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汶水泰雅語中致使概念的語言表現：致使連續體的觀點

Linguistic Coding of Causation in Mayrinax Atayal: A Causative Continuum Approach

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Abstract

The present study discusses how causation is encoded formally in Mayrinax Atayal and how the formal properties of these causation-encoding forms are correlated with their semantics. Under the typological-functional framework of Shibatani (2002) and Shibatani and Pardeshi (2002), the present study maps the causation-encoding forms in Mayrinax Atayal onto a causative continuum headed by direct and indirect causation at its two ends. With the causative continuum, the interaction between morpho-syntax and semantics is clearly observed.

At the morphological level, the prefix *pa-* is predominantly used to express causation in Mayrinax Atayal. Chapter 2 examines how productivity, one of the two measures for the formal dimensions of the causative continuum, is realized among *pa-* causatives. Through observation on the causativization patterns in terms of the voice paradigm of causativized verbs, it has been found that voice and verbal semantics are the two interacting constraints on the formation of *pa-* causatives. Among the *pa-* causatives in the four voices, the one in patient voice [*pa-*STEM-*un*] is the least productive, causativizing statives, intransitives, and a restricted number of transitives, while the *pa-* causative in conveyance voice [*si-pa-*STEM] is the most productive, causativizing transitive verbs in addition to stative and intransitive verbs. The other constraint on *pa-* causativization, namely, verbal semantics, shapes a causativization hierarchy in Mayrinax Atayal, which largely conforms to Shibatani's (2002) prediction that inactive intransitves are easier to causativize through morphology while morphological causativization on transitives is faced with more difficulty.

Causation can be coded analytically as well, especially in situations where interpersonal manipulation is involved, or where transitive and ditransitive verbs are to be causativized (in other words, where *pa-* prefixation is impossible). Chapter 3 examines two constructions that are employed to encode causation analytically: quotative construction and switch-subject construction. These two constructions are distinguished in their degree of synthesis (the other measure for the formal dimension of the causative continuum), which is measured against the syntactic coding devices provided in Givón (2001). Formal comparison shows that switch-subject construction exhibits stronger degree of synthesis regarding inter-clausal gap, voice, negation, and personal deixis agreement. These two analytic causation-encoding constructions, together with the non-causative quotative construction and *pa-* causatives, form a complementation scale in Mayrinax along the utterance-manipulation-causation cline. For a cross-linguistic comparison of complementation strategies, the complementation

scales in English, French and Kavalan are presented.

After the presentation of the formal aspects of causation-encoding constructions in Mayrinax Atayal in Chapter 2 and Chapter 3, Chapter 4 maps these constructions onto a causative continuum and discusses the semantic aspects in the directness dimension. It is found that, on the continuum, lexical causatives and morphological *pa-* causatives gravitate toward direct causation, while constructions that encode causation analytically (namely, quotative construction and switch-subject construction) gravitate toward indirect causation. Sociative causation, the intermediary category, is expressed through *pa-* causatives in CV and quotative construction in AV. The semantics and functions of non-causative voice constructions are argued to contribute to the semantic differences among the causation-encoding constructions.

Key words: Mayrinax Atayal, causative construction, causation, morpho-syntax, form-meaning correlation, voice

摘要

本研究探討汶水泰雅語中致使概念在形式上的表現，以及形式上的特質與語意上的關聯。在 Shibatani（2002）和 Shibatani and Pardeshi（2002）語言分類／功能取向的研究框架之下，本研究將汶水泰雅語中表現致使概念的構式排列構成一個致使連續體（causative continuum），連續體的兩端為直接致使（direct causation）和間接致使（indirect causation）。構詞／句法與語意的互動可以清楚地藉由此致使連續體觀察得出。

在構詞層次，汶水泰雅語中主要藉由 *pa-*前綴來表示致使概念。第二章檢視能產性（productivity，致使連續體的兩個形式面象之一）在 *pa-*致使構式之中的表現。透過觀察致使化動詞語態（voice）變化上的規律，發現「語態」和「動詞語意」為 *pa-*致使形式中兩個交互作用的約束。四個語態當中的 *pa-*致使構式，[*pa-*STEM-*un*]（PV）能產性最低，可以就靜態動詞、不及物動詞，以及有限的及物動詞形成致使構式。[*si-pa-*STEM]（CV）則是能產性最高，除了靜態動詞和不及物動詞之外，還可以就及物動詞形成致使構式。另外一個形成 *pa-*致使構式的約束則是動詞語意，此概念構成了汶水泰雅語中的致使化層級（causativization hierarchy）。這個層級大致上遵照 Shibatani（2002）的預測，顯示出不及物動詞較容易透過構詞方式致使化，及物動詞則較困難。

致使概念也可以分析型的方式（analytic）表達，尤其是牽涉到人際操縱的情況，或是致使化及物動詞以及雙及物動詞，不允許使用 *pa-*的情況之下。第三章檢視兩個分析型表達致使概念的構式—引述構式（quotative construction）以及易主構式（switch-subject construction）。這兩個構式在形式緊合（formal synthesis，致使連續體的另一形式面象）上的差異，以 Givón（2001）提出的句法方式測試。比較的結果顯示，易主構式形式在子句間距、語態、否定、人稱指涉一致等方面，子句緊合程度較強。這兩個分析型表達致使概念的構式，加上非致使引述構式，以及 *pa-*致使構式，合起來形成一個表話語／操縱／致使概念的補語級別（complementation scale）。第三章的最後描述了英語、法語以及噶瑪蘭語的補語級別，以進一步跨語言比較補語策略。

第二章以及第三章呈現了汶水泰雅語中致使概念構式的形式層面，接著第四章將這些構式沿著致使連續體排列，並以直接／間接的面相討論這些構式的語意。排列的結果發現，詞彙致使構式，以及 *pa-*構詞致使構式傾向表達直接致使概念，而分析型致使構式則傾向表達間接致使概念。協同致使概念（sociative causation）則透過[*si-pa-*STEM]（CV）以及 AV 引述構式表達。最後，非致使語態構式的語意和功能被認為是造成致使概念構式之間語意差異的原因。

關鍵字：汶水泰雅語，致使構式，致使概念，構詞／句法，形式／語意關聯，語態

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Abbreviations

1	first person
2	second person
3	third person
ACC	accusative
AGT	agentive
AV	actor voice
BEN	beneficiary
CAU	causative
COM	comitative
COMP	complementizer
COND	conditional
CONJ	conjunctor
CV	conveyance voice
DAT	dative
EXCL	exclusive
EXI	existential
FUT	future
GEN	genitive
IMP	imperative
INCL	inclusive
INS	instrumental
IRR	irrealis
LNK	linker
LOC	locative
LV	locative voice
NAV	non-actor voice
NEG	negative
NEU	neutral
NMZ	nominalizer
NOM	nominative
OBL	oblique
PART	particle
PFV	perfective
PL	plural
PN	proper noun
PV	patient voice
Q	question marker
QUO	quotative
REC	reciprocal
RED	reduplication
SG	singular
STAT	stative
TOP	topic
VR	verbalizer

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Chapter 1

Introduction

1.0 Introduction

This introductory chapter prepares the discussion on linguistic coding of causation in Mayrinax Atayal in subsequent chapters. In Section 1.1, the definition and typology of causative constructions will be discussed. Section 1.2 lists the objectives of this study. Section 1.3 details the framework adopted in this study: the causative continuum approach by Shibatani (2002) and Shibatani and Pardeshi (2002), complemented by Givón's (2001) approach to clause union. Section 1.4 sketches the grammar of Mayrinax Atayal, including aspects such as phonemic inventory, word order, case-marking and pronominal system, and voice system. Section 1.5 reviews Huang (1995), a previous study on *pa-* causatives in Mayrinax. Section 1.6 provides the source of linguistic data used in the present study. Section 1.7 states the organization of this thesis.

1.1 Preliminaries

This section provides some preliminaries necessary for a study on linguistic coding of causation. First, section 1.1.1 will give a definition of causative constructions by Shibatani (1976). His definition will be modified to facilitate the discussion in the present study. Next, section 1.1.2 will discuss a linguistic typology of causative constructions by Comrie's (1989), which is often alluded to in the literature and will be applied in this thesis whenever convenient.

1.1.1 Defining causatives

Causation is one of the basic categories in human conceptualization. World languages have been repeatedly attested to have various ways to encode this fundamental concept. One simple and narrow definition of the causative construction by characterizing the causative situation is provided by Shibatani (1976). A causative situation is formed if two conditions on two sub-events hold:

(1) Two conditions on causative sub-events (Shibatani 1976:1-2)

a. The relation between the two events is such that the speaker believes that the occurrence of one event, the "caused event," has been realized at t_2, which is after t_1, the time of the "causing event."

b. The relation between the causing and the caused event is such that the speaker believes that the occurrence of the caused event is wholly dependent on the occurrence of the causing event; the dependency of the two events here must be to the extent that it allows the speaker to entertain a counterfactual inference that the caused event would not have taken place at that particular time if the causing event had not taken place, provided that all else had remained the same.

Condition (1a) pertains to the temporal order of the two sub-events and implication of occurrence of the caused event, while Condition (1b) pertains to the logical entailment between the two sub-events. Thus, according to these two conditions, sentences such as *I made John go* and *I sent John to the drugstore* are causatives, since *make* and *send* are implicative verbs[1]—the occurrence of these two verbs in these two sentences indicates the occurrence of the caused event (that is, John's going). By contrast, the sentence *I told John to go* is not causative, since the verb *tell* is non-implicative and the sentence can be followed by the clause *but he actually didn't go* without

[1] The terms *implicative* and *non-implicative* are borrowed from Givón (2001:44), where implicativity is used to make a distinction between "successful" and "intended" manipulation. An implicative verb is defined by Givón in terms of logical implication: If the main clause is true, then the complement clause is true. This defintion is in line with Shibatani's second condition given in (1b).

contradiction. Dixon (2000) adopts an even narrower definition of causatives, which for him "must involve a morphological process, or a verb which only has an abstract, causative meaning." Under his definition, the instance *I sent John to the drugstore* does not count as a causative construction.

Other studies, on the other hand, incorporate non-implicative verbs into the discussion on linguistic coding of causation. Givón (1975:77-81) identifies English manipulation verbs such as *force*, *prevent*, *persuade*, *tell*, *order*, *ask*, *urge*, *permit*, *forbid*, and *dissuade* as a group of causative verbs that involve interpersonal manipulation. Among these verbs, only *force* and *prevent* entail causation, and thus qualify as causative verbs by Shibatani's (1976) criteria (not so by Dixon's (2000)). Fleck (2002:399-403) reports that in Matses, a Panoan language spoken in the Amazonian Peru, aside from morphological causatives, causation is expressed analytically through direct quotation involving utterance verbs *ca* 'tell/say to' and *que* 'say'. Like the manipulation verbs discussed in Givón (1975), these utterance verbs in Matses do not entail successful manipulation and thus are not causatives *per se*. Nonetheless, they are exploited to report causative situations that would be awkwardly expressed by morphological causatives.[2]

Following Givón (1975) and Fleck (2002), the present study adopts a looser definition of causative constructions, liberating implicativity from Shibatani's (1976) two conditions. Under this looser version of definition, constructions involving non-implicative manipulation and utterance verbs that are frequently interpreted to bear causal relations are included in the discussion of causative constructions in this thesis. These constructions, which are strongly associated with situations where the caused event is actualized (i.e. exhibiting strong inferability of implicativity), are

[2] The factors that favor quotative constructions over morphological causatives in Matses include: politeness; disambiguation between permission and causation; restrictions of the evidentiality system; and culturally-conditioned predictability of behavior (Fleck 2002:402).

referred to as causation-encoding constructions, and the manipulation/utterance verbs involved as quasi-causative verbs in the present study.

There are at least three advantages of this looser definition of causative construction. Firstly, according to Fleck (2002), in world languages, especially agglutinating ones, certain causative situations cannot be coded morphologically by employing an implicative causative affix, and there is no causative verb (e.g. *make* in English) that encodes causation analytically. In Mayrinax Atayal, for instance, causative situations involving the ditransitive verb *vayq* 'give' cannot be realized morphologically through prefixation of the *pa-* causative morpheme. Instead, non-implicative manipulation verbs such as *tu'-un* 'order (PV)', or non-implicative utterance verbs such as *kal-un* 'tell (PV)' are employed. Only under the looser definition of causative constructions can non-implicative verbs like *tu'-un* 'order (PV)' and *kal-un* 'tell (PV)' be included. This way, the description of linguistic coding of causation, including interpersonal manipulation, in a single language can be more complete.

Secondly, a follow-up advantage of the first one is that once more causation-encoding constructions are included, these constructions can be compared in terms of their formal[3] properties (including productivity and complementation patterns) as well as the subtypes of causation they encode. Further, the correlations between form and meaning can be made.

Lastly, from the viewpoint of historical linguistics, the incorporation of non-implicative causation-encoding constructions sheds lights on the grammaticalization pathway of causative morphemes. For instance, one common source of causatives is utterance verbs, such as the causative prefix *tmi-*, which is the

[3] The term "formal" used in the present study means "concerning the form", as opposed to "semantic" and "functional". This word is not meant to refer to the generative paradigm of formal linguistics.

verbal root for 'say' in Yimas, a Papuan language (Shibatani 2002). Through the discussion on how causation is realized through verbs where implicativity has not yet been grammaticalized, such as the utterance verb *kal-un* 'tell (PV)' in Mayrinax Atayal, the potential development of these verbs into causative morphemes can be hypothesized.[4]

1.1.2 Typology of causative constructions

Causative constructions are traditionally typologized by their forms. According to Comrie (1989), causative constructions roughly fall into three categories: (i) lexical causatives, (ii) morphological causatives, and (iii) analytic causatives. These three types of causative constructions are distinguished by the linguistic level at which cause and effect are fused. For example:

Table 1.1 Illustrating three types of causative constructions (Comrie 1989:167-71)

Causative type	**Non-causative**	**Causative**	**Language**
lexical	*umeret* 'die'	*ubit* 'kill'	Russian
morphological	*öl* 'die'	*öl-dür* 'kill'	Turkish
analytic	*go*	*cause to go*	English

Comrie defines lexical causatives as instances where the cause-effect relation must be handled lexically, illustrated by the Russian verb *ubit* 'kill' listed in Table 1.1. The relation between *ubit* 'kill' and its non-causative counterpart *umeret* 'die' cannot be related to any productive process. Morphological causatives are related to the non-causative predicates through morphological means, such as the suffixation of the causative morpheme *-dür* in the Turkish pair *öl* 'die' → *öl-dür* 'kill'. A prototypical analytic causative is an instance where the notion of cause and that of effect are

[4] Grammaticalization process of causative morphemes is not the focus of the present study.

expressed through separate predicates, illustrated by the English instance *cause to go*, where the notion of cause is borne by one predicate *cause*, and the notion of effect is borne by the other predicate *go*.

Convenient as these three types of causative constructions are in typological classification, Comrie points out that the distinction among these three types is not clear-cut, but a continuum in nature[5], since instances that do not fall neatly into the three types are found. Take the famous *faire* 'make' construction in French for instance.

(2) *Faire* construction in French (Comrie 1989:168)
   a. J'ai fait courir Paul.
      'I have made Paul run.'
   b. J'ai demandé à Paul de courir.
      'I have asked Paul to run.'

In (2a), the notion of cause is expressed by the causative verb *fait* 'make' (past participle), and the notion of effect by the verb *courir* 'run'. This instance is a perfect candidate for an analytic causative at first glance. However, a closer examination of other constructions involving two predicates in French, such as the infinitive construction in (2b), casts a doubt on the reality of "separate predicates" in (2a). In infinitive construction, the matrix verb is directly followed by its object, as in (2b), where *Paul* intervenes between the matrix verb *demandé* 'ask' (past participle) and the infinitive *courir* 'run'. This is an instance where there are clearly two predicates. By contrast, in *faire* construction, the causative verb and the lexical verb form a "single compound predicate" (Comrie's term, or in Dixon's (2000) term "complex predicate") and can never be separated. Given the divergence from prototypical

[5] Dixon (2000) adopts a similar approach, postulating a "scale of compactness" based on the degree of compactness of causative constructions. On this scale, causatives can be categorized into lexical (at the top of the scale), morphological, complex predicates, and periphrastic constructions with two verbs in separate clauses (at the bottom of the scale).

analytic constructions, the *faire* construction should be categorized somewhere in-between analytic causatives and morphological causatives.

Acknowledging that, in the formal dimension, there are categories intermediate between lexical, morphological, and analytic causatives, the present study, for convenience's sake, uses the terms "lexical causatives," "morphological causatives," and "analytic causatives" to refer to causatives that operate at the three linguistic levels (the lexicon, morphology, and syntax), as defined by Comrie above.

1.2 Objectives

The present study aims to discuss how causation is encoded formally in Mayrinax Atayal and how the morpho-syntactic properties of these causation-encoding forms are correlated with their semantics. The present study follows the functional-typological framework of Shibatani (2002) and Shibatani and Pardeshi (2002), which will be reviewed in Section 1.3. Firstly, the causation-encoding forms in Mayrinax Atayal are described regarding their form (including morpho-syntactic marking/behavior and productivity) and their meanings (what kind of causative situation is involved). Emphasis will be placed on the more productive means, namely, constructions that encode causation morphologically and analytically. Next, these causation-encoding forms are mapped onto a causative continuum headed by direct and indirect causation at its two ends. Once mapped onto the causative continuum, the causation-encoding forms are readily compared, and the interaction between morpho-syntax and semantics is clearly observed.

In addition to describing the causative constructions in Mayrinax Atayal, the present study as well attempts to see the validity of the event-structure approach to causatives proposed by Shibatani (2002) and Shibatani and Pardeshi (2002) by

applying the Mayrinax Atayal data to their framework. Through examination of their model against the Mayrinax Atayal data, theoretical refinements can thus be made.

Lastly, from the typological point of view, discussion on the coding patterns of causation in Mayrinax Atayal helps probe into the nature of causation as realized in Formosan languages, where studies on causatives have centered on elements that reflect the **pa-* prefix in Proto-Austronesian[6]. Cross-linguistic comparisons can thus be made, especially with other Formosan languages, regarding the morpho-syntactic devices that are used to express causative events.

1.3 Framework

1.3.1 Shibatani (2002) and Shibatani and Pardeshi (2002)

The present study adopts the causative continuum approach, proposed by Shibatani (2002) and Shibatani and Pardeshi (2002), to the discussion on causation-encoding constructions in Mayrinax Atayal. This continuum is based on conceptualized event semantics rather than inherent event semantics. At the two ends of the causative continuum are two prototypical causative situations: direct causation and indirect causation. It is believed that any given causative form that speakers of a language produce can find its place on the continuum.

Prototypical direct causation involves physical manipulation of a patientive CAUSEE by an agentive CAUSER, coded in the form of lexical causatives. The execution of the caused event is wholly dependent on the CAUSER's action. In terms of spatiotemporal configuration, there is much overlap, which motivates conceptualization of the entire causative situation as a single event.

[6] One study that does not focus on the **pa-* reflex is Huang and Su (2005), where discussion on linguistic coding of causation is elevated to the discourse level.

By contrast, prototypical indirect causation involves directives from an agentive CAUSER to an agentive CAUSEE, coded by productive devices (including morphological and syntactic ones). In such situation, the caused event shows some degree of autonomy. This distant causation resists integration of the two sub-events, and therefore there tends to be distinct linguistic realization of them.

The two prototypical causation types described above are schematized in the following two figures:

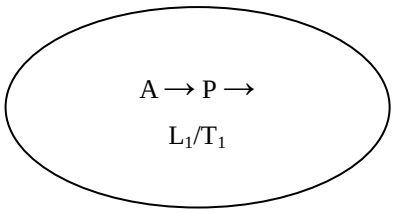

Figure 1.1 Event structure of direct causation (Shibatani and Pardeshi 2002:90)

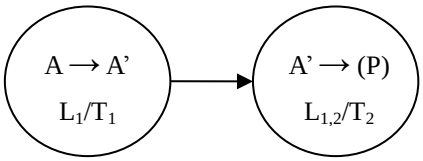

Figure 1.2 Event structure of indirect causation (Shibatani and Pardeshi 2002:90)

In Figure 1.1 and Figure 1.2, A stands for AGENT, P for PATIENT, L for location, and T for time. An arrow signals an event segment. Direct causation, represented by Figure 1.1, involves a transitive action chain [A → P →], where force initiated by A (or, the CAUSER of the whole causative event) is carried over to another event segment concerning P (or, the CAUSEE of the whole causative event). For instance, in a causative event *Mary killed John*, Mary is A and John is P. The causing action of Mary [A → P] leads to the caused event [P →], namely, John's dying. As indicated by the two arrows in one single circle, in direct causative situations, two inseparable event segments take place at the same location and time (represented by L_1 and T_1).

Indirect causation, represented by Figure 1.2, where force initiated by A in the causing event (left circle) is not carried over to the caused event (right circle). The

execution of the caused event, where a potential P (or, the AFFECTEE of the whole causative event) is influenced, is subject to complete control of A' instead. In other words, indirect causation involves two separate event segments that are initiated respectively by two agentive participants and take place at different times (and possibly at different locations).

The labeling of participants as A and P in Figure 1.1 and Figure 1.2 represents prototypical causative situations, in the sense that the nature of the CAUSEE is prototypically correlated with the perceived directness of causation. In other words, the CAUSEE is usually a P in direct causation and an A in indirect causation. Despite this correlation, Shibatani and Pardeshi (2002:90) claims that "the ultimate defining feature of direct and indirect causation is the spatiotemporal configuration of the entire causative event, rather than the nature of the CAUSEE," since there are less prototypical situations where indirect causation does not involve an A CAUSEE. To illustrate:

(3) English (Shibatani and Pardeshi 2002:90)

a. John caused the metal to melt. (indirect causation)

b. John melted the metal. (direct causation)

Instances (3a) and (3b) both involve a patientive CAUSEE *metal*, but they exhibit different event structures. The event structure of (3a) can be represented by Figure 1.2, with distinct spatiotemporal profiles of the causing event (John's action) and the caused event (the metal's melting). The event structure of (3b), on the other hand, can be represented by Figure 1.1, with the causing event and the caused event taking place at the same time and location.

So far the opposition of prototypical direct and indirect causation in the description of causative constructions has been presented. Obviously there are cases

where the causative situation belongs neither to direct causation, nor to indirect causation, but somewhere in-between these two extremes. That is the reason why Shibatani and Pardeshi (2002) augments the intermediate dimension named sociative causation, where the CAUSER joins, assists, or supervises the CAUSEE in executing the caused event, as visualized below:

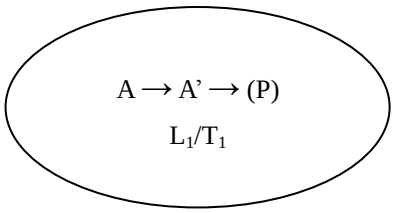

Figure 1.3 Event structure of joint-action/assistive causation (Shibatani and Pardeshi 2002:101)

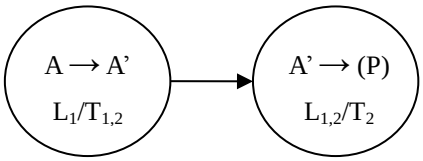

Figure 1.4 Event structure of supervision causation (Shibatani and Pardeshi 2002:101)

Figure 1.3 presents the event structure of the joint-action/assistive subtypes of sociative causation. The action chain [A → A' → (P)] in one single spatiotemporal profile entails physical involvement of the CAUSER, which makes joint-action/assistive sociatives resemble direct causation. Figure 1.4, on the other hand, presents the event structure of the supervision subtype of sociative causation. There is only partial overlap between the spatiotemporal profiles of the causing event and the caused event (indicated by different L's and T's), which means the CAUSER is not physically involved in the caused event, as is the case of indirect causation.

