babusa and Papora-Hoanya on the one hand, and of Thao on the other; 9. Northwest Formosan, with Saisiyat and Kulon-Pazeh; 10. Malayo Polynesian.

4. Aboriginal Taiwan and Austronesian prehistory

As indicated above, the linguistic data show that the genetic variety in Taiwan is much greater than anywhere else in the Austronesian language area. They also show that by and large the Formosan languages are phonologically more conservative and complex than the Malayo-Polynesian languages⁴. Both these factors indicate that Austronesian speakers must have left Taiwan and migrated away from it to the various regions where Austronesian languages are spoken today, rather than that they came to Taiwan from any of the other Austronesian regions.

While the linguistic evidence refutes a "southern origin" of Formosan speakers, it is not able to trace Austronesian languages back to the Asian mainland⁵. Today, no Austronesian languages are spoken in China⁶. However, archaeology still provides the necessary evidence where the linguistic trail has gone cold. Bellwood (1997:205-218)

⁴ Phonetic probability and a series of unconditioned mergers of various Austronesian phonemes into one single phoneme in Malayo-Polynesian languages strongly suggest that this is the case.

⁵ Nor is it able to tell whether or not there was a population on Taiwan prior to the Austronesians.

⁶ Except for Tsat; however, the speakers of this Chamic language migrated to Hainan after the fall of the Cham city of Indrapura in Vietnam in 982 (Thurgood 1999:225).

demonstrates that there is a geographically and historically continuing trail of neolithic sites beginning in South China and moving via Taiwan⁷ into the Philippines⁸ and on to Indonesia (Talaud Islands and Halmahera), Sabah and East Timor. These sites contain red-slip ceramics (including decorated and (often) globular vessels), neolithic stone flake tools, and bones of pigs and other animals. The trail also branches off into Melanesia, where it ends in Samoa and is known as the ‘Lapita culture’ (1,400-800BC).

The historical linguist Robert Blust (1999:73) argues that even if today there are no traces of Austronesian languages on the Chinese mainland, given the sinicisation process that has been going on in Taiwan, “it is difficult to imagine that the cultural and linguistic extinction did not occur in coastal regions of southern China and in the P’eng-hu (/Peng-hu, Pescadores) Islands on a much larger scale, leading to the disappearance of any Austronesian or Austronesian-related languages which may have been spoken there prior to European discovery”.

5. The Austronesian ethnic groups in the Taiwanese nationalist debate

For most of last century, the Austronesian ethnic groups played a very subordinate role in the political life of their island, and they were often exposed to severe economic, social and cultural oppression. However, this has begun to change in the last two decades or so. The following account is based on Stainton (1999). Somewhat simultaneous with the political liberalisation of Taiwan and the rise of Taiwanese nationalism in the 1980’s, the Austronesian ethnic groups underwent an awareness process and strived for recognition of their cultures and their ethnic rights as the nation’s earliest inhabitants. In 1984, they formed the Alliance of Taiwanese Aborigines. The Taiwanese nationalists, seeking to differentiate themselves from the Chinese nationalism of the Kuomintang and, later, the PRC mainland, soon began to capitalise on the unique position of the Austronesian groups. Their historical arguments for an independent Taiwan were based, among others, on the fact that Taiwan originally did not belong to what was traditionally considered the Chinese empire (i.e. during the Ming dynasty and before), and that the annexation of Taiwan to China had been a relatively short one (it had lasted for hardly more than two centuries). The presence of an older non-Chinese population was clearly underscoring the otherness of Taiwan. Furthermore, some Austronesian groups had traditional beliefs claiming that their ancestors came from the south (and not from the Asian mainland), which in the view of some nationalists added weight to the original otherness of Taiwan. The most recent evidence adduced in support of the Taiwan nationalist cause is based on gene tests, which show that the Austronesian groups share part of their genes with the Hoklo majority. This line of argument would mean that the majority of pre-Kuomintang Chinese in Taiwan are of Austronesian ancestry, a point in favour of the otherness of Taiwan as a whole vis-à-vis mainland China.

However, supporters of the annexation of Taiwan by the People’s Republic of China have also managed to use the case of the Austronesian inhabitants of Taiwan for their own cause. They consider Taiwan a province of China; it became a Chinese province in the 17th century, and the majority of the population is culturally and linguistically Chinese. They find historical justification for their case in the fact that, in the past, Taiwan was geologically still part of the mainland. Furthermore, according to

⁷ Represented by the up to 6,300 years old sites belonging to the Ta-peng-k’eng [Da-Beng-Keng] culture.

⁸ Including the Dimolit site from 2,500BC in northern Luzon.

recent archaeological evidence, the Austronesian inhabitants originally come from the South Chinese mainland. Some pro-annexation supporters are keen to point out some cultural similarities between the Austronesians in Taiwan and some of the minority groups in mainland China.

Meanwhile, the Austronesian ethnic rights activists in Taiwan are emphasising the fact that they were the first inhabitants of the island. Some of them take pride in the fact that Taiwan is the prehistoric homeland of the Austronesian language family, the members of which are spoken in large parts of Southeast Asia and the Pacific as well as in Madagascar. They also seek some differentiation from Hoklo-dominated Taiwanese nationalism.

There is no need to point out the ad hoc nature of most of the historic arguments used in the above discussion, and their irrelevance to linguistic analysis. As some of these arguments are based on linguistics and archaeology, however, it is pertinent to reiterate briefly the current position of linguists and archaeologists on the prehistory of Taiwan. Their evidence shows that this island was presumably the homeland of Proto Austronesian, or at least, the place from where its speakers 6,000 years ago began to spread over Southeast Asia, the Pacific and Madagascar. Before they came to Taiwan, these early Austronesians must have come from the South Chinese mainland, where some 8,000 years old Austronesian archaeological sites were found. The linguistic and archaeological evidence clearly refutes a “southern origin”. From this it may seem as if these disciplines favour the position of the pro-annexation supporters, but this is not really the case. While Bellwood and Blust believe that the ancestors of the Austronesians some 8,000 years ago lived on what is currently the South Chinese mainland, both work on the obvious assumption that at that stage Chinese cultural and political domination had not yet extended that far South (Bellwood 1997:205; Blust 1999:70-73).

