THE EXPRESSION AND CONCEPTUALIZATION OF TIME IN KAVALAN (AUSTRONESIAN, TAIWAN)

Author:	Wei-Wei Lee
Supervisor:	Dr. E.I. Crevels
Date of submission:	November 9, 2016

A thesis submitted in partial fulfillment of
the requirements for the degree of
Research Master of Arts in Linguistics

Universiteit Leiden

ABSTRACT

This thesis investigates the linguistic expression and conceptualization of lexical temporal concepts in Kavalan, a highly endangered Austronesian (Formosan) language spoken on the east coast of Taiwan. The first part consists of a grammar sketch. The second part is the core component, describing and analyzing lexical time in Kavalan based on fieldwork data. The lexical temporal concepts are taken from Haspelmath's (1997) typological semantic classification of temporal NP-based adverbials. The conceptualization of these concepts is examined using the Conceptual Metaphor Theory as advanced by Lakoff & Johnson (e.g. 1980, 1999b) and adjusted and expanded by Moore (2000, 2006, 2014). Expressions motivated by various TIME IS SPACE metaphors are found to be fairly frequent in Kavalan. The third and final part contains a small typological study, in which Kavalan's linguistic behavior in terms of temporal expression and conceptualization is compared to that of four other Formosan languages: Tsou, Saisiyat, Isbukun Bunun, and Paiwan. A general pattern is the different encoding of temporal clauses in past situations as opposed to those in future and generic/habitual situations (Zeitoun 1997). Both Kavalan and Saisiyat are curiously found to deviate from this two-way distinction by being more implicit. Tsou is an obvious outlier in various respects, as expected from its likewise diverging general linguistic properties.

ACKNOWLEDGEMENTS

This thesis would not have come about without the huge amount of help, suggestions, and support I received from a number of people. I would like to take this opportunity to express my gratitude to them.

First and foremost, I would like to thank my supervisor Mily Crevels, who has been involved with my ideas about doing fieldwork from the very beginning. What I find most admirable is her unbroken sense of commitment: weekly meetings are surely more than I could have ever hoped for, and it would not rarely happen that Mily sent an email simply to inquire about how everything was going. Thank you so much for all of your genuine support, faith, and encouragement along the way; they have made the long ride considerably more enjoyable.

My deep gratitude also goes out to my fieldwork internship supervisor Fuhui Hsieh, who was so friendly to offer help in realizing a field trip for a student on the other side of the world whom she had never met. With enthusiasm, professor Hsieh allowed me to contribute to her research project by carrying out fieldwork. Not only did she partly support my stay in Sinshe financially, but perhaps more importantly, she introduced me to some of her closest informants. I do not doubt the world of difference this has made, and do not take for granted the warm welcome I immediately received from the villagers. Thank you too, for your time and your trust in me.

None of this entire work would have been possible, of course, without the people of Sinshe. I cannot thank Raciang (潘金英) and her family enough for welcoming me in their home and daily lives. Entering as a stranger, I left feeling almost as a member of the family. A huge *wanay* (Kavalan: 'thank you') also goes out to buya (謝宗修), timut (黃潘愛美), tuyaw (陳春田) and the rest of the family, 潘清水, and 潘文忠 and his wife, for their warmth, hospitality, and friendship, and some of them for sharing their precious language with me with great dedication and patience.

I would also like to express my gratitude to several (mostly) Formosan and Austronesian scholars, whose help is greatly appreciated. First of all, thanks to Elizabeth Zeitoun for your time and your tremendous help with literature and references. Without your help, it would have been a lot more difficult to gain access to some of the valuable works published in Taiwan. Thank you, Haowen Jiang, for sharing some of your experience and knowledge regarding fieldwork and for taking the time to discuss some Kavalan-related issues with me. Furthermore, I am indebted to Shuanfan Huang, Henry Yungli Chang, Hengsyung Jeng, Shuping Huang, and Rint Sybesma, who kindly provided me with digital copies of their (written or edited) work, and Paul Jen-Kuei Li, Marian Klamer, Alexander Adelaar, and Stella Shih-chi Yeh, for providing helpful references.

A word of thanks is also in order for Leiden University, without whose LUSTRA+ scholarship and LUF (Leiden University Fund) International Study Fund I would not have been able to undertake this fieldwork. Moreover, thanks to the Leiden University Centre for Linguistics for lending me their recording equipment.

Finally, to my dear family and friends: thank you for your constant love and support, for putting up with me in both better and worse times, and for believing in me even when I did not. Thanks for simply always being there.

CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS

General

E	event
S	clause
RP	reference point

Glosses

1	first person
2	second person
3	third person
ACC	accusative case
AF	agent focus
AGNMZ	agent nominalization
ANTIC	anticausative
ASP	aspectual
BF	benefactive focus
CLF	classifier
CM	common noun
CNTS	continuous
COMP	complementizer
CONT	continuative
CS	change of state
CSM	construct marker
DEM	demonstrative
DIST	distal
DM	discourse marker
DYN	dynamic
EXIS	existential verb
EXP	experiential
FUT	future
GEN	genitive case
HAB	habitual
HUM	human
IF	instrumental focus
INCH	inchoative
INT	interrogative
INTJ	interjection
IRR	irrealis
LF	locative focus (used in Kavalan to indicate patient focus; locative and patient focus have merged)
LIG	ligature
LNK	linker

LOC	locative case
MA	undergoer focus
MED	medial
NAF	non-agent focus
NHUM	non-human
NMZ	nominalizer
NOM	nominative case
NPST	non-past
OBL	oblique case
PE	plural exclusive (for 1st person)
PERF	perfect
PF	patient focus
PFV	perfective
PI	plural inclusive (for 1st person)
PL	plural
PN	personal/proper name (of human)
POSS	possessive
PROG	progressive
PROX	proximal
PRXV	proximative
PST	past
REAL	realis
REC	recent past
RED	reduplication
REL	relativizer
RF	referential focus
SEQ	sequential
SG	singular
TNMZ	temporal nominalization
TOP	topic marker
UFP	undergoer focus - patient

1. PRELIMINARIES

1.1. INTRODUCTION

Time is inextricably connected to human experience in any culture in the world. Events happen in time and we all experience the passage of time in some way or the other. While the experience of temporality is universal to human life, the way we express it and reason about it varies across languages and cultures.

From a grammatical perspective, temporal meaning can take various forms, such as tense and aspect markers, temporal adverbials, inherent lexical semantics of verbs (i.e. Aktionsart), or it may largely rely on discourse and pragmatic principles (Klein 1994:14). Whether and to which degree languages employ these means is known to differ greatly, as shown by typological studies and joint works on tense and aspect (Comrie 1976, 1985; Hopper 1982; Dahl 1985; Bybee & Dahl 1989) and temporal adverbials (Haspelmath 1997). Tense and aspect can be designated as 'grammatical time', while any non-grammatical form of temporal depiction, thus obtaining temporal meaning primarily from the lexical meaning of words, is called 'lexical time' in this thesis.

From a cognitive perspective, the fascinating observation that many languages across the world tend to express time in terms of space and motion (e.g. Clark 1973; Hill 1978; Traugott 1975, 1978; Lakoff & Johnson 1980, 1999; Alverson 1994; Yu 1996, 2012; Haspelmath 1997; Moore 2000, 2006, 2014) has given rise to various lines of research within linguistics, psychology, and cognitive sciences. This 'time as space' tendency in language has generally been attributed to correlations between the shared basic experience of time and that of space. Moreover, it is easier to talk about abstract, internal experiences such as time or emotion in terms of concrete, directly perceivable concepts. One of the most influential theories attempting to formalize such linguistic phenomena, i.e. representing one semantic concept as another, is the Conceptual Metaphor Theory (Lakoff & Johnson 1980; Moore 2014). This metaphor theory will play a large part in this thesis.

While grammatical time is a well-studied topic, lexical time, i.e. adverbial, nominal, and prepositional expressions, remains understudied from a typological point of view. This is definitely true for the Formosan languages, i.e. the indigenous, Austronesian languages spoken in Taiwan. The Kavalan language, the main object of study in this thesis, is a seriously endangered Formosan language of which, despite it being relatively well-studied, many aspects are still unexplored. The present study thus examines the linguistic expression of lexical time in Kavalan from a cognitive linguistic perspective. This is done by following the classification of temporal NP-based semantic functions proposed by Haspelmath (1997) and analyzing the linguistic findings using the framework of Conceptual Metaphor Theory (Lakoff & Johnson 1980; Moore 2014).

More specifically, this thesis primarily aims to a) expand the research on temporal expression to Kavalan, a moribund Formosan language; b) expand the cross-linguistic research on the spatial conceptualization of time by paying special attention to the use of spatial terminology; c) contribute to typological research in the area of temporal expression and conceptualization by including a small typological comparison with four other Formosan languages. A more general, overarching purpose is to document an unexplored aspect of Kavalan before the language disappears completely. While this list of goals may sound ambitious, it should be borne in mind that this thesis attempts to provide only a first glimpse into the temporal encoding in Kavalan.

The secondary goal of this thesis is to provide a brief, general grammar of Kavalan that is accessible to non-Chinese readers. It is notable that to date, no more than brief, introductory grammar sketches of Kavalan have been written in English (usually as part of a Master's thesis), while two reference grammars in Chinese have been published (Chang 2000) or are soon to be published (Hsieh forthc. a). This makes it difficult for any Western scholar to find out something quickly about a certain general aspect of the language, e.g. for the purpose of typological research. Therefore, this thesis summarizes known features of Kavalan in a grammar sketch, which is slightly more elaborate than the sketches so far.

In brief, the thesis will address the following questions:

I. What linguistic means does Kavalan employ to express temporal concepts and relations?
   a. Does Kavalan show any preference for particular ways of temporal expression?
   b. To what extent does spatial language play a role? Are spatial terms applied to the temporal domain and if so, where and how?

II. How does Kavalan's behavior in these respects (expression and conceptualization) relate to other Formosan languages? How can areal, genetic, cognitive, or other factors account for certain similarities or differences found within the Formosan subgroup?

Before moving on to the core parts of this thesis, this chapter provides some background information about the Kavalan language and an overview of the method, main data sources, and language informants. The remainder of the work is organized as follows: Chapter 2 introduces Kavalan from a linguistic perspective by providing a grammar sketch. Chapter 3 describes and analyzes Kavalan's linguistic means to express temporal concepts and relations. Special attention will be paid to parallels between temporal and spatial language. In Chapter 4, Kavalan will be situated in a larger typological perspective through the discussion of temporal expression in four other Formosan languages, Tsou, Paiwan, Bunun, and Saisiyat. The thesis is concluded in Chapter 5 with a discussion of the findings and suggestions for further research.

1.2. LANGUAGE BACKGROUND

Kavalan is an Austronesian language spoken by the Kavalan people, one of the plains indigenous peoples of Taiwan. It is part of the East Formosan subgroup within the Austronesian language family (Blust 1999; Li 2006; Li 2004). Today, it is mainly spoken on the eastern coast of Taiwan, in Hualien County (Fengbin Township) and in Taitung County (Changbin Township) (see Figure 1.1). The number of competent Kavalan speakers was estimated at less than a hundred in 2000 (Chang 2000) and in the most recent sociolinguistic survey at only "less than just a few dozen" (Hsieh & Huang 2007:94). In view of this low number and the language's current sociolinguistic situation, it is considered a moribund language.

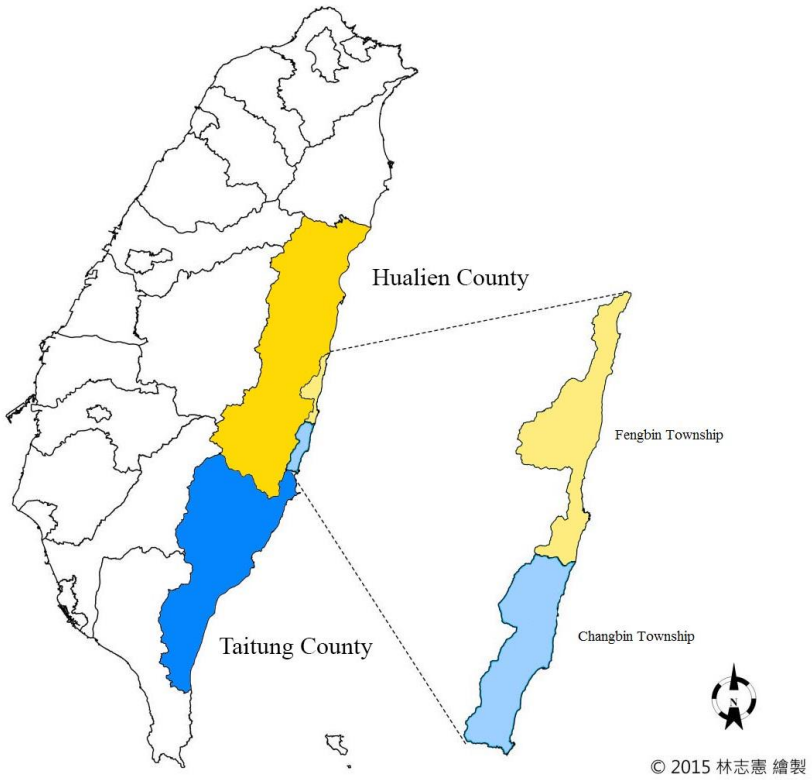


Figure 1.1 Fengbin and Changbin Township: the areas in which Kavalan is spoken today (adapted from Hsieh forthc. a)

The Kavalan people originally inhabited an area in Ilan County in the northeast of Taiwan. The arrival of the Han Chinese people near the end of the eighteenth century forced the Kavalan to start moving away from their land. A series of southward migrations took place between 1830 and 1880, resulting in the majority of the Kavalan settling in Sinshe Village (Fengbin Township, Hualien County) and some further south, along the north coast of Taitung County. Today, there are almost no Kavalan people left in Ilan County; there were only four according to the official 2007 census of the Council of Indigenous Peoples, Executive Yuan (i.e. the central government's executive court) (Hsieh forthc. a).

Sinshe, the most significant Kavalan-speaking settlement at present, is inhabited by both Kavalan and Amis people, another Formosan indigenous group. The Amis people highly outnumber the Kavalan and there is a high rate of intermarriage between the peoples in general (Hsieh & Huang 2007). For this reason, the Amis language is the dominating language in all public places. As for the degree of use of Kavalan, about 75% of the generation between 30-50 years old can still use the language without difficulty. However, crucially, the younger generation (<20 years) barely understands Kavalan anymore and communicates with their (multi-lingual) parents and grandparents in Mandarin or Taiwanese. The large majority of Sinshe's population consists of young children and elderly people, as young adults study/work and live in the cities. Like most indigenous peoples of Taiwan, the Kavalan have been subject to sinicization and globalization over the past centuries, both of which contribute to the gradual but rapid loss of their unique culture and language.

1.3. METHOD AND DATA SOURCES

For the core component of this thesis, a descriptive account of Kavalan's linguistic means to express temporal notions, Haspelmath's (1997) semantic classification is adopted. This classification is based on typological criteria, i.e. a semantic function has been distinguished if a significant amount of languages display a distinction in terms of its linguistic expression. It should be borne in mind, however, that Haspelmath's language sample contains only 53 languages, of which 24 are spoken in Europe (Haspelmath 1997:14-15). The classification can therefore, like in almost any typological study, not be taken as exhaustive, but it nevertheless provides a very adequate terminological grid, as Haspelmath (1997:9) calls it himself, for a semantic study of lexical time like the present study (see Section 3.1.4). Furthermore, an overarching theme throughout this examination will be the TIME IS SPACE metaphor (e.g. Lakoff & Johnson 1980, 1999; Haspelmath 1997; Moore 2000, 2006, 2014). In the metaphor analyses, I will chiefly adopt Moore's (2014) terminology and concepts, who developed and refined Lakoff & Johnson's (1980) Conceptual Metaphor Theory (see Section 3.1.3).

The descriptive study of Kavalan is largely based on my own fieldwork data. The NTU Corpus of Formosan Languages is an important data source as well. The source is always mentioned in the case of language data originating from elsewhere. The orthography and glossing are adjusted where necessary, to maintain the consistency throughout this thesis. Only when the analysis of the data is modified too, this will be stated as 'adapted from'. If the modification is relevant to the discussion, this will be commented on in a footnote; minor modifications do not receive any additional comments. Examples from my fieldnotes are annotated with a code in the format [S{session no.}_ {first three letters of informant's name}], e.g. [S01_buy].[1] Unrecorded data are indicated as e.g. [unrec_buy]. When referring to my fieldnotes in general, I simply use '(fieldnotes)'. The data were collected during a two-month field trip (January – February 2016) to Sinshe Village, more specifically, eight neighborhood areas of the village, together called Sinshe Tribal Area (*xīnshè bùluò* 新社部落). To the best of my knowledge, descriptive works of Kavalan so far have nearly always been based on the Kavalan variety spoken in the Sinshe Tribal Area.[2] It is generally considered to be the 'purest' variety by both Sinshe residents and non-residents, because there has been relatively little intermingling with non-Kavalan peoples. Influences from Amis and Minnan (Taiwanese) are not uncommon in other varieties. However, generally speaking, dialectal differences in Kavalan are minor and mostly found in pronunciation (Chang 1997:21; Hsieh forthc. a).

The fieldwork was largely carried out as part of Fuhui Hsieh's research project *Time as a socio-cultural construct: cross-linguistic study of the conceptualization of time in Kavalan and Saisiyat* (Ministry of Science and Technology 104-2420-H-036-001-MY2; period: Jan 1, 2015 – Dec 31, 2016), which financed the work with informants and the accommodation in large measure.[3] During the trip, six informants, all native speakers of Kavalan, have generously contributed to this research (Table 1.1). The

[1] In some sessions there were two or three informants involved. In such cases the person who produced the utterance or made the judgement is stated. If more than one, one of them is mentioned.
[2] Earlier research on other dialects consists of Taintor (1874) and some field notes from the Japanese scholars Asai (1936) and Ogawa (n.d.).
[3] Moreover, the field trip was financially supported by the LUSTRA+ scholarship and the LUF International Study Fund (both from Leiden University).

amount of time I worked with each of them varies strongly. *buya* was the main informant, contributing most of the data, followed by *tuyaw*[4].

Table 1.1 General profile of the informants

Kavalan name	**Chinese name**	**Gender**	**Year of birth**	**Languages**
buya	謝宗修	M	1957	Kavalan, Mandarin, Amis, Taiwanese
tuyaw	陳春田	M	1941	Kavalan, Amis, Mandarin
- (lon)[5]	潘清水	M	1961	Kavalan, Amis, Minnan, Mandarin, Hakka
ukit	潘金英	F	1944	Kavalan, Amis, Mandarin, Minnan
timut	黃潘愛美	F	1947	Kavalan, Mandarin, Taiwanese, Hakka
tuwak	杜瓦克	M	1962	Kavalan, Amis, Minnan, Mandarin

The database primarily consists of elicited data. Additionally, two versions of the Pear Story (Chafe 1980) and one description of a Kavalan ritual are included. The audio recordings amount to approximately 48 hours in total. The metalanguage used during elicitation was always Mandarin. Since this study is mainly semantic in nature, elicitation was focused on presenting a certain message and exploring the linguistic structures and means which this message could be expressed with. These structures include expressions on the constituent level, e.g. 'after the earthquake', 'since 2007', 'in winter', and clause-combining structures like 'while X, Y', 'before X, Y'. Sometimes spatial terms were used to create a sentence with temporal meaning to see whether this was judged as acceptable or I asked my informant whether a spatial term was ever used to describe anything time-related. In the case of space-to-time transfer in expressions, their syntax was compared between the domains of space and time.

[4] In the conventional spelling system for Kavalan the uppercase *R* is a distinctive phoneme from its lowercase counterpart. To avoid any ambiguity about uppercase letters, all Kavalan data and names are written in lowercase in this thesis.

[5] This informant was not given a Kavalan name. After part of his Mandarin nickname *lóng*, he will be referred to in data source codes as 'lon'.

2. A GRAMMAR SKETCH OF KAVALAN

2.1. TYPOLOGICAL PROFILE AND CLASSIFICATION

Kavalan is an agglutinating predicate-initial language with an ergative (Starosta 2002; Liao 2002, 2004; Huang & Tanangkingsing 2011) alignment. It is the only living Formosan language with distinctive consonant length. Affixation, cliticization, and reduplication are the most common morphological processes in Kavalan. Among these, prefixation dominates in both verbal and nominal derivational morphology. There are no adjectives in the language, only stative verbs. Like most Austronesian languages, Kavalan also lacks a copula (Hsieh 2011a:516). A morphosyntactic key phenomenon in all Formosan languages except Rukai and most Western-Austronesian languages (e.g. Li 2008:528), which has been subject to much debate, is the so-called 'focus' system. Morphological 'focus'-marking on verbs interacts with the case-marking and together they indicate the thematic role of the grammatical subject, which is the role that is semantically put in focus or emphasized. Focus is a controversial topic and many alternative alignment analyses have been proposed. Another aspect on which no consensus has been reached is Kavalan's TAM system: it has not been established whether it is based on a dichotomy of tense, future versus non-future, or on one of mood, realis versus irrealis. Its aspectual system, however, is more elaborate. TAM marking also actively interacts with focus, like in many other Formosan languages (see Zeitoun et al. 1996; Zeitoun & Huang 1997).

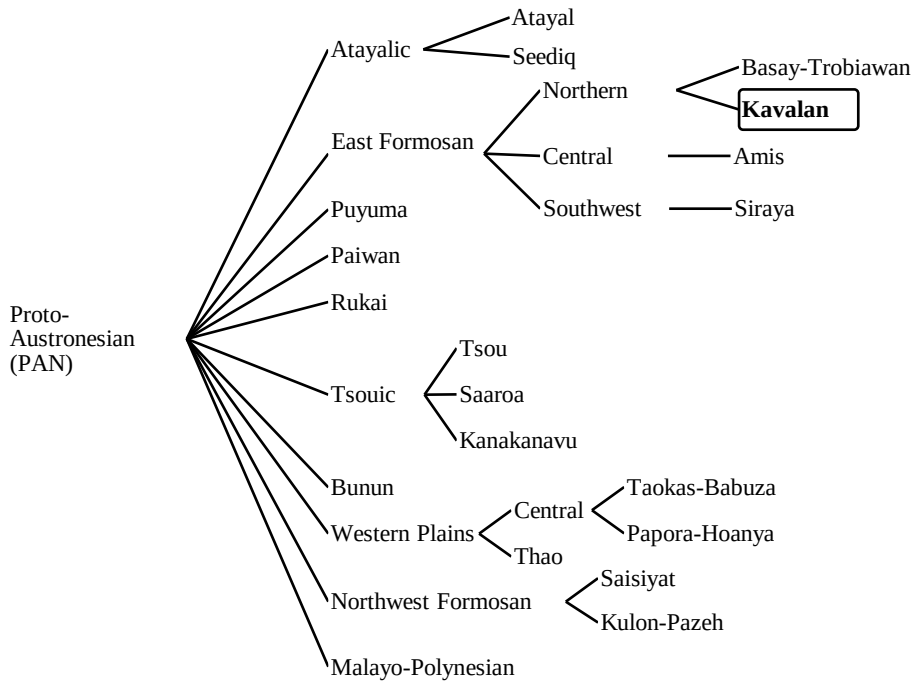


Figure 2.1 A classification of the Austronesian languages (Blust 1999:45)

There have been various proposals regarding the classification of the Formosan subgroup within the Austronesian family,[6] but it is generally agreed that each of the Formosan branches has the same relationship with Proto-Austronesian as the Malayo-Polynesian subgroup (Saillard forthc.). No agreement has been reached on the internal relationships of the Formosan languages and comparative research is still in progress. Figure 2.1 displays Blust's (1999) proposal based on shared phonological innovations, which is the most well-known and generally accepted. There has been criticism, however; for instance, Li's (2006:1) main objection is that there are too many primary subgroups: "It is extremely unlikely that Proto-Austronesian would split into ten subgroups (including Malayo-Polynesian) all at once at the earliest stage." After reviewing morphosyntactic evidence, he advances a preliminary, tentative classification displayed in Figure 2.2.

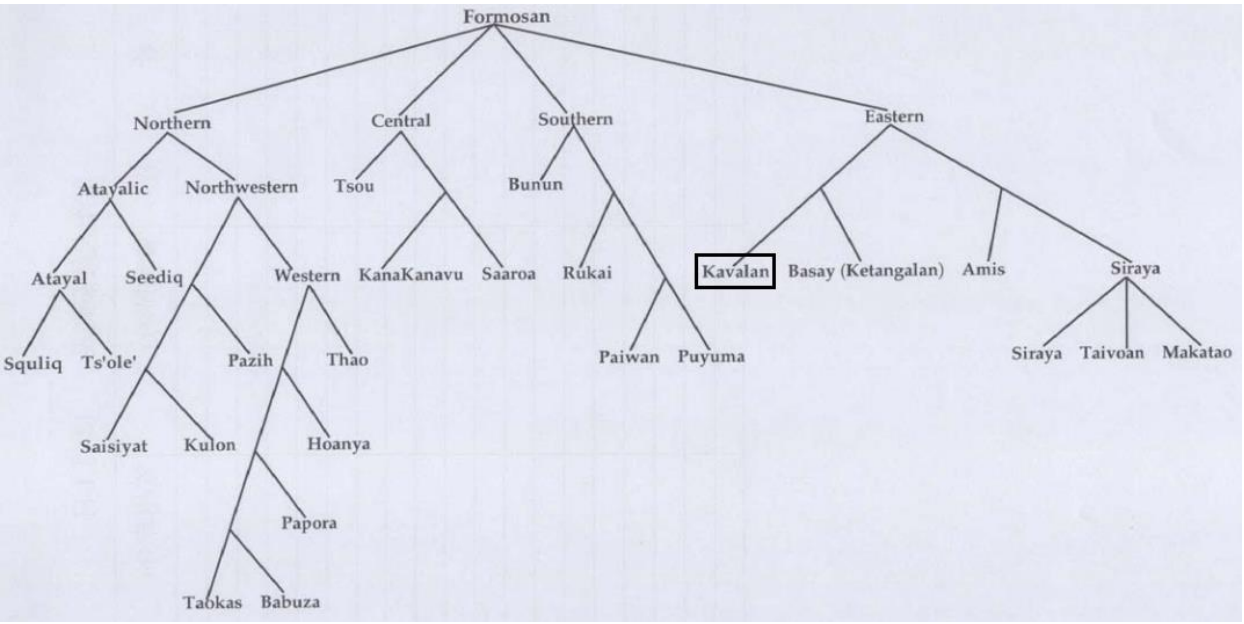


Figure 2.2 An internal classification of the Formosan languages (Li 2006:8)

More recently, Ross (2009, 2012) put forward the Nuclear Austronesian hypothesis (Figure 2.3), in which eight of the ten subgroups in Blust's (1999) classification, including Malayo-Polynesian, are fused into one primary Nuclear Austronesian subgroup, and Puyuma, Rukai and Tsou form the three other separate primary subgroups on the same level as Nuclear Austronesian. The internal structure of the Nuclear Austronesian group remains the same as in Blust (1999) (except for the fact that Tsouic has been extracted), which leaves Kavalan in the same position. As is apparent from these classifications, Kavalan is univocally considered to be part of the Eastern Formosan subgroup and most closely related to Amis, Basay, and Siraya. The latter two languages are now extinct, making any knowledge about the remaining representatives of the subgroup, Amis and Kavalan, especially valuable.

[6] Due to space limitations only a selection is shown of the many proposed classifications. Some other proposals include but are not limited to Dyen (1990), Ho (1998), and Sagart (2004).

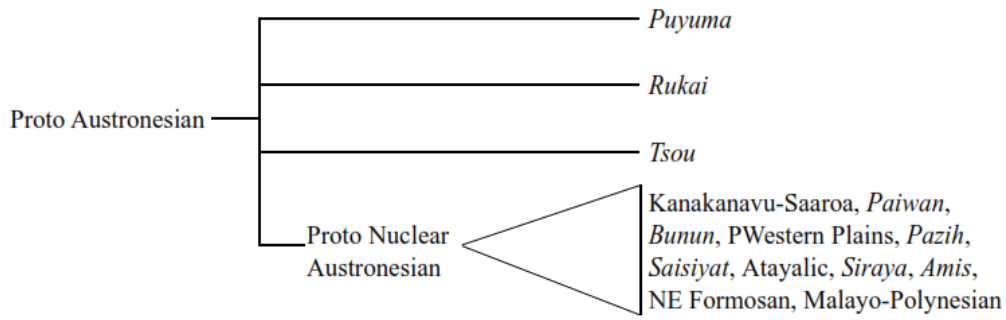


Figure 2.3 A classification of the Austronesian languages (Ross 2012:1263)

2.2. PHONOLOGY

2.2.1. PHONEME INVENTORY AND ORTHOGRAPHY

The 16 consonants and 5 vowels of Kavalan are given in IPA in the tables below, along with their orthographic representation between angle brackets. This spelling system has been in use since the Council of Indigenous Peoples and the Ministry of Education, Executive Yuan, proposed it in 2005.[7] All transcriptions in this thesis are made directly on a morphemic level. The transparency of this transcription method was deemed more important than the faithfulness to the phonetic realization, since there are few phonological processes and they are all quite straightforward (e.g. two adjacent identical vowels merging into one).

Table 2.1 Consonants and corresponding graphemes of Kavalan (Li 1982)

	Labial	Alveolar	Palatal	Velar	Uvular	Glottal
Voiceless stop	p <*p*>	t <*t*>		k <*k*>	q <*q*>	ʔ <*'*>
Nasal	m <*m*>	n <*n*>		ŋ <*ng*>		
Voiceless fricative		s <*s*>				
Voiced fricative	β <*b*>	z <*z*>			ʁ <*R*>	
Lateral fricative		ɮ <*d*>				
Flap		ɾ <*l*>				
Glide	w <*w*>		j <*y*>			

[7] http://ws.moe.edu.tw/001/Upload/6/RelFile/6508/7828/aboriginal.pdf

Table 2.2 Vowels and corresponding graphemes of Kavalan (Li 1982; Chang 2000)

	Front	Central	Back
High	i <*i*>		u <*u*>
Mid		ə <*e*>	
Low		a <*a*>	

The consonant inventory is adopted from Li 1982 (cf. Chang 2000 which differs only in having [ɬ] instead of its voiced counterpart [ɮ]). In addition to these native Kavalan phonemes, there are several foreign phonemes borrowed into the language through loan words. Significant borrowed phonemes are the glottal fricative /h/, the alveolar plosive-fricative combination /ts/, and the voiced velar stop /g/. The orthographic representations of these phonemes are <h>, <c>, and <g>, respectively. These sounds only occur in a few loan words and exclamations (Li & Tsuchida 2006:3; Hsieh forthc. a).

The vowel inventory is also adopted from Li (1982) and Chang (2000). More recently, Hsieh (forthc. a, p.c.) has proposed a fifth phoneme, a mid back vowel /ɔ/. Her motivation for this change is twofold (Hsieh p.c.): a) her informants have indicated to perceive /u/ and /o/ as two distinct sounds; b) contrary to the earlier postulation (Li 1982:481; Li & Tsuchida 2006:3) that [u] and [o][8] appear in complementary distribution, Hsieh found this prediction to be too unstable to consider the sounds as allophones. She has, however, not encountered any minimal pairs yet. It should moreover be noted that there is also inter-speaker variation between [u] and [o] within the same words; for instance, *qudus* 'clothes' may be pronounced as /qudus/ by one speaker and as /qodos/ by the other (Chang 2000:46). Clearly, this remains an unresolved issue for now. For the sake of convenience (since all works on Kavalan thus far have only used one written form for both sounds), the more widely accepted analysis of four vowels is followed in this thesis.

The following sketch of some phonemes' phonetic realization is based on Li (1982) and Li & Tsuchida (2006), except where stated otherwise.

2.2.1.1. Consonants

Kavalan has five voiceless stops /p, t, k, q, ʔ/. Like all other consonants, they are unreleased in word-final position. /t/ is palatalized to [tɕ] before /i/, as in *ti angaw* [tɕi aŋaw] 'Angaw (proper name)' (Hsieh forthc. a). There are three voiced nasals /m, n, ŋ/.

There are five fricatives: one voiceless /s/; three voiced, namely labial /β/, alveolar /z/, and uvular /ʁ/; and a lateral fricative /ɮ/. The alveolar fricatives /s/ and /z/ are palatalized as [ʃ] and [ʒ] in front of /i/, e.g. *pising* [piʃiŋ] 'branch' (cf. alveolo-palatal [ɕ] and [ʑ], respectively in Hsieh forthc. a). The uvular fricative /ʁ/ becomes voiceless [χ] in syllable-final position or when adjacent to a voiceless consonant, as in *qawpiR* [qawpi**χ**] 'sweet potato'. Labial /β/ displays similar word-final behavior, often being devoiced to a [f], e.g. *siRab* [siʁa**f**] (Chang 2000:44; Hsieh forthc. a).[9] Alveolar /z/, however, does not undergo

[8] It is unclear to me why the authors mentioned here (Li, Chang, and Hsieh) all use the letter *o* for phonetic (and in the case of Hsieh also phonemic) transcriptions. I have only perceived [ɔ] and [ɔː] during my fieldwork and never [o], on which Hsieh (p.c.) agreed when I pointed it out. Nevertheless, I have used /o/ and [o] here when citing the original sources.

[9] This is contra Li (1982:480), who states that "neither /β/ nor /z/ is devoiced in the same position".

devoicing. The lateral fricative /ɮ/ is realized more [d]-like syllable-initially, while sounding more laterally when in word-final position: e.g. *damu* [**ð**amu] 'village' and *ngid* [ŋiɬ**ʒ**] 'want' (fieldnotes).

The flap /ɾ/ is often realized as approximant /ɹ/ in word-final position. This can be heard in e.g. *labulil* [ɾabuɾiɹ] 'cute' (fieldnotes).

2.2.1.2. Vowels

There are five vowels: one front /i/, two central /ə, a/, and two back /u, ɔ/. Vowel length is not a distinctive feature. Between /i/ and a uvular consonant, /q/ or /R/, there is epenthesis of an /ə/: e.g. *Ribang* [ʁəiːβaŋ] 'things'.

Kavalan also has four diphtongs: /ai, au, iu, ui/ (Li 1982; Chang 2000; Hsieh forthc. a). These are orthographically represented as *ay, aw, iw,* and *uy* respectively. Note the difference of the former two with orthographic *ai* and *au;* while *ay* and *aw* stand for the diphtongs, *ai* and *au* are sequences of two individual vowels and consist of two syllables (Hsieh forthc. a). A contrast can be seen in e.g. *ma.i* 'NEG' vs. '*may* 'rice'.

2.2.2. GEMINATE CONSONANTS

Kavalan is the only living Formosan language with geminate consonants; its only equal in this respect was the also East Formosan and now extinct language Basay (Hsieh forthc. a).

The geminate consonants may arise as a result of 1) compensating in length for the loss of a preceding vowel or 2) assimilation (Li & Tsuchida 2006:5). The latter often involves cases where prefixation of a word starting with a glottal stop changes the glottal stop into the following consonant, e.g. **sa-'may* > *sammay* 'to cook rice'.

The minimal pairs in (1) show the distinctiveness of geminate consonants.

(1) *saRu* 'pestle' - *saRRu* 'cool'
sani 'otter' - *sanni* 'itchy'
puti 'eye excreta' - *putti* 'linen bag' (Li & Tsuchida 2006:6)

Furthermore, gemination of a consonant may also be applied to a word deliberately to give emphasis to its meaning (Li & Tsuchida 2006:6). For instance: *sukaw* 'bad' > *sukkaw* 'very bad'; *kikiya* 'a little, a moment' > *kikkiya* 'a very brief moment'.

2.2.3. SYLLABLE STRUCTURE AND STRESS

Stress falls on the final syllable, regardless of its morphological status (Li & Tsuchida 2006:3; Hsieh forthc. a). The syllable structures found in Kavalan are listed in Table 2.3.

Table 2.3 Syllable structures in Kavalan (adapted from Hsieh forthc. a)

Syllable structure	Word-medial	Word-final
V	*Ru.**a**.Ru* 'porridge'	*ba.**i*** 'grandmother'
VC	-	*ba.**ut*** 'fish'
CV	*pa.**lu**.ma* 'to plant'	*ai.zip.**na*** '(s)he'
CVC	*ai.**zip**.na* '(s)he'	*ma.**zas*** 'to bring'
CCVC	-	*'tung* 'to kill'
CCV	-	*'may* 'rice'

So far, not much research has been done on Kavalan phonology and/or phonetics specifically,[10] so the overview offered here is merely an approximate description.

2.3. WORD CLASSES

Only nouns and verbs (transitive and intransitive, also including demonstratives and interrogatives) are clearly distinguished open classes in Kavalan. There are no structural indications for the existence of an adjective class. Semantically prototypical adjectives behave like verbs; they can be inflected for focus, tense, aspect, and mood. When they act as a modifier, they need a relativizing suffix. The parallel behavior between *busaR* 'white' and more prototypical verbs is shown in (2a-b) and (3a-b)).

(2) a. *busaR=ti* *buqes na* *tama-ku*
white=INCH hair GEN father-1SG.GEN
'My father's hair has become white.' (S07_tim)

b. *m-uzan=ti*
AF-rain=INCH
'It started to rain.' (S02_buy)

(3) a. *busaR=ay* *Raq*
white=REL wine
'white wine' (S04_buy_narrative)

b. *paqenanem* *kawit=ay* *tu* *sizi*
person lead.along<AF>=REL OBL goat
'someone who is leading along a goat' (S20_tuy_narrative)

The possibility of a distinct class of adverbs is not excluded, although as yet it is unclear where the boundary between adverb and verb would be drawn exactly. Adverbial expressions in the English sense

[10] Moriguchi (1983) (in Japanese, cited in Li & Tsuchida 2006) discusses vowel length and accent; Li (1982) provides a brief description of both the synchronic and diachronic phonology; and both the reference grammars Chang (2000) and Hsieh (forthc. a) contain a phonology section. I am not aware of any other studies on the subject.

display heterogeneous behavior and can be divided into various semantic types (H.Y. Chang 2006). Chang investigates what in English would be verb-modifying adverbs (thus excluding adverbs of time and place) and shows that manner, frequency and some time-related expressions behave largely like verbs.[11] For instance, the manner expression *paqanas* 'slow' can be inflected for focus and can carry personal pronouns (4).

(4) a. *paqanas=iku* *tayta* *tu* *sudad*
slow[AF]=1SG.NOM see<AF> OBL book
'I read a book slowly.' (H.Y. Chang 2006:46)

b. *paqanas-an-ku* *tayta* *ya* *sudad*
slow-LF-1SG.GEN see<AF> NOM book
'I read the book slowly.' (H.Y. Chang 2006:46)[12]

Chang also shows that epistemic expressions, in contrast, such as *pasi* 'possible', only show one verbal property out of the seven examined,[13] namely the restriction to a preverbal position (in respect to the verb they semantically modify[14]). The last, 'miscellaneous' type does not behave verb-like at all: it cannot be inflected nor attract pronouns, and occurs in non-sentence-initial positions (5).

(5) a. *qaynep=pa=iku* *qaya*
sleep=FUT=1SG.NOM also
'I will sleep also.' (H.Y. Chang 2006:53)

b. *qawka=iku* *qaya* *satezay*
do.later-1SG.NOM also sing
'I will sing too.' (H.Y. Chang 2006:53)

c. * *qaya* *qaynep=pa=iku*
also sleep=FUT=1SG.NOM
Intended: 'I will sleep also.' (H.Y. Chang 2006:53)

This type is consequently analyzed as a "true adverb" (H.Y. Chang 2006:53, 63). However, the category is based on one word only, *qaya* 'also, too'. Other scholars have acknowledged a class of adverbs in other

[11] This is not a phenomenon unique to Kavalan: "Unlike Austronesian languages spoken outside of Taiwan, Formosan languages are characterized by adverbial verb construction (AVC), a typologically unusual construction in which adverbials expressing manner, iteration, frequency, and so forth, surface as higher verbs in syntax […]" (Chang 2009:439)

[12] For the sake of consistency, all examples taken from other works are adapted to the spelling system introduced in the phonological sketch.

[13] The seven verbal properties included in Chang (2006) are: 1. focus inflection; 2. bound pronoun attraction; 3. imperative inflection; 4. restriction to preverbal position; 5. directly taking NP; 6. the AF restriction on lexical verbs (i.e. the lexical verb that is semantically modified); and 7. 'no aspectual / modal / pronominal marking' restriction on lexical verbs.

[14] The adverbial expressions that behave like verbs (i.e. manner and frequency expressions and a miscellaneous category of time-related expressions) typically become the main predicate of the sentence, which means they are clause-initial and the lexical verb follows later in the clause. Since the main predicate is always a verb (except in equational clauses), this restriction to the clause-initial position is listed as a verbal property. An expression that can take other positions is seen as less verb-like.

word types as well; for example, in Jiang's (2006:115) subcategorization of Kavalan demonstratives and interrogatives, he proposes a subclass of adverbials for both categories (i.e. demonstrative adverbs and interrogative adverbs). The issue of whether a syntactic category of adverbs exists in Kavalan is beyond the scope of this thesis and in need of closer investigation.

The closed classes consist of pronouns (personal, possessive, demonstrative, and interrogative), conjunctions, interjections, and ideophones. The syntactic category of determiners is a controversial one in Formosan languages.[15]

2.4. NOMINAL MORPHOLOGY

2.4.1. NOUNS

Nouns are not inflected for number, and case markers are considered separate entities. In nominal morphology, there are a handful of prefixes, no infixes (Li & Tsuchida 2006:12; Hsieh forthc. a), only two known circumfixes *pa*-V-*an* 'person who Vs (habitually)' and *sa*-V-*an* 'tool/instrument to V with', one (originally locative) suffix *-an*, and one nominalizing clitic V=*ay* 'person who Vs (non-habitually)'.[16] Reduplication in nouns is not frequent.

Some examples are listed in Table 2.4.

[15] See e.g. Tang (2006) for a syntactic study on DPs/NPs in some Formosan languages and Reid (2002) on the categorical status of case markers in Philippine-type languages.

Numerals in Formosan languages are either verbs or nouns (Li 2006). Judging from my limited fieldwork data and other data I found in literature, quantifiers often behave like verbs as well, inflecting for focus, tense, aspect, and attracting pronoun affixes/clitics. In (i), for example, *niz* 'all' is marked for focus and aspect.

(i) ***me-niz=ti*** *qan qaqanan* *qawka* *mawtu* *ti-utay*
AF-all=PFV eat<AF> food only.then come.AF PNM-Utay
'Utay only came after all the food was eaten.'

There are almost no studies so far dedicated to determining the presence/absence of certain word classes in Kavalan. This description should therefore only be considered a very preliminary sketch.

[16] See also Hsieh (2011) on the relativizing and nominalizing functions of =*ay* and Jiang (2011) on the grammaticalization of =*ay*.

Table 2.4 Examples of morphological processes in Kavalan nominals (Li & Tsuchida 2006; Hsieh forthc. a)

	Form	Example	
Prefix	*nan*-N (kinship) 'two related people'	*nan-bai* 'grandmother and grandchild'	< *bai* 'grandmother'
	pi-N (time) 'every'	*pi-bulan* 'every month'	< *bulan* 'month'
	melim-NUM 'a division of'	*melim-tulu* 'one third'	< *tulu* 'three'
Circumfix	*pa*-V-*an* 'person who Vs (habitually)'	*pa-tud-an* 'teacher'	< *tud* 'to teach'
	sa-V-*an* 'tool/instrument to V with'	*sa-Ramaz-an* 'fuel'	< *Ramaz* '1. to cook 2. fire'
Suffix	V-*an* 'place to V' (locative nominalizer)	*taqsi-an* 'school'	< *taqsi* 'to study'
Clitic	V=*ay* 'person who Vs (non-habitually)'	*salekiaw=ay* 'one who dances'	< *salekiaw* 'to dance'
Reduplication	CVC reduplication	*sun-sunis* 'offspring of later generations, the younger generation'	< *sunis* 'child'

Kavalan has a noun classification system, as displayed in Figure 2.4. In the case of common nouns, the human or non-human noun-class markers only appear on numerals and quantifiers if present, thus behaving as numeral classifiers. Non-common nouns consist of proper names and pronouns, which are unique in reference, again classified into human and non-human ones. In contrast with the common noun-class markers, the non-common noun-class markers *ti* and *ni* attach directly to the noun. Moreover, they do not occur with numerals or quantifiers, which is atypical for classifiers in general. Nonetheless, Chang, Tang & Ho (1998:287) choose to label this Kavalan noun classification system as a classifier system, since nouns are classified according to their inherent semantic properties. In this thesis, the common noun-class markers *kin* and *u* will be glossed as classifiers. As most instances of *ti* and *ni* have been lexicalized (e.g. in personal and interrogative pronouns: *timaiku* 1SG.OBL, *tiana* 'who', *niana* 'what'), only the personal name-marking *ti* will be separately glossed as a classifier (CLF.PN).

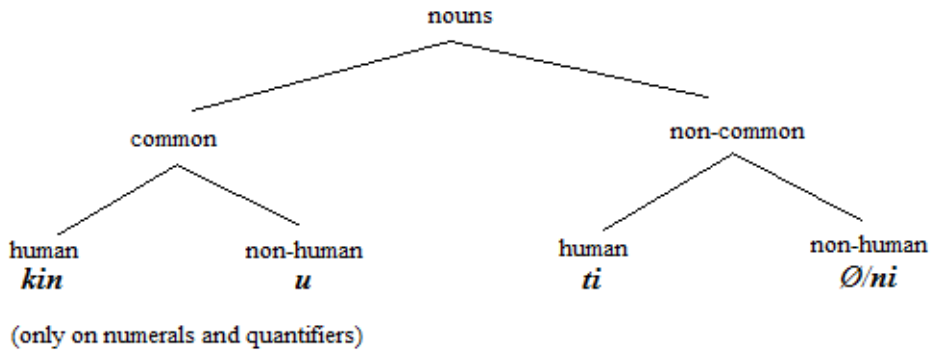


Figure 2.4 Noun-class markers in Kavalan (Chang, Tang & Ho 1998)

The use of the noun-class markers is exemplified below. The NPs in (6) show the human/non-human contrast on numerals for common nouns. Examples (7a-c) illustrate the use of *ti* with human proper names and its incompatibility with non-human proper names, such as the place name *bakung*, which does not receive any marking. In (7d) the opposition human *ti* vs. non-human *ni* is shown, in the lexicalized *tiana* and *niana*.

(6) a. *kin-tulu* *sunis*
CLF.HUM-three child
'three children' (S16_buy_narrative)

b. *u-tulu* *biyabas*
CLF.NHUM-three guava
'three guavas' (S16_buy_narrative, S20_tuy_narrative)

(7) a. *maqzi=iku* *ti-raciang-an*
from=1SG.NOM CLF.PN-Raciang-LOC
'I have come from Raciang's house.' (S26_lon)

b. *maqzi=iku* *ta* *bakung-an* *mawtu*
from=1SG.NOM LOC Fengbin-LOC come.AF
'I have come from Fengbin.' (S25_tim)

c. * *ti-bakung*
CLF.PN-Fengbin (Chang, Tang & Ho 1998:278)

d. *tiana/niana* *unay?*
who/what DEM.MED
'Who/what is that?' (S28_tuy)

2.4.2. PRONOUNS

The personal and possessive pronouns are given in Table 2.5. The pronominal forms can be divided into free forms and bound forms. There are no bound forms of the oblique and locative pronouns. A distinction is made between the inclusive and exclusive first person plural.

Table 2.5 Pronominal system of Kavalan (Lee 1997:38; Chang 1997:33)

	Free				Bound	
	NOM	OBL	LOC	POSS	NOM	GEN
1SG	*aiku*	*timaiku*	*timaikuan*	*zaku*	*=iku*	*-ku*
2SG	*aisu*	*timaisu*	*timaisuan*	*zasu*	*=isu*	*-su*
3SG	*aizipna*	*timaizipana*	*tamaizipana*	*zana / zani*	Ø	*-na*
1PE	*aimi*	*timaimi*	*timaimian*	*zaimi*	*=imi*	*-niaq*
1PI	*aita*	*timaita*	*timaitan*	*zaita*	*=ita*	*-ta*
2PL	*aimu*	*timaimu*	*timaimuan*	*zaimu*	*=imu*	*-numi*
3PL	*qaniyau*	*qaniyau*	*qaniyauan*	*zana*	Ø	*-na*

The nominative, oblique, and locative pronouns carry the same functions as other nominals marked with these respective cases do. These functions will be described in Section 2.7.2, which discusses the case system. The current section will focus on the main properties of the possessive and genitive pronouns, since they require some clarification.

First of all, observe that the bound genitive pronouns do not have a free counterpart; instead there is the free possessive pronoun. The reason for this discrepancy is that the genitive pronouns have an additional main function besides the possessive function, namely to refer to the agent in non-Agent-Focus constructions (Chang 1997:33-34). In (8), where the verb carries Patient Focus, only the bound pronoun *-ku* is able to express the agent/experiencer. The use of the possessive pronoun *zaku* is ungrammatical.

(8) a. *supaR-an-ku=ti*
know-LF-1SG.GEN=PFV
'I know (it).' (Adapted from Chang 1997:34)

b. **supaR-an=ti zaku*
know-LF=PFV 1SG.POSS
Intended: 'I know (it).' (Adapted from Chang 1997:34)

On the other hand, the free possessive pronouns can only refer to possessors, as expected. Both the free possessive pronouns and the bound genitive pronouns can express possession through modification of the noun, as in (9). The bound pronoun is suffixed to the head noun, whereas the free pronouns must appear before the noun (Lee 1997:49).

(9) a. *zaku bilu zau*
1SG.POSS pen DEM.PROX
'This is my pen.' (S28_tuy)

b. *zau nani bilu-ku*
DEM.PROX DM pen-1SG.GEN
'This is my pen.' (S28_tuy)

Unlike the bound construction which only modifies the noun, the *zaku* construction can also be used predicatively, expressing 'X is mine' (10). Thus, it is considered an absolute possessive (cf. Lee 1997:53). The relativizer *=ay* may optionally be added to the *zaku* series.

(10) a. *zau bilu zaku=ay*
DEM.PROX pen 1SG.POSS=REL
'This pen is mine.' (S28_tuy)

b. *zau bilu ussa zasu=ay, wi'u qawka zasu*
DEM.PROX pen NEG 2SG.POSS=REL DEM.DIST only.then 2SG.POSS
'This pen is not yours, that pen is yours.' (S28_tuy)

In the third person singular of the free possessive pronouns, a distinction is made between human proper names (*zani*) and all other nouns (*zana*). This parallels with the genitive case markers *ni* versus *na*.