The subtypes of sociative causation themselves form a continuum [joint-action—assistive—supervision]. Sociative causation, direct causation and indirect causation further form the complete causative continuum based on directness semantics. The addition of the sociative dimension is necessary and useful in making finer distinctions among causation types and in giving a fuller description of causative

constructions in a language as well as across languages. The following figure illustrates a causative continuum based on causative constructions from five languages.

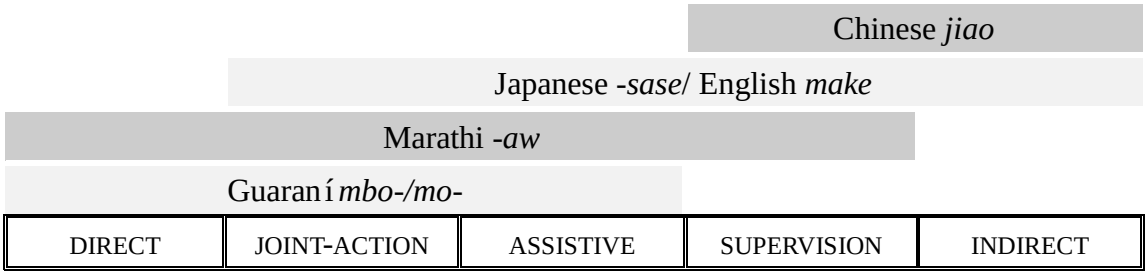

Figure 1.5 Distribution of different causative forms across five languages (Shibatani and Pardeshi 2002:102)[7]

At the left end of the causative continuum lies direct causation, and at the right end indirect causation. Sociative causation bridges the two extremes. Any causative construction can be situated somewhere on the continuum. As Figure 1.5 illustrates, none of the listed causative forms falls neatly into one of the two extremes. This phenomenon points to the necessity of augmenting the intermediate categories. Furthermore, these categories facilitate comparison of causatives. Causative constructions can be readily discussed in terms of the causation types which they encode.

Though semantically based, the causative continuum has formal significance. Typologically, the event structure of causative situations has been witnessed to correlate with two formal dimensions: (i) the *morphological productivity* of the causative formative and (ii) the union of linguistic specifications of cause and effect, or *formal synthesis*[8]. Direct causation, with a single spatiotemporal profile for the entire causative event, is often coded in lexical causatives or irregular morphological causatives, where cause and effect are formally more synthesized. Contrastively,

[7] Marathi is a New Indo-Aryan language; Guaraní is a South American language.
[8] The union of cause and effect is called "formal compactness" is Dixon (2000).

indirect causation, with two separate spatiotemporal profiles involved for its causing sub-event and caused sub-event respectively, is coded in productive morphological causatives and analytic causatives, which are formally less synthesized.

Morphological productivity as one of the formal dimensions of the causative continuum is gradient in nature. It is correlated with directness semantics: low degree of productivity is associated with direct causation, while high degree of productivity is associated with indirect causation. Cross-linguistically, causativization patterns of morphological causatives observe a causativization hierarchy:

inactive intransitives ＞ active intransitives ＞ transitives

Figure 1.6 Cross-linguistic morphological causativization hierarchy (Shibatani 2002:8)

It has been noted that if a morphological causative X operates on transitives, it implicates that this causative can operate on active intransitives and inactive intransitves. In other words, among the three verb classes listed in Figure 1.6, inactive intransitives are causativized most easily. If a morphological causative Y applies only to inactive intransitives, then this causative Y is less regular than causative X, and, put differently, X exhibits higher degree of productivity than Y.

In summary, the causative continuum approach proposed by Shibatani (2002) and Shibatani and Pardeshi (2002) relates the following phenomena to directness semantics in causative events: the nature of the CAUSEE, semantics of base verbs, formal synthesis, and productivity of causative forms. In Chapter 2, productivity will serve as the formal criterion to compare the morphological *pa-* causatives in Mayrinax Atayal. As will be shown, productivity is a good predictor of directness of causation encoded in Mayrinax Atayal *pa-* causatives. The most productive morphological formative [*si-pa-*STEM] (CV) occupies the domain of sociative causation, while the

least productive form [*pa*-STEM-*un*] (PV) encodes direct causation.

However, with the two constructions that encode causation analytically in Mayrinax Atayal (i.e. quotative construction and switch-subject construction), productivity does not make a distinction between them. Therefore, the present study resorts to the other formal dimension of the causative continuum—formal synthesis—to compare the union of cause and effect realized by the causing event and the caused event in these two analytic constructions. The syntactic devices that help determine degree of formal fusion between cause and effect are instantiated by Givón (2001), reviewed in the next section.

1.3.2 Givón (2001)

The syntactic measures provided in Givón (2001:39-90) will be used in Chapter 3 to determine the formal synthesis of the two analytic causation-encoding constructions in terms of their complementation patterns. One major theme of Givón's discussion on complementation is the isomorphism between semantic and syntactic dimensions of complementation. The general correspondence between the inter-clausal semantic bond and the inter-clausal syntactic bond is stated in (4):

(4) Event integration and clause union (Givón 2001:40)
The stronger is the *semantic bond* between the two events, the more extensive will be the *syntactic integration* of the two clauses into a single though complex clause.

In line with Shibatani (2002) and Shibatani and Pardeshi (2002), Givón's (2001) treatment of the semantics of complex clausal structures can be couched into an event-structure approach: both regard syntactic complexity as a consequence of integration of sub-events. In Shibatani (2002) and Shibatani and Pardeshi (2002),

semantically more complex events are claimed to be coded in more productive and less compact linguistic forms, while semantically less complex events are claimed to be coded in less productive and more compact linguistic forms. In the same vein, Givón (2001) claims that stronger semantic integration between the events designated by the main clause and that by the complement clause is correlated with a complementation pattern that exhibits stronger clause union measured against several syntactic devices. The juxtaposition of the two models above reveals that the notion of "clause union" by Givón corresponds to the notion of "formal synthesis" in the syntactic dimension of the causative continuum by Shibatani and Pardeshi. This correspondence is the reason why Givón's morpho-syntactic measures are borrowed to complement Shibatani and Pardeshi's discussion on the formal dimension of causative constructions, especially analytic ones.

Four main devices are provided by Givón to account for the coding of clause union. They are:

(5) Syntactic devices used to code clause-union (Givón 2001:59-60)
   a. Co-lexicalization ("predicate-raising")
   b. Case-marking and grammatical relations
   c. Finite verbal morphology
   d. Inter-clausal gap

For illustration, the complementation scale in English along the causation-manipulation-utterance cline is outlined in the following table, using the syntactic devices listed in (5):

Table 1.2 Complementation scale: manipulation and utterance (Givón 2001:43)

	Semantic scale of verbs	**Syntax of Comp.-clause**
a.	She *let go* of the knife	co-lexicalized Comp.
b.	She *made* him *shave*	bare-stem Comp.
c.	She *let* him *go* home	
d.	She *had* him *arrested*	
e.	She *caused* him *to switch* jobs	infinitive Comp.
f.	She *told* him *to leave*	
g.	She *asked* him *to leave*	
h.	She *allowed* him *to leave*	
i.	She *wanted* him *to leave*	
j.	She'*d like* him *to leave*	
k.	She'*d like for him to leave*	*for-to* Comp.
l.	She *suggested* that he *leave*	subjunctive Comp.
m.	She *wished* that he *would leave*	
n.	She *agreed* that he *should leave*	
o.	She *knew* that he *left*	indirect quote Comp.
p.	She *said* that he *might leave* later	
q.	She *said*: "He *might leave* later"	direct quote Comp.

Table 1.2 shows that there are at least seven complementation patterns associated with utterance/manipulation/causative verbs in English. At the top of the scale, in (a), is an analytic causative verb *let* followed by a co-lexicalized complement verb. The physical and conceptual distance between the main verb and the complement verb is minimal; no elements are allowed to intervene. Another causative verb *make*, in (b), is followed by a bare stem complement verb as well, but contrasts with (a) in that there is an intervening object, thus a wider inter-clausal gap than in the case of a co-lexicalized complement. Semantically, the top of the scale represents strongest event integration; the constructions are implicative, co-temporal, and involve physically direct manipulation.

By contrast, at the bottom of the scale, in (q), lies an utterance verb *say* followed by a direct quote complement. This complementation pattern represents the maximal

structural distance between the two predicates on the scale. Semantically, the construction is not implicative. Additionally, the main clause and the complement clause are not co-referential and co-temporal. In other words, they are construed as two fairly independent events.

Through the four syntactic devices listed in (5), as well as other related ones, the clause-union phenomena of the two analytic causative constructions in Mayrinax Atayal will be examined in Chapter 3. Further, the coding patterns of the Mayrinax causation-manipulation-utterance cline, as done for those in English presented in in Table 1.2, will be compared with the coding patterns in other languages.

1.4 The Mayrinax Atayal language

This section introduces some basics in the present subject of study, Mayrinax Atayal. Atayal, an Austronesian language, is spoken in north-central Taiwan. It has two groups of dialects: Squliq and C'uli'. Mayrinax belongs to the C'uli' dialects. The following grammar sketch includes the phonemic inventory, word order, case-marking and pronominal system, and lastly voice system.

1.4.1 Phonemic inventory

The present study follows Lu (2005) in determining the phonemic inventory of Mayrinax Atayal. There are three phonemic vowels /i/, /a/, and /u/, listed in the following table:

Table 1.3 Vowels in Mayrinax Atayal (Lu 2005:24)

	Front	Central	Back
High	i		u
Mid			
Low		a	

Mayrinax Atayal exhibits a relatively complete consonant inventory, given in the following table adopted from Lu (2005):

Table 1.4 Consonants in Mayrinax Atayal (based on Lu 2005:22)

	Labial	Alveolar	Palatal	Velar	Uvular	Pharyngeal	Glottal
Stop	p	t		k	q		ʔ(’)
Affricate		c					
Fricative	b(v)	s		x g		h	
Nasal	m	n		ŋ(ng)			
Liquid		r l					
Glide			j(y)	w			

The symbols listed in Table 1.3 and Table 1.4 will be used for the transcription of the Mayrinax data in the present study. (In Table 1.4, symbols in parentheses will be used instead of the unparenthesized ones.)

1.4.2 Word order

Mayrinax is basically a verb-initial language, as most other Formosan languages are. In a clause that involves two participants, if the voice-agreeing argument is treated as the grammatical subject of the clause and the other argument as the object of the clause, then the word order alternates between VOS and VSO in actor voice. For example:

(6) a. ma-vaynay i yumin su vawak
AV-buy NOM PN ACC pig
'Yumin bought a pig.'
b. ma-vaynay su vawak i yumin
AV-buy ACC pig NOM PN
'Yumin bought a pig.'

In (6), the verb *ma-vaynay* 'buy (AV)' is marked by the actor-voice marker *ma-*, which signals the semantic role of the grammatical subject *yumin* (marked by the nominative marker *i*) as an ACTOR. The other argument *vawak* 'pig', marked by the accusative marker *su*, is the PATIENT in the event of buying. Examples in (6) show that the word order in actor voice alternates between VSO, as in (6a), and VOS, as in (6b).

In non-actor voices, the word order tends to be VOS. For example:

(7) a. v<in>aynay=mu ku vawak
buy<PV>buy=1.SG.GEN NOM pig
'I bought the pig.'
b. v<in>aynay ni yaya' ku vawak
buy<PV>buy GEN mother NOM pig
'Mother bought the pig.'

(7a) and (7b) are two clauses in patient voice, with the infix voice marker *<in>* on the verb. This voice marking signals that the semantic role of the grammatical subject *vawak* 'pig' is PATIENT. The other argument in genitive case (a clitic form *mu* 'I' in (7a) or a free form *yaya'* 'mother' marked by the genitive case marker *ni* in (7b)) then is the AGENT of the buying event. These two instances illustrate the predominant VOS word order in patient-voice clauses, whether the object occurs in clitic form or not.

1.4.3 Case-marking and pronominal systems

Nominals in Mayrinax Atayal are marked by a set of prenominal markers that

indicate not only the case and but also the referentiality of a noun. These markers are presented in the following table:

Table 1.5 Case markers in Mayrinax Atayal (based on Huang 1995:109)[9] [10]

	NOM	ACC	DAT	GEN	BEN	COM	LOC	INS	NEU
common[-r]	a	su	--	na	--	--	i	na	--
[+r]	ku	cku	cku	nku	nku	--	cku	nku	--
proper	i	i	i	ni	ni	ki	ki	--	i

Table 1.5 shows that case markers in Mayrinax Atayal, aside from their case-marking functions, make a three-way distinction among nominals: (i) proper nouns, (ii) referential common nouns, and (iii) non-referential common nouns. The distinction in referentiality is demonstrated below by accusative markers:

(8) a. m-itaal i hayung ku 'ulaqi'
AV-see ACC PN NOM child
'The child sees Hayung.'

b. m-itaal cku viru'hasa ku 'ulaqi'
AV-see ACC book that NOM child
'The child reads that book.'

c. m-itaal su viru' ku 'ulaqi'
AV-see ACC book NOM child
'The child reads a book.'

In (8), the three clauses all involve the same verb *m-itaal* 'see (AV)' and the same argument *'ulaqi'* 'child' in nominative case. They differ only in the other argument in

[9] The difference from Huang (1995) is phonological. In Matu'ual, the sub-dialect on which the present study is based, the accusative case marker for non-referential noun is pronounced as *su*, and there is a *cku*/*sku* free variation. In addition, the glottal stops are dropped in case markers.

[10] The ergativity of Mayrinax Atayal has been discussed in several studies (Huang 1994; Starosta 1999; Huang and Lin 2012). These studies show that Mayrinax Atayal does exhibit a degree of ergativity. For example, A shares the same case markers with POSSESSOR; A can be the imperative addressee; O is demoted in Actor Voice (which is treated as antipassive in an ergative analysis), can be omitted, and has a relatively free positioning (Huang and Lin 2012). The ergative analysis and its corresponding case-marking system, however, are not adopted in the present thesis. There are two reasons: (i) other syntactic behaviors do not support the ergative analysis (in other words, Mayrinax is not a typical ergative language); and (ii) ergativity is not directly relevant to causatives. To stay focused, then, this thesis follows major previous studies on Mayrinax Atayal and leaves this issue aside for further studies.

accusative case: in (8a), *hayung* is a proper noun, marked by *i*; in (8b), *viru' hasa* 'that book' is a referential common noun, marked by *cku*; in (8c), *viru'* 'book' is marked by *su*, which means it is non-referential.

Personal pronouns formally come in three sets: nominative, genitive (in bound forms) and neutral (in free forms). They are listed in below:

Table 1.6 Personal pronouns in Mayrinax Atayal (based on Huang 1995:128)[11]

	Bound		Free
	NOMINATIVE	GENITIVE	NEUTRAL
1.SG	cu; ci'	mu; mi'	kuing
2.SG	su'; si'	su';si'	isu'
3.SG	--	nia'	hiya'
1.PL.INCL	ta'; ti'	ta'; ti'	ita'
1.PL.EXCL	sami	niam	sami
2.PL	simu	mamu	simu
3.PL	--	nha'	nha'
1.SG.GEN + 2.SG.NOM → misu'			

Personal pronouns in nominative and genitive cases occur in clitic forms, bound to the verb. In free forms, neutral pronouns pattern with proper nouns, marked by case markers listed in Table 1.5 according to their grammatical relationships to the verb. These three types of personal pronouns are exemplified in the following instances:

(9) a. sal-un=cu=nia' mha' valayq=misu'
say-PV=1.SG.NOM=3.SG.GEN QUO good=1.SG.GEN.2.SG.NOM
'She said to me, "I love you."'

b. ma-huay ku papasivaq i kuing
AV-treat.well NOM teacher ACC 1.SG.NEU
'The teacher treats me well.'

In the main clause of (9a), two personal pronouns *cu* 'I' (nominative case) and *nia'* 'he/she' (genitive case) are bound to the verb *sal-un* 'say (PV)'. In the complement

[11] In Matu'ual, there are *sami* and *simu* instead of *cami* and *cimu*.

clause, a portmanteau pronoun *misu'* is attached to the predicate *valayq* 'good'. This portmanteau form designates a first person singular pronoun in genitive case and a second person singular pronoun in nominative case. On the other hand, in (9b), the pronoun *kuing* 'I' is a free form, marked by the accusative case marker *i*, which marks other proper nouns as well.

1.4.4 Voice system

Mayrinax Atayal exhibits a voice (or "focus") system where complex verbal morphology marks the agreement between the grammatical subject and the verb. In addition to AGENT and PATIENT, a wide range of semantic roles, such as LOCATION, INSTRUMENT, and BENEFICIARY, can be the subject, with the corresponding voice marking on the verb. The following instances illustrate the agreement between the verb and the grammatical subject in the four voices:

(10) a. m-aniq su mahat i watan
AV-eat ACC watermelon NOM PN
'Watan eats watermelons.' (actor voice)[12]

b. niq-un=nia' ku siam
eat-PV=3.SG.GEN NOM pork
'He ate the pork.' (patient voice)

c. na-niq-an=mu su siam ku imuag hasa
RED-eat-LV=1.SG.GEN ACC pork NOM house that
'That house is where I eat pork.' (locative voice)

d. si-qaniq=mu ku pila'
CV-eat=1.SG.GEN NOM money
'With the money I ate.' (conveyance voice)

Instances in (10) all involve the verb *qaniq* 'eat' but are in different voices. In (10a),

[12] The terminology of the four voices follows Himmelmann (2005), according to which the typical Philippine and Formosan voice system exhibits four-way alternations, exemplified by the Mayrinax Atayal system presented in (10).

the grammatical subject *watan* (in nominative case) is the AGENT of eating, thus the actor-voice (AV) marking *m-* on the verb. In (10b), the subject *siam* 'pork' is the PATIENT, thus the patient voice (PV) marker *-un*. In (10c), the subject *imuag hasa* 'that house' is the LOCATION of eating, thus the locative voice (LV) marker *-an*. In (10d), the subject *pila'* 'money' is the INSTRUMENT of eating (as a means to buy food for eating), thus the conveyance voice (CV) marker *si-*. Non-actor voices (NAV) can be grouped together because of certain shared grammatical patterns. For instance, in PV, LV, and CV, the AGENT is equally in genitive case.

During the discussion of subsequent chapters in this study, the four voice constructions such as the instances presented in (10) will be sporadically referred to as simple clause constructions, as opposed to complex clause constructions.

It has been suggested that LV and CV constructions in Philippine-type languages resemble applicatives in the other languages (Himmelmann 2005:170). According to Van Valin (2004:67), a typical applicative construction permits a non-PATIENT/THEME thematic role (such as INSTRUMENT, RECIPIENT, and BENEFACTIVE) to function as undergoer, which is further promoted to the subject position in the passive construction. In Mayrinax, there are three core arguments in the LV and CV. Aside from AGENT and PATIENT/THEME, LV and CV constructions introduce as well arguments that are not thematic roles implicated by the verb, namely LOCATION in LV (as in (10c)), and BENEFICIARY/INSTRUMENT/CAUSE in CV (as in (10d)). In this sense, LV and CV constructions indeed resemble applicative constructions in that they pivot a non-PATIENT/THEME argument, but differ from typical applicatives in that this pivoted argument does not further undergo passivization.

Between these two voices, however, the applicative analysis for LV is debatable, since LV does not always introduce a peripheral LOCATION argument. It sometimes introduces a PATIENT/THEME argument in the subject position (see section 4.3.1 for a

comparison between PV and LV). For this reason, only CV construction is referred to as applicative construction in the present thesis.

Voice markers in (10) represent only a partial set of voice markers in Mayrinax. In fact, voice marking is sensitive to polarity, illocutionary force and tense/aspect/mood. The following table presents the complete voice markers in Mayrinax Atayal:

Table 1.7 Voice markers of Mayrinax Atayal (based on Huang 2001:55)

Polarity	Affirmative					Negative	
Illocutionary force	Declarative				Imperative	Declarative	Imperative
TAM	Realis		Irrealis				
	Neutral	Perfective	Future	Projective	Atemporal		
AV	m-; ma-; <um>; ø		ø	m-/ma-/<um>…-ay	ø		
PV	-un	<in>	-un	-aw	ø	-i	
LV	-an			-ay	-i		
CV	si-		ø	-anay	-ani		

Table 1.7 shows that voice markers in Mayrinax Atayal encode distinctions in polarity (affirmative/negative), illocutionary force (declarative/imperative), as well as TAM. Within the realis/irrealis contrasts in modality, further distinctions are made. Under the realis mood, there are neutral[13] and perfective distinctions. Under the irrealis mood, there are future, projective, and atemporal distinctions.[14]

1.5 Reviewing Huang (1995)

The *pa-* prefix[15] in Mayrinax Atayal has been identified by Huang (1995:70-79),

[13] According to Huang (2001), neutral marking may refer habitual, progressive, or past situations.
[14] Following Ross (1995), Huang defines "projective" as verbs that express intention, possibility and exhortation, and "atemporal" as forms that function as imperatives, are subordinate to auxiliaries, or express sequential events in narratives.
[15] The causative prefix *pa-* in Mayrinax Atayal is the reflex of **pa-* 'general causative', one of the at least three reconstructed causative prefixes in Proto-Austronesian (see Blust 2003:451).

Huang (2000:384-85), and Zeitoun and Huang (2000:404-5) as a major device for the formation of morphological causatives in this language. Among the three works that touch on the *pa-* causatives, Huang (1995) spends the most coverage in describing the surface structure of *pa-* clauses, including contrasts in polarity (affirmative/negative), illocutionary forces (declarative/imperative), as well as voice markings on causative verbs. This section starts with affirmative declarative causative clauses and states Huang's (1995) description. Next, the discussion will center on what needs to be completed and what potential problems need to be solved. The following are relevant examples taken from Huang (1995):

(11) Affirmative declaratives (Huang 1995:72-73)

a. ø-pa-situing=ci' cu' 'ulaqi'
AV-CAU-wear=1.SG.NOM ACC child
'I'm putting clothes on a child.'

b. pa-psiaq-un 'i' kisa' ni' yumin ku' 'ulaqi'
CAU-laugh-PV PART later GEN PN NOM child
'Yumin will make the child laugh later.'

c. pa-kital-an cu' ruwas ni' sinsi 'i' watan
CAU-see-LV ACC book GEN teacher NOM PN
'The teacher made Watan study.'

d. si-pa-qaniq ni' yaya' cu' 'ulaqi' ku' bunga'
CV-CAU-eat GEN mother ACC child NOM yam
'The sweet potato was fed to the child by Mother.'

(11a) shows a causative clause in actor voice with a zero voice marker; (11b-d) show causative clauses in non-actor voices, with the same voice markers found in non-causative NAV clauses (*-un* for patient voice, *-an* for locative voice, and *si-* for conveyance voice). Huang claims that the CAUSEE functions like a PATIENT or a RECIPIENT when they are the grammatical subject (marked by *'i'* or *ku'*) of a causative clause, thus the presence of the PV marker *-un* and LV marker *-an*. In (11b), the nominative nominal *'ulaqi'* 'child' is construed as the PATIENT of the verb *psiaq*

‘laugh’, and in (11c) *watan* as the RECIPIENT of the verb *kital* ‘see’. The choice between PV and LV, for Huang, depends on the semantics of the causative verb. On the other hand, when the AFFECTEE (the PATIENT of the base verb) is in focus, the corresponding voice would be CV (11d).