6. The Siraya language: location

The Siraya belong to the plains area in and around Tainan in Southwest Taiwan. A precise indication of where Siraya was originally spoken is hard to give. Siraya was the language of the Sinkan village community with whom the Dutch came in contact first, but many factors suggest that it was spoken more widely than in Sinkan village alone. Tsuchida and Yamada remain unsure whether two very similar speech forms, Taivoan and Makatao were dialects of Siraya proper or separate languages. On the other hand, Candidius wrote in 1628 that the villages of “Sinckan, Mattau, Soulang, Backeroan, Tafalan, Tifalukan, Teopang” and “Tefurang” had the same culture and language, allowing for minor variations (Blussé et al. 1999:92). While early Dutch sources point out that Siraya was a foreign language in the area South of Sinkan, during Dutch occupation, it became a lingua franca in South and West Taiwan. Finally, some Siraya speakers moved further eastward into the mountains under the pressure of incoming Chinese in the Tainan area (Tsuchida and Yamada 1991:1-10). That the Siraya speech community was large at the time of the Dutch colonisation can also be inferred from fact that the missionaries chose Siraya as one of the two medium languages for their literacy campaign. (The other language was Favorlang, another now extinct language, which was spoken to the North of the Siraya-speaking area along Taiwan’s west coast).

One may wonder why an apparently important community as the Siraya lost its language, whereas many other, much smaller and politically less prominent groups have

been able to maintain theirs. The answer must be exposure to Chinese (Hokkien) language and culture. Southwest Taiwan is not mountainous, and it is much more accessible to overseas settlers than most central and eastern parts of Taiwan, where life was no doubt harder, but where Austronesian communities were also much more out of reach of Chinese influence⁹. The fact that the Siraya belong to the south-western plains, which are much more populated and urbanised than many other parts of Taiwan, and the circumstance that they interacted more with the Chinese than many other Aboriginal groups have done, are the probable causes of their far-going sinicisation and the loss of their language (Prof. Paul Jen-kuei Li personal communication).

7. The Siraya people: some historical and ethnographic data

The heavily sinicised Siraya (Pingbu) people have lost much of their original culture, which includes the ability to speak their ancestral language. However, thanks to the detailed observations of Candidius (1628), William Campbell (1903) and other missionaries as well as the meticulous records of the Dutch East India Company published by Blussé et al. (1999, 2000), and the ethnographic studies by Shepherd (1995a and 1995b), we have a fairly accurate picture of who the Siraya people were, how they lived, and what they believed.

When the Dutch East India Company established a trading post on Taiwan's west coast in 1627, the Siraya speakers they came in contact with were organised in villages, which were in permanent warfare with each other. In the village communities, the women took care of agriculture and religion, while the men were occupied with hunting, warfare and decision-making. Married couples did not live together until late into their marriage: the wife continued living with their parents, and the husband remained in the men's house; the husband would visit his wife on the stealth, and if the wife became pregnant, she would undergo abortion, which was performed by *inibs*, female shamans who were in control of Siraya religious matters. Women underwent these abortions until they were into their late thirties. John Shepherd (1995b) tries to find the reason behind this peculiar practice. Not satisfied with earlier explanations based on limitations in food supplies (by Montesquieu), or overpopulation due to sexual promiscuity (by Malthus), he is able to show that the abortions were based on cosmological beliefs and on the husband's life cycle. The Siraya, like many other traditional Austronesian societies, must have believed that childbirth and childrearing had an adverse influence on success in warfare. This explains why childbirth was postponed until the husband stopped being a warrior and became a community elder. This would happen when the husband was forty; his wife, who usually was several years younger, would still have a few years left to bear children.

The Dutch missionaries were initially not able to impress the Siraya with their religion and their good works (such as healing and improved agricultural techniques). A turning point came when the missionaries managed to persuade the reluctant East India Company administration to give military assistance to the Sinkan people in battles against their neighbours. This had an instant effect on the Sinkan people, who became much more inclined to accept Christianity and to let the Dutch interfere in the organisation of their society. The latter continued their military alliance with Sinkan and managed to

⁹ This incidentally demonstrates a claim often made in language endangerment studies. A language is not only endangered by the small size of its speech community, but also (and possibly even more so) by the regular and intensive exposure of its speech community to another more prestigious language.

pacify and control a large part of West Taiwan. In the Siraya communities they succeeded, among others, to abolish abortion, ban the *inibs*, and merge villages into larger units. They also encouraged cohabitation of newlyweds. They combined their missionary activities in a broad program including medical help and education. (Meanwhile, the Dutch East India Company obtained a monopoly in the lucrative trade in Taiwanese deer hides). By the time the Dutch were ousted from Taiwan by Cheng Ch'engkung ([Zheng Chenggung]¹⁰ in 1661, they had managed to baptise a large part of the almost 70,000 Aboriginal Taiwanese under their control. However, many converts were only nominal Christians, and after the defeat of the Dutch, Cheng Ch'engkung succeeded in eradicating the new religion. As has often been pointed out in the literature, literacy outlived religion as far as Dutch heritage in Taiwan was concerned: in the early 19th century some Siraya were still able to write their language in Roman script.