Formosanist scholars have not yet reached an agreement about whether the bound genitive pronouns should be regarded as suffixes or clitics[17]; this thesis follows Chang's (1997:chap. 5) analysis, which seems to be predominant in the literature, and treats them as suffixes. The genitive bound pronouns differ from the nominative ones not only in their syntactic distribution, but also in their basic function. While the nominative bound pronouns function purely as pronouns, their genitive counterparts are additionally analyzed as agreement markers (Chang 1997:177ff.; Lee 1997:43-44; Liao 2002; Li & Tsuchida 2006:32; Huang 2007:49, 132ff.).[18] This function is illustrated in (11), in which the agent is referred to twice. Here, *-na* indicates verbal agreement with the third person genitive. The singular and plural form are identical. Agreement marking is not obligatory (Chang 1997:119).

(11) *bula-an-**na**=iku* ***ni*** ***utay*** *tu* *u-ssiq* *sudad*
give-LF-3SG.GEN=1SG.NOM GEN Utay OBL CLF.NHUM-one book
'Utay has given me a book.' (S28_tuy)

If the genitive case marker *na* directly follows the agreement marker *-na,* the agreement marker is omitted (Li & Tsuchida 2006:32), as shown in (12).

(12) *siup-an* *na* *bali* *'nay* *kubu-na*
blow-LF GEN wind DEM.MED hat-3SG.GEN
'The wind blew away his hat.' (S16_buy_narrative)

2.5. VERBAL MORPHOLOGY

As mentioned before, prefixation is clearly the prevailing morphological operation. Kavalan has a few dozen prefixes (Li & Tsuchida 2006:14-24; Li 2008:538), also including many with a lexical rather than a grammatical function, e.g. *sam-RDPL*-V 'to pretend to V', *su*-N 'to remove N'. In the verbal domain, there are only two productive infixes and two suffixes apart from the bound personal pronouns (Li & Tsuchida 2006:12). These four are all of a grammatical nature, expressing either focus or aspect.

Verbs may inflect for focus (in the Formosanist terminology), tense, aspect, and mood, and they can take person suffixes and clitics. Since the focus system is also very much a syntactic phenomenon and focus morphology needs a syntactic explanation, Section 2.7 (on syntax and clause structure) seems a better-suited place to discuss it.

[17] See the elaborate footnote in Li & Tsuchida (2006:34-35) for pro and contra arguments from Chang and Tsuchida respectively for the suffix treatment.

[18] These scholars' views on the issue differ in some aspects: while Chang, from a formalist generative perspective, assumes all genitive bound pronouns to be agreement markers, Lee, Liao, and Li & Tsuchida only mention the third person singular pronoun, the only one for which its behavior as agreement marker is directly visible. The conclusions of the discourse analysis in Huang (2007:132ff.) are not very clear concerning the status of genitive bound pronouns, but earlier in the report (p. 49) it is mentioned that "[…] the genitive bound pronouns which are identified as agreement affixes […]". Furthermore, Chang seems to analyze the genitive bound pronouns as agreement affixes in all contexts, while Lee and Li & Tsuchida make a clear distinction between the agent-expressing pronominal function and the agreement function.

2.5.1. TENSE, ASPECT, AND MOOD (TAM) SYSTEM

There are different views on the TAM system of Kavalan and Formosan languages more generally. The disagreement is about whether one should speak of a mood system, exhibiting a realis/irrealis[19] dichotomy, or a tense system, exhibiting a non-future/future dichotomy. For Formosan languages in general, there does not seem to be a predominant view as yet: for instance, a disagreement between Lillian Huang (tense) and Elizabeth Zeitoun (mood) about Atayal (Zeitoun, p.c.) resulted in a typological study of several Formosan languages (Zeitoun et al. 1996; Zeitoun & Huang 1997) in which the two views are combined into a non-future/realis vs. future/irrealis dichotomy. Although realis/irrealis systems typically do not occur together with tense (Palmer 2001:5), scholars working on Kavalan often do use these systems alongside each other.[20] Among the ones primarily maintaining a mood system are Lee (1997) and Hsieh (forthc. a), while proponents of a tense system are Chang (2000:128-129), Li & Tsuchida (2006), and Huang (2007). While descriptions of the Kavalan TAM system so far have been quite diverging, the issue of tense versus mood has never been publicly addressed to my knowledge.

In this thesis I will adopt the view of a binary realis/irrealis mood system.[21] Furthermore, Kavalan has an imperative form, but seems to lack a modal system of epistemic or deontic markers. Instead, it has a

---

[19] The notions realis and irrealis largely correspond to what are called indicative and subjunctive in European languages (Palmer 2001). The contrast is one between 'assertion' and 'non-assertion', respectively, where a non-asserted proposition may be characterized by a) doubts by the speaker about its veracity b) it being unrealized c) it being presupposed (Lunn 1995, cited in Palmer 2001:3).

[20] For instance, Lee (1997) divides the focus system into realis and irrealis, while adopting the view that there is a non-future/future tense system. Huang & Sung (2008:164) use the terms future and realis/irrealis side by side. Similarly, Hsieh's (forthc. a) reference grammar lists a future marker under irrealis.

[21] While the issue of mood versus tense was not part of the present research, there is evidence of some data that lead me to believe that tense has not grammaticalized in Kavalan, while mood seems to play a fundamental role. I present them here not as solid evidence but rather as an explanation for my temporary position in the debate.

I. The marking of tense is not always obligatory (which is one of the criteria for the existence of grammaticalized time, see Comrie 1985:10). While Chang (2000:124) claims that future is obligatorily marked by either *=pa* or *qa-*, this does not happen consistently in my data, as shown by the examples below.

(i) *m-ipil* *ti-utay* *tu* *satezay-an* *'nay.* *tuRuz-na* *si,* ***uRing****=ti.*
AF-hear CLF.PN-Utay OBL sing-NMZ DEM.MED back-3SG.GEN SI cry=PFV
'Utay has heard the song. Later, he will cry.' (S16_buy)

(ii) *temawaR sa* *duki-an* ***satezay*** *ti-utay*
tomorrow one hour-AN sing PNM-Utay
'Tomorrow Utay will sing for an hour.' (S17_tuy)

II. 'Future' markers *=pa* and *qa-* are also used in counterfactual sentences with a past time frame. They are thus not only used in future contexts, which per definition correlate with irrealis contexts, but also in past irrealis contexts which describe something that did not happen. Consider the following examples.

(i) *anu* *sunis* *zau* *suppaR-an-na* *tu* *qa-passim* *nani* ***mai=pa*** ***saqunga***
if child DEM.PROX know-LF-3SG.GEN OBL IRR-interrogate DM NEG=FUT lie
'If the child had known he would be punished, he would not have lied.' (S21_tuy)

(ii) *azu* *tanem-an-na* *Raw* ***qa-suqas*** ***busus*** *kaya*
if bury-LF-3PL.GEN INT IRR-lose Southern.Min.people INT
'If (they) had been buried instead, Southern Min people would have lost.'
(NTU, conversation_earthquake:339)

number of aspectual markers. The aspect and mood system is displayed in Table 2.6. AF and LF stand for Agent Focus and Patient Focus (see Section 2.7.1 on the focus system), so it can be observed that type of focus of the clause plays an important role too in determining the mood and aspect.

Table 2.6 Aspect and mood system of Kavalan (adapted from Hsieh forthc. a,[22] cf. also Chang 2000, Huang 2007)

	Realis							Irrealis	
	HAB	PROG	CONT	PFV	EXP	INCH[23]	REC	FUT	PRXV
Morphological	AF RED	AF	RED	*=ti* LF + *ni-*/<*en*>/<*in*>	*u-*	*=ti*	*Ru-*	*qa-* *=pa*	
Lexical/particle		*yau*	*wi:*						*ngid=ti*

Due to space limitations, not all aspects will be illustrated here. The imperative is described separately below because its position within the system is thus far undetermined. There are some aspect markers that deserve a clarification: perfective/inchoative *=ti*, experiential *u-*, recent perfect *Ru-*, and one that has not been mentioned before, proximative *ngid=ti.* A short analysis will be dedicated to the proximative. Finally, the problematic 'future' markers *qa-* and *=pa* will also be briefly discussed.

The imperative has two forms: *-ka* for the imperative in agent focus and *-ika* for when the verb is marked for patient focus (13). See also Section 2.7.3.2.

(13) a. *ngasan-ka mawtu*
slow-IMP.AF come
'Come a bit later!' (S10_buy)

b. *qudus zau u-tulu duki si pa-lupun-ika*
garment DEM.PROX CLF.NHUM-three time SI CAUS-finish-IMP.LF
'Finish this garment in three hours!' (S07_tim)

The perfective or inchoative clitic *=ti* has a wide application. As a perfective marker, it may also indicate a change of state, which is common in Formosan and Philippine languages (Huang 2007:187ff.). Its regular perfective, change of state, and inchoative function are illustrated in (14).

In (i), *maipa saqunga* alone can also mean '(he) will not lie'. Apparently there is no distinction, while tensed languages do express the tense difference. This suggests that the main distinction made in Kavalan is one of mood instead.

However, it is worth noting that some counterexamples exist as well, see (iii). More research into this matter is needed.

(iii) *azu yau kelisiw-ku ezan=ti=iku me-Rasa tu leppaw*
if EXIS money-1SG.GEN early=PFV=1SG.NOM AF-buy OBL house
'If I had money, I would have bought a house much earlier.' (Adapted from Hsieh forthc. a)

[22] The perfective infixes <*en*> and <*in*> are added. Hsieh (forthc. a) glosses both as completive (from Chinese: wánchèng 完成) infixes. In an earlier work (Hsieh 2011:511) she calls <*en*> a perfective marker. Both Lin (1996:69) and Chang (2000:131-132) do the same. Li & Tsuchida (2006:35) mention both as allomorphs of perfective marker *ni-*, and Huang (2007) analyzes both as perfective markers as well.

[23] Although the inchoative is listed under realis mood, it is also compatible with future/irrealis contexts, e.g. *sekawalu=pa=ti* 'summer is (almost) coming' (S04_buy).

(14) a. Perfective
qan=ti=iku *tu* *benina*
eat<AF>=PFV=1SG.NOM OBL banana
'I ate a banana.' (S27_lon)

b. Perfective: change of state
missi=ti *aizipna*
fat=PFV 3SG.NOM
'He has become fat.' (S07_tim)

c. Inchoative
pun=ti *satezay* *aizipna* *salekiaw=ti*
finish=PFV sing.AF 3SG.NOM dance.AF=INCH
'After he had sung, he started to dance.' (S11_buy)

The experiential prefix *u-* conveys what Comrie (1976:58-59) calls the experiential aspect, which indicates that "a given situation has held at least once during some time in the past leading up to the present". In a language like English, there is no grammatical distinction between the experiential perfect and non-experiential perfects. To illustrate the meaning difference, Comrie (1976:59) gives the example 'Bill has been to America' versus 'Bill has gone to America', parallel to the Kavalan example (15) below. The 'has been' sentence carries the experiential meaning, expressing that the event of Bill going to America has occurred sometime in the past at least once. In contrast, the 'has gone' sentence also implies a result of the action of 'going' (i.e. Bill is currently in America or is on his way there).

(15) *u-matiw=isu* *ta* *kilung-an?*
EXP-go.AF=2SG.NOM LOC Keelung-LOC
'Have you (ever) been to Keelung?'
*'Have you gone to Keelung?' (S07_tim)

I have labeled the prefix *Ru-* as a recent past marker (following Huang 2007:39), since it expresses 'has/have just V-ed', as exemplified in (16). While Lin (1996:54-58) and Chang (2000:133) state it (also) expresses the inchoative aspect, these sentences contradict this claim. Even though the event may sometimes also be interpreted as just having begun (16b), it is not an inherent meaning of *Ru-*.

(16) a. *Ru-tanan=iku* *nizi* *ta* *naung-an*
REC-return=1SG.NOM from LOC mountain-LOC
'I've just come back from the mountains.' (S11_buy)

b. *Ru-tulis* *tu* *ussiq* *tulis-an* *ti-abas*
REC-draw OBL one draw-NMZ CLF.PN-Abas
(a) 'Abas has just drawn a drawing.'
(b) 'Abas has just started drawing a drawing.' (S22_buy)

The proximative aspect has not been mentioned for Kavalan before in literature. I would like to argue that the perfective or inchoative marked volitional verb *ngid=ti* [want=PFV/INCH] has grammaticalized into a

proximative aspect marker.[24] The proximative aspect defines "a temporal phase located close before the initial boundary of the situation described by the main verb" (Kuteva 2001:92). It conveys meanings such as 'be about to' and 'nearly' (Heine 2015:90) and is compatible with both past and non-past contexts (Kuteva 2001:92). In Kavalan, *ngid* 'want' (also 'love' and 'need', Hsieh 2011b:73) seems to have undergone a similar development. Observe its proximative meaning in (17). It is usually followed by an irrealis-marked verb, but the irrealis marker is not always obligatory.[25] (17d) shows its use in a past context.

(17) a. *ngid=ti=isu* *qa-suRaw,* *satawaR-ka!*
want=PFV/INCH=2SG.NOM IRR-fall pay.attention-IMP.AF
'You're about to fall, watch out!' (S23_buy)

b. *ngid=ti* *qa-Riqet* *pukun zau*
want=PFV/INCH IRR-break stick DEM.PROX
'This stick is about to break.' (unrec_rac)

c. *ngid=ti* *qa-iza, ...* *qa-zukat* *pasazi* *ta* *peRasku-an*
want[26]=PFV/INCH IRR-do.something IRR-move.out toward.here LOC bottle-LOC
'(It) was about to come out of the… the bottle.' (Adapted from NTU, frog_imui:IU 13)

d. *siRab* *ngid=ti* *qa-suRaw*
yesterday want=PFV/INCH IRR-fall
'Yesterday he almost fell.' (S24_tuy)

The use of *ngidti* with involitional events such as falling and with inanimate subjects as in 'The stick is about to break' offers strong support for its grammaticalization. Its original lexical meaning of volitionality has evidently been lost.

The aspectual clitic *=ti*, unknown whether perfective or inchoative in this use, is required to express the proximative aspect. Without it, *ngid* expresses some sort of uncertain future, as in (18a). There is no sense of immediacy of the event as in the proximative. However, it seems like it must refer to a fairly near future, apparent from the unacceptability of (18b-c), in which it is respectively accompanied by *temawaR* 'tomorrow' and *siRab* 'yesterday'.

(18) a. *ngid* *uzan*
want rain
'It seems like it's going to rain.' (S23_buy, S24_tuy)

b.**ngid* *uzan* *temawaR*
want rain tomorrow
Intended: 'It seems like it's going to rain tomorrow.' (S23_buy)

[24] Volitional verbs like 'want' or 'wish' developing into proximative aspect markers is a common grammaticalization pathway; see Heine & Kuteva (2004:311-313).
[25] In (17a), *suRaw* (without *qa-*) would result in ungrammaticality. However, *ngidti uzan* 'it is about to rain' (rather than *qauzan*, which is also grammatical) is perfectly acceptable.
[26] Originally glossed as 'almost'.

c.* *siRab* *ngid* *qa-suRaw*
yesterday want IRR-fall
Intended: 'He was about to fall yesterday.' (S24_tuy)

Furthermore, it appears that the proximative meaning has undergone semantic extension, since *ngidti* is also found to express 'almost' as a modifier of numerals/adjuncts. Consider example (19).

(19) *ngid=ti=iku* *qa-u-ssiq* *tasaw* *mai* *matiw* *sa* *taqsian*
want=PFV=1SG.NOM IRR-CLF.NHUM-one year NEG go.AF to school
'I have not been to school for almost one year.' (Huang 2007:127)

Finally, the markers of future situations *qa-* and *=pa* give rise to a problem for the realis/irrealis analysis: what are they exactly if not tense markers? This is, of course, a matter beyond the scope of this thesis, but I find it important to summarize what is known about their functions and to motivate the manner in which they are treated in this thesis. *qa-* and *=pa* can be described as follows:

(i) *=pa* is uniformly considered as a future (tense) marker (e.g. Lin 1996; Lee 1997; Chang 2000; Huang 2007; Hsieh forthc. a). It can also be used for relative future in a past context (Huang 2007:183).
(ii) *qa-* occurs much more frequently and has a wider range of functions, including that of an epistemic modality marker, expressing a degree of certainty (Lee 1997:66; Huang 2007:183). However, it is noteworthy that this degree has been described in contrasting ways: while Lee (1997:66) and Chang (2000:123) state it expresses some degree of uncertainty ('it is likely to rain', 'it will probably rain'), Huang (2007:184) reports that *qa-* "expresses future events that are certain to happen". In general, *qa-* is often simply described as marking an event or state that is going to or likely to happen in the (immediate) future (cf. Chang 2000; Huang 2007:97ff.; Hsieh forthc. a).
(iii) *qa-* is also used in past irrealis contexts, as in the proximative aspect example (17d): *siRab ngid=ti qa-suRaw* 'Yesterday he almost fell'.
(iv) *qa-* and *=pa* can occur on a verb simultaneously. The exact difference between *qa-*V, V*=pa*, and *qa-*V*=pa* is not yet clear.

From these observations it can be concluded that *=pa* seems to be mostly restricted to future and relative future contexts and that *qa-* seems to have a range of functions that can be broadly characterized as irrealis mood (with exceptions). Therefore, I have decided to gloss *qa-* as IRR and *=pa* as FUT, even though the presence of a tense marker within a realis/irrealis system is typologically odd (Palmer 2001:5). Hopefully this section has succeeded in raising some serious issues regarding TAM in Kavalan. I will leave these for future research.

2.6. DEMONSTRATIVE SYSTEM

Since there is no clear answer thus far to the question which syntactic categories of demonstratives exist in Kavalan, this separate section is dedicated to highlighting parts of the rather elaborate demonstrative system, without making any claims about the demonstratives' syntactic category. The most

comprehensive study of Kavalan demonstratives to date is carried out by Jiang (2009a; 2009b). As his study was not published, the summary here is based on his conference presentations' handouts (besides my own fieldwork data).

The demonstratives are divided into adnominal, adverbial, and verbal demonstratives, as seen in Table 2.7. Like in nouns, there is no number distinction here. The adverbials are locatives, meaning 'here', 'there', and 'there' respectively. The verbs express 'do/be like this' or 'do/be like that'. Unlike the adnominal and adverbial categories, the verbal demonstratives do not display a proximal/medial/distal trichotomy.

Table 2.7 Demonstrative system of Kavalan (cf. Jiang 2009b:1)

		Adnominal	Adverbial	Verbal
+ Visible	Proximal	*zau*	*ta-zi-an*	*(se)na-zau*
+/- Visible	Medial	*unay/'nay; yau*	*ta-unay-an / tayan*	*(se)na-unay; (se)na-yau*
	Distal	*wi-'u*	*ta-wi-an*	-

The nominal demonstratives can occur directly before or after the head noun in an NP (20), although the postnominal position dominates (Chang 2000:81).[27]

(20) a. *Raytunguz* ***wasu*** ***'nay***
bark dog DEM.MED
'The/that dog was barking.' (S05_rac)

b. *me-linemnem=ti* ***unay*** ***bawa'***, ...
AF-sink=PFV DEM.MED boat
'After the/that boat sank, ...' (S14_tuy)

c. ***zau*** ***saku***, *zani* *abas=ay*
DEM.PROX cat 3SG.POSS.HUM Abas=REL
'This cat is Abas'.' (S28_tuy)

d. *RamutiR=ti* ***leppaw*** ***zau***
dirty/messy=PFV house DEM.PROX
'This house has become dirty/messy.' (S07_tim)

All adnominal demonstratives except *yau* can also be used pronominally, representing an NP, as shown in (21).

(21) a. *zau* *nani,* *wasu; unay* *nani,* *saku; wi'u* *nani,* *sizi*
DEM.PROX DM dog DEM.MED DM, cat DEM.DIST DM goat
'This is a dog, that is a cat, and that over there is a goat.' (Jiang 2009b:2)

[27] According to Chang (2000:81) the relativizer *=ay* must be added to the demonstrative when it precedes the noun. My data contradicts this rule, so there may be interspeaker differences.

b.*_yau_ _nani,_ _saku_
DEM.MED DM cat
Intended: 'That is a cat.' (Jiang 2009b:2)

Some examples of adverbial demonstratives are given in (22a-b), while the use of the verbal demonstratives are shown in (22c-d).

(22) a. ***tawian*** *ta* *bettu-an* *'nay* *Raya=ay bettu* *'nay* *siangRay*
DEM.ADV.DIST LOC stone-LOC DEM.MED big=REL stone DEM.MED PN
zin-ta *tangi*
say-1PI.GEN now
'Over there at that rock, that huge rock, (which) we now call siangRay.' (Jiang 2009b:3)

b. *siazi=iku* ***tayan****,muzep=ti* *sinut-ku*
reach=1SG.NOM there go.out=PFV light-1SG.GEN
'When I arrived there, my lights went out.' (S22_buy)

c. *qenian* ***nazau=ti*** *waway-na* *baqi-bai* *tuzus* *tu* *tangi*
past this.way=PFV manner-3SG.GEN male.elder-female.elder reach OBL today
'From the past until today our ancestors have been doing it like this.' (S19_buy)

d. ***nayau*** *'nay* *palilin-na* *zana* *kebalan=ay*
this.way DEM.MED palilin-GEN 3PL.POSS Kavalan=REL
'That is how the palilin [name of a ritual] of the Kavalan is done.' (S04_buy_narrative)

Interestingly, Jiang (2006, 2009a, 2009b) points out three binary oppositions in this tripartite system that recur in other grammatical categories. For instance, a proximal-distal opposition formed by *zau* and *yau* also appears in demonstrative human pronouns, e.g. *qanizau* 'them.PROX, these (people)' vs. *qaniyau* 'them.DIST, those (people)'. Another opposing pair in the demonstrative system (Table 2.7), *zi* versus *zui* ('here' and 'there'), is again found in what Jiang calls "local/directional adverbial demonstratives". The most common ones are shown in Table 2.8 below. The basic locative forms an exception here: the distal form *tawian* '(in/on) there' is composed of *wi* instead of *zui*, both meaning distal 'there'.

Table 2.8 Local/directional adverbial demonstratives in Kavalan (Jiang 2009a:4)

	'in/on/at'	'from'	'via/through'	'toward'	'to'
Proximal	*ta-**zi**-an*	*maq-**zi***	*paqa-**zi***	*pasa-**zi***	*se-**zi***
Distal	*ta-**wi**-an*	*maq-**zui***	*paqa-**zui***	*pasa-**zui***	*se-**zui***

The last deictic opposition is that between *yau* and *wi*, the medial and distal nominal demonstratives in Table 2.7, displayed again in Table 2.9. These will be discussed in more detail in Section 3.4, along with their other spatial and aspectual functions.

Table 2.9 Nominal demonstratives in Kavalan (extracted from Table 2.7)

	Nominal
Proximal	*zau*
Medial	*unay/'nay; **yau***
Distal	***wi**-'u*

2.7. SYNTAX AND CLAUSE STRUCTURE

2.7.1. FOCUS SYSTEM

Like all Formosan languages except Rukai and most Western-Austronesian languages, Kavalan has a so-called 'focus' system (e.g. Li 2008:528). This term (not to be confused with pragmatic focus) and the framework in which it is embedded originate from the earliest scholarship on the Austronesian languages of the Philippines. To this day, it is still subject to much controversy and many diverging views have been expressed on what this 'focus' exactly is.[28] Any perspective on the focus and case-marking system also involves implications for transitivity and alignment. Moreover, focus is known to interact actively with tense/mood (Zeitoun et al. 1996; Zeitoun & Huang 1997). Since this complex subject is beyond the goal of this thesis, it will not be discussed here, and the traditional terminology is employed for the sake of convenience. Focus structures can be described as a morphosyntactic system (either inflectional or derivational) employed to indicate which thematic role is 'in focus', i.e. emphasized, interacting with the case-marking system (Saillard forthc.). The focus markers are displayed in Table 2.10.

Table 2.10 Focus markers in Kavalan (cf. Lee 1997; Chang 2000; Huang & Sung 2006; Jiang 2006; Li 2008)

AF	NAF (non-AF)		
Agent focus[29] (AF)	Undergoer focus (MA)[30]	Patient/Locative focus (LF)	Benefactive (BF) and instrumental focus (IF)
*Ø, m(e/u)-, *	*ma-*	*-an*	*ti-*

[28] Most Formosanist scholars, e.g. Chang (2000), Zeitoun (2001, cited in Liao 2004:161), and Li (2008) maintain the existence of a focus system as described here. Huang (1993, cited in Starosta 2002:431-432), Chang (1997:chap. 3), Blust (p.c. with Starosta (2002:431)), Himmelmann (2002), and Ross (2002), among other Austronesian scholars share the view of focus as a voice system. Most Ross & Teng (2005) criticize the Philippinist approach for their opaque framework and terminology which are incompatible with general linguistic typology. Moreover, transitivity is an often neglected aspect in Philippinist views (Liao 2004:161-162; Ross & Teng 2005:744). Ross & Teng reanalyze the focus system as a transitivity system. Starosta (2002) also stresses the importance of transitivity and subsequently argues that almost all Formosan languages are ergatively aligned. In Starosta's (2002) view, focus is not inflection, but rather lexical derivation. Likewise, Kaufman (2009) views focus as a type of nominalization. Both Liao (2002, 2004) and Huang & Tanangkingsing (2011) argue for an ergative alignment but differ as to their perspectives on the focus phenomenon. This list only contains a modest selection of works. For a comprehensive overview of various theories regarding focus, transitivity, and alignment in Philippine-type languages (including Formosan languages), I would like to refer the reader to Liao (2004:chap. 3).

[29] In previous literature sometimes also referred to as Actor Focus (e.g. Chang 2000).

[30] *ma-* is included as a distinct type of focus here, following Huang & Sung's (2006) analysis. Li (2008) lists *ma-* under patient focus. Because of its uncertain status, the prefix is simply glossed as MA rather than with a specific gloss.

The main function of the undergoer focus is to emphasize the undergoer or experiencer in spontaneous events (Huang & Sung 2006). In anticausative events (e.g. 'a rope hung on the tree'), it also puts the patient in focus. Patient focus and locative focus have merged in Kavalan, like in the extinct languages Basay and Siraya (Li 2008). This type of focus will be glossed as LF 'locative focus' to make it easier to distinguish from the perfective gloss. Benefactive and instrumental focus are greyed out to indicate their strongly diminished use; nowadays, they only occur in elderly speakers' speech. Younger generations often use the verbs *panmu* 'help' or *paqayaw* 'help' instead to express the benefactive meaning, and the instrumental focus is replaced by strategies such as the verb *iza* 'use', the prefix *si-* 'take' (both mentioned in Lee 1997:78), or marking the instrument with the oblique case using *tu* (Jiang 2006:10).

The focus markers, which appear on the verb, indicate the thematic role of the grammatical subject, either a nominative pronoun or noun. A nominative noun is often unmarked (depending on the speaker, however); the nominative markers *ya* and *a* are predominantly used in the written language. Examples of agent focus, undergoer focus and patient focus are given in (23), while (24) illustrates the disappearing instrumental and benefactive focus.

(23) a. Agent focus
*tayta=**iku*** *tu* *Rutung*
see<AF>=1SG.NOM OBL monkey
'I saw a monkey.' (S14_tuy)

b. Undergoer focus
ma-tayta-ku ***aisu***
MA-see-1SG.GEN 2SG.NOM
'You were seen by me.' (S29_buy)

c. Patient(/locative) focus
nawsiRab=ay *lipay* *tayta-an-ku* ***(ya)*** ***tama-ku***
day.before.yesterday=REL Sunday see-LF-1SG.GEN (NOM) father-1SG.GEN
'Last Sunday I saw my father.' / 'Last Sunday my father was seen by me.'[31] (S15_rac)

(24) a. Instrumental focus
ti-tangan-ku *tu* *ineb* ***(ya)*** ***suqsuq***
IF-open-1SG.GEN OBL door (NOM) key
'The key was used by me to open the door.' (Lee 1997:75)

b. Benefactive focus
ti-sammay *na* *tama-ku* ***ya*** ***tina-ku***
BF-cook GEN father-1SG.GEN NOM mother-1SG.GEN
'My mother is the one for whom my father cooks (meals).' (Lee 1997:78)

Chang (2000:73) points out an important semantic difference between an agent focus (AF) and a patient focus (LF) construction with the same agent and patient: when the agent is focused, the *tu*-marked patient

[31] Translation depends on the context. Note that the patient focus thus does not correspond to what is known in e.g. Indo-European languages as the passive voice. For instance, this sentence was the given translation of the contextless active sentence 'Last Sunday I saw my father'.

is usually indefinite, while in a patient focus construction the nominative patient is typically definite. This is illustrated in (25).

(25) a. *qal* ***tu*** ***rasung*** *ya* *sunis*
dig<AF> OBL well NOM child
'The child is digging **a well**.' (Translated from Chang 2000:73)

b. *qal-an* *na* *sunis* ***ya*** ***rasung***
dig-LF GEN child NOM well
'The/a child dug **the well**.' (Translated from Chang 2000:73)

The focus type also determines the word order, which will be discussed in Section 2.7.3.

2.7.2. CASE SYSTEM

There are four cases in Kavalan: nominative, oblique, genitive, and locative, displayed in Table 2.11.

Table 2.11 Case system of Kavalan (Li 1996:77; Hsieh forthc. a)

	NOM	OBL	GEN	LOC
Human proper names	Ø	*-an*	*ni*	*-an*
Common nouns and non-human proper names	*ya/a/Ø*	*tu*	*na*	*ta …-an, sa, pasa*, a.o.

The grammatical function of *tu* is subject to debate. While Chang (1997, 2000) and Lee (1997) consider it an accusative marker, Li (1996, cited in Liao 2002[32]), Liao (2002, 2004), Huang & Tanangkingsing (2011), and Hsieh (forthc. a) analyze *tu* as an oblique marker. The present thesis follows the latter analysis and considers *tu* to be an oblique marker.

The locative *ta …-an* is the default locative marker, used for both static and dynamic local roles. For instance, *ta taypak-an* can mean both 'in Taipei' and 'to Taipei'. *sa* and *pasa* both mean 'to(wards)', but differ in the fact that *sa* can only precede a noun while *pasa* can introduce a noun phrase as well (Jiang 2006:13).

As described in the previous section 2.7.1, the semantic interpretation of the nominative depends on the focus marking on the verb. In (26a), the nominative NP *ya wasu* is a Patient as a result of the patient focus on the verb, assigning a Patient role to the grammatical subject. In (26b), however, the (zero-marked) nominative NP *sunis 'nay* is the Agent, because *tayta* carries the agent focus infix here.

(26) Nominative
a. As Patient
tayta-an-na *sunis* *'nay* *ya* *wasu*
see-LF-3SG.GEN child DEM.MEDNOM dog
'The child saw the dog.' (S28_tuy)

[32] Unfortunately I was unable to consult the primary source, as it is written in Chinese.

b. As Agent
tayta *sunis* *'nay* *tu* *wasu*
see<AF> child DEM.MED OBL dog
'The child saw a dog.' (S28_tuy)

Some functions of the oblique marker *tu* are illustrated below in (27).

(27) Oblique
a. As Patient
qan *tu* *Raq*
eat<AF> OBL wine
'drink wine' (S02_buy)

b. As Recipient
bula *ti-upa* *tu* *kelisiw* *tu* *sunis-na*
give CLF.PN-Upa OBL money OBL child-3SG.GEN
'Upa gave money to her child.' (Translated from Chang 2000:71)

c. As Beneficiary
setaR=ti *waway* *qa-tulu=ita* *taRa* *tu* *baqian* *baibedan*
same=PFV manner IRR-three=1PI.NOM pour<AF> OBL male.elder female.elder
'In the same manner, we pour this three times for the ancestors.' (S04_buy_narrative)

d. As marker of temporal information
siRab *ti-utay* *satezay* *tu* *u-zusa* *duki-an*
yesterday CLF.PN-Utay sing.AF OBL CLF.NHUM-two time-AN
'Yesterday, Utay sang for two hours.' (S17_tuy)

e. As marker of location
maseq=iku *tu* *leppaw* *ni* *abas, ...*
arrive.AF=1SG.NOM OBL house GEN Abas
'When I arrive at Abas' house, ...' (S22_buy)

Examples of the genitive markers' usage are given in (28). The genitive case has its conventional function as a possessor marker. Furthermore, in LF sentences, the Agent is marked as a genitive.

(28) Genitive
a. As possessor
'si *na* *babuy*
meat GEN pig
'pig's meat, pork' (S04_buy_narrative)

b. As possessor with personal name
maseq=iku *tu* *leppaw* *ni* *abas, ...*
arrive.AF=1SG.NOM OBL house GEN Abas
'When I arrive at Abas' house, ...' (S22_buy)

c. As Agent

'tung-an	*ni*	*utay*	*a*	*taquq*
kill-LF	GEN	Utay	NOM	chicken

'Utay killed the chicken.' (S19_buy)

Finally, the locative functions of locative markers *ta …-an* and *sa* are given in (29).

(29) Locative

a. General locative

bibiq=ti	*biyabas*	*'nay*	*ta*	*qibi-an*
fall.down=PFV	guava	DEM.DIST	LOC	basket-LOC

'The guavas in the basket fell out (on the ground).' (S16_buy_narrative)

b. Goal of motion event

kezumai	*qa-talin=pa=iku*	*sa*	*hualien*
next.year	IRR-move=FUT=1SG.NOM	to[33]	Hualien

'Next year, I will move to Hualien.' (S15_rac)

Besides its expected locative meaning, the general locative marker *ta …-an* is also used to express Goal/Recipient, especially by senior speakers (Chang 2000:72), as in (30). Furthermore, in some cases, locative case can be used to mark objects instead of the oblique marker (Chang 2000:97-98). This is illustrated in (31), where a single verb *melana* 'wait (for)' is shown to take both locative NPs and genitive NPs as its object.

(30) Locative as Goal/Recipient

bula	*ti-upa*	*tu*	*kelisiw*	*ta*	*sunis-an-na*
give	CLF.PN-Upa	OBL	money	LOC	child-LOC-3SG.GEN

'Upa gave money to her child.' (Translated from Chang 2000:71)

(31) a. Theme marked as locative

mai	*melana*	*ya*	*Raytun*	*timaisuan*
NEG	wait.AF	NOM	car	2SG.LOC

'The bus does not wait for you.' (S12_tuy)

b. Theme marked as oblique

melana=iku	*tu*	*kaput-ku*	*mai*	*tenes*
wait.AF=1SG.NOM	OBL	friend-1SG.GEN	NEG	long.time

'I only waited a moment for my friend.' (S07_tim)

2.7.3. BASIC CLAUSE STRUCTURE

Closely linked to the 'focus' and alignment debate in the Formosan and other Philippine-type languages (see Section 2.7.1, particularly footnote 28) is the transitivity issue. It has not been given equal attention

[33] In order to preserve the meaning of locatives such as 'to', 'towards', 'via', etc., these translations are included in the gloss. Only the basic locative marker *ta …-an* will be glossed as LOC.

by all scholars; many Formosanist scholars in particular have been claimed to have either neglected the subject or expressed the view that transitivity is not as relevant for the study of Formosan languages (Ross & Teng 2005:744; Liao 2004:161-162).

There is no question about the existence of transitive and intransitive sentences in Kavalan. It is widely agreed that monovalent AF clauses, such as the sentence in (32), are intransitive.

(32) Monovalent AF clause
temawaR *mai=iku* *qatiw* *ta* *taqsi-an*
tomorrow NEG=1SG.NOM go LOC school
'I will not go to school tomorrow.' (S28_tuy)

However, disagreement arises about whether certain bivalent verbs are transitive or intransitive, which depends on whether its arguments are seen as core or peripheral (Liao 2002). This discussion mainly concerns two types of constructions: i) bivalent AF clauses; ii) bivalent LF clauses.

(33) a. Bivalent AF clause
qan=ti=iku *tu* *benina*
eat<AF>=PFV=1SG.NOM OBL banana
'I have eaten a banana.' (S27_lon)

b. Bivalent LF clause
tayta-an-ku *wasu* *'nay*
see-LF-1SG.GEN dog DEM.MED
'I saw the dog.' (S27_lon)

In analyses of *tu* as an accusative marker, the bivalent AF clause (33a) has been treated as a transitive structure. When *tu* is considered an oblique marker, on the other hand, the clause is analyzed as an extended intransitive whereby the *tu*-complement is an adjunct (Liao 2002, 2004; Huang & Tanangkingsing 2011). Bivalent LF clauses (33b), on the other hand, have been analyzed as passive or canonical transitive constructions.

After having shown the most common clause structures in Kavalan and leaving the debate aside, I will now turn to word order.

2.7.3.1. Declarative clause

Like most Formosan languages, Kavalan is a predicate-initial language. It has two basic word orders: VSO and VOS (Li 2008:525). The word order is primarily determined by the type of focus and secondly by the presence of case markers.

In AF sentences, when case markers are present, S is typically clause-final (Chang 2000:100-102; Hsieh forthc. a). However, due to the fact that the functions are expressed by case markers, the word order of S and O is relatively free (Li 2008:524), as shown by (34).

(34) a. *yau* *tayta* *tu* *simbun* *baqi-ku*
EXIS see<AF> OBL newspaper male.elder-1SG.GEN
'My grandpa was reading the newspaper.' (S23_buy)

b. *yau* *tayta* *baqi-ku* *tu* *simbun*
EXIS see<AF> male.elder-1SG.GEN OBL newspaper
'My grandpa was reading the newspaper.' (S23_buy)

AF sentences without case markers, however, require S to directly follow the predicate (Jiang 2006:8).

(35) a. *pukun ti-utay* *ti-imuy*
hit<AF> CLF.PN-Utay CLF.PN-Imuy
'Utay is hitting Imuy.' (Jiang 2006:8)

b. *pukun ti-imuy* *ti-utay*
hit<AF> CLF.PN-Imuy CLF.PN-Utay
'Imuy is hitting Utay.' (Jiang 2006:8)

For LF clauses, the Agent or Experiencer always follows the predicate immediately, like in (36).

(36) a. *siup-an* *na* *bali* *'nay* *kubu-na*
blow-LF GEN wind DEM.DIST hat-3SG.GEN
'The wind blew away his hat.' (S16_buy_narrative)

b. *tita-an* *na* *baqian* *'nay* *biyabas* *'nay* *nani*
see-LF GEN male.elder DEM.MED guava DEM.MED DM
'The man saw those guavas.' (S16_buy_narrative)

2.7.3.2. Imperative clause

The imperative clause is formed by adding an imperative suffix to the predicate. The marker *-ka* is used for agent focus clauses (37a), while *-ika* is used for patient focus clauses (37b). No distinction is made in number.

(37) a. *paqanas-ka*
slow-IMP.AF
'Take it easy.' (S01_buy)

b. *ma-bedung* *piyaz,* *sinap-ika* *zin -na* *tina-ku*
MA-break plate sweep-IMP.LF say-3SG.GEN mother-1SG.GEN
'After the plate broke, my mother told me to clean it up.' (lit. '… my mother said: sweep it!')
(S13_buy)

To express a hortative such as 'let us/me do X!', however, *ka* can be used as a separate particle at the end of a full sentence (Hsieh forthc. a).

(38) a. *qan=pa=ita* *ka*
eat=FUT=1PI.NOM IMP.PCL
'Let's eat!' (Translated from Hsieh forthc. a)

b. *aiku=pa* *sinapun=ay* *ka*
1SG.NOM=FUT assign=REL IMP.PCL
'Let me assign/divide (them)!' (Translated from Hsieh forthc. a)

Imperative clauses are negated by the clause-initial imperative negation particle *naRin*, as in (39).

(39) a. *naRin* *samangsa* *tu* *zanum!*
IMP.NEG waste OBL water
'Don't waste water!' (S05_rac)

b. *naRin* *pasa* *tuRuz* *tayta*
IMP.NEG toward back see<AF>
'Do not look back.' (S04_buy)

2.7.3.3. Negative clause

The most basic and common negator[34] in Kavalan is *mai* 'not'. Other frequent negation markers include e.g. *ussa* 'not be' and *naRin* 'IMP.NEG'. Examples of the use of *naRin* have already been given in the previous section on imperatives. Although other (including verbal) means to negate elements or clauses exist in Kavalan, for present purposes this sketch will be limited to the other two most basic markers *mai* and *ussa*.

The negator *mai* occurs sentence-initially when the negation has sentential scope. A few examples of the varied range of uses of *mai* are given in (40)-(43) below. As shown, it negates verbs, including stative ones such as *tenes* '(take a) long.time', existential clauses ('there is/are no X'), and it can be used independently.

(40) a. *qa-tenes*
IRR-long.time
'It will take a long time.' (S01_buy)

b. *mai* *qa-tenes*
NEG IRR-long.time
'It will not take a long time.' (S01_buy)

(41) a. *matiw=imi* *sa lazing*
go.AF=1PE.NOM to sea
'We went to the sea.' (unrec_rac)

b. *mai=imi* *matiw sa lazing*
NEG=1PE.NOM go.AF to sea
'We didn't go to the sea.' (S29_buy)

[34] There is no clear consensus on the syntactic category of *mai*. See Sung & Yeh (2005) for an analysis of *mai* as a negative auxiliary verb.

(42) *mai=ti deddan*
NEG=PFV day
'There is no time (left).' (S21_tuy)

(43) A: *yau=pama ti-utay ta pateRungan*?
EXIS=still CLF.PN-Utay LOC Sinshe[LOC]
'Is Utay still in Xinshe?'

B: *mai=ti, wiya=ti siRab*
NEG=PFV leave=PFV yesterday
'Not anymore, he left yesterday.' (S12_tuy)

When *mai* has smaller scope, it may take different positions. For instance, if it negates a verb other than the main verb, it will directly precede the verb in question, as shown in (44b).

(44) a. *mai paseka aizipna qan tu Raq*
NEG try 3SG.NOM eat<AF> OBL wine
'I did not try to drink wine.' (Translated from Hsieh forthc. a)

b. *paseka aizipna mai qan tu Raq*
try 3SG.NOM NEG eat<AF> OBL wine
'I tried not to drink wine.' (Translated from Hsieh forthc. a)

The negator *ussa* negates clauses with nominal predicates, also called equational clauses. Like most Austronesian languages, Kavalan does not have a copula (Hsieh 2011a:516). In equational clauses, the subject and the nominal predicate may appear in both possible orders (Yeh 2005:43), as shown in (45). For present purposes, the predicate *zani abas* 'of Abas, Abas'' can be considered a type of nominal here, since it stands for 'the one of Abas' or 'Abas' cat'.[35]

(45) a. *zani abas zau saku*
3SG.POSS.HUM Abas DEM.PROX cat
'This cat is Abas'.' (S28_tuy)

b. *zau saku zani abas*
DEM.PROX cat 3SG.POSS.HUM Abas
'This cat is Abas'.' (S28_tuy)

The negation marker *ussa* always appears directly before the negated predicate, as in (46).

(46) a. *zau bilu ussa zasu=ay, wi'u qawka zasu*
DEM.PROX pen NEG 2SG.POSS=REL DEM.DIST only.then 2SG.POSS
'This pen is not yours, that pen is yours.' (S28_tuy)

[35] Cf. 'hers', 'mine', 'yours', etc. Their nominal nature is in English is clear from examples like 'mine is green' and in Dutch from the fact that they always have a definite article 'de/het mijne is groen'. The Kavalan construction is still under investigation (see e.g. Hsieh 2015), but the examples taken from my fieldwork data suggest that it is syntactically comparable to the given English forms.

b. *ussa tazungan ti-abas*
NEG girl PN-Abas
'Abas is not a girl.' (Yeh 2005:43)

2.7.3.4. Interrogative clause

- Wh-question

Kavalan has interrogative verbs and interrogative pronouns. Interrogative verbs typically appear in clause-initial position (Hsieh forthc. a). They can take focus, tense, and aspect markers as well as pronoun affixes and thus act like main verbs (see also Lin 2012, 2013, 2015 for an analysis of interrogative serial verb constructions). Some examples are shown in (47).

(47) a. *muni=isu?*
do.what=2SG.NOM
'What are you doing?' (S06_tim)

b. *qumni=isu maseq tazian?*
when=2SG.NOM arrive.AF here
'When did you arrive here?' (S11_buy)

c. *manna=pa=isu pukun tu sunis?*
why-FUT-2SG.NOM hit OBL child
'Why will you hit a child?' (Chang 1997:115)

As for interrogative pronouns, when they are the grammatical (i.e. nominative) subject, they may not remain in situ but must appear clause-initially (Chang 1997:43).

(48) a.**pukun ya tiana tu sunis?*
hit<AF> NOM who OBL child
Intended: 'Who is hitting a child?' (Chang 1997:43)

b. *tiana ya pukun tu sunis?*
who NOM hit<AF> OBL child
'Who is hitting a child?' (Chang 1997:43-44)

On the contrary, when they fill another syntactic function than that of the subject, they must stay in their original place (Chang 1997:44). To illustrate, in (49a) the object would follow the oblique marker *tu*, so that is where *niana* 'what' appears. In (49b), *niana* is filling the position of the genitive object, which is the agent in the sentence because of the patient focus.

(49) a. *me-Rasa=isu tu niana?*
AF-buy=2SG.NOM OBL what
'What are you buying?' (Translated from Hsieh forthc. a)

b. *tayta-an niana ya sunis?*
see-LF who NOM child
'Who saw the child?' (Chang 1997:44)

- Yes/no question

Affirmative/negative questions can be formed in two ways: i) using the (usually sentence-final) question particle *ni* combined with a rising intonation near the end (50a); ii) using only a rising intonation near the end (50b) (Hsieh forthc. a).

(50) a. *temawaR qatiw=isu sa taypak ni?*
tomorrow go=2SG.NOM to Taipei INT
'Will you go to Taipei tomorrow?' (unrec_rac)

b. *u-matiw=isu ta kilung-an?*
EXP-go.AF=2SG.NOM LOC Keelung-LOC
'Have you ever been to Keelung?' (S07_tim)

3. TEMPORAL EXPRESSION AND CONCEPTUALIZATION IN KAVALAN

3.1. INTRODUCTION

As has often been noted over the past decades, many languages across the world tend to express temporal concepts in terms of space (e.g. Clark 1973; Hill 1978; Traugott 1975, 1978; Lakoff & Johnson 1980, 1999; Alverson 1994; Yu 1996, 2012; Haspelmath 1997; Moore 2000, 2006, 2014). After initial impressions of it being a typological universal, this has now been reduced to the assumption of a 'quasi-universal' phenomenon (Sinha et al. 2011:165). By examining the morphosyntactic and lexical expression of temporal concepts in Kavalan, this section aims to explore their spatial correlations at the same time. For the component of temporal expression, Haspelmath's (1997) typology of semantic functions derived from NP-based temporal adverbials is used as the main framework. As for the conceptualization part, Lakoff & Johnson's (1980) Conceptual Metaphor Theory (CMT) is adopted. More specifically, I have chosen to follow Moore's (2006, 2014) adapted version of CMT for its theoretical sophistication.

The organization of this section is as follows: first, a brief outline of previous related research in Kavalan and other Formosan languages will first be given (3.1.1), followed by an account of the 'time as space' phenomenon and its posited motivations (3.1.2). Next, the fundamentals of CMT and a selection of common TIME IS SPACE metaphors are explained (3.1.3). An overview of Haspelmath's (1997) classification of semantic functions is given in Section 3.1.4. The remainder of the section, the core part, is a descriptive study of temporal expression in Kavalan, integrated with CMT where applicable (Section 3.2 through 3.4).

3.1.1. PREVIOUS RESEARCH

While TAM systems, also called 'grammatical time', belong to the essential topics of any descriptive grammar, 'lexical time', i.e. adverbial, nominal, and prepositional expressions, remains relatively understudied. Despite the fact that lexicosemantic fields have seen a surge of interest especially in the cognitive linguistics since the late 60s, there are very few studies in the Formosan languages focusing on a lexicosemantic domain, most of them being (morpho)syntactic studies instead. For Kavalan, those examining the conceptualization of a specific notion are Lin's (2006) and Hsieh's (2011b) works on emotion events and Jiang's (2006) thesis on space and motion. Lin (2006) has found that both metaphor and metonymy play an important role in expressing emotion and control of emotions. Hsieh (2011b) compares the presence of metaphorical strategies in the emotion domain between five Formosan languages, combining Huang's (2002) findings for Tsou, Yeh's (2002) findings for Squliq Atayal, and her own findings for Kavalan, Saisiyat, and Paiwan. Hsieh (2011b:81-82) suggests that Tsou and Saisiyat make highly limited use of metaphors, Paiwan and Squliq Atayal are rich in emotion metaphors, and Kavalan is somewhere in the middle. It will be interesting to see whether this is reflected in temporal metaphors.

As for the expression of lexical time in other Formosan languages, this has only been systematically investigated for a handful of languages: Paiwan (Sung 2005) and Tsou (Pan 2007), both Master's theses, and dialects of Bunun (De Busser 2013; Huang 2016). At the time of writing, Fuhui Hsieh's (forthc. b) research on spatial metaphors of time in Saisiyat is in progress. Interestingly, both Huang (2016) and

Hsieh (forthc. b) report that the presence and frequency of space-time metaphors in Isbukun Bunun and Saisiyat respectively is relatively low. Both of them argue that a metonymy-based, or metaphtonymy (metaphor-metonymy complex, Goossens 1995) is better able to account for temporal expressions in the two languages than metaphor. In Hsiao's (2004) Master's thesis on adverbials in Squliq Atayal, a chapter is dedicated to a syntactic study of several temporal adverbs. Furthermore, Zeitoun (1997) has carried out a preliminary typological study on temporal, conditional, and counterfactual clauses in eight Formosan languages, not including Kavalan.

3.1.2. THE SPATIAL CONCEPTUALIZATION OF TIME

As mentioned before, the linguistic realization of temporal concepts in terms of space and motion is widely attested. Indeed, it appears to be a typologically unrestricted phenomenon, as it is present in genetically and geographically unrelated languages, such as English (Clark 1973; Lakoff & Johnson 1980, 1999), Chinese (Yu 1996, 2012), Wolof (West Africa; Moore 2000, 2006, 2014), and Aymara (South America; Núñez & Sweetser 2006), only to name a few. It is generally believed that these spatial representations of time are grounded in human sensory-motor experience of space and the correlations between the experience of space and that of time (Lakoff & Johnson 1980, 1999b; Grady 1999; Kövecses 2010:79). Moreover, space and motion are more concrete and directly perceived, unlike time and events, and thus lend themselves well to represent more abstract concepts such as time (e.g. Clark 1973; Lakoff & Johnson 1980; Jackendoff 1983; Johnson 1987; Alverson 1994:36; Grady 1999:84-85). While there is empirical evidence showing that humans experience time, it is also found that this experience is subjective (Evans 2003). Therefore, in order to communicate about time, people employ spatial imagery to conventionalize and 'objectify' these temporal concepts (Evans 2003, Radden 2011).