The explanation for the functional differences among NAV causative clauses provided above is partially true and incomplete. It will be shown in Section 2.5 that causative constructions can find their functional explanations from non-causative basic clauses. The meanings of voice constructions are preserved after causativization, but with varying degrees. Once more causative clauses are examined, it will be found that the difference between PV and LV is more than pivoting different semantic roles, since a verb may be *pa*-causativized in both voices, which can further exhibit the same argument structure:

(12) a. pa-himu-<u>un</u> kuing ni yava’ i yata’
CAU-kiss-PV 1.SG.NEU GEN father NOM aunt
‘Father made Aunt kiss me.’
b. pa-himu-<u>an</u> kuing ni yava’ i yata’
CAU-kiss-LV 1.SG.NEU GEN father NOM aunt
‘Father made Aunt kiss me.’

(12) shows two causative clauses with the same base verb *himu* ‘kiss’ in PV and LV. These two causative verbs *pa-himu-un* (PV) and *pa-himu-an* (LV) exhibit exactly the same argument structure, and the propositional meanings of the two clauses are the same. In this case, it cannot be claimed that in this causative event, the CAUSEE *yata’* ‘aunt’ in (12a) and (12b) is different in terms of their thematic roles relative to the verb: this nominal remains the ACTOR of the action of kissing. Moreover, how can the roles of PATIENT and RECIPIENT be imposed onto this nominal, disregarding the fact that when the base verb is a two-place activity verb like *himu* ‘kiss’, the CAUSEE in the

causative clause would be acting on the AFFECTEE but simultaneously *affected* by the CAUSER?

To better account for the functional differences between causatives as in (12a) and (12b), I should resort to not only voice constructions (as simple clause constructions), as attempted by Huang, but also the connection from voice to certain semantic parameters in causative events, such as *directness of causation* (Shibatani 2002). Additionally, the argument structures of *pa-* causatives should be related to the semantics and transitivity of the non-causative base verbs so as to explain how the augmentation of a CAUSER affects the mapping of thematic roles onto the syntactic structure of a causative clause.

The following continues the discussion on *pa-* causatives in other clause types by Huang (1995). Data (13) present affirmative imperative clauses:

(13) Affirmative imperatives (Huang 1995:74-75)

a. pa-psiaq-ø ku' 'ulaqi'
CAU-laugh-PV NOM child
'Make the child laugh!'

b. pa-situing-i cu' matanah 'i' yumin
CAU-wear-LV ACC red NOM yumin
'Put red clothes on Yumin!'

c. pa-qaniq-ani cku' 'ulaqi' ku' qulih ka' hani
CAU-eat-CV ACC child NOM fish LNK this
'Make/Let the child eat this fish!'

In imperative causative clauses, the CAUSER, as the addressee, is formally implicit. Voice markers that also appear in non-causative imperatives are observed here: zero marker for PV (13a), *-i* for LV (13b), and *-ani* for CV (13c). What is noteworthy here is that causative affirmative imperative clauses in AV are not provided in Huang (1995). This, along with the fact that the examples given in Huang (1995) never form a complete voice paradigm of a causativized *pa*-affixed verb, hints that there are

certain constraints on causativizing verbs in each voice. As will be shown in Chapter 2, one of the constraints on *pa-* causativization is verbal semantics of the base verb: causativization on less transitive verbs leads to more complete voice paradigms, while causativization on more transitive verbs tends to yield defected voice paradigms.

Data (14) and (15) show negative causative clauses. To negate declarative causatives, the negator *ini'* is used as the clause-initial auxiliary, which attracts pronominal clitics such as *mu* 'I' in (14a). The causative verbs, following the negator, share the same voice marker as those in imperatives, except for in PV, where we find a voice suffix *-i* (14a) instead of a zero marker. In (15), the negator *kaa* is used to negate imperatives. This marker is interchangeable with another negator *laxi* in negative imperatives.

(14) Negative declaratives (Huang 1995:76-77)

a. ini'=mu pa-psiaq-i ku' 'ulaqi'
NEG=1.SG.GEN CAU-laugh-PV NOM child
'I didn't make the child laugh.'

b. ini' pa-situing-i ni' yaya' cu' matanah 'i' yumin
NEG CAU-wear-LV GEN mother ACC red NOM PN
'Mother didn't put red clothes on Yumin.'

c. ini' pa-qaniq-ani ni' yaya' cku' 'ulaqi' ku' qulih
NEG CAU-eat-CV GEN mother ACC child NOM fish
'Mother didn't let the child eat the fish.'

(15) Negative imperatives (Huang 1995:75-76)

a. kaa pa-psiaq-i ku' 'ulaqi
NEG CAU-laugh-PV NOM child
'Don't make the child laugh!'

b. kaa pa-situing-i cu' matanah 'i' yumin
NEG CAU-wear-LV ACC red NOM PN
'Don't put red clothes on Yumin!'

c. kaa pa-qaniq-ani cku' 'ulaqi' ku' qulih ka' hani
NEG CAU-eat-CV ACC child NOM fish LNK this
'Don't let the child eat this fish!'

Based on the examples presented above, a configuration of *pa-* causative verbs can be visualized as the following figure:

Tense - Voice - *pa* - [STEM] - Voice
　　│<Tense/Voice>│

Figure 1.7　Configuration of *pa-* causative verbs (modifying Huang 1995:78)

This figure shows that the causative prefix *pa-* is attached to a verb stem, which later undergoes other voice derivations and then TAM inflections (if not conflated into portmanteau morphemes with voices). (16) exemplifies causative clauses containing the perfective infix <*in*> and the irrealis marker *pa-*.

(16) a. p<in>si-ngaha'-an=mu　　ku　　ngaguaq=nia'
　　CAU<PFV>SI-open.mouth-LV=1.SG.GEN　NOM　　mouth=3.SG.GEN
　　'I made his mouth open.'
　　b. pa-pa-quax-an=mu　　ku　'ulaqi'　su　salaman
　　IRR-CAU-wash-LV=1.SG.GEN　NOM　child　ACC　bowl
　　'I am going to make the child wash bowls.'

In Mayrinax Atayal, the perfective aspect marker <*in*> is inserted into the first syllable of the word, forming a new syllable with the word-initial consonant of the stem (e.g. *ma-vaynay* 'buy (AV)' → *m<in>vaymay* 'bought (AV)'). In (16a), the perfective marker occurs between the causative marker *pa-* and the stem verb *singaha'* 'open mouth', which means that the causative morpheme is already in place before the inflection with <*in*>. The hypothesized affixation process—causativization before tense/aspect inflection—explains Figure 1.7, as well as the glossing in (16b), where the homophonous irrealis marker *pa-* is assumed to be adjoined to the causativized verbal stem *pa-quax* 'make wash'.

Table 1.8 summarizes the voice markings of *pa-* causatives in corresponding

polarity and illocutionary forces, as seen in data (11), (13), (14) and (15).

Table 1.8 Voice markers on *pa-* causative verbs (after Huang 1995:77)

	Affirmative		**Negative**	
	Declarative	Imperative	Declarative	Imperative
AV	ø	ø		
PV	*-un*; <*in*>	ø	*-i*	
LV	*-an*	*-i*		
CV	*si-*	*-ani*		

1.6 Database

The Mayrinax Atayal data used in the present study were collected during several fieldwork sessions at National Taiwan University and three field trips to Mavatu'an (Qing-an Village, in Tai-an Township, Miaoli County, Taiwan) made in 2011-13, as well as through personal communication with the Mayrinax informants.[16]

The general information on the informants is provided in the following table.

Table 1.9 Mayrinax Atayal informants

Name in Chinese	Name in Mayrinax Atayal	Year of birth	Gender	Current living place
Long Feng-Ting	Tawyu na Yukih	1942	F	Mavatu'an
Lin Feng-Li	Vuyung na Siyat	1946	M	Mavatu'an
Liu Ren-Xiang	Hayung na Yangah	1956	M	Mavatu'an
Liu Ren-Shan	Lawsing na Yangah	1963	M	Da-an District, Taipei

1.7 Organization

The rest of this thesis is organized as follows. Chapter 2 first presents data on *pa-* causative constructions, which are the most productive morphological causatives in

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Mayrinax Atayal. Basic grammatical aspects concerning *pa-* causatives will be addressed, including the referential properties of participants, case-marking, word order, and relations to simple clause constructions. In addition, the causativization patterns of verb classes in terms of occurrence in the four voices will be generalized to form a causativization hierarchy of Mayrinax Atayal. It will be shown that *pa-* causativization is constrained by the semantics of the base verb on the one hand, and voice on the other. In terms of productivity, causativization patterns across verb classes yield the result that among the four *pa-* causatives in the four voices, [*pa*-STEM-*un*] (PV) is the least productive construction, while [*si-pa*-STEM] (CV) is the most productive construction.

Chapter 3 details the coding of causation at the syntactic level through two constructions, namely, quotative construction and switch-subject construction. Structural properties of the variants of these two constructions will be provided. To examine the degree of clause union (or in other words, formal synthesis of cause and effect), complementation of these two constructions is compared against the syntactic measures provided by Givón (2001) such as finite-marking on the complement verb and inter-clausal gap. It will be shown that switch-subject construction exhibits stronger clause union. A cross-linguistic comparison with French and Kavalan regarding complementation patterns in the domain of causation-manipulation will be made as well.

Chapter 4 first presents three approaches to semantics of causation: semantic composite approach (Saksena 1982), parameter approach (Dixon 2000), and event-structure approach (Shibatani 2002; Shibatani and Pardeshi 2002), the last of which is adopted in the present study. Next, the causation-encoding constructions that are presented in Chapter 2 and Chapter 3 will be mapped onto a causative continuum, through which the semantics of these causation-encoding forms can be discussed in

the directness dimension. Under this framework, directness semantics are correlated with the formal aspects of morphological productivity and formal synthesis. Lastly, the semantic differences observed among causative constructions will be argued to originate from the semantics and functions of non-causative voice constructions.

Chapter 5 concludes the thesis by providing a general summary and implications from a theoretical and typological point of view.

Chapter 2

Causativization through morphological means: *pa-* causatives

2.0 Introduction

This chapter deals with *pa-* causatives, which are predominantly exploited to realize a causative situation in Mayrinax Atayal. One major previous study by Huang (1995) regarding voice markings on *pa-* causative verbs has been reviewed in Section 1.5 in the previous chapter. In this chapter, the homophonous status of the prefix *pa-* and the method for identifying the *pa-* causative will first be discussed in Section 2.1. Section 2.2 presents data of *pa-* causative verbs in the order of causativization patterns. Section 2.3 discusses the realization of participants and structural properties of a *pa-* causative clause. Based on the causativization patterns observed in Section 2.2, Section 2.4 forms a causativization hierarchy, which reveals two constraints on *pa-* causativization, namely, verbal semantics and voice. Section 2.5 models morphological causative clauses onto non-causative clauses. Section 2.6 summarizes the chapter.

2.1 Identifying the *pa-* causative

The homonymous status of *pa-* in Mayrinax Atayal has been indicated sporadically in previous studies. Aside from causativization, this prefix may serve as an irrealis marker (Huang 1995:154; Huang 2000:381; Huang 2001:56), an agentive nominalizer (Huang 2002:211; Huang and Tali' 2008:509), a verbalizer (Huang 2000:365; Huang and Tali' 2008:494).

As an irrealis marker, *pa-* indicates an unrealized event:

(1) a. m-italal su viru' ku 'ulaqi'
AV-see ACC book NOM child
'The child is reading a book.'

b. pa-kitaal su viru' ku 'ulaqi'
IRR-see ACC book NOM child
'The child is going to read a book.'

(2) a. payux ku pila'=su'
much NOM money=2.SG.GEN
'Your money is a lot.'

b. pa-ka-payux ku pila'=su'
IRR-STAT-much NOM money=2.SG.GEN
'Your money will be a lot.'

Instances in (1) and (2) show two realis AV clauses (1a) and (2a) and their corresponding irrealis clauses marked with *pa-* in (1b) and (2b). According to Huang (1995), irrealis may be marked in two ways in Mayrinax, either by *pa-* prefixation for AV clauses, or by *Ca-* reduplication for NAV clauses. Irrealis AV verbs prefixed with *pa-* are zero-marked in voice, exemplified by *pa-kitaal* 'will see (AV)' and *pa-ka-payux* 'will be much (AV)'. The irrealis *pa-* has also been proposed to be a diagnosis for differentiating dynamic verbs and stative verbs in Mayrinax (Huang 2000). With the irrealis marker, the stative marker *ka-* must be co-present with a stative verb, as seen in (2b) (*payux* 'be much' → *pa-ka-payux* 'will be much').

As an extended function of irrealis marker, *pa-* functions as an agentive nominalizer:

(3) Huang (2002: 211)

a. vaq-un=mu ku' pa-paquwas ka' hasa
know-PV=GEN NOM NMZ-sing LNK that
'I know that singer.'

b. pa-paquwas ku' irawing=mu
IRR-sing NOM friend=1.SG.GEN
'My friend will sing.'

As can be seen from (3), the same form *pa-paquwas* exhibits different distributional properties and propositional meanings. In (3a), *pa-paquwas* 'singer' is marked by the nominative marker *ku'*, and therefore is a nominal constituent, while in (3b), *pa-paquwas* occupies the clause initial position and is followed by an NP, and therefore is the main predicate of the clause. Other examples of *pa-* derived agentive nominals include:

Table 2.1 Agentive nominalization (extending Huang 2002:211)

Verb stem	**Agentive nominals**
paquwas 'sing'	*pa-paquwas* 'singer'
quriq 'steal'	*pa-quriq* 'thief'
patauwaw 'work'	*pa-patauwaw* 'worker'
piray 'drive'	*pa-piray* 'driver'
pasivaq 'teach'	*pa-pasivaq* 'teacher'

Another function served by the prefix *pa-* is verbalization. Huang and Tali' (2008) modifies Huang's (2000) analysis and treats *pa-* in the following instances as a verbalizer instead of a causativizer:

(4) Huang (2000:365)

a. *qavuving* 'hat' → *pa-qavuving* 'Put on hat!' (AV.IMP)

b. *tunaq* 'sputum' → *pa-tunaq* 'Spit!' (AV.IMP)

Following Huang and Tali' (2008), the prefix *pa-* in (4) is not treated as a causativizer in this thesis because it derives verbs from nouns. Moreover, the denominal verb may further undergo causative derivation:

(5) Huang and Tali' (2008:494)

a. *pa-pa-qavuving* CAU-VR-hat 'to make someone put on a hat'

b. *pa-pa-tunaq* CAU-VR-sputum 'to make someone spit'

In the present study, the prefix *pa-* is treated as a verbalizer instead of a causativizer

when it derives a verb from a nominal root, such as the instances presented in (4).

Having seen the multiple functions of the prefix *pa-* (namely, causativizer, irrealis marker, agentive nominalizer, and verbalizer), the question now comes to how to identify the functional status of this prefix when a *pa-* word is present, or, to be more specific, how to distinguish the causativizer *pa-* from other functions. The nominalizer *pa-* will not be a problem, since the derived word after nominalization will be nominal, while the derived word after causativization will be verbal. As for the irrealis *pa-*, it, first of all, does not co-occur with the perfective/past marker <*in*>. Otherwise there would be contradiction in temporal interpretation. In (6a), the main predicate *p<in>ka-rahual* 'enlarged' (PV) is marked by the infix <*in*> and thus the phonologically reduced *p-* would not be an irrealis marker. Secondly, if the *pa-* prefix occurs twice on the same verb, we may safely ascribe one of them to the irrealis function and the other to the causative function, as in (6b), where the first *pa-* of the predicate *pa-p-ka-rahual* 'will enlarge' (AV) marks irrealis, while the second *p-* marks causative.

(6) a. p<in>ka-rahual=mu ku imuag=mu la
CAU<PV>STAT-big=1.SG.GEN NOM house=1.SG.GEN PART
'I have enlarged my house.'

b. pa-p-ka-rahual su imuag i yava'
IRR-CAU-STAT-big ACC house NOM father
'Father will enlarge the house.'

The verbalizer *pa-* poses some identification problem here, since structurally there is almost no difference between a *pa-* causativizer and a *pa-* verbalizer. Both of them are attached to a stem, and together with the stem form a verbal predicate, which can further undergo other voice/TAM derivations. The diagnosis proposed by Huang and Tali' (2008) for the case in Squliq Atayal lies in the word class of the stem. *Pa-*

would qualify as a verbalizer only when attached to a nominal stem, since adjectivals and verbs are not so clearly distinguishable in form in Austronesian languages. This diagnosis, however, does not always work. Data (7) and (8) are two contrastive examples:

(7) a. m-ung su quwas i kuing
AV-hear ACC song NOM 1.SG.NEU
'I hear a song.'

b. ini paquwas kuing
NEG sing 1.SG.NEU
'I did not sing.'

c. paquwas
sing
'Sing (a song)!'

d. m-aima yava' ru m-aquwas uwi
AV-bathe father CONJ AV-song also
'Father is bathing in singing.'

(7) presents a clear case of verbalization through the *pa-* prefix. *Quwas* 'song' is clearly a nominal in (7a). It is verbalized in (7b) through (7d). In (7b) and (7c), a negative declarative and an affirmative imperative respectively, the verb occurs in its bare form with *pa-*. In (7d), an affirmative declarative clause, a *p-~m-* consonant alternation is observed, and the verb ends up marked by the AV marker *m-*. Compared with *pa-quwas*, the other instance *pa-hilaw*, however, does not surface that clearly here:

(8) a. pakati-ani ku ha-hilaw
throw-CV NOM RED-cloth
'Take off the clothes!'

b. laxi hilaw su ya-yupun
NEG cloth ACC RED-pant
'Don't wear pants!'

c. [pa-hilaw] [sal-un=nia' ku 'ulaqi']
??-cloth say-PV=3.SG.GEN NOM child
'Get dressed up!' she said to the child.

d. pa-hilaw su siatu' cku 'ulaqi' i yaya'
CAU-cloth ACC cloth ACC child NOM mother
'Mother dressed the child up.'

The root *hilaw* undergoes *Ca-* reduplication and forms the common noun *ha-hilaw* in (8a), which is the accepted way to refer to the idea of 'clothes' if we are to use this root. This root, on the other hand, can occur as a bare verb following a negator, as in (8b). In other words, *hilaw* itself, without *pa-* (whether as a verbalizer or causativizer), functions as a verb, taking a *su* marked oblique argument. A question then arises: Should we treat the root *hilaw* as a nominal or verbal stem, onto which *pa-* is to be prefixed? In (8c), a quotative construction, the quoted clause *pa-hilaw* is imperative, meaning 'to be dressed up' or 'to wear'. The presence of *pa-* here then seems contradictory with (8b), where the prefix is absent. To complicate the issue, the same form *pa-hilaw* in (8d) clearly is a causativized verb, meaning 'to make (someone) wear (something)'. Considering (8b) and (8c), one may claim that *pa-* as a verbalizer is optional, assuming the root *hilaw* is nominal, but in the meantime, the same prefix may function as causativizer in (8d), and in this case the stem must be verbal. This example shows that sometimes the function of *pa-* cannot be determined in a clear-cut way if these two functional labels are to be employed. Alternatively, it can be said that both functions are possible with the same stem in this case. In the present study, unless the case is as clear as the verbalization of *quwas* 'song' → *pa-quwas* 'sing' in (7), ambiguous *pa-* affixed verbs will be treated as causatives if causation is involved.

2.2 Data

This section presents data of *pa-* morphological causatives in Mayrinax. It has been indicated in Section 1.5 that with certain verbs, *pa-* causatives exhibit incomplete voice paradigms. This, along with the fact that ditransitives and a substantial part of transitives do not form *pa-* causatives at all (see section 2.2.6), leads to two hypothesized constraints on *pa-* causativization: (i) semantic transitivity of the stem verb and (ii) function of voices.

To account for this phenomenon, the causativization hierarchy (Shibatani 2002:8) is resorted to to examine the formation of *pa-* causatives in Mayrinax Atayal. The hierarchy is repeated here from Chapter 1:

inactive intransitives ＞ active intransitives ＞ transitives

Figure 2.1 Cross-linguistic morphological causativization hierarchy (Shibatani 2002:8)

Across languages, it is found that in a language, if a verb class on the right of the hierarchy is susceptible to causativization through a causative means (say, *pa-* prefixation here), then this language is likely to permit causativization of a verb class to the left. In other words, in a language, if a morphological causative is found to operate on transitives, it will also be found to operate on intransitives. This hierarchy reflects the speaker's conceptualization of the degree of difficulty in bringing about a causative event, as indicated by the CAUSEE'S *inertia* or agentive *volition* (Shibatani's terms). Put differently, an event involving a patientive protagonist (the entity undergoing a change of state) will be easier to causativize than one involving an agentive protagonist (the executor of an action).

Shibatani suggests that a research on morphological causatives should

distinguish at least four types of verbs: inactive intransitives, middle/ingestive verbs, active intransitives, and transitive verbs. The middle/ingestive verbs stand somewhere between inactive intransitives and transitives on the hierarchy. In addition to the relation made to the semantic class of the base verb, this hierarchy facilitates the discussion on morphological productivity of one given causative form as well: Being more regular (namely, being able to causativize on more verb classes) means greater productivity and greater morphological transparency.

In Mayrinax, aside from the possibility of causativizing a verb, Shibatani's idea of morphological productivity should be discussed in terms of the completeness of the voice paradigm as well. It would not mean so much if one simply says that intransitives and some transitives can be causativized, while ditransitives and other transitives cannot, disregarding the fact that the idea of possibility of causativization can be refined through the interplay with voices. This is true especially in Mayrinax, a symmetrical voice language which exhibit four voice alternations, among which the basic form cannot be undisputedly determined.[17] In addition, the dichotomy *possible/impossible* does not render much insight into the constraint that verbal semantics imposes on the causativization process. If voice as a variable is included, there is a greater chance that the operation of the causativization hierarchy as shown in Figure 2.1 is discerned. The following sections present the six observed *pa*-causativization patterns, which do show a tendency that resembles the hierarchy proposed by Shibatani, but certain modifications need to be made (as will be done in section 2.4.3).

[17] According to Himmelmann (2005:166-170), most Formosan languages belong to the Philippine-type languages, a subset of symmetrical voice languages. The defining feature of symmetrical voice languages is the presence of at least two voice alternations marked on the verb. Among these alternations, there is no unmarked form from which other forms are derived.

2.2.1 Pattern 1: *pa-* causativization is possible in all the four voices

The first pattern of *pa-* causativization is the one where the causativized verb appears in all the four voices. Stative verbs (e.g. *ka-rahual* 'big', *ka-lihka'* 'fast', and *ka-ngutiq* 'stupid') are causativized in this pattern. Some inactive intransitives (e.g. *inuqil* 'die', *qilaap* 'sleep', and *ngilis* 'cry'), and a limited number of transitives (e.g. *kas* 'bite' and *himu* 'kiss') follow this pattern as well. Some exemplar verbs will be examined in the following.

Pa- affixation to a stative verb derives the meaning "cause to become." Stative verbs in Mayrinax appear in AV construction and take only one THEME argument in NOM to predicate the state of an entity at a given time, e.g. (9a) below. Once a stative verb is causativized, a CAUSER is introduced into the clause, valency is increased, and a causal relation between the two participants is formed. A causativized stative verb denotes not only the resulted state of the CAUSEE, but also the causing event performed by the CAUSER on the CAUSEE. For stative verbs, it is possible to form *pa-* causatives realized in all the four voices, as data (9) show:

(9) a. rahual ku imuag=mu
big NOM house=1.SG.GEN
'My house is big.' (non-causative)

b. pa-ka-rahual su imuag i kuing
CAU-STAT-big ACC house NOM 1.SG.NEU
'I am enlarging a house.'

c. pa-ka-rahual-un=mu ku imuag=mu
CAU-STAT-big-PV=1.SG.GEN NOM house=1.SG.GEN
'I am going to enlarge my house.' or 'I have enlarged my house.'

d. pa-ka-rahual-an=mu ku imuag=mu
CAU-STAT-big-LV=1.SG.GEN NOM house=1.SG.GEN
'I am going to enlarge my house.'

e. si-pa-ka-rahual=mu ku imuag=mu
CV-CAU-STAT-big=1.SG.GEN NOM house=1.SG.GEN
'I have enlarged my house.' or 'I am enlarging my house.'