8. Efforts to revive the Siraya language

As did the Japanese administration before, The Taiwanese government has always acknowledged the existence of distinct ethnic groups among the Aboriginal population. The actual number of these groups tended to vary (the Japanese recognised twelve, while the Kuomintang recognised nine viz. the Amis, Atayal, Bunun, Paiwan, Puyuma, Rukai, Saisiyat, Tsou and Yami). In recent years, the Thao, Kavalan and Truku have been added to the list. Various other groups want to obtain a distinct ethnic status. An important criterion is to have one's own language. This creates a problem because in some cases the speech of an aspiring group is considered the dialect of a language of an ethnic group that has already obtained a separate status. In other cases, the speech of a group has lost its importance as a cultural emblem because it has become extinct or is at the verge of extinction (Saillard 2004:362-363).

The Siraya are a case in point. They are presently speakers of Hokkien and lost their original language at least a century ago. However, due to the missionary activities in the 17th century and the introduction of writing, the Siraya language is still relatively well documented, and linguists have been reasonably successful in their analysis of the data.

An organisation called the Siraya Cultural Association is currently striving for the maintenance of the Siraya cultural heritage. This includes the revival of the language. One of the members of the association, Edgar Macapili, a Philippine-born Protestant minister, has tried to instil enthusiasm for Siraya by writing a trilingual (Hokkien, English and Siraya) biblical play called "Noah's Ark in Siraya" (Siraya "Ta avang ki Noe-an"; Macapili 2002). He is married into the (Siraya) Wan family, the members of which form the nucleus of the Association. The play was performed in Tainan in 2002 just before Christmas. The actors were Siraya children of all ages. The event obtained much publicity and media coverage. The association was evidently spurred on by the success of another ethnic group, the Kavalan, to obtain separate ethnic status in 2002. (The Kavalan language is at the verge of extinction).

Some of the attendants at the event expressed their doubts at the possibility to revive a dead language, especially one that is so ill-understood as Siraya. These doubts are shared by some linguists and other scholars. The author of the play has constructed Siraya sentences from individual words and fairly transparent grammatical elements in

¹⁰ Also called Guo Xinye or Coxinga.

the gospel text. It is obvious that these sentences are not always in accordance with the grammatical rules of the gospel text. Part of the verbal morphology is ignored¹¹, and in a few cases where there was no Siraya equivalent, the author has taken a word from his own native Bisaya (Philippine) tongue. However, in other linguistic respects the construction is remarkably successful. Moreover, as an expression of the will to maintain one's linguistic heritage, the endeavour is of course absolutely legitimate, and, however unlikely, ultimate success is always possible. As a cultural event the performance was impressive.

9. Siraya data

There are basically three kinds of sources for Siraya, each of a different nature.

1. The most important set of sources are texts and a wordlist prepared by 17th century Dutch missionaries. The texts basically consist of a Siraya version of the gospel of St. Matthew (published in 1661 and again in 1888 by Campbell) and a catechism (1662), and furthermore of a few short dialogues between schoolkids as well as a wordlist (Van der Vlis 1842). The gospel text is translated from the Statenbijbel, the official Protestant Dutch bible version which had appeared only a few years earlier (in 1648) and would become a main unifying influence on Dutch language and spelling.

A number of factors complicate research on these sources.

In comparison to the King James Bible, the Statenbijbel is a more literal translation from the Greek and Hebrew originals. This is a factor of importance for the linguistic analysis of the Siraya version of St. Matthew's gospel. For an adequate linguistic interpretation of this text, it is imperative to hold it against the Statenbijbel and no other translation.

Another factor of importance to the interpretation of the 17th century data (in general) is that they are not always consistent in spelling. This is due, among others, to the fact that their spelling was not based on a rigorous phonemic analysis, and it is also a reflection of the spelling chaos that existed in written Dutch itself (the appearance of the Statenbijbel as a model did not change that situation overnight). The gospel text, catechism and wordlist each show a lack of spelling uniformity, be it in varying degrees. The gospel text had several editors. While at first it seems that the spelling is inconsistent throughout the gospel text, a careful computer count reveals that some of the spelling principles used in the first twenty-one chapters of this text differ more or less consistently with those used in the seven chapters at the end.

There is a distinct dialect difference between the gospel text and the catechism on the one hand, and the wordlist + short dialogues on the other. Compare the following pairs of words, the first of which are taken from the "gospel dialect", and the second from the "UM dialect" (or "Utrecht manuscript dialect", referring to the fact that the wordlist was rediscovered as a manuscript in the city of Utrecht some 150 years ago). Proto Austronesian **R* (a uvular trill) becomes *x* (?a velar or uvular fricative) in the UM dialect and *h* or *ø* in the gospel dialect. Adjacent *a* or *u* are often palatalised to respectively *ä* or *äw* in the process:

¹¹ For instance, complex verb constructions and the phenomena discussed in section 10 are not applied.

UM	gospel	Proto Austronesian
<i>vaxiox</i> ‘storm’	<i>bäyux</i> ('bæ'joug-h') ¹²	* <i>baRiuS</i>
<i>waxi</i> ‘day ; sun’	<i>wäy</i> (wæ'i)	* <i>waRi</i>
<i>vaxo</i> ('vacho') ‘new’	<i>vahäw</i> ('vahæu')	* <i>baqəRu</i>
<i>xuma</i> ‘village, town’	<i>äwma</i> ('æuma')	* <i>Rumaq</i> ‘house’

Proto Austronesian **d* became *s* in the UM dialect (except in reduplicated monosyllables and in consonant clusters). It became *r* in the gospel dialect except word-finally, in consonant clusters and, sometimes, in initial position.:

UM	gospel	Proto Austronesian
<i>rmaos</i> ‘West’	<i>raor</i>	* <i>lahud</i> ‘towards the sea’
<i>seia</i> ‘East’	<i>reya</i>	* <i>daya</i> ‘towards the land’
<i>so-soa</i> ‘two’	<i>ru-ruha</i>	* <i>duSa</i>
<i>salom</i> ‘water’	<i>ralum</i>	* <i>dahūm</i>
<i>ma-simdim</i> ‘dark, obscure’	<i>ma-rimdim</i>	* <i>dəmdəm</i>