This explanation based on universally shared cognitive and experiential bases has sometimes led to the related, but crucially different assumption that this space-to-time transfer is a universal in human languages (e.g. Fauconnier & Turner 2008:55, cited in Sinha et al. 2011). Only in very recent years has counterevidence against this idea of universality begun to emerge, so far in the languages Amondawa (Tupi Kawahib, Western Amazonia; Sinha et al. 2011; Da Silva Sinha et al. 2012) and Yélî Dnye (Papuan isolate; Levinson & Majid 2013). Sinha et al. (2011) show that Amondawa does not have space-to-time mapping on the linguistic nor conceptual level. In Yélî Dnye, too, no consistent space-to-time mappings are found by Levinson & Majid (2013). While agreeing with the general view that the transfer from space to time is driven by universal cognitive underpinnings, both studies suggest that cultural aspects of time-reckoning, such as the use of calendrical notions (which are absent in these two cultures), play a large role in determining whether spatial terms are employed for expressing temporal relations. In a similar vein, Langacker (2012:191-192) stresses the importance of distinguishing between 'basic experience' and 'interpreted experience': basic experience originates from humans' biological potential, while interpreted experience is "non-fundamental, the product of cognition in a sociocultural context". From this follows that the conception of space and time comprises both universal and language-specific properties, reflecting basic and interpreted experience, respectively. These views are in line with recent perspectives emphasizing the importance of sociocultural contexts in the study of temporal language and cognitive diversity (Bernárdez 2013; Sinha 2014; Sinha & Bernárdez 2015; Núñez & Cornejo 2012).

It is also noteworthy that findings from recent experimental research, either conducted within one language (e.g. Casasanto & Boroditsky 2008) or comparing cross-linguistically (e.g. Casasanto et al. 2005; Boroditsky, Fuhrman & McCormick 2011; Fuhrman et al. 2011) have supported the reality of a causal

effect of spatial metaphor on non-linguistic temporal cognition. Although these studies altogether only involve a handful of languages, they do provide some significant evidence for linguistic relativity effects in the domain of time.

3.1.3. CONCEPTUAL METAPHOR THEORY (CMT) AND TIME AS SPACE

> "Linguistic categorization depends not just on our naming of distinctions that exist in the world, but also on our metaphorical and metonymic structuring of our perceptions of the world." (Sweetser 1990:9)

While 'objective reality', insofar it exists, and objective semantic features of entities in the world naturally influence the manner in which we categorize them, much also relies on our subjective experience and perception. In the past 50 years, the idea has grown that language, in particular meanings conveyed by language, is rooted in general human cognitive experience (Sweetser 1990:16). This belief has led to attempts in cognitive linguistics to motivate semantic tendencies across languages and, subsequently, to formalize such patterns. One of these approaches to formalization is called the Conceptual Metaphor Theory (CMT), introduced in George Lakoff's and Mark Johnson's work (e.g. Lakoff & Johnson 1980, 1999b; Lakoff 1987, 1993) and later further developed and fine-tuned by Kevin Moore (2000, 2006, 2014).

Lakoff & Johnson's metaphor theory has also been an influential framework for the study of space-to-time transfer. It should be noted that 'metaphor' as used in CMT has a somewhat different meaning from the traditional metaphor as used in literary studies.

> "It has come to mean "a cross-domain mapping in the conceptual system." The term "metaphorical expression" refers to a linguistic expression (a word, phrase, or sentence) that is the surface realization of such a cross-domain mapping (this is what the word "metaphor" referred to in the old theory)." (Lakoff 1993:203)

In the case of the TIME IS SPACE metaphor, the primary source domain is SPACE and the target domain is TIME. The idea of 'mapping' between conceptual domains, then, is that the internal structure and the inferences of one domain also get transferred to the other (Lakoff 1993). This is a uni-directional process: time is described in terms of space, but properties of time are not mapped onto space. The spatial and temporal sense of some motion verbs in (51) illustrate the parallels in meaning.

(51) TIME PASSING IS MOTION: the Moving Time metaphor

a. Grandma is coming.	a'. Summer is coming.
b. Grandma has arrived.	b'. Summer has arrived.
c. Grandma has gone.	c'. Summer has gone. (Moore 2014:6)

3.1.3.1. Moving Ego vs. (Ego-centered) Moving Time

Within the TIME PASSING IS MOTION metaphor (Lakoff 1993; Lakoff & Johnson 1999), a basic distinction is usually made between the Moving Time type and the Moving Ego type (cf. Moving Observer in Lakoff & Johnson 1999:chap. 10). This distinction and terminology were introduced by Clark (1973) and later

formalized by Lakoff & Johnson (1980, 1999). Ego represents the linguistic experiencer of time. In the Moving Time metaphor, events move past a stationary ego, as in (52a), while the Moving Ego metaphor views the ego as moving past stationary events, as in (52b). Henceforth, the Moving Time model as discussed in this section will be called Ego-centered Moving Time (following Moore 2014) in order to clearly distinguish it from another Moving Time model which does not take ego as its reference point (see next section). It should be noted, however, that this distinction was not traditionally made by Clark (1973) and Lakoff & Johnson (1980).

(52) a. Christmas is approaching. [Ego-centered Moving Time]
b. We are approaching Christmas. [Moving Ego]

The conceptual mappings or entailments of these two primary metaphors are displayed in the tables below.

Table 3.1 Mappings of the Ego-centered Moving Time metaphor (Moore 2014:13)

Source		Target
"Here"	→	"Now"
Proximity	→	Immediacy
An entity moving toward ego	→	A time in the future
Change in degree of proximity	→	Change in degree of immediacy
Arrival of the entity at ego's location	→	Occurrence of a time
An entity moving away from ego	→	A time in the past

Table 3.2 Mappings of the Moving Ego metaphor (Moore 2006, 2014:9; cf. Clark 1973; Moving Observer in Lakoff & Johnson 1999:chap. 10)

Source		Target
"Here"	→	"Now"
Proximity	→	Immediacy
Space ahead of ego	→	The future
Change in degree of proximity	→	Change in degree of immediacy
Ego's arrival at a place	→	Occurrence of a time
Space behind ego	→	The past

Ego-centered Moving Time and Moving Ego are typically Figure-Ground reversals of each other (Lakoff & Johnson 1999:149) in the well-known spatial terminology of Talmy (2000:312, 320).[36] Because they

[36] The general conceptualization of Figure and Ground is defined as follows: "The Figure is a moving or conceptually movable entity whose path, site, or orientation is conceived as a variable, the particular value of which is the relevant issue. The Ground is a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure's path, site, or orientation is characterized" (Talmy 2000:312). Applying this to temporal events results in a more temporally specific conceptualization: "The Figure is an event whose location in time is conceived as a variable the particular value of which is the relevant issue. The Ground is a reference event, one that has a stationary setting relative to a reference frame (generally, the one-dimensional timeline), with respect to which the Figure's temporal location is characterized." (Talmy 2000:320)

both take the ego as their reference point, resulting in the same perspective, the differences are very limited: while Moving Time is embodied by an entity moving toward or away from ego, if ego itself is moving it is the space in front or behind ego which represents a time frame.

As is apparent from the mappings, ego is conceptualized as looking and moving ahead, while time moves from the future towards ego (see Figure 3.1, Figure 3.2). It is worth noting that in both models, what is 'past' and what is 'future' depends on where ego is located, i.e. what is 'now'. This makes both models deictic temporal frames of reference, in contrast to the perspective-neutral metaphor SEQUENCE IS RELATIVE POSITION ON A PATH that will be discussed next.

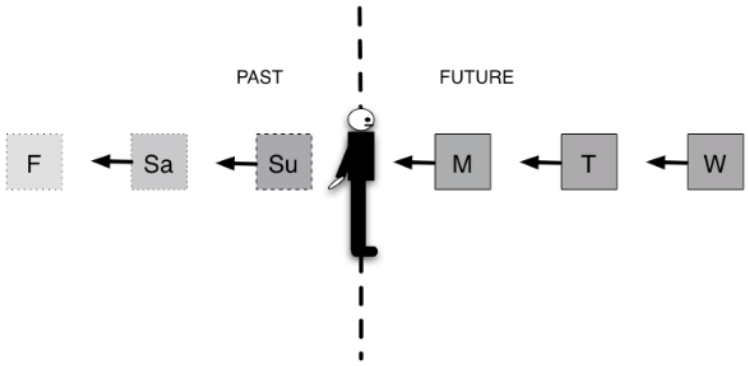


Figure 3.1 Ego-centered Moving Time (Kranjec 2006:448)

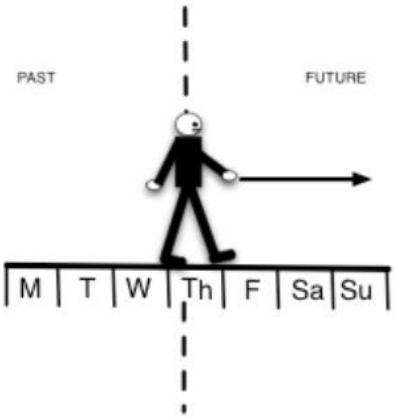


Figure 3.2 Moving Ego (Kranjec 2006:449)

3.1.3.2. Field-based vs. Ego-based Moving Time

More recently, scholars in metaphor research have pointed out another important distinction between models of time, lying in the reference point, or frame of reference (e.g. Bender, Bennardo & Beller 2005; Núñez & Sweetser 2006; Núñez, Motz & Teuscher 2006; Moore 2000, 2006, 2014). Moore (2000) and Núñez & Sweetser (2006) point out that previous claims of languages conceptualizing the past as being in front and the future behind were often caused by a lack of distinction of reference points. As clearly encapsulated by Núñez & Sweetser (2006:4):

> "The problem is that we must not confuse *futurity* (reference to times later than NOW) with *posteriority* (reference to one time as being later in a sequence than another). Not every instance of "later than" relations is an instance of "later than now." Similarly, we must not confuse past (reference to times earlier than NOW) with anteriority (reference to one time as earlier in a sequence than another). The crucial point is that future and past are inherently deictic semantic categories; you have to know the position of ego (i.e., when the relevant speaker's present is) to be able to calculate the time reference of a future."

There is another type of metaphor which positions events sequentially, relative to one another or another time instead of to an ego.[37] This metaphor is referred to as SEQUENCE IS RELATIVE POSITION ON A PATH. An example is given in (53), and the described sequence of events is shown schematically in Figure 3.3. The statement in (53) is perspective-neutral; the explosion always follows the flash, regardless of whether the sequence takes place in the past or the future.

(53) An explosion followed the flash. (Moore 2006:206)

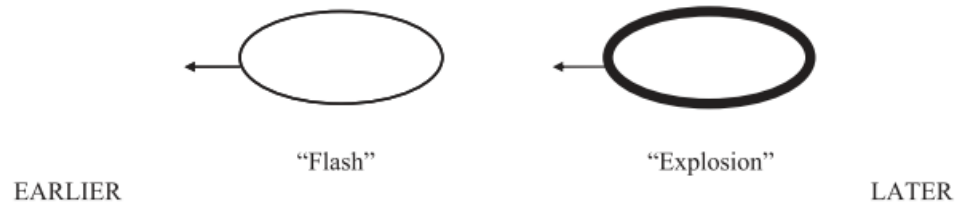


Figure 3.3 Schematic representation of 'An explosion followed the flash' (Moore 2006:206)

Based on an analogy with the source domain of space, the SEQUENCE IS RELATIVE POSITION ON A PATH metaphor has been called field-based (cf. 'object-based' in Haspelmath 1997:58-59 and 'time-RP' in Núñez & Sweetser 2006). Consider Figure 3.4 below for a more concrete illustration. In an ego-based frame of reference, person A would say *The ball is behind the bike.* In a field-based frame of reference, however, one could say *The ball is in front of the bike* (based on the inherent front-back axis of the bike). The validity of this statement is again independent from where the observer is standing. When applied to the temporal domain, note that events do not have an inherent front-back axis like asymmetric objects, but their front and back side are defined by the direction in which they are moving. Thus, in Figure 3.3, since time moves from later to earlier (in the opposite direction of ego), the explosion is behind the flash.

Figure 3.4 Object-based (field-based) vs. subject-based (ego-based) (Haspelmath 1997:59)

The corresponding mappings are given in Table 3.3. The SEQUENCE IS RELATIVE POSITION ON A PATH metaphor also forms the basis of the linguistic expression of sequential relations in Kavalan. This will be discussed in Section 3.2.2.

[37] In other frameworks also termed B-series (McTaggart 1908), S-time or sequence time (Núñez & Cooperrider 2013; Sinha & Gärdenfors 2014), time with a time-RP (reference point) (Núñez & Sweetser 2006).

Table 3.3 Mappings of SEQUENCE IS RELATIVE POSITION ON A PATH (cf. Núñez & Sweetser 2006:7; Moore 2006:206)

Source		Target
Objects	→	Times
Sequence of objects	→	Chronological order of times
Movement of the entire sequence in one (usually horizontal) direction	→	Passing of time
An object located in front/behind an object B	→	A time A occurs earlier/later than time B

3.1.3.3. Moving from earlier to later

Moore (2014) defines three other common metaphors in which motion from an earlier time to a later time plays a central role. Such metaphors all resemble the Moving Ego model in certain aspects, in which ego also moves in the same direction, in contrast to Moving Time. All three of them will be outlined here, as they are found to motivate certain linguistic structures in Kavalan: they are NOW IS A MOVER (cf. 'TIME MOVES' in Lakoff & Turner 1989:44-46; Moore 2014:43-44), A SITUATION IS A MOVER (Moore 2014:44-46) and the Purposeful Activity metaphor (Lakoff & Johnson 1999:190ff.; Moore 2014:47-48). The realization of the metaphors will be illustrated and discussed throughout the analysis of Kavalan.

NOW IS A MOVER in fact has a conceptual structure identical to that of Moving Ego, the only difference being that there is no ego involved. Instead, it is the time where ego is located, the present or the moment of speech, which is moving. See the examples in (54), where *it* or *the hour* is the moving subject rather than an animate entity. To point out this distinction, the metaphor NOW IS A MOVER is identified independently from Moving Ego.

(54) a. The hour is approaching dawn. (It's approaching dawn.)
b. It's getting close to Christmas. (*cf.* We're getting close to Christmas.)
c. It's past the deadline. (*cf.* We're past the deadline.) (Moore 2014:43)

For convenience, the essential conceptual mappings of NOW IS A MOVER are given in Table 3.4.

Table 3.4 Mappings of NOW IS A MOVER (adapted from Moore 2014:44)

Source		Target
A moving entity	→	"Now"
Space ahead of moving entity	→	The future
Space behind moving entity	→	The past

Like NOW IS A MOVER, the metaphor A SITUATION IS A MOVER also differs from Moving Ego in that ego is not involved. However, its conceptual structure and mappings are also different. The described situation (not 'now') moves along a path which represents the duration of the situation. Moore (2014:45) states that the encoding of aspectual information often makes use of this metaphor, as in the Wolof example in (55). A comparable phenomenon is attested in Kavalan as well, where a verb meaning 'go away' has acquired the function of a continuative aspect marker (see Section 3.4).

(55) Wolof (Atlantic-Congo)

Nawet	*bi*	*dem*	*na*	*be*	*sori*	*amut*	*ndox.*
rainy.season	the	go	PERF.3	to.the.point.of	be.far	have:NEG	water

'The rainy season went on for a long time without rain.'
(lit. 'The rainy season went to the point of being far and it didn't have water.') (Moore 2014:45)

Besides the situation's duration, the conceptualization of A SITUATION as A MOVER often also underlies the way a 'when'-relation (in Moore's words) is expressed. Meanings such as (but not restricted to) 'from dusk to dawn' and 'until next year' are intended. Note that these actually express temporal location ('when') and duration at the same time. Therefore, these 'from, since' and 'until' meanings specifically are labeled as sequential-durative functions in Haspelmath (1997). The mappings of the metaphor A SITUATION IS A MOVER are displayed schematically in Table 3.5.

Table 3.5 Mappings of A SITUATION IS A MOVER (Moore 2014:45)

Source		Target
Mover	→	The evolving temporal profile of a situation
The path traversed	→	The time during which a situation continues
Source	→	An earlier time
Goal	→	A later time

The other metaphor I would like to introduce here is that of the Purposeful Activity. This metaphor can actually be considered a subtype of Moving Ego, because it also involves a moving ego but requires a more specific kind of situation. While Moving Ego simply conceptualizes the 'passage' of time, Purposeful Activity is actually an Event Structure metaphor (Moore 2014:46), because it depicts an activity in which ego makes progress, hence 'purposeful'. Other types of Event Structure metaphors include those describing states, changes, and causes (Lakoff & Johnson 1999:179ff.; Moore 2014:46ff.). The progress is construed as forward motion (Moore 2014:48). The following very common Dutch expressions serve well as an illustration.

(56) A: *Hoe ver ben je gekomen?* lit. 'How far did you come?'
B: *Ik ben maar tot pagina 5 gekomen.* lit. 'I only came until/reached page 5.'

Kavalan uses similar expressions based on verbs meaning 'arrive, reach'. These will be discussed in Section 3.2.3.1, together with the anterior-durative ('until') function, due to the fact that the same verbs can express both meanings. The mappings from space to time within the Purposeful Activity metaphor are displayed in Table 3.6.

Table 3.6 Mappings of the Purposeful Activity metaphor (Moore 2014:48; cf. Lakoff & Johnson 1999:190ff.)

Source		Target
Mover	→	Agent
Destinations	→	Purposes
Arriving at a destination	→	Completing a purposeful action
Moving forward	→	Progressing

3.1.4. OVERVIEW OF HASPELMATH'S (1997) CLASSIFICATION

Before turning to the examination of Kavalan's temporal encoding, I will outline the semantic functions of NP-based temporal adverbial expressions as put forward by Haspelmath (1997). The structure of the rest of this chapter is largely based on this classification, displayed in Table 3.7.

Table 3.7 The major semantic functions of NP-based time adverbials (Haspelmath 1997:8)

I. Location in time	
A. Simultaneous location (3.2.1)	
(a) Hour	*at five o'clock*
(b) Day part	*in the morning, at night*
(c) Day	*on Tuesday, on the first day*
(d) Month	*in February, next month*
(e) Season	*in the summer, last fall*
(f) Year	*in 1962, this year*
(g) Festival	*at Christmas, at Easter, at Passover*
B. Sequential location (3.2.2)	
(a) Anterior	*before the meal*
(b) Posterior	*after the war*
C. Sequential-durative location (3.2.3)	
(c) Anterior-durative	*till midnight*
(d) Posterior-durative	*since the Middle Ages, from now on*
D. Temporal distance (3.2.4)	
(a) Distance-past	*two hours ago*
(b) Distance-future	*(I will return) in three weeks(' time)*
II. Temporal extent (3.3)	
(a) Atelic extent (3.3.1)	*for two months*
(b) Telic extent (3.3.2)	*(I wrote the letter) in two hours*
(c) Distance-posterior (3.3.3)	(German:) *seit drei Jahre* lit. 'since three years ago'

The corresponding section numbers are given in parentheses. In the case of simultaneous location and sequential location, their expression in the form of a clause has also be investigated, i.e. 'when'-, 'before'-, and 'after'-clauses. Furthermore, there is an additional chapter at the end of this section (3.4) on two multifunctional words, *yau* and *wi(ya)*, which besides spatial usages also have aspectual meanings. First of all, there is the major subdivision between 'location in time' (called 'temporal location' in the rest of this thesis) and 'temporal extent'. The former describes when the situation takes place and the latter describes how long the situation lasts.

Within temporal location, simultaneous location of a situation means it coincides with the reference time mentioned. The seven semantic types of reference time units are canonical time periods, many of which are based on cyclic natural events. While acknowledging their culture-boundedness, Haspelmath chose these concepts for their frequency in grammars and presumed frequency in languages in general (Haspelmath 1997:26, 31). In the present study, the additional, highly culture-dependent concept of a week is included too. Simultaneous location is schematically displayed in Figure 3.5. RefT stands for reference time; LSit stands for located situation. The black blocks are used to neutralize the distinction between points and spans of time (Haspelmath 1997:31), since both the RefT and LSit can be either, depending on the nature of the described situation and the time unit taken as the reference point.[38]

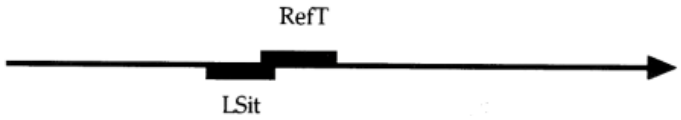


Figure 3.5 Simultaneous location (Haspelmath 1997:32)

Sequential location refers to when a situation is located earlier (anterior location) or later (posterior location) than the reference time. This is exemplified in (57) and shown schematically in Figure 3.6 and Figure 3.7.

(57) a. **Before the war**, the country had a strong economy. [Anterior location]
b. **After the conversation**, he felt confused. [Posterior location]

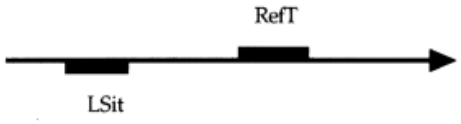


Figure 3.6 Anterior location (Haspelmath 1997:35)

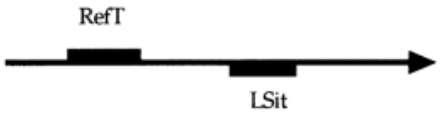


Figure 3.7 Posterior location (Haspelmath 1997:35)

[38] E.g. in the sentence *I was sleeping at ten o'clock* the LSit is durative while the RefT is a punctual one; presumably the speaker was also sleeping before and after ten o'clock. In *I bought my car last summer* the LSit is punctual and takes place somewhere in summer, which is a longer period of time.

Similar to the sequential functions are the sequential-durative functions: they also locate the situation prior or subsequent to a reference time, but additionally, the situation and reference time overlap. Another important distinction is that for sequential-durative location, the situation must be a durative one and never a punctual one; it is thus necessarily located in a period of time. In English, the posterior-durative marker and anterior-durative marker are *since/from … on* and *until/till* respectively when used on their own, but when combined in a so-called beginning-to-end construction *from* and *to* are often used (58).

(58) a. John lived in Amsterdam **until 2015**. [Anterior-durative]
b. John has lived in Amsterdam **since 2010**. [Posterior-durative]
c. John lived in Amsterdam from 2010 to 2015.

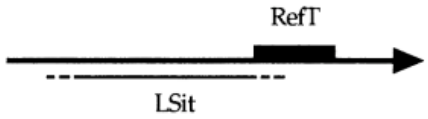


Figure 3.8 Anterior-durative location (Haspelmath 1997:35)

Figure 3.9 Posterior-durative location (Haspelmath 1997:35)

The temporal distance function, primarily divided into distance-past and distance-future, marks the distance between the reference time and the time of speech and thus locates the situation at a specified moment in the past or the future. Distance-past and distance-future each have a non-deictic counterpart which does not take the time of speech as its reference point, but a point of time otherwise defined. These are distance-retrospective and distance-prospective respectively. These functions are illustrated below. In the schematic figures, S stands for the moment of speech. I have marked the non-S reference point as 'anaphoric T' because it is referred to anaphorically (but the anaphor itself is in fact absent).[39]

(59) a. John graduated **eleven years ago**. [Distance-past]
b. John moved to Boston in 2007. He had graduated **two years before**. [Distance-retrospective]

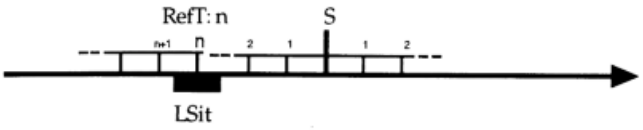


Figure 3.10 Distance-past (Haspelmath 1997:38)

[39] Incidentally, Kučera & Trnka (1975:38) and Klein (1994:156) likewise call such non-deictic expressions anaphoric (Haspelmath 1997:97).

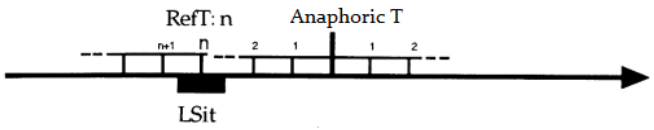


Figure 3.11 Distance-posterior (based on Haspelmath 1997:38)

(60) a. John will visit us **in two weeks**. [Distance-future]
b. John is celebrating his birthday next week. **A few days later**, he will visit us. [Distance-prospective]

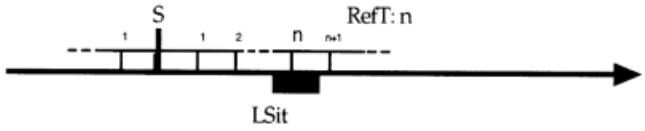


Figure 3.12 Distance-future (Haspelmath 1997:38)

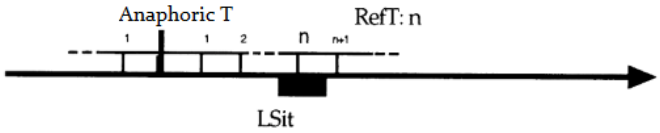


Figure 3.13 Distance-prospective (based on Haspelmath 1997:38)

The other major category besides temporal location is temporal extent, which indicates the duration of the situation rather than its location in time. Two main subtypes are distinguished: the extent of atelic situations (atelic extent) and the extent of telic situations (telic extent). These are illustrated below. In the diagrams, QSit is the quantified situation and the difference in boundedness can be observed from the dashed line in Figure 3.14 versus the vertical borders in Figure 3.15.

(61) a. I waited **for three hours**. [Atelic extent]
b. John drew a circle **in five seconds**. [Telic extent]

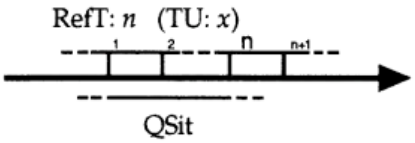


Figure 3.14 Atelic extent (Haspelmath 1997:42)

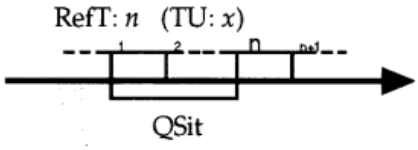


Figure 3.15 Telic extent (Haspelmath 1997:42)

Finally, Haspelmath (1997:40-42) mentions a special function that combines the posterior-durative and the distance-past function, which he hence calls the distance-posterior. This is best illustrated by a language which has a special marker for this meaning, such as German (62).

(62) Stephen lebt **seit fünf Jahren** in Hongkong. (Haspelmath 1997:40)

Literally translated to English, it would be 'since five years ago'. As Haspelmath (1997:40) notes, compared to the posterior-durative ('since'), "the only difference is that the reference time is an independently specified point or period in the posterior-durative function, but a point identified by retrospective distance measurement in the distance-posterior extent function." The function is included due to its typological variation in some languages. Vice versa, Haspelmath did not include its theoretical future counterpart 'distance-anterior' in his study due to the lack of typological variation.

3.2. TEMPORAL LOCATION

This section describes how Kavalan encodes the functions of simultaneous location, sequential location, sequential-durative location, and temporal distance.

3.2.1. SIMULTANEOUS LOCATION

Haspelmath's NP-based simultaneous location function is extended with clausal RPs here, i.e. temporal 'when' and 'while'-clauses.

- Nominal RP

To locate a situation exactly at, thus coinciding with, the nominal RefT (henceforth RP 'reference point', a cover term for both spatial and temporal reference points) mentioned, Kavalan either leaves the temporal location unmarked or marks it with (part of) the basic locative marking strategy *ta … -an*.

First, to illustrate the similarities between spatial location and temporal location here, the basic locative construction (BLC) is displayed in (63). A BLC can be described as the full sentence answer to the question 'where is X?', in which X is the Figure and the location is called the Ground (Kita & Dickey 1998). In Kavalan, the BLC is formed by the existential verb *yau* and the locative phrase *ta …-an*, in which the locative suffix *-an* is attached to the Ground, followed by the Figure as subject (63). The predicate *yau* is optional, as the locative phrase *ta …-an* alone suffices (Jiang 2006:68). Both *yau* and *ta …-an* are neutral and non-specific with respect to the topological Figure-Ground relationship, so whether the dog is inside, in front of, on top of, etc. his doghouse is determined by pragmatic inference (Jiang 2006:58-59).

(63) Basic locative construction

yau	***ta***	*Rupu-**an**-na*	*ya*	*wasu*	*a*	*yau*
EXIS	LOC	livestock.shelter-LOC-3SG.GEN	NOM	dog	LNK	DEM.PROX

'The dog is at his doghouse.' (Adapted from Jiang 2006:58)

The same locative phrase *ta …-an* is also used in the temporal domain, as seen in (64).

(64) ***ta*** *u-tulu* *bulan-**an*** *yau* *Raya=ay banged*
LOC CLF.NHUM-three month-LOC EXIS big=REL typhoon
'In March there was a big typhoon.' (S17_tuy)

The temporal *ta …-an* phrase, however, does not have the same syntactic position in the clause as the locative *ta …-an* phrase. While *yau* [*ta …-an*] [subject] is the unmarked locative construction, the same order is ungrammatical for a basic temporal locative clause (65). The two possible word orders in (64) and (65a) suggest that the temporal locative phrase cannot form part of the predicate, unlike the spatial locative phrase, and is thus unable to stand in between the predicate *yau* and the subject *Rayay banged.*

(65) a. *[yau] [Raya=ay banged] [ta u-tulu bulan-an]* (unrec_buy)
b.**[yau] [ta u-tulu bulan-an] [Raya=ay banged]* (unrec_buy)

Another morphosyntactic difference from the regular locative is that the locative suffix *-an* (which originates from the Proto-Austronesian locative focus marker) is more often omitted than expressed. It is more common to mark the time point with *ta* only, as in (66). There is no semantic difference between using and leaving out *-an*.

(66) ***ta*** *Rabtin* *yau* *u-zusa* *bulan* *qatiw=pa=iku* *sa zipun*
LOC ten EXIS CLF.NHUM-two month go=FUT=1SG.NOM to Japan
'In December I am going to Japan.' (S15_rac)

The omission of *-an* is especially noteworthy because it contrasts with the the locative phrase's behavior in its original spatial use. Generally, i.e. when the location NP is unmodified, the suffix is obligatory (Jiang 2006:67-68). Therefore the sentence in (67), without *-an* behind *kalingku*, is ungrammatical.

(67) **qaynep=pa=iku* *ta* *kalingku*
IRR.sleep=FUT=1SG.NOM LOC Hualien
'I am going to sleep in Hualien.' (Jiang 2006:67)

The observation that a locative construction is used for marking temporal location is typologically very common (Haspelmath 1997:30). This is considered to be a result of the metaphor TIMES ARE LOCATIONS (Moore 2014:215ff.). Different theories exist regarding the motivation behind this metaphor: while Lakoff & Johnson (1999:146) mention it as a logical part (i.e. mapping) of the Moving Ego (Moving Observer in their terminology) metaphor in which ego passes through time points as if they were locations, Moore (2014:218) suggests that it is a direct result of "an experiential correlation between the times when events occur (or states obtain) and the locations where they occur (or obtain)." In this mapping from space to time, languages vary in whether they transfer the spatial dimensions as well. English, for instance, conceptualizes time as zero-dimensional (e.g.'**at** five o'clock'), two-dimensional (e.g. '**on** that day'), and three-dimensional (e.g. '**in** February') (Radden 2011:3). In contrast, Kavalan does not distinguish between markings of different kinds of temporal locations, but uses a single dimension. This is likely to be a natural consequence of the underspecificity of spatial location itself: as mentioned above, *ta …-an* is

also able to express a wide range of locative relations. All types of temporal NPs acting as temporal locations may be zero-marked or marked as a locative NP with either the entire locative phrase *ta …-an* or only part of it. Generally speaking, zero-marking seems more common. Examples are given below for hour, day part, day, week, month, season, year, and festival.

The word for 'hour', *duki,* also means 'time'. It is probably a loan from Japanese *toki, doki* 'time, hour' (Li & Tsuchida 2006:147), so there is no native word to express the general concept of time. The use of *duki* to express 'hour' is relatively new; my elder informants would use *tunek* 'spots; clock; unit of weight' (Li & Tsuchida 2006:484). Recently, *tunek* has begun to be used as 'minute' instead. There is no Kavalan word that means 'second'. Some general time expressions containing *duki* are shown in (68), while the marking of hour as a temporal location is exemplified in (69).

(68) a. *kikiya* *me-laziw* *duki*
brief.moment AF-pass time
'Time passes very fast.' (S05_rac)

b. *mai* *semmin* *duki*
NEG enough time
'There is not enough time.' (S21_tuy)

(69) Hour

a. *(ta)* *u-zusa* *duki* *qaseq=ti=imi*
(LOC) CLF.NHUM-two time arrive =PFV=1PE.NOM
'We will arrive at two o'clock.' (S13_buy)

b. *siRab* *qaRabi* *u-lima* *duki-an* *maynep=ti=iku*
yesterday night CLF.NHUM-five time-LOC sleep.AF=PFV=1SG.NOM
'Last night I slept at five o'clock.' (S25_tim)

Examples for day parts and days are shown in (70) and (71). The Kavalan word for the general concept of 'day' is *deddan,* which also means 'sky, heaven'. *taRbabi* 'morning' has a variant *tabRabi* (Li & Tsuchida 2006), which is interestingly related to *Rabi* 'evening, night'.[40] The meaning of *tab* is unclear.

(70) Day part

a. *(ta)* *taRbabi* *matiw=iku* *sa* *lazing*
(LOC) morning go.AF=1SG.NOM to sea
'I went to the sea this morning.' (unrec_buy)

b. *mai=iku* *maynep* *(ta)* *tuRabi*
NEG=1SG.NOM sleep.AF (LOC) night
'I didn't sleep at night. / I don't sleep at night.' (unrec_buy)

(71) Day

a. (*ta)* *temawaR(-an)* *si, qatiw=pa=iku* *sa* *lazing*
(LOC) tomorrow(-LOC) SI go=FUT=1SG.NOM to sea
'Tomorrow I am going to the sea.' (S15_rac)

[40] The parallel is also found in *sa-Rabi* 'supper' and *sa-tab-Rabi* 'breakfast' (Blust & Trussel, ACD 2016).

b. *siRab* *tayta-an-ku* *wasu* *'nay*
yesterday see-LF-1SG.GEN dog DEM.MED
'I saw that dog yesterday.' (S27_lon)

For weeks, Kavalan speakers use the Mandarin Chinese loan word *lipay*, from 禮拜 *lǐbaì* (72).

(72) Week
a. *(ta)* *nawsiRab* *lipay* *tanian=isu?*
LOC day.before.yesterday week where=2SG.NOM
'Where were you last week?' (S15_rac)

b. *pi-bulan* *(ta)* *sa-m-likuz=ay* *lipay* *mai=iku* *tu* *lawad*
every-month LOC SUPL-AF-behind=REL week NEG=1SG.NOM OBL free.time
'The last week of every month I am very busy.' (S15_rac)

As in many languages, the concept of a month is derived from the word for 'moon'. In nearly all Austronesian languages the reflex of PAN **bulaN* means both 'moon' and 'month' (Blust & Trussel, ACD 2016). This is no different for Kavalan, as seen in (73).

(73) Month
a. *(ta)* *Rabtin* *yau* *u-zusa* *bulan* *qatiw=pa=iku* *sa* *zipun*
LOC ten EXIS CLF.NHUM-two month go=FUT=1SG.NOM to Japan
'In December I am going to Japan.' (S15_rac)

b. *nawsiRab* *bulan* *u-matiw=ti=iku* *sa* *zipun*
day.before.yesterday month EXP-go.AF=PFV=1SG.NOM to Japan
'Last month I have been to Japan.' (S15_rac)

Seasons, years, and festivals as temporal locations are shown below. Although the Kavalan have lexical items for 'fall (autumn)' and 'spring' too, they only make a primary seasonal distinction between summer and winter. In fact, s*emiaRaR* 'fall' and *temimuR* 'spring' are both derived from names for the Southeast Asian monsoons: *siaRaR* [north.wind<AF>] and *timuR* [south.wind<AF>] simply mean 'the north wind blows' and 'the south wind blows', respectively.

(74) Season
a. *(ta)* *tangi* *sekawalu* *si,* *qanibu=pa=ti*
LOC today summer SI, marry=FUT=PFV
'They are getting married this summer.' (S15_rac)

b. *(ta)* *lezun(-an)* *qa-waza=ay-ka* *qudus*
(LOC) winter(-LOC) IRR-many.NHUM=REL-IMP.AF garment
'In winter, one should wear a lot of clothes.' (lit. 'Wear a lot of clothes in winter!') (S15_rac)

(75) Year

a. *(ta) u-zusa melalazan tasaw yau Raya=ay banged*
(LOC) CLF.NHUM-two thousand year EXIS big=REL typhoon
'In 2000 there was a big typhoon.' (S21_tuy, S23_buy, S26_lon)

b. *(ta) tangi tasaw si, qatalin=pa=iku sa kalingku*
(LOC) today year SI move=FUT=1SG.NOM to Hualien
'I will move to Hualien this year.' (S15_rac)

(76) Festival

a. *qataban=pa qawka aiku tanan*
harvest.festival=FUT only.then 1SG.NOM return.home<AF> (S17_tuy)

= b. *(ta) qataban(-an) qawka aiku tanan*
LOC harvest.festival(-LOC) only.then 1SG.NOM return.home<AF>
'During the harvest festival I am going home.' (S17_tuy)

Habitual/repetitive NPs are prefixed with *pi-* 'every', as in (77). Likewise, they are optionally embedded in a locative phrase.

(77) *(ta) pi-lipay(-an) matiw sa kyukay-an*
(LOC) every-Sunday(-LOC) go.AF to church-LOC
'Every Sunday (we) go to church.' (S15_rac)

- Clausal RP

A temporal clause that expresses simultaneous location does not always have a visibly distinct form in Kavalan, unlike e.g. in English, where the clauses typically begin with 'when' or 'while'. In Kavalan, the temporal clause and the regular clause appear to be juxtaposed, judging from the examples in (78). However, it will be shown further down this section that future marking with *=pa* (leaving aside the grammatical category it belongs to) occurs only on the regular clause, strongly suggesting that some type of hierarchical clause linkage is actually involved. In sentences without tense/mood marking such as in (78), this distinction is invisible. Despite the lack of overt signs, it seems reasonable to argue for the same clausal relation here. The temporal clause is thus viewed as a subordinate clause, while the other is considered the main clause. As will be shown in Section 3.2.2.2, the posterior location function ('after'-relation) usually employs the strategy without a subordinator; whether the relationship between the clauses should be interpreted as a simultaneous 'when/while'-relation or a sequential 'after'-relation must, therefore, be inferred from the pragmatic context.

(78) a. *tuqaz=imi tu leppaw, Raytunguz wasu 'nay*
enter<AF>=1EPL.NOM OBL house bark dog DEM.MED
'While we were walking into the house, the dog kept barking.' (S05_rac)

b. *pa-saqay ti-utay tu Raytun nani, tayta=iku tu Rutung*
CAUS-drive CLF.PN-Utay OBL car DM see<AF>=1SG.NOM OBL monkey
'When Utay was driving the car, I saw a monkey.' (S14_tuy)

Aspectual marking provides some additional semantic cues; for instance, the progressive emphasizes the ongoing, durative nature of the situation, as seen in (79). However, this marking is optional, as shown by (80), which evidently involves two durative situations.

(79) a. *yau sidadak tazungan 'nay nani yau ta tati mawRat sunis-na*
EXIS chat girl DEM.MEDDM EXIS LOC outside play.AF child-3SG.GEN
'While the woman was chatting, her child was playing outside.' (S23_buy)

b. *yau=iku m-uzis nani m-ipil=iku tu temingaR ta tati*
EXIS=1SG.NOM AF-shower DM AF-hear=1SG.NOM OBL sound LOC outside
'When I was taking a shower, I heard a sound from outside.' (S07_tim)

(80) *sunis 'nay mawRat ta nasan-an nani qaybasi tina na qaniyau*
child DEM.MED play.AF LOC courtyard-LOC DM wash.clothes mother GEN 3PL.NOM
'While the children were playing in the back yard, their mother was washing clothes.' (S05_rac)

The perfective marker *=ti* can simply indicate a perfective, bounded situation, but also a perfective, completed situation. In (81a), *maspatuRuy**ti*** denotes the bounded event of falling asleep. This event took place while the other, durative situation 'grandpa reading the newspaper' was true. In (81b), there are two punctual, bounded events: one is 'he came' and the other 'I left'. *wiya**ti**ku* may either again express the bounded nature of leaving, but it may also be interpreted as a completed event which necessitates that the leaving took place in the relative past, i.e. before the other event.

(81) a. *yau tayta baqi-ku tu simbun tu maspatuRuy=ti*
EXIS see<AF> male.elder-1SG.GEN OBL newspaper OBL fall.asleep=PFV
'When my grandpa was reading the newspaper, he fell asleep.' (S23_buy)

b. *mawtu aizipna, wiya=ti=iku*
come.AF 3SG.NOM go.away=PFV=1SG.NOM
'When he came, I left.' / 'When he came, I had already left.' (S13_buy)

Future situations can be recognized by the future marker *=pa* on the predicate in the main clause (82). The optional morpheme *si* can be another indication of future tense, as in (82a). (The functions of *si* will be looked at in more detail in the next section, 3.2.1.1.) Note that the observation of the tense/mood marker only appearing on the predicate of what would be the main clause in English should be taken as an indication of subordination (Bril 2010:4).[41] Indeed, as in the English examples, the TAM information of the temporal clause is solely provided by the main clause.

(82) a. *mayseng=ti qudus 'nay si,*
dry=PFV garment DEM.MED SI

ala-an-na=pa=ti tina-ku pasa leppaw
take-LF-3SG.GEN=FUT=PFV mother-1SG.GEN toward house
'When the clothes are dry, my mother will take them into the house.' (S23_buy)

[41] Thanks to my supervisor Mily Crevels for pointing this out.

b. *maseq=iku* *tu* *leppaw* *ni* *abas,*
arrive.AF=1SG.NOM OBL house GEN Abas

qawka *pa-dingwa-ka*[42]*=isu*
only.then CAUS-phone-1SG.GEN.FUT=2SG.NOM
'When I arrive at Abas' house, I will call you.' (S22_buy)

Generic or habitual situations are not formally distinguished from past situations (83). To emphasize the generic sense, *pataz* 'often' may be added clause-initially, which here expresses 'everytime that…', as in (84).[43]

(83) a. *tita* *tu* *syazing* *zau,* *m-uRing=ti*
see<AF> OBL photo DEM.PROX AF-cry=PFV
'Whenever he sees this photo, he cries.' (S20_tuy)

b. *pa-za-zaki* *tu* *simau,* *tebaRi=ti* *mata-na*
CAUS-RDP-near OBL flower red=PFV eye-3SG.GEN
'Whenever he comes near flowers, his eyes become red.' (S20_tuy)

(84) *pataz* *me-zengzeng,* *malumbi* *ta* *liab-an* *na* *takan* *ya* *saku*
often AF-thunder hide.AF LOC underside-LOC GEN table NOM cat
'Everytime it thunders, the cat hides under the table.' (S05_rac)

3.2.1.1. si *'when/if.IRR'*

In some of the previous examples we have seen the element *si* following the temporal location NP, e.g. (85). It will be discussed briefly in this section, because it will recur in later sections, for which a basic understanding of what *si* is and does will be helpful. Some issues for further analysis will be raised as well.

(85) *temawaR* *si,* *qatiw=pa=iku* *sa* *lazing*
tomorrow SI go=FUT=1SG.NOM to sea
'Tomorrow I am going to the sea.' (S15_rac)

The syntactic category to which *si* belongs is addressed in Huang (2007:441-442). Although it links an adjunct or a clause with the main clause,[44] has a fixed position, which is at the end of the adjunct or clause

[42] Merging of *-ku* and *=pa* (see e.g. Chang 1997:118; Li & Tsuchida 2006:32).
[43] Cf. *pataz* N 'every N', as in the examples below.

(i) *pataz* *tasaw* *salekiaw=imi* *tazian*
often year dance=1PE.NOM here
'Yes, we dance here every year.' (NTU, conversation_buya&ngengi:60)
(ii) *pataz* *bulan* *matiw=iku* *sa* *taypak*
often month go.AF=1SG.NOM to Taipei
'I go to Taipei every month.' (NTU, conversation_buya&ngengi:61)

[44] An exception to this linking function are situations in which *si* forms part of an answer to a question:

it semantically modifies (Chang 2000:174; Hsieh forthc. a; fieldnotes) and carries temporal and conditional meanings which often take the form of conjunctions, it is argued that *si* is nevertheless more adverbial-like. The first reason given is that its presence is optional. It is optional in conditional clauses, apparent from the NTU Corpus data, being a less frequent linguistic strategy than juxtaposition, and also whenever it appears in a temporal adjunct as in (85), for instance. Another reason is that *si* can be used simultaneously with *anu*, another optional conditional marker, in the same conditional clause, which a conjunction should not be able to do.

Semantically, *si* marks both a conditional ('if') and a temporal reference point ('when'). This lack of distinction between future 'when'-clauses and predictive conditional 'if'-clauses is not uncommon; it is also found in Indonesian and certain languages of Papua New Guinea, for example (Thompson, Longacre & Hwang 2007:257), and many Formosan languages (Zeitoun 1997). Indeed, so far only Tsou has been found to make a grammatical distinction between 'if' and 'when'-clauses. Within the category of 'unreality conditionals', referring to unreal situations, predictive conditionals predict what may happen in the future (as opposed to imaginative conditionals, including counterfactuals, which imagine what might be or might have been) (Thompson, Longacre & Hwang 2007:255-256).

Both Hsieh's (forthc. a) and Chang's (2000:174-177) grammar mention *si* as a conditional marker, as shown in (86). It shares this function with *anu/azu*[45] 'if', which, in contrast, is a clause-initial element. No semantic differences are known. *si* can be used for both predictive conditional (86) and counterfactual conditional (87) clauses.

(86) *ma-tayta-ku aizipna si, sanu-aka*[46] *aizipna*
MA-see-1SG.GEN 3SG.NOM SI tell.LF.1SG.GEN.FUT 3SG.NOM
'If I see him, I will tell him.' (Translated from Hsieh forthc. a)

(87) *yau kelisiw-ku si, ezan=ti=iku me-Rasa tu leppaw*
EXIS money-1SG.GEN SI early=INCH=1SG.NOM AF-buy OBL house
'If I had money, I would have bought a house much sooner.' (Translated from Hsieh forthc. a)

(i) A: *qumni si qatiw=isu sa-taypak?*
when SI go=2SG.NOM to-Taipei
'When are you going to Taipei?' (unrec_rac)
B: *temawaR si*
tomorrow SI
'Tomorrow.' (S26_lon)

This does not contradict the analysis of *si* as a linking element, since answers are cross-linguistically known for often being incomplete sentences. For instance, in English one could answer 'When the taxi arrives.' In a full sentence, *si* can never appear in sentence-final position: **tanan aiku qataban si* [return.home<AF> 1SG.NOM harvest.festival SI] 'I'm going home during the harvest festival.' Without *si*, the sentence would be correct.

[45] Chang (2000:174ff.) mentions *anu*, while Hsieh (forthc. a) mentions *azu*. In Hsieh's glossary, both lexemes are listed together under the same Chinese translation 'if, to seem' (*rúguǒ* 如果, *hǎoxiàng* 好像). Li & Tsuchida (2006), however, do distinguish between the two: *anu* is translated as 'if, when', while *azu* is described as 'conjunctive; perhaps, maybe; to resemble, like'. Although *azu* may have additional meanings in respect of *anu* (see also Huang 2007:442-443), the available data suggest an identical meaning when used as a conditional marker. During elicitation, one input sentence resulted in the use of *azu* by one informant, but *anu* by another, which supports their synonymity.

[46] Merged form of *sanu-an=ku=pa*.

To the present study, the purely temporal aspect of *si* is more relevant. Chang (2000:177-178) previously described *si* as an equal alternative to discourse marker *nani,* both expressing 'when … (happened)'. Lin (1996:50-51), on the other hand, states that while *nani* is used in non-future contexts, *si* is always used in future contexts. Consider the examples given in (88). The use of *nani* or *si* is the only linguistic element determining the tense interpretation (besides pragmatics, of course).

(88) a. *tanan=iku kelawkaway nani, pun=ti sammay aizipna*
return<AF>=1SG.NOM work DM finish=PFV cook 3SG.NOM
'When I came back from work, (s)he had finished cooking.' (Lin 1996:51)

b. *tanan=iku kelawkaway si, pun=ti sammay aizipna*
return<AF>=1SG.NOM work SI finish=PFV cook 3SG.NOM
'When I come back from work, (s)he will have finished cooking.' (Lin 1996:51)

Similarly, Lee (1997:64) notes that *si* "usually appears in the [sic] sentences with *irrealis* but predictable/conditional events" (emphasis mine), corresponding to future events in Kavalan. My data support Lee's and Lin's observation. The ungrammatical sentences in (89) demonstrate that *si* is incompatible with past situations. This incompatibility remains consistent throughout my data, whether it involved a temporal adjunct[47] or a temporal clause.

(89) a.**nawsiRab lipay si tanian=isu?*
day.before.yesterday week SI where=2SG.NOM
Intended: 'Where were you last week?' (S15_rac)

b.**siRab si u-matiw=ti=iku sa zipun*
yesterday SI EXP-go.AF=PFV=1SG.NOM to Japan
Intended: 'I went to Japan yesterday.' (S15_rac)

c.**mayseng=ti qudus 'nay si ala-an-na pasa leppaw tina-ku*
dry=PFV garment DEM.MED SI take-LF-3SG.GEN toward house mother-1SG.GEN
Intended: 'When the clothes were dry, my mother took them into the house.' (S16_buy)

As for (89c), the informant in question made the comment that the use of *si* would be grammatical if the latter part of the sentence were changed into an imperative, resulting in (90a). Since an imperative is logically incompatible with a past context, the sentence acquires a future reading, thus permitting the addition of *si.* As expected, changing the main clause to future tense also renders *si* grammatical (90b). These examples offer additional support for the hypothesis that *si* is only used in irrealis/future contexts.