The causative marker *pa-* is attached to a verb stem. In Mayrinax, the root form of stative verbs is marked with *ka-*, as the examples of *ka-rahual* 'big' in (9) show.

In AV causative construction (9b), the CAUSER *kuing* 'I' is case-marked by *i*, a NOM marker, while the CAUSEE *imuag* 'house' is marked by *su*, an ACC marker. On the other hand, in NAV causative constructions (9c-e), the CAUSER appears in genitive case, while the CAUSEE is in NOM. Note that causativized statives in both actor and non-actor voices share the same set of arguments (but in different cases) and denote the same propositional meaning: the CAUSER causes the CAUSEE to become in the state designated by the verb stem. For stative verbs, the distinction among causative forms in four voices lies in their temporal-aspectual interpretation, a distinction that arises from the default tense/aspect setting of the four voices in non-causatives: without additional tense/aspect marking, AV denotes an on-going process; PV denotes either a near future event or a completed event; LV denotes an unrealized event; CV denotes a completed event or an ongoing event.

Another class of verb that exhibits the same causativization pattern is inactive intransitives, which are monovalent verbs that designate the involuntary action of the THEME, e.g. (10a) below. After causativization, causativized intransitive verbs take two arguments, as causativized stative verbs do. The following is an example based on the inactive intransitive *ngilis* 'cry'.

(10) a. ma-ngilis ku 'ulaqi'=nia'
AV-cry NOM child=3.SG.GEN
'His child cried.' (non-causative)

b. pa-ngilis su ’ulaqi’ hiya
CAU-cry ACC child 3.SG.NEU
‘He will make the child cry.’

c. pa-ngilis-un=mu ku ’ulaqi’ gi kikl-un
CAU-cry-PV=1.SG.GEN NOM child CONJ pinch-PV
‘I made the child cry because I pinched him.’

d. pa-ngilis-an=mu ku ’ulaqi’ gi kikl-un
CAU-cry-LV=1.SG.GEN NOM child CONJ pinch-PV
‘I made the child cry because I pinched him.’

e. si-pa-ngilis=mu ku ’ulaqi’
CV-CAU-cry=1.SG.GEN NOM child
‘I let the child cry.’[18]

f. si-pa-ngilis=mu isu’
CV-CAU-cry=1.SG.GEN 2.SG.NEU
‘You made me cry.’

As can be seen from (10), *pa-* causative verbs based on *ngilis* ‘cry’ show the same patternings of CAUSER and CAUSEE in the four voices as those based on *ka-rahual* ‘big’ in (9). The choice of voice, however, *does* make a semantic difference in the case of inactive intransitive verbs. The causativized verb *pa-ngilis* (AV) in (10b) denotes a verbal command from the CAUSER to the CAUSEE; *pa-ngilis-un* (PV) in (10c) and *pa-ngilis-an* (LV) in (10d) represent direct causation with an intentional CAUSER; *si-pa-ngilis* (CV) conveys permissive meaning (as in (10e)) or manipulation meaning (as in (10f)).

Another difference between causativized stative verbs and causativized inactive intransitive is that the latter displays two alternant causative CV constructions, illustrated by (10e) and (10f), with the converse case realization of CAUSER and CAUSEE. The difference between the two variant constructions lies in pivoting either the CAUSEE (*’ulaqi’* ‘child’in (10e)), or the CAUSER (*isu’* ‘you’in (10f)); the

[18] The interpretation for (10e) is quite variable among speakers. It may be translated as either ‘I made the child cry’ or ‘I let the child cry’ (the latter with permissive meaning). The CV construction seems to require more grounding of the causative event so as to reach an interpretation.

propositional meaning remains the same after alternation.

A special subtype of transitives including verbs such as *kas* ‘bite’ and *himu* ‘kiss’ allows causativization in all voices. This subtype denotes actions that involve bodily contact by an animate being, so verbs of this subtype are tentatively named here “bodily contact verbs.” The following are examples based on the verb *himu* ‘kiss’:

(11) a. himu-an ni yava’ ku ’ulaqi’
kiss-LV GEN father NOM child
‘The father kissed the child.’ (non-causative)

b. pa-pa-himu su ’ulaqi’ cku yata’ i yava’
IRR-CAU-kiss ACC child ACC aunt NOM father
‘Father will make the aunt kiss a child.’

c. pa-himu-un kuing ni yava’ i yata’
CAU-kiss-PV 1.SG.NEU GEN father NOM aunt
‘Father will make Aunt kiss me.’

d. pa-himu-an kuing ni yava’ i yata’
CAU-kiss-LV 1.SG.NEU GEN father NOM aunt
‘Father will make Aunt kiss me.’

e. si-pa-himu kuing ni yava’ cku yata’
CV-CAU-kiss 1.SG.NEU GEN father ACC aunt
‘Father made Aunt kiss me.’

With the addition of CAUSER into a transitive event, a causativized bodily contact verb involves at least three arguments. In AV (11b), the CAUSER *yava’* ‘father’ is the grammatical subject, marked by *i*, while both the CAUSEE *yata’* ‘aunt’ and the AFFECTEE *’ulaqi’* ‘child’ are both in ACC. In NAV (11c-e), the CAUSER always stays in GEN. CAUSEE and AFFECTEE are marked respectively in NOM and ACC in PV and LV, but in CV it is the AFFECTEE that is in pivot.

The following table summarizes argument structures of Pattern 1 *pa-* causatives as exemplified by three verbs discussed above.

Table 2.2 Argument structure of Pattern 1 *pa-* causatives

Verb	**Voice**		**Genitive**	**Accusative**	**Accusative**	**Nominative**
karahual ‘big’	AV	*pa-karahual*			CAUSEE	CAUSER
	PV	*pa-karahual-un*	CAUSER			CAUSEE
	LV	*pa-karahual-an*	CAUSER			CAUSEE
	CV	*si-pa-karahual*	CAUSER			CAUSEE
ngilis ‘cry’	AV	*pa-ngilis*			CAUSEE	CAUSER
	PV	*pa-ngilis-un*	CAUSER			CAUSEE
	LV	*pa-ngilis-an*	CAUSER			CAUSEE
	CV1	*si-pa-ngilis*	CAUSER			CAUSEE
	CV2	*si-pa-ngilis*	CAUSEE			CAUSER
himu ‘kiss’	AV	*pa-himu*		AFFECTEE	CAUSEE	CAUSER
	PV	*pa-himu-un*	CAUSER		AFFECTEE	CAUSEE
	LV	*pa-himu-an*	CAUSER		AFFECTEE	CAUSEE
	CV	*si-pa-himu*	CAUSER		CAUSEE	AFFECTEE

2.2.2 Pattern 2: *pa-* causativization is possible in all voices except PV

Verbs that are causativized in this pattern form a distinct verb type—ingestives. The reason for distinction of ingestive verbs from regular transitive verbs resides in the fact that the main protagonist in ingestive events is simultaneously agentive and patientive (Shibatani 2002:6). Since the CAUSEE in an event denoted by ingestive verbs shows greater affectedness, it is then expected that this type of verbs may differ in their causativization patterns from other transitive action verbs. This section examines the causativization of the ingestive verb *nuvuag* ‘drink’:

(12) a. nuvuw-an=mu ku vuvu’ na katin
drink-LV=1.SG.GEN NOM milk GEN cow
‘I drank the milk.’ (non-causative)

b. pa-nuvuag su vuvu’ na katin i yata’ cku ’ulaqi’=nia’
CAU-drink ACC milk GEN cow NOM aunt ACC child=3.SG.GEN
‘Aunt will have her child drink milk.’

c. *pa-nuvuw-un ni yata' su vuvu' na katin ku 'ulaqi'=nia'
CAU-drink-PV GEN aunt ACC milk GEN cow NOM child=3.SG.GEN
Intended: 'Aunt fed her child with milk.'

d. pa-nuvuw-an ni yata' su vuvu' na katin ku 'ulaqi'=nia'
CAU-drink-LV GEN aunt ACC milk GEN cow NOM child=3.SG.GEN
'Aunt fed her child with milk.'

e. si-pa-nuvuag ni yata' su vuvu' na katin ku 'ulaqi'=nia'
CV-CAU-drink GEN aunt ACC milk GEN cow NOM child=3.SG.GEN
'Aunt had her child drink milk.'

f. si-pa-nuvuag ni yata' cku 'ulaqi'=nia' ku vuvu' na katin
CV-CAU-drink GEN aunt ACC child=3.SG.GEN NOM milk GEN cow
'Aunt had the milk drunk by her child.'

Data (12) show that the voice paradigm of the causativized ingestive verb *pa-nuvuag* 'make drink' is defected with PV, a situation also seen with *pa-* causatives based on *qaniq* 'eat'. The ungrammaticality in (12c) indicates that **pa-nuvuw-un* does not exist in Mayrinax Atayal. In the other voices, *pa-* causatives based on *nuvuag* take three arguments: the CAUSER, the CAUSEE (the drinker), and the AFFECTEE (the thing drunk). In AV (12b), the CAUSER *yata'* 'aunt' is pivoted, and both the CAUSEE *'ulaqi'=nia'* 'her child' and the AFFECTEE *vuvu' na katin* 'milk' are coded with ACC marker *su*. In LV (12d) and one of the two CV causatives (12e), the CAUSER is mapped onto GEN, the CAUSEE onto NOM, and the AFFECTEE onto ACC. The alternant causative CV construction (12f), conversely, maps the AFFECTEE onto NOM and CAUSEE onto ACC.

Instances in (12) show that the four voices and their variant argument patternings in Mayrinax Atayal provide a wide range of formal devices that can be exploited to mark semantic and pragmatic distinctions in conceptualized causation. For the verb *nuvuag*, the *pa-* causative *pa-nuvuag-an* (LV) 'make drink → feed' represents typical direct causation: with physical contact between an intentional CAUSER and a (potentially) involuntary affected CAUSEE. In AV and CV, causation is less direct, especially in CV, where the CAUSER makes the CAUSEE drink by offering, rather than

by forcing the drink into his mouth. If a Mayrinax speaker is to describe a situation where a mother feeds a new-born baby with milk, he will apply the LV form. (Semantics of causation-encoding forms will be further discussed and contrasted in Chapter 4.)

The difference between the two alternant CV constructions is less transparent than that between other voices in terms of semantics. Again, they seem to differ only in pivoting different participants for pragmatic reasons. In other words, the CV construction provides the possibility of foregrounding either CAUSEE or AFFECTEE in a causative event.

The following table summarizes the argument structures of causativized ingestive verbs:

Table 2.3 Argument structure of Pattern 2 *pa-* causatives

Verb	**Voice**		**Genitive**	**Accusative**	**Accusative**	**Nominative**
nuvuag 'drink'	AV	*pa-nuvuag*		AFFECTEE	CAUSEE	CAUSER
	LV	*pa-nuvuw-an*	CAUSER		AFFECTEE	CAUSEE
	CV1	*si-pa-nuvuag*	CAUSER		AFFECTEE	CAUSEE
	CV2	*si-pa-nuvuag*	CAUSER		CAUSEE	AFFECTEE

2.2.3 Pattern 3: *pa-* causativization is possible in all voices except AV

The third causativization pattern is defected in actor voice. Verbs that causativize in this pattern include certain transitive verbs that does not involve a tangible PATIENT but an intangible THEME (e.g. cognition verb *lalung* 'think' and utterance verb *kaal* 'say'), and active intransitives (e.g. *yugi* 'dance'). The following presents causative clauses of two verbs *lalung* 'think' and *yugi* 'dance':

(13) a. l<um>unglung kuing cku hani
<AV>think 1.SG.NEU ACC this
'I am thinking about this.' (non-causative)

b. pa-langlung-un=mu cku waw ku 'ulaqi'
CAU-think-PV=1.SG.GEN ACC thing NOM child
'I made the child think about the thing.'

c. pa-langlung-an=mu cku waw ku 'ulaqi'
CAU-think-LV=1.SG.GEN ACC thing NOM child
'I made the child think about the thing.'

d. si-pa-langlung=mu cku waw ku 'ulaqi'
CV-CAU-think=1.SG.GEN ACC thing NOM child
'I made the child think about the thing.'

(13) shows that the causativized cognition verb *pa-langlung* 'make someone think' occurs only in NAV, with the CAUSER *mu* 'I' in GEN, CAUSEE *'ulaqi'* 'child' in NOM, and AFFECTEE *waw* 'thing' in ACC. With the same argument structure, the three causative clauses here carry nearly the same propositional meaning. Connotationally speaking, though, LV implies that the CAUSER *mu* 'I' made the CAUSEE *'ulaqi'* 'child' think through mutual discussion, which means that (13c) involves sociative causation. On the other hand, CV may designate a situation involving permission, (which is an indirect causative situation), as in (13d). The semantic differences among these causative constructions can be explained off exploiting the idea of degree of causation (to be discussed in Chapter 4).

Active intransitives, which also follow Pattern 3 causativization, are monovalent verbs that designate the volitional action of the THEME (e.g. (14a) below). Correctly predicted by Shibatani's (2002) causativization hierarchy, this verb class shows more restriction on the formation of *pa-* causatives than inactive intransitives, which follow Pattern 1 causativization. Causativization of active intransitive verbs is exemplified by *yugi* 'dance' in the following:

(14) a. ma-yugi ku ’ulaqi’
AV-dance NOM child
‘The child is dancing.’ (non-causative)

b. pa-yugi-un=mu ku ’ulaqi’
CAU-dance-PV=1.SG.GEN NOM child
‘I will make the child dance.’

c. pa-yugi-an=mu ku ’ulaqi’
CAU-dance-LV=1.SG.GEN NOM child
‘I will make the child dance.’

d. si-pa-yugi=mu ku ’ulaqi’
CV-CAU-dance=1.SG.GEN NOM child
‘I made the child dance.’

Examples in (14) show that *yugi* does not form *pa-* causative in AV. To some speakers, the existence of the corresponding causative form in LV (14c) is in doubt. Only the PV and CV causative forms are indisputably present in the Mayrinax lexicon. This means that *pa-* causativization is faced with more difficulty when the verb implicates a *volitional* ACTOR, like the “dancer” here. When the volitional ACTOR is to be caused to act in a causative event, his volition puts an obstruction to the CAUSER.

In line with causativized inactive intransitives like *pa-ngilis* ‘make someone cry’ presented in (10), here again in (14b), (14c), and (14d) the CAUSER *mu* ‘I’ is in GEN and the CAUSEE *’ulaqi’* ‘child’ in NOM.

The following table is a summary of the argument structures of causatives that follow Pattern 3:

Table 2.4 Argument structure of Pattern 3 *pa-* causatives

Verb	**Voice**		**Genitive**	**Accusative**	**Accusative**	**Nominative**
lalung ‘think’	PV	*pa-langlung-un*	CAUSER		AFFECTEE	CAUSEE
	LV	*pa-langlung-an*	CAUSER		AFFECTEE	CAUSEE
	CV	*si-pa-langlung*	CAUSER		AFFECTEE	CAUSEE
yugi ‘dance’	PV	*pa-yugi-un*	CAUSER			CAUSEE
	LV	*pa-yugi-an*	CAUSER			CAUSEE
	CV	*si-pa-yugi*	CAUSER			CAUSEE

2.2.4 Pattern 4: *pa-* causativization is possible in LV and CV

Compared with stative verbs and intransitive verbs, transitives and ditransitives have been found to be difficult, or even completely impossible (as is the case for ditransitives), to causativize through *pa-* prefixation. Most transitive verbs follow causativization patterns that are more restricted in their voice paradigms. With some transitive verbs, the corresponding causative clauses only appear in LV or CV, the two three-argument voice constructions. For example, *pa-* causatives based on the verb *quax* 'wash' are possible in both LV and CV:

(15) a. q<um>uwax kuing su payatu'
<AV>wash 1.SG.NEU ACC bowl
'I wash dishes.' (non-causative)

b. pa-quax-an=mu ku 'ulaqi' su payatu'
CAU-wash-LV=1.SG.GEN NOM child ACC bowl
'I made the child wash dishes.'

c. si-pa-quax=mu su payatu' ku 'ulaqi'
CV-CAU-wash=1.SG.GEN ACC bowl NOM child
'I made the child wash dishes.'

d. si-pa-quax=mu su 'ulaqi' ku payatu'
CV-CAU-wash=1.SG.GEN ACC child NOM bowl
'I had the dishes washed by a child.'

Non-causative monotransitive verbs like *quax* 'wash' take two arguments, AGENT (washer, *kuing* 'I' in (15a)) and PATIENT (something washed, *payatu'* 'bowl' in (15a)). After morphological causativization, illustrated by (15b-d), an agent CAUSER is augmented into the clause, and as a result, there are three arguments in a causative transitive clause. In (15b-d), the CAUSER *mu* 'I' is invariably in GEN. In (15b) and (15c), the CAUSEE *'ulaqi'* 'child' is in NOM and the AFFECTEE *payatu'* 'bowl' in ACC. Also note that the causative CV construction of *pa-quax* exhibits a CAUSEE-pivot (15c)

and AFFECTEE-pivot (15d) alternation, as the causativized ingestive verb *pa-nuvuag* 'make someone drink' in (12e-f) does.[19]

Other verbs that follow this pattern of *pa-* causativization (that is, only in LV and CV) include *'agal* 'take', *paqut* 'ask', and the perception verb *kitaal* 'see'. For instance:

(16) a. m-itaal su viru' ku 'ulaqi'
AV-see ACC book NOM child
'The child is reading a book.' (non-causative)

b. pa-kital-an ni yaya' su viru' ku 'ulaqi'
CAU-see-LV GEN mother ACC book NOM child
'Mother made the child read a book.'

c. si-pa-kitaal su viru' ni yaya' ku 'ulaqi'
CV-CAU-see ACC book GEN mother NOM child
'Mother made the child read a book.'

The causative verb *pa-kitaal* 'make someone see' does not allow CV alternation, although it patterns with *pa-quax* 'make someone wash' in terms of voice choices. This divergence indicates that CV alternation may be lexically specific and may not correlate with other grammatical phenomena such as causativization patterns discussed here.

The following table summarizes the argument structures of Pattern 4 causative verbs:

Table 2.5 Argument structure of Pattern 4 *pa-* causatives

Verb	**Voice**		**Genitive**	**Accusative**	**Accusative**	**Nominative**
quax 'wash'	LV	*pa-quax-an*	CAUSER		AFFECTEE	CAUSEE
	CV1	*si-pa-quax*	CAUSER		AFFECTEE	CAUSEE
	CV2	*si-pa-quax*	CAUSER		CAUSEE	AFFECTEE
kitaal	LV	*pa-kital-an*	CAUSER		AFFECTEE	CAUSEE
'see'	CV	*si-pa-kitaal*	CAUSER		AFFECTEE	CAUSEE

[19] The causativized CV construction of the inactive intransitive verb *ngilis* 'cry' (10e-f) alternates between CAUSER-pivot and CAUSEE-pivot.

2.2.5 Pattern 5: *pa-* causativization is possible only in CV

With transitives, chances are that *pa-* causativization is possible only in CV (Pattern 5) or is completely impossible (Pattern 6). Many verbs that follow these two patterns of causativization involve more complicated semantic frames. For example, verbs following Pattern 5 include verbs that require certain social/cultural contexts such as *quriq* 'steal' and *tahuk* 'cook' and sociative action verbs such as *svays* 'accompany'. The following are two exemplar transitive verbs that form CV causatives only:

(17) a. q<um>ruriq su kulu' ku 'ulaqi'
<AV>steal ACC car NOM child
'The child stole a car.' (non-causative)

b. si-pa-quriq ni yava' ku 'ulaqi' su kulu'
CV-CAU-steal GEN father NOM child ACC car
'Father let the child steal a car.'

(18) a. svays-un kuing na xuil
accompany-PV 1.SG.NEU GEN dog
'A dog accompanied me.' (non-causative)

b. si-pa-svays ni yaya' ku [suay na kanayrin
CV-CAU-accompany GEN mother NOM younger GEN woman
ki qamisuan na kanayrin]
COM elder GEN woman
'Mother made the younger and elder sisters accompany each other.'

c. ?si-pa-svays ni yaya' cku suay na kanayrin
CV-CAU-accompany GEN mother ACC younger GEN woman
ku qamisuan na kanayrin
NOM elder GEN woman
'Mother made the elder sister accompany the younger sister.'

(17) and (18) show that the two transitive verbs *quriq* 'steal' and *svays* 'accompany' equally form *pa-* causatives in CV, but they exhibit different argument structures. For both verbs, the CAUSER (*yava'* 'father' in (17b) and *yaya'* 'mother' in (18b-c)) remains

in GEN. The case-marking of the other two participants, however, suggests that in these two causative events, the relation between CAUSEE and AFFECTEE differs. In (17b), the CAUSEE *'ulaqi'* 'child' is coded in NOM and the AFFECTEE *kulu'* 'car' in ACC. This coding pattern aligns with those CV transitive causatives seen previously, e.g. *si-pa-quax* 'make someone wash (CV)' in (15c); the relation is that between an agentive CAUSEE and a patientive AFFECTEE. On the other hand, for *pa-svays* 'make someone accompany' in (18b), the AFFECTEE (*qamisuan na kanayrin* 'elder sister') is preferably marked by the comitative marker *ki*, which indicates that this participant is in fact not a real patientive AFFECTEE, but a co-actor that performs the sociative action with the CAUSEE. In this sense, sociative causation is involved in this causative event expressed by the causativized verb of sociative action *si-pa-svays* 'make someone accompany' (CV). The other variant in CV (18c), which is less preferable for some speakers, patterns with (17b) in its case-marking of arguments, with the CAUSEE in NOM and AFFECTEE in ACC.

The following table summarizes the discussion in this section.

Table 2.6 Argument structure of Pattern 5 *pa-* causatives

Verb	**Voice**		**Genitive**	**Accusative**	**Nominative**	**Comitative**
quriq 'steal'	CV	*si-pa-quriq*	CAUSER	AFFECTEE	CAUSEE	
svays	CV	*si-pa-svays*	CAUSER		CAUSEE	AFFECTEE
'accompany'	CV	*si-pa-svays*	CAUSER	AFFECTEE	CAUSEE	

2.2.6 Pattern 6: *pa-* causativization is completely impossible

It has been noted above that verbs that involve a more complex semantic frame do not causativize morphologically through *pa-* prefixation. It is true with social action verbs such as *kahuay* 'treat well' and *rag* 'help', verbs of transaction, such as *vaynas* 'buy', and three-argument verbs such as ditransitive *vayq* 'give' and verb of

placement *suku'* 'put'. These verbs form causative constructions periphrastically instead. Take the verb *vaynas* 'buy' for instance:

(19) usa va-vaynay su hi sal-un ni yaya' ku 'ulaqi'
go RED-buy ACC meat say-PV GEN mother NOM child
'Mother told the child to go buy meat.'

Instance (19) shows that a causative situation involving the verb *vaynas* 'buy' is encoded analytically, here through quotative construction with the utterance verb *sal-un* 'say (PV)'. The analytic causation-encoding constructions will be presented and discussed in Chapter 3.

2.2.7 An interim summary

The following table summarizes the six causativization patterns of verbs presented in Section 2.2 as well as other verbs. From this table a causativization hierarchy of Mayrinax comes into shape. This hierarchy largely conforms to the causativization hierarchy proposed by Shibatani (Figure 2.1), but refinement of lexical categories needs to be made, as will be discussed in Section 2.4. It would not be surprising if one or more patterns turn up as more verbs are included, since causativization patterns are to a certain degree lexically specific. The general tendencies, however, are expected to conform to those presented in this table.