In the Utrecht Manuscript, the final sequence **-an* of many roots and derivations became *-ang* ; it remained unchanged in the gospel dialect. Compare :

UM	gospel	Proto Austronesian
<i>k<m>ang</i> ‘to eat’	<i>k<m>an</i>	*<um> + * <i>kaʔən</i>
<i>sumang</i> ‘other ; future’	<i>ruman</i>	* <i>duma</i> (+* <i>-an</i>) ‘other’
<i>ka-va-voel-ang</i> ‘kingroup, lineage’	<i>ka-va-vuil-an</i>	* <i>ka- ? -an</i>
<i>saat ka-xatux-ang</i> ‘hundred’	<i>saat ka-ätux-an</i>	* <i>ka- *Ratus- *an</i>
<i>i-ra-rong-ang</i> ‘seat, chair’	<i>i-ra-rung-an</i>	* <i>ka- ? -an</i>

2. After the Dutch had left Taiwan until the early nineteenth century, the Siraya continued to use Dutch writing. The most pertinent and lasting evidence of this is the survival of a corpus of bilingual (Chinese-Siraya) land contracts, which had been drawn up from the end of the 17th century to the beginning of the 19th century between Siraya locals and members of the in-migrating and expanding Chinese community. The contracts are important specimens of 18th and 19th century Siraya. Their language is possibly more authentic than the 17th century liturgical texts (because it was composed by Siraya speakers themselves), but it is also highly formulaic and lacks the grammatical and lexical variegation of the gospel text. . These contracts are therefore very difficult to interpret. They have been studied by the historian Weng Chia-yin (cf. Weng 1990) and the linguist Paul Jen-kuei Li (cf. Li 2002).

¹² These words between brackets are in the spelling of the original gospel text.

3. When the Japanese assumed control in Taiwan in 1895, Siraya was almost extinct¹³. Nonetheless, some Japanese linguists were still able to collect a number of fragmentary wordlists, which show forms that are not found in other sources and suggest a greater dialect variation than that reflected in the 17th century texts. On the basis of these lists, Tsuchida and Yamada (1991:) distinguish three communalects (Siraya proper, Tevorang and Makatao). However, as there are more than three different lists, and none of the lists reflects consistently the same sound changes throughout the lexical data it contains, one could also think of a dialect continuum throughout the area where Siraya (proper), Tevorang and Makatao were spoken, and consider the aforementioned communalects as fairly random reference points within this continuum. In the following word list, the way they differ in reflecting *n* or *l* for Proto Austronesian **l* and *h/ø* or *r* for **l*, is more a matter of degree than of clear dialect boundaries:

Siraya	Taivuan	Makatao	Proto Austronesian
<i>rahpal</i> ‘leg’	<i>rapan</i>	?	<i>*dapat</i>
<i>tatapil</i> ‘shoe’	<i>tatapin</i>	<i>tatapin</i>	<i>*tapil</i>
<i>udal, udan</i> ‘rain’	<i>uran</i>	<i>uran</i>	<i>*quzat</i>
<i>litu</i> ‘spirit’	<i>anitu</i>	<i>ngitu</i>	<i>*qalitu</i>
<i>mapuli</i> ‘white’	<i>mapuli</i>	<i>mapuni</i>	<i>*ma-puli</i>
<i>luang</i> ‘cow’	<i>lowan</i>	<i>noang</i>	<i>*(qa) luan</i>
<i>alak</i> ‘child’	<i>alak</i>	<i>alak</i>	<i>*alak</i>
<i>dalum</i> ‘water’	<i>ralum</i>	<i>ralum</i>	<i>*Datum</i>
<i>haiero</i> ‘pestle’	<i>hayu</i>	<i>hayu</i>	<i>*qaSəlu</i>
<i>туру</i> ‘three’	<i>toho</i>	<i>toru</i>	<i>*təlu</i>
<i>rima</i> ‘five’	<i>hima</i>	<i>rima</i>	<i>*lima</i>
<i>daran</i> ‘road, path’	<i>raan</i>	<i>raran</i>	<i>*zalan</i>
<i>vural, vuran</i> ‘moon’	<i>buan</i>	<i>buran</i>	<i>*bulal</i>
<i>vari</i> ‘wind’	<i>vari</i>	<i>vari</i>	<i>*bali</i>

10. Some remarkable features of Siraya grammar

Scholarly publications on the Siraya language are Li (cf. Li 2004), Tsuchida (1996, 2000), Tsuchida and Yamada (1991), Bien-Horn Chen (2001), and Adelaar (1997, 1999, 2000, 2004a, 2004b).

The basic outline Siraya grammar is not very different from that of other Formosan or “Philippine-type” languages.

Siraya has a Verb-Subject-(other parts of speech) structure. The verb is phrase-initial, and is followed by the subject, which in turn is followed by other parts of the sentence. An important exception to this is that if the actor is not the subject, it comes immediately after the verb and before the subject.

¹³ According to Tsuchida and Yamada (1991:1), in 1895 only a limited number of old people still remembered the Siraya language and customs. Li (2002:68) speculates that the language already became extinct around 1830.

It has a “symmetric voice system”, which means that it has active and passive¹⁴ verb forms that are morphologically equally complex, and that active orientation is neither more nor less basic to the overall grammatical structure than is passive orientation (Himmelmann 2005:112ff).

It uses case markers to introduce parts of speech. The ‘nominative’ marker *ta* introduces subjects, the ‘locative’ marker *tu* introduces locations, directions and time, and *ki* is a sort of default marker and marks various other grammatical relations (including undergoer, actor, instrument, purpose, possessor). It also functions as a linker between a quantifier and its nominal head, and as a co-ordinator between noun phrases¹⁵.