(90) a. *mayseng=ti qudus 'nay si ala-ika pasa leppaw*
dry=PFV garment DEM.MEDSI take-IMP.LF toward house
'When the clothes are dry, take them into the house.' (S16_buy)

[47] Because the syntactic category of the various temporal location markers, e.g. *ta uzusa duki* 'at two o'clock', *temawaR* 'tomorrow', and *masang* 'a long time ago', is not homogeneous (and undetermined in some cases), I adopt Zeitoun's (1997) term 'temporal adjunct' here to distinguish them from temporal clauses.

b. *mayseng=ti qudus 'nay si*
dry=PFV garment DEM.MED SI

ala-an-na=pa=ti tina-ku pasa leppaw
take-LF-3SG.GEN=FUT=PFV mother-1SG.GEN toward house
'When the clothes are dry, my mother will take them into the house.' (S23_buy)

Contradicting this hypothesis, however, are data from Chang (2000:177), displayed in (91). Both sentences clearly involve a past context.

(91) a. *mawtu=iku nasiRab si, mai=isu ta paw-an*
come.AF=1SG.NOM yesterday SI NEG=2SG.NOM LOC house-LOC
'When I came yesterday, you weren't home.' (Translated from Chang 2000:177)

b. *qeniqian-su si, m-added tu Rikuki ni?*
past-2SG.GEN SI AF-sit OBL plane INTER
'Have you ever been on a plane when you were little?' (Translated from Chang 2000:177)

No directly visible linguistic factor seems to differentiate Chang's sentences in (91) from Lin's (1996) and my sentences in (88) and (89), so further research is necessary to find an explanation for this discrepancy. Following Lin (1996), Lee (1997) (although only noting a tendency), and my own data, I assume for now that temporally, *si* expresses 'when' in irrealis/future sentences only.

Many Formosan languages have the same 'when' marker for clauses referring to future events and clauses referring to generic or habitual events (Zeitoun 1997). As yet, only Tsou is known to differ in the marking of these two types of clauses. It is therefore worth finding out whether *si* conforms to this generalization. First, the generic and the habitual event in (92) seem to suggest the grammaticality of *si* used with generic and habitual temporal adjuncts.

(92) a. *lezun si qa-waza=ay-ka qudus*
winter SI IRR-many.NHUM=REL-IMP.AF garment
'In winter, one should wear a lot of clothes.' (lit. 'Wear a lot of clothes in winter!') (S15_rac)

b. *qataban si me-lilizaq salekiaw qataban*
harvest.festival SI AF-happy dance.AF harvest.dance
'During the harvest festival (we) dance the harvest dance happily.' (S17_tuy)

On the other hand, the ungrammatical examples in (93) demonstrate that *si* does not go with habitual nominals in which the repetitive aspect of 'every' is explicitly mentioned. The sentences are grammatical without *si*. (93a) is ungrammatical regardless of the verb's focus marking, so that does not seem to play a role here.

(93) a.**pi-tasaw si matiw/qatiw=iku sa kalingku*
every-year SI go.AF/go=1SG.NOM to Hualien
'I go to Hualien every year.' (S17_tuy)

b.**pi-bulan* *si* *qatiw=iku* *sa* *taypak*
every-month SI go=1SG.NOM to Taipei
'I go to Taipei every month.' (S26_lon)

As for clauses, when *si* is used in a generic/habitual context, the clause can only be interpreted as a conditional clause and not as a regular temporal clause, since this would result in a semantically odd sentence, as in (94).

(94) *?pataz me-zengzeng si, malumbi ta liab-an na takan ya saku*
often AF-thunder SI hide.AF LOC underside-LOC GEN table NOM cat
'If it often thunders, the cat hides under the table.'
*'Everytime it thunders, the cat hides under the table.' (unrec_buy)

Thus, whereas (93) and (94) suggest that a temporal, simultaneous 'when' meaning is incompatible with nominals or clauses followed by *si*, (92) suggests otherwise. It deserves to be pointed out that (92b) and (93a) were given by the same person, so the conflicting examples cannot be accounted for by individual variation. A plausible explanation is a methodological error. During the elicitation of the sentences in (92) without *si* the generic interpretation was emphasized through additional clarification by 'every winter' and 'every harvest festival'. However, when the informants were asked for their judgement on the same sentences with *si*, their interpretation might have (perhaps unconsciously) changed to a future one. While I did check whether the addition of *si* changed anything in meaning in some other sentences, I did not for these two sentences in particular. In the examples in (93), however, such a change in interpretation is blocked by the lexical items *pitasaw* and *pibulan*, only allowing a habitual reading. Therefore, these examples provide more robust evidence against the compatibility of temporal adjunct + *si* with generic/habitual events. The observation that *si* cannot be used in a habitual/generic clause in (94) supports this.[48]

Another noteworthy finding concerning *si* is the possibly related *siu* [siːʊ]. When my informant rejected sentence (93b), he remarked that putting *siu* in the same position instead would result in a grammatical sentence (95). With *siu*, the statement obtains a sense of uncertainty.

(95) *pi-bulan siu qatiw=iku sa taypak*
every-month maybe go=1SG.NOM to Taipei
'I might go to Taipei every month.' (S26_lon)

siu seems to have a similar syntactic distribution to that of *si*. Like *si*, *siu* must modify an adjunct or clause; it cannot be used independently (96a). Both can be used in an answer to a question, in the same constituent-final position (96b).

[48] In at least four other Formosan languages, Tsou, Atayal, Paiwan, and Puyuma, the same markers are used for temporal adjuncts and temporal clauses, corresponding in mood/tense (Zeitoun 1997:135). E.g. in Tsou: *ne-hucma* 'yesterday' vs. *ho-hucma* 'tomorrow' and *ne-* vs. *ho-* + temporal clause. This shows a tendency of making the same temporal distinctions in adjuncts and in clauses.

(96) a.* *siu* *qatiw=iku* *sa taypak*
maybe go=1SG.NOM to Taipei
(Intended:) Maybe I will go to Taipei. (S26_lon)

b. A: *qumni* *si* *qatiw=isu* *sa taypak?*
when SI go=2SG.NOM to Taipei
'When are you going to Taipei?'

B: *temawaR* *si*
tomorrow SI
'Tomorrow.'

B': *temawaR siu*
tomorrow maybe
'Maybe tomorrow.' (S26_lon)

Likewise, example (97), taken from the NTU Corpus, also suggests that *siu* occupies the same position as *si*, namely the clause-final position in the conditional clause. In view of the ungrammaticality of (96a) in which *siu* was clause-initial, it seems unlikely that *siu* in (97a) belongs to the main clause, although a single example does not, of course, provide any definite counterevidence.

(97) a. *azu=ti* *senazau* *siu* *yau* *i-babaw* *naung-ta* *nani*
if=PFV that.way maybe EXIS I[49]-top mountain-1PI.GEN DM
'If that's the case, our mountains would be high here and low there.' (NTU, Sea:IU 246)

b. *azu* *yau* *lawad* *si,* *qawtu-ka* *uman* *zin-na=iku* *nani*
if EXIS time COND come-IMP again say-3SG.GEN=1SG.NOM DM
'[Tipil] said to me, "If (you) have time, come (to visit me) again."'
(NTU, conversation_buya&ngengi:IU 41)

On the other hand, Li & Tsuchida's (2006) example, replicated in (98), displays a different picture. Here, *siu* is used in a single clause, while *si* is known to appear before a main clause.

(98) *muwaza* *qan-an-su* *tu* *kukuy* *siu?*
much.NHUM eat-LF-2SG.GEN OBL candy maybe
'You may have eaten too many sweets.'
(Adapted from Li & Tsuchida 2006:405, glossing mine (WL))

My own data on *siu* are highly limited and unable to provide any more insights, so the question of whether *si* and *siu* are related will be left for further investigation.

[49] The prefix *i-* is a reflex of the Proto-Austronesian generic locative marker **i* (Blust 1997:43). It attaches to locative nouns such as *babaw* 'top' and *libeng* 'below, down' creating the meanings 'tall; in a high place' and 'short; in a low place' respectively.

3.2.1.2. Interim summary

Section 3.2.1 has investigated the nominal and clausal expression of simultaneous location. Additionally, a subsection has provided some new insights about the temporal and conditional marker *si*. The following summarizes the main findings.

(i) Nominals marking simultaneous location are generally marked with the locative case *ta …-an*, part of it, or receive no marking. The use of a locative construction to mark temporal location is typologically very common (Haspelmath 1997:30). The conceptual metaphor TIMES ARE LOCATIONS can be viewed as underlying this linguistic behavior (Moore 2014:215ff.), where ego is the Figure and a temporal point is the Ground.

(ii) As for the conceptualization of the Ground's dimensionality, no distinctions are found based on the time units' semantics: they are marked in the same way. This is not surprising considering the wide application of locative *ta …-an* in the spatial domain as well, not explicitly distinguishing between meanings expressed by English *on, at, in*, for instance (Jiang 2006).

(iii) 'When'-clauses are not explicitly indicated; a simultaneous location relation is implicitly conveyed by juxtaposing the temporal clause and the main clause. Whether it involves a simultaneous or posterior relation is left to pragmatic inference. TAM markers play an important role in giving cues about the temporal relationship.

(iv) The adverbial-like morpheme *si*, whose syntactic category is yet to be more precisely determined, has been identified as a clause-final or adjunct-final element expressing irrealis 'when' and (predictive/hypothetical) conditionality. Since *si* only appears in irrealis adjuncts/clauses, it is an indication of a future situation.

(v) *si* seems to be incompatible with habitual and generic situations, but more systematic research is needed to confirm this.

The marking of simultaneous location NPs and clauses is summarized in Table 3.8. The '(S)' indicates a spatial origin of the marker.

Table 3.8 Summary: simultaneous location in Kavalan

	NP	Clause
Simultaneous past	Ø Locative *(ta) …(-an)* (S)	Ø
Simultaneous generic/habitual	Ø Locative *(ta) …(-an)* (S)	Ø
Simultaneous future	Ø Locative *(ta) …(-an)* (S) *si*	Ø *si*

3.2.2. SEQUENTIAL LOCATION

Haspelmath's (1997) study is confined to nominal RPs (e.g. *before the war*), but in the present study clausal RPs are also included (e.g. *before the war began*). In Haspelmath's (1997:57) sample, 17

languages (out of 53) express 'before' with an expression which also means or used to mean spatial 'in front'. Interestingly, the number of languages displaying symmetrical behavior and also using 'behind' for 'after' is significantly lower (see Haspelmath 1997:60 for discussion). Kavalan seems to be symmetrical in this respect, by using *ngayaw* 'in front' and *tuRuz* 'behind' on NPs for the anterior 'before' and posterior 'after' function.

The conceptualization of the front as earlier and the back as later is widespread in languages across the world. In previous literature this use of 'in front' and 'behind' has often been ascribed to the Ego-centered Moving Time metaphor (e.g. Haspelmath 1997:59-60). However, Moore (2006, 2014) argues for an analysis based on SEQUENCE IS RELATIVE POSITION ON A PATH instead. Since ego does not play a role in 'before'/'after' expressions, there is no reason to adopt a perspective-specific model such as Ego-centered Moving Time. The absence of ego is shown by fact that 'before' and 'after' terms are not deictically anchored cross-linguistically (Haspelmath 1997:32). To illustrate, in (99a), the situation described in the main clause is located relative to another temporal RP, namely the moment of going out. This sequence is perspective-neutral in the sense that the temporal location of showering does not change if the speaker's temporal location (and consequently the tense) changes, as is apparent from (99b). The activity of showering will always be before, i.e. 'in front of', the activity of going out.

(99) a. Before going out, he showered.
b. Before going out, he will shower.

In contrast, typical Ego-centered Moving Time expressions like 'Summer is coming/has arrived' require a deictic center to convey its temporal location. The location of summer is determined by whether it is moving toward or away from ego ('now').

Although SEQUENCE IS RELATIVE POSITION ON A PATH, unlike Ego-centered Moving Time, does not require a deictic center, it is likewise compatible with deictic expressions (Moore 2006). For instance, the English 'before' used independently may take the moment of speech, 'now', as its reference point: *I have never been here before (now)*. It will be shown in the section on temporal distance functions (3.2.4) (e.g. 'one week ago/later' = 'one week before/after now') that *ngayaw* and *tuRuz* are used consistently throughout the language to respectively refer to earlier times and later times, and that the Kavalan data are best accounted for by Moore's (2006) proposal.

Having pointed out the underlying conceptualization of 'front'/'back' as 'before'/'after', I will now move on to examining Kavalan's use of spatial terms and other morphosyntactic means to express anterior and posterior relations in both nominal and verbal RPs.

3.2.2.1. Anterior 'before'

- Nominal RP

The anterior location of a situation relative to a nominal RP is expressed by using the locative noun *ngayaw* 'front', whose spatial meaning is derived from the front of the human body (Jiang 2006:91). In the spatial locative sense, *ngayaw na* means 'in front of, before'. This is transferred to the temporal domain as 'before'. Both the spatial and temporal sense are shown in (100).

(100) a. *ta* *ngayaw* *na* *iRuR* *yau* *u-ssiq* *leppaw*
LOC front GEN river EXIS CLF.NHUM-one house
'In front of the river there is a house.' (S02_buy)

b. *ngayaw* *na* *banged* *dasidas* *ya* *lazing*
front GEN typhoon flat NOM sea
'Before the typhoon, the sea was flat (calm).' (S18_rac)

Although the notable word order [NP *ngayaw na*] has also been attested (including in a spontaneous narrative), it was not accepted in all cases and my informant says that it sounds more natural to put *ngayaw na* in front of the NP. However, it remains worth investigating under what circumstances [NP *ngayaw na*] is accepted and whether *ngayaw na* should be analyzed differently from the prenominal *ngayaw na*. After all, *na* in the prenominal *ngayaw na* is a genitive case marker, so it is peculiar that it should be allowed in another position than the prenominal one where all case markers appear in Kavalan. The same issue holds for *tuRuz na*: the constraints regarding its relative order with respect to the NP are unclear at present.

Besides with regular nouns, *ngayaw na* is also used with nominalized verbs (101).

(101) *ngayaw* *na* *qan-an* *munna* *qan* *tu* *Raq*
front GEN eat-NMZ first eat<AF> OBL wine
'Before eating, one should drink wine first.' (S02_buy)

Another morphological device to express an anterior relation on nominals is the prefix *qu-*, which attaches to the noun to convey 'before N'. This prefix is not restricted to nouns, but is very frequently used with verbs as well; this is shown in the next section on clausal RPs.

(102) a. *qu-palilin* *maynep=pama* *tu* *kikiya* *...*
before-palilin sleep.AF=still OBL brief.moment
'Before the palilin [name of ritual], one slept only a little …' (S19_buy_narrative)

b. *qu-banged* *yau=pama=iku* *ta* *taypak-an*
before-typhoon EXIS=still=1SG.NOM LOC Taipei-LOC
'Before the typhoon, I was still living in Taipei.' (S19_buy)

- Clausal RP

When the anterior situation has the form of a clause, Kavalan speakers clearly prefer other ways to express the sequential relation over *ngayaw na.* While they do not feel that the use of *ngayaw na* is entirely ungrammatical, it sounds very unnatural to them. This also holds for the use of *tuRuz na* 'behind, after' to express posterior location clauses (i.e. 'after'-clauses), as we will see in the next section. To convey the meaning of 'before'-clauses, Kavalan uses two main strategies: the prefix *qu-* 'before' and the combination of negator *mai* and aspectual marker *pama* 'still, yet', together meaning 'not yet'.

The prefix *qu-* attaches to the verb in the 'before'-clause. Its use is not restricted to any tense/mood; as seen in (103), it can be used for future and past situations.

(103) a. *qu-qaynep=iku* *qaybasi* *tu* *qudus*
before-sleep=1SG.NOM wash.clothes OBL garment
'Before I go to sleep, I will wash the clothes.' (unrec_buy)

b. *qu-Rasa* *aizipna* *tu* *ditinsya* *tenes=ti* *aizipna* *kelawkaway*
before-buy 3SG.NOM OBL bicycle long.time=PFV 3SG.NOM work.AF
'Before he bought the bicycle, he had worked for a long time.' (S16_buy)

c. *qu-qawtu* *aizipna,* *manan=ti=imi*
before-come 3SG.NOM return.AF=PFV=1PE.NOM
'Before he came, we had gone home.' (S21_tuy)

The *qu*-clause, like English 'before'-clauses, is a dependent clause, since it cannot stand alone (104).

(104) **qu-Rasa* *aizipna* *tu* *ditinsya*
before-buy 3SG.NOM OBL bicycle
*'Before he bought a bicycle.' (S19_buy)

Another manner in which to convey anterior location is by negating the anterior situation. After all, the anterior relation entails that at the time of the latter situation, the former one is never true. Sentences such as those in (105) can literally be translated as 'when situation 1 did not occur yet, situation 2 held/occurred'. In (105b), *mai pama* has been phonologically reduced to *aipama*.

(105) a. *mai=pama* *tita* *ti-utay* *tu* *tebaRi=ay* *leppaw,*
NEG=still see<AF> CLF.PN-Utay OBL red=REL house

Raynguanna *tu* *yau* *tanian*
not.know-LF-3SG.GEN OBL EXIS where
'Before Utay saw the red house, he did not know where he was.' (S26_lon)

b. *aipama* *mu-le-pun* *leppaw-na* *nani,*
not.yet AF-?-finish house-3PL.GEN DM

yau *ta* *suani-an-na* *me-qayzuan*
EXIS LOC younger.sibling-LOC-3SG.GEN AF-live
'Before their house was finished, they were living with her sister.' (S07_tim)

Interestingly, sometimes *mai* can also be omitted completely, while the meaning of 'not yet' remains.[50] Consider example (106).

[50] This seems to be quite a common phenomenon in Kavalan, as it is found a few times in the NTU Corpus as well. E.g.:

(i) *kasianem-an-ku* *sebi=ti* *ti-utay,* *pama* *qan satuRabi*
think-LF-1SG.GEN hungry=PFV CLF.PN-Utay not.yet eat<AF> breakfast
'I think (I guess) Utay is hungry. (He) hasn't had breakfast yet.' (Huang 2007:514)

(106) *pama tayta tu seqay nani saqay=pama aiku*
still see<AF> OBL snake DM walk<AF>=still 1SG.NOM
'Before I saw the snake, I was (still) walking.' (lit. 'When I hadn't seen the snake yet, I was still walking.') (S14_tuy)

3.2.2.2. Posterior 'after'

- Nominal RP

In posterior location of the situation relative to a nominal RP, Kavalan uses the spatial locative noun *tuRuz* 'back, behind'. Like *ngayaw*, as a regular noun, it refers to the body part, the back of the human body. Consider the spatial (107a) and temporal (107b) use of *tuRuz* in the examples below.

(107) a. ***tuRuz na lazat 'nay*** *yau u-ssiq paRin*
back GEN person DEM.MED EXIS CLF.NHUM-one tree
'Behind that person there is a tree.' (S21_lon)

b. ***tuRuz na utuz*** *muwaza me-suRaw=ay leppaw*
back GEN earthquake many.NHUM AF-fall=REL house
'After the earthquake, many houses fell down.' (S12_tuy)

In the spatial use, however, *tuRuz* is more often embedded in (a part of) the basic locative construction (108). In the temporal reading, while the addition of the locative *ta …-an* would not render the sentence ungrammatical, *tuRuz na* seems to be the unmarked form for expressing 'after'.

(108) a. *ta tuRuz-an-na yau u-ssiq paRin*
LOC back-LOC-3SG.GEN EXIS CLF.NHUM-one tree
'Behind him there is a tree.' (S21_lon)

b. *ta tuRuz na kaput-na aizipna me-RaRiw*
LOC back GEN friend-3SG.GEN 3SG.NOM AF-run
'He is running behind his friend.' (S11_buy)

Like *ngayaw na*, the *tuRuz na* construction is also used with nominalized verbs, as in (109).

Even though *pama* normally only acquires the meaning of 'yet' in the presence of a negation element, cases such as (i) where the negator is deleted do not become ambiguous. The position of continuative *pama* 'still' differs from that of *pama* 'yet'. This is illustrated by examples (ii) and (iii).

(ii) *qan=**pama**=ita sa-taRbabi*
eat<AF>=still=1PI.NOM SA-morning
'We were still eating breakfast.' (NTU, earthquake:IU 38)

(iii) *(mai=)**pama**=ita qan sa-taRbabi*
(NEG=)still=1PI.NOM eat<AF> SA-morning
'We haven't had breakfast yet.' (NTU, earthquake:IU 38)

(109) *tuRuz na* *ni-qa-suRaw-an-ku,* *mawtu* *tina-ku*
back GEN PFV-IRR-fall-NMZ-1SG.GEN come.AF mother-1SG.GEN
'After I fell (lit. 'my falling'), my mother came.' (S19_buy)

Another lexeme conveying posteriority is *melaziw* 'pass', as exemplified in (110). Here, *paskuwa* is the subject, so this is an instance of Ego-centered Moving Time. It needs a reference point to pass, and this RP is the conceptual ego: 'When Chinese New Year has passed (us), …' Interestingly, *melaziw* is being used both within the Moving Time and within the Moving Ego/NOW IS A MOVER model, as will become clear in the distance-future and distance-prospective functions (Section 3.2.4.2).

(110) *me-laziw paskuwa* *muwazing=ti=imi* *tu* *patazuq-an*
AF-pass Chinese.New.Year prepare=INCH=1PE.NOM OBL plant.rice-AN
'After Chinese New Year (lit. 'when CNY has passed') we start preparing to plant rice (lit. 'the rice planting').' (S02_buy)

- Clausal RP

However, in contrast with *after* in English, *tuRuz na* cannot introduce a clause with the same posterior meaning as when introducing an NP. In fact, *tuRuz na* can be followed by a clause, but its meaning changes to 'afterwards, after that, then'. This is shown in (111). Also observe the different glossing compared to (107b) and (109).

(111) a. *ma-bedung* *piyaz,* ***tuRuz-na*** *sinap-ika* *zin-na* *tina-ku*
MA-break plate back-3SG.GEN sweep-IMP.LF say-3SG.GEN mother-1SG.GEN
'The plate broke and then my mother told me to clean it up.' (S13_buy, S14_tuy)

b. *tayta* *tu* *seqay,* ***tuRuz-na*** *pataz* *mu-Raputuy* *tuRabi*
see<AF> OBL snake back-3SG.GEN often AF-dream evening, night
'He saw a snake. After that, he often dreamt (i.e. had nightmares) at night.' (S14_tuy)

I propose that the temporal expressions [*tuRuz na* + NP] and [*tuRuzna* + S[51]] are syntactically structured differently. Consider the spatial-temporal parallel pair in (107) again and compare it to the pair in (112) below. While in [*tuRuz na* + NP] (107) the NP is the genitive object of 'back, behind', in [*tuRuzna* + S] (112) *na* itself is the genitive object pronoun, referring to the third person singular.

(112) a. *ta* ***tuRuz-an-na*** *yau* *u-ssiq* *paRin*
LOC back-LOC-3SG.GEN EXIS CLF.NHUM-one tree
'Behind him there is a tree.' (S21_lon)

b. ***tuRuz-na*** *pataz* *mu-Raputuy* *tuRabi*
back-3SG.GEN often AF-dream evening, night
'After that, he often dreamt (i.e. had nightmares) at night.' (S14_tuy)

[51] Abbreviation for clause.

This seems to be the most plausible structure of [*tuRuzna* + S] for two reasons: (i) the meaning of 'afterwards, after that' contains an anaphoric element, which would not be expressed if *na* were considered a genitive case marker; (ii) if *na* were a genitive case marker, there would be no (nominal) element to mark.

An alternative analysis of [S_1 + *tuRuz na* + S_2] could be that *tuRuz na* is part of S_1 rather than S_2. Especially with Mandarin as the metalanguage during elicitation, this assumption is easily made, because *zhī hòu* (Mand.) can both be used identically in these two ways: either placed clause-finally meaning 'after', or placed clause-initially meaning 'afterwards'. I argue that this analysis is false for three reasons. First, one informant has repeatedly indicated that a speech pause or an orthographic comma would be placed before *tuRuz na*, splitting the two clauses. Secondly, presenting only a clause starting with *tuRuz na* led to the response that another event must precede it. Finally, a piece of syntactic evidence: *tuRuzna* can be followed by *si* (113). As shown in Section 3.2.1.1, *si* is normally located at the end of either a temporal/conditional clause or a temporal adjunct, and it precedes the main clause. In any case, something must precede *si*, namely the element (either a clause or adjunct) being linked with the main clause. Therefore, *tuRuzna* must be part of S_2 and not S_1 in (113).

(113) *m-ipil* *ti-utay* *tu* *satezay-an* *'nay.* *tuRuz-na* *si,* *uRing=ti.*
AF-hear CLF.PN-Utay OBL sing-NMZ DEM.MED back-3SG.GEN SI cry=PFV
'Utay has heard the song. Later, he will cry.' (S16_buy)

Let us now turn to the spatial parallels of the two temporal uses of *tuRuz na*. In the case of [*tuRuz na* + NP] (107), this construction can be used in both a spatial and a temporal context, although the spatial reading occurs more often with the locative elements *ta* and *-an.* For [*tuRuzna* + S], the situation is different: the spatial reading requires the presence of the locative construction. In its absence (114), *tuRuz na* is simply interpreted as 'back GEN', missing the genitive object. The lack of an anaphoric function is demonstrated by the informants' reaction to the sentence when it was offered with a preceding reference sentence as in (114): 'Behind what? It is incomplete.'

(114) a. (*yau* *u-ssiq* *lazat*.) **tuRuz* *na* *yau* *u-ssiq* *paRin.*
(EXIS CLF.NHUM-one person) back GEN EXIS CLF.NHUM-one tree
Intended: '(There is a person.) Behind him there is a tree.' (S21_lon, S22_buy)

b. (*yau* *u-ssiq* *leppaw*.) **ngayaw* *na* *yau* *u-ssiq* *paRin.*
(EXIS CLF.NHUM-one house) front GEN EXIS CLF.NHUM-one tree
Intended: '(There is a house.) In front of it there is a tree.' (S21_lon)

To summarize, whereas the spatial meaning either prefers or requires a locative construction when using locative noun *tuRuz,* the temporal domain has adopted the most compact form *tuRuz na* for the purpose of both [behind GEN NP] 'after NP' and [behind-3SG.GEN] 'afterwards, after that'. The two interpretations are distinguished by the syntactic type of element (NP or S) that follows.

The previous analysis was a small form-based departure from our originally function-based discussion of ['after' + S]. It is clear by now that this meaning is not expressed by using the same noun *tuRuz* as in

['after' + NP]. Instead, Kavalan often does not employ any element that conveys the temporal relation at all and prefers to simply juxtapose the temporal and main clause.[52]

(115) a. *matiw=iku* *pa-yising,* *wi* *taRaw* *zapan-ku*
go.AF=1SG.NOM CAUS-doctor more.and.more sick leg-1SG.GEN
'After I went to the doctor, my leg hurt even more.' (S13_buy)

b. *tanan* *ti-utay,* *niz=ti=imi* *tanan* *qaya*
return.home<AF> CLF.PN-Utay all=PFV=1PE.NOM return.home<AF> also
'After Utay went home, we all went home.' (S13_buy)

c. *me-litungtung* *'si,* *baqsiw-an-niaq*
AF-burn meat throw-LF-1PE.GEN
'After the meat was burnt, we threw it away.' (S16_buy)

Whether sentences like these receive a posterior or simultaneous interpretation depends on the pragmatic context. The sentence in (116) is thus ambiguous, partly due to the fact that there is no lexical distinction between the experience 'hearing' and the activity 'listening' in Kavalan, which are both expressed by *ipil.*

(116) *m-ipil* *ti-utay* *tu* *satezay-an* *'nay* *m-uRing=ti*
AF-hear CLF.PN-Utay OBL sing-NMZ DEM.MED AF-cry=PFV
(a) 'After Utay had heard the song, he started to cry.'
(b) 'When Utay listened/was listening to the song, he started to cry.' (S16_buy)

A second common type of strategy is the lexical type. The verb *pun* 'finish' is frequently used to indicate the termination of the first event (117). In (117b) the anterior-posterior relation is additionally conveyed by *qawka* '(only) then'.

(117) a. *pun=ti* *satezay* *aizipna* *salekiaw=ti*
finish=PFV sing.AF 3SG.NOM dance.AF=PFV
'After he sang, he started to dance.' (S11_buy)

b. *pun=ti=iku* *me-Rasa* *tu* *sa-taRbabi-an* *qawka* *masuwat* *aizipna*
finish=PFV=1SG.NOM AF-buy OBL SA-morning-AN only.then get.up.AF 3SG.NOM
'After I had bought breakfast, he got up.' (S02_buy)

c. *mu-pun=ti* *sikawma* *tu* *yising* *nani* *nengi=ti* *anem-na*
AF-finish=PFV speak OBL doctor DM good=PFV heart-3SG.GEN
'After he had talked to the doctor, he felt less worried.' (S12_tuy)

This use of *pun* is not only found in complex sentences which involve temporal relations. In simple sentences, the verb has the same effect; it seems to indicate the termination of the action described by the main verb. This is illustrated in (118). Judging from sentence (118a), in which it is not the termination of the beating but rather the occurrence of the event as a whole that is of importance, one could say that *pun*

[52] The discourse marker *nani* is often used between the clauses. Since it does not carry any semantic temporal meaning or have any syntactic function, this is not considered as a separate strategy.

has lost part of its lexical meaning. It thus seems to have acquired the function of a perfective aspect marker,[53] a frequently attested development of the verb 'finish' (Heine & Kuteva 2004:138; Bybee, Perkins & Pagliuca 1994). Indeed, Huang (2007:190-191, 193-194) reports that *pun=ti* has become a perfective marker.

(118) a. *pun=ti* *pukun* *tu* *saku* *ya* *sunis* *a* *yau* *siRab*
finish=PFV hit<AF> OBL cat NOM child LNK DEM.MED yesterday
'That child beat a cat yesterday.' (Lin 1996:49)

b. *pun=ti* *Ramaz-an* *na* *tina-ku* *ya* *baut* *bulan-u-ssiq*
finish=PFV cook-LF GEN mother-1SG.GEN NOM fish month-CLF.NHUM-one
'My mother cooked the fish one month ago.' (Lin 1996:49)

A closer look, however, contradicts the possibility that *pun* has fully grammaticalized into a perfective marker. The use of *pun* + VP is, in line with the volitional lexical concept of 'finish (doing something)', still restricted in its usage to volitional verbs (119). A true perfective marker should not have any problems with verbs as 'fall' and 'forget'. For the time being, it can only be concluded that *pun* has grammaticalized to some degree in the direction of a perfective marker. Thus, *pun* itself does not convey any temporal sequential meaning, but the posterior meaning rather arises because *pun* creates a terminal boundary for the first-mentioned event.

(119) a.**pun=ti* *tibuq* *adam* *nani* *me-dutiq* *saku* *'nay*
finish=PFV fall<AF> bird DM AF-jump cat DEM.MED
Intended: 'After the bird fell down, the cat jumped up.' (S16_buy)

b.**pun=ti* *ma-kalingun* *suksuk-na* *ni* *utay* *pa-dingwa-an-na=iku*
finish=PFV MA-forget key-3SG.GEN GEN Utay CAUS-phone-LF-3SG.GEN=1SG.NOM
Intended: 'After Utay forgot his keys, he called me.' (S16_buy)

Furthermore, also for posterior clauses the verb *melaziw* 'pass' (as already seen for posterior NPs) may be used. The syntactic structure is however not clear to me.

(120) *me-laziw* *azu* *tuku=ti* *taquq* *nani* *sukaw* *zin-na*
AF-pass if crow<AF>=PFV chicken DM bad say-3PL.GEN
'They say it's bad if it's after the rooster has crowed.' (S04_buy_narrative)

Another word that indicates the temporal relation between clauses or constituents is *qawka* 'only then'. The elicited dialogue in (121) demonstrates how natural the choice of using *qawka* and *pun* is when describing a sequence of actions. In the Mandarin source sentence the actions were mentioned directly following each another, only with an obligatory perfective particle after every verb. Therefore, it cannot have been elements of the metalanguage that triggered the use of these two lexical items; they appear to be common means to make the temporal relations explicit.

[53] Contra Lin (1996:49), who analyzes these sentences as being in the present perfect tense. Lin states that the event carries a relevance to the speech time concerned, but does not give any further explanation.

(121) A: *quni=isu* *siRab ?*
do.what<AF>=2SG.NOM yesterday
'What did you do yesterday?'

B: *masuwat=ti* *aiku,* *qawka* *muzis=iku,* *mu-le-pun* *muzis,*
get.up.AF=PFV 1SG.NOM only.then shower=1SG.NOM AF-?-finish shower

qatiw=ti *aiku* *ta* *taqsian,* *sudad* *tu* *sa-sudad-an*
go=PFV 1SG.NOM LOC school write<AF> OBL SA-write-NMZ
'I got up, then I showered. After showering I went to school and I did my homework.'
Input (translated from Mandarin): 'I got up, showered, went to school, and did my homework.'
(S28_tuy)

3.2.2.3. A different kind of 'after' and 'behind': tuRuz *versus* likuz-

In the spatial domain, besides *tuRuz* 'back', the posterior region can also be expressed with *likuz-* 'behind' (Jiang 2006:101-103). By citing Tryon's (1995) comparative Austronesian dictionary, Jiang shows that one group of languages uses their reflex of Proto-Austronesian **likuj* for both the meaning of the back as a body-part and that of spatial posteriority ('behind'), while in the other group, among which Kavalan, the reflex only conveys posteriority (since the body-part is denoted by *tuRuz*). Jiang's discussion of the two lexical items, introduced by the replicated example in (122), triggered my interest in a closer investigation. According to Jiang's data, both sentences have both the spatial and temporal reading displayed below.

(122) a. *me-likuz=ti=iku* *masengat*
AF-behind=PFV=1SG.NOM stand.AF

= b. *ta* *Ri-tuRuz=ti=iku* *masengat*
LOC RI-back=PFV=1SG.NOM stand.AF
'I stood at the farthest back.' [Spatial reading]
'I stood up last.' [Temporal reading] (Jiang 2006:101)

First, a syntactic difference observed by Jiang is that *tuRuz* in this sense is only used as a noun, while *likuz-* often behaves like a verb, carrying an agent focus marker. On a semantic note, Jiang (2006:102) points out the following (emphasis mine (WL)):

> "Generally speaking, *likuz* refers to *the farthest posterior Region with respect to an assembly of some unexpressed but understood reference objects* while *tuRuz* denotes *the posterior Region of some entity*. Therefore, in the temporal domain the antonym of *tuRuz* is *ngayaw* 'front; before' […], whereas that of *likuz* is *muna* 'first' […]"

The main points here regarding the temporal meanings of *tuRuz* and *likuz-* appear to be a) that *tuRuz* generally denotes 'after', whereas *likuz-* denotes 'last', reflecting its superlative spatial meaning 'the *farthest* posterior Region', and b) that the referent does not need to be expressed for *likuz-*, but it needs to be specified for *tuRuz* (also Jiang, p.c.). Based on my data, I would like to make some adjustments to these claims. Particularly, my data cast serious doubt on the existence of a spatial meaning of *likuz-*.

Generally speaking, when the two are confronted with each other, *tuRuz na* + referent is instinctively interpreted spatially, as 'behind [referent]', while *melikuz (tu)* + referent is interpreted temporally, as 'after [referent]'. The oblique marker *tu* is omitted when the referent is a personal name. When presented with the two sentences in (123), the informant pointed out this contrast. She also stated that (123a) does not have the temporal meaning of (123b) and, vice versa, that (123b) cannot have the spatial reading of (123a).

(123) a. *ta tuRuz-na ni abas masengat ti-utay*
LOC back-3SG.GEN GEN Abas stand.up.AF CLF.PN-Utay
'Utay stood up behind Abas.' (S25_tim)

b. *me-likuz ti-abas-an masengat ti-utay*
AF-behind CLF.PN-Abas-LOC stand.up.AF CLF.PN-Utay
'Utay stood up after Abas.' (S25_tim)

Likewise, another informant associated *Raylikuz* with temporal order/sequence and *RaytuRuz* with spatial location. However, he notes that *ta RaytuRuz=ti=iku masengat* has the meaning of a temporal sequence as well: 'I stood up later/after (someone).' These data do not produce a univocal picture, so the question now is: what is the distribution of *likuz-* (i.e. its attested forms *melikuz* and *Raylikuz; likuz-* is the root) and *tuRuz* (including its derived form *RaytuRuz*) between the temporal 'after' and spatial 'behind' meanings? Can we explain this distribution pattern? Finally, a part of this section will be dedicated to an explorative study of the morpheme *Ray.*

For transparency, the semantic functions are divided according to two parameters: spatial/temporal and posterior/most posterior. This results in four possibilities: spatial-posterior (SpaP), spatial-most posterior (SpaP+), temporal-posterior (TemP), and temporal-most posterior (TemP+), as displayed in Table 3.9.

Table 3.9 Possibly attested spatial and temporal functions of likuz *and* tuRuz *(and related forms)*

	Spatial (Spa)	Temporal (Tem)
Posterior (P)	'behind'	'after, later than'
Most posterior (P+)	'in the furthest back'	'latest, last'

Let us start by looking at the SpaP function, 'behind'. This can be expressed by using the locative noun *tuRuz* in the default locative construction: (*ta) tuRuz(an)* + genitive referent (124).

(124) a. *ta tuRuz-an-na ni abas ti-utay m-added*
LOC back-LOC-3SG.GEN GEN Abas CLF.PN-Utay AF-sit
'Utay sat behind Abas.' (S21_tuy)

b. *ta tuRuz na kaput-na aizipna me-RaRiw*
LOC back GEN friend-3SG.GEN 3SG.NOM AF-run
'He is running behind his friend.' (S11_buy)

melikuz cannot be used here, as shown by the examples in (125). The examples also show that the referent, when used together with *melikuz*, must be marked with the oblique case and carry a locative suffix at the same time.

(125) a. *me-likuz* *tu* *kaput-an-na* *m-added* *aizipna*
AF-behind OBL friend-LOC-3SG.GEN AF-sit 3SG.NOM
'He sat down after his friend.'
*'He sat behind his friend.' (unrec_buy)

b. *me-likuz* *tu* *kaput-an-na* *masengat*
AF-behind OBL friend -LOC-3SG.GEN stand.up.AF
'He stood up after his friend.'
*'He stood behind his friend.' (unrec_buy)

Moving on to the TemP meaning of 'after, later than', it turns out that both *tuRuz* and *melikuz* are able to convey this. The examples just given in (125) provide evidence for *melikuz.* As seen in (126), the word order is relatively free, as the subject and the object are morphologically distinguishable. The oblique case marker disappears when the object of reference takes the form of a human's proper name, but the locative suffix remains.

(126) *me-likuz* *qaqa-na* *qan* *ti-utay-an*
AF-behind older.sibling-3SG.GEN eat<AF> CLF.PN-Utay-LOC
'His brother ate after Utay.' (unrec_buy)

The use of *tuRuz* with the TemP reading is illustrated in (127). The informants do not perceive any meaning difference between the *melikuz* sentences and the *tuRuz* sentences.

(127) a. *ta* *tuRuz-na* *ni* *abas* *ti-utay=ti* *sikawma/miRi*
LOC back-3SG.GEN GEN Abas CLF.PN-Utay=PFV speak/stand.up
'Utay spoke/stood up after Abas.' (S21_lon)

b. *ta* *tuRuz na* *kaput-na* *ti-utay* *qan*
LOC back GEN friend-3SG.GEN CLF.PN-Utay eat<AF>
'Utay ate after his friend.' (unrec_buy)

The TemP meaning of *tuRuz* in these specific contexts is, of course, not unexpected, in view of its syntactic parallel with the posterior 'after'-construction (Section 3.2.2.2). Compare (127b) with (128). The two sentences are identical in their linguistic structure of [*tuRuz* + genitive NP referent] + the located event.

(128) *tuRuz na* *utuz* *muwaza* *me-suRaw=ay* *leppaw*
back GEN earthquake many.NHUM AF-fall=REL house
'After the earthquake, many houses fell down.' (lit. 'Houses that fell down were many.') (S12_tuy)

It should be noted that despite their syntactic similarities, their semantic and conceptual structure is not entirely the same. In the TemP function (129a), only the subject is mentioned in the 'after'-clause, which necessarily takes the same VP as in the following event. In the sequential-posterior function (129b), the first event in the 'after'-clause is completely represented by the NP, which is something syntactically independent from the second clause. Ultimately, the two functions are actually a single function from a temporal point of view, as they denote the same temporal relation. The only difference is in the way the first event is encoded: either as an NP whose corresponding VP has undergone ellipsis ('his friend (ate)') or as an NP conveying the event by itself ('the earthquake'). It follows from the translations that 'after'-clauses in English can be used identically in these two ways.

(129) a. E_1[his friend ate] E_2[Utay ate]
b. E_1[the earthquake] E_2[many houses fell down]

At this point of the survey, it seems logical if the spatial and temporal P+ functions would reflect their P counterpart in what verb to use. The TemP+ meaning is encoded in in line with the expectations: both *RaytuRuz* and *Raylikuz/melikuz* are used, without difference in meaning (130). An additional alternative form for *Raylikuz* is *samlikuz,* formed by the superlative prefix *sa-* (Huang 2007:375-376).[54] All three of them may carry the relativizer clitic=*ay,* even though *RaytuRuz* is preferred without it.[55]

(130) a. *(ta) Ray-tuRuz aizipna mawtu*
(LOC) RAY-back 3SG.NOM come.AF (S03_rac)
= b. *(ta) Ray-(m-)likuz=ay aizipna mawtu*
(LOC) RAY-(AF-)behind=REL 3SG.NOM come.AF (S03_rac)
= c. *sa-m-likuz=ay mawtu*
SA-AF-behind=REL come.AF
'He came last.' (S03_rac)

Raylikuz is also used to modify a noun, as in (131).

(131) *Ray-likuz=ay gasulin u-tani duki?*
RAY-behind=REL train CLF.NHUM-how.much time
'What time is the last train?' (S10_buy)

Moreover, the temporal use of *melikuz* and *Raylikuz* is also found in narratives expressing 'finally, in the end', as in (132). Similarly, 'the last time' is expressed by *saqalikuz,* analogous to e.g. *saqaussiq* 'the first time' and *saqazusa* 'the second time' (Huang 2007:829).

[54] The superlative prefix *sa-* can also be combined with *Ray-* as in *sa-Ray-m-likuz=ay* or *sa-m-Ray-likuz=ay.* This suggests that *Ray-* is not a superlative morpheme, but carries a different meaning.
[55] The syntactic structure is not clear to me. If *Raylikuzay mawtu* is a headless relative clause forming the predicate ('he is the one who came last'), it seems odd that it is interrupted by *aizipna.* This structure resembles the one of the Mandarin input sentence, but this should not be seen as a decisive factor. Alternatively, *Raylikuzay* is the modifier of *aizipna,* resulting in a literal translation like 'he came, as/being the last one'.

(132) a. *Ray-likuz tuqaz=pa=iku 'nay ki-kilim zin-na nani*
RAY-behind go.up<AF>=FUT=1SG.NOM DEM.MED RED<AF>-look.for say-3SG.GEN DM
'Finally, he said, "I will climb up to look for the frog," …' (NTU, frog_buya:IU 59-60)

b. *me-likuz=ti kasianem baqi-an pa-sinanam tu wasu salaw tu babuy*
AF-behind=PFV think elder-AN CAUS-practice OBL dog hunt<AF> OBL pig
'Finally, the elder wants them two to train dogs to hunt mountain pigs.'
(NTU, Aki's story_Raciang)

As for the SpaP+ meaning, this can be conveyed through *RaytuRuz,* illustrated by (133). In (133a), the context given was a running competition. It was explicitly specified by the informant that this sentence pertains to the subject's spatial position only and not to its position in the competition (i.e. being the one who loses). In (133b), the speaker is situated behind a large group of people who are watching a performance and this sentence is the answer given to a friend who asks where the speaker is standing. *Raylikuz* could not be used here. An important factor of this context is that it involves a *disorderly* group of people, that is, the audience is not standing in any particular order.

(133) a. *Ray-tuRuz=ay aizipna me-RaRiw*
RAY-back=REL 3SG.NOM AF-run
'He is the one running in the furthest back.' (S11_buy)

b. *yau=iku ta Ray-tuRuz*
EXIS=1SG.NOM LOC RAY-back
'I am in the furthest back.' (S21_tuw)

melikuz and *Raylikuz* can be used in some SpaP+ situations too, but a more careful look shows that the meaning they yield is not purely spatial. For instance, when the speaker stood at the very end of a queue, he or she may describe their position as in (134). Note that opposed to (133b), there is an order involved here, which makes *Raylikuz* appropriate. An informant explained that *RaytuRuz* was used for 'the furthest back (*zuìhòumiàn* 最後面)' while *Raylikuz* means 'the last one (*zuìhòuyíwèi* 最後一位)', and stressed that being in the furthest back does not necessarily mean you are the last one.

(134) *Ray-likuz=ti=iku*
RAY-behind=PFV=1SG.NOM
'I stood at the end. / I was the last one.' (S21_lon)

Additional evidence for this analysis is provided by example (135). The context given was one in which Utay was standing alone in the back of a classroom. The informant was asked what she would answer if someone asked her 'where is Utay?' The sentences show that none of the *likuz* forms may be used to denote Utay's spatial position in the described situation. However, both sentences would be perfectly acceptable if there were several children standing in a row in the classroom, and if Utay were at the end of that row. Again, an order must be involved.

(135) a. *ta* *me-likuz-an* *miRi* *ti-utay*
LOC AF-behind-LOC stand CLF.PN-Utay (unrec_rac)

= b. *sa-m-likuz=ay/Ray-likuz=ay* *miRi* *ti-utay*
SUPL-AF-behind=REL/RAY-behind=REL stand CLF.PN-Utay
*'Utay is standing in the furthest back.' [Back of the classroom]
'Utay is standing in the furthest back.'/ 'Utay is the last one.' [In a row] (unrec_rac)

A typical correct answer would again have to include *tuRuz* instead, as exemplified in (136).

(136) a. *ta* *tuRuz-an* *miRi* *ti-utay*
LOC back-LOC stand CLF.PN-Utay
'Utay is standing in the back.' (unrec_rac)

b. *yau* *ti-utay* *ta* *teRaq* *na* *taqsi-an* *miRi* *ta* *tuRuz-an*
EXIS CLF.PN-Utay LOC outside GEN study-LOC stand LOC back-LOC
'Utay is standing in the back of the classroom.' (unrec_rac)

Table 3.10 summarizes the results of the analysis so far. In the spatial domain only forms of *tuRuz* are used, while in the temporal domain both *likuz-* and *tuRuz* can be used.

Table 3.10 Spatial and temporal functions of likuz *and* tuRuz *(and related forms)*: *results*

	Spatial	Temporal
Posterior	*(Ray)tuRuz* 'behind'	*melikuz, (Ray)tuRuz* 'after, later than'
Most posterior	*RaytuRuz* 'in the furthest back'	*Raylikuz, samlikuz, RaytuRuz* 'latest, last'

The semantic functions of *likuz-* reach further than the temporal ones: it is also used when talking about the ranking in a competition (137), for example. Thus, in consideration of these data, *likuz-* seems to be used in conceptualizing most things involving a certain order or sequence, while *tuRuz* is restricted to the space-to-time conceptualization.

(137) *ti-utay* *Ray-likuz=ti*
CLF.PN-Utay RAY-behind=PFV
'Utay was the last in the competition (i.e. the loser).' (S21_tuy)

However, it is crucial to note that Jiang's (2006) data contradicts this analysis. According to his informant, his example (122a), *melikuz=ti=iku masengat* could express 'I stood at the farthest back' in a context in which the speaker was standing in the back of the classroom, without any other people involved (Jiang, p.c.). It is also worth noting that, in support of Jiang's analysis, the metaphorical extension of PAN **likud* from body-part 'back' to spatial 'behind' is typologically common: it occurred in e.g. Saisiyat, Puyuma, Paiwan, and numerous Western Malayo-Polynesian languages (Blust & Trussel, ACD 2016). As regards the origins and historical development of *likuz,* I have encountered some interesting possible signs of the paths of PAN **likud* 'back' and **ikuR* 'tail' crossing in Kavalan, which could partially account for a

different semantic development of *likuz-* in Kavalan.[56] At this stage, however, this scenario is still too speculative. Taken altogether, this seems a topic in need of more data and closer examination.

The exact properties of the morpheme *Ray* are not entirely clear at the moment, but my data provide some new insights. It has previously been noted that *Ri* (a phonological variant of *Ray*), when co-occurring with locative nouns, "expresses extremity on a spatial scale" (Jiang 2006:140). Jiang gives the similar examples *Ri-ngayaw* 'RI-front, the farthest front' and *Ri-babaw* 'RI-upside, the highest place'. While *Ray* seems to be able to do this (see previous P+ examples), there are also examples in which clearly no sense of extremity (i.e. P+) is present, such as those in (138). The contrast between (138a) and (138b) is noteworthy: *RaytuRuz* is used when the speaker is standing behind the referent with other people, objects, or distance in between them, and *tuRuz* implies that the speaker is standing directly behind the referent. Translated to English, the meaning of *RaytuRuz* here would probably be 'far behind'.

(138) a. *yau* *ta* *Ray-tuRuz-an-na* *ni* *utay*
EXIS LOC RAY-back-LOC-3SG.GEN GEN Utay
'I am (standing) behind Utay (but not directly).' (S21_tuw)

b. *yau* *tuRuz-an-na* *ni* *utay*
EXIS back-LOC-3SG.GEN GEN Utay
'I am (standing) (directly) behind Utay.' (S21_tuw)

Now one might consider the possibility that the superlative meaning is blocked here due to the mention of a referent, Utay. However, this seems implausible in view of (139). Even though no referent is mentioned, it is still clearly implied that the speaker stood up later than, i.e. after, one or multiple other persons. The

[56] The Kavalan word for 'tail' is *liqud* < **ikuR*, while the root *likuz-* derives from **likud*. These connections are largely supported by the segmental reconstruction patterns as described in Li (1982:487-488), based on Tsuchida (1976). However, there are some vague findings that, when combined, possibly suggest that the development of these two words have been connected in some way:

(i) During an elicitation session about *likuz* and *tuRuz*, one informant commented that *likuz* itself means 'tail'. Unfortunately at that time, I simply assumed this as a fact and did not ask for an explanation. However, this did provoke my further investigation of the matter. When I asked two other informants (individually) later about the word for 'tail', they both replied that it should be *liqud*.

(ii) In Tetum (Malayo-Polynesian, spoken on Timor), *iku* (< **ikuR* 'tail', Blust & Trussel, ACD 2016) is the source of some meanings that are identical to the ones *melikuz/Raylikuz* have acquired in Kavalan: e.g. *ikuikus* 'final, very last'; *ikus* 'end; *adj.* last, final; *adv.* last'; *ikusliu, ikusmai* '*adv.* finally, at last; in the future; behind (in a group): *sira la'o ~*, they walk behind' (Hull 2001). Of course, this is merely one language, so this example alone is not highly significant.