Table 2.7 Six patterns of *pa-* causativization in Mayrinax Atayal[20]

	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6
AV	√	√	--	--	--	--
PV	√	--	√	--	--	--
LV	√	√	√	√	--	--
CV	√	√	√	√	√	--
	karahual 'big'	*nuvuag* 'drink'	*lalung* 'think'	*quax* 'wash'	*pung* 'hear'	*vayq* 'give'
	kauva 'white'	*qaniq* 'eat'	*kaal* 'say'	*'agal* 'take'	*svays*	*pakati'* 'throw'
	kalihka' 'fast'		*yugi* 'dance'	*paqut* 'ask'	'accompany'	*kahuay* 'treat
	kaqanaruux		*aras* 'bring'	*kitaal* 'see'	*quriq* 'steal'	well'
	'long'				*gawah* 'open'	*vaynas* 'buy'
	kavawiq 'tall'				*tahuk* 'cook'	*rag* 'help'
	kangutiq					*suku'* 'put'
	'stupid'					*laqing* 'hide'
	kayupun 'wear					
	pants'					
	hilaw 'wear'					
	ngilis 'cry'					
	kas 'bite'					
	inuqil 'die'					
	qilaap 'sleep'					
	angaha'					
	'mouth-open'					
	himu 'kiss'					
	tayhuk 'arrive'					

2.3 Participants and structural features

Following the presentation in the previous section of *pa-* causatives with various verbs and their occurrence in the four voices, Section 2.3 addresses several aspects concerning the participants and structural features of the *pa-* causative construction, including referential properties, coding, and word order.

[20] The shaded words are verbal roots that have been presented in previous sections.

2.3.1 Referential properties

This section discusses the referential properties of the three participants (i.e. CAUSER, CAUSEE, and AFFECTEE) in a causative event designated by *pa-* causative constructions. In terms of animacy, the CAUSER must be animate (as all the examples in Section 2.2 show), a natural force, such as *hulaqi* 'snow' in (20a), or some spiritual power, such as *utux* 'spirit' in (20b).

(20) a. pa-ka-gihaq-un na hulaqi ku 'ulaqi'
CAU-STAT-cold-PV GEN snow NOM child
'Snow makes the child cold.'

b. pa-ka-ngutiq-un na utux ku 'ulaqi' hani
CAU-STAT-stupid-PV GEN spirit NOM child this
'This kid was made stupid by some spirit.'

If an inanimate entity is forced into the argument slot of CAUSER in a *pa-* causative clause, for instance (21a), then the clause is ungrammatical:

(21) a. *si-pa-sivaq nku giqas na waw i payan cku makagu'
CV-CAU-know GEN new GEN thing NOM PN ACC earthquake
Intended: 'The news let Payan know about the earthquake.'

b. si-pa-sivaq=mu i payan cku makagu'
CV-CAU-know=1.sg.GEN NOM PN ACC earthquake
'I made Payan know about the earthquake.'

(22) si-qilaap=mu ku ruwas hani i tal-an=mu
CV-sleep=1.SG.GEN NOM book this LNK see-LV=1.SG.GEN
'I felt sleepy because of this book I read.'

Although it is not hard to imagine a CAUSER such as *giqas na waw* 'news' in a causative event of 'cause to know' (or 'inform'), (21a) is nevertheless ungrammatical due to the animacy restriction on the CAUSER. Replacing the inanimate CAUSER with an animate one *mu* 'I' as in (21b), the clause is natural and grammatical. If one is to

express a causative event with an inanimate CAUSE, non-causative CV construction is employed, since the applicative function of CV introduces a CAUSE into a clause, be it animate or non-animate. In (22), for instance, *ruwas* 'book' is the CAUSE of my sleeping; it cannot be a CAUSER of some animate being's sleeping, because in Mayrinax Atayal, a CAUSER, as the perceived initiator of a causal chain, must possess agency.

The CAUSEE, on the other hand, may be inanimate, such as *rauq* 'floor' in (23), where the causative verb takes only two arguments.

(23) pa-ka-uva-an ni yaya' ku rauq
CAU-STAT-white-LV GEN mother NOM floor
'Mother cleaned the floor.'

As for the referentiality of the three participants, it is irrelevant in a morphologically-formed causative clause. In Mayrinax Atayal, referentiality is overtly coded by case markers. The following data show that there is no restriction on referentiality of any of the participants:

(24) a. pa-ka-rahual-un nku suquliq ku imuag=nia'
CAU-STAT-big-PV GEN person NOM house=3.SG.GEN
'That person enlarged his house.' (referring CAUSER)

a'. pa-ka-rahual-un na suquliq ku imuag=nia'
CAU-STAT-big-PV GEN person NOM house=3.SG.GEN
'Someone enlarged his house.' (non-referring CAUSER)

b. yaya' si-pa-qaniq=nia' cku 'ulaqi' ku siam
mother CV-CAU-eat=3.SG.GEN ACC child NOM pork
'Mother had the child eat the pork.' (referring CAUSEE)

b'. yaya' si-pa-qaniq=nia' su 'ulaqi' ku siam
mother CV-CAU-eat=3.SG.GEN ACC child NOM pork
'Mother had a child eat the pork.' (non-referring CAUSEE)

c. pa-nuvuw-an=nia' cku vuvu' na katin ku 'ulaqi'
CAU-drink-LV=3.SG.GEN ACC milk GEN cow NOM child
'She fed the child with the milk.' (referring AFFECTEE)

c'. pa-nuvuw-an=nia' su vuvu' na katin ku 'ulaqi'
CAU-drink-LV=3.SG.GEN ACC milk GEN cow NOM child
'She fed the child with milk.' (non-referring AFFECTEE)

The sentences in (24) show that the CAUSER may be referential, marked by *nku* in (24a), or non-referential, marked by *na* in (24a'); the CAUSEE and AFFECTEE may be marked either as referring by *cku* in (24b) and (24c), or as non-referring by *su* in (24b') and (24c').

2.3.2 Coding

Although there are at least six causativization patterns as presented in the previous section and although causative voice constructions differ in their argument structure, certain tendencies of word order (to be dicussed in section 2.3.3) and case marking can still be observed. In terms of case-marking, the CAUSER is always marked by NOM in AV and GEN in NAV; the CAUSEE appears in ACC in AV, and in NOM/ACC in NAV; the AFFECTEE is realized as ACC in AV, and as ACC/NOM in NAV. The tendency of mapping between semantic roles and grammatical cases in a causative event is presented configurationally in the following table:

Table 2.8 Argument structure of *pa-* causative constructions

Voice		**Genitive**	**Accusative**	**Accusative**	**Nominative**
AV	*pa*-STEM		AFFECTEE	CAUSEE	CAUSER
PV	*pa*-STEM-*un*	CAUSER		AFFECTEE	CAUSEE
LV	*pa*-STEM-*an*	CAUSER		AFFECTEE	CAUSEE
CV1	*si-pa*-STEM	CAUSER		AFFECTEE	CAUSEE
CV2	*si-pa*-STEM	CAUSER		CAUSEE	AFFECTEE
CV3	*si-pa*-STEM	CAUSER		CAUSEE	BENEFICIARY

The generalized patterns in Table 2.8 show that the causative/voice interaction allows any participant in a causative event to be pivoted. It can also be noted from Table 2.8 that CV construction exhibits the most possibilities of argument arrangement: in a causative clause, it may pivot CAUSEE or AFFECTEE for pragmatic reasons; it may as well retain its applicative function, introducing a BENEFICIARY/INSTRUMENT into the causative event (to be discussed in section 2.5.3).

In the study of causatives, the grammatical role of CAUSEE is much discussed. Comrie (1976) proposes the paradigm case hierarchy, which predicts that the subject of intransitives nearly always turns up as a direct object in the causative clause, while the subject of transitives often turns up as an indirect object, and that of ditransitives as oblique constituents. This case-assignment system does not seem to apply to *pa-* causative constructions in Mayrinax Atayal, which exhibits at least two case-marking patterns: AV and NAV. One single verb, intransitive or transitive, may occur in causative AV and NAV constructions. To which case-marking pattern of *pa-* causatives Comrie's case hierarchy should apply then becomes a question. In addition, NAV constructions provide at least three argument slots (nominative, genitive, and accusative), into which CAUSER, CAUSEE, AFFECTEE neatly fill. These slots suffice for the accommodation of arguments of *pa-* causatives based on transitives (if they ever form causatives).Therefore, demotion is not an issue here and coding conflict does not cause a serious problem in *pa-* causative constructions.

Not following Comrie (1976), this thesis instead relates the coding patterns of *pa-* causative constructions to voice constructions, which will be presented in Section 2.5.

2.3.3 Word order

The linear order of arguments presented in Table 2.8 represents a natural tendency of patterning instead of a rigid word order. Though the order of the three participants exhibits great flexibility, certain restrictions can be observed: in NAV, as exemplified in the causative LV clauses (25) below, the CAUSER *yata'* 'aunt' in GEN must precede the CAUSEE *'ulaqi'=nia'* 'her child' in NOM, while the AFFECTEE *vuvu' na katin* 'milk' in ACC is variable:

(25) a. pa-nuvuw-an [nku yata'] [su vuvu' na katin] [ku 'ulaqi'=nia']
CAU-drink-LV GEN aunt ACC milk GEN cow NOM child=3.SG.GEN
'Aunt fed her child with milk.' (V-CAUSER-AFFECTEE-CAUSEE)

b. pa-nuvuw-an [nku yata'] [ku 'ulaqi'=nia'] [su vuvu' na katin]
(V-CAUSER-CAUSEE-AFFECTEE)

c. pa-nuvuw-an [su vuvu' na katil] [nku yata'] [ku 'ulaqi'=nia']
(V-AFFECTEE -CAUSER-CAUSEE)

d. *pa-nuvuw-an [su vuvu' na katin] [ku 'ulaqi'=nia'] [nku yata']
(V-AFFECTEE-CAUSEE-CAUSER)

e. *pa-nuvuw-an [ku 'ulaqi'=nia'] [nku yata'] [su vuvu' na katin]
(V-CAUSEE-CAUSER-AFFECTEE)

f. *pa-nuvuw-an [ku 'ulaqi'=nia'] [su vuvu' na katil] [nku yata']
(V-CAUSEE-AFFECTEE-CAUSER)

When the nominative-marked NP precedes the genitive-marked NP, as in (25d-f), the clause is ungrammatical. The distribution of the accusative-marked NP is flexible, as long as it is post-verbal.

As stated above in the previous section, there is no coding conflict in *pa-* causatives in NAV. It can be found only in AV, the voice where the two participants CAUSEE and AFFECTEE receive the same accusative marking. When the CAUSEE is animate and AFFECTEE inanimate, there does not seem to be any distributional restriction in a clause. All of the three participants freely change their position as long

as they are preceded by the verbal predicate:

(26) a. pa-nuvuag [su quwaw] [i payan] [su ’ulaqi’]
CAU-drink ACC wine NOM PN ACC child
‘Payan is making the child drink wine.’ (V-AFFECTEE-CAUSER-CAUSEE)
b. pa-nuvuag [su quwaw] [su ’ulaqi’] [i payan] (V-AFFECTEE-CAUSEE-CAUSER)
c. pa-nuvuag [i payan] [su quwaw] [su ’ulaqi’] (V-CAUSER-AFFECTEE-CAUSEE)
d. pa-nuvuag [i payan] [su ’ulaqi’] [su quwaw] (V-CAUSER-CAUSEE-AFFECTEE)
e. pa-nuvuag [su ’ulaqi’] [i payan] [su quwaw] (V-CAUSEE-CAUSER-AFFECTEE)
f. pa-nuvuag [su ’ulaqi’] [su quwaw] [i payan] (V-CAUSEE-AFFECTEE-CAUSER)

In (26), both the CAUSEE *’ulaqi’* ‘child’ and AFFECTEE *quwaw* ‘wine’ are marked by the accusative marker *su*. The free word order and the identical coding of CAUSEE and AFFECTEE do not confuse the semantics of this causative event, which is easily resolved by pragmatics: in the physical world, the one who drinks must be animate, and there is only one possible candidate *’ulaqi’* ‘child’ for the CAUSEE in this case.

The distribution of CAUSEE and AFFECTEE does have structural meaning when both participants are animate, a situation that cannot be resolved by pragmatics:

(27) a. pa-qaniq su qulih su xuil i yata’
CAU-eat ACC fish ACC dog NOM aunt
‘Aunt fed a dog with a fish.’
b. pa-qaniq su xuil su qulih i yata’
CAU-eat ACC dog ACC fish NOM aunt
‘Aunt fed a fish with a dog.’

In (27), both the CAUSEE and AFFECTEE are not only animate but also coded in ACC by *su*. In such cases, their word order becomes significant: the argument following the verb is the AFFECTEE.

As a related issue, the syntactic status of CAUSEE and AFFECTEE often raises the question of objecthood (see Kozinsky and Polinsky 1993): Which is the primary object, and which the secondary object when a coding conflict occurs? Although in

AV causative construction the CAUSEE and AFFECTEE do not differ in their coding, and their word order does not tell which one is more object-like, when they co-occur, the possibility of their individual occurrence with the other participant kept implicit distinguishes them apart. Consider:

(28) a. pa-nuvuag [su ’ulaqi’] [i payan]
‘Payan made the child drink.’
b. pa-nuvuag [su quwaw] [i payan]
‘Payan will drink the wine.’
Intended: *‘Payan had wine drunk.’
c. *pa-nuvuag i payan
Intended: ‘Payan made (someone) drink.’

(28a) is the result of leaving out the AFFECTEE from (26), and the sentence is grammatical. (28b), with the CAUSEE absent, however, does not contribute to a causative meaning but only a non-causative irrealis AV clause, expressing a relation between an AGENT *payan* and a PATIENT *quwaw* ‘wine’. (28c), keeping only the CAUSER, cannot have the intended meaning, either. Although regarding case-marking and word order, CAUSEE and AFFECTEE do not differ in AV, in terms of obligatory presence, the CAUSEE seems to be more important, with obligatory presence, while the AFFECTEE is less important, with optional presence. Since no other evidence is available presently, at best it can be said that in a causative event designated by *pa-* causatives in Mayrinax, the participants CAUSER and CAUSEE are obligatory. The following causative clause in LV, modified from (25), gives more supportive evidence:

(29) a. pa-nuvuw-an nku yata’ ku ’ulaqi’=nia’
‘Aunt made her child drink.’
b. *pa-nuvuw-an nku yata’ su’ vuvu’ na’ katin
Intended: ‘Aunt made milk be drunk.’

c. *pa-nuvuw-an su vuvu' na katin ku 'ulaqi'=nia'
Intended: 'Someone made her child drink milk.'

In (29a), the CAUSEE and CAUSER are left out in (29b) and (29c) respectively, which renders the two clauses ungrammatical.

2.4 Causativization hierarchy

This section makes generalizations concerning causativization hierarchy from the distribution of verbs in the six patterns of *pa-* causativization presented in Table 2.7. First, two causativization constraints can be deduced, namely verbal semantics constraint (discussed in section 2.4.1) and voice constraint (discussed in section 2.4.2). Next, based on causativization patterns of verb classes, a causativization hierarchy in Mayrinax Atayal is formed.

2.4.1 Transitivity and verbal semantics constraint

The *pa-* causativization in Mayrinax largely conforms to the causativization hierarchy proposed by Shabatani (2002). Applied to Mayrinax, this hierarchy predicts: morphological causativization of semantically intransitive verbs are easier and their voice paradigms are likely to be complete, while morphological causativization of transitive verbs is faced with more difficulty and their voice paradigms tend to be defective.

At the left end of Table 2.7, one finds that stative verbs, which appear with the stative verb marker *ka-* in root form (e.g. *ka-rahual* 'big', *ka-qanaruux* 'long', and *ka-uva* 'white'), causativize following Pattern 1, with a complete voice paradigm. This is a natural result since non-causative stative verbs involve only one THEME

argument, which is non-agentive. The causativization process is not hindered by the volition of the CAUSEE, nor by the complication of an AFFECTEE. For the causative event to be actualized, the only resistance that the CAUSER encounters here is the CAUSEE's "inertia." In other words, a change made by the CAUSER to the state of the CAUSEE would lead to the realization of the causative event. Causativizing stative verbs, therefore, is the easiest among all verb types.

The naturalness of causativizing stative verbs through morphology can be supported by the fact that similar notions denoted by morphological causatives of statives in Mayrinax Atayal are expressed in other languages through lexical causatives or morphological causatives. Consider the following Mayrinax-English near-equivalents:

(30)	Mayrinax		English
a.	pa-ka-rahual CAU-STAT-big	→	en-large
b.	pa-ka-qanaruux CAU-STAT-long	→	length-en
c.	pa-ka-uva CAU-STAT-white	→	clean (v.)

(30a) and (30b) show the near-equivalents of two *pa-* causatives expressed by two lexically restricted morphological causative affixes in English *en-* and *-en.* The difference between the prefix *pa-* in Mayrinax and *en-* and *-en* in English lies in their productivity—the possibility to be fused with various base verbs. In (30c), the English labile form *clean* is a lexical causative, expressing a concept that is encoded by the *pa-* prefix in Mayrinax.

In Pattern 1 causativization, however, one also finds inactive intransitives and certain subtypes of transitives. Inactive intransitives (e.g. *ngilis* 'cry' and *qilaap* 'sleep') resemble statives in that they take one THEME argument as well, and this

argument is not agentive: Someone who cries or sleeps does not seem to do it with much volition and effort.

Transitives that involve bodily contact such as *kas* 'bite' and *himu* 'kiss' are also situated at the left end of Table 2.7. This is where the notion of transitivity becomes insufficient as an explanatory device. Transitives like these are easier to causativize than active intransitives such as *yugi* 'dance' (Pattern 3), which exhibit defective causative paradigms and are situated in the middle of the causativization hierarchy. Shabatani (2002) uses the idea of *agentivity* to account for the cross-linguistic causativization hierarchy. However, how do *kas* 'bite' and *yugi* 'dance' differ in terms of this concept? Perhaps it is better to see from the perspective of the accompanying concept "patientiveness" of the protagonist in a causative event, which Shibatani uses to explicate the necessity for an ingestive/middle verb class when talking about causatives. To a certain degree, bodily contact verbs are like middles: the protagonist does something that would affect himself. Subjects of middles, such as *tayhuk* 'arrive', *hilaw* 'wear' and *kayupun* 'wear pants' (all following Pattern 1) end up with a change in spatial orientation or outfit. Likewise, the protagonist of *kas* 'bite' and *himu* 'kiss' undergoes physical contact with another entity and is as affected as the PATIENT of these verbs.

Pattern 2 includes ingestive verbs *nuvuag* 'drink' and *qaniq* 'eat'. As predicted by the causativization hierarchy presented in Figure 2.1, this type of verb behaves more like inactive intransitives than other transitive verbs, although they are semantically and structurally transitives themselves. Supporting Shabatani (2002), *pa-* causatives in Mayrinax Atayal witness the conceptual reality of this category in the language of causation.

Toward the right end of Table 2.7, we find transitives that denote more context-loaded events, such as *quriq* 'steal' (Pattern 5), and sociative actions, such as

svays ‘accompany’ (Pattern 5) and *rag* ‘help’ (Pattern 6). These verbs are difficult to causativize because they involve an agentive CAUSEE and other conditional factors. The execution of the caused event depends on the CAUSEE’s volition (or even the AFFECTEE’s, as with *svays* ‘accompany’ and *rag* ‘help’) instead of the CAUSER’s. In addition, an event denoted by transitives like *quriq* ‘steal’ is much more complex since it involves more than merely an AGENT and THEME: the AGENT must in a certain manner take away some entity (THEME) that, recognized by others, does not belong to him. It is not hard to imagine that for a CAUSER to cause such an event would require much effort in the execution process, owing to the event complexity involved.

Further, it is impossible to form *pa-* causatives of ditransitives, such as *vayq* ‘give’ (Pattern 6), the most transitive verb type at least in terms of number of arguments involved. This phenomenon indicates that there is a cognitive constraint that limits the number of arguments within a clause, which is also observed in non-causative clauses (the upper limit of three arguments).[21]

2.4.2 Voice constraint

From Table 2.7, several comments can be drawn regarding voice. First, causativization allows inactive intransitive verbs to appear in PV, which is unlikely in non-causative basic clauses, e.g. **qilaap-un* ‘sleep (PV)’ → *pa-qilaap-un* ‘make someone sleep (PV)’. This means that non-causative inactive intransitive verbs do not take a PATIENT argument which is the pivot in PV. Once causativized, however, the subject of the base verb becomes the PATIENT of the whole causative event, and therefore it is the grammatical subject of the PV clause. Also note that PV is the most

[21] Certain verbs that follow Pattern 6 can be regarded as lexical causatives themselves, such as *vayq* ‘give’ (cause to have) and *suku’* ‘put’ (cause to be somewhere). The impossibility of *pa-* prefixation onto these verbs may mean that double causatives are not formed with *pa-* in Mayrinax.

natural voice where a causativized stative verb appears. In other words, it is the preferred voice for verbs that causativize following Pattern 1.

Second, if a causative paradigm is defective (which means the verb is more or less agentive), it tends to be incomplete in AV and PV, but complete in LV and CV. An AV clause generally contains a nominative-marked argument and an optional accusative-marked OBL argument. Causativized transitive verbs implicate at least three arguments, so the AV constructional template does not suffice in terms of argument slots (except for middles and ingestives). As for PV, it is the voice that pivots a PATIENT argument. The subject of transitives that are to be causativized is generally agentive, so it is not congruent with PV. On the other hand, because of the extra argument slot, the three-argument constructions LV and CV allow for the accommodation of an extra argument introduced by causativization. This points to a parallel between the applicative and causative: both constructions introduce an argument not implicated by the semantics of the verb. Thus, modeling a causative event onto the applicative seems a natural development.

Third, CV is the most accommodating and lenient voice construction. If causativization of a transitive verb is possible, it is highly likely that the causative appears in CV. This is in part because of the extra argument slot of the construction, and in part because of the wide range of thematic roles that can be the focus of a CV clause, which, according to Huang (2001), include INSTRUMENT, BENEFICIARY, REASON, THEME, and PATIENT. As will be presented in section 2.5.3, a CV clause may serve dual functions, simultaneously accommodating a CAUSER and one of these peripheral arguments.

Lastly, causativization patterns as shown in Table 2.7 shed lights on the morphological productivity of *pa-* causative constructions in each voice. *Pa-*causative in PV [*pa-*STEM-un] is restricted to Pattern 1 and Pattern 3. It represents the

least productive among *pa-* causatives, allowing causativization based on a few verb types, including statives, intransitives, and middles. *Pa-* causative in AV [*pa*-STEM] similarly shows limited productivity, operating on verbs following Pattern 1 and Pattern 2, including statives, inactive intransitives, middles and ingestives, but excluding active intransitives. *Pa-* causative in LV [*pa*-STEM-an] is more productive, allowing verbs from Pattern 1 through Pattern 4, further including more transitive verbs. *Pa-* causative in CV [*si-pa*-STEM] represents the most productive *pa-* causative, allowing verbs following causativization patterns 1 through 5. If a transitive verb forms a *pa-* causative, it may well be in CV. The productivity of *pa-* causative constructions in four voices will be related to their semantics in Chapter 4.