In Siraya complex verb phrases the auxiliaries obtain all the verbal marking and become effectively the head of the verb phrase. They form an open class and assume many of the meanings that in English would be expressed by adverbs and adverbial constructions (see further below).

In what follows I would like to demonstrate some unusual features that are particular to the verb structure of Siraya (although they are not unique to it, cf. Nojima 1996). These features are interrelated and consist of lexical prefixes, “anticipating sequences” and orientation prefixes. For a better understanding of these features, however, some further attention is required first to the structure of complex verb phrases in Siraya.

Unless indicated otherwise, the data used in this section are taken from the Siraya translation of the Gospel of Matthew (Gravius 1661). The orthography in which they are presented is based on Adelaar (1999). Their grammatical analysis is based on Adelaar (1997, 2000, 2004a). In the examples below, a root between square brackets indicates that it only occurs in derivations. The function or meaning of affixes is given in capitals. The active infix is written between angled brackets, e.g. <*m*>. *ka* is a linker connecting coordinate clauses (‘and’) or connecting a relative clause to its preceding head (best translated as ‘which’ or ‘who’).

10.1 Complex verb phrases

In English, a verb can be modified by auxiliaries and various adverbials. In Siraya, the meanings conveyed by all these modifiers are usually expressed by one class of auxiliary-type elements. These elements appear at the beginning of the verb phrase. They become the head of the verb phrase and are marked for voice, tense, mood and person. The lexical verb follows and is in the active verb form (no matter what the overall orientation of the verb phrase is).

So, various meanings that are expressed adverbially in English are expressed by verbal auxiliaries in Siraya. An English phrase like ‘She walks fast’ is rendered as ‘She fastens her walking’ or ‘She does fast the walking’; ‘He went away by boat’ is expressed as ‘He on-boats his departing’. See the following examples:

¹⁴ In this paper I try to avoid the use of abbreviations and linguistic jargon. I therefore use ‘active’ and ‘passive’ rather than more accurate terms such as ‘actor-oriented’ and ‘undergoer-oriented’. However, enhanced readability sometimes comes at the cost of scholarly precision, and the reader is directed to Adelaar (1997, 1999, 2000, 2004) for a more rigorous treatment of the data.

¹⁵ *ki* basically occurs wherever nominative *ta* and locative *tu* do not apply. An English equivalent or clear explanatory gloss is difficult to give. I therefore gloss it with its English translation equivalents or – in cases where it indicates object case – with ‘OBJECT’.

- 1) *ni-taw-avang* *d<m>arang* *hĩna*
 Past-be.on-boat <ACTIVE>go.away thence
 'He left from there on a boat'
- 2) *siuro-a* *irua* *ta* *Elias*
 do.first-Future come SUBJECT Elias
 'Elias will come first' (xvii:11)

The Siraya auxiliaries seem to form an open class. All kinds of adverbial elements can be head of the verb phrase, like *taw-avang* 'being on boat' in (4), or the onomatopoeic form *uakakak* (cackling sound), as in (3):

- 3) *ni-ma-uakakak* *ma-tawa* *tĩni-än*
 PAST-AS-cackling.sound INTRANSITIVE-laugh him-at
 'they laughed at him with scorn' (ix24)

A negator can also become the head of a verb phrase, but it is only marked for person, and the following lexical verb still attracts voice-, tense-, and mood marking, as can be seen in the following examples:

- 4) *Mĩkakua* *äsi-mau-kamu* *ni-kalang-ən*
 always not-by.me-you PAST-know-Passive
 'I never knew you'(vii23)
- 5) *Äsi-kaw* *r'pũng-a* *ki* *Mairang* *ka* *Alid-oho*
 not-you tempt-FUTURE OBJECT Lord and/which/who God-your
 'You shall not tempt the Lord your God' (iv7)

10.2 Lexical prefixes

Many Siraya verbs (and deverbal nouns) are basically compounds consisting of a bound verb prefixed to a complement. The latter can be a noun, a verb 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. Some of the bound verbs are marked for voice, but this is not the case for all of them. In what follows I will call them 'lexical prefixes' for want of a better term and in order to conform to what has become common practice in recent literature. The overall meaning of the verbal compound can sometimes be guessed from its constituent parts, but in other cases it seems to have acquired a rather idiosyncratic meaning. The gospel text has at least 34 lexical prefixes (Adelaar 2004a:353-358). The following is a demonstration of some frequently occurring lexical prefixes:

mätäy-, and its passive counterpart *pätäy-* add the notion of 'talking' or 'saying' to the root:

Root

rīx (v:12) 'mind'
tan [preparing]
mama (x:16) 'like, as'
nawnamu (xix:4) 'first'
duma (v24) 'front, opposite'
kuma hīna (iii:15) 'like this'
tävāx [private], *ta-tavax* (xxi:33) 'fence'

ma-riang (xiii:23) 'good'
vli [reciprocating]

Derived verb

mätäy-ra-rīx (x:20) 'talk within oneself'
mätäy-tan (vii:22) 'to prophecy'
mätäy-mama (vii:4) 'tell how'
mätäy-nawnamu (xxvi:22) 'begin to speak'
mätäy-duma-duma (xii:32) 'talk against'
mätäy-kūma-hīna (xiii:54) 'say as follows'
mätäy-tävāx (xvii:3) 'talk among themselves'
mätäi-riang (v:44) 'bless'
mätäy-vli (iii:15) 'answer',
ni-pätäy-vli-ən (xvi:16) 'was answered'
(PAST-talk(passive)-reciprocate-PASSIVE)

s<m>aki- (passive counterpart *saki-*) : implies throwing, casting

Root

vaung (xxiii:15) 'sea'
itu-mala (xii:46) 'be outside'
itu-tawax (xxii:13) 'be far'
-kua [+move, +be at]
pänāx (xx:3) 'the open; market place'
nanang (xxvi:3) 'name'