(iii) Li & Tsuchida's (2006) dictionary lists *likuz-* (root), *liqud*, but also *dikud-* (root), which seems to be a phonological blend of the previous two. *dikud-* forms the root of *tadikud* 'return, go back' and *patadikud* 'return, give back', which meaningwise could be derived from both 'back' and 'tail'. Moreover, *qaliqliqud* means 'to do later', a meaning also expressed by *melikuz.* Another phonological inconsistency is found in Chang (2000), listing *kumilikul* 'follow', while Li & Tsuchida (2006), Hsieh (forthc. a), and my fieldnotes contain *kulikuz* 'follow' ending in /z/. It is unlikely that Chang's informant pronounced a /z/, which seems phonetically too distant from the transcribed /ɾ/ (<l>). On the other hand, /ɮ/ (<d>) and /ɾ/ often sound very similar. If *kulikud* was actually produced, this is again something in between *likuz-* and *liqud.* Finally, in one example given in Huang (2007:148) 'tail' is transcribed as *liqus*, which is unlikely to be a transcription of *liqud* but could be one of *liquz.* Again, *likuz-* and *liqud* seem to have merged or mixed up by some speakers. (Note: the orthographies of the sources have been adapted to the one used in this thesis.)

same translation of the Kavalan input sentence was given separately by two informants, and all four informants involved agreed.

(139) *ta* *Ray-tuRuz=ti=iku* *masengat*
LOC RAY-back=PFV=1SG.NOM stand.up.AF
'I stood up after (someone). / I stood up later.' (S23_buy, S21_lon)

Moreover, in the same context used for eliciting (135) and (136), where Utay was standing alone in the back of a classroom, my informant disapproved the use of *RaytuRuz.* The reason for this was that Utay was alone in the room. If there had been other people, she explained, *ta RaytuRuz tiutay* would have been a felicitous utterance. The same temporal non-extreme posterior meaning is found in *Raylikuz* in example (140).

(140) *munna=iku* *maseq,* *Ray-likuz=isu* *maseq*
first=1SG.NOM arrive.AF RAY-behind=2SG.NOM arrive.AF
'I arrived first, you arrived later.' (S23_buy)

All these latter examples show that *Ray* implies comparison. However, the fact remains that *RaytuRuz* and *Raylikuz* are also used for the TemP+ meaning 'the last' and that one of my informants was unable to point out the difference between *Raylikuz* and *samlikuz.* Again, further investigation is clearly needed to gain an adequate understanding of the morpheme *Ray.*

3.2.2.4. Interim summary

In Section 3.2.2, Kavalan's linguistic strategies for expressing anterior and sequential location in NPs and clauses were explored. In addition, provoked by Jiang's (2006) observation, I have discussed the functions of two 'back'-related words, *tuRuz* and *likuz-*, and pointed out some important differences.

(i) Situations can be placed *ngayaw na* 'in front of' and *tuRuz na* 'behind' nominal temporal RPs, expressing 'before' and 'after', thus revealing the metaphorical conceptualization of these time points as objects in space. I have adopted Moore (2006, 2014) analysis and argued that the perspective-neutral metaphor SEQUENCE IS RELATIVE POSITION ON A PATH motivates such 'front'/'back' expressions.
(ii) The suffix *qu-*, which is unselective about its host, can attach to both nouns and verbs to express 'before N'/'before S'.
(iii) As for clauses, the use of *ngayaw/tuRuz na* + clause is not widely accepted and is considered unnatural. Much more common ways to express an anterior clause are the suffix *qu-* 'before', which here attaches to the verb, and negation by *mai=pama* 'not yet'. For posterior clauses, the sequential relation is usually inferred pragmatically: like 'when'-clauses, they are juxtaposed to the main clause. For explicit indication *pun=ti,* the perfective of the verb 'finish' is often used, which itself seems to be in the process of becoming a perfective marker.

This section's findings are summarized in the tables below. An '(S)' indicates metaphorical transfer from the spatial domain.

Table 3.11 Summary: sequential location in Kavalan

	NP		Clause	
Anterior location	*ngayaw na*	'in front of' (S)	*mai=pama*	'not yet'
	qu-N	'before'	*qu*-V	'before'
Posterior location	*tuRuz na*	'behind' (S)	*Ø*	
			pun=ti	'finished'

Other findings regarding spatial posteriority and temporal sequentiality concern the distribution of *tuRuz* and *likuz-* (root) across these semantic functions, summarized in Table 3.12.

(iv) I have argued that whereas *tuRuz* is used for both, forms of *likuz-* are restricted to temporal posteriority. In the spatial domain, *likuz-* is used only when a sequence or order is involved. This means that *likuz-*, unlike its cognate in some other Formosan languages, cannot convey a purely spatial sense.

(v) Moreover, *likuz-* is also used in contexts that are neither spatial nor temporal, expressing the last in a certain order.

Table 3.12 Summary: tuRuz *and* likuz *in space and time*

	Spatial	Temporal
Posterior	*(Ray)tuRuz* 'behind'	*melikuz, (Ray)tuRuz* 'after, later than' (S)
Most posterior	*RaytuRuz* 'in the furthest back'	*Raylikuz, samlikuz, RaytuRuz* 'latest, last' (S)

3.2.3. SEQUENTIAL-DURATIVE LOCATION

As a result of the metaphor A SITUATION IS A MOVER (Moore 2014:44-46), it is cross-linguistically very common for languages to use spatial source and goal markers to denote the temporal beginning and end of the situation (Haspelmath 1997:ch. 5). Consider the meaning of (141) and compare with the spatial examples in (142). In (142b), too, the directional expression *from … to …* is used conceptually "to denote location along a line which is scanned sequentially by the mind and is thereby assimilated to a directed path" (Haspelmath 1997:67). The path represents the stretch of the wheat fields, as if they were moving along the path. The same kind of 'abstract motion' underlies the temporal meaning of *John lived in Amsterdam from 2010 to 2015*: the stretch of the situation of John living in Amsterdam is conceptualized as the path *from 2010 to 2015*.

(141) a. John lived in Amsterdam **until 2015**. [Anterior-durative]
b. John has lived in Amsterdam **since 2010**. [Posterior-durative]
c. John lived in Amsterdam from 2010 to 2015.

(142) a. We drove from home to the sea. [Spatial motion]
b. There are wheat fields from the lake to the forest. [Spatial location] (Haspelmath 1997:67)

In Kavalan, the picture is largely the same, which will become clear in the following discussion of the anterior-durative and posterior-durative functions.

3.2.3.1. Anterior-durative ('until')

In Haspelmath's (1997:71) typological survey of 50 languages, three languages (Chinese, Indonesian, and the Atlantic-Congolese language Babungo) make use of the verb 'arrive' or 'reach' to denote the anterior-durative sense. Likewise, Kavalan can employ two verbs to express this meaning: *tuzus* 'reach' and *maseq/masezeq*[57] 'arrive'. They differ in their original meaning as a lexical verb. The use of *maseq* is restricted to contexts in which one arrives at their (final) destination. *tuzus* does not have this restriction. While it is sometimes used in the same context, *maseq* is preferred when arriving at the final destination is clearly implied. Thus, *tuzus* is more often used for arriving at any location which is not the subject's destination. Consider the examples in (143).

(143) a. *maseq/*tuzus=iku tu leppaw ni abas,*
arrive.AF/reach<AF>=1SG.NOM OBL house GEN Abas
qawka pa-dingwa-ka=isu
only.then CAU-phone-1SG.GEN.FUT=2SG.NOM
'When I arrive at Abas' house, I will call you.' (S22_buy)

b. *maseq/*tuzus=ti tu leppaw qatuRiyas=ti sammay*
arrive.AF /reach<AF>=PFV OBL house direct=INCH cook
'After he got home, he started cooking rice immediately.' (S20_tuy)

c. *maseq/*tuzus=iku ta kalingku-an*
arrive.AF/reach<AF>=1SG.NOM LOC Hualien-LOC
'I have arrived in Hualien.' (Only felicitous if Hualien was the speaker's destination.) (S29_buy)

d. *tuzus/*maseq=ti=isu tanian?*
reach<AF>/arrive.AF=PFV=2SG.NOM where
'Where are you?' (lit. 'Where have you reached?'; asked to someone who is still on his way to a destination) (S29_buy)

The verb *tuzus* is also used in the spatial domain to mark the goal of a directional movement and the terminal boundary of a spatial range, as illustrated in (144). One informant also used *maseq* with the same function (145), but another informant rejected this use while acknowledging its use in the temporal domain. The latter will be discussed hereafter.

(144) a. *nizi ta leppaw-an-su tuzus ta leppaw-an-ku*
from LOC house LOC-2SG.GEN reach LOC house-LOC-1SG.GEN

[57] tuyaw, who grew up in another village, pronounces it as *masezeq.* This variant is accepted by my Sinshe informants as well, and no meaning difference is perceived.

Rabtin *tunek-an* *saqay*
ten minute-LOC walk<AF>
'Walking from your house to my house takes ten minutes.' (S11_buy)

b. *zena-ku* *maqzi* *ta* *paRin* *'nay* *tuzus* *tazian*
land-1SG.GEN from LOC tree DEM.MED reach here
'My land is from that tree to here.' (S12_tuy)

c. *maqzi* *ta* *dengat-an* *tanbaseR* *adam* *'nay* *tuzus* *tu* *taqan*
from LOC window-LOC fly<AF> bird DEM.MED reach OBL cabinet
'A bird flew from the window to the cabinet.' (S25_tim)

(145) *nizi* *ta* *timuR* *maseq* *tu* *imis* *nizu* *naung*
from LOC south arrive.AF OBL north all mountain
'There are mountains all the way from south to north.' (S26_lon)

Both verbs, *tuzus* and *maseq*, are used in the temporal domain with an anterior-durative meaning, marking the temporal endpoint of the situation. No semantic or pragmatic differences are found between the verbs; they are used interchangeably. The conceptual source, i.e. the temporal starting point, may or may not be given. Some examples are shown in (146). A syntactic difference with the spatial uses is that when describing time, the RPs are consistently preceded by oblique marker *tu*. In spatial descriptions, they may be introduced by either *tu* or locative *ta*. As is apparent from (146b), the RP may be a verbal element too.

(146) a. *maseq* *tu* *Rabtin* *yau* *u-zusa* *bulan* *yau=iku* *ta* *taypak-an*
arrive.AF OBL ten EXIS CLF.NHUM-two month EXIS=1SG.NOM LOC Taipei-LOC
'I am in Taipei until December.' (S20_tuy)

b. *nizi* *ta* *Ramneng-an-na* *maseq* *tu* *qaynep-an* *ni* *utay,*
from LOC wake.up-LF-3SG.GEN arrive.AF OBL sleep-LF GEN Utay

mai *me-zukat*
NEG AF-come.out/go.out
'From when he woke up until he went to bed, Utay did not leave the house.' (S24_tuy)

c. *tuzus=pa=iku* *tu* *temawaR* *taqsi*
reach=FUT=1SG.NOM OBL tomorrow study<AF>
'I will study until tomorrow.' (S13_buy)

d. *pi-temawaR* *qaniyau* *nizi* *ta* *walu* *duki*
every-tomorrow 3PL.NOM from LOC eight time

tuzus *tu* *u-lima* *duki* *kelawkaway*
reach OBL CLF.NHUM-five time work
'They work from 8 to 5 every day.' (S04_buy)

Even in the temporal reading, the complement of the verb 'reach' remains a spatial term (t*anian* 'where') and does not change to *qumni* 'when', as seen in (147).

(147) *tuzus* *aisu* *tanian* *kelawkaway?*
reach<AF> 2SG.NOM where work
'Until when are you going to work?' (S14_tuy)

Both *tuzus* and *maseq* seem to retain their verbal properties in their temporal reading: they can both be marked for focus as shown for *tuzus* in (148a) (*maseq* itself is the AF form of the root *qaseq*), in (148b) *maseq* carries a perfective marker, and example (148c) shows that *tuzus* can also attract tense clitics.

(148) a. *qenizi* *ta* *walu* *tasaw* *tuzus* *tu* *Rabtin* *yau* *u-zusa* *tasaw, ...*
from LOC eight year reach<AF> OBL ten EXIS CLF.NHUM-two year
'From when he was eight until when he was twelve, ...' (S24_tuy)

b. *qu-palilin* *maynep=pama* *tu* *kikiya*
before-palilin sleep.AF=still OBL brief.moment

maseq=ti *tu* *Rabtin* *yau* *u-ssiq* *duki* *masuwat=ti, ...*
arrive.AF=PFV OBL ten EXIS CLF.NHUM-one time get.up.AF=PFV
'Before the palilin, we sleep just for a moment until eleven o'clock (PM) and when we get up, …' (S04_buy_narrative)

c. *tuzus=pa=iku* *tu* *temawaR* *taqsi*
reach=FUT=1SG.NOM OBL tomorrow study<AF>
'I will study until tomorrow.' (S13_buy)

In the temporal domain still, *tuzus* and *maseq* have another function besides the anterior-durative one when they are used individually without the mention of a source (*from …*). Earlier we saw the following examples of the anterior-durative 'until' sense in the absence of a source, reproduced in (149). However, the presence of a source is implied: it is the moment of speech, or now. A conceptual path from now to December or tomorrow is thus clearly implied, along which the ego or situation moves (A SITUATION IS A MOVER).

(149) a. *maseq* *tu* *Rabtin* *yau* *u-zusa* *bulan* *yau=iku* *ta* *taypak-an*
arrive.AF OBL ten EXIS CLF.NHUM-two month EXIS=1SG.NOM LOC Taipei-LOC
'I am in Taipei until December.' (S20_tuy)

b. *tuzus=pa=iku* *tu* *temawaR* *taqsi*
reach=FUT=1SG.NOM OBL tomorrow study<AF>
'I will study until tomorrow.' (S13_buy)

The other function, in contrast, does not involve any path and is based on a different conceptual metaphor: Moving Ego or NOW IS A MOVER. The only difference lies in whether a person (typically the implicit or explicit subject of the sentence) is the mover or only the present moment itself (cf. 'It is getting near Christmas'). Consider example (150). The locative case marker *ta* is omitted, but the suffix *-an* maintains the locative role of *paskuwa.* The reading 'until Chinese New Year' of *maseqti paskuwan* would be incompatible with the punctual, telic event of going home. Rather, the conceptualization here is that when ego or 'now' arrives at Chinese New Year, i.e. the conceptual location, the speaker will go home. The resulting meaning is that of simultaneous location, where the described situation coincides with the

temporal reference point (e.g. *at five o'clock*, *on Monday*, *during the holidays*). As *maseq* and *tuzus* used in this sense do not carry person markers anywhere in my data (which they would be expected to do sometimes being predicates), I will for now assume that it is the NOW IS A MOVER metaphor at play. Interesting to note is that while in English 'arrive at Chinese New Year' sounds odd, the reversed metaphor Ego-centered Moving Time is very common: 'when Chinese New Year arrives'.

(150) *maseq=ti* *paskuwa-an* *qawka=iku* *tanan*
arrive.AF=PFV Chinese.New.Year-LOC only.then=1SG.NOM return.home<AF>
'I will only go home when Chinese New Year arrives/during Chinese New Year.'
(lit. 'Arrived at Chinese New Year, only then will I go home.') (S11_buy)

Because *tuzus* and *maseq* are not formally distinguishable between their anterior-durative meaning and their simultaneous location meaning, there are cases in which ambiguity arises. While the anterior-durative 'until' sense is only compatible with durative situations, any type of situation can be simply located somewhere in time, including durative ones (151).

(151) a. **Until that moment** he was running very fast.
a'. **At that moment** he was running very fast.
b.*Until that moment he fell from the tree.
b'. At that moment he fell from the tree.

This leads to ambiguous sentences such as (152).

(152) *tuzus* *tu* *qataban-an* *yau=iku=pama* *ta* *taypak-an*
reach<AF> OBL harvest.festival-LOC EXIS=1SG.NOM=still LOC Taipei-LOC
(a) 'During the harvest festival, I was still in Taipei.'
(b) 'Until the harvest festival I am still in Taipei.' (S19_buy)

Finally, both *tuzus* and *maseq* can serve to describe the progress of an activity, usually one with a certain purpose. The process is conceptualized as a path on which ego is going forward. This is a common conceptualization (as demonstrated by the English translations in the examples in (153), for instance) and it is one of the mappings of what has been called the Purposeful Activity metaphor (Lakoff & Johnson 1999:190ff.; Moore 2014:47-48). In sentence (153a), the imaginary context is that the subject is either making a piece of clothing or writing a book. In (153b-c) the purposeful element is less clear, although one could probably more generally consider the completion of the activities (eating and giving the speech) as the purpose.

(153) a. *maseq=ti=isu* *tanian* *(ni-sangi-an-su/ni-sudad-an-su)?*
arrive.AF=PFV=2SG.NOM where (PFV-make-NMZ-2SG.GEN/PFV-write-NMZ-2SG.GEN)
'How far are you/how are you getting on (with making/writing it)?' (S11_buy)

b. *tuzus=ti* *tanian* *qan-an-numi?*
reach<AF>=PFV where eat-LF-2PL.GEN
'How far are you with eating?' (S12_tuy)

c. *tuzus=ti tanian sa-sikawma-an-na?*
reach<AF>=PFV where SA-speak-LF-3SG.GEN
'How far is he in his speech?' (S12_tuy)

3.2.3.2. Posterior-durative ('since')

Four ways of expressing the posterior-durative meaning 'since' are found in my data: *maqzi*, *(qe)nizi*[58], *zana*, and *qeni-…-an*. The first two originate from the spatial domain, in which they both mean 'from', marking the source (154).

(154) a. *kelaba nizi ta zanum-an tuqaz*
duck from LOC water-LOC ascend<AF>
'The duck walks out of the water.' (S11_buy)

b. *maqzi=iku tazian matiw sa bakung*
from=1SG.NOM here go.AF to Fengbin
'I went from here to Fengbin.' (S25_tim)

zana is a non-spatial term and is only used to introduce a temporal source. It is unknown whether there is a historical relationship with the third person possessive pronoun *zana* 'his/hers/theirs', but synchronically, there are no indications for such relationship: they have different syntactic distributions besides different meanings.

As for *qeni-…-an*, its origins are unclear as well. There might be an etymological relationship with *(qe)nizi* and/or *qeni* 'past'. I will return to this issue later in this section, when discussing *(qe)nizi*. *qeni-…-an* itself cannot be used to mark a spatial source unlike *(qe)nizi*, as shown by (155).

(155) **qeni-taypak-an mawtu*
QENI-Taipei-LOC come.AF
Intended: 'He has come from Taipei.' (unrec_buy)

As in the other sections, the spatial use of *maqzi* and *(qe)nizi* is discussed first (since *zana* and *qeni-…-an* do not have any), after which we turn to their posterior-durative function and how the various ways of expressing this function relate to each other semantically and syntactically.

- *maqzi* and *(qe)nizi*: the spatial domain and non-temporal metaphorical extensions

As shown above, both *(qe)nizi* and *maqzi* express 'from', marking the source of a movement. Moreover, *maq-/maq=*[59] alone can attach to a noun or NP to express the same meaning (156). Unlike *maqzi*, the morpheme *maq=* has not been transferred to the temporal domain (157).

[58] The informant who used *qenizi*, tuyaw, said that this was a more polite and formal form of *nizi*. tuyaw is the only one whose hometown is not Sinshe Village but Lide Village, where there has been more contact with Amis and Minnan speakers. This may have caused the different preference. However, importantly, *qenizi* is also accepted by my Sinshe informants.
[59] Lee (1997:32) proposes to analyze *maq* as a proclitic, since it can attach to a (nominal) phrase.

(156) a. *maq=bakung-iku mawtu*
from=Fengbin-1SG.NOM come.AF
'I came from Fengbin.' (Lee 1997:33)

b. *maq=leppaw ni abas=iku mawtu*
from=house GEN Abas=1SG.NOM come.AF
'I came from Abas' house.' (Lee 1997:33)

(157) a. **maq=siRab*
from=yesterday (S20_tuy, S22_buy)

b. **maq=tasaw zau*
from=year this (S20_tuy)

On the other hand, **ni-* is not an independent morpheme and cannot be used in this manner. However, the *ni* in *nizi* is likely to be a phonologically reduced form of *qeni.* This brings up the question of the origin of *qenizi.* The part *zi* in *(qe)nizi* can be analyzed as the proximal deictic noun denoting 'here', also found in e.g. *ta-zi-an* 'here', *pasa-zi* 'towards here', and *maq-zi* 'from here' (in which the deictic meaning has been lost, now meaning simply 'from'). Before the form *qenizi* was attested, Jiang (2006:71-72) suggested that in *nizi* and its phonological variant *nayzi*, the part *ni/nay* may be borrowed from Amis which has *na i* [from LOC] 'from'. Subsequently, Kavalan may have attached the native demonstrative adverb *zi* to this *na i* (> *nay* > *ni*), resulting in *nizi/nayzi*. This seems a very plausible scenario for *nizi* and *nayzi.* Reconsidering the issue with the current data including *qenizi,* however, I cautiously suggest a relationship between *qeni* 'past' (and related words *qenian* and *qeniqian*), *qenizi* 'from', and *qeni-…-an* 'from', for three reasons:

(i) The basic meaning of all three words seems to be 'past, a long time ago'. However, combined with a negator *qenian* and *qeniqian* often express 'never, ever since', as in (158c-d). It thus seems that they acquire the additional meaning of 'since' in such contexts, literally meaning 'not since a long time ago'.

(158) a. *qeni baqian*
past elder
'the elderly/ancestors in the past' (S03_rac)

b. *qenian muwaza baut tazian*
past much.NHUM fish here
'There used to be many fish here.' (S03_rac)

c. *qenian/qeniqian mai nizi tazian*
past/past NEG from here
'I have never been here before.' (S27_lon)

d. *zuma 'nay tasaw qenian mai=ti me-taRaw*
other DEM.MED year past NEG=PFV AF-sick
'From that year on, he hasn't been sick.'
(lit. 'Other than that year, he has not been sick ever since.') (S12_tuy)

(ii) In my data, *qeni* has also been pronounced as *qaynay* (S23_buy) and *qayni* (S03_rac), in which the same phonological variation *ni/nay* is found.

(iii) Furthermore, the formation of 'past' + 'here' (*qeni-zi*) meaning 'from' is semantically plausible. The fact that *qeni-…-an* is only able to express temporal 'from' indeed suggests that the temporal meaning was there first and that spatial 'from' was derived from the temporal concept 'past'. However, typologically time-to-space transfer appears to be very rare: Haspelmath (1997:142) only mentions French *depuis* ('after' > 'since' > spatial 'from (e.g. the window)'). On the other hand, the parallel development from temporal 'from, since' > spatial 'from' is striking and demonstrates the reality of such a semantic change.

Let us now return to spatial *(qe)nizi* and *maqzi.* Besides their source of motion sense, figurative senses of 'source, starting point' are also found. See e.g. (159), which is part of a description of a traditional ritual called *palilin,* taking place right before Chinese New Year. Here, the order is being described in which the worshipping/praying is done.

(159) *nizi* *ta* *Raya* *qa-qaqa=ay* *siyangatu*
from LOC big RDP-older.sibling=REL begin.AF
'It starts from the oldest sibling.' (S04_buy_narrative)

maqzi has another interesting metaphorical extension observed in the domain of emotion. Hsieh (2011b:87) states that it may "encode a source from which the Experiencer's emotional state starts", as shown in (160).

(160) a. *me-lizaq=iku* ***tu*** ***maqzi*** ***ta*** ***sunis-an-ta*** *m-ala* *sumukin.*
AF-happy=1SG.NOM TU from LOC child-LOC-1PI.GEN AF-take examination
'I was happy about my child, who passed the (entrance) examination.'
(Adapted from Hsieh 2011b:87)

b. *q<um>nut=iku* ***tu*** ***maqzi*** ***ti-utay-an***
angry<AF>=1SG.NOM TU from CLF.PN-Utay-LOC

Raymazuk *Rayngu* *taqsi.*
stupid.AF not.know.AF <AF>study
'I was angry with Utay, who was stupid and did not know how to study.'
(Adapted from Hsieh 2011b:87)

Furthermore, *maqzi* can also describe someone's origins, as in (161).

(161) *maqzi=iku* *ta* *taynan-an*
from=1SG.NOM LOC Tainan-LOC
'I am from Tainan.' (S11_buy)

However, *nizi* is not acceptable in this particular context; it would have the literal spatial meaning 'move/come from'. As Jiang (2006:73) already pointed out, there are some subtle semantic differences between *nizi* and *maqzi:*

> "In [*maqzi* example], Speaker A is simply asking about the source of Speaker B's translational motion to the present location where the conversation takes place, which happens to be Speaker B's hometown in this particular case. In [*nizi* example], however, Speaker A implies that Speaker B has stayed where she was from for a certain period of time (thus the English translation "where have you been?"). In other words, Speaker A is asking about the location where Speaker B went earlier and just came back from. Consequently, the semantic information in *nizi*/*nayzi* seems to be richer than that in *maqzi*."

Consider the examples in (162). While some of my informants did not perceive any meaning difference between the two sentences, others gave a similar account to Jiang's. Additionally, (162b) can also mean 'where are you from?' while (162a) cannot. According to my informants, *nizisu tanian?* is pragmatically inappropriate to ask to a stranger. This is caused by the inherent implication that the hearer has stayed in the source location for a while, in line with Jiang's description. Furthermore, the question *nizisu tanian?* can carry a negative connotation in the sense of 'where have you been all the time?'

(162) a. *nizi=isu* *tanian?*
from=1SG.NOM where
'Where did you come from?' (in the sense of 'Where have you been?') (S26_lon)

b. *maqzi=isu* *tanian?*
from=1SG.NOM where
'Where did you come from?' / 'Where are you from?' (S26_lon)

The additional semantic content of *nizi* is reflected in one of its other, non-spatial uses. Jiang (2006:73-74) first observed that *nizi* places the situation in the (recent or non-recent) past, which can be motivated by the conceptual similarity between the starting point of a movement and the starting point of an event. The following examples illustrate this.

(163) a. *nizi* *tayan* *ya* *tama-ku* *Ra-tayzin*
from there NOM father-1SG.GEN RA-policeman
'My father used to be a policeman there.' (Jiang 2006:74)

b. *unay* *saku* *qenizi ta* *wi-an=ay* *paRin,*
DEM.MED cat from LOC DEM.DIST-LOC=REL tree

setangi *yau=ti* *tazian=ay* *paRin*
now EXIS=PFV here=REL tree
'The cat was at that tree over there before, now it is here at this tree.' (S12_tuy)

c. *nizi* *tazian* *ti-utay* *ni?*
from here CLF.PN-Utay INTER
'Was Utay here before? / Was Utay here just now?' (S26_lon)

In (163), the subject is no longer at the 'source location'. It is not difficult to see how a movement from the source location can conceptually indicate that the situation took place sometime in the past and has ceased to exist. However, *nizi* may also be used with the subject's current location without implying any movement, as seen in (164). In these sentences, the omission of *nizi* would not change the meaning, because the past meaning is already otherwise expressed. (164c) for example can alternately be formulated as *(..., Raynguanna*) *tu yau tanian* [OBL EXIS where] 'where he was'. These data suggest that *nizi* simply expresses 'be' (in its function of expressing location) here, which reflects its implication of having stayed somewhere in its spatial use (see (162)).

(164) a. *qeniqian mai (nizi) tazian kelawkaway*
past NEG (from) here work.AF
'(He) has never worked here before.' (S27_lon)

b. *qenian nizi tazian*
past from here
'(He) has (already) been here since a long time ago.' (S03_rac)

c. *qu-tayta ti-utay tu tebaRi=ay leppaw,*
before-see CLF.PN-Utay OBL red=REL house

Rayngu-an-na mu-nizi tanian
not.know-LF-3SG.GEN MU[60]-from where
'Before Utay saw the red house, he did not know where he was.' (S26_lon)

In addition, one informant rejected the sentence in (165). He and another informant have both stated that *nizi* in this sense can only be used when describing situations in which the subject stayed at the location (e.g. *kelawkaway* 'worked', *temaqsi* 'studied', *semaqsaqay* 'visited (lit. 'take a stroll, walk around')' were all judged as grammatical).

(165) * *nizi=iku tayan matiw*
from=1SG.NOM there go.AF
Intended: 'I went there/I have been there (once in the past)'. (S11_buy)

However, seemingly contradictory at first glance, yet another informant found the following sentences with *matiw* perfectly acceptable:

(166) a. *nizi=iku tayan matiw kilim tu kaput-ku*
from=1SG.NOM there go.AF look.for<AF> OBL friend-1SG.GEN
'I have once visited a friend there.' (S14_tuy)

b. *nizi=iku tayan matiw huiyi*
from=1SG.NOM there go.AF meeting
'I have once been to a meeting there.' (S14_tuy)

[60] Possibly an AF marker. According to two informants, there is no difference between *munizi* and *nizi.*

One important difference should be pointed out between (165) and the examples in (166). This difference can be described in both syntactic and semantic terms. From a syntactic point of view, both *nizi* and *matiw* are predicates that must generally be followed by a locative noun or phrase, e.g. *tayan* or *ta* N-*an.* In *niziku tayan matiw* (165), the syntactic error is readily visible: two locative complements are required, but there is only one available, *tayan.* In (166b), the Minnan loan word *huiyi* is the locative complement of *matiw.* In (166a), *matiw* is likely to form a serial verb construction with *kemilim* 'look for', cf. 'come visit', 'we went swimming'.[61] Thus, it does not need a locative complement here. From the other, semantic side of the coin, all of the activities mentioned, including those in (166), are taking place while the subject is residing at the described 'source location' (the residing being expressed by *nizi*), except in *niziku tayan matiw* (165). To be at and to go to a single place at the same time is semantically impossible; hence the ungrammaticality.

To summarize, while *maqzi* is neutrally marking the source, *nizi* suggests that the subject of the motion has stayed in the source location for a period of time. This implication is reflected in its derived[62], temporal use in which *nizi* indicates that a) the described situation once took place in the past and no longer exists, or b) that the subject is (staying) at a location.

A final remark on the spatial reading of *maqzi* and *nizi:* I have attempted to look for other differences between the two, varying primarily the factors static/dynamic (e.g. 'my land stretches from X to Y' vs. 'I walked from X to Y') and proximal-to-distal/vice versa. The only generalization found is that *nizi* is always grammatical, while at least three of my informants were often hesitant when judging about *maqzi*, often changing their minds about it. For some reason, in the spatial domain, *nizi* is clearly the preferred, default strategy, while *maqzi* may (or may not) have certain semantic/pragmatic nuances yet to be discovered.

- *maqzi, (qe)nizi, qeni-...-an,* and *zana*: the temporal domain

maqzi, (qe)nizi, qeni-…-an, and *zana* all convey the posterior-durative meaning of 'since, from' and may optionally be followed by a *tuzus/maseq* 'until, to' phrase, as in (167). In the case of *maqzi* and *(qe)nizi,* the temporal starting point is conceptually based on the source location. This is again motivated by the underlying metaphor of A SITUATION IS A MOVER.

(167) a. [*qeni-siRab-an / zana siRab*] *tuzus tu tangi pataz m-uzan*
from-yesterday-AN since yesterday reach OBL today often AF-rain
'From yesterday until today it has been raining all the time.' (S22_buy)

[61] Such SVCs formed with *matiw* are quite common in Kavalan, e.g.:

(i) *nayau=ti azu zuma matiw=ita salekiaw satezay …*
that.way=PFV like sometimes go.AF=1PI.GEN dance sing …
'That's it. For example, when we sometimes go dancing and singing, …'
(NTU, conversation_buya&ngengi:IU 206)

(ii) … *matiw me-salaw tu babuy na naung*
… go.AF AF-hunt OBL pig GEN mountain
'… to (go) hunt mountain pigs.' (NTU, Aki's story_buya)

[62] The interpretation of what is the literal meaning and what is a derived meaning naturally depends on what is believed to be the historical development of *(qe)nizi.*

b. [*zana / maqzi ta / nizi ta*] *1990 tasaw tuzus tu 1995 tasaw yau ta*
since from LOC from LOC 1990 year reach OBL 1995 year EXIS LOC

taypak-an kelawkaway ti-utay
Taipei-LOC work.AF CLF.PN-Utay
'From 1990 until 1995 Utay was working in Taipei.' (S22_buy)

These four constructions differ in their use and restrictions, as well as their syntactic properties. The factors we will be looking at are a) the semantics of the RP, including the type of time unit, deixis, and past/future, and b) the syntactic category of the RP: nominal/verbal.

First of all, the role of the RP type is considered. *zana* can be used with all RPs, regardless of type of time unit, role of deixis, and whether the RP lies in the past or the future. The list of examples given in (168) is not exhaustive.

(168) a. *zana 1990 tasaw* 'since 1990'
b. *zana siRab* 'since yesterday'
c. *zana tesawi* 'since last year'
d. *zana tasaw 'nay* 'since that year'
e. *zana temawaR* 'from tomorrow on'
f. *zana Rabtin bulan* 'since October' (fieldnotes)

Because my data on *qeni-…-an* are limited, I have not been able to check its compatibility with different kinds of time units. Some examples are *qeni-siRab-an* 'since yesterday' and *qeni-tesawi-an* 'since last year'. Noteworthy is the observation that the use of *qeni-…-an* becomes ungrammatical in combination with future RPs such as *temawaR* 'tomorrow' and *kezumai* 'next year': **qeni-temawaR-an*, **qeni-kezumai-an*. This suggests that *qeni-…-an* can only be used with past RPs (which would be in line with the speculative etymological relationship with *qenian* 'past' described earlier), but more data is needed to support this.

As for *(qe)nizi* and *maqzi*, my data are not clear-cut and filled with doubts and disagreements across informants as well as intra-speaker contradictions. The acceptability of *maqzi* seems to vary according to the type of RP: it is grammatical when the RP is an absolute (i.e. non-deictic) year. Contrasting judgements have been given on deictic year RPs and all month, week, and day RPs.

(169) a. *maqzi 1990 tasaw* 'since 1990'
b. ?*maqzi ta Rabtin bulan* 'since October'
c. ?*maqzi ta nawsiRabay lipay* 'since last week'
d. ?*maqzi ta siRab* 'since yesterday' (fieldnotes)

(qe)nizi is only consistently judged grammatical for absolute year and month RPs. Perhaps it is noteworthy that one informant consistently preferred *(qe)nizi* + absolute month RP over using *maqzi*, which did not sound right to him. His mother (native speaker of Kavalan) agreed on this point. Apart from this difference between the two terms, the generalization can be observed that whenever *(qe)nizi* or *maqzi* is rejected in a particular context, the other is rejected as well; *zana* is always the preferred option. In other words, their functional and syntactic distributions are very similar to one another's. Like in the

spatial domain, however, *(qe)nizi* seems to be broader in use. Example (170) shows that both *(qe)nizi* and *maqzi* can be used for future situations.

(170) *nizi/maqzi ta 2017 tasaw tuzus tu 2020 tasaw si*
from/from LOC 2017 year reach OBL 2020 year SI

qa-kelawkaway ti-utay ta taypak-an
IRR-work CLF.PN-Utay LOC Taipei-LOC
'From 2017 until 2020 Utay will work in Taipei.' (S22_buy)

Besides nominal RPs, most of the terms can also take verbal RPs, as seen in (171). Again, judgements about *maqzi* in this context were usually accompanied by hesitation.

(171) a. *zana sinapawan tuzus tu tangi me-li-lizaq aizipna*
since marry reach OBL today AF-RDP-happy 3SG.NOM
'Since he got married (until today) he has been very happy.' (S10_buy)

b. *qeni-Ramneng-an-na maseq tu qaynep-an ni utay, mai me-zukat*
from-wake.up-LF-3SG.GEN arrive.AF OBL sleep-LF GEN Utay NEG AF-go.out
'From when he woke up until he went to bed, Utay did not leave the house.' (S24_tuy)

c. *nizi ta me-zaqis ti-utay tu qaytun mai=ti sikawma*
from LOC AF-ascend CLF.PN-Utay OBL car NEG=PFV speak
'Since Utay got into the car, he hasn't said anything.' (S24_tuy)

d.? *maqzi / zana / nizi tayta tu seqay, ...*
from / since / from see<AF> OBL snake
'Since he saw the snake, …' (S13_buy)

e.? *maqzi sinapawan, ...*
since marry
'Since he got married, …' (S10_buy)

Let us now briefly turn to some syntactic properties of the four source-marking terms. Both *nizi* and *maqzi* have been identified as verbs in previous literature (Lee 1997:30, 32; Jiang 2006). As (172) shows, they can both attract pronominal clitics. In the temporal domain, their sentence-initial position is relatively fixed: it appears from (173) that the temporal phrase they introduce must precede the other verb, although they may be preceded by other temporal adjuncts and the subject.

(172) *nizi=iku / maqzi=iku ta 2010 tasaw ta taypak-an kelawkaway*
from=1SG.NOM / from=1SG.NOM LOC 2010 year LOC Taipei-LOC work
'Since 2010 I have been working in Taipei.' (S03_rac, S22_buy)

(173) a.**kelawkaway=iku ta taypakan* [*nizi/maqzi ta 1990 tasaw tuzus tu 1995 tasaw*] (S22_buy)

b. *pi-temawaR qaniyau nizi ta walu duki*
every-tomorrow 3PL.NOM from LOC eight time

tuzus tu u-lima duki kelawkaway
reach OBL CLF.NHUM-five time work
'They work from 8 till 5 everyday.' (S04_buy)

As seen in the (174), *zana* displays the opposite picture: it does not allow bound pronouns and the position of the phrase introduced by *zana* is relatively free. This suggests that *zana* is not a verb.

(174) a.**zana=iku ta 2010 tasaw ta taypak-an kelawkaway*
since=1SG.NOM LOC 2010 year LOC Taipei-LOC work
'Since 2010 I have been working in Taipei.' (S14_tuy)

b. *kelawkaway=iku ta taypak-an* [*zana 1990 tasaw tuzus tu 1995 tasaw*] (S22_buy)

qeni-…-an must remain in the sentence-initial position as well (175). Its syntactic status is unclear thus far. The suffix *-an,* which is obligatory in this construction according to an informant, is likely to be a remnant of the PAN locative focus, like the locative suffix, but it is not known whether *qeni-* is a bound or a free morpheme.[63]

(175) a. **pataz m-uzan* [*qeni-siRab-an tuzus tu tangi*]
often AF-rain from-yesterday-AN reach OBL today
'From yesterday until today it has been raining all the time.' (S22_buy)

b. *pataz muzan* [*zana siRab tuzus tu tangi*] (S22_buy)

It is clear that more research and data are needed to understand the syntactic category of these source markers.

3.2.3.3. Interim summary

Section 3.2.3 has examined sequential-durative location marking in Kavalan and included an analysis and comparison of *(qe)nizi* and *maqzi*, both spatial and temporal Source-marking terms. Some of their other semantic/metaphorical extensions have been discussed as well. The main findings can be summarized as follows:

(i) The posterior-durative markers *(qe)nizi* and *maqzi* expressing 'from' and the anterior-durative markers *tuzus* and *maseq* expressing 'to, until' are all transferred from the spatial motion domain, unveiling the fundamental metaphor A SITUATION IS A MOVER (see Moore 2014:44-46). They mark the spatial Source and Goal, respectively. The situation is thus conceptualized as moving along a path, which embodies its temporal profile. The Source corresponds to the starting point of the event, while the Goal corresponds to the end. These four markers are all verbal lexemes.

(ii) The verbs *tuzus* and *maseq*, meaning 'reach' and 'arrive', also appear in two additional types of temporal expressions. In the first type, they indicate simultaneous location and the underlying

[63] I have adopted Jiang's interpretation of *qeni* as a bound form here for the sake of convenience.

conceptual structure can be recognized of Moving Ego/NOW IS A MOVER. In the second kind, the structure is the same as that of Moving Ego, but instead of simply locating ego at a point in time, it indicates ego's progress in a certain activity. This has been called the Purposeful Activity metaphor (Moore 2014:47-48; cf. Lakoff & Johnson 1999:190ff.).

(iii) The Source markers *(qe)nizi* and *maqzi* display some interesting functions besides their spatial and temporal one. It has been shown that *maqzi* is also used to indicate a person's place of origin (Jiang 2006; fieldnotes) and the source/cause of emotion (Hsieh 2011b). *nizi* may convey that a) the described situation once took place in the past and no longer exists (i.e. it conceptually moved away from the past), or b) that the subject is (staying) at a location. This reflects the connotation *nizi* has in its spatial use, namely that the subject has stayed at the source location for a period of time. These findings are preliminary and need more data to support them.

(iv) In both their purely spatial and temporal uses, *(qe)nizi* is generally found to be preferred over *maqzi*, but I was unable to discover any systematicity behind it.

(v) The other two posterior-durative markers, *zana* and *qeni-…-an,* have exclusively temporal semantics. Their syntactic category is unclear. It has been observed that *zana* has the strongest preference among the posterior-durative markers, while the others are sometimes judged ungrammatical. *qeni-…-an* seems to be only compatible with past RPs, which can possibly attributed to its historical origins.

All of the markers discussed are displayed in Table 3.13.

Table 3.13 Summary: sequential-durative location in Kavalan

Anterior-durative	*tuzus*	'reach' (S)
	maseq	'arrive' (S)
Posterior-durative	*(qe)nizi*	'(move/be) from' (S)
	maqzi	'(move/be) from' (S)
	zana	'since'
	qeni-…-an	'since'

The marking of clausal RPs is not included in the table, because I did not investigate this systematically. However, the data show that *maseq* is compatible with clausal RPs, which leads to the expectation that *tuzus* is too, since no syntactic differences have been observed between the two verbs. Of the posterior-durative markers, all except *maqzi* can introduce clausal RPs.

3.2.4. TEMPORAL DISTANCE

The temporal distance functions mark the distance between the described situation and an RP, which is either the moment of speech (deictic) or an RP implied/mentioned in the context (non-deictic). As a reminder of this distinction, the examples for the four subfunctions distance-past, distance-retrospective, distance-future, and distance-prospective are reproduced below.

(176) a. John graduated **eleven years ago**. [Distance-past]

b. John moved to Boston in 2007. He had graduated **two years before**. [Distance-retrospective]

(177) a. John will visit us **in two weeks**. [Distance-future]
b. John is celebrating his birthday next week. **A few days later**, he will visit us. [Distance-prospective]

While Haspelmath (1997:98-100) did not systematically include the two non-deictic functions in his study, he provides the distance-posterior data he collected for 27 languages, most of them spoken in Europe. In 13 languages there exists no deictic/non-deictic distinction, among which some non-Indo-European languages are a few Uralic languages, Chechen, Arabic, Chinese, and Japanese. Furthermore, in the majority of these 13 languages, the same marker is also used for the sequential-posterior 'after (Monday)'. This section will reveal that Kavalan belongs to this group, by using the sequential markers *ngayaw na* and *tuRuz na*. Interestingly, the only Austronesian language in Haspelmath's sample, Indonesian, belongs to the other group and uses a different marker for each function (distance-past, distance-posterior, sequential-posterior).

From a conceptual point of view, the Kavalan data provide additional support for the idea that the conceptual metaphor SEQUENCE IS RELATIVE POSITION ON A PATH motivates the semantics of 'in front' and 'behind' expressions (Moore 2006, 2014). The front is consistently being mapped onto an earlier time, while the back maps onto a later time relative to another (deictic or non-deictic) temporal point. In the case of distance-past and distance-future, the temporal RP is the moment of speech, thus deictic. Since the main difference between SEQUENCE IS RELATIVE POSITION ON A PATH and Ego-centered Moving Time was the requirement of a deictic center, i.e. perspective-neutrality vs. perspective-specificity, one could also postulate Ego-centered Moving Time as the basis for such expressions. However, in line with Moore (2006, 2014) and Núñez & Sweetser (2006) I prefer SEQUENCE IS RELATIVE POSITION ON A PATH for two reasons: one, while Moving Ego and Moving Time typically describe motion, SEQUENCE IS POSITION describes temporal location (of which temporal distance is a subcategory). Now this should not be understood as time being static in the model. Indeed, the times/objects are still moving from later to earlier times, as Figure 3.3 of 'An explosion followed the flash' showed (Section 3.1.3.2), but this scenario is only a means to determine what is in front and what is behind. This knowledge is then used to describe the location of these times, e.g. in 'Tuesday follows Monday', 'He left before I came', and so forth. Second, if one linguistic phenomenon (*ngayaw* and *tuRuz* with temporal readings) can be perfectly accounted for with a single metaphor, this naturally deserves the preference over resorting to a different metaphor, which in this case would only be able to account for part of the uses of *ngayaw* and *tuRuz* (namely the deictic distance-past and distance-future functions).

Let us now turn to the two pairs of functions, distance-past/distance-retrospective, and distance-future/distance-prospective, in Kavalan.

3.2.4.1. Distance-past ('... ago') and distance-retrospective ('... before, earlier')

As mentioned, Kavalan employs *ngayaw na* 'before' for both types of temporal distance, as shown in (178). *ngayaw na* is followed by a temporal duration. Its interpretation is purely context-dependent.

(178) a. Distance-past

ngayaw na u-tulu deddan *manan aizipna nizi ta taypak-an*
front GEN CLF.NHUM-three day return.AF 3SG.NOM from LOC Taipei-LOC
'He came back from Taipei three days ago.' (S02_buy)

b. Distance-retrospective

ta u-zusa melalazan tasaw yau Raya=ay banged
LOC CLF.NHUM-two thousand year EXIS big=REL typhoon
'In 2000 there was a big typhoon.'

ngayaw na u-zusa tasaw *matalin ti-utay sa kawsiung*
front GEN CLF.NHUM-two year move.AF CLF.PN-Utay to Kaohsiung
'Two years before, Utay had moved to Kaohsiung.' (S26_lon)

Not only the word *ngayaw*, but also the structure of these two functions is thus identical to the sequential-anterior function 'before X'. In most cases, the distinction between the anterior meaning on the one hand and the two distance meanings on the other is easily made, since measuring temporal distance requires the mention of a temporal duration but temporal location requires a temporal point. Therefore, *ngayaw na utulu deddan* can only be interpreted as 'three days ago' or 'three days before' and not as 'before three days', which does not make any sense. However, in some cases it is unclear whether it involves a temporal point or duration; Kavalan often does not make any distinction here either. The semantic ambiguity of both *ngayaw na* and the genitive object thus results in ambiguous temporal expressions like those in (179).

(179) a. *ngayaw na Rabtin tasaw*
front GEN hundred year
(a) 'before the year 100' (in this case referring to the Chinese Minguo calendar, corresponding to the Gregorian year 2011) [Sequential-anterior]
(b) '100 years ago'/'100 years before' [Distance-past/distance-retrospective] (fieldnotes)

b. *ngayaw na u-zusa bulan*
front GEN CLF.NHUM-two month
(b) 'before February' [Sequential-anterior]
(c) 'two months ago'/'two months before' [Distance-past/distance-retrospective] (fieldnotes)

c. *ngayaw na u-zusa duki*
front GEN CLF.NHUM-two time
(a) 'before two o'clock' [Sequential-anterior]
(b) 'two hours ago'/'two hours before' [Distance-past/distance-retrospective] (fieldnotes)

3.2.4.2. Distance-future ('in …') and distance-prospective ('… later')

Kavalan does not make any grammatical distinction between the distance-future and distance-prospective meanings either. Here, too, one of the ways of expressing these two types of temporal distance is by using *tuRuz na* 'after', as shown in (180)

(180) a. Distance-future

tuRuz na ***u-lima*** ***tasaw*** *qawtu=pa* *aizipna* *qizuan*
back GEN CLF.NHUM-five year come=FUT 3SG.NOM live<AF>
'He will come and live here in five years.' (S17_tuy)

b. Distance-prospective

ta *u-tulu* *bulan-an* *yau=ti* *Raya=ay* *banged*
LOC CLF.NHUM-three month-LOC EXIS=PFV big=REL typhoon
'In March there was a big typhoon.'

tuRuz na ***u-sepat*** ***bulan*** *mawtu* *uman ya* *banged*
back GEN CLF.NHUM-four month come.AF again NOM typhoon
'Four months later, another typhoon came.' (S17_tuy)

To express these two meanings, Kavalan may also employ the verb *melaziw* 'go past, pass (by)'. First, several examples of *melaziw* in a spatial context are given in (181). *melaziw* does not require an object, as seen in (181a-b). When it does take an object, the object is marked as an oblique by *tu* (181c-d).

(181) a. *yau=ti* *paqenanem* *sunis* *qa-ditinsya*
EXIS=PFV a.person child QA[64]-bicycle

me-laziw ta *libeng* *na* *paRin* *'nay* *na* *biyabas*
AF-pass LOC downside GEN tree DEM.MED GEN guava
'A child on a bicycle drove by under the guava tree.' (S16_buy_narrative)

b. *nani* *yau* *kin-tulu=ay* *sunis* *me-laziw* *m-imet* *tu* *biyabas*
DM EXIS CLF.HUM-three=REL child AF-pass AF-hold OBL guava
'The three children walked by while holding a guava.' (S20_tuy_narrative)

c. *me-laziw tu* *biyabas* *'nay,* *yau* *baqian* *'nay* *tayan*
AF-pass OBL guava DEM.MED EXIS male.elder DEM.MED there
'When they passed by the guavas, the old man was there.' (S16_buy_narrative)

d. *me-laziw=ti=imi* *tu* *kalingku* *qatiw=pa=imi* *sa* *taypak*
AF-pass=PFV=1PE.NOM OBL Hualien go=FUT=1PE.NOM to Taipei
'We are going to Taipei via Hualien.' (S25_tim)

When transferred to the domain of time, the temporal distance referred to is mapped onto the grammatical object, or the semantic Ground. This is illustrated in (182). It is unclear who is viewed as the subject of *melaziw*, which would make the difference between analyzing these sentences as instances of the Moving Ego or the NOW IS A MOVER metaphor. Since *melaziw* does not carry any person markers in any of the sentences in which it occurs with a temporal sense, I will temporarily assume this to be an instance of either NOW IS A MOVER, where the moment of speech passes through time (cf. 'It is past bedtime'). Note that an Ego-centered Moving Time model is incompatible with these data, because the temporal duration is marked with the oblique case, which makes it the object of *melaziw* 'pass'. In addition, the informant in question rejected *melaziw utulu deddan* (without oblique marker *tu*) as 'in three days'.