2.4.3 Modification to Shibatani's (2002) model

It has been noted that Patterns 1 through 6 in Table 2.7 do not correspond well to the lexical categories of base verbs in Shabatani's causativization hierarchy, repeated here:

inactive intransitives ＞ active intransitives ＞ transitives

Figure 2.2 Cross-linguistic morphological causativization hierarchy (Shibatani 2002:8)

At the two ends of the hierarchy formed by Mayrinax verbs are statives (Pattern 1) and ditransitives (Pattern 6), which represent the extremes of inactive intransitives and transitives respectively. They follow the prediction of Figure 2.2 and thus do not cause any problem. What cause problems here are the categories in between these two extremes and the cross-pattern overlap among them. Pattern 1 is shared among statives (e.g. *ka-rahual* 'big'), inactive intransitives (e.g. *ngilis* 'cry'), and middles

(e.g. *hilaw* ‘wear’ and *kas* ‘bite’); Pattern 3 is shared by active intransitves (e.g. *yugi* ‘dance’) and monotransitives (e.g. *lalung* ‘think’); Pattern 6 is shared between monotransitives (e.g. *pakati’* ‘throw’) and ditransitives (e.g. *vayq* ‘give’); monotransitives that fall into Shibatani’s label of “transitives” overarch across Patterns 3 to 6.

This seeming mess of verb classification, first of all, reflects the need for distinguishing verb subtypes within the category of transitives, preferably resorting again to the notion of agentivity, but this time in the AFFECTEE. Based on the available data, at least two subtypes can be identified: perception/cognition/utterance verbs (PCU verbs) and sociative action verbs. Causatives based on PCU verbs involve percept/concept/utterance, which do not even possess volition, as the AFFECTEE of the causative event. This means that the realization of the caused event is easier than that with causativized sociative action verbs, which involve an agentive AFFECTEE with whom the CAUSEE performs a joint action.

In addition to the need for finer distinctions within transitives, the patterns in Table 2.7 manifest the unlikelihood of such a clear-cut central tendency for such lexical categories as inactive intransitives, active intransitives, and transitives. Instead, the tendencies are not concentrated, overarching several causativization patterns, and to a certain degree lexically based. When talking about the possibility of causativization, then, one may say one verb class (say, inactive intransitives) tends to be easier to causativize than another (say, transitives), but it is a tendency instead of an absolute rule.

A new causativization hierarchy is formed based on the distinctions made in Mayrinax Atayal:

statives ＞ inactive intransitives ＞ middles ＞ ingestives ＞ active intransitives ＞ PCU verbs ＞ other transitives ＞ sociative action verbs ＞ ditransitives

Figure 2.3 Causativization hierarchy based on Mayrinax Atayal

This hierarchy shows that, on the basis of the six causativization patterns, verbs are grouped together, but they do not seem to form six verb types themselves. The verb types listed in Figure 2.3 need to be observed within and across causativization patterns. This classification of Mayrinax verbs reflects the interaction of two parameters, namely, agentivity and transitivity, neither of which is dispensable if such a hierarchy is to be formed.

2.5 Modeling morphological causative constructions

Given the parallels between non-causative and causative clauses observed in previous sections, it follows that causative constructions are based on (or, related to) basic constructions, a proposal shared by quite a few researchers on causative constructions (Comrie 1976; Kemmer and Verhagen 1994; Dixon 2000). Kemmer and Verhagen (1994:116) sees causative structures as "built up from simpler structural/conceptual units, in the sense that they relate (non-derivationally) to more basic clause types." Their cross-linguistic comparison yields the result that causatives of intransitive predicates are modeled on simple two-participant clauses, and causatives of transitive predicates on simple three-participant clauses (i.e. ditransitive and instrumental clauses). Though they work mainly on analytic causatives, their result are readily applicable to *pa-* causative constructions in Mayrinax Atayal: one-participant predicates (especially stative verbs) predominantly appear in PV after causativization, while transitives, if possible, are causativized in CV, the voice that, in

non-causatives, pivots an INSTRUMENT or a transported THEME. In this section, intransitive causative constructions will be related to PV construction in section 2.5.1 and transitive causative constructions will be related to LV and CV constructions in section 2.5.2. Residual meanings of the conveyance voice construction will be illustrated in section 2.5.3.

2.5.1 Intransitive causative constructions: PV

When an intransitive is causativized, it becomes an intransitive causative construction, which is predominantly a causative PV construction in Mayrinax. As can be inferred from Table 2.7, one-place predicates (stative verbs, inactive intransitives, and active intransitives) are all allowed to form *pa-* causatives in PV. Two-place predicates are far less congruent with PV causatives; *su* marked NP's (usually AFFECTEE in a transitive causative construction) rarely occur in PV. In this view, PV is the basic transitive clause that serves as the constructional template for intransitive causative construction, where the AGENT slot in non-causatives is filled by the CAUSER in causatives, and the PATIENT slot by the CAUSEE. The constructional mapping is represented in the following figure:

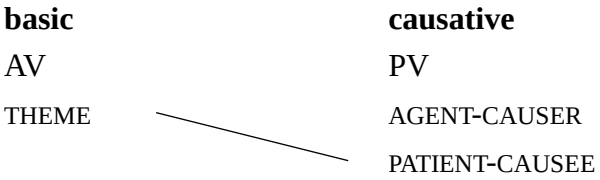


Figure 2.4 Constructional mapping: one-place predicate

Figure 2.4 shows that the construction for non-causative one-place predicates is AV, while PV is exploited as the model for causativizing one-place predicates. After causativization, the THEME role in a non-causative AV clause is mapped onto the

PATIENT role in a causative PV construction.

2.5.2 Transitive causative constructions: LV and CV

When a transitive construction undergoes causativization, it becomes a transitive causative construction, which is predominantly a causative LV/CV. As the voice paradigms in Table 2.7 show, non-causative two-place predicates (ingestives and monotransitives) are likely to form causatives in LV and CV. Non-causative one-place predicates can form causatives in LV and CV as well, but sometimes the applicative functions are induced. This suggests that for non-causative one-place predicates, LV and CV are more extended in terms of the causativizing function than PV, which serves as the basic causative construction for non-causative one-place predicates. As for non-causative two-place predicates, the voice constraints discussed in section 2.4.2 leave them LV and CV as the major templates for forming causatives.

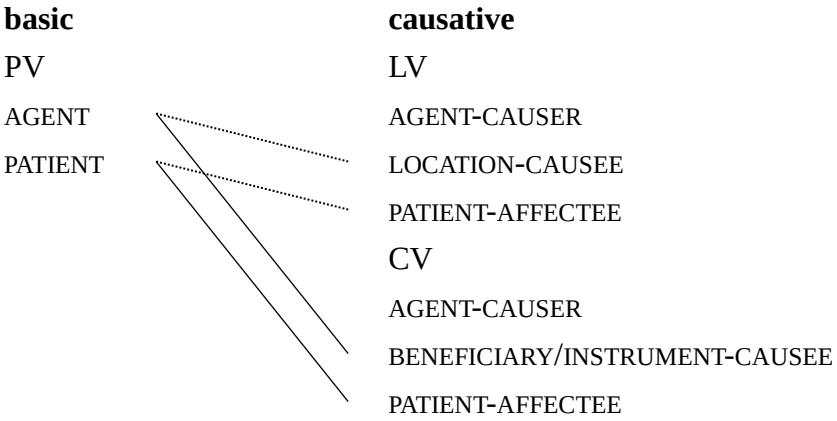


Figure 2.5 Constructional mapping: two-place predicate

Figure 2.5 shows that, in non-causative clauses, the construction where AGENT and PATIENT are related by transitive verbs is PV. LV and CV, on the other hand, are predominantly used to causativize transitive verbs. In causative LV construction, the CAUSEE fills the slot for LOCATION (in non-causatives) and the AFFECTEE fills the slot

for PATIENT, while in the causative CV construction, the CAUSEE in the slot for BENEFICIARY, and AFFECTEE in the slot for PATIENT.

Constructional mappings between syntactic and semantic roles show that *pa-*causatives based on two-place predicates resemble non-causative ditransitive clauses: LV pivots the CAUSEE in a transitive causative construction, and RECIPIENT in a ditransitive construction; there are two alternant CV constructions, which pivot either the THEME or RECIPIENT in non-causatives, CAUSEE or AFFECTEE in causatives. Compare the following table with Table 2.8:

Table 2.9 Argument structure of ditransitive *vayq* 'give' in LV and CV

Voice		**Genitive**	**Dative**	**Accusative**	**Nominative**
LV	*vayq-an*	AGENT/SOURCE		THEME	RECIPIENT
CV1	*si-vayq*	AGENT/SOURCE	RECIPIENT		THEME
CV2	*si-vuay*	AGENT/SOURCE		THEME	RECIPIENT

The parallel between causative transitives and ditransitives supports the assumption that causative constructions are based on more basic constructions. In other words, a causative event involving transitives in Mayrinax is conceptualized based on the event of giving: the CAUSER is the AGENT-SOURCE; the CAUSEE is the RECIPIENT; the AFFECTEE is the transported THEME.

Considering the strong connection between morphological causative constructions and voice constructions, it is assumed that causative constructions are viewed as extensions of voice constructions. Causativization involves a choice of voice instead of a shift from an intransitive to a transitive construction, since transitivity is voice-determined, not to mention a so-called transitive construction can correspond to more than one possible candidate in Mayrinax Atayal. In other words, each voice construction is itself a basic model for syntactic extension. The idea of transitivity then should be treated under constructional meaning of voices in

combination with verbal semantics.

2.5.3 Residual constructional meaning of CV construction

Sometimes the constructional meaning of the applicative voice is retained and interacts with causatives. The situation occurs only with one-place predicates so a promoted peripheral argument (a BENEFICIARY in (31a), or an INSTRUMENT in (31b) below) can be accommodated:

(31) a. BENEFICIARY in focus
si-pa-yugi ni hayung su 'ulaqi' ku <u>tumuk</u>
CV-CAU-dance GEN PN ACC child NOM chief
'Hayung made the child dance for the chief.'

b. INSTRUMENT in focus
si-pa-pagiay=mu su qawlit ku <u>ngiaw</u>
CV-CAU-leave=1.SG.GEN ACC mouse NOM cat
'With the cat I made a mouse leave.'

(31) shows causativization of two intransitive verbs *yugi* 'dance' and *pagiay* 'leave'. After causativization, the causativized verb takes only two arguments that designate the CAUSER and the CAUSEE. CV construction, however, provides three argument slots. An extra peripheral argument can thus be introduced through the applicative functions of CV construction. These instances depart from the CV constructions presented in Section 2.2 in that they retain the function of the CV construction in non-causative clauses, that is, introducing a BENEFICIARY and INSTRUMENT. Therefore, not only can a voice construction serve as a template for forming causatives, but it can also combine functionally with causatives and form a hybrid construction.

2.6 Summary

This chapter has examined *pa-* morphological causative constructions of verbs of varying transitivity and verbal semantics in Mayrinax Atayal. At least six causativization patterns can be established according to each causativized verb's occurrence in the four voices. It is found that *pa-* causativization is constrained by verbal semantics and transitivity of the base verb on the one hand, and voice on the other. In terms of verbal semantics and transitivity, it is the easiest to prefix stative verbs with *pa-* to form causatives; causativizing ditransitives through *pa-* is completely impossible; within transitives, subtypes are distinguished by the parameter of agentivity of the participants implicated by the base verb. In terms of voice, PV is the voice where one-place predicates causativize the most naturally; three-argument constructions (LV/CV) serve as the templates for causativizing two-place predicates. A modified causativization hierarchy is shaped based on the distribution of verb types across the six causativization patterns, where we see the influence of the two semantic parameters, namely, transitivity and agentivity. Finally, the relation between voice constructions and causative constructions has been delineated through constructional mappings.

Chapter 3

Analytic causation-encoding constructions and clause union

3.0 Introduction

In Chapter 2, it has been shown that morphological causativization in Mayrinax Atayal of two-place verbs such as *quax* 'wash' is subject to voice constraints, and its voice paradigm is defective. Affixation of *pa-* is even completely impossible with ditransitive verbs such as *vayq* 'give'. As an alternative way, causativization of verbs at the right end of the causativization hierarchy (Figure 2.3), such as ditransitives, sociative action verbs, and other transitives, involves syntactic means instead. The ways through which causation is expressed analytically in Mayrinax Atayal will be the focus of this chapter.

This chapter investigates how a causative event is coded analytically. Two complementation strategies are found: quotative constructions, to be discussed in Section 3.1, and switch-subject constructions, to be discussed in Section 3.2. Corresponding to these two complementation types are two verb types. Utterance verbs such as *kal-un* 'tell (PV)' and *sal-un* 'say (PV)' in quotative constructions have been functionally extended to serve to encode causation/manipulation. Manipulation verbs such as *tu'-un* 'order (PV)', *qihl-un* 'force; encourage (PV)', and *siwal-an* 'allow (LV)', on the other hand, participate in switch-subject constructions through which causation/manipulation is expressed.

In Section 3.3, the clause union phenomenon (or called *formal synthesis*, the other formal dimension of the causative continuum) in analytic causation-encoding constructions and its semantic correlates will be examined. Givón (2001) postulates a scale of isomorphism obtained between the semantic and syntactic dimensions of

complementation. The general prediction of iconicity is given as the following principle, repeated from Chapter 1:

(1) Event integration and clause union (Givón 2001:40)
The stronger is the *semantic bond* between the two events, the more extensive will be the *syntactic integration* of the two clauses into a single though complex clause.

Applying this principle to causative constructions, this principle can be interpreted as: the stronger the semantic bond between the causing event and the caused event, the more extensive will be the syntactic integration of the two clauses into a single complex one. By contrasting the strength of clause union in the two complementation types and the causative events they code, it is found that the principle given in (1) does hold in Mayrinax Atayal. For further evidence from other languages, complementation patterns of the utterance/manipulation/causation cline in French and Kavalan will be presented in Section 3.4. Section 3.5 summarizes the chapter.

3.1 Quotative constructions

This section illustrates quotative constructions with two utterance verbs *kal-un* 'tell (PV)' and *sal-un* 'say (PV)'. These verbs convey causative meanings when participating in quotative constructions that involve verbal directives.[22] Quotative constructions have been witnessed cross-linguistically (in Formosan languages as well) to serve as a productive strategy to encode the notion of causation (especially indirect causation), as will be shown in section 3.1.3.

[22] Shibatani (1976) proposed an opposition of manipulative/directive causation, which would later develop into the opposition of direct/indirect causation in Shibatani (2002).

3.1.1 *kal-un* ‘tell (PV)’

Kal-un ‘tell (PV)’ serves as the most commonly used utterance verb that encodes causation. This probably results from its neutrality in meaning. (2a) and (2b) are instances of its use in its lexical meaning ‘tell; talk’, in NAV *kal-un* and AV *ma-kaal* respectively, with two interlocutors involved:

(2) a. kal-un ni yumin i baicu’
tell-PV GEN PN NOM PN
‘Yumin talks to Baicu’.’
b. sua ga ma-kaal=simu ki watan na
why TOP AV-tell=2.PL.NOM COM PN still
‘Why are you still talking to Watan?’

In quotative construction, *kal-un* can take a declarative or imperative clause. However, its causative meaning emerges only when an imperative clause is augmented by the optional quotative marker *mha’* (originally an utterance verb meaning ‘say’):[23]

(3) a. kal-un ni yumin i payan mha’ [tuting ku xuil=su’]
tell-PV GEN PN NOM PN QUO beat NOM dog=2.SG.GEN
‘Yumin told Payan to beat his dog.’
lit. ‘Yumin told Payan, “Beat your dog!”’
b. tuting han ku xuil=su’
beat now NOM dog=2.SG.GEN
‘Beat your dog now!’

The clause introduced by *mha’* in (3a) is indeed imperative since the personal deixis does not agree with the main clause and the embedded clause is headed by a bare-stem verb. The second person clitic *su* in (3a) does not refer to the addressee of

[23] In other words, *kal-un* here is jussive but with causative interpretation.

the whole clausal complex, but to the addressee of the imperative clause, co-indexed by the nominative-marked utterance recipient *payan* in the main clause. As for the complement verb, it carries zero marking, in the same form as the bare stem *tuting* 'beat' in the affirmative PV imperative clause (3b).

The meaning of the utterance verb *kal-un* approximates that of the directives *tell* in English and *jiao* 'to call; to address' and *yiao* 'to want' in Mandarin Chinese. The English translation into *made*, an implicative verb, in (3a) would be somewhat misleading, since whether causation actually succeeds cannot be inferred solely from this utterance. In other words, *kal-un* is itself not an implicative verb whose presence implies the execution of the caused event; only the causing event (interpersonal manipulation between the CAUSER and CAUSEE) is certain to be actualized. To indicate the implementation of the caused event, a result must be overtly expressed:

(4) ti' ku tinu-xuil ga kal-un=nia' payan mha' tuting
EXI NOM own-dog TOP tell-PV=3.SG.GEN PN QUO beat
ku xuil=mu m-inuqil ku xuil la
NOM dog=1.SG.GEN AV-die NOM dog PART
'The owner told Payan to beat his dog. The dog died.'

For Mayrinax Atayal speakers, the verb *tuting* 'beat' entails a high probability of death of the one beaten. To overtly indicate the effectuation of caused event, the predicate *m-inuqil* 'die (AV)', which is the result of *tuting* 'beat', must be supplemented.

Although the *kal-un* quotative construction with an imperative complement is not implicative, its strong connection with an actualized caused event hints at a degree of semanticization of implicativity. Consider:

(5) A: sua ga muku-gawah ku valihun
why TOP ??-open NOM door
'Why is the door open?'
B: kal-un ni yaya i yumin gawah-i ku valihun aqih gi
tell-PV GEN mother NOM PN open-LV NOM door bad CONJ
ma-kiluh tag-'imuag
AV-hot inside-house
'Mother told Yumin to open the door because it was hot inside the house.'

(5) is an elicited question-answer adjacency pair, where Speaker A poses a question about the opened door and Speaker B answers with a clausal complex headed by *kal-un*, ascribing the result indicated by Speaker A (opened door) to the causative event coded by the quotative construction. This instance shows that in contexts where causation (usually indirect causation) is already in place, the *kal-un* quotative construction is frequently exploited to designate the elements in the causative event. Therefore, in this study, *kal-un* is treated as a quasi-causative verb in this specific construction complemented by an imperative clause. The clausal complement introduced by *mha'* then cannot be indicative with realis voice marker if causation is to be expressed.

(6) *kal-un ni yumin i payan mha' tuting-un ku xuil=su'
tell-PV GEN PN NOM PN QUO beat-PV NOM dog=2.SG.GEN
Intended: 'Yumin told Payan to beat his dog.'

The complement verb in (6) *tuting-un* 'beat (PV)' is indicative. It cannot replace the zero-marked complement verb *tuting-ø* 'beat (PV)' in (3a) if the same causative meaning is to be expressed.

The quotative marker *mha'* cannot be replaced by the linker *i*, thus the ungrammaticality of (7b):

(7) a. kal-un=mu ku 'ulaqi'=mu mha' hali m-uay
tell-PV=1.SG.GEN NOM child=1.SG.GEN QUO go AV-give
hayung ku vawak
PN NOM pig
'I told my child to give the pig to Hayung.'

b. *kal-un=mu ku 'ulaqi'=mu i hali m-uay
tell-PV=1.SG.GEN NOM child=1.SG.GEN LNK go AV-give
hayung ku vawak
PN NOM pig
Intended: 'I told my child to give the pig to Hayung.'

The constituent order of this construction with *kal-un* is fixed. The causing event (in (8a), Yumin's telling Payan) must precede the caused event (in (8a), beating the dog). The constructional schema is presented in (8b). Thus, (8c) through (8e) are ungrammatical due to their word order. In addition, the CAUSEE participant is shared between the main clause and complement clause; CAUSEE is never realized in the complement quotative clause introduced by *mha'*, thus the ungrammaticality of (8d).

(8) a. ti' ku xuil na suquliq kas-un=nia' yumin ru
EXI NOM dog GEN man bite-PV=3.SG.GEN PN CONJ
kal-un ni yumin i payan mha' tuting ku xuil hasa
tell-PV GEN PN NOM PN QUO beat NOM dog that
'Someone's dog, it bit Yumin, so Yumin told Payan to beat that dog.'

b. kal-un [GEN] [NOM] mha' [imperative clause]
CAUSER CAUSEE CAUSED EVENT (+AFFECTEE)

c. *kalun [ni yumin] mha' [tuting ku xuil hasa] [i payan]
CAUSER CAUSED EVENT CAUSEE

d. *kalun [ni yumin] [i payan] mha' [tuting ku xuil hasa] [i payan]
CAUSER CAUSEE CAUSED EVENT CAUSEE

e. *kalun mha' [tuting ku xuil hasa] [ni yumin] [i payan]
CAUSED EVENT CAUSER CAUSEE

This utterance verb also comes in AV forms: *ma-kaal* (9a) and *k<um>al* (9b). In AV quotative constructions that denote causation, the CAUSER (*kanayrin* 'woman' in

(9)) takes the grammatical subject position, while the CAUSEE (*'ulaqi'* 'child') is marked by the accusative marker *cku.* The construction is schematized in (9c):

(9) a. ma-kaal cku 'ulaqi' ku kanayrin mha' tuting ku xuil=nia'
AV-tell ACC child NOM woman QUO beat NOM dog=3.SG.GEN
'The woman told the child to beat his dog.'

b. k<um>al cku 'ulaqi' ku kanayrin mha' tuting ku xuil=nia'
<AV> tell ACC child NOM woman QUO beat NOM dog=3.SG.GEN
'The woman told the child to beat his dog.'

c. ma-kaal/k<um>al [ACC] [NOM] mha' [imperative clause]
CAUSEE CAUSER CAUSED EVENT (+AFFECTEE)

d. ma-kaal cku 'ulaqi' ku kanayrin mha' tuting-aw=ta'
AV-tell ACC child NOM woman QUO beat-PV=1.PL.GEN
ku xuil=nia'
NOM dog=3.SG.GEN
'The woman told the child, "Let's beat his dog!"'

Causation expressed by *kaal* 'say' in AV differs from that in NAV in directness of causation. The construction represented by (9c) is a subtype of sociative causation: the CAUSER performs a joint action with the CAUSEE, although the relation between these two grammatical roles is usually that between an AGENT and a PATIENT. (9d)[24] further supports AV's connection with sociative causation: *ma-kaal*, an AV verb, co-occurs with a complement clause where the verb is marked with the projective PV marker *-aw*. This marker, according to Huang (2001:65), suggests immediacy, addresser's assurance, and AGENT involvement (the last supported by the presence of the clitic pronoun *ta'* (first person plural inclusive)).

The quotative construction allows negation in both the main clause and the complement clause. When the complement clause is negated, a negative permissive meaning emerges.

[24] (9d) is not an instance of causative construction under my definition for the causation-encoding quotative construction, since the complement clause is not imperative.

(10) kal-un ni yumin suhisa i payan laxi tuting-i ku
tell-PV GEN PN yesterday NOM PN NEG beat-PV NOM
xuil=mu
dog=1.SG.GEN
'Yumin told Payan not to beat his dog yesterday.'
lit. 'Yumin told Payan yesterday, "Do not beat my dog!"'

The irrealis NAV marker *-i* appears in affirmative imperative LV and negative PV and LV. The negator may as well appear in the main clause, negating the whole proposition. Different from (10), instance (11) conveys negative causative meaning, with the negation scope over the whole quotative construction:

(11) ini kal-i ni yumin suhisa i payan tuting ku
NEG tell-PV GEN PN yesterday NOM PN beat NOM
xuil=mu
dog=1.SG.GEN
'Yumin did not tell Payan to beat his dog yesterday.'

3.1.2 *sal-un* 'say (PV)'

Another utterance verb *sal-un* 'say (PV)' participates in quotative construction as well to express interpersonal manipulation within the domain of causation. The causing event, which designates the CAUSER and CAUSEE, preferably follows the caused event which, again, is realized as an imperative clause:

(12) a. [pa-singaha' ku ngakuaq=su'] sal-un nku sinsang i hayung
CAU-open NOM mouth=2.SG.GEN say-PV GEN doctor NOM PN
'The doctor told Hayung to open his mouth.'
lit. '"Open your mouth!" the doctor said to Hayung.'

b. pa-singaha' ku ngakuaq=su'
CAU-open NOM mouth=2.SG.GEN
'Open your mouth!'