Derived verb

s<m>aki-vaung (iv:18) 'cast into the sea'
s<m>aki-mala (v:13) 'throw outside'
s<m>aki-tawax (xxi:39) 'throw far away'
s<m>aki-kua (xv:30) 'to cast'
s<m>aki-pä-pänāx (xvii:19) 'cast out'
s<m>aki-nanang (i:25) 'call, give a name'

pää- implies giving, passing on. Compare:

Root

-vli [reciprocating]
nīno 'nothing'
rīma 'five'

ka-tukul-an (vii:21) 'iniquity'
tarīmukax, in *pis-tarīmukax*
(viii:32) 'die'
ma-harəm (xx:30) 'feel compassion'

Derived verb

pää-vli (xvi:27) 'to reward'
pää-nīno (x:8) 'give for free'
pää-rīma (*ki talenten*) (xxv:15) 'give five (talents)'
pää-tukul (xx:13) 'do wrong to'
pää-tarīmukax (v:26) 'pay off'

pää-harəm (vi:1) 'give alms'

In a few cases the lexical prefix seems to be derived from a free root morpheme, for instance, *pää-* '+ giving or passing on', must be related to the verb *phä* 'to give'. However, in most other cases a relation between lexical prefixes and free root morphemes is not evident.

10.3 Anticipating sequences

A phenomenon that seems to be related to lexical prefixes but is nonetheless different is the prefixation of a formal element belonging to the lexical verb to the head of a complex verb phrase. In the following two sample sentences, the lexical verb is *k<m>an* ‘to eat’, and the initial consonant of this verb is also prefixed to the head *iməd* ‘all, entire’ in (6) and the head *-da* ‘residue’ in (7):

- 6) *ni-k-īməd* *k<m>an* *ka* *mi-bangtaw* *ta* *neni*
 PAST-k-all <ACTIVE>eat and BECOME-satiated SUBJECT they
 ‘they did all eat and were filled’ (xiii:20)
- 7) *pīpi* *ka* *ni-k-da* *k<m>an*
 crumbs and/which PAST-K-remain <ACTIVE>eat
 ‘...crumbs that were left from the dinner’ (xiv:20)

The prefixed formal element is an initial consonant, as in the preceding sentences, or it is an initial syllable, or even two syllables, of the lexical verb. Compare example (8) (which incidentally exhibits various auxiliaries within one complex verb structure):

- 8) *ra* *ni-maku-saun-āpa* *maku-ton* *maku-langäx* *ta* *neni*
 but PAST-maku-more-and maku-loud utter-?call SUBJECT they
 ‘...but they cried the more’ (xx:31)

The shape of these formal elements may coincide with the shape of a regular prefix, which gives the false impression that this prefix is repeated on the head and there is morphological agreement between the lexical verb and the head. This happens in (8), where *maku-* is in fact a lexical prefix, and also in (9), where *paka-* is a causative prefix:

- 9) *paka-lpux-kaw* *paka-kuptix* *īau-an-da*
 paka-can-you CAUSE-pure me-at-in.fact
 ‘you are able to purify me’ (viii:2)

However, cases like *ni-k-īməd k<m>an* in example (6) show that the agreement is not morphological but formal. Compare also the following example, where *mu-* in *mu-īməd-kamu* is a copy of the first syllable of the verb *m-umxa*. It contains the active prefix *m-* as well as the initial vowel of the root *umxa*, and is clearly not determined by existing morpheme boundaries:

- 10) *mu-īməd-kamu* *kawa* *m-umxa* *ki* *āta*
 mu-all-you perhaps ACTIVE-understand OBJECT this
 ‘do you understand all this?’ (xiii:51)

In some cases, the prefixed element is in the process of developing semantic autonomy. For instance, in (11), the anticipating sequence *k-*, which usually anticipates *kan* or *k<m>an* ‘to eat’, is now used in a complex verb construction with another lexical verb (*ma-irung*). The latter literally means ‘to sit’ but in this example has the clear implication of sitting at the dinner table and joining for a meal. Here, *k-* is no more a formal element iconically related to the lexical verb. It has acquired a meaning of its own and is able to add to the contextual interpretation of *ma-irung*.

- 11) *ni-k-lam* *ma-irung* *ki* *saat* *kitiän* *äb ki* *ruha*
 PAST-k-with INTRANSITIVE-sit with one ten plus two
 ‘At evening, he sat [at the dinner table] with the twelve [disciples]’ (xxvi:20)

10.4 Siraya Orientation prefixes

Orientation prefixes form a class of lexical prefixes of their own. They occur very frequently in verbs as well as deverbal nouns, and they have a more generalised (sometimes even ‘bleached’) meaning. There are three orientation prefixes:

- (1) motion prefix *u-* (or *äw-* as a result of non-phonemic palatalisation);
- (2) location-oriented *i-* (or *ĩ-*);
- (3) comitative *a-* (or *ä-* as a result of non-phonemic palatalisation).