[64] Cf. *qa-bawa* [QA-boat] 'take a boat'. In such *qa-N* formations, *qa-* means 'take (a conveyance)' (Huang 2007:44).

(182) a. Distance-future
me-laziw tu Rabtin tunek=ti pa-dingwa-ka=isu
AF-pass OBL ten minute=PFV CAU-phone-1SG.GEN.FUT=2SG.NOM
'I will call you in ten minutes.' (S02_buy)

b. Distance-prospective
me-laziw tu u-zusa tasaw sa-sunis=ti uman
AF-pass OBL CLF.NHUM-two year SA-child=PFV again
'Two years later, she had another child.' (S22_buy)

However, there seems to be some interspeaker variation here with respect to the Figure-Ground configuration. In (183), the speaker is clear about the temporal RP being the subject of *melaziw* by using zero-marking and the nominative case marker *ya*. Thus, *melaziw* seems to be flexible in conceptualizations (in identical contexts): on the one hand, 'now' or ego may pass through a duration of time; on the other hand, the duration of time may pass (us). The latter is motivated by the Ego-centered Moving Time metaphor.

(183) a. *me-laziw ya u-sepat tasaw qatalin=ti=imi sa kalingku*
AF-pass NOM CLF.NHUM-four year move=PFV=1PE.NOM to Hualien
'In four years we will move to Hualien.' (S17_tuy)

b. *me-laziw=ti u-zusa tasaw-an yau=ti ussiq m-uman mawtu*
AF-pass=PFV CLF.NHUM-two year-LOC EXIS=PFVone AF-again come.AF
'Two years later, another (typhoon) came.' (S21_tuy)

Distance-future and distance-prospective can also be conveyed by the irrealis prefix *qa-*, as illustrated in (184). An indicator of future tense in general, the irrealis marker appears to indicate that the time period in question bears a future relationship with respect to either an aforementioned RP if present or the moment of speech, 'now'.

(184) a. Distance-future
qa*-sa-lipay-an si qatiw=pa=iku sa taypak*
IRR-one-week-AN SI go=FUT=1SG.NOM to Taipei
'He is going to Taipei in a week.' (S07_tim)

b. Distance-prospective
temawaR qaseq aizipna ta pateRungan
tomorrow arrive 3SG.NOM LOC Sinshe[LOC]
'Tomorrow he will arrive in Sinshe.'

qa*-tulu deddan qatiw sa taypak*
IRR-three day go to Taipei
'Three days later, he will go to Taipei.' (unrec_tim)

As we have seen in Section 3.2.1.1, the optional use of *si* conveys a future meaning. This holds true not only for simultaneous location marking, but also for other kinds of temporal reference, as long as the RP

lies in the future. Thus, in the case of temporal distance marking, the presence of *si* makes clear that the period is one to come, as exemplified in (185).

(185) a. Distance-future
Rabtin *tunek* ***si*** *qaynep=iku*
ten minute SI sleep=1SG.NOM
'I am going to sleep in ten minutes.' (S17_tuy)

b. Distance-prospective
ta *u-tulu* *bulan-an* *yau* *Raya=ay* *banged*
LOC CLF.NHUM-three month-LOC EXIS big=REL typhoon
'In March there was a big typhoon.'

u-sepat *bulan* ***si*** *mawtu* *uman* *ya* *banged*
CLF.NHUM-four month SI come.AF again NOM typhoon
'Four months later, another typhoon came.' (S17_tuy)

Finally, Kavalan may also leave the time period unmarked for its temporal distance function specifically and simply use partial locative marking (186), identical to the way simultaneous location (and as we will see, temporal extent) is expressed.

(186) *temawaR* *qaseq* *aizipna* *ta* *pateRungan*
tomorrow arrive 3SG.NOM LOC Sinshe[LOC]
'Tomorrow he will arrive in Sinshe.'

(ta) ***u-tulu*** ***deddan*** *qatiw* *sa* *taypak*
(LOC) CLF.NHUM-three day go to Taipei
'Three days later, he will go to Taipei.' (unrec_tim)

3.2.4.3. Interim summary

The main findings in Section 3.2.4 can be summed up as follows:

(i) Kavalan does not make a distinction between deictic and non-deictic temporal distance. Consequently, 'X before now' (i.e. 'X ago') and 'X before [non-speech time]' (i.e. 'X earlier, before') receive the identical marker *ngayaw na*. The same holds for their future counterparts: both can be marked by *tuRuz na.*
(ii) No distinction is made between temporal distance and sequential location either, apparent from the sequential location markers also being *ngayaw na* and *tuRuz na.*
(iii) The previous two points can be uniformly accounted for by the metaphor SEQUENCE IS RELATIVE POSITION ON A PATH, proposed by Moore (2006, 2014; cf. Núñez & Sweetser 2006). The prediction made by this metaphor is that the front is consistently being mapped onto an earlier time, while the back maps onto a later time relative to another (deictic or non-deictic) temporal point. The Kavalan data are in line with this prediction.
(iv) The lack of a grammatical distinction in these respects does not automatically imply a lack of a conceptual, perceived distinction: in the case of sequential location versus the temporal

distance functions, the availability of strategies exclusively used for each domain demonstrate that speakers do, in fact, perceive a difference.

(v) Distance-future and distance-prospective are found to have some additional alternative markers. One of them is the lexical verb *melaziw* 'pass', which can be used within both the Moving Ego/NOW IS A MOVER model and the Ego-centered Moving Time model. The conceptualization appears to vary between speakers. Furthermore, the irrealis prefix *qa-* and the irrealis temporal and conditional marker *si* also indicate future or relative future. Finally, the RP, which expresses a temporal duration, may only receive (part of) the locative marking, leaving the temporal meaning implicit.

The markers of temporal distance are summarized in Table 3.14.

Table 3.14 Summary: temporal distance in Kavalan

Distance-past/retrospective	*ngayaw na*	'in front of' (S)
	tuRuz na	'behind' (S)
	melaziw	'pass' (S)
Distance-future/prospective	*qa-*	IRR
	si	when.IRR
	(ta) …(-an)	LOC (S)

3.3. TEMPORAL EXTENT

3.3.1. ATELIC EXTENT

Atelic extent marks the duration of an atelic situation, which is a situation without an inherent or intended endpoint. In English, this is usually expressed by 'for' (187).

(187) I waited for three hours.

Kavalan has two ways of marking atelic extent: partial locative case marking and oblique case marking with *tu*, as exemplified below. No semantic distinction was found between the three kinds of linguistic encoding; they can be used interchangeably.

(188) (Partial) locative case marking

a. *pakungku=iku* *tu* *kaput-ku* *u-zusa* *duki-an*
tell.a.story.AF=1SG.NOM OBL friend-1SG.GEN CLF.NHUM-two time-LOC
'I talked to my friend for two hours.' (S25_tim)

b. *sa-bulan-an* *qizuan* *aiku* *tazian*
one-month-AN live<AF> 1SG.NOM here
'I have lived here for one month.' (S17_tuy)

c. *siRab* *ti-utay* *satezay* *ta* *u-ssiq* *duki-an*
yesterday CLF.PN-Utay sing.AF LOC CLF.NHUM-one time-LOC
'Yesterday Utay sang for one hour.' (S17_tuy)

d. *wasu-ku* *Raytunguz* *ta* *Rabtin* *tunek, …*
dog-1SG.GEN bark.AF LOC ten minute
'When my dog had been barking for ten minutes, …' (S17_tuy)

(189) Oblique case marking

a. *satezay* *ti-utay* *tu* *sa-duki-an*
sing.AF CLF.PN-Utay OBL one-time-AN
'Utay sang for one hour.' (S25_tim)

b. *tuzus* *aiku* *ta* *leppaw-an* *qaynep* *tu* *Rabtin* *duki-an*
reach<AF> 1SG.NOM LOC house-LOC sleep OBL ten time-AN
'When I get home, I am going to sleep for ten hours.' (S17_tuy)

c. *temawaR* *satezay=pa* *ti-utay* *tu* *sa-duki-an*
tomorrow sing=FUT CLF.PN-Utay OBL one-time-AN
'Tomorrow Utay is going to sing for one hour.' (S17_tuy, S22_buy)

Kavalan is not a special case in this respect: one of the main tendencies found in Haspelmath's (1997:120ff.) typological study is that languages with a case system tend to use accusative case. In Kavalan, what has been called the oblique case is what comes closest to the accusative: both are the default markers for the direct object. Haspelmath (1997:122ff.) proposes two plausible motivations for this way of encoding: a) the accusative, marking direct object, is the least specific case, allowing a wide range of semantic roles, and is thus a logical choice for adverbial use (acting as a 'minimal marker'); b) the atelic extent adverbial is viewed as a type of direct object. As Haspelmath himself suggests, these two hypotheses do not necessarily contradict each other; both are plausible for Kavalan. Several observations in Kavalan demonstrate that the atelic extent adverbial does not only carry the same case marker as oblique-marked objects, but also behave in a similar way. This offers some support for hypothesis (b); they are perceived as conceptually similar.

First, since case interacts with focus, the oblique case-marking type is expected to change in an LF sentence if it has not (yet) lexicalized. Indeed, regarding case, this temporal oblique NP behaves as an oblique NP marking a regular object of the verb and becomes a nominative in an LF clause.

(190) a. *tayta* *sunis* *'nay* *tu* *wasu*
see<AF> child DEM.MED OBL dog
'The child saw a dog.' (S28_tuy)

a'. *satezay* *ti-utay* *tu* *sa-duki-an*
sing.AF CLF.PN-Utay OBL one-time-AN
'Utay sang for one hour.' (S25_tim)

b. *tayta-an-na* *sunis* *'nay* *ya* *wasu*
see-LF-3SG.GEN child DEM.MEDNOM dog
'The child saw the dog.' (S28_tuy)

b'. *u-lima* *tunek* *ya*[65] *sa-sikawma-an-na*
CLF.NHUM-five minute NOM SA-speak-LF-3SG.GEN
'He has been talking for five minutes.' ('It is for five minutes that he has been talking.')
(S12_tuy)

The atelic extent NP also behaves like a regular oblique NP in terms of word order. Oblique Themes and Patients always follow the verb in Kavalan (see Huang 2007:23-24). Likewise, if the extent NP is marked with the oblique case, the constituent cannot precede the verb (191).

(191) a. *temawaR* *satezay=pa* *ti-utay* ***tu*** ***sa-duki-an***
tomorrow sing=FUT CLF.PN-Utay OBL one-time-AN
'Tomorrow Utay will sing for one hour.' (S17_tuy, S22_buy)

a'.**temawaR* ***tu*** ***sa-duki-an*** *satezay=pa* *ti-utay*
tomorrow OBL one-time-AN sing=FUT CLF.PN-Utay
Intended: 'Tomorrow Utay will sing for one hour.' (S17_tuy)

b. *siRab* *ti-utay* *satezay* ***tu*** ***u-zusa*** ***duki-an***
yesterday CLF.PN-Utay sing.AF OBL CLF.NHUM-two time-AN
'Yesterday Utay sang for one hour.' (S17_tuy)

b'.**siRab* *ti-utay* ***tu*** ***u-zusa*** ***duki-an*** *satezay*
yesterday CLF.PN-Utay OBL CLF.NHUM-two time-AN sing.AF
Intended: 'Yesterday Utay sang for one hour.' (S17_tuy)

3.3.2. TELIC EXTENT

Telic extent marks the duration of telic situations, as in (192).

(192) *John drew a circle in five seconds.*

There are no linguistic devices exclusively reserved for this function in Kavalan; it is either zero-marked or receives the default locative case marking, thus not making a distinction with simultaneous location and atelic extent in some cases. From the perspective of Haspelmath's (1997:130ff.) findings, this is quite exceptional: none of his sample languages use zero-marking and only four, Latvian, Armenian, Greenlandic, and Georgian, use a general locative marker.[66] The large majority employs a spatial marker meaning 'in, inside, within', like English. Apparently, in Kavalan this common conceptualization of a bounded event as a container object does not exist. Examples of Kavalan's strategies are given below.

[65] In cleft sentences, the nominative case marker *ya* often follows the NP it marks. Cf. the following example from Lee (1997:18).

(i) *sunis* *(ya)* *bawa-an-ku*
child (NOM) hug-LF-1SG.GEN
'The child was hugged by me.' ('It is the child who was hugged by me.')

[66] It is not clear from the table in Haspelmath (1997:130) whether these locative markers also express 'in'.

(193) Zero-marking

a. *u-zusa* *bulan* *tulis* *ti-abas* *tu* *ussiq* *tulis-an*
CLF.NHUM-two month draw<AF> PNM-Abas OBL one draw-NMZ
'Abas drew a drawing in two months.' (S23_buy)

b. *ti-utay* *u-zusa* *duki* *qan* *tu* *u-zusa* *kaysing* *'may*
CLF.PN-Utay CLF.NHUM-two time eat<AF> OBL CLF.NHUM-two bowl rice
'Utay ate two bowls of rice in two hours.' (S18_rac)

c. *qenizi ta* *leppaw-an-ku* *saqay* *tuzus* *ta* *leppaw-an-na*
from LOC house-LOC-1SG.GEN walk<AF> reach<AF> LOC house-LOC-3SG.GEN

u-zusa *betin* *tunek*
CLF.NHUM-two ten minute
'(One) walks from my house to his house in ten minutes.' (S17_tuy)

d. *u-tulu* *tasaw aizipna* *sudad* *tu* *sudad zau*
CLF.NHUM-three year 3SG.NOM write<AF> OBL book DEM.PROX
'He wrote this book in three years.' (S22_buy)

(194) (Partial) locative case marking

a. *u-tulu* *tasaw-an* *sangi* *tu* *kyukay* *zau*
CLF.NHUM-three year-LOC make<AF> OBL church DEM.PROX
'They built this church in three years.' (S25_tim)

b. *ta* *u-zusa* *duki* *silep* *tu* *unem* *taRa* *Raq*
LOC CLF.NHUM-two time sip<AF> OBL six cup wine
'He drank six glasses of wine in two hours.' (S14_tuy)

c. *ta* *u-zusa* *duki-an* *u-zusa* *kaysing* *ni-qan-an* *ni* *utay*
LOC CLF.NHUM-two time-LOC CLF.NHUM-two bowl PFV-eat-NMZ GEN Utay
'Utay ate two bowls of rice in two hours.' (S22_buy)

d. *tulis* *ti-abas* *tu* *u-ssiq* *tulis-an* *nani*
draw<AF> CLF.PN-Abas OBL CLF.NHUM-one draw-NMZ DM

u-zusa *duki-an*
CLF.NHUM-two time-LOC
'Abas spent two hours drawing one drawing.' (S22_buy)

3.3.3. DISTANCE-POSTERIOR

The distance-posterior function simultaneously expresses the extent of the situation and the starting point of the situation. The situation extends into the present; it is an ongoing situation. Kavalan employs the aspectual marker *=ti* for this function, as seen in (195). An analysis of *=ti* as an inchoative marker rather than a perfective marker seems more reasonable here, because it is the starting point of the situation that is specifically indicated by the temporal phrase. Moreover, (195b) already marks the situation 'look at that' as having perfective aspect (*'nay**=ti***). If the *=ti* on *uzusa* were a perfective marker as well, it would

be redundant information. Alternatively, *=ti* in *'nay=ti* can be analyzed as a repetition of the inchoative marker.

(195) a. *sa-duki-an=ti ti-utay satezay*
one-time-AN=INCH CLF.PN-Utay sing.AF
'Utay has been singing for one hour.' (S17_tuy, S22_buy)

b. *'nay=ti tayta-an-na u-zusa=ti duki-an*
DEM.MED=PFV see-LF-3SG.GEN CLF.NHUM-two=INCH time-AN
'He has been looking at that for two hours.' (S13_buy)

c. *u-lima=ti tasaw kelawkaway ti-utay*
CLF.NHUM-five=INCH year work.AF CLF.PN-Utay
'Utay has been working for five years.' (S19_buy)

3.3.4. INTERIM SUMMARY

The preceding discussion in Section 3.3 on temporal extent functions has revealed the following:

(i) Both atelic and telic extent may be realized by locative case marking or a part of it. This strategy remains unspecific and implicit about what is being expressed, since simultaneous location and distance-future/prospective may be marked in the same way in Kavalan.

(ii) Additionally, atelic extent NPs are often marked as oblique objects, which is a cross-linguistically frequently attested strategy (Haspelmath 1997:122ff.). I have demonstrated that these extent NPs do not only superficially occur with an oblique case marker, but also syntactically behave like an oblique object.

(iii) The minimal marking of telic extent as seen in Kavalan, on the other hand, appears to be highly typologically uncommon (Haspelmath 2007:130ff.).

(iv) The distance-posterior function, which indicates both the starting point and the duration of a situation, is conveyed aspectually: the inchoative clitic *=ti* is attached to the temporal extent NP.

These findings are summarized in Table 3.15.

Table 3.15 Summary: temporal extent in Kavalan

Atelic extent	*(ta) …(-an)*	LOC (S)
	tu	OBL
Telic extent	*Ø*	
	(ta) …(-an)	LOC (S)
Distance-posterior	*=ti*	INCH

3.4. *YAU* AND *WI(YA)* ACROSS SPACE AND TIME

The dichotomy formed by adnominal demonstratives *yau* (medial) and *wi'u* (distal) (previously mentioned in Section 2.6) is found in other grammatical domains as well, displaying similarities between place deixis, motion verbs, and aspect markers. While various functions of *yau* were analyzed by Sung et al. (2006), this fascinating systematic parallellism between the range of functions of *yau* and *wi'u* was first pointed out by Jiang (2006:196). Their functions, as analyzed by Jiang, are summarized in Table 3.16. I will provide a revised overview at the end of this section.

Table 3.16 Parallel functions of yau *and* wi(ya) *(Jiang 2006:196)*

Category	Function	*yau*	*wi(ya)*
Place deixis	Spatial reference	*yau* (proximal near-hearer demonstrative pronoun)	*wi'u* (distal demonstrative pronoun)
	Spatial modifier	N *a yau* 'that N (near-hearer)'	N *a wi'u* 'that N (away from both speaker and hearer)'
Motion predicate	Static predication	*yau* + *ta X(-an)* 'to be located at X (here)'	*wi* + *ta X(-an)* 'to be located at X there'
	Dynamic predication	*yau=ti* 'to move towards speaker' 'to come into view'	*wiya=ti* 'to move away from speaker' 'to go out of view'
Aspect marker	Temporal contouring	*yau* + V (progressive)	*wi:* + V (continuative) *wiya=ti* + V (inchoative)

Besides their demonstrative function, *yau* and *wi* and *wiya*[67] (presumably related to *wi'u*) also have the function of locative predication ('to be here/there') and of motion predication ('to come/go'), in which they are verbs. As seen in (196), *yau* and *wi(ya)* can both take pronominal clitics and aspect markers.

(196) a. *yau=iku* *ta* *libeng;* *wi=isu* *ta* *babaw*
DEM.MED=1SG.NOM LOC downside go.away=2SG.NOM LOC upside
'I am down here; you are up there.' (Jiang 2006:118)

b. *yau=ti* *sekawalu*
DEM.MED=PFV summer
'Summer has come.' (S12_tuy)

c. *wiya=ti* *sekawalu*
go.away=PFV summer
'Summer has gone.' (S12_tuy)

[67] According to Lee (1997:29, footnote 11), *wi* is the irrealis form and *wiya* is the realis form of the verb. However, both forms also occur with the irrealis marker *qa-*, and in the same context (see (i)). The difference between the two forms is thus unclear at present.

(i) *yau* *pama,* *wanayka* *temawaR* *qa-wi=ti / qa-wiya=ti*
EXIS still but tomorrow IRR-leave=INCH / IRR-leave=INCH
'He is still here, but tomorrow he is leaving.' (S12_tuy, S13_buy)

In view of these demonstrative functions on the one hand and verbal functions on the other, it can be inferred that either grammaticalization from the lexical verbs to the demonstratives has taken place, or lexicalization the other way around. There are different views on the general issue of grammaticalization into demonstratives versus the lexicalization of demonstratives (see e.g. Diessel 1999:150ff.; Heine & Kuteva 2004:159). Regarding the specific Kavalan case of *yau*, Sung et al. (2006) argue that its demonstrative meaning is its core, original sense, while its other functions are derived from the demonstrative one through semantic bleaching and metaphorical extensions. Jiang (2006:205) moreover notes that "locative verbs in Rukai, Paiwan, Amis, Atayal, Puyuma, and Seediq all derive from proximal demonstratives". However interesting, due to space and time limitations this subject will not be deliberated here.

In some more detail we will now look at the aspectual meanings of *yau* and *wi(ya)*, since the space-time metaphor plays a role in their development. First, it is a well-known fact that *yau* can serve as a progressive aspect marker, see e.g. (197).

(197) *baqian* *'nay* *yau* *ta* *babaw* *qay-biyabas*
male.elder DEM.MED EXIS LOC upside pick-guava
'The old man was up (in the tree) picking guavas.' (S16_buy_narrative)

In accordance with Sung et al. (2006:494), I analyze this as a derived meaning from the locative function. This seems highly plausible, as this path of development is frequently attested cross-linguistically (Heine, Claudi & Hünnemeyer 1991:36; Bybee, Perkins & Pagliuca 1994:174). The metaphor SITUATIONS ARE LOCATIONS is seen as the major motivation for locative constructions developing into progressive markers (Moore 2014:224). Since situations consists of states and activities, a subtype of SITUATIONS ARE LOCATIONS is ACTIVITIES ARE LOCATIONS (Lakoff & Johnson 1999). Consequently, 'being in an activity' is conceptualized as 'being in a place'.

As for *wi(ya)*, Jiang (2006) noted two aspectual functions which he labeled as the continuative and the inchoative. Two of his examples are replicated in (198).

(198) a. *wi:* *satezay* *aimi,* *mai* *me-Ribang*
go.away sing.AF 1PE.NOM NEG AF-rest
'We sing on and on, without taking a rest.' [Continuative] (Jiang 2006:194)

b. *wiya=ti* *Raya* *uzan*
go.away=PFV great rain
'The rain is getting heavier and heavier.' [Inchoative] (Jiang 2006:194)

'Go' verbs evolving into continuous or continuative aspect markers are also widely attested (Heine & Kuteva 2004:157-158). The continuative aspect includes the meaning of the progressive aspect (that the activity is ongoing), but additionally specifies that the agent of the described action deliberately keeps it going (Bybee, Perkins & Pagliuca 1994:127). Similar continuative uses of 'go' are found in e.g. Lahu and Tok Pisin (an English-based pidgin), see (199).

(199) a. Lahu (Sino-Tibetan)
vəʔ
'put on, wear' (Matisoff 1991:407, cited in Heine & Kuteva 2004:158)

vəʔ qay
wear go
'goes on wearing' (Matisoff 1991:407, cited in Heine & Kuteva 2004:158)

b. Tok Pisin
*ol **igo** wok finis...*
'They had **gone** to work...' (Sankoff 1979:44-45, cited in Heine & Kuteva 2004:158)

*Em isave pilei long das tasol **igo igo**...*
'He would **keep** playing in the dust…' (Sankoff 1979:44-45, cited in Heine & Kuteva 2004:158)

In spatial, deictic uses of *wi(ya)*, informants have indicated that the lengthening of the vowel in *wi:* expresses a bigger distance: the longer the vowel, the more the speaker is emphasizing the entity being very far away. *wi:* + V thus literally means that the subject has gone far away doing V (or being V in the case of stative predicates). It is useful to take into consideration a space-time metaphor here: A SITUATION IS A MOVER (Moore 2014:45). If the situation is seen as moving along a path and moving forward stands for the progress of the situation, a mapping that arises from these assumptions is that when the situation is far along the path, it has been going on (note the unintended metaphor) for a long time. The Wolof example given by Moore is repeated below from (55) to illustrate the striking similarities to the continuative use of Kavalan *wi:*.

(200) Wolof (Atlantic-Congo)

Nawet	*bi*	*dem*	*na*	*be*	*sori*	*amut*	*ndox.*
rainy.season	the	go	PERF.3	to.the.point.of	be.far	have:NEG	water

'The rainy season went on for a long time without rain.'
(lit. 'The rainy season went to the point of being far and it didn't have water.') (Moore 2014:45)

As for the other aspectual function of *wi(ya)*, which Jiang labels as an inchoative, there are two modifications I would like to make based on some new data. The first is that this meaning can be conveyed not only by *wiyati* (201a), but also by *wi:*, without the aspect marker *=ti* (201b-c). In (201c), *wi* can be replaced by *wiyati* without changing anything in meaning, so the two seem to be interchangeable in this sense.

(201) a.

saqay=ti	*qaytun,*	*wiya=ti*	*me-daud*	*tu*	*leppaw*
walk<AF>=PFV	car	go.away=PFV	AF-far	OBL	house

'As the car drove away, we got farther and farther away from the house.' (S27_lon)

b.

wi:	*me-lizaq*	*tu*	*tazian=ay*	*qenabinnus*
go.away	AF-like	OBL	here=REL	life

'He is getting more and more used to the life here.' (S12_tuy)

c.

Ramaz	*unay*	*wi:*	*Raya*
fire	DEM.MED	go.away	big

'The fire is becoming bigger and bigger.' (S27_lon)

The second remark is that the term 'inchoative' does not seem to be fully appropriate here. While an inchoative indicates the beginning of a situation, this is not necessarily the case for this use of *wi(ya)*, as becomes clear from the examples in (202).

(202) a. *taRaw=ay=ti* *zapan-ku*
sick=REL=PFV leg-1SG.GEN
'My leg hurt.'

saqay *wi* */ wiya=ti* *taRaw*
walk<AF> go.away go.away=PFV sick
'When I walked, it hurt even more.' (S27_lon)

b. *qumnut=ti* *tama-ku*
angry=PFV father-1SG.GEN
'My father was angry.'

mai *m-ipil* *tu* *sanu* *wi* *qumnut* *tama-ku*
NEG AF-hear OBL talk go.away angry father-1SG.GEN
'When I did not listen, my father got angrier and angrier.' (S20_tuy)

I am not aware of a linguistic term for the meaning expressed by *wi(ya)* here; it could be described as a gradual increase of the intensity of the situation.[68] This was also mentioned earlier (for emotions specifically) by Lin (2006:194-195). In such contexts, *wi(ya)* is often replaceable by *padames* '(even) more'. It appears that the degree/intensity of the situation is conceptualized as distance, so that the further away a person goes, the more 'intense' the situation becomes.

I have summarized the findings from Jiang (2006) and myself in an adapted version of Jiang's table below.

Table 3.17 Some (mainly spatial and temporal) functions of yau *and* wi(ya) *(adapted from Jiang 2006:196)*

	Function	*yau*	*wi(ya)*
Space	Spatial deixis	DEM.MED	DEM.DIST (*wi'u*)
	Locative predication	'be at X (here)' (*yau ta X(-an)*)	'be at X there' (*wi ta X(-an)*)
	Motion predication	'move towards speaker, come'	'move away from speaker, go (away)'
Time	Aspectual marking	PROG	CONT
Other		-	*wi(ya)* + predicate: gradual increase of intensity

[68] In Mandarin, it is translated as 越來越 *yuèlaíyuè*.

4. TYPOLOGICAL STUDY

After having explored Kavalan's linguistic means to express and conceptualize time, several aspects will now be compared to a selected sample of other Formosan languages. Only by widening the perspective can we discover whether Kavalan's behavior is unique or strikingly similar to other languages in any respect, and whether it leads to typological implications. Lexical time (in the broad sense, i.e. everything temporal except tense, aspect, and mood) has been studied in-depth for less than a handful of Formosan languages, and these studies have never been included in a typological study on temporal expression. Therefore, the present study aims to fill a gap in this area of research and to set in motion further, more comprehensive research on the subject.

First, the language sample is described and motivated (Section 4.1). Then, the linguistic means to express temporal relations in these languages is explored, specifically, simultaneous location, anterior location, and posterior location (Section 4.2). These functions are looked at in terms of both clausal expression and nominal expression. Section 4.3 provides a preliminary look into space-time conceptual metaphors in the sample languages. Both Section 4.2 and 4.3 are summarized and discussed individually at the end of each section.

Some practical remarks on the data: first, the spelling for all languages is adjusted as much as possible according to the orthographic system used in the e-Dictionaries of the Council of Indigenous Peoples (Executive Yuan, 2005) to maintain consistency and clarity.[69] Second, the linguistic analyses made by the author of the data source are kept intact as much as possible, with few exceptions.[70]

4.1. LANGUAGE SAMPLE

Aside from Kavalan, the languages included in this study consist of Paiwan, Tsou, Isbukun Bunun (one of the southern varieties of Bunun), and Saisiyat. They were selected on the basis of a) the availability of research (on temporal aspects) and linguistic data of the language; b) their mutual genetic relationships; and c) their mutual contact history. For both Paiwan and Tsou, Master's theses (Sung 2005 and Pan 2007 respectively) have been written based on Haspelmath's functional classification, making them the ideal object of comparison for the present thesis. Early & Whitehorn (2003) contains 100 Paiwan texts, providing valuable corpus data. For the Isbukun variety of Bunun, a paper on the TIME AS SPACE metaphor by Huang (2016) appeared very recently. Furthermore, Jiang & Jeng (2010) collaborated on a conference paper on spatial and temporal conceptualizations in Isbukun Bunun. Corpus data were kindly provided by Shuping Huang, who shared her self-annotated parts of the Isbukun Bunun Bible's Genesis. Along similar lines as Huang (2016), Hsieh (forthc. b) gives an account of the TIME OF SPACE metaphor in Saisiyat. In the NTU Corpus of Formosan Languages, there is a vast amount of Saisiyat texts in comparison with the other languages; with 22 texts (including not only 13 elicited narratives based on the Pear Story (Chafe 1980) and Frog Story (Mayer 1969), but also 8 narratives of traditional legends and one

[69] http://e-dictionary.apc.gov.tw/index.htm.

[70] (i) I have changed 'voice' analyses to 'focus', without suggesting that the latter is superior, but again solely with the purpose of maintaining consistency and simplicity in the glosses.
(ii) Temporal markers are sometimes glossed with additional 'realis/irrealis'/'past/non-past' information. I have added this information wherever they were glossed with 'when' only for the sake of clarity.

conversation). Zeitoun, Chu & Kaybabaw's (2015) comprehensive monograph on Saisiyat morphology also contains a varied collection of example sentences. In addition, all four languages besides Kavalan are included in Zeitoun's (1997) typological study of temporal, hypothetical, and counterfactual clauses.

The five languages are genetically reasonably spread. According to Blust's (1999) subgrouping (Figure 4.1), they all represent a different primary subgroup of PAN. In the more conservative internal classification by Li (2006; see Figure 4.2), Bunun and Paiwan would belong to the same Southern

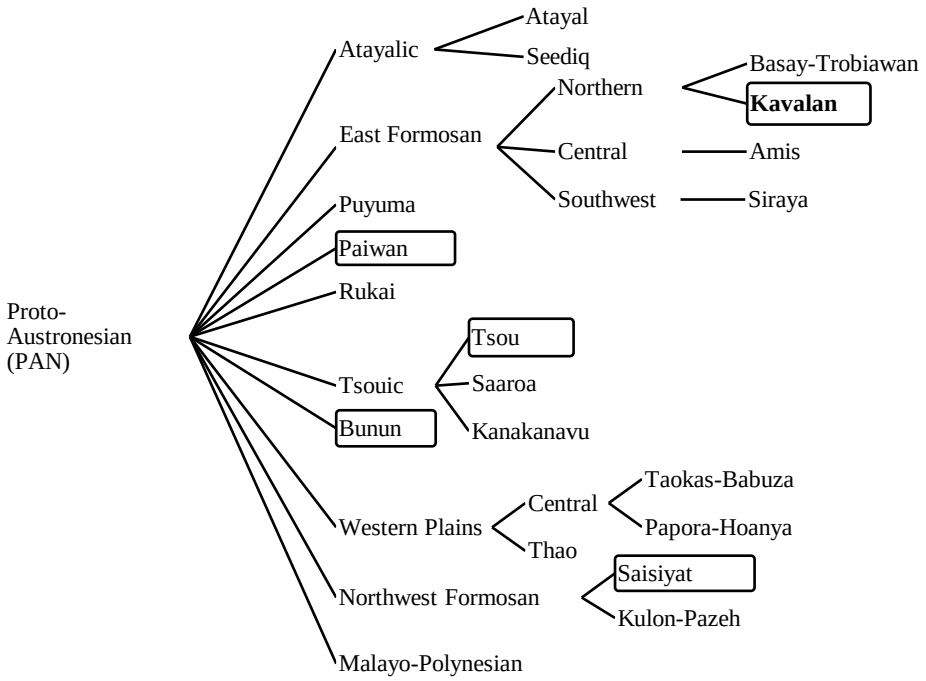


Figure 4.1 The sample languages' position within Blust's (1999:45) classification of the Austronesian languages

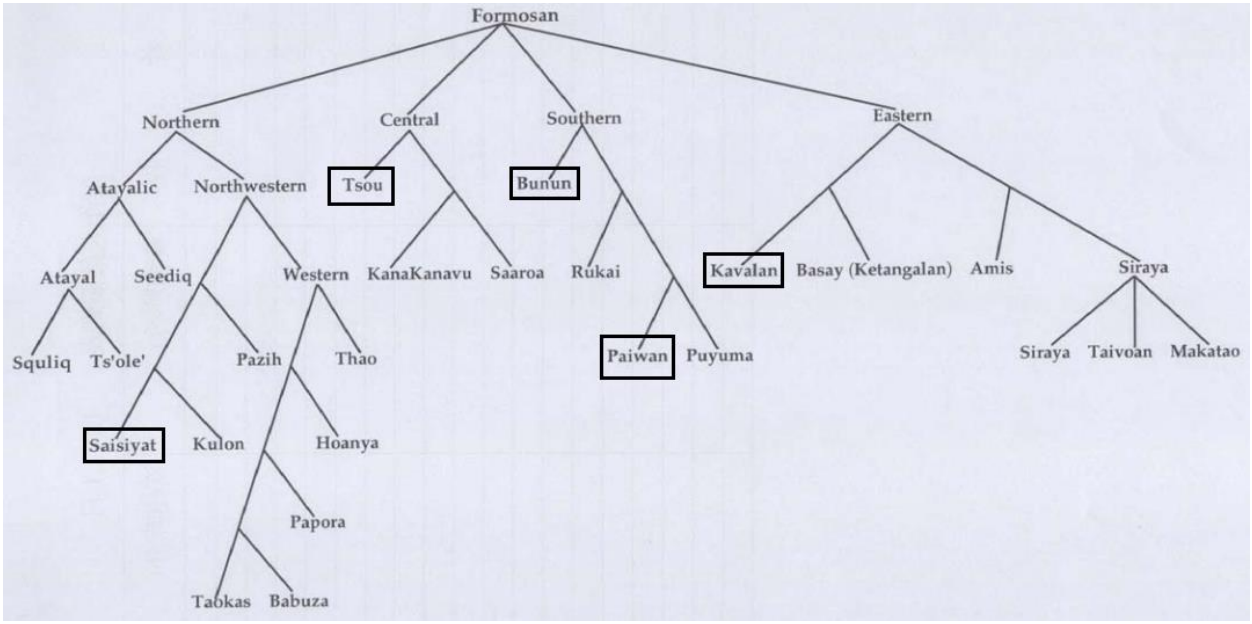
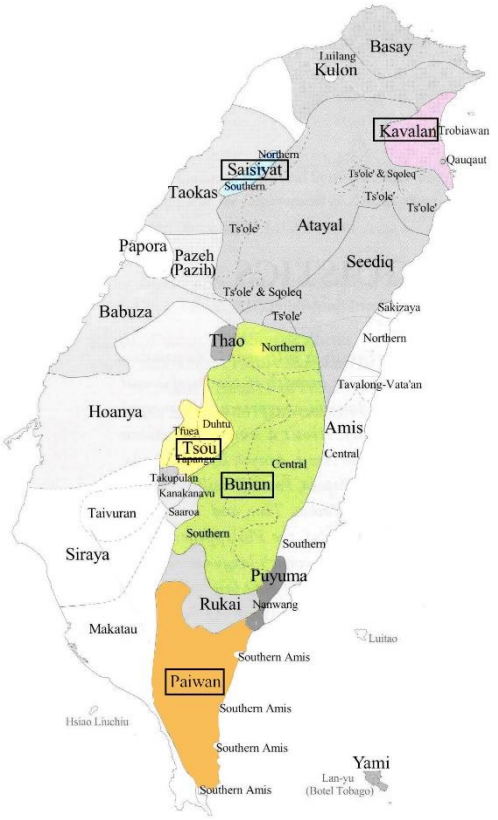


Figure 4.2 The sample languages' position within Li's (2006:8) classification of the Formosan languages

Formosan subgroup, but all four primary subgroups would be represented by these five languages. If Ross' (2009, 2012) Nuclear Austronesian hypothesis is assumed, Tsou has a different status from the other four languages by not being part of Nuclear Austronesian. Due to the existence of many diverging classifications, it is impossible to completely control for genetic factors at present; therefore, this distribution is deemed adequate for now. In this study, the sample languages will be indicated according to Blust's classification, since his is the most widely cited in literature.

Little research on (internal) language contact situations has been done for the Formosan languages. Li (2015:42ff.) mentions the plausibility that Tsou and Bunun have been in close contact in the past due to their geographical adjacency. However, the lexical evidence he found for language contact is very limited. To obtain a rough idea of the degree of contact the five sample languages may have had, it suffices to consider several maps. First, a map from Li (2001) displays the roughly estimated routes and times of dispersal of the various Formosan peoples. Of the sample languages' communities, only the Kavalan are known to have undertaken radical migrations, which do not seem to have led to geographical adjacency to any other sample languages.[71] Next, consider the two maps below from different time periods. Figure 4.3 shows the situation presumably sometime before 1840, because the Kavalan people migrated towards the south from Yilan (northeast coast) between 1830-1840 (Hsieh & Huang 2007). Compared to Figure 4.4,



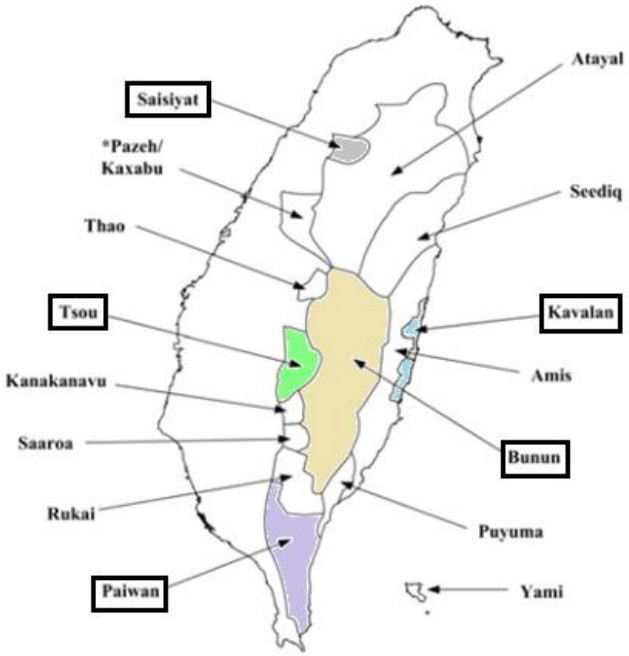


Figure 4.4 Geographical distribution of the Formosan languages and Yami (Zeitoun, Teng & Wu 2015:xii)

Figure 4.3 Geographical distribution of the Formosan languages and Yami before 1840, year unknown (adapted from Blundell (2000:44), which is an adaptation of Tsuchida (1983))

[71] Kavalan and the rest of the East Formosan group were originally situated in the southwest, from where they moved to the east coast about 3000 years ago (Li 2001:275). This migration allegedly took place by sea, so did not involve contact with other peoples in the south and southeast. About 2000 years later, the Kavalan moved to Ilan in the northeast, and eventually to the east coast in Hualien in 1840, where the remaining speakers are still settled today.

showing the current distribution, the main difference is in fact the Kavalan migration. Apart from the fact that the now extinct languages have disappeared from the map, the indicated sample languages seem to have remained in roughly the same areas as some centuries ago. From the maps it can be deduced that, without any mass migrations, close language contact between any other sample languages than Tsou and Bunun is rather unlikely.

4.2. TEMPORAL EXPRESSION

For both simultaneous location and sequential location, the occurrence with clausal RPs and nominal RPs are treated individually. Since a past, future, or generic/habitual interpretation of temporal location are found to be encoded differently in some Formosan languages (Zeitoun 1997), the same distinction is made here as well. Simultaneous location is thus further subdivided into past, future, and generic/habitual. Simultaneous and sequential location were chosen for this study because they constitute the most basic functions within temporal relations: coinciding with, anterior to, and posterior to a reference time. The other motivation concerns the feasibility of the present research: Zeitoun's (1997) preliminary typological study, which includes 'when'-, 'before'-, and 'after'-clauses, forms an indispensable foundation, making it possible to have a considerable amount of comparable data within a relatively limited time frame. In terms of linguistic content, Zeitoun's (1997) survey is extended to nominal reference times (as opposed to clausal ones), while in terms of languages, my findings in Kavalan are integrated. Furthermore, I have tried to fill data gaps where possible.

Section 4.2.1 examines the expression of simultaneous location. Subsequently, in Section 4.2.2 and 4.2.3 anterior and posterior location are respectively discussed. The section concludes with a typological overview of all clausal functions (Section 4.2.4).[72]

4.2.1. SIMULTANEOUS LOCATION

The simultaneous location of a situation can be defined as its location at a time point that coincides or overlaps with the reference time. As explained in the introduction, a threefold distinction between past, generic/habitual, and future situations is made, since these were found to be typologically significant within the Formosan languages (Zeitoun 1997). Secondly, the discussion is divided into a part about simultaneous location expressed by a clause and another part about nominal simultaneous location. The functions that will be examined are illustrated in English below. Simultaneous location clauses are formed by 'when' or 'while' in English, consider (203). For the sake of brevity, such clauses will be called 'when'-clauses from now on.

(203) Clausal simultaneous location in English
   a. When they arrived, we were sleeping. [Past]
   b. When(ever) he is hungry, he eats a cookie. [Generic/habitual]
   c. While you drive, I will tell you the directions. [Future]

[72] The nominal RPs are not included, because too little data turned out to be available. This is caused not only by the difficulty of finding relevant data, but for a large part also by the fact that some languages do not tend to use nominals for temporal reference (see Section 4.2.2.2). Nevertheless, they are briefly discussed.

Examples of simultaneous location NPs are *at that moment, at six o'clock, in March, last year, in the evening,* and so forth.

4.2.1.1. Clause

The findings for all sample languages are summarized in Table 4.1, which is largely based on Zeitoun (1997).[73] While not visible in this table, it is interesting to add that all the sample languages, in fact all Formosan languages of which there is enough data available, have the same 'when' marker for generic and future clauses and conditional clauses (Zeitoun 1997).[74] This suggests that Formosan languages do not distinguish between future situations and hypothetical situations (e.g. 'when he visits' versus 'if he visits'). Conditional clauses are beyond the scope of this thesis, however, and will therefore not be discussed further. Since the functional range of these temporal-conditional markers has been clarified now, they are henceforth glossed as 'when.IRR' (or 'when.NPST').

Table 4.1 Marking of simultaneous location clauses in sample languages (adapted from Zeitoun 1997:151)

	Past		Generic/habitual		Future	
Tsou	*ne + (m)-o(h)/ moso*	when.REAL + (AF)-REAL/ AF.REAL	*ho + la*	when.IRR + IRR.HAB	*ho + te-/tena/ta-* *ho + ci*	when.IRR + IRR.PRED when.IRR + ?
Paiwan	*ka*	when.REAL	*nu* *kana … kana*	when.IRR ?		
Bunun	*masa*	when.PST	*mais*	when.NPST		
Kavalan	*Ø*				*Ø* *si*	- when.IRR
Saisiyat			*Ø* *So:*	- when		

As we have seen, Kavalan does not grammatically distinguish between past, future, and generic/habitual 'when'-clauses: the 'when'-clause and the main clause are always juxtaposed. Although there is no subordinator, a subordinate relationship is assumed since future situations are morphologically marked on the predicate of the main clause and not in the temporal clause. The future 'when'-clause may contain the temporal/conditional morpheme *si* at the end, but it is never obligatory (see Section 3.2.1.1). For this reason, the division in the overview between past and generic on the one hand and future on the other is shown as a dotted line. Generic situations are optionally marked as such by lexical means (*pataz* 'often').

[73] All modifications and additional information that do not concern Kavalan were taken from other studies and data sources from the languages in question. These sources will be specified separately for the next two tables based on Zeitoun (1997). The adjustment for Saisiyat in Table 4.1 is based on data from Zeitoun, Chu & Kaybabaw (2015). The adjustment for Tsou is based on Pan (2007), which describes *ne* as a marker for past temporal clauses and *ho* for future. I have not encountered any examples in support of Zeitoun's finding that past clauses may be expressed with *ho*.

[74] In Tsou, the conditional clause is formally different from the future clause, because the obligatory auxiliary verb carries a hypothetical modal marker in a conditional clause (see discussion of Tsou later in this section). Nevertheless, the temporal marker itself, *ho*, is the same.

It becomes apparent from Table 4.1 that Kavalan's lack of distinction between the three temporal types is not very common in light of the other four languages: Bunun and Paiwan use one marker for simultaneous location in the past and another marker for both generic and future situations (Zeitoun 1997). Puyuma and Rukai, not included in our sample, behave in the same way. At first sight, Tsou seems to be unique, in that it additionally treats generic situations in a manner different from future situations. I will return to this later. Saisiyat is the language resembling Kavalan the most in this respect: all 'when'-clauses may be left unmarked, and when marked, a single general marker is used for all three; no distinction is made. Moreover, it is noteworthy that the Kavalan particle *si* is rather peculiar, being restricted to future contexts and incompatible with generic/habitual contexts. In all other languages for which data are found in Zeitoun (1997), which amount to seven, the same marker is used for these two temporal contexts (for Tsou the marker *ho* stays the same). No additional marker has been reported so far with the same functional range as *si.*

I will now move on to illustrating each language's behavior. Bunun and Paiwan mark past 'when'-clauses with a past or realis temporal marker and generic and future clauses with a non-past or irrealis one, as illustrated in (204) and (205).[75] Terminological differences aside, both languages make the same two-way distinction between past situations on the one hand and generic and future situations on the other.

(204) Isbukun Bunun (Bunun)

a. ***masa*** *m-ataz* *saia* *hai,*
when.PST AF-die 3SG.NOM.DIST TOP

pun *siva* *saba* *tu* *maimaun* *tu* *hamisan.*
pass nine hundred COMP fifty COMP year
'When he died, he was 950 years old.' [Past]
(Genesis 9:29, glossing by Shuping Huang, translation adapted by me (WL)[76])

b. ***mais*** *tu-ia* *saia* *hai,* *minsuma* *hudan.*
when.NPST AF-cry it TOP appear rain
'Whenever it (the frog) cries, it rains.' [Generic] (Jeng 1999:467)

c. ***mais*** *sadu* *zaku* *saicia* *hai* *na-palinutu-an-ku*
when.NPST see 1SG.NOM 3SG.OBL TOP will-tell-NAF-1SG.OBL
'When I see him, I'll tell him.' [Future] (Zeitoun 1997:147)

(205) Paiwan (Paiwan)

a. ***ka*** *pacun-aken* *tjaymadju* *katiaw* *ka-aqivu-in*
when.REAL see-1SG.NOM 3SG.ACC yesterday 1SG.GEN-say-PF
'When I saw him yesterday, I told (him).' [Past] (Zeitoun 1997:133)

[75] It may appear strange that while the opposition realis/irrealis mood normally corresponds to non-future/future tense, the temporal markers in Bunun are marked as past/non-past (cf. Jeng 1997). Such inconsistencies in terminology are inevitable when discussing different languages described by different scholars, and I am compelled to leave these as they are, since I am clearly not in the position to evaluate these analyses.

[76] The corresponding English Bible sentences often strongly diverge from the Bunun text, from which it is hard to see which Bunun parts correspond to which English parts. The Bunun Bible was translated from Chinese. Therefore, for the sake of clarity I have decided to depart from the more literal Chinese translation.

On another note, the source of glosses and translation mentioned here holds for all following Genesis examples and will henceforth not be repeated for each example.

b. ***nu*** *maka-kan* *tua* *velevel* *timadju* *tjara* *temekel* *tua* *zaljum*
when.IRR exhaust.AF-eat ACC banana 3SG.NOM must drink ACC water
'Whenever he finishes a banana, he must drink water.' [Generic] (Zeitoun 1997:134-135)

c. ***nu*** *pacun-aken* *tjanusun* *nutiaw* *uri* *ku-aqivu-in-sun*
when.IRR see-1SG.NOM 2SG.ACC tomorrow will 1SG.GEN-say-PF-2SG.NOM
'When I see you tomorrow, I will tell you.' [Future] (Zeitoun 1997:133)

In Tsou, there is a primary two-way distinction between the temporal clausal markers *ne* and *ho* which respectively introduce past and generic/future temporal clauses; see (206). The auxiliary verb that follows can further specify the generic or future reading.[77] Compare (206b-c). Therefore, in the overview table only a dotted line divides the generic clauses from the future clauses. Furthermore, what would be NPs or adverbs in English often take the form of a temporal *ne/ho*-clause in Tsou as well, literally translating as e.g. 'when it is night' or 'when it is summer'. However, they can also take a nominal form, in which case they are marked with the oblique case; these nominal forms will be discussed in the next section (4.2.1.2).