(12a) shows that the main clause headed by *sal-un* follows an independent imperative complement clause (12b). This imperative clause is a direct quote, since *pa-singaha'* 'make something open' is in its stem form, and, additionally, the personal pronominal *su'* 'you' does not agree with the main clause.

The causative meaning of *sal-un* originates from the strong association between its lexical meaning 'say' and directive situations. As is the case with *kal-un*, *sal-un* is not implicative, but often the caused event takes place. This may be related to the weak deontic meanings it carries. When used as a quasi-causative verb, *sal-un* connotes a trace of necessity of the caused event, or potential incurrence of adversity if the intended caused event is not instantiated, just as is the case of (12), where the doctor advises that his patient *should* open his mouth for physical examination.

The quotative marker *mha'* may be present if the causing event (the main clause) precedes the caused event (the complement imperative clause):[25]

(13) a. ti' yumin ga laxi tuting-i ku xuil=mu sal-un=nia'
EXT PN TOP NEG beat-PV NOM dog=1.SG.GEN say-PV=3.SG.GEN
i payan
NOM PN
'Yumin, he told Payan not to beat his dog.'

b. sal-un=nia' i payan mha' laxi tuting-i ku xuil=mu
say-PV=3.SG.GEN NOM PN QUO NEG beat-PV NOM dog=1.SG.GEN
'He told Payan not to beat his dog.'

(13a) presents a quotative construction where the caused event, which appears in the form of a verbal command, precedes the causing event. Conversely, the caused event in (13b), introduced by the quotative marker *mha'*, follows the causing event. When the clausal complement is a negative imperative clause, as in (13b), there is a negative permissive sense.

[25] This is the constituent order shared with the *kal-un* quotative construction, but less preferred for the *sal-un* quotative construction.

A syntactic feature of *sal-un* is that it often co-occurs with other utterance verbs *kal-un* 'tell (PV)' and *mha'* 'say', and they together form bigger clausal complexes. (14a) shows an instance where a *sal-un* headed clause is augmented onto the *mha'* quotative construction, and (14b) is its schematic representation:

(14) a. himu-i ku 'ulaqi' [mha' ku yava'] [sal-un=nia' ku
kiss-LV NOM child say NOM father say=3.SG.GEN NOM
yata'=mu]
aunt=1.SG.GEN
'Father told my aunt to kiss the child.'
lit. '"Kiss the child!" Father said, he told my aunt.'

b. [imperative clause] mha' [NOM] sal-un [GEN] [NOM]
CAUSED EVENT (+AFFECTEE) CAUSER CAUSER CAUSEE

Mha' 'say (AV)' here functions as a finite verb that heads a clause rather than as a quotative marker that introduces a direct quote. There are three serialized clauses in this instance, as indicated by the three subjects (*'ulaqi'* 'child', *yava'* 'father', and *yata'=mu* 'my aunt') marked by the nominative marker *ku*. When the *sal-un* clause is omitted from (14a), a non-causative quotative construction remains. When functioning as an utterance verb, *mha'* is always in AV, taking one actor argument and a clausal argument. In other words, *mha'* does not take a RECIPIENT argument (someone to whom the utterance is directed), and therefore the relation of interpersonal manipulation cannot be formed. The contribution of the *sal-un* clause then lies in its causative function. The pragmatic difference between double specification of CAUSER in (13a) and the simple *sal-un* causative in (14a), however, should be verified at a higher linguistic level by discourse data.

Another case of serialization of utterance verbs is circum-quotative construction (a term taken from Hsieh (2012)). In this construction, the *sal-un* clause, again, is augmented onto the *kal-un* quotative construction discussed in section 3.1.1:

(15) a. kal-un nku sinsang pa-singaha' ku ngakuaq=su'
tell-PV GEN doctor CAU-open NOM mouth=2.SG.GEN
[sal-un=nia' ku 'ulaqi']
say-PV=3.SG.GEN NOM child
'The doctor told the child to open his mouth.'
lit. 'The doctor said, "Open your mouth!" he said to the child.'

b. kal-un [GEN] [imperative clause] sal-un [GEN] [NOM]
CAUSER CAUSED EVENT (+AFFECTEE) CAUSER CAUSEE

The former part of (15a), consisting of an utterance verb, a CAUSER, and an imperative complement, resembles the *kal-un* causative construction, except that the CAUSEE is absent here. The CAUSEE is delayed until the end of the *sal-un* clause. The causative relation between CAUSER and CAUSEE is expressed by the *sal-un* clause, while the clause headed by the other utterance verb is responsible for presenting the utterance. Considering that in (15a) the causative event is complete with all the participants (CAUSER, CAUSEE and AFFECTEE) only when the *kal-un* clause, the imperative complement, and the *sal-un* clause are taken together as a whole, (15a) is treated here as a complex event and thus a complex construction. Again, the semantic/pragmatic difference between circum-quotative and basic quotative constructions is still not clear, especially the reason for double specification of CAUSER.

When functioning as the main predicate, the PV marker *-un* of *sal-un* can be absent:

(16) a. pa-singaha' ku ngakuaq=su' sal-un nku sinsang i hayung
CAU-open NOM mouth=2.SG.GEN say-PV GEN doctor NOM PN
'The doctor told Hayung to open his mouth.'

b. pa-singaha' ku ngakuaq=su' sal nku sinsang i hayung
CAU-open NOM mouth=2.SG.GEN say GEN doctor NOM PN
'The doctor told Hayung to open his mouth.'

(16a) and (16b) present two complex sentences that are identical except that in (16b)

the voice marking of *sal-un* is dropped. This reduction in form hints at a grammaticalization process of *sal-un* on the way. In addition, AV forms of *sal-un* are not found in Matu'uwal. Huang (1995:227) also reports the failed attempt to find a corresponding AV form. In the sub-dialect Huang investigates, the form corresponding to *sal* is *san* 'say' (NAV), which is treated as a verb of utterance, but in certain illustrations, this verb is translated as 'want'. This means that in specific contexts, especially when the quote is an imperative directive, the construction is tinged with modality and manipulation meanings.[26]

(17) Huang (1995:227)

'uwah san ni' watan 'i' ba'unay
come say GEN PN NOM PN
'Watan wants Ba'unay to come.'
lit. 'Watan told Ba'unay, "Come!"'

The optional loss of voice marker and functional extension (to encode causation and modal meanings) taken together can serve as some evidence for *sal*'s being at the stage of pre-grammaticalization. It has been noted that as a quasi- analytic causative verb, *sal-un* may follow an imperative clause, or precede an imperative clause introduced by *mha'*. In other cases, it is augmented onto other quotative constructions (such as those with *mha'* (14a) and *kal-un* (15a) as the main predicates) to form more complex, tri-clausal structures. It is this double specification of CAUSER, flexible word order, and loss of voice marker that lead to a hypothesis that *sal-un* may well undergo grammaticalization if it keeps developing along the same path. When co-occurring with *kal-un* in circum-quotative construction and with *mha'* in serialized quotative construction, the semantic contents of *sal-un* as an utterance verb are reduced, while the main predicates carry the verbal meanings as utterance verbs. What remains in

[26] Extension of *sal-un* to the domain of modality is not found in Matu'ual.

sal-un then seems to be the causative meanings.

3.1.3 Quotative constructions as analytic causation-encoding constructions

In the previous two sections, it has been shown that *kal-un* 'tell (PV)' and *sal-un* 'say (PV)' quotative constructions have undergone extension in use and come to function as analytic causation-encoding constructions that denote indirect causation. Constructional variants include:

(18) a. kal-un [GEN] [NOM] mha' [imperative clause]
CAUSER CAUSEE CAUSED EVENT (+AFFECTEE)

b. [imperative clause] sal-un [GEN] [NOM]
CAUSED EVENT (+AFFECTEE) CAUSER CAUSEE

c. sal-un [GEN] [NOM] mha' [imperative clause]
CAUSER CAUSEE CAUSED EVENT (+AFFECTEE)

d. [imperative clause] mha' [NOM] sal-un [GEN] [NOM]
CAUSED EVENT (+AFFECTEE) CAUSER CAUSER CAUSEE

e. kal-un [GEN] mha' [imperative clause] sal-un [GEN] [NOM]
CAUSER CAUSED EVENT (+AFFECTEE) CAUSER CAUSEE

Constructions (18a) through (18e) all involve one or both utterance verbs and an imperative complement. Only with the directive conveyed in the form of an imperative will causation be coerced. The two utterance verbs, when participating in constructions (18a-e), are treated as quasi-causative verbs here, since the notion they express comes closer to "attempted manipulation." The success of manipulation is often implied, but can be negated.

This functional extension arises from the shift between illocutionary forces. The causative use is restricted to instances where the complement is an imperative clause. In real-world situations, indirect causation (or more precisely, interpersonal manipulation) more often than not involves directives. The act of reporting directives

with utterance verbs means reporting fairly loose causal relations between the one who gives directives and the one who follows directives. Overtime, the quotative construction does not simply serve speech reporting functions anymore, and the imperative becomes inseparable from the declarative main clause.

In addition to the conceptual contiguity between directives and causatives, structural properties of the imperative clauses also facilitate reanalysis of the reported imperative clause as the complement clause that designates the caused event. For one thing, the absence of CAUSEE in the imperative means this participant must be inferred from the main clause, referring to the RECIPIENT of the utterance verb. This means strong role-reference dependency. For another, there is no TAM marking on the complement verb; the complement verb is marked only with voice. This non-finite verbal morphology shows certain nominal property of the complement, thus tighter syntactic relation with the main predicate.

In other Formosan languages as well, direct quotation is exploited to encode manipulation. Huang and Su (2005) mentions in passing that in Saisiyat, manipulation can be expressed by causative affixes *pa-/pak-* (for direct causation) and, mostly, by complements with optional raising (19a), or direct quotation (19b).

(19) Saisiyat (Huang and Su 2005:343)

a. obay k-om-oSa' So'o/'iSo'on patawaw ila
PN say-AV 2.SG.NOM/2.SG.ACC work PFV
'Obay tells you to start work.'

b. sia t-om-rom yakin komoSa' [sa' ila m-amoa' ka' pazay]
3.SG.NOM AV-order 1.SG.ACC COMP go PFV AV-plant ACC rice
'He ordered me, "Go plant the rice!"'

The raising construction in (19a) with an utterance verb *k-om-oSa'* 'say (AV)' as the matrix verb is not found in Mayrinax Atayal. Mayrinax manipulation verbs (e.g. *tu'-un* 'order (PV)' and *qihl-un* 'force (PV)'), however, participate in similar

constructions, to be discussed in Section 3.2. On the other hand, (19b) presents a quotative construction, with an utterance/manipulation verb *t-om-rom* 'order (AV)' in the main clause. An imperative clause is introduced by a complementizer *komoSa'*, which is formerly an utterance verb (as in (19a)), in parallel with the *mha'*-marked complement in Mayrinax Atayal.

Kavalan and Amis are also found to exploit quotative construction to express manipulation, as discussed in Lin and Wu (2008):

(20) Kavalan (Lin and Wu 2008:3)

[qan-ka	tu	baut]	zin=na	tina=ku	timaizipana
eat-IMP.AV	OBL	fish	say=3.SG.GEN	mother=1.SG.GEN	3.SG.OBL

'My mother told him to eat fish.'

lit. '"Eat fish!" my mother said to him.'

(21) Amis (Lin and Wu 2008:9)

[pi-repet	tu	edu]	sa'an	ci-ofad	takuanan
PI-catch	OBL	mouse	say.so	NCM-PN	1.SG.OBL

'Ofad told me to catch mouse.'

lit. '"Catch mouse!" Ofad said to me.'

Instances (20) and (21) much resemble the *sal-un/sal* quotative constructions: a directive is first presented in the form of an imperative clause, followed by a clause headed by a verb of saying which designates a causal relation between CAUSER and CAUSEE. The data above from Saisiyat, Kavalan, and Amis point to the fact that in Formosan languages, direct quotation is a productive strategy for coding indirect causation and interpersonal manipulation.

3.1.4 *mha'* as complementizer

Mha' has been shown in previous sections to be a quotative marker that introduces a direct quote. In analytic causation-encoding constructions, it introduces

an imperative that is construed as a caused event. In such constructions, it is argued to function as a complementizer rather than an utterance verb for several reasons. First, it has lost its verbal meaning, and, as noted in Liu (2008), there are no other variant verbal forms. Further, in addition to complementizing utterance verbs and manipulation verbs, *mha'* functions as the complementizer of cognition verbs (e.g. *l<um>anglung* 'think (AV)') as well:

(22) Liu (2008:168)

l<um>anglung'i'	yata'	mha'	ma-'usa'=ci'	m-aquas
<AV>think	NOM aunt	say	AV-go=1.SG.NOM:LNK	sing

'Aunt thinks, "I will go to sing."'

(22) shows a quotative construction with a matrix verb of cognition *l<um>anglung* 'think (AV)'. The first person clitic pronoun *ci'* in the complement clause introduced by *mha'* agrees with the argument *yata'* 'aunt' in the matrix clause, which means the complement clause is a direct quote of her thought. In other words, the quotative construction has been functionally extended to the domain of cognition, linguistically bearing mental constructs instead of utterances.[27]

In Squliq[28], *mha* introduces a conditional clause and thus is complementizer-like (Tsai 2007), a situation not yet found in Mayrinax.

(23) Squliq Atayal (Tsai 2007:595)

m'wi	yal	qu	rmai	mha	lgan	na	tali
AV.tired	very	NOM	horse	if	ride.LV	OBL	Tali

'The horse would be very tired, if (it) was ridden by Tali.'

(23) represents further development of the marker from its lexical verbal meanings to

[27] In (19b), *komoSa'* 'say' in Saisiyat is analyzed as a complementizer that introduces an imperative clause, just as *mha'* is in Mayrinax Atayal.

[28] Squliq is another dialect of Atayal, generally regarded as more innovative in contrast with the more conservative Mayrinax.

more grammaticalized ones. The use as a complementizer of conditional clauses in Squliq supports the hypothesis that the Mayrinax *mha'* has, starting as a lexical verb of saying, grammaticalized as a marker of a direct quote that complements utterance verbs, cognition verbs, and manipulation verbs (this last one will be discussed in the next section), and may be on its way to become an even more grammaticalized complementizer that introduces a conditional clause as seen in Squliq.

3.2 Switch-subject constructions[29]

Aside from quotative constructions, causation is encoded analytically in Mayrinax through switch-subject constructions, with manipulation verbs such as *tu'-un* 'order (PV)', *qilh-un* 'force (PV)', and *siwal-an* 'allow (LV)' as the matrix verbs. According to Givón (2001:83), switch-subject configurations, patterning on complementation of manipulation verbs such as 'make', 'cause', 'force', or 'let', cross-linguistically involve a family of causative or resultative constructions. In embedding languages[30], switch-subject configurations concentrate all (or at least most) finite marking on the main verb, leaving the complement verb nominalized or less finite. There is a co-reference condition in switch-subject complementation:

(24) Co-reference condition in switch-subject complementation (Givón 2001:84)
The object/manipulee of the main verb is the subject/agent of the complement.

[29] What is called switch-subject construction in Mayrinax Atayal in the present study is called "pivotal construction" in Huang (1995). Switch-subject construction in Mayrinax Atayal correspond to what is called "verb juxtaposition" in other studies (e.g. Lin and Wu 2008), since they share functional and structural similarities: functionally, both constructions are exploited to encode manipulation; structurally, the matrix clause and the complement clause share an argument, the complement clause marker is optional, and the complement verb is in AV.

[30] Givón (2001) distinguishes two major diachronic routes to clause union. In embedding languages (e.g. Tibeto-Burman languages), clause union arises diachronically from embedding complement clauses of reduced finiteness. In serial-verb languages (e.g. Athabaskan languages), on the other hand, clause union arises from clause chaining, with no strong finiteness reduction.

This constraint will serve as the criterion for determining a switch-subject construction in the present study. Between the syntactic and semantic aspects in condition (24), semantic ones will be stuck to, since in Mayrinax, a symmetrical voice language, the manipulee that is co-referenced can be the grammatical subject in nominative case (in NAV), or accusative marked non-term (in AV). With these two possibilities, the semantic criterion provides consistency.

This section will illustrate the causation-encoding switch-subject constructions with two manipulation verbs, *tu'-un* 'order (PV)' and *siwal-an* 'allow (LV)'. In switch-subject construction, *tu'-un* is associated with manipulation, while *siwal-an* is associated with permission.

3.2.1 *tu'-un* 'order (PV)'

The lexical meaning of *tu'-un* is 'order'. Being a manipulation verb is its basic function instead of an extended one.

(25) ?tu'-un=mu ku 'ulaqi'=mu
order-PV=1.SG.GEN NOM child=1.SG.GEN
'I ordered my child (to somewhere).'

A simple clause with *tu'-un* as the main verb without any complement clause like (25) does not sound natural to speakers of Mayrinax. There is supposed to be something that is ordered or assigned following this manipulative clause. The caused event is realized as a conjunctive clause in switch-subject construction, as in (26a), or as a complement imperative clause in quotative construction discussed in Section 3.1, as in (26b).

(26) a. tu'-un=mu yumin [i m-usa' q<um>uriq su waylung]
order-PV=1.SG.GEN PN LNK AV-go <AV>steal ACC chicken
'I ordered Yumin to steal chickens.'

b. tu'-un=mu yumin [mha' usa' q<um>uriq su waylung]
order-PV=1.SG.GEN PN QUO go <AV>steal ACC chicken
'I ordered Yumin to steal chickens.'

(26a) shows a conjoined biclausal sentence. The clause introduced by the optional linker *i* must be in realis AV. The CAUSEE *yumin* in nominative case serves as the pivot between the two clauses. It is simultaneously the PATIENT in the first and the AGENT in the second clause. The complement verb does not have a grammatical subject marked by *ku/a/i* of its own. Since the complement verb must be in AV, the AFFECTEE is always in ACC. Unlike (26a), the quotative complement clause in (26b) must be headed by an irrealis imperative form. Without restriction on voice, the quotative clause may have its own subject in NOM.

Aside from structural differences, the two constructions where *tu'-un* occurs encodes different situations. The switch-subject construction (26a) is congruent with both verbal and non-verbal directives; the directive can be realized in the form of bodily gestures or eye contact. The quotative construction (26b), on the other hand, involves a verbal command.

Semantically speaking, *tu'-un* is not an implicative verb, either. It does not imply the actualization of the caused event but only that of the causing event, though it usually expresses successful manipulation unless indicated otherwise (thus a quasi-causative verb). For example:

(27) a. tu'-un nku sinsi' t<um>ahuk su raramat kariariax ku
order-PV gen teacher <AV>cook ACC meal every.day NOM
makivaq ru [valayq ku t<in>ahuk=nha' ka raramat]
learner CONJ good NOM <PV>cook=3.PL.GEN LNK meal
'The teacher orders the learners to cook meals every day, so the food they cook are good.'

b. tu'-un nku sinsi' t<um>ahuk su raramat kariariax ku
order-PV gen teacher <AV>cook ACC meal every.day NOM
makivaq ga [kia ku ruma' ga ini' gaysa su kai']
learner TOP EXI NOM some TOP NEG obey ACC word
'The teacher orders the learners to cook meals every day, but some do not follow (his) words.'

With the manipulation verb *tu'-un*, (27a) and (27b) present two sentences with the same causing event 'the teacher orders the learners to cook meals every day'. By default the caused event is realized, as indicated by the resulted clause conjoined by *ru* in (27a). This default setting, however, can be cancelled by a concessive clause, as in (27b).

This proximate implicativity is encoded in the semantics of the realis AV marker *<um>* of the complement predicate *t<um>ahuk* 'to cook' (27).[31] The AV marker is in realis mood, in contrast with the irrealis marking of the imperative clause introduced by *mha'*. *Tu'-un* codes a situation which involves physical proximity between the CAUSER and the CAUSEE, and it is this property that ensures successful manipulation. On the other hand, the caused event must take place at certain spatial distance, which stipulates manipulation strong enough to induce the execution of the caused event.

This manipulation verb *tu'-un* also comes in an AV form *t<um>u'*, which again can take a conjunctive complement (28a) or a quoted imperative complement (28b).

(28) a. t<um>u' cku 'ulaqi'=nia' ku yava' [i q<um>uriq
<AV>order ACC child=3.SG.GEN NOM father LNK <AV>steal
su waylung]
ACC chicken
'Father ordered his child to steal chickens.'

[31] Also the AV marker *m-* in *m-usa'* 'go' (26a).

b. t<um>u' cku 'ulaqi'=nia' ku yava' [mha' quriq
<AV>order ACC child=3.SG.GEN NOM father QUO steal
su waylung]
ACC chicken
'Father ordered his child to steal chickens.'

In switch-subject construction, when the main verb is in AV, as in (28a), the AV constraint on the complement verb is still observed (*q<um>uriq* 'hunt (AV)' in (28a)).

In switch-subject construction, negation ccurs only in the main clause, with the negator *ini'* at the clause-initial position, as in (29a). It is impossible to negate the complement clause of *tu'-un*, in both quotative construction (29b) and switch-subject construction (29c).

(29) a. ini' tu'-i ni yaya' i yumin i q<um>yah su valihun
NEG order-PV GEN mother NOM PN LNK <AV>open ACC door
'Mother did not order Yumin to open the door.'

b. *tu'-un ni yaya' i yumin mha' laxi qawah-i ku valihun
order-PV GEN mother NOM PN QUO NEG open-PV NOM door
Intended: 'Mother ordered Yumin not to open the door.'

c. *tu'-un ni yaya' i yumin i laxi qawah su valihun
order-PV GEN mother NOM PN LNK NEG open ACC door
Intended: 'Mother ordered Yumin not to open the door.'

The constituent order of switch-subject construction is rather fluid. The complement clause can follow the CAUSER and CAUSEE (30a), precede the CAUSEE (30c), or precede the CAUSER and CAUSEE (30d):

(30) a. tu'-un nku sinsi' ku makivaq [i t<um>ahuk su raramat]
order-PV GEN teacher NOM learner LNK <AV>cook ACC meal
'The teacher ordered the learner to cook meals.'

b. tu'-un [GEN] [NOM] [AV clause]
CAUSER CAUSEE [CAUSED EVENT + AFFECTEE]

c. tu'-un nku sinsi' [i t<um>ahuk su raramat] ku makivaq
CAUSER [CAUSED EVENT + AFFECTEE] CAUSEE

d. tu'-un [i t<um>ahuk su raramat] nku sinsi' ku makivaq
[CAUSED EVENT + AFFECTEE] CAUSER CAUSEE

The relatively free word order observed in (30a-d), and the minimal inter-clausal gap in (30d) suggests a clause union stronger than that seen with complementation of quotative constructions.

3.2.2 *siwal-an* 'allow (LV)'

Siwal-an 'allow (LV)' has been identified by Huang (1995) to be a manipulation verb that participates in switch-subject construction.

(31) Huang (1995:198)
siwal-an ni' yumin 'i' limuy ['i' m-aniq cku' qulih ka' hani]
allow-LV GEN PN NOM PN LNK AV-eat ACC fish LNK this
'Yumin allowed Limuy to eat this fish.'