Derivations with *u-* (*äw-*) usually mean ‘to move towards’ or ‘to be in motion, make (sudden) moves’:

‘to move towards’:

- m-u-mala* (xxvi:71) ‘go out’ (*mala* ‘outside’)
m-u-rbo (ix:28) ‘go inside’ (*rbo* ‘inside’)
m-u-rarəm (iii:16) ‘go down’ (*rarəm* ‘bottom’)
m-äw-äwma (viii:33) ‘go to the city’ (*äwma* ‘town, city’)
m-u-Litu (viii:26) ‘enter, take possession of’ (said of a *litu* ‘devil’)
m-u-mutus (xv:17) ‘go into the mouth’ (*mutus* ‘mouth’)
m-u-arux (viii:28) ‘cross over’ (*-arux* ‘the opposite side’)
p-u-alak (xxiii:15) ‘produce a child, beget’ (lit. “bring forth a child”)
p-u-su (viii:8) ‘say, utter’ [lit. ‘produce words’] (*su* ‘word’)
u-paräx-ən (i:23) ‘have sex (woman), [“be gone to by a man”]’

‘to make (sudden) moves’:

- m-äw-äsäs ta vato* (xxvii:51) ‘the rocks rent’ (*äsäs* ‘?rent’; *vato* ‘rock’)
m-u-pto (ix:17, xii:20) ‘to burst’
pa-u-bla (Catechism page 175) ‘break something’
m-u-kiap (xix:25) ‘be astonished’

Derivations with *i-* (*ĩ-*) are semantically less transparent. Many can be classified into broad semantic domains such as ‘location in space or time’ or ‘action causing physical affection’. However, other derivations do not seem to belong to a specific semantic domain.

'location in space or time':

m-i-rung (iv:16) 'to sit'

m-i-ka-kua (v:34) 'always' (*-kua* 'be at, move')

i-ka-kua-ən (vi:6) 'room'

i-ka-kua-an m-ĩ-da-rĩnux (vi:14) 'eternity' (*m-ĩ-da-rĩnux* 'infinite')

m-i-mala (xxvi:69) 'to be outside' (*mala* 'outside')

ĩ-la-limux-an (x:22) 'the end' (*limux* 'limit')

i-da-rinux-an (xii:32) 'century (also: eternity, world)'

i-rua to (iii:1) 'arrive'

m-ĩ-ta-talax (viii:15) 'to receive at home' (*tālax* 'house')

pa-i-al-aley (xxi:17) 'place, put'

'action causing physical affection':

ma-i-alak (i:25) 'to get a child'

ma-i-kua (xxvi:7) 'carry', (iii:11) wear (clothes, shoes)'

ma-i-paringid (ix:23) 'play the flute'

ma-i-said ki rĩx (xviii:28) 'to take by the throat' (said 'side'; *riřx* 'throat')

i-sa-saun-ən ki Lĩtu (iv:24) 'possessed with devils'

pa-i-lika-lika (xxiii:4) 'touch'

(no specific semantic domain):

i-kalawakaw-ən (xxiv:6) 'rumour'

ma-i-ra-rarey (xi:20) 'reproach, upbraid'

m-i-tādũx (xii:23) 'hope'

papa-i-ä-voak (xxvi:31) 'spread, scatter around'

Derivations with *a-* (/ä-) have meanings such as 'be with', 'take along', 'go along with' and 'obey'; they include:

a-keyül (xvi:7) 'be provided with bread' (*keyül* 'bread')

a-para (xxv:4) 'to take along, be together with' (*para* 'together')

a-kua (vii:24) 'obey', *pa-a-kua* (xxiii:3) 'make obey'

a-lam (ii:20) 'to take along' (*lam* 'with')

Note that some derivations seem to combine several orientation prefixes:

ä-i-ku'-n (xxiv:21) 'included'

m-äw-a-kla ki rĩx (xviii:19) 'agree' (*-kla* 'join', *riřx* 'mind')

10.5 From anticipating sequences to orientation prefixes: a possible historical explanation

There are obvious similarities between lexical prefixes, orientation prefixes and anticipating sequences. I would like to explain these phenomena as different stages in the development from anticipating sequences to full grammaticalized prefixes. Four progressive stages of grammaticalization can be distinguished.