(206) Tsou (Tsouic)

a. ***ne*** *o-'u* *aiti* *'o* *yangui,* *o-'u* *eisvita*
when.REAL NAF.REAL-1SG.GEN see NOM Yangui NAF.REAL-1SG.GEN tell
'When I saw Yangui, I told her.' [Past] (Zeitoun 1997:133)

b. *la-'u* *aacni* *bonʉ* *to* *tacʉmʉ* ***ho*** ***la****-ta* *aiti*
AF.HAB-1SG.NOM always eat OBL banana when.IRR NAF.IRR.HAB-3SG.GEN see
'I am always eating a banana, whenever he sees me.' [Generic] (Zeitoun 1997:134)

c. ***ho*** ***tena****-'u* *aiti* *'o* *yangui,* *'a* *te-'u* *eisvita*
when.IRR NAF.IRR.PRED-1SG.GEN see NOM Yangui ? NAF-1SG.GEN tell
'When I see Yangui, I will tell her.' [Future] (Zeitoun 1997:133)

What makes Tsou unique among the Formosan languages is the obligatory presence of these auxiliary verbs (Li 2008:532; Zeitoun 2005:266).[78] The auxiliaries contain information about the focus of the clause, as well as the tense, aspect, and mood. The irrealis mood is rich in functions and can express various aspectual and epistemic modal meanings, consisting of the habitual (*la*) and the predictive (e.g. *tena*) as seen here, and the hypothetical and counterfactual (Zeitoun 2005:279). While some languages, such as Paiwan, Bunun, and Rukai, also have morphological means to express habitual aspect (Zeitoun et al. 1996), Tsou stands out for its morphological markers of the other three epistemic modalities, which are non-existent in other Formosan languages. In the domain of temporal, conditional, and counterfactual clauses, each of these aspects and modalities corresponds to one type of clause:

[77] *ho* is also used for conditional and counterfactual clauses. The distinction between generic, future, conditional, and counterfactual is made by the auxiliary verb, which contains modal (or temporal) and aspectual information (Zeitoun 1997).
[78] The existence of auxiliary verbs is not unique for Tsou, however; Atayal and Seediq also have non-obligatory auxiliaries.

i) Habitual → Generic temporal
ii) Predictive → Future temporal
iii) Hypothetical → Conditional
iv) Counterfactual → Counterfactual

This rich modal system in Tsou thus results in a tripartite division (see Table 4.1), which might overshadow the fact that with respect to pure temporal markers (here *ne* and *ho*), it actually has the same binary system as Bunun, Paiwan, and others. In light of this, Tsou's temporal clause marking is not as anomalous within the Formosan languages as it may seem. The anomaly is rather caused by its relatively elaborate epistemic modal system, combined with the obligatoriness of expressing this information.

Saisiyat and Kavalan differ from the rest by not distinguishing any types within 'when'-clauses. The time frame in which the 'when'-clause is situated is context-induced. In Kavalan, the two sentences are juxtaposed. When it involves a future situation, the 'when'-clause may take the clause-final morpheme *si*. In Saisiyat, the 'when'-clause and main clause are also either juxtaposed. Alternatively, the 'when'-clause can be introduced by the general temporal and conditional marker *So:* 'when, if'.

(207) Saisiyat (Northwest Formosan)
a. *mamoa' ka 'aewpir, pa-ebeng-en.*
AF:plant ACC sweet.potato CAUS-bury-UFP
'(When someone) plants sweet potatoes, (he has) to bury them.'
(Zeitoun, Chu & Kaybabaw 2015:339)

b. ***So:*** *yako masay=ila, ka-pa:tol-on=ila.*
when 1SG.NOM AF:die=CS IRR-sing-UFP=CS
'When I die, (the others) will sing.' (Zeitoun, Chu & Kaybabaw 2015:326)

4.2.1.2. NP

Table 4.2 shows the marking of simultaneous location NPs in the language sample. Even though there are some gaps left, it is clear that in Tsou and Paiwan there is at least a dichotomy, whereas Saisiyat and Kavalan again make no distinction between different times in which the situation is located. Bunun, while making a past/non-past distinction in clauses, seems to mark NPs neutrally with a locative or not mark them at all. I have not been able to find any examples in a generic or future context, but it is likely that *i-sia* is also compatible with those contexts. I will return to this later in this section. As for the Paiwan gap, it is likely that future NPs are marked by *nu* as well, corresponding to future 'when'-clauses.

Table 4.2 Marking of simultaneous location NPs in sample languages

	Past		Generic/habitual		Future	
Tsou	*to / ta*	OBL (PST) / OBL (PRS)	*Ø* / N.A.		*no / ta*	OBL (FUT) / OBL (PRS)
Paiwan	*ka*	when.REAL	*nu*	when.IRR		
Bunun	*Ø* *(i-)sia* *tudip tu*	LOC at that time				
Kavalan	*Ø* *(ta) …(-an)*	- LOC			*Ø* *(ta) …(-an)* *si*	- LOC when.IRR
Saisiyat	*Ø* *ray*	- LOC				

Like Kavalan, Saisiyat marks all simultaneous location NPs identically: either with a general locative marker or with no marking at all, as in (208).

(208) Saisiyat (Northwest Formosan)

a. *moyo ririm'anan kama=lalangoy.*
2PL.NOM morning HAB=swim
'You usually swim in the morning.' (Zeitoun, Chu & Kaybabaw 2015:338)

b. ***ray*** *'ima=(h)aseb 'ilaS ka-p-ka-kaloeh-an=ila.*
LOC AGNMZ=five month REAL-DYN-RED-sow.seeds-TNMZ=CS
'In May, it is the season where we help each other cultivate the fields.'
(Zeitoun, Chu & Kaybabaw 2015:461)

c. *hini* ***ray*** *'aehae' roehaenan, paspaSo 'aehae'*
this LOC one tonight each one
taew'an t<om>awbon ila saeboeh.
home husk.rice<AF> PFV all
'This night, each family is husking glutinous rice (making glutinous cake).' (Hsieh forthc. b)

What one notices in Isbukun Bunun is that many equivalent English temporal nominal expressions display verbal characteristics. This is also one of the main arguments of Huang (2016:16), who points out that "time is referred to by the particular activity that defines it, hence mostly in clausal or verbal forms". Tense and aspect markers naturally play a major role in this. Consider the examples in (209). Many simultaneous, anterior, and posterior relations are thus often expressed verbally.

(209) Isbukun Bunun (Bunun)

a. *Pun-ci'un-****in.***
duration.year-three-PFV
'Three years passed.' / 'After three years.' (Huang 2016:15)

b. ***Na**-sanavan.*
IRR-evening
'(It) will be evening.' / 'Before evening.' (Huang 2016:16)

c. *Masa* *is-ladavdav-**in** …*
when.PST RF-become.dark-PFV
'In the evening …' (Genesis 8:11)

d. *Mais* *katavin-**in** …*
when.NPST next.year-PFV
'(in the) next year' (Genesis 17:21)

Entirely nominal expressions are less frequent in Bunun. A simultaneous location NP may be unmarked (210a-b), encoded as a locative object (210c), or occur with a particle meaning 'at that time' (210d).

(210) Isbukun Bunun (Bunun)

a. *Pitu buan tu mas'an*[79] *han pitu tu hanian, …*
seven month COMP ten and seven COMP day
'On the seventeenth day of the month, …' (Genesis 8:4)

b. *ma-i-ludah naia Tiang takna.*
AF-PST-beat they Tiang yesterday
'They beat Tiang yesterday.' (Jeng 1999:461)

c. *aupa saia hai **i-sia** hanian cin*
because 2SG.NOM.DIST TOP be.at-LOC day OBL.this

pan-kanahtung-in mas isaicia k<in>itngab-an tu is-kuzakuza
?-complete-PFV OBL 3SG.GEN.DIST <EXP>begin-NMZ COMP RF-labor
'… because on this day he completed the work of creation …' (Genesis 2:2, translation adapted)

c. ***tudip** tu labian*
at.that.time COMP evening
'in the evening' (Genesis 30:16)

Since all of my Isbukun Bunun data sources are narratives, it was difficult to find generic or future NPs. However, it is not unlikely for these three strategies (zero-marking, locative, *tudip tu*) to be employed for those situations as well. *i-sia* 'be at' is in fact a non-past form (Jeng 1997), but it is often used to refer to a past locative situation if it is clear from the context that it concerns a past situation (Jeng, p.c.). As this is already the non-past form, we can reasonably expect it to be used for non-past situations as well. Nevertheless, more data is needed to say more about this subject.

Paiwan seems to maintain the realis/irrealis mood distinction we saw earlier in 'when'-clauses, although there are no future NP examples. (211a) shows that realis *ka* 'when' is used for past NPs and examples (211b-c) show that *nu* is used for generic NPs. It seems that, unlike clause markers *ne* and *ho* in

[79] In the e-Dictionary, this is spelled as *mas-an.* To avoid confusion about morpheme breaks, I have left the original spelling unchanged.

Tsou, *ka* and *nu* are able to mark NPs (besides clauses) too: the reference time NPs here do not show any exclusively verbal properties.

(211) Paiwan (Paiwan)

a. *pai, **ka** sangasangasan a qadaw,*
INTJ when.REAL first LNK day

kivangavang=anan tjayamadju a ma-leva-leva=anan aya.
have.fun.AF=CNTS 3PL.NOM LNK ANTIC.AF-RED-joyful=CNTS say.AF
'On the first day, they were still having fun and happily (celebrating).' (A.H. Chang 2006:432)

b. *a zuma nu qalja-an talem **nu** 1, 2 gatsu*
CSM other of outside-NMZ plant<AF> when.IRR 1 2 month
'Some villages plant in January or February.' (Early & Whitehorn 2003:362)

c. *a-nema tja keljang tu-ki a-nema si-pa-ngetje-ngetjez nua*
?-what 1PI know COMP-how ?-what IF-cause-RED-come by

*ljequ **nu** qe<zeme>zemetj a pa-ljequ*
owl when.IRR <RED>night CSM cause-owl
'We don't know the reason why owls come and hoot at night.' (Early & Whitehorn 2003:389)

Tsou constitutes a special case, because so far it is the only language found which makes distinctions based on the temporal semantics of the NP referent. These 'temporal semantics' refer to the location in time of the NPs themselves. For instance, 'last month' (past), 'this month' (present), and 'next month' (future) are marked differently by *to, ta,* and *no,* respectively. The temporal meaning may also be determined by the context. Temporal NPs in Tsou can usually either be embedded in a *ne/ho* temporal clause, as mentioned in the previous section, or be introduced by one of the oblique case markers *to, ta,* and *no*. For instance, in (212a), 'in winter' is expressed as an oblique NP with *no* because it refers to a winter in the future. In (212b), a *ho* clause is used, because it is a future/irrealis situation. The nominal and clausal strategies thus result in the same meaning. Exceptions are day parts, days, and years, where *ne* and *ho* have presumably become part of lexicalized expressions, e.g. *ne-hucma/ho-hucma* 'yesterday'/'tomorrow' and *ne-nʉt'ʉsʉ/ho-nʉt'ʉsʉ* 'last year'/'next year' (Pan 2007). These expressions cannot be used in a clause, only independently.

(212) Tsou (Tsouic)

a. *ta-'u uh ne tfuya **no** hosoyʉma*
IRR-1SG get.to.AF LOC Tfuya OBL winter
'I will go to Tfuya in winter.' (Pan 2007:73)

b. *ta-'u uh ne tfuya **ho** ta-c'u hosoyʉma*
IRR-1SG get.to.AF LOC Tfuya when.IRR IRR-ASP winter
'I will go to Tfuya in winter.' (Pan 2007:74)

It should be noted that whereas *to* (past oblique marker) and *no* (future oblique marker) correspond to past/realis and future/irrealis situations respectively, *ta* (present oblique marker) does not necessarily imply a present situation (Pan 2007). *ta* is used for expressions such as 'tonight', 'this month/year', or

'this summer'. Consider the examples in (213). In (213a) *ta* is used in a future situation, in (213b) for a past situation, but it always denotes 'the current N'. For this reason, in (213), *ta* is included for both past and future situations.

(213) Tsou (Tsouic)

a. *te-'o uh ne tfuya* ***ta*** (*co-no-*)*feohʉ*
IRR-1SG get.to.AF LOC Tfuya OBL (one-OBL-)moon
'I will go to Tfuya this month.' (Pan 2007:68)

b. *m-o-'u uh ta tfuya* ***ta*** *homu'eina*
AF-REAL-1SG get.to.AF OBL Tfuya OBL summer
'I came to Pnguu this summer.' (Pan 2007:72)

Habitual NPs denoting 'every N' must generally be embedded in a temporal clause introduced by *ho*, as shown by (214). The noun has undergone partial reduplication and is prefixed with *ma-*. The only habitual 'every' NPs that can occur on their own (i.e. not in a clause) are *hu-hucmasi* 'every day' and *to-tovaha* 'every year', in which the 'every' sense is again created through reduplication. Unfortunately no generic examples were found in which the temporal NP was not explicitly morphologically marked with 'every', so it is unknown whether i) unmarked NPs can have a habitual/generic meaning in Tsou, and ii) whether one of the oblique markers *to/ta/no* would be used.

(214) Tsou (Tsouic)

la-ta b-onʉ to skikia 'o pasuya
ASP-3SG AF-eat OBL vegetarian.gelatin NOM Pasuya

ho *m-o/la ma-ho-hosoyuma*
when.IRR AF-REA/ASP MA-RED-winter
'Pasuya eats vegetarian gelatins every winter.' (Pan 2007:120)

The semantics of these oblique case markers and their nominative counterparts (the only two cases in Tsou) have been examined by Tung (1964, cited in Zeitoun 1993) and Zeitoun (1993, 2005), among others. The relationship between the spatial and temporal senses of the oblique markers is discussed in Pan (2007:155-160). While Tung (1964) shows case markers to carry information about definiteness and spatial deixis and visibility, Zeitoun (1993) points out that they may also express metaphorical distance, such as a connection or sense of identification between the speaker and the referent. For instance, when the speaker refers to the speaker's mother, the noun 'mother' receives a different case marker than in a sentence where the speaker refers to someone else's mother, due to the difference in psychological distance. By now, Zeitoun (2005) has adjusted Tung's (1964) analysis of the case markers and uncovered additional complexities. Her proposed system of case markers (Table 4.3) is based on the notions referentiality and identifiability. Referentiality is the speaker's intent to refer to a specific individual referent (rather than a genus) and locate this referent in a universe of discourse (Givón 1978:293), whereas identifiable means the referent is known and recognizable by the speaker (Zeitoun 2005:274). These notions thus encompass more than the spatial ones employed by Tung (e.g. visibility, proximity), but they still interact with and have implications for these spatial properties. I have attempted to integrate some of these semantic notions in Table 4.3 (first and second row) and added the temporal properties

(third row). It is interesting to see how the spatial information encoded by *ta*, *to*, and *no* correlates with their temporal semantics. As the table shows, what is visible corresponds to the present, what is invisible but typically known by the speaker corresponds to the past, and what is invisible and unrecognizable to the future.

Table 4.3 Semantic distribution of oblique case markers in Tsou (based on Zeitoun 2005:274; Pan 2007:158; cf. also Tung 1964:147)

	Referential		Non-referential
Space	Identifiable, visible for speaker and hearer	Usually identifiable, invisible for speaker and hearer	Non-identifiable (i.e. invisible, not seen before by speaker)
Time	Present	Past	Future
	ta	*to*	*no*

In summary, Tsou utilizes two temporal systems for simultaneous location marking NPs. One is the same system as used in temporal clauses, which distinguishes between past (realis) and generic/future (irrealis) situations. The second system is based on semantic features like referentiality, identifiability, and visibility, inherent to oblique case markers. This trichotomy has been transferred to the temporal domain, resulting in a past/present/future system.

4.2.2. ANTERIOR LOCATION

4.2.2.1. Clause

All languages in the sample appear to mark 'before'-clauses in some way. Whereas Zeitoun (1997:140) suggested that in Bunun "there seems to be no distinction between before-clauses and when-clauses", my findings suggest otherwise. The anterior markers in the language sample are summarized in Table 4.4. There are some recurring strategies to be observed:

(i) Negation, 'not yet': Tsou, Isbukun Bunun, Saisiyat, Kavalan (my sample); Rukai [Labuan], Puyuma, Amis (Zeitoun 1997)
(ii) Spatial orientation term
  a. 'in front of': Isbukun Bunun, Kavalan (my sample); Amis, Puyuma (Zeitoun 1997)
  b. 'below': Wulai Atayal (Egerod 1999, see the discussion at the end of Section 4.2.3.1)
(iii) A morpheme meaning '(do) first': Tsou, Paiwan
(iv) Same marker as in 'when'-clause: Isbukun Bunun, Paiwan (?)

Interestingly, the prevalent prefix *qu-* in Kavalan, meaning exclusively temporal 'before V', seems to be quite unique. The strategies will now be discussed in the order displayed.

Table 4.4 Marking of anterior location clauses in sample languages (adapted from Zeitoun 1997)[80]

	Form	Function/meaning
Tsou	*ne/ho + o'a mocu* *n'a*	when.REAL/IRR + not yet firstly
Paiwan	*pasusangas* *nu + uri* *ka (?)*	do first when.IRR + will when.REAL (?)
Bunun	*masa/ mais (+ tu tan-a-ngaus)* *niang*	when.PST/NPST (+ in front of) not yet
Kavalan	*mai=pama* *qu-*	not yet before
Saisiyat	*i'ini'*	not yet

The vast majority of seven languages employs the negation strategy. If we consider the semantics of anterior location clauses, as described succinctly by Thompson, Longacre & Hwang (2007:247) below, this seems a logical path to take.

> "'Before' clauses are different from 'when' and 'after' clauses in that it is always the case that the event named in the 'before' clause has not yet happened by the time of the event named in the main clause. Thus there is a sense in which 'before' clauses are conceptually negative from the point of view of the event in the main clause."

Instead of placing two situations after one another, at two different points in time as e.g. English does, there are many languages that describe the circumstances at a single point by stating the reality of one situation and simultaneously the absence (and sometimes the immediacy through 'yet') of the other situation.

This is also a common strategy in Isbukun Bunun, as seen below. (215b) shows that *niang* 'not yet' can occur together with *masa* 'when.PST' as well.

(215) Isbukun Bunun (Bunun)

a. ***Niang*** *saia* *tunahtung* *pisvangdu,*
not.yet 3SG.NOM.DIST finish.talking prayer

Lebeka *hai* *taunasainin* *sia* *unanaulan, …*
Rebekah TOP reach LOC well
'Before he had done speaking, Rebekah had reached the well, …' (Genesis 24:14)

b. *Masa* ***niang*** *saikin* *kusia* *Icibutu* *dalah-cin, …*
when.PST not.yet 1SG.NOM arrive Egypt earth-this.OBL
'Before I came to Egypt, …' (Genesis 48:5)

[80] The sources for my additions and modifications are as follows: Tsou (Huang, Su & Sung 2001:chap. 15; Pan 2007), Bunun (Jiang & Jeng 2010; Genesis texts, Bunun Bible, annotated by Shuping Huang), Paiwan (A.H. Chang 2006:304, 312ff.).

Similarly, in Tsou, the combination of negator *o'a* and auxiliary *mocu* (cf. Huang, Su & Sung 2001), which can be translated at 'not yet' (Pan 2007:85), can be used either independently or together with temporal markers *ne/ho*. Whether *ne* or *ho* is used again depends on the mood of the situation: past situations are realis and require *ne* (216a); generic and future clauses are irrealis and require *ho* (216b).

(216) Tsou (Tsouic)

a. *m-i-ta* *m-ayo* *to* *m-o* *cono* *pania* *ci* *emi*
AF-REAL-3SS AF-take OBL AF-REAL one bottle REL wine

'e *ak'i* ***ne*** *o'a* *mocu* *m-i-ta* *eoh-u*
NOM grandfather when.REAL NEG AUX AF-REAL-3SG go.hunting-AF
'Before going hunting, grandfather took one bottle of wine.' (Adapted from Pan 2007:85)

b. ***ho*** *o'a* *mocu* *te* *mɯchɯ,* *siya* *'o* *pai* *to* *ino*
when.IRR NEG AUX FUT rain gather NOM grains OBL mother
'Before it rains, mother gathers grains.' (Huang, Su & Sung 2001:chap. 15.4)

In Saisiyat, the negator *'i'ini'* is used (217).

(217) Saisiyat (Northwest Formosan)
yako ***'i'ini'****=i-k* *lobih, ma'an* *kina:at* *kiSka:at-en=ila saboeh*
1SG.NOM NEG=LIG-walk return 1SG.GEN book read-UFP=CS all
'Before I came back, I read the book completely.' (Zeitoun, Chu & Kaybabaw 2015:68)

The spatial term 'in front of' has undergone transfer to the temporal domain in four languages. Returning to Bunun, according to Zeitoun (1997) only *masa* is used to introduce a 'before'-clause, which results in the same form as a past 'when'-clause. She provides the following example.

(218) Isbukun Bunun (Bunun)
masa *tudip* *mudaan* *tacini* *hai* *'islivan*[81]*-ik* *maun*
when.PST at.that.time leave one TOP at.once-1SG.NOM eat
'Before he left, I (started to) eat.' (Zeitoun 1997:140)

However, I have not encountered any similar examples, i.e. in which *masa* alone conveyed the anterior location meaning. On the other hand, the construction (*masa/mais) V tu tanangaus* has been attested several times (219). Besides the additional *tu tanangaus* 'in front of', another difference from Zeitoun's finding is that not necessarily *masa* is used, since *mais* is still used in generic and future contexts, as in 'when'-clauses (219a).

(219) Isbukun Bunun (Bunun)

a. ***Mais*** *ma-pataz* *kata* *mas* *babu* *tu* ***tan-a-ngaus*** *hai,*
when.NPST AF-kill 1PI.NOM OBL pig ATTR region-LNK-front TOP

[81] I was unable to find this word in the e-Dictionary.

asa tu luhusun.
must ? be.tied.up
'Before we kill a pig, it must (be) tied up.' (Jeng & Jiang 2010:12, glossing mine (WL)[82])

b. ***Masa*** *m<in>usuhais isaicia tama tu* ***tan-a-ngaus*** *hai,*
when.PST <PST>return 3SG.POSS.DIST father ATTR region-LNK-front TOP

kailatanin a uvaaz-a mas asu-cia.
bite-PERF ? child-that OBL dog-that
'Before his father came back, that child had been bitten by that dog.'
(Jeng & Jiang 2010:12, glossing mine (WL))

c. *Minsuma kasu tu* ***tan-a-ngaus*** *hai m<in>aun-in saikin.*
come 2SG.NOM COMP region-LNK-front top <PERF>eat-PFV 1SG.NOM
'I already ate it before you came.' (Genesis 27:33)

On the basis of the limited corpus I have access to, the negation strategy and 'in front' strategy are clearly the most common. More data is necessary to decide whether 'before'-clauses can be left unspecified as Zeitoun (1997) suggests or whether her example was an exceptional case.

In Tsou and Paiwan, a morpheme meaning 'first(ly)' or 'do first' may be used to indicate a 'before'-clause. However, at least in Tsou, this morpheme does not belong to the 'before'-clause but to the main clause, contrary to what Huang, Su & Sung (2001) claim, as shown by their own examples in (220). *n'a* can both precede and follow the main verb.

(220) Tsou (Tsouic)

a. *ho te e'hoʉ 'o voyu, te* ***n'a*** *bonʉ.*
when.IRR FUT go.to.mountain NOM Voyu FUT firstly eat
'Before Voyu goes to the mountain (to work), he will eat first.'
(Huang, Su & Sung 2001:sec. 15.4)

b. *bonʉ* ***n'a****, ho te c'u e'hoʉ 'o voyu.*
eat firstly when.IRR[83] FUT ? go.to.mountain NOM Voyu
'Before Voyu goes to the mountain (to work), he will eat first.'
(Adapted from Huang, Su & Sung 2001:sec. 15.4)

A similar construction is found in Kavalan, as seen in (221). Most of the time in my data, however, *munna* is used in addition to another anterior location strategy and/or simply adverbially (in a functional, non-syntactic sense) without a pragmatically conjunctive function (e.g. 'the elderly do this first'). For this reason, I chose not to include this as an anterior location strategy. Whether the situation in Tsou and Paiwan is the same, remains to be investigated. For Paiwan, no examples were found.

[82] The glosses are tentative and approximate. I have mainly based them on the e-Dictionary and the glosses and analysis in Jeng (1999).
[83] Originally glossed as 'and'.

(221) Kavalan (East Formosan)

zukat=pa	*aizipna,*	*munna=ti*	*qan*	*tu*	*Raq*
go.out=FUT	3SG.NOM	first=PFV	eat<AF>	OBL	wine

'Before he went out, he first drank wine.' (S14_tuy)

The fourth and final attested type of 'before'-clause has the same form as the 'when'-clause. This seems odd in view of the stark contrast in semantics between the two, as Thompson, Longacre & Hwang (2007) pointed out before. The 'when'-clause introduces a situation that overlaps with the main clause situation, while the 'before'-clause introduces a situation that has not yet happened at the time of the other situation. The two languages in which this has been observed are Bunun and perhaps Paiwan. As previously discussed, other more explicit strategies seem to be much more frequent in Bunun. As for Paiwan, both the temporal conjunction *ka* (for realis) and temporal conditional conjunction *nu* (for irrealis) can convey both simultaneous and sequential location according to A.H. Chang (2006:312ff.), depending on the semantics of the verb, aspectual markings, and the context. The examples of anterior location she gives are shown in (222).

(222) Paiwan (Paiwan)

a.

maka-zian=aken	***ka***	*pacun=aken*	*tjaymadju.*	
exhaust.AF-dance=1SG.NOM	when.REAL	see.AF=1SG.NOM	3SG.OBL	

'I danced before I saw him.' (lit. 'I had finished dancing when I saw him.')

(A.H. Chang 2006:313)

b.

nu	*uri*	*mangtjez=aken,*	*un*	*ku=pakaljingua-an*	*timadju.*
when.IRR	will	come.AF=1SG.NOM	will	1SG.GEN=call-LF	3SG.NOM

'Before I come, I will call him.' (A.H. Chang 2006:315)

As Chang (2006:312) points out, the anterior meaning in (222a) is created by the prefix *maka-* 'exhaust', which denotes completion. In the *nu* clause (222b), it is the combination of irrealis *nu* and the auxiliary *uri* 'will' that results in a relative future interpretation: it literally translates as 'when I will come', which means the speaker has not come yet at the moment of calling. If only these examples are considered, the data seem to suggest that *ka* and *nu* alone are not able to convey anterior location in general; another element is required. Altogether, the support for using 'when'-clause marking to mark 'before'-clauses, or in other words, for lacking a distinctive linguistic encoding strategy for 'before'-clauses, is weak.

4.2.2.2. NP

Table 4.5 summarizes the findings for anterior location NP marking. Observe that it contains many data gaps. Possible reasons for this will be discussed later in this section.

Table 4.5 Marking of anterior location NPs in sample languages

	Form	Function/meaning
Tsou	*to/ta/no + tan'esi / auyusi*	OBL + here, in front of / early, first
Paiwan		
Bunun	N.A.	
Kavalan	*ngayaw na* *qu-*	in front of before
Saisiyat	N.A. (?)	

The only two languages for which data was found, Tsou and Kavalan, may use the spatial term 'in front of' to convey 'before', although this temporal use is not accepted by all Tsou speakers (Pan 2007:88). An example from Tsou is given in (223). Both the nominal and *tan'esi* 'here, in front of'[84] must be preceded by an oblique marker. The oblique markers *to/ta/no* exhibit the same past/present/future distinction as seen for simultaneous location.

(223) Tsou (Tsouic)

a. *m-oh-cu* *homeaya*
AF-REAL-ASP Harvest.Ritual

to ***tan'esi*** *to* *feohʉ-no-'eovza* *ne-nʉt'ʉcʉ*
OBL in.front.of OBL moon-OBL-November/December NE-the.next.year
'The Harvest Ritual had been held before last (year's) November/December.'
(Adapted from Pan 2007:86)

b. *te-'o* *asngʉc-ʉ* *eon* *ta* *lalauya*
IRR-1SG all.the.time-AF live.AF OBL Lalauya

no ***tan'esi*** *no* *hotov'oha* *ho-nʉt'ʉcʉ*
OBL in.front.of OBL fall HO-the.next.year
'I will be living at Lalauya before next (year's) fall.' (Adapted from Pan 2007:87)

The syntactic structure of *tan'esi* 'here, in front of' used in the temporal sense is no different from the one used in the spatial sense, as shown in Pan's (2007) example replicated in (224).

(224) Tsou (Tsouic)

os-'o *si-a* *ta* ***tan'esi*** *ta* *ca'hu 'e* *chumu*
NAF.REA-1SG put-PF OBL here/in.front.of OBL chair NOM water
'I put the water in front of the chair.' (Pan 2007:88)

[84] Wu (2004) analyzes this as *tan'e-si* [here-3SG.POSS]. Interestingly, she also points out that Tsou lacks a non-deictic/non-relative term to indicate 'front', while it does have a word for 'back' (which can take either an intrinsic or relative viewpoint).

The other term used to express anterior location is *auyusi* 'early, first', which only has a temporal meaning. Structurally, it behaves in the same way as *tan'esi.* Thus, *tan'esi* in the examples in (223) is replaceable by *auyusi.*

As for the other three languages, for which no data is displayed in Table 4.5, various reasons may account for this. Let us first discuss Isbukun Bunun. As already briefly mentioned in Section 4.2.1.2, temporal points are often referred to by events or activities they are associated with and consequently have a more verbal than nominal form, taking TAM markers. According to Huang (2016:17), this is the result of fuzzy word class boundaries, since verbs and nouns are not clearly distinguished in Isbukun Bunun. Moreover, it is a very widespread phenomenon that nouns with a verbal source are able to carry TAM markers (Chang 2015:157). It can be assumed that the tendency to represent time as events/activities rather than fixed points makes the combination of [*tanangaus* 'before'/*tankinuz* 'after' + (nominal) time point] an unnatural way of talking about time for Isbukun Bunun speakers. Indeed, Huang (p.c.) did not encounter any such examples in her corpus. As Huang (2016) does not further discuss the criteria for determining a lexeme's verbal or nominal category, I have decided not to include common cases in which a possibly nominal lexeme carries aspectual markers, such as (225), in the overview.

(225) Isbukun Bunun (Bunun)
na-sanavan
IRR-evening
'before evening' (Huang 2016:16)

For Saisiyat, similar claims have been made in a forthcoming paper by Hsieh (forthc. b). She finds that sequential relations in Saisiyat do not use any 'before' or 'after' terms but are expressed by aspectual means instead. As in Isbukun Bunun, temporal expressions are very often derived from events and activities associated with the moment or period referred to.

(226) Saisiyat (Northwest Formosan)
a. *ka-in-pongah-an*
KA-PFV-bloom-NMZ
'flowering time, blossom season' (Hsieh forthc. b)

b. ka-si'ael-an
KA-eat-NMZ
'noon' (Hsieh forthc. b)

The difference with Bunun is that the nominal status of these lexemes is clearly determined, as is apparent from the nominalizer suffix. However, NPs are not explicitly discussed by Hsieh (forthc. b), and I have not been able to find examples of 'before'/'after' + NP in the sources. From her general statement that the language does not have 'before'/'after' equivalents, it can only be cautiously assumed that NPs make use of aspectual means as well.

Finally, for Paiwan no examples were found either.[85] The only example provided by Sung (2005) shows that 'before dinner' is translated as a temporal clause in Paiwan, introduced by *ka* or *nu* depending

[85] Having access only to the hardcopy of Early & Whitehorn (2003) limited my searching possibilities. Therefore, it is quite possible that examples do exist, but that I did not happen to come across them.

on whether it is a realis or irrealis situation. Similarly, the posterior NP ‘after supper’ is expressed clausally in Paiwan (Sung 2005:67). At present, nothing more can be said about Paiwan until appropriate data is found.

(227) Paiwan (Paiwan)
ka=kaiv *kan* *tua* *kinsa* *inuli=aken*
when.REAL=dine eat<AF> OBL rice pray=1SG.NOM
‘I prayed before the dinner.’ (lit. ‘When I have dinner, I pray.’) (Adapted from Sung 2005:66)

4.2.3. POSTERIOR LOCATION

4.2.3.1. Clause

The linguistic strategies used to mark posterior temporal clauses in the sample is displayed in Table 4.6.

Table 4.6 Marking of posterior location clauses in sample languages (adapted from Zeitoun 1997:151)

	Form	Function/meaning
Tsou	*Ø* *(ne/ho) -epиngи/aepиngи*	- (when.REAL/when.IRR) finish
Paiwan	*ka/nu (+ na-/=anga)*	when.REAL/IRR (+ PFV/CPL)
Bunun	*masa (+ … tu tan-kinuz)*	when.PST (+ … behind)
Kavalan	*Ø* *pun=ti*	- finish=PFV
Saisiyat	*Ø*	-

Clauses that denote posterior location, so-called ‘after’-clauses, often do not have a special form in Kavalan and are juxtaposed to the main clause. The same is the case for Saisiyat (Zeitoun 1997:142; Hsieh forthc. b): as can be observed, there is no morphological marker in (228). Example (228b) also shows that no perfective marker is required.

(228) Saisiyat (Northwest Formosan)
a. *yako* *’insa’an* *s<om><in>i’ael,* *yako* *’am* *rima’* *ila.*
1SG.NOM later eat<AF><PFV> 1SG.NOM FUT go.AF INCEP
‘After I have eaten, I will leave.’ (Hsieh forthc. b)

b. *yako* *kahiya’* *s<om>i’ael* *rima’* *ila*
1SG.NOM yesterday eat<AF> go.AF INCEP
‘Yesterday, after I had eaten, I went out.’ (Adapted from Zeitoun 1997:143)

Kavalan’s other strategy, which uses the verb *pun* ‘finish’, also occurs in Tsou (Huang, Su & Sung 2001; Pan 2007:90), and non-sampled Formosan languages Amis, Puyuma, and Rukai (Zeitoun 1997). In Tsou,

the meaning of ‘finish’ may take the form of what Huang, Su & Sung (2001) call a suffix (*-ерuнgu*), or a lexical verb (*аерuнgu*), as shown in (229).

(229) Tsou (Tsouic)

a. *pes-**ерuнgu**, mi-ta cu aono.*
work-finish AF-3SG ? take.a.bath
‘After working, he takes a bath.’ (Huang, Su & Sung 2001:sec. 15.5)

b. ***аерuнgu** mevcongu 'e mo'o mi-ta cu hafsu.*
finish marriage NOM Mo’o AF-3SG ? get.drunk
‘After the marriage, Mo’o got drunk.’ (Huang, Su & Sung 2001:sec. 15.5)

Like the ‘when’-clauses and ‘before’-clauses, these ‘after’-clauses may also be introduced by *ne* or *ho*. In the past situation in (230a) *ne* is used, and in the generic situation in (230b) *ho*.

(230) Tsou (Tsouic)

a. *ne m-i-cu o-**ерuнgu** m-o eatuapzu 'o amo*
when.REAL AF-REAL-ASP eat-finish-AF AF-REAL chop.wood.AF NOM father
‘After having the meal, father chopped woods.’ (Pan 2007:90)

b. *ho mi cu me-**ерuнgu**, tena c'u eieima 'o tena eobaka ci cou.*
when.IRR AF ? sacrifice-finish FUT ? look.for NOM FUT beat.NAF ? person
‘After the ceremony, they look for the child who will be beaten.’
(Tung 1964:Text XXXIII:1-4, cited in Huang, Su & Sung 2001:sec. 15.5)

Bunun can use the non-past ‘when’ word *masa* only and leave the posterior relation to pragmatic inference, but it may also add *tu tan-kinuz* ‘behind; after’; see (231). Presumably, based on what we have seen in the simultaneous and anterior function, if the situation is a generic or future one, *mais* would be used instead, but there are no examples available at present to support this.

(231) Isbukun Bunun (Bunun)

*Tai-uan **masa** s<in>aipuk mas Lipuun tu **tan-kinuz** hai,*
Taiwan when.PST <PST>rule by Japan COMP region-back TOP,

saipuk-un-in mas Tauluu.
rule-PF-PERF by China
‘Taiwan has been ruled by the Chinese **after** ruled by the Japanese.’
(Jiang & Jeng 2010:11, glossing mine (WL))

Recall the fact that while in Kavalan, *tuRuz-na* [behind-3SG.GEN] + S cannot be used to express ‘after S’, it does have a posterior meaning, namely ‘after that, afterwards, then’. The same function is fulfilled by *kinuz-in* in Bunun: [back-PFV] ‘later; after that’ (Huang 2016:9).

Paiwan uses the temporal conjunctions *ka* and *nu* again, in the same way as for anterior location. While the completive marker *=anga* is often used to explicitly convey the posterior relation, the meaning may also be deduced pragmatically from the context, as in (232c).

(232) Paiwan (Paiwan)

a. ***ka*** *vaik=**anga*** *timadju, qudjalj.*
when.REAL go.AF=CPL 3SG.NOM rain<AF>
'After he had left, it rained.' (A.H. Chang 2006:313)

b. *nusauni,* ***nu*** *melay=**anga*** *sa* *qudjalj,*
a.while.later when.IRR rain.stop.AF=CPL this.NOM.CM rain

ki *vaik=anga* *a* *zua* *kakedrian.*
FUT go=CPL NOM.CM that child
'A while later, after the rain stops, that child will go (outside).' (A.H. Chang 2006:315)

c. ***ka*** *pu-cekelj=aken,* *ini=anga=ka=ken* *a* *masengseng*
when.REAL have.AF-spouse=1SG.NOM NEG1=CPL=NEG2=1SG.NOM LNK work.AF
'After I got married, I didn't work anymore.' (A.H. Chang 2006:313)

If we combine these findings with those of Zeitoun (1997) of some other Formosan languages, the patterns in the linguistic expression of posterior location clauses may be summarized as follows:

(i) A morpheme meaning 'finish': Kavalan, Tsou, Amis, Puyuma, Labuan Rukai
(ii) No marking or same marker as in 'when'-clause: Kavalan, Saisiyat, Paiwan, Isbukun Bunun
(iii) Spatial orientation term
  a. 'behind': Isbukun Bunun
  b. 'above': Wulai Atayal

Compared with anterior location, there are evidently more languages which do not explicitly express posterior location. I would like to point out one more thing, which does not concern the sample but is highly noteworthy in view of the topic time conceptualization. As mentioned, Wulai Atayal uses 'above' (*βaβaw*) to express posteriority. On the basis of data and annotation by Huang (1993), Zeitoun (1997:151) states that anterior clauses are characterized by a particle/marker that translates as 'before'. This morpheme is *zik.* Interestingly, Egerod's (1999:353) Atayal dictionary reveals that *zik,* besides 'before', also means 'underneath, bottom, under, below'. Here we have another case of a vertical conceptualization of the timeline, as also found in the East Asian languages Mandarin, Southern Min (Sinitic), Korean, and Japanese (Radden 2011). However, the vertical orientation in Atayal seems to be the opposite of the one in these East Asian languages.[86] Moreover, the application of *zik* and *βaβaw* seems to be broader than or at least different from the one in the East Asian languages. While in those languages it seems to be mostly restricted to lexical items (e.g. 'last week/month', 'the previous generation', 'the end of the year'), the examples from Egerod (1999) demonstrate that Atayal employs *zik* for expressions like 'the day before', 'two days in advance' and, of course, 'before'-clauses. To my knowledge, the phenomenon of using 'up, above' and 'below, under' to introduce sequential location clauses has not been attested in any language before. Thus, Atayal is typologically interesting and hopefully this subject will be taken up by scholars in the future.

[86] It is worth noting that the Yupno in Papua New Guinea conceptualize the past as downhill and the future as uphill (Núñez et al. 2012). However, the Yupno case is very different from the Atayal case in various aspects: for instance, it only concerns deictic time, and the conceptualization is scarcely encoded in the language (Núñez et al. 2012 speak of some 'isolated expressions').

4.2.3.2. NP

Table 4.7 displays my findings regarding posterior location NPs. The overview looks almost identical to the one of anterior location NPs (Table 4.5), and most of what has been discussed in that section (4.2.2.2) also holds for the current section. Hence, this section will be restricted to illustrating the posterior counterparts of the anterior strategies in Tsou.

Table 4.7 Marking of posterior location NPs in sample languages

	Form	Function/meaning
Tsou	*to/ta/no + ta'esi / ataveisi*	OBL + there, behind / at last, finally
Paiwan		
Bunun	N.A.	
Kavalan	*tuRuz na*	behind
Saisiyat	N.A. (?)	

Like *tan'esi* 'in front of', *ta'esi* 'behind' is used temporally in Tsou to denote 'after'. As expected, the syntactic structure in which they appear are identical: an oblique marker must appear before *ta'esi* and another before the reference entity. The spatial and temporal use of *ta'esi* are shown below.

(233) Tsou (Tsouic)

a. *os-'o* *si-a* *ta* ***ta'esi*** *ta* *cucue* *'e* *ucei*
NAF.REAL-1SG put-PF OBL there/behind OBL ginger NOM taro
'I put the taro behind that ginger.' (Adapted from Pan 2007:92)

b. *te-ta-cu* *mongoi* *ne* *pnguu*
IRR-3SG-ASP leave.AF LOC Pnguu

no ***ta'esi*** *no* *feohʉ-no-eima* *ho-nʉt'ʉcʉ*
OBL behind OBL moon-OBL-May HO-the.next.year
'(S)he will have left Pnguu after next May.' (Adapted from Pan 2007:91)

4.2.4. SUMMARY AND DISCUSSION

An overview of the clausal expression of the simultaneous and sequential location meanings is provided in Table 4.8. The functions of the linguistic elements are given rather than their form, in order to facilitate cross-linguistic comparison. For the linguistic forms, please refer to the previous sections.

Table 4.8 Typological overview of simultaneous and sequential clauses in sample languages[87]

	Simultaneous			Anterior	Posterior
	Past	Generic/ habitual	Future		
Tsou	when.REAL + (AF)-REAL/ AF.REAL	when.IRR + IRR.HAB	when.IRR + IRR.PRED	when.REAL/IRR + not yet firstly	Ø (when.REAL/IRR) finish
Paiwan	when.REAL	when.IRR		do first when.IRR + will when.REAL (?)	when.REAL/IRR (+ PFV/CPL)
Bunun	when.PST	when.NPST		when.PST/NPST (+ in front of) not yet	when.PST (+ behind)
Kavalan	Ø		Ø when.IRR	not yet before	Ø finish=PFV
Saisiyat	Ø when			not yet	Ø

From what has been shown in the preceding sections, the following can be concluded about temporal clauses:

(i) As Zeitoun (1997) mentioned, there are two primary types of simultaneous 'when'-clauses in the Formosan languages: one referring to past events and the other referring to generic/habitual or future events. In languages that make this distinction, the dichotomy corresponds to a realis/irrealis or past/non-past opposition. Due to the required presence of auxiliary verbs in Tsou, a further distinction is made between generic and future contexts by the auxiliary's epistemic component. In Kavalan, *si* 'when.IRR' may appear in future contexts, but surprisingly not in generic ones (without changing the meaning to a conditional one). Kavalan and Saisiyat clearly deviate from the rest by having a predominant zero-marking strategy.

(ii) Combining my findings with those from Zeitoun (1997), I have demonstrated that anterior clauses are marked in the following ways, in the order from most to least frequent:

a. Negation, 'not yet': Tsou, Isbukun Bunun, Saisiyat, Kavalan (my sample); Rukai [Labuan], Puyuma, Amis (Zeitoun 1997)
b. Spatial orientation term
   - 'in front of': Isbukun Bunun, Kavalan (my sample); Amis, Puyuma (Zeitoun 1997)

[87] The elements mentioned in Zeitoun (1997) for which no examples were given and of which I do not know the function/meaning are omitted in the overview. They were *ho + ci* for Tsou, simultaneous future, and *kana … kana* for Paiwan, simultaneous future. I could only find the latter described in A.H. Chang (2006) as a marker of counterfactual clauses.

- ‘below’: Wulai Atayal (Egerod 1999)

c. A morpheme meaning ‘(do) first’: Tsou, Paiwan
d. Same marker as in ‘when’-clause: Isbukun Bunun, Paiwan (?)

Moreover, I have argued that the suggested strategy (d) seems unlikely in view of the pronounced conceptual difference between the anterior relation and the other two relations, simultaneous and posterior. For both Bunun and Paiwan, this argument was supported by pointing out weaknesses in examples of the lack of explicit marking.

(iii) The following posterior clause marking strategies are found in Zeitoun (1999) and in my data, again shown in the order from most to least frequent:

a. A morpheme meaning ‘finish’: Kavalan, Tsou (my sample); Amis, Puyuma, Labuan Rukai (Zeitoun 1997)
b. No marking or same marker as in ‘when’-clause: Kavalan, Saisiyat, Paiwan, Isbukun Bunun
c. Spatial orientation term
   - ‘behind’: Isbukun Bunun
   - ‘above’: Wulai Atayal (Zeitoun 1997)

(iv) In languages where ‘when’-clauses are predominantly or obligatorily expressed by a temporal marker, they are also generally present in the anterior and posterior clauses. Furthermore, if the temporal marker makes a modal or temporal distinction (e.g. realis/irrealis or past/non-past), this distinction remains consistent across simultaneous and sequential clauses. Although the data are incomplete, the pattern in Tsou, Bunun, and Paiwan seems to show that an anterior/posterior clause in a past time frame is marked differently from one in a future time frame.

(v) Posterior clauses receive relatively less marking compared to anterior clauses. All sample languages can leave them unmarked or mark them in the same way as a ‘when’-clause. This can be explained by the mutual conceptual proximity of simultaneous and posterior location and the significantly larger contrast between them and anterior clauses. The difference between simultaneous and posterior location is often a degree of overlap between the situations, which may not be of great importance to the discourse or may be easily inferred from the pragmatic context. An anterior clause, on the other hand, represents what is the semantic opposite, namely the non-occurrence of the situation. Therefore, it typically requires explicit marking.

As regards NP location marking, my data was quite limited. Nevertheless, they have led to several preliminary findings.

(i) In the sample, Tsou is conspicuous for its three-way distinction in its oblique case marking of temporal NPs (when they are not part of a temporal clause), realized as *to, ta*, and *no*. This past/present/future system is likely to be transferred from the semantic domain of space, as visibility and spatial deixis belong to the semantic features inherent to these oblique markers.

Unsurprisingly, what is visible corresponds to the present, what is invisible but typically known by the speaker corresponds to the past, and what is invisible and unrecognizable to the future. Case markers that are used both spatially and temporally are typologically uncommon, although attested (Pan 2007:158).

(ii) In simultaneous location NPs, the majority of the sample languages may/must use a locative (or oblique) marker. Tsou can be included in this group, as its oblique marker also functions as the default locative marker (the only other case is the nominative). Only Paiwan employs the same markers as in clauses, *ka* and *nu*. The limited data seem to suggest that these markers are compatible with nominal lexemes as well, in contrast with the temporal clause markers in the other languages. However, this still needs to be supported by evidence for these lexemes' nominal status.

(iii) As for anterior and posterior location NPs, Tsou and Kavalan use the spatial orientation terms 'in front of' and 'behind'. Noteworthy is the observation that none of them uses these terms to mark sequential clauses, only sequential NPs. Isbukun Bunun and Saisiyat tend to resort to TAM markers. Especially in Bunun, temporal expressions are more often of a verbal than nominal nature. For Paiwan, the data that time limitations have allowed me to collect are insufficient.

It is intriguing that Kavalan displays so many similarities with Saisiyat overall, as they are not genetically related and have not been in close contact either. Compared to the other three languages, Kavalan and Saisiyat seem to be particularly implicit about the time frame, preferring juxtaposition or a general temporal marker. Furthermore, as pointed out above, Tsou is an obvious outlier in the simultaneous location marking of both clauses and NPs, caused by its linguistic properties. In clauses, the obligatory expression of modal information in the auxiliary verb leads to a higher degree of explicitness about the time frame, while the trichotomy formed by semantic properties inherent to the oblique markers does the same for NPs. These idiosyncrasies of Tsou with respect to other Formosan languages may suggest that Tsou has a more distant genetic relationship to them than the mutual relationships between most other Formosan languages. This would support Ross' Nuclear Austronesian hypothesis, in which Tsou, Rukai, and Puyuma are considered first-order subgroups of Proto-Austronesian, while all other Austronesian languages belong to a Nuclear Austronesian first-order subgroup.

4.3. TEMPORAL CONCEPTUALIZATION

Since this thesis aims to explore not only Kavalan's linguistic expression of time but also the deeper semantics and conceptualizations behind it where it concerns space, it seems desirable to include a typological comparison in the latter respect as well. To understand the spatial conceptualization of time in a certain language well, one should have a reasonable amount of knowledge of how the language functions and know where to find the relevant data. It is not something typically described in a grammar or descriptive study. Due to time and space constraints I have therefore extracted most of the information from studies specifically focusing on temporal expression and/or conceptualization, the corpus data that I had digital access to, and dictionaries. The main sources for the sample languages are as follows: Pan

(2007) for Tsou, Sung (2005) for Paiwan, Huang (2016) for Isbukun Bunun, and Hsieh (forthc. b) for Saisiyat.

4.3.1. MOVING EGO AND NOW IS A MOVER

As Moving Ego and NOW IS A MOVER have the identical conceptual structure (see Section 3.1.3.3) and they are not always easy to distinguish (especially in languages without the obligatory expression of the subject), these two metaphors are discussed together. I will simply refer to them as Moving Ego/now in this section for the sake of brevity. Moving Ego/now has been attested in Paiwan, Bunun, and Saisiyat. In Paiwan a 'pass' verb is used to convey distance-future, while Bunun and Saisiyat use an 'arrive' verb to express simultaneous location. Each will now be briefly illustrated.

Sung (2005) suggests that *maka-* 'go past, via' expresses the distance-future function in (234)a). Consider the parallel with (234)b), in which *maka-* is used spatially. Here, ego/now is passing through days to arrive at a later time in the future: it is the same conceptual schema as seen for *melaziw* in Kavalan.

(234) Paiwan (Paiwan)

a. *uri maka-drusa qadaw malap=aken tua drusa vavuy*
IRR go.past-two day hunt=1SG.NOM OBL two wild.pig
'I will hunt two wild pigs in two days (lit. 'when having passed two days').' (Sung 2005:70)

b. *maka-pana a sa-timur timadju*
go.past-river LNK go.to<AF>-Timur 3SG.NOM
'He goes to Timur via the river.' (Sung 2005:85)

In both Bunun and Saisiyat some expressions based on Moving Ego/now are attested, although in relatively limited numbers (Huang 2016; Hsieh forthc. b). The Saisiyat example in (235) clearly reveals NOW IS A MOVER as the underlying metaphor due to explicitly mentioning 'time' as the subject of arriving.[88] The Bunun examples this is not directly visible. In both languages, their 'arrive' verb behaves in the same way as *tuzus* and *maseq* do in Kavalan.

(235) Saisiyat (Northwest Formosan)
hiza kaSepewan 'ini'i potngor ray raywazwaz
this time NEG arrive.AF LOC midnight
'It is not yet midnight.' (lit. 'The time has not yet arrived at midnight.') (Hsieh forthc. b)

(236) Isbukun Bunun (Bunun)

a. *tauna-sain sia mas'an buan tu tasa hanian…*
arrive-3SG.NOM.this LOC ten moon COMP one day
'in the tenth month, on the first day…' (lit. 'when arrived in the first day of the tenth month…')
(Genesis 8:5)

[88] Hsieh (forthc. b) does not make this conceptual distinction and describes the example as Moving Time.

b. *Mungab-in* *tauna-sia* *lus'an* *daungkavan.*
ready.to-AF-PFV arrive-LOC ritual Passover
'(We're) close to Passover.' (Adapted from Huang 2016:11)[89]

4.3.2. EGO-CENTERED MOVING TIME

Whereas Kavalan *maseq* and *tuzus* only appears in Moving Ego/now expressions, in both Saisiyat and Bunun the same 'arrive' verbs can be used in the reverse metaphor Ego-centered Moving Time. This is shown by (237) and (238).

(237) Saisiyat (Northwest Formosan)
potngor *ila* *ka* *haehila:*
arrive.AF PFV NOM day
'The day has arrived.' (Hsieh forthc. b)

(238) Isbukun Bunun (Bunun)
Na-tauna-dip-in *a* *klisimasu.*
IRR-arrive-there-PFV NOM Christmas
'Christmas is coming.' (Huang 2016:11)

4.3.3. SEQUENCE IS RELATIVE POSITION ON A PATH

The static, time-based version of Moving Time, SEQUENCE IS RELATIVE POSITION ON A PATH, can be observed in Tsou and Bunun. Both languages show a front/back orientation of events on a timeline, where the front corresponds to earlier times and the back to later times. As the Kavalan data have shown, this conceptualization of front and back may stretch across various temporal functions. This is illustrated for Bunun in (239). Some of the following examples are repeated from the sections on anterior and posterior location.

(239) Isbukun Bunun (Bunun)
a. *Mali-nuum* *tu* ***tan-a-ngaus*** *hai,* *mali-ima.*
SEQ-six COMP region-LNK-front TOP SEQ-five
'Before Saturday is Friday.' (Jeng & Jiang 2010, Huang 2016:9) [Anterior location]

b. *Ma-<i>baliv* *kaimin* *lumah tu* ***tan-a-ngaus*** *pun-mas'an.*
AF-<PRF>buy 1PE.NOM house COMP region-LNK-front duration.year-ten
'We bought a house ten years ago.' (Huang 2016:10) [Distance-past]

[89] *taun-a-sia* [to-LNK-LOC] has been changed into *tauna-sia* with the analysis conforming with Huang's glosses in her Genesis texts (where *tauna* is consistently glossed as 'arrive'). This analysis makes the meaning of 'arrive' more transparent.

c. *Tai-uan masa s<in>aipuk mas Lipuun tu* ***tan-kinuz*** *hai,*
Taiwan when.PST <PST>rule by Japan COMP region-back TOP,

saipuk-un-in mas Tauluu.
rule-PF-PERF by China
'Taiwan has been ruled by the Chinese **after** ruled by the Japanese.'
(Jeng & Jiang 2010:11, glossing mine (WL)) [Posterior location]

d. *Masa pinunciun tu tan-kinuz hai, ...*
when.PST ? COMP region-back TOP
'After three years, (Ciang succeeded…)' (Jeng & Jiang 2010:12, glossing mine (WL))
[Distance-prospective]

Likewise, in Tsou, no distinction is made between the sequential and the temporal distance functions. Hence, both are expressed through *tan'esi* 'here, in front of' and *ta'esi* 'there, behind', as seen in (240).

(240) Tsou (Tsouic)

a. *te-'o asngиc-и eon ta lalauya*
IRR-1SG all.the.time-AF live.AF OBL Lalauya

no ***tan'esi*** *no hotov'oha ho-nиt'иcи*
OBL in.front.of OBL fall HO-the.next.year
'I will be living at Lalauya before next (year's) fall.' [Anterior location] (Pan 2007:87)

b. *te-ta-cu mongoi ne pnguu*
IRR-3SG-ASP leave.AF LOC Pnguu

no ***ta'esi*** *no feohи-no-eima ho-nиt'иcи*
OBL behind OBL moon-OBL-May HO-the.next.year
'(S)he will have left Pnguu after next May.' [Posterior location] (Pan 2007:91)

c. *m-i-ta ahoi moeayi teova*
AF-REA-3SG begin.AF build.AF hunter's.hut

*ne-**tan'esi*** *no miemohi 'e mo'o*
NE-in.front.of OBL five.days NOM Mo'o
'Mo'o began to build hunter's huts five days ago.' [Distance-past] (Pan 2007:103)

d. *ta-'u mongoi ta lalauya*
IRR-1SG leave.AF OBL Lalauya

no ***ta'esi*** *no co-no-feohи*
OBL behind OBL one-OBL-moon
'I will leave Lalauya in one month.' [Distance-future] (Pan 2007:101)

In contrast, Saisiyat does not use any terms meaning 'before'/'after' to express temporal sequentiality (Hsieh forthc. b). The Paiwan expressions *tja-i-sangas* 'before' and *tja-i-vililj* 'after' are used exclusively in a temporal sense (Sung 2005).

4.3.4. A SITUATION IS A MOVER

Four sample languages show the conceptualization of the described situation moving along a path, embodying the temporal course. Tsou forms an exception, using purely temporal verbs meaning 'begin' and 'until' (Pan 2007). In the other languages, at least one of the sequential-durative functions ('since', 'until') is carried out by a spatial term, denoting either the spatial Source or Goal.

In Paiwan and Bunun, both the anterior-durative and the posterior-durative meanings are derived from spatial terms (Sung 2005; Huang 2016). Their temporal uses are displayed first in (241) and (242), followed by their spatial uses. Likewise, Kavalan has been shown to use spatial terms for both sequential-durative meanings.

(241) Paiwan (Paiwan)

a. *kasi-ka=djaman-djaman* *pate-masuljem* *i-timur=aken*
from<AF>-when.REAL=RED-early until-dusk LOC-Timur=1SG.NOM
'I have been in Timur from morning to evening.' (Adapted from Sung 2005:69)

b. *kasi-timur* *pate-suymun* *a* *djavac=aken*
from<AF>-Timur to-Suymun LNK walk<AF>=1SG.NOM
'I walk from Timur to Suymun.' (Sung 2005:88)

(242) Isbukun Bunun (Bunun)

a. ***Sau**-mataz* *ma-maun* *mas* *dalah.*
until-die.AF RED-eat.AF OBL dust
'… you will eat dust all the days of your life.' (Genesis 3:14, Huang 2016:5)

b. ***Maisna**-sia* *la-i-ningav-an, …*
from-LOC force-PERF-sea-NMZ
'Since the flood, …' (Genesis 9:28)

c. *Ma-taisah* *saia* *tu* *aiza* *kaukau* ***maisna**-nastu* ***sau**-sia-dihanin…*
AF-dream 3SG.NOM.DIST COMP exist ladder from-ground until-LOC-sky
'He had a dream in which he saw a stairway resting on the earth, with its top reaching to heaven…' (Genesis 28:12, Huang 2016:5)

Saisiyat displays asymmetrical behavior: only 'since' has a spatial origin, while the lexemes meaning 'until' are purely temporal (e-Dictionary 2016). The examples are taken from the e-Dictionary (Council of Indigenous Peoples) and are therefore only accompanied by rough (and sometimes tentative) glosses on a word level.

(243) Saisiyat (Northwest Formosan)

a. ***'in'alay*** *'isa:a'* *siya* *'oka'* *ila* *i* *hangih*
from like.that 3SG.NOM NEG PFV cry
'From that moment on, he didn't cry anymore.' (e-Dictionary 2016)

b. ***'in'alay*** *rini* *pa-payziza* *'aSkan* *ka* *kabat*
from be.here CAUS-pass put ACC chair
'Put chairs from here to there.' (e-Dictionary 2016)

In Paiwan, another construction has arised from A SITUATION IS A MOVER, in which a 'pass' verb is used to express the temporal extent of a situation. Sung (2005:72) provides the example displayed in (244). Like the 'from … to …' construction, this expression fits in the conceptual model: the situation passing through the duration of five years represents its temporal profile lasting for five years, in the same way as it passes and lasts 'from X to Y'.

(244) Paiwan (Paiwan)
maka-lima cavilj i-timur=anga=aken
go.past-five year LOC-Timur=COS=1SG.NOM
'I have been in Timur for five years.' (Sung 2005:72)

4.3.5. SUMMARY AND DISCUSSION

Section 4.3 has been an exploratory study of conceptual spatial metaphors of time (subsumed under the cover term TIME IS SPACE, e.g. Lakoff 1993; Lakoff & Johnson 1980, 1999b) in some Formosan languages. The preliminary findings are displayed in Table 4.9. For the languages in which a metaphor is attested, the literal spatial meaning of the used lexeme(s) is shown, followed by the temporal meaning it conveys, in Haspelmath's (1997) terms.

Table 4.9 Conceptual TIME IS SPACE metaphors in sample languages

	Moving Ego/NOW IS A MOVER	Ego-centered Moving Time	SEQUENCE IS RELATIVE POSITION ON A PATH	SITUATION IS A MOVER
Tsou			in front of/behind (SeqL, D)	
Paiwan	pass (D-Fut)			from/to (Seq-Dur); pass (Ext)
Isbukun Bunun	arrive (SimL)	arrive (SimL)	in front of/behind (SeqL, D)	from/to (Seq-Dur)
Kavalan	pass (D-Fut); arrive (SimL)	pass (D-Pos)	in front of/behind (SeqL, D)	(move/be) from/arrive, reach (Seq-Dur)
Saisiyat	arrive (SimL)	arrive (SimL)		from (Pos-Dur)

Abbreviations: D = temporal distance; D-Fut = distance-future; D-Pos = distance-posterior; Ext = temporal extent; Pos-Dur = posterior-durative; SeqL = sequential location; SimL = simultaneous location

Because of the lack of in-depth investigations of metaphors in Tsou and Paiwan and the difficulty of finding relevant data in a feasible time frame, the results for these two languages in particular are of a very preliminary nature. For this reason, it is not yet possible to draw a proper comparison between these results in the domain of time and what has been observed earlier in the domain of emotion (Huang 2002; Yeh 2002; Hsieh 2011b). In the other three languages, nearly all metaphors are found. Based on Hsieh's (forthc. b) claims, the fact that Saisiyat speakers do not conceptualize a timeline, whatever its orientation, is quite firmly established.

Based on Moore's (2006, 2014) development and proposal of SEQUENCE IS RELATIVE POSITION ON A PATH, the mapping of 'front' to earlier times and 'behind' to later times has been argued to be

instantiations of this metaphor. It has been shown that Tsou, Isbukun Bunun, and Kavalan consistently apply this mapping, irrespective of whether the temporal function is deictic or not. These languages thus do not distinguish between 'after [temp. point]', 'in [temp. duration]', and '[temp. duration] later, after [temp. duration]', which is not uncommon typologically (Haspelmath 1997:98-100).

Furthermore, it can be observed that 'pass' and 'arrive' verbs, and presumably motion verbs in general, are quite flexible as to who or what is viewed as their Agent (or Experiencer in the case of 'arrive'). In all languages except Tsou, at least one of these verbs is compatible with more than one Agent. In Bunun and Saisiyat, it is only a question of whether ego/'now' or an event is moving (reversals of each other), but they represent the same temporal relationship, namely that of simultaneity. However, 'arrive' in Kavalan and 'pass' in Paiwan have even further reaching semantic abilities. In Paiwan the 'passer' can additionally be embodied by the situation (rather than ego or the event), leading an expression like 'pass five years' to acquire the extent meaning of 'for five years'. In Kavalan, the situation can also be viewed as the 'arriver', so that when it has arrived, the situation has ended. In this fashion, 'arrive February' expresses anterior-durative 'until February'.

Even though in Isbukun Bunun, Kavalan, and Saisiyat nearly all of these common time metaphors are attested, to determine the degree of their entrenchment in the language, their distribution across temporal functions and their relative frequency are very important to look at. The factor of quantity has especially been emphasized in Huang's (2016) study on time-as-space metaphors in Isbukun Bunun. Huang carried out a corpus study on the Bible's Genesis in Isbukun Bunun, English, and Chinese, and found both the overall number of metaphorical expressions and the number of types of metaphors to be significantly lower in Isbukun Bunun compared to English and Chinese. Possible linguistic explanations include the frequent use of TAM markers, the event-based form of temporal references, and the underspecificity of spatial relations (which naturally result in less variation of spatial terms in the temporal domain) (Huang 2016). The other side of the explanation stems from cultural factors: while the specific sequence in which rituals take place is important in the traditional Bunun lifestyle, specific time indication is not. Huang suggests that the event-based system of temporal reference shows a different preference of cognitive styles, and that Isbukun Bunun speakers prefer a metonymic over a metaphorical model. In a metonymic model, a concept is referred to using other associated concepts within the same conceptual domain. A metaphtonymic model (Goossens 1995) is proposed, which is a metaphor-metonymy complex (Huang 2016:19). Hsieh (forthc. b) likewise suggests a metaphtonymic model for Saisiyat. These perspectives are definitely interesting for cognitive semantic approaches to language. Although I have not looked at metonymy in Kavalan, metaphor seems to be more prevalently and systematically embedded in the language than in Saisiyat or Isbukun Bunun. Indeed, all four types of temporal location are shown to be motivated by spatial metaphors. Further research may determine what cognitive strategy is predominant in Kavalan and other Formosan languages.

Finally, the presence of the examined metaphors in the sample languages support the universal character of the underlying cognitive and experiential bases shared by humans. It should be stressed that the reversed reasoning does not hold: the universal cognitive and experiential underpinnings do not automatically lead to metaphors being instantiated in a language. Whether that happens is dependent on linguistic, cultural and cognitive aspects (see e.g. Kövecses 2005:231; Sinha et al. 2011).

5. CONCLUSION

This thesis has provided a first glimpse into the linguistic expression and conceptualizations of time in Kavalan, a moribund Formosan language of Taiwan. Until now, linguists have chiefly been concerned with morphosyntactic and some phonological aspects of the language, although two other cognitive-semantically oriented topics emotion (Lin 2006; Hsieh 2011b) and space (Jiang 2006) preceded the present work. As found in many other languages, space has proven to play a significant role in Kavalan's temporal construal too. What follows are a summary and discussion of the principal findings and several suggestions for further research.

5.1. SUMMARY AND DISCUSSION

In this study I have attempted to find an answer to the following research questions:

I. What linguistic means does Kavalan employ to express temporal concepts and relations?
   a. Does Kavalan show any preference for particular ways of temporal expression?
   b. To what extent does spatial language play a role? Are spatial terms applied to the temporal domain and if so, where and how?

II. How does Kavalan's behavior in these respects (expression and conceptualization) relate to other Formosan languages? How can areal, genetic, cognitive, or other factors account for certain similarities or differences found within the Formosan subgroup?

I will address these questions in their respective order. In this study, I have explored Kavalan's lexical and morphosyntactic means for expressing the temporal adverbial concepts as classified by Haspelmath (1997), while focusing on their (cognitive, rather than formal) semantics. These strategies are displayed in Table 5.1 on the next page.

Regarding question (I-a), there does not seem to be one predominating, overarching strategy. Kavalan exhibits a nuanced image containing both lexical and grammatical items, and both nominal and verbal constructions where possible. Two case markers, two TAM markers, and a temporal/conditional marker *si* are observed in the grammatical category. Besides these, a fair amount of (to some degree) lexical items is involved, which is to be expected in a study based on temporal adverbial concepts, or lexical time. Furthermore, it is worth noting that pragmatics play a considerable part in interpreting temporal meanings. For instance, a posterior clause is not typically distinguished from a simultaneous one: both are usually juxtaposed to the main clause, i.e. not introduced or marked by any subordinating morpheme. The importance of pragmatics is also apparent from the broad use of the locative marker. Some functions are not always linguistically distinguished in Kavalan, such as the sequential and the distance functions, while the availability of strategies exclusively used for one or the other demonstrate the reality of a conceptual distinction. To this can be added that temporal points and temporal durations are not always differentiable either. Compared to European languages then, Kavalan seems to be considerably less specific and explicit with respect to time indications.

Table 5.1 Overview of temporal expression in Kavalan (based on Haspelmath 1997:8)

I. Location in time (3.2)		Form	Function	Spatial
A. Simultaneous location (3.2.1) *at five o'clock, in the morning, this year*	NP	*Ø* *(ta) …(-an)* (future:) *si*	 locative case when.IRR	 ✓
	S	*Ø* (future:) *si*	 when.IRR	
B. Sequential location (3.2.2)				
(a) Anterior (3.2.2.1) *before the meal*	NP	*ngayaw na* *qu-*	'in front of' 'before'	✓
	S	*mai=pama* *qu-*	'not yet' 'before'	
(b) Posterior (3.2.2.2) *after the war*	NP	*tuRuz na*	'behind'	✓
	S	*Ø* *pun=ti*	 'finished'/quasi-perfective	
C. Sequential-durative location (3.2.3)				
(a) Anterior-durative (3.2.3.1) *till midnight*		*tuzus* *maseq*	'reach' 'arrive'	✓ ✓
(b) Posterior-durative (3.2.3.2) *since the Middle Ages, from now on*		*(qe)nizi* *maqzi* *zana* *qeni-…-an*	'(move/be) from' '(move/be) from' 'since' 'since'	✓ ✓
D. Temporal distance (3.2.4)				
(a) Distance-past (3.2.4.1) *two hours ago* (+ distance-retrospective)		*ngayaw na*	'in front of'	✓
(b) Distance-future (3.2.4.2) *(I will return) in three weeks(' time)* (+ distance-prospective)		*tuRuz na* *melaziw* *qa-* *si* *(ta) …(-an)*	'behind' 'pass' IRR when.IRR locative case	✓ ✓ ✓
II. Temporal extent (3.3)				
(a) Atelic extent (3.3.1) *for two months*		*tu* *(ta) …(-an)*	oblique case locative case	 ✓
(b) Telic extent (3.3.2) *(I wrote the letter) in two hours*		*Ø* *(ta) …(-an)*	 locative case	 ✓
(c) Distance-posterior (3.3.3) (German:) *seit drei Jahre* (lit. 'since three years ago')		*=ti*	inchoative aspect	

As for the second part of the first research question, it has become clear that Kavalan makes fairly extensive use of spatial language in the temporal domain. These spatial terms include the locative case, spatial front/back orientation terms, and motion verbs. Mostly following Moore's (2006, 2014) classification of metaphors (based on Lakoff & Johnson's works), various conceptual TIME IS SPACE metaphors have been identified that account for the use of these spatial terms in different semantic structures. Locative constructions used for marking temporal location are typologically very common (Haspelmath 1997:30), which can be attributed to the underlying conceptual metaphor TIMES ARE LOCATIONS (Moore 2014:215ff.). Also the use of a front/back axis to refer to earlier/later times is widely attested, which I argue to be an instance of SEQUENCE IS RELATIVE POSITION ON A PATH, in line with Moore (2006, 2014). The motion verbs are widely applicable, as their uses appear to be based on various metaphors. The temporal functions in which spatial language is employed are indicated in Table 5.1. In addition to Haspelmath's temporal concepts, I have also shown that *yau* and *wi(ya)*, both demonstratives and deictic motion verbs, have acquired aspectual meanings (Jiang 2006), which can likewise be explained fittingly by conceptual metaphors.

In order to respond to the second research question, a small-scale typological study has been carried out, consisting of five Formosan languages including Kavalan. In the part about temporal expression, simultaneous and sequential clauses (i.e. 'when'-, 'before'-, and 'after'-clauses) and their nominal counterparts have been examined. While it is known that most Formosan languages distinguish between 'when'-clauses referring to past events and those referring to generic/habitual or future events (Zeitoun 1997), the data suggest that this distinction between past on the one hand and generic/habitual and future on the other also exists in anterior and posterior clauses. Kavalan (East Formosan) and Saisiyat (Northwest Formosan) are found to diverge from this pattern, preferring juxtaposition or a single general temporal marker. There is no immediate areal or genetic explanation available for the similarities between the two languages, as they are neither areally nor genetically close. Tsou (Tsouic) also diverges from the rest in marking simultaneous clauses and NPs, which can be logically attributed to its likewise diverging linguistic properties. A general pattern observed across all languages is the underspecificity of posterior clauses compared to anterior clauses. This makes sense from a cognitive point of view, since simultaneity and posteriority are conceptually much more similar than any of the two compared to anteriority.

The part of the typological study dedicated to temporal conceptualization served as an exploratory study. No strong or surprising patterns have so far been observed, which is partly due to space-time conceptualizations being an understudied subject in the Formosan languages. Nevertheless, in Isbukun Bunun (Bunun) and Saisiyat, both unrelated to Kavalan, four common space-time metaphors have been attested, illustrating the experiential grounding of these metaphors, universal to human beings. In order to properly examine the degree to which conceptual metaphors are present in a language, I believe quantitative research is needed in addition to the preliminary qualitative research done here.

5.2. SUGGESTIONS FOR FURTHER RESEARCH

Although this thesis has provided an extensive overview of how Kavalan expresses lexical time and an account of how these ways of expression can be motivated by conceptual metaphors, many related aspects remain unexplored. I will begin with listing the issues I have come across regarding the description and understanding of specific time-related aspects in Kavalan and then proceed with identifying some more general research suggestions.

First of all, it must have become evident that this description of temporal functions in Kavalan is not exhaustive and still contains a fair amount of gaps. The most substantial unresolved questions are the following:

(i) Are all temporal clauses subordinate? What about other (functionally) adverbial clauses? Thus far, it has been assumed that in the absence of a subordinator, clauses are in a coordinate relationship (Chang 2000:172, 2006:55). However, TAM marking only occurring in what is likely to be the main clause suggests otherwise. (See p. 54.)

(ii) Issues related to temporal/conditional marker *si* (see Section 3.2.1.1):
   a. What are other syntactic properties of *si*? Can it be labeled as belonging to a certain word class?
   b. Is *si* compatible with non-future/realis contexts? My data and Lin's (1996) testimony indicate a negative answer, but Chang's (2000:177) data do not.
   c. Is *si* compatible with generic/habitual contexts? My data suggest it is not, but it was not investigated systematically in this study. If this hypothesis turns out to be true, *si* intriguingly differs from temporal/conditional markers in many other Formosan languages in this respect (Zeitoun 1997).
   d. Is *siu*, which indicates a possibility or uncertainty, related to *si?*

(iii) What are the linguistic factors determining the relative order of *ngayaw/tuRuz na* and an NP, together meaning 'before/after NP'? Or is there free variation? (See p. 63.)

(iv) What is *Ray-* which appears on spatial terms? My data have shown that it is not a superlative marker and that it implies comparison. (See pp. 76-77.)

(v) Does *likuz-* have truly spatial semantics ('in the furthest back') or does it only indicate the last in an order or sequence, as my data suggest? Jiang's (2006) data contradict mine, so more systematic research is necessary. (See Section 3.2.2.3.)

(vi) What is the etymology of *qeni-…-an* 'since' and what is its morphosyntactic structure? I have suggested that both *qeni-…-an* and *(qe)nizi* may have originated from *qenian* 'past'. In that case, the fact that *qeni-…an* is incompatible with non-past RPs could be a remnant of its original meaning. (See p. 84.)

(vii) Can we find semantic or pragmatic restrictions on the use of *maqzi* 'from' in a spatial and a temporal sense? In what contexts exactly is *(qe)nizi* deemed grammatical but *maqzi* ungrammatical? I have attempted but failed to discover a pattern. (See Section 3.2.3.2.)

Overall speaking, since this study has primarily focused on the semantic aspects of temporal expression, still little is known about the syntax involved. As Henry Yungli Chang (2006) shows, in Kavalan many adverbial expressions are actually realized as verbs, even main predicates. Crucially, the adverbs included in his syntactic analysis are semantically verb-modifying adverbs, such as manner and frequency expressions. Adverbs of time and place are not included. Since their semantic relationship to the main verb differs from that of manner and frequency adverbs, it would not be surprising if their syntax turned out to reflect this and consequently be different as well. It has been shown in the present study that Kavalan uses a variety of strategies ranging from highly lexical to highly grammatical, from noun-like to verb-like. These form an interesting object of study for grammaticalization and general syntactic studies.

Furthermore, I believe it would be fruitful to look at spontaneous speech, such as narratives. An elicitation-based study like this is inevitably accompanied by biases created by the metalanguage and

other influences, rendering the data less natural. Being a semantic domain rather than a specific morphosyntactic phenomenon, time easily plays a role in common narratives and discourse.

It is also worth noting that besides lexical time, grammatical time in Kavalan leaves a lot of space for further research as well. It seems that scholars have not yet reached a deep understanding of Kavalan's TAM system. Is it tense-based or mood-based? How do temporal and modal elements (and 'focus') interact with each other? These are important theoretical questions to resolve in order to be able to place Kavalan in a larger, typological perspective.

Finally, while the typological study did not result in any peculiar or unexpected findings for my language sample, it did lead to the encounter with the interesting case of Wulai Atayal. The discovery that Atayal uses *βaβaw* 'above' to refer to posteriority or the future (a crucial distinction) and *zik* 'below, under' for anteriority or the past is of great typological interest, for cognitive linguists in particular. How do Atayal speakers conceptualize time and what factors can be found to motivate such a (seemingly) uncommon temporal construal?

6. REFERENCES

Alverson, Hoyt. 1994. *Semantics and experience: Universal metaphors of time in English, Mandarin, Hindi, and Sesotho*. Baltimore, London: John Hopkins.

Bender, Andrea, Giovanni Bennardo & Sieghard Beller. 2005. Spatial frames of reference for temporal relations: A conceptual analysis in English, German, and Tongan. *Cognitive Science*. 220–225.

Bernárdez, Enrique. 2013. On the cultural character of metaphor: Some reflections on Universality and Culture-specificity in the language and cognition of time, especially in the Amerindian languages. *Review of Cognitive Linguistics* 11(1). 1–35.

Bible Society. 2000. Extracts from The Book of Genesis, in *Tama Dihanin tu Halinga. The Bunun Bible in Today's Taiwan Bunun Version*, complemented with Chinese and English translations and annotations by Shuping Huang.

Blundell, David (ed.). 2000. *Austronesian Taiwan*. Berkeley CA, Taipei: Phoebe A. Hears Museum of Anthropology, Shung Ye Museum.

Blust, Robert. 1997. Semantic change and the conceptualization of spatial relationships in Austronesian languages. In Gunter Senft (ed.), *Referring to Space: Studies in Austronesian and Papuan Languages*, 39–52. Oxford, New York: Clarendon Press.

Blust, Robert. 1999. Subgrouping, circularity and extinction: Some issues in Austronesian comparative linguistics. In Elizabeth Zeitoun & Paul Jen-kuei Li (eds.), *Selected Papers from the Eighth International Conference on Austronesian Linguistics*, 31–94. Taipei: Academia Sinica.

Blust, Robert & Stephen Trussel. *Austronesian Comparative Dictionary*, web edition. 2010: revision 11/5/2016. http://www.trussel2.com/ACD.

Boroditsky, Lera, Orly Fuhrman & Kelly McCormick. 2011. Do English and Mandarin speakers think about time differently? *Cognition* 118(1). 126–132.

Bril, Isabelle (ed.). 2010. *Clause Linking and Clause Hierarchy*. Amsterdam, Philadelphia: John Benjamins.

Busser, Rik De. 2013. Positional and grammatical variations of time words in Takivatan Bunun. *Language and Linguistics* 14(6). 963–1008.

Bybee, Joan L. & Östen Dahl. 1989. The creation of tense and aspect systems in the languages of the world. *Studies in Language* 13(1). 51–103.

Bybee, Joan L., Revere D. Perkins & William Pagliuca. 1994. *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World*. Chicago, London: University of California Press.

Casasanto, Daniel & Lera Boroditsky. 2008. Time in the mind: Using space to think about time. *Cognition* 106(2). 579–593.

Casasanto, Daniel, Lera Boroditsky, Webb Phillips, Jesse Greene, Shima Goswami, Simon Bocanegra-Thiel, Ilia Santiago-Diaz, Olga Fotokopoulu, Ria Pita & David Gil. 2005. How deep are effects of language on thought? Time estimation in speakers of English, Indonesian, Greek, and Spanish. *Proceedings of the Twenty-Sixth Annual Conference of the Cognitive Science Society*. 186–191.

Chafe, Wallace L. 1980. *The pear stories: Cognitive, cultural, and linguistic aspects of narrative production*. Norwood, NJ: Ablex.

Chang, Anna Hsiou-chuan. 2006. A reference grammar of Paiwan. Canberra: The Australian National University dissertation.

Chang, Henry Yungli. 1997. Voice, Case and Agreement in Seediq and Kavalan. Hsinchu: National Tsinghua University dissertation.
Chang, Henry Yungli. 2000. *A Kavalan Reference Grammar [in Chinese]*. Taipei: Yuanliou.
Chang, Henry Yungli. 2006. The guest playing host: Adverbial modifiers as matrix verbs in Kavalan. In Hans-Martin Gärtner, Paul Law & Joachim Sabel (eds.), *Clause structure and adjuncts in Austronesian languages*, 43–82. Berlin: Mouton de Gruyter.
Chang, Henry Yungli. 2009. Adverbial verbs and adverbial compounds in Tsou: A syntactic analysis. *Oceanic Linguistics* 48(2). 439–476.
Chang, Henry Yungli. 2015. Nominal aspect in Tsou. In Elizabeth Zeitoun, Stacy Fang-ching Teng & Joy J. Wu (eds.), *New advances in Formosan linguistics*, 157–182. Canberra: Asia-Pacific Linguistics.
Chang, Henry Yungli, Chih-Chen Jane Tang & Dah-an Ho. 1998. A study of noun-class markers in Kavalan. *The Tsing Hua Journal of Chinese Studies, New Series* 28(3). 275–298.
Clark, Herbert H. 1973. Space, time, semantics, and the child. In Timothy E. Moore (ed.), *Cognitive development and the acquisition of language*, 27–63. New York: Academic Press.
Comrie, Bernard. 1976. *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems*. Cambridge: Cambridge University Press.
Comrie, Bernard. 1985. *Tense*. Cambridge: Cambridge University Press.
Dahl, Östen. 1985. *Tense and Aspect Systems*. Oxford: Blackwell.
Diessel, Holger. 1999. *Demonstratives: Form, Function, and Grammaticalization*. Amsterdam, Philadelphia: John Benjamins.
Dyen, Isidore. 1990. Homomeric lexical classification. In Philip Baldi (ed.), *Linguistic Change and Reconstruction Methodology*, 211–230. Berlin, New York: Mouton de Gruyter.
Early, Robert & John Whitehorn. 2003. *One hundred Paiwan texts*. Canberra: Pacific Linguistics.
Egerod, Søren. 1999. *Atayal-English Dictionary*. Copenhagen: The Royal Danish Academy of Sciences and Letters.
Evans, Vyvyan. 2003. *The Structure of Time*. Amsterdam, Philadelphia: John Benjamins.
Fauconnier, Gilles & Mark B. Turner. 2008. Rethinking metaphor. In Ray Gibbs (ed.), *The Cambridge handbook of metaphor and thought*, 53–66. Cambridge: Cambridge University Press.
Fuhrman, Orly, Kelly Mccormick, Eva Chen, Heidi Jiang, Dingfang Shu, Shuaimei Mao & Lera Boroditsky. 2011. How Linguistic and Cultural Forces Shape Conceptions of Time: English and Mandarin Time in 3D. *Cognitive Science* 35(7). 1305–1328.
Givón, Talmy. 1978. Definiteness and referentiality. In Charles Albert Ferguson & Edith A. Moravcsik (eds.), *Universals of Human Language*, vol. 4, 291–330. Stanford: Stanford University Press.
Goossens, Louis. 1995. Metaphtonymy: The interaction of metaphor and metonymy in figurative expressions for linguistic action. In Louis Goossens, Paul Pauwels, Brygida Rudzka-Ostyn, Anne-Marie Simon-Vanderbergen & Johan Vanparys (eds.), *By word of mouth: Metaphor, metonymy and linguistic action in a cognitive perspective*, 159–174. Amsterdam, Philadelphia: John Benjamins.
Grady, Joseph E. 1999. A typology of motivation for conceptual metaphor: Correlation vs. resemblance. In Raymond W. Gibbs & Gerard J. Steen (eds.), *Metaphor in Cognitive Linguistics*, 79–100. Amsterdam, Philadelphia: John Benjamins.
Haspelmath, Martin. 1997. *From space to time: temporal adverbials in the world's languages*. *LINCOM studies in theoretical linguistics 3*. München, Newcastle: LINCOM Europa.
Heine, Bernd. 2015. On the role of context in grammaticalization. In Ilse Wischer & Gabriele Diewald (eds.), *New Reflections on Grammaticalization*, 83–101. Amsterdam, Philadelphia: John Benjamins.

Heine, Bernd, Ulrike Claudi & Friederike Hünnemeyer. 1991. *Grammaticalization: A conceptual framework*. Chicago: University of Chicago Press.
Heine, Bernd & Tania Kuteva. 2004. *World Lexicon of Grammaticalization*. Cambridge: Cambridge University Press.
Ho, Dah-an. 1998. Genetic relationships among the Formosan languages (in Chinese). *Chinese Studies* 16. 141–171.
Hopper, Paul J. (ed.). 1982. *Tense-Aspect: Between Semantics and Pragmatics*. Amsterdam, Philadelphia: John Benjamins.
Hsiao, Stella I-ling. 2004. Adverbials in Squliq Atayal. Hsinchu: National Tsing Hua University MA thesis.
Hsieh, Fuhui. 2011a. The functions of -an and =ay in Kavalan. In Foong Ha Yap, Karen Grunow-Hårsta & Janick Wrona (eds.), *Nominalization in Asian Languages: Diachronic and Typological Perspectives*, 499–522. Amsterdam, Philadelphia: John Benjamins.
Hsieh, Fuhui. 2011b. The conceptualization of emotion events in three Formosan languages: Kavalan, Paiwan, and Saisiyat. *Oceanic Linguistics* 50(1). 65–92.
Hsieh, Fuhui. 2015. Issues related to possessive constructions in Kavalan and Saisiyat (presentation slides). Thirteenth International Conference on Austronesian Linguistics (13-ICAL). July 2015. Taipei, Taiwan.
Hsieh, Fuhui (forthcoming a). *Kavalan Reference Grammar*.
Hsieh, Fuhui (forthcoming b). *Conceptualization of time in Saisiyat (draft)*.
Hsieh, Fuhui & Shuanfan Huang. 2007. Documenting and revitalizing Kavalan. In Victoria Rau & Margaret Florey (eds.), *Documenting and revitalizing Austronesian languages*, 93–110. Hawai'i: University of Hawai'i Press.
Huang, Lillian M. 1993. *A Study of Atayal Syntax*. Taipei: The Crane Publishing Co.
Huang, Shuanfan. 2002. Tsou is different: A cognitive perspective on language, emotion, and body. *Cognitive Linguistics* 13(2). 167–186.
Huang, Shuanfan. 2007. *Grammar and cognition in Kavalan. Technical report. NSC 95-2411-H-002-051*.
Huang, Shuanfan, Lily I-wen Su & Li-may Sung. 2001. A Reference Grammar of Tsou. Technical Report of NSC. Taipei: National Taiwan University.
Huang, Shuanfan & Michael Tanangkingsing. 2011. A discourse explanation of the transitivity phenomena in Kavalan, Squliq, and Tsou. *Oceanic Linguistics* 50(1). 93–119.
Huang, Shuping. 2016. TIME AS SPACE metaphor in Isbukun Bunun: A semantic analysis. *Oceanic Linguistics* 55(1). 1–24.
Jackendoff, Ray S. 1983. *Semantics and cognition*. Cambridge, MA: MIT Press.
Jeng, Hengsyung. 1997. Chinese and English translations of a Bunun Myth, extract from "A Linguistic Analysis of a Bunun Myth." In Sung-yuan Lin (ed.), *Proceedings of the First Symposium on Taiwan Folklore*, 106–123. Yuan-lin: Association of Cultural Studies, Huang-hsi.
Jeng, Hengsyung. 1999. Bunun tense and aspect. In Elizabeth Zeitoun & Paul Jen-kuei Li (eds.), *Selected papers from the 8ICAL*, 455–487.
Jeng, Hengsyung & Haowen Jiang. 2010. *The spatial and temporal conceptualizations of Isbukun Bunun*. Fourth Conference on Language, Discourse and Cognition, National Taiwan University. 1 May, 2010.
Jiang, Haowen. 2006. Spatial Conceptualizations in Kavalan. Taipei: National Taiwan University MA thesis.

Jiang, Haowen. 2009a. Three dichotomies in the Kavalan demonstrative system (handout). Eleventh International Conference on Austronesian Linguistics. June 22-26, 2009. Aussois, France.
Jiang, Haowen. 2009b. Three dichotomies in the Kavalan demonstrative system (handout). Rice University Linguistics Colloquium. September 17, 2009. Houston.
Jiang, Haowen. 2011. On the grammaticalization of nominalization marker =ay in Kavalan and Amis: A contrastive study. *LSA Meeting Extended Abstracts 2011*, vol. 2.
Johnson, Mark. 1987. *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. *Journal of Chemical Information and Modeling*. Chicago, London: University of Chicago Press.
Kaufman, Daniel. 2009. Austronesian typology and the nominalist hypothesis. In Alexander Adelaar & Andrew Pawley (eds.), *Austronesian historical linguistics and culture history: A festschrift for Robert Blust*, 187–215. Canberra: Pacific Linguistics.
Kita, Sotaro & Laura Walsh Dickey (eds.). 1998. *Annual report 1998*. Max Planck Institute for Psycholinguistics.
Klein, Wolfgang. 1994. *Time in Language*. London, New York: Routledge.
Kövecses, Zoltán. 2005. *Metaphor in Culture: Universality and Variation*. Cambridge: Cambridge University Press.
Kövecses, Zoltán. 2010. *Metaphor: A Practical Introduction*. 2nd ed. Oxford: Oxford University Press.
Kranjec, Alexander. 2006. Extending spatial frames of reference to temporal concepts. In Ron Sun & Naomi Miyake (eds.), *Proceedings of the 28th Annual Conference of the Cognitive Science Society*, 447–452.
Kučera, Henry & Karla Trnka. 1975. *Time in language: Temporal adverbial constructions in Czech, Russian and English*. Ann Arbor: University of Michigan.
Kuteva, Tania. 2001. *Auxiliation: An Enquiry into the Nature of Grammaticalization*. Oxford: Oxford University Press.
Lakoff, George. 1987. *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind*. Chicago, London: University of Chicago Press.
Lakoff, George. 1993. The contemporary theory of metaphor. In Andrew Ortony (ed.), *Metaphor and Thought*, 202–251. Cambridge: Cambridge University Press.
Lakoff, George & Mark Johnson. 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.
Lakoff, George & Mark Johnson. 1999. *Philosophy in the Flesh*. New York: Basic Books.
Lakoff, George & Mark B. Turner. 1989. *More than Cool Reason: A Field Guide to Poetic Metaphor*. Chicago: University of Chicago Press.
Langacker, Ronald W. 2012. Linguistic manifestations of the space-time (dis)analogy. In Luna Filipović & Kasia M. Jaszczolt (eds.), *Space and Time in Languages and Culture: Language, Culture, and Cognition*, 191–215. Amsterdam, Philadelphia: John Benjamins.
Lee, Amy Pei-jung. 1997. The Case-marking and Focus Systems of Kavalan. Hsinchu: National Tsing Hua University MA thesis.
Levinson, Stephen C. & Asifa Majid. 2013. The island of time: Yélî Dnye, the language of Rossel Island. *Frontiers in Psychology* 4(February). 1–11.
Li, Paul Jen-kuei. 1982. Kavalan phonology: Synchronic and diachronic. In Rainer Carle, Martina Heinschke, Peter W Pink, Christel Rost & Karen Stadtlander (eds.), *GAVA': Studies in Austronesian Languages and Cultures*, 479–495. Berlin: Dietrich Reimer Verlag.
Li, Paul Jen-kuei. 2001. The dispersal of the Formosan aborigines in Taiwan. *Language and Linguistics* 2(1). 271–278.

Li, Paul Jen-kuei. 2004. Origins of the East Formosans: Basay, Kavalan, Amis, and Siraya. *Language and Linguistics* 5(2). 363–376.
Li, Paul Jen-kuei. 2006. *The internal relationships of Formosan languages*. Tenth International Conference on Austronesian Linguistics (10-ICAL), 17-20 January 2006. Puerto Princesa City, Palawan, Philippines.
Li, Paul Jen-kuei. 2008. The great diversity of Formosan languages. *Language and Linguistics* 9(3). 523–546.
Li, Paul Jen-kuei. 2015. The preglottalised stops in three Formosan languages. In Elizabeth Zeitoun, Stacy Fang-ching Teng & Jing-lan Joy Wu (eds.), *New advances in Formosan linguistics*, 39–46. Canberra: Asia-Pacific Linguistics.
Li, Paul Jen-kuei & Shigeru Tsuchida. 2006. *Kavalan dictionary*. Taipei: Institute of Linguistics, Academia Sinica.
Liao, Hsiu-chuan. 2002. The interpretation of tu and Kavalan ergativity. *Oceanic Linguistics* 41(1). 140–158.
Liao, Hsiu-chuan. 2004. Transitivity and Ergativity in Formosan and Philippine Languages. Manoa: University of Hawai'i dissertation.
Lin, Dong-yi. 2006. The Language of Emotion in Kavalan. Taipei: National Taiwan University MA thesis.
Lunn, Patricia V. 1995. The evaluative function of the Spanish subjunctive. In Joan L. Bybee & Suzanne Fleischman (eds.), *Modality and Grammar in Discourse*, 419–449. Amsterdam, Philadelphia: John Benjamins.
Matisoff, James A. 1991. Areal and universal dimensions of grammaticalization in Lahu. In Elizabeth Closs Traugott & Bernd Heine (eds.), *Approaches to Grammaticalization*, vol. 2, 383–453. Amsterdam, Philadelphia: John Benjamins.
Mayer, Mercer. 1969. *Frog, where are you?* New York: Dial Press.
Moore, Kevin Ezra. 2000. Spatial Experience and Temporal Metaphors in Wolof: Point of View, Conceptual Mapping, and Linguistic Practice. Berkeley, CA: University of California dissertation.
Moore, Kevin Ezra. 2006. Space-to-time mappings and temporal concepts. *Cognitive Linguistics* 17(2). 199–244.
Moore, Kevin Ezra. 2014. *The Spatial Language of Time*. Amsterdam, Philadelphia: John Benjamins.
Núñez, Rafael & Kensy Cooperrider. 2013. The tangle of space and time in human cognition. *Trends in Cognitive Sciences* 17(5). 220–229.
Núñez, Rafael, Kensy Cooperrider, D. Doan & Jürg Wassmann. 2012. Contours of time: Topographic construals of past, present, and future in the Yupno valley of Papua New Guinea. *Cognition* 124(1). 25–35.
Núñez, Rafael E. & Carlos Cornejo. 2012. Facing the sunrise: Cultural worldview underlying intrinsic-based encoding of absolute frames of reference in Aymara. *Cognitive Science* 36(6). 965–991.
Núñez, Rafael E., Benjamin A. Motz & Ursina Teuscher. 2006. Time after time: The psychological reality of the Ego- and time-reference-point distinction in metaphorical construals of time. *Metaphor and Symbol* 21(3). 133–146.
Núñez, Rafael E. & Eve Sweetser. 2006. With the future behind them: convergent evidence from Aymara language and gesture in the crosslinguistic comparison of spatial construals of time. *Cognitive science* 30(3). 401–450.
Palmer, Frank R. 2001. *Mood and Modality*. 2nd ed. Cambridge: Cambridge University Press.
Pan, Chia-jung. 2007. The Grammatical Realization of Temporal Expressions in Tsou. Chia-Yi: National

Chung Cheng University MA thesis.
Radden, Günter. 2011. Spatial time in the West and the East. In Mario Brdar, Marija Omazic, Visnja Pavicic Takac, Tanja Gradecak-Erdeljic & Gabrijela Buljan (eds.), *Space and Time in Language*, 1–40. Frankfurt et al.: Peter Lang.
Reid, Lawrence Andrew. 2002. Determiners, nouns, or what? Problems in the analysis of some commonly occurring forms in Philippine languages. *Oceanic Linguistics* 41(2). 295–309.
Ross, Malcolm. 2009. Proto Austronesian verbal morphology: a reappraisal. In Alexander Adelaar & Andrew Pawley (eds.), *Austronesian historical linguistics and culture history: A festschrift for Robert Blust*, 295–326. Canberra: The Australian National University.
Ross, Malcolm. 2012. In defense of Nuclear Austronesian (and against Tsouic). *Language and Linguistics* 13(6). 1253–1330.
Ross, Malcolm & Stacy Fang-ching Teng. 2005. Formosan languages and linguistic typology. *Language and Linguistics* 6(4). 739–781.
Sagart, Laurent. 2004. The higher phylogeny of Austronesian and the position of Tai-Kadai. *Oceanic Linguistics* 43(2). 411–444.
Saillard, Claire (forthcoming). Austronesian Languages. In Rint Sybesma, Wolfgang Behr, Yueguo Gu, Zev Handel, C.-T. James Huang & James Myers (eds.), *Encyclopedia of Chinese Language and Linguistics*. Leiden: Brill.
Sankoff, Gilian. 1979. The genesis of a language. In Kenneth C. Hill (ed.), *The Genesis of Language*, 23–47. Ann Arbor: Karoma Publishers.
Silva Sinha, Vera Da, Chris Sinha, Wany Sampaio & Jörg Zinken. 2012. Event-based time intervals in an Amazonian culture. In Luna Filipović & Kasia M. Jaszczolt (eds.), *Space and Time in Languages and Culture: Language, Culture, and Cognition*, 15–35. Amsterdam, Philadelphia: John Benjamins.
Sinha, Chris. 2014. Is space-time metaphorical mapping universal? Time for a cultural turn. In Luna Filipovic & Martin Pütz (eds.), *Multilingual Cognition and Language Use: Processing and Typological Perspectives*, 183–201. Amsterdam, Philadelphia: John Benjamins.
Sinha, Chris & Enrique Bernárdez. 2015. Space, time, and space-time: Metaphors, maps, and fusions. In Farzad Sharifian (ed.), *The Routledge Handbook of Language and Culture*, 309–324. London, New York: Routledge.
Sinha, Chris & Peter Gärdenfors. 2014. Time, space, and events in language and cognition: A comparative view. *Annals of the New York Academy of Sciences* 1326(1). 72–81.
Sinha, Chris, Vera Da Silva Sinha, Jörg Zinken & Wany Sampaio. 2011. When time is not space: The social and linguistic construction of time intervals and temporal event relations in an Amazonian culture. *Language and Cognition* 3. 137–169.
Starosta, Stanley. 2002. Austronesian "focus" as derivation: Evidence from nominalization. *Language and Linguistics* 3(2). 427–479.
Sung, Chia-Hsing. 2005. Temporal Expressions in Paiwan. Chia-Yi: National Chung Cheng University MA thesis.
Sung, Li-May, Li-Hsin Sung & Maya Yuting Yeh. 2006. The existential predicate yau in Kavalan. *Proceedings of the 18th North America Conference on Chinese Linguistics (NACCL)*, 480–499.
Sweetser, Eve. 1990. *From etymology to pragmatics*. Cambridge: Cambridge University Press.
Tang, Chih-Chen Jane. 2006. Demonstratives and DP structure in Formosan languages. *Language and Linguistics* 7(4). 935–990.
Thompson, Sandra A., Robert E. Longacre & Shin Ja J. Hwang. 2007. Adverbial clauses. In Timothy

Shopen (ed.), *Language Typology and Syntactic Description*, vol. 2, 237–300. 2nd ed. Cambridge: Cambridge University Press.
Traugott, Elizabeth Closs. 1975. Spatial expressions of tense and temporal sequencing: A contribution to the study of semantic fields. *Semiotica* 15(3). 207–230.
Traugott, Elizabeth Closs. 1978. On the expression of spatio-temporal relations in language. In Joseph H Greenberg, Charles A Ferguson & Edith A Moravcsik (eds.), *Universals of Human Language*, vol. 3, 369–400. Stanford: Stanford University Press.
Tryon, Darrell T. (ed.). 1995. *Comparative Austronesian Dictionary: An Introduction to Austronesian Studies*. Berlin, New York: Mouton de Gruyter.
Tsuchida, Shigeru. 1976. *Reconstruction of Proto-Tsouic Phonology*. Tokyo: Tokyo University of Foreign Studies.
Tsuchida, Shigeru. 1983. Austronesian languages in Taiwan (Formosa). In Stephen A. Wurm & Hiro Hattori (eds.), *Language Atlas of the Pacific Area*. Canberra: The Australian National University.
Tung, Tung-Ho. 1964. *A Descriptive Study of the Tsou Language, Formosa*. Taipei: Institute of History and Philology, Academia Sinica.
Wu, Hsiao-Ching. 2004. Spatial Conceptualizations in Tsou and Saisiyat. Taipei: National Taiwan University MA thesis.
Yeh, Maya Yuting. 2002. Emotion concepts in Squliq Atayal. Taipei: National Taiwan University MA thesis.
Yeh, Maya Yuting. 2005. Negation in Kavalan: A Syntactic Study. National Taiwan University MA thesis.
Yu, Ning. 1996. The Contemporary Theory of Metaphor: A Perspective from Chinese. Arizona: University of Arizona dissertation.
Zeitoun, Elizabeth. 1993. A semantic study of Tsou case markers. *Bulletin of the Institute of History and Philology* 64(4). 969–989.
Zeitoun, Elizabeth. 1997. Temporal, hypothetical and counterfactual clauses in Formosan languages. *Eighth International Conference on Austronesian Linguistics (I-CAL)*. Taipei, Taiwan. December 28-30, 1997.
Zeitoun, Elizabeth. 2001. *The morpho-syntactic typology of the Formosan languages: A reassessment*. International Symposium on Austronesian Cultures: Issues relating to Taiwan (Linguistic Typology Workshop), Academia Sinica, Taipei, December 11, 2001.
Zeitoun, Elizabeth. 2005. Tsou. In Alexander Adelaar & Nikolaus P. Himmelmann (eds.), *The Austronesian Languages of Asia and Madagascar*, 259–290. London, New York: Routledge.
Zeitoun, Elizabeth, Tai-hwa Chu & Lalo a tahesh Kaybabaw. 2015. *A Study of Saisiyat Morphology*. Honolulu: University of Hawai'i Press.
Zeitoun, Elizabeth & Lillian M. Huang. 1997. Toward a typology of tense, aspect and modality in the Formosan languages: A preliminary study. *Chinese languages and linguistics IV: Typological studies of languages in China* 4. 595–618.
Zeitoun, Elizabeth, Lillian M. Huang, Marie M. Yeh, Anna Hsiou-chuan Chang & Jing-lan Joy Wu. 1996. The temporal, aspectual, and modal systems of some Formosan languages: A typological perspective. *Oceanic Linguistics* 35(1). 21–56.
Zeitoun, Elizabeth, Stacy F. Teng & Joy J. Wu (eds.). 2015. *New Advances in Formosan Linguistics*. Canberra: The Australian National University.