Reference list

- Adelaar, K. Alexander. 1997. Grammar notes on Siraya, an extinct Formosan language, *Oceanic Linguistics* 36/2:362-397.
- 1999. Retrieving Siraya phonology: a new spelling for a dead language. *Selected papers from the Eighth International Conference on Austronesian Linguistics*, E. Zeitoun and P. J-k Li (eds), 313-354. Symposium Series of the Institute of Linguistics No. 1. Taipei: Academia Sinica.
- 2000. Siraya reduplication, *Oceanic Linguistics* 39/1:33-52.
- 2004a. The coming and going of lexical prefixes in Siraya, *Language and Linguistics* (Taipei) 5/2:333-361.
- 2004b. Le siraya: interprétation de données du 17e siècle, in *Faites de Langues* Vol. 23 (E. Zeitoun ed.). Paris: Ophrys; 269-288.
- Bellwood, Peter. 1997. *Prehistory of the Indo-Malaysian archipelago*. (revised edition). Honolulu: University of Hawai'i Press.
- Bien-Horn Chen. 2001. *Notes on vocabulary of Siraya version of Matthew*. (no place): Taiwan Plain Indigenous Peoples Association.
- Blust, (1995) The position of the Formosan languages: methods and theory in Austronesian comparative linguistics, in Li, P. J-k; Tsang, Cheng-hwa; Huang, Ying-kuei; Ho, Dah-an; Tseng, Chiu-yu (eds) *Austronesian studies relating to Taiwan*, 585-650. Symposium Series of the Institute of History and Philology, Number 3, Taipei: Academia Sinica.
- , (1999) Subgrouping, circularity and extinction: some issues in Austronesian comparative linguistics, in: *Selected Papers from the Eighth International Conference on Austronesian Linguistics*, Zeitoun, E.; Li, P.J-k. (eds), 31-94. Symposium Series of the Institute of Linguistics (Preparatory Office), Taipei: Academia Sinica.
- Blussé, Leonard; Natalie Everts; Evelien Frech. 1999. *The Formosan Encounter. Notes on Formosa's Aboriginal Society: a Selection of Documents from Dutch Archival Sources. Volume I: 1623-1635*. Taipei: Shung Ye Museum of Formosan Aborigines.
- 2000. *The Formosan Encounter. Notes on Formosa's Aboriginal Society: a Selection of Documents from Dutch Archival Sources. Volume I: 1636-1645*. Taipei: Shung Ye Museum of Formosan Aborigines.
- Campbell, W. 1888. *The Gospel of St. Matthew in Formosan (Sinkang dialect)*. London: Trübner & Co.
- 1903. *Formosa under the Dutch*. London.
- Candidius, Georgius. 1628. Discourse. Family Archive Huydecoper R.67-68. Utrecht: Rijksarchief (reprinted and translated in Blussé et al. 1999).
- Cauquelin, Josiane. 2004. Étude linguistique d'un chant rituel. *penaspas*, (puyuma- -Taiwan), in: *Les Langues Austronésiennes* (E. Zeitoun ed.), 320-331. *Faits de Langues* Vol.23. Paris: Ophrys.
- Council of Indigenous Peoples, Executive Yuan. <http://others.apc.gov.tw./popu/9402/aprp5803.htm> (25 February 2005)
- Dyen, Isidore. 1965. *A lexicostatistical classification of the Austronesian languages*. Baltimore: Linguistic Society of America.
- Ferrell, R. (1969) *Taiwan Aboriginal groups*. Taipei: Academia Sinica, Institute of Ethnology.
- Gravius, Daniel. 1661. *Het heylige Euangelium Matthei en Johannis. Ofte Hagnau ka d'llig matiktik ka na sasoulat ti Mattheus ti Johannes appa*. Amsterdam: Michiel Hartogh.
- 1662. *Patar ki tna-'msing-an ki Christang ofte 't Formulier des Christendoms*. Amsterdam: Michiel Hartogh.
- Himmelman, Nikolaus P. 2005. The Austronesian languages of Asia and Madagascar: Typological characteristics, in *The Austronesian languages of Asia and Madagascar* (A. Adelaar and N.P. Himmelman eds), 110-181. London: Routledge.
- Li, Paul Jen-kuei. 2002. Preliminary interpretations of the 15 recently uncovered Sinkang manuscripts, *Taiwan Historical Research* 9/2:1-68 (Inst. of Taiwan History, Academia Sinica; Chinese text).
- 2004. *Selected Papers on Formosan Languages Vols I and II*. Language and Linguistics Monograph Series Number C3. Taipei: Institute of Linguistics. Academia Sinica.
- Macapili, Edgar. 2002. *Ta avang ki Noe-an. Noah's Ark in Siraya*. (...): Tainan.
- Nojima, Motoyasu. 1996. Lexical prefixes of Bunun verbs, *Journal of the Linguistic Society of Japan* 110:1-27.

- Saillard, Claire, 2004, Les langues austronésiennes de Taïwan: peuvent-elles échapper à la minoration? in: *Les Langues Austronésiennes* (E. Zeitoun ed.), 361-378. *Faits de Langues* Vol.23. Paris: Ophrys.
- Sapir, Edward. 1968. Time perspective in aboriginal American culture: a study in method. In *Selected writings of Edward Sapir in language, culture and personality* (D.G. Mandelbaum ed.), 389-467. Berkeley: University of California Press.
- Shepherd, John Robert. 1995a. *Statecraft and Political Economy on the Taiwan Frontier 1600-1800*. Taipei: SMC Publishing Inc.
- 1995b. *Marriage and Mandatory Abortion among the 17th-Century Siraya*. American Ethnological Society Monograph Series, Number 6. Arlington, VA: American Anthropological Association.
- Stainton, Michael, 1999, The politics of Taiwan Aboriginal origins, in: *Taiwan. A New History* (M.A. Rubinstein ed.), 27-45. Armonk (NY): M.E. Sharpe.
- Starosta, Stanley. 1988. A grammatical typology of Formosan languages. *Bulletin of the Institute of History and philology* (Academia Sinica, Taipei) Vol. LIX, Part II:541-576.
- Thurgood, Graham. 1999. *From Ancient Cham to Modern Dialects. Two Thousand Years of Language Contact and Change*. Oceanic Linguistics Special Publications No. 28. Honolulu: University of Hawai'i Press.
- Tsuchida, Shigeru. 1996. Personal pronouns of Siraya (Formosa), in *Reconstruction, Classification, Description. Festschrift in Honor of Isidore Dyen*. 231-247 (B. Nothofer ed.). Hamburg: Abera Verlag.
- 2000. Lexical prefixes and prefix harmony in Siraya, in *Grammatical analysis: morphology, syntax and semantics: studies in honor of Stanley Starosta* (V.P. de Guzman and B.W. Bender eds), 109-128. Honolulu: University of Hawaii.
- Tsuchida, Shigeru, and Yukihiro Yamada. 1991. Ogawa's Siraya/Makatao/Taivoan comparative vocabulary, in: *Linguistic Materials of the Formosan Sinicized Populations I: Siraya and Basai*. (S. Tsuchida, Y. Yamada and T. Moriguchi eds), 1-194. Tokyo: The University of Tokyo, Department of Linguistics.
- Van der Vlis, C.J. 1842. *Formosaansche woorden-lijst, volgens een Utrechts Handschrift*. *Verhandelingen van het Bataviaasch Genootschap* 18:437-488.
- Weng, Chia-yin. 1990. Yi jian dan yu xing gang wen shu de shi jie [An attempt of interpreting a Sinkang manuscript. *Field materials, Institute of Ethnology*. Taipei: Academia Sinica 1:143-152.
- Zeitoun, Elizabeth, 2004, Typologie des langues austronésiennes de Taïwan, in: *Les Langues Austronésiennes* (E. Zeitoun ed.), 41-58. *Faits de Langues* Vol.23. Paris: Ophrys.