In switch-subject construction, *siwal-an* expresses permissive causation.[32] The embedded clause can be fronted, preceding the CAUSER and CAUSEE of the matrix clause, as in (31'):

(31')siwal-an ['i' m-aniq cku' qulih ka' hani] ni' yumin 'i' limuy
allow-LV LNK AV-eat ACC fish LNK this GEN PN NOM PN

There is also an AV constraint on the complement clause for *siwal-an*:

(32) *siwal-an ni yumin i yaya'=nia' i gawah-an ku valihun
allow-LV GEN PN NOM mother=3.SG.GEN LNK open-LV NOM door
Intended: 'Yumin allowed his mother to open the door.'

[32] It has been noted in Chapter 2 that permission is coded in *pa-* causatives in CV, if morphological causativization is possible with the transitive base verb.

(32) substitutes an LV form *gawah-an* ‘open (LV)’ for the AV form. This substitution leads to ungrammaticality.

The AV form *s<um>iwal* shows more complicated complementation patterns:

(33) a. s<um>iwal cku ’ulaqi’ i yaya’=nia’ [i g<um>awah su valihun]
<AV>allow ACC child NOM mother=3.SG.GEN LNK <AV>open ACC door
‘The child’s mother allowed him to open the door.’

a’. s<um>iwal cku ’ulaqi’ [i g<um>awah su valihun] i yaya’=nia’
<AV>allow ACC child LNK <AV>open ACC door NOM mother=3.SG.GEN

b. ini’ siwal ku yava’ [i himu-an nku yata’ ku ’ulaqi’]
NEG allow NOM father LNK kiss-LV GEN aunt NOM child
‘Father did not allowed that the child to be kissed by Aunt.’

(33a) patterns with *t<um>u’* in (28a) in switch-subject construction, with the CAUSER *yaya’=nia’* ‘his mother’ and CAUSEE *’ulaqi’* ‘child’ preceding the embedded AV clause, which designates the caused event. (33a’) is a variant of (33a). The sentence-final nominative-marked CAUSER *yaya’=nia’* ‘his mother’ does not belong to the embedded clause. This means the complement clause is not a full complement clause, but a clause defective with a nominative argument. By contrast, in (33b), the negative AV form *siwal* takes a nominative AGENT argument *yava’* ‘father’ and a full complement clause introduced by *i*. Since the embedded clause is headed by a finite voice-marked main verb *himu-an* ‘kiss (LV)’ and does not miss any argument (complete with the kisser and the kissed), and since the matrix clause lacks one arguments (that is, something allowed), the *i*-marked embedded clause is analyzed as a clausal argument of the matrix clause.

Data (31) through (33) show that the verb *siwal-an/s<um>iwal* ‘allow (LV/AV)’

exhibits two complementation patterns. *Siwal-an* participates in switch-subject construction, taking a defective AV clause (31), while *s<um>iwa* either participates in switch-subject construction (33a), or takes a full clause with a nominative-marked argument (33b).[33] I do not include the full-clause complementation type into the discussion of clause union in the next section, since it is specific to *s<um>iwal*, not observed with other manipulation verbs (such as *tu'-un* 'order (PV)' discussed in section 3.2.1, or *qilh-un* 'force (PV)', which patterns with *tu'-un*). In other words, causation and manipulation are encoded analytically in Mayrinax Atayal mostly through quotative constructions and switch-subject constructions.

3.3 Clause union

It has been presented in Sections 3.1 and 3.2 that analytic causation-encoding constructions in Mayrinax Atayal categorize for two major types of complementation: quotative construction and switch-subject construction, the former involving the quotative marker *mha'*, and the latter the linker *i*. Section 3.3.1, based on the data presented above and other evidence, compares these two types of complementation in terms of finiteness/voice of the complement verb, constituent order, co-reference, negation, and *wh*-extraction. The different degrees of clause union of these two complementation types have conceptual significance: they correspond to different degrees of event integration. In section 3.3.2, this correspondence between inter-clausal structural bond and semantic integration will be explicated with a

[33] Liu (2011:186) notes the complementation patterns of the two voice forms of *siwal*, but her analysis differs from mine. She suggests that *s<um>iwal* 'agree (AV)' selects a full-clause complement, while *siwal-an* 'allow (LV)' occurs in a patient-control construction (switch-subject construction in the present study). My data, however, suggest both complementation patterns for *s<um>iwal*. Her translation of *s<um>iwal* into 'agree', which I find appropriate, hints at low degree of manipulation of the full-clause complementation. The accompanying semantics (i.e. low degree of manipulation) is one of the reasons why full-clause complementation is excluded from my discussion on complementation types that encode causation and manipulation.

tuning-fork scale (Givón 2001), which states that perception/cognition/utterance verbs are usually involved in constructions that exhibit weaker clause union, while modality and manipulation verbs occur in constructions that exhibit stronger clause union.

3.3.1 Comparing complementation of quotative construction and switch-subject construction

3.3.1.1 Formal realization of the complement clause: finiteness, voice, and negation

In quotative constructions, the complement introduced by *mha'* is an imperative clause; the main verb is an utterance verb or a manipulation verb. In switch-subject constructions, on the other hand, the complement introduced by *i* is a defective declarative clause in AV; the matrix clause is headed by a manipulation verb. In both types of complementation, the CAUSEE is absent from the complement clause; it occurs in the main clause, and is co-indexed with the AGENT of the caused event. Since both markers are optional, the complementation type sometimes must be distinguished by the form of the complement verb.

To determine the strength of clause union, the finiteness of the complement verb is first examined. In terms of finiteness, both types of complement are to a certain degree non-finite. Quotative construction only takes bare-stems (AV and PV) or bare-stems with an irrealis voice marker *-i* (LV) and *-ani* (CV); switch-subject construction only takes AV predicates that are not marked with other tense and aspect markers. Unmarked AV verbs can be identified as non-finite because it is flexible in temporal interpretation and is the citation form (Chang and Tsai 2001).

The comparison of finiteness made above does not distinguish these two complement types in terms of the degree of clause union, but the voice constraint and negation formation points to the argument that switch-subject construction shows stronger clause union. Because of the AV constraint, only the accusative argument can

be realized in the complement clause of switch-subject construction. The complement introduced by *mha'*, by contrast, is a direct quote, which is itself a less constrained clause for it may inflect for both AV and NAV. Therefore, there can be an accusative-marked argument in a complement clause in AV, as in (34a) below, or a nominative-marked argument in a complement clause in NAV, as in (34b) below:

(34) a. kal-un nku sinsi' ku makivaq mha' tahuk su raramat
tell-PV GEN teacher NOM learner QUO cook ACC meal
'The teacher told the learner to cook meals.'

b. kal-un ni yaya' i yumin mha' gawah-i ku valihun
tell-PV GEN mother NOM PN QUO open-LV NOM door
'Mother told Yumin to open the door.'

(34a) shows a complement clause of quotative construction in AV, with an argument *raramat* 'meal' marked by the accusative marker *su*. (34b), by contrast, shows a complement clause in NAV, with a nominative argument *valihun* 'door'.

In addition to the constraint on voice, negation as well suggests more autonomy (thus looser clause union) in the complement clause of quotative construction. In quotative construction, both the main clause and the embedded clause can be negated. On the other hand, in switch-subject construction, only the main clause can be negated. Relevant examples from previous sections are repeated below:

(35) a. ini' kal-i ni yumin suhisa i payan tuting ku
NEG tell-PV GEN PN yesterday NOM PN beat NOM
xuil=mu
dog=1.SG.GEN
'Yumin did not tell Payan to beat his dog yesterday.'

b. kal-un ni yumin suhisa i payan laxi tuting-i ku
tell-PV GEN PN yesterday NOM PN NEG beat-PV NOM
xuil=mu
dog=1.SG.GEN
'Yumin told Payan not to beat his dog yesterday.'

c. ini' tu'-i ni yaya' i yumin i q<um>yah su valihun
NEG order-PV GEN mother NOM PN LNK <AV>open ACC door
'Mother did not order Yumin to open the door.'

d. *tu'-un ni yaya' i yumin i laxi qawah su valihun
order-PV GEN mother NOM PN LNK NEG open ACC door
Intended: 'Mother ordered Yumin not to open the door.'

In quotative construction, negation can occur both in the main clause, as indicated by the sentence-initial negator *ini'* in (35a), and in the complement clause, as indicated by the negator *laxi* in (35b). In switch-subject construction, however, negation occurs only in the main clause, as indicated by the negator *ini'* in (35c). A negated complement clause causes ungrammaticality, as illustrated in (35d).

3.3.1.2 Reference

This section deals with semantic dimensions of complementation under the overarching label of "reference." Event-integration in Givón (2001:50) possesses at least two dimensions: spatio-temporal integration and referential integration. Referentially, "the more two events share their referents, the more likely they are to be construed as a single event." It has been mentioned in Section 3.1 that a quotative clause introduced by *mha'* does not share personal deixis with the main clause, for instance (36a) (repeated from (3a)). The complement clause in switch-subject construction, by contrast, agrees with the main clause: in (36b), the second person singular genitive *su'* 'you' in the complement clause is also second person to the main clause, i.e. the addressee of this *tu'-un*-headed utterance.

(36) a. kal-un ni yumin i payan mha' tuting ku xuil=su'
tell-PV GEN PN NOM PN QUO beat NOM dog=2.SG.GEN
'Yumin told Payan to beat his dog.'

b. tu'-un ni yumin i payan i t<um>uting su xuil=su'
order-PV GEN PN NOM PN LNK beat ACC dog=2.SG.GEN
'Yumin ordered Payan to beat your dog.'

For both constructions that encode causation analytically in Mayrinax Atayal (namely, quotative construction and switch-subject construction), the referent CAUSEE is shared between the causing event and the caused event, so in this respect the two complementation types do not differ.

Next, it is impossible to discuss the other dimension of event-integration, that is, spatio-temporal co-reference, since constructions that encode causation analytically in Mayrinax Atayal are not logically implicative, and manipulation is not necessarily successful. Consider the insertion of a temporal adjunct *suhisa* 'yesterday' in the following examples:

(37) a. kal-un nku sinsi' ku paviru' suhisa mha' viru'-ani tikay
tell-PV GEN teacher NOM student yesterday QUO write-CV little
ku inuahan=su'
NOM experience=2.SG.GEN
'The teacher told the student to write about his story yesterday.'
b. *kal-un nku sinsi' ku 'ulaqi' mha' viru'-ani tikay suhisa ku inuahan=su'

(38) a. ini' siwal-i ni yumin i g<um>awah su valihun i
NEG allow-LV GEN PN LNK <AV>open ACC door NOM
yaya'=nia' suhisa
mother=3.SG.GEN yesterday
'Yumin did not allow his mother to open the door yesterday.'
b. ini' siwal-i ni yumin suhisa i g<um>awah su valihun i yaya'=nia'

Data (37) and (38) show that the complement clause in both quotative construction and switch-subject construction is temporally unspecified. Impossibility of occurrence of *suhisa* 'yesterday' in the *mha'*-complement clause in (37b) means the complement clause does not have its own temporal reference. The temporal adjunct must be bound to the main clause. In other words, the complement clause is temporally dependent on

the main clause in quotative construction. In switch-subject construction, whether the temporal adjunct *suhisa* occurs at the sentence-final position (38a), or precedes the complement clause (38b), the same interpretation holds. The adjunct designates the time of manipulation, instead of the time when the caused event occurs. The lack of temporal reference observed in both types of complement clauses parallels the lack of tense/aspect markers of the complement verbs, especially the irrealis mood of the complement clause in quotative construction (see the discussion in section 3.3.1.1 on finiteness marking on complement verbs).

To conclude the comparison in reference made above, although participant sharing and temporal co-reference do not distinguish complementation in quotative construction and switch-subject construction, the shared personal deixis in the main clause and the complement clause suggests that switch-subject constructions exhibits stronger event integration.

3.3.1.3 Constituent order

Section 3.1 has presented that the order of constituents in quotative constructions is rather fixed. Both the main clause and the complement clause remain intact; movements of arguments are usually not permitted (except for *wh*-extraction, to be discussed in section 3.3.1.4). This is supported by data (8), repeated here:

(39) a. kal-un ni yumin i payan mha' tuting ku xuil hasa
tell-PV GEN PN NOM PN QUO beat NOM dog that
'Yumin told Payan to beat that dog.'
b. *kalun [ni yumin] mha' [tuting ku xuil hasa] [i payan]
c. *kalun [ni yumin] [i payan] mha' [tuting ku xuil hasa] [i payan]
d. *kalun mha' [tuting ku xuil hasa] [ni yumin] [i payan]

Data (39) show that with the utterance verb *kal-un* 'tell (PV)', the main clause must

precede the embedded clause. Neither of the arguments in the main clause (here in (39) *yumin* and *payan*) can occur at the sentence-final position, following the clause introduced by *mha'*.

By contrast, the word order of switch-subject construction is more variable, as illustrated by data (30) from Section 3.2, repeated here:

(40) a. tu'-un nku sinsi' ku makivaq [i t<um>ahuk su raramat]
order-PV GEN teacher NOM learner LNK <AV>cook ACC meal
'The teacher ordered the learner to cook meals.'
b. tu'-un nku sinsi' [i t<um>ahuk su raramat] ku makivaq
c. tu'-un [i t<um>ahuk su raramat] nku sinsi' ku makivaq

(40) shows that the two arguments in the main clause *sinsi'* 'teacher' and *makivaq* 'learner' can occur at the sentence-final position after the complement clause, making the main clause fragmented. When both arguments are postponed, the main verb (*tu'-un* 'order (PV)') and the complement verb are divided only by an optional linker *i*, signaling minimal inter-clausal gap and stronger clausal fusion than quotative construction.

3.3.1.4 Wh-extraction

In Mayrinax Atayal, the interrogative pronoun *nanuan* 'what' operates in a pseudo-cleft construction, where *nanuan* is fronted to the sentence-initial position, with the rest of the clause marked by the nominative marker *ku.*

(41) a. viru'-an=nha' ku inuahan=nha'
write-LV=3.PL.GEN NOM experience=3.PL.GEN
'They wrote about their stories.'

b. nanuan ku viru'-an=nha'
what NOM write-LV=3.PL.GEN
'What did they write?'

The nominative argument *inuahan=nha'* 'their stories' in (41a) undergoes *wh*-extraction, and an interrogative sentence is formed in (41b), where the fronted pronoun *nanuan* 'what' is modified by the defected clause marked by *ku*.

It is found that arguments in the clausal complement of both quotative construction and switch-subject construction can undergo *wh*-extraction.

(42) a. nanuan$_i$ ku kal-un nku sinsi' ku makivaq mha' tahuk ___$_i$
what NOM tell-PV GEN teacher NOM learner QUO cook
'What did the teacher tell the learner to cook?'

b. nanuan$_i$ ku tu'-un nku sinsi' ku makivaq i t<um>ahuk ___$_i$
what NOM order-PV GEN teacher NOM learner LNK <AV>cook
'What did the teacher order the learner to cook?'

In (42a), the interrogative pronoun *nanuan* 'what' is extracted from the complement clause introduced by *mha'*. In (42b), *nanuan* is extracted from the complement clause introduced by *i*. These examples show that both complementation types allow *wh*-extraction from their complement clause. Thus, they do not differ in this respect.

3.3.1.5 An interim summary

Table 3.1 summarizes the discussion on complementation phenomena of the two constructions that encode causation and manipulation in Mayrinax Atayal presented in previous sections.

Table 3.1 Complementation of analytic causation-encoding constructions in Mayrinax Atayal

Construction	Quotative construction	Switch-subject construction
Verbs	*kal-un* 'tell (PV)', *sal-un* 'say (PV)', *tu'-un* 'order (PV)', *qihl-un* 'force (PV)'	*tu'-un* 'order (PV)', *qihl-un* 'force (PV)', *siwal-an* 'allow (LV)'
Verb type in main clause	utterance/manipulation	manipulation
Comp. clause marker	*mha'*	*i*
Obligatory presence of Comp. clause marker	no	no
Finiteness and voice of Comp. verb	atemporal form, usually STEM, in AV/NAV	AV, without TA marker
Case of argument in Comp.	NOM/ACC	ACC
Participant realization in Comp.	absent CAUSEE	absent CAUSEE
Negation	main/complement clause	main clause
Constituent order	less flexible	more flexible
Temporal dependency	yes	yes
Shared personal deixis	no	yes
***Wh*-extraction**	possible	possible

The clausal complement in the causation/manipulation-encoding quotative construction is introduced by an optional *mha'*, while that in switch-subject construction is introduced by an optional *i*. Both utterance verbs and manipulation verbs participate in quotative construction, while switch-subject construction allows only manipulation verbs.

The complement verb in both constructions is to a degree non-finite, but in terms of voice and negation, it has been shown that, the complement in switch-subject construction is subject to more constraints: there is an AV-constraint, and negation is not possible. The complement clause in quotative construction, by contrast, occurs in both AV and NAV, and negation is possible. The CAUSEE, absent from the complement clause of both constructions, must be referred from the main clause. As for the

AFFECTEE, depending on the voice of the complement clause, it is accusative-marked in the complement clause of switch-subject construction, but accusative- or nominative-marked in quotative construction.

Regarding the constituent order, switch-subject construction is more flexible, since the complement verb can be raised to follow the main verb directly. By contrast, in quotative construction, the complement verb cannot be contiguous with the main verb.

In terms of argument movement, the argument in the complement clause can equally undergo *wh*-extraction.

In sum, among the structural measures listed above, voice, negation, and constituent order phenomena suggest that switch-subject construction exhibits stronger clause union that quotative construction. This result is corroborated by referential phenomena, which show that the complement clause is temporally dependent on the main clause in both constructions, but personally, in quotative construction, the main clause and the complement clause do not share personal deixis. The conceptual correspondences of contrasts in clause-union will be explicated more in section 3.3.2.

3.3.2 The complementation scale

3.3.2.1 Relating event-integration and clause union from utterance to manipulation and causation

In Section 3.0, the correspondence between clause union and event integration has been stated in an iconicity principle: "The stronger is the semantic bond between the two events, the more extensive will be the syntactic integration of the two clauses into a single though complex clause." (Givón 2001:40) This principle is best reflected in the complementation patterns of three verb classes—modality verbs (e.g. *want*),

manipulation verbs (e.g. *make* and *tell*)[34], and perception-cognition-utterance verbs (e.g. *see*, *think*, and *say*). The reason is clear: the syntactic structure of clauses is to a great extent dictated by the argument structure of the main verb. Among these three verb classes, utterance verbs, which relate two events that are semantically loosely bound, cross-linguistically occur in complex structures of weak clause union. By contrast, modality verbs and manipulation verbs, which relate two events that are semantically tightly bound, occur in complex structures of strong clause union. The contrast in clause union and the scalar nature of the semantic dimension of event-integration of the three complement-taking verb classes can be clearly visualized by the following figure:

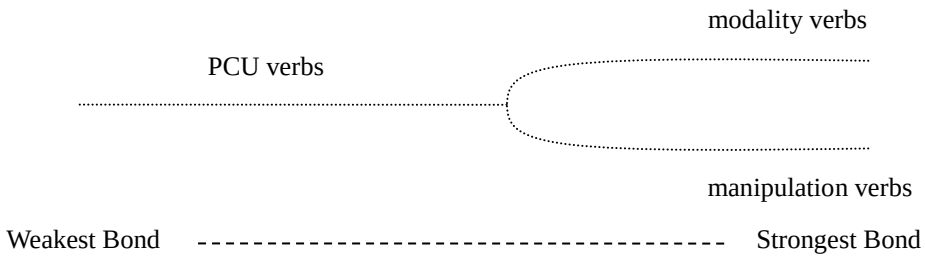


Figure 3.1 A tuning-fork complementation scale (Givón 2001:41)

Figure 3.1 shows that at the left end of the scale, perception/cognition/utterance verbs generally exhibit weakest clause union and weakest semantic bond with their complement clauses. At the right end of the scale, modality verbs and manipulation verbs, in parallel, exhibit strongest clause union and strongest semantic bond with their complement clauses.

In Chapter 1, the complementation scale along the manipulation-utterance cline in English has been presented in Table 1.2 to illustrate how clause union is coded by syntactic devices. Table 1.2 has shown that English exhibits at least seven

[34] Causative verbs such as *make*, *let*, and *have* are conflated in the verb class of manipulation verbs in Givón's (2001) discussion on verbal complementation.

complementation patterns associated with utterance/manipulation/causative verbs: (i) co-lexicalized complement (*She let go of the knife*), (ii) bare-stem complement (*She made him shave*), (iii) infinitive complement (*She caused him to switch jobs*), (iv) *for-to* complement (*She'd like for him to leave*), (v) subjunctive complement (*She suggested that he leave*), (vi) indirect quote complement (*She said that he might leave later*), and (vii) direct quote complement (*She said: "He might leave later"*). These complementation patterns can be mapped onto the tuning-fork scale:

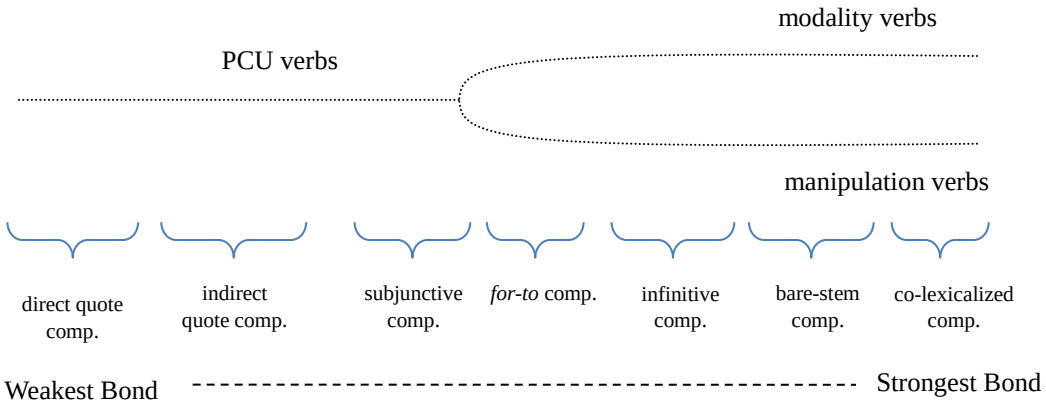


Figure 3.2 Complementation scale in English: from utterance to causation

On this tuning-fork scale, the correspondence between clause union and event-integration is clear. At the rightmost end of the manipulation-utterance cline, causative verbs (e.g. *let* and *make*) express events that are semantically strongly integrated. Formally, these causative verbs indeed participate in constructions showing strong clause union, taking co-lexicalized complements or bare-stem complements. At the leftmost end of the tuning-fork scale lie utterance verbs (e.g. *say*), which express events that are loosely integrated. In form, utterance verbs participate in constructions of weak clause union, taking direct or indirect quote complements.

In addition, Figure 3.2 shows that the complementation patterns in English are quite densely distributed on the scale. This means that more coding devices allow for

finer-grained semantic distinctions. The coding density on the complementation scale can be compared cross-linguistically, as will be done in the following sections. Section 3.3.2.2 maps utterance/causation-encoding constructions in Mayrinax Atayal onto the tuning-fork scale. Section 3.4 further presents the complementation patterns in French and Kavalan for comparison of complementation strategies.

3.3.2.2 Complementation scale in Mayrinax Atayal

The tendencies postulated by the tuning-fork scale presented in Figure 3.1 apply to Mayrinax Atayal once complementation patterns of the utterance-manipulation-causation cline are considered. Figure 3.3 is drawn based on the two causation-encoding constructions presented in Sections 3.1 and 3.2, along with non-causative quotative construction (which functions to report utterances) and the morphological *pa-* causative. Illustrative sentences are repeated here:

(43) a. Quotative construction

kal-un ni hayung i payan mha' t<in>uting=mu
tell-PV GEN PN NOM PN QUO <PV>beat=1.SG.GEN
suhisa ku xuil
yesterday NOM dog
'Hayung told Payan, "I beat the dog yesterday."'

b. Quotative construction: manipulative

kal-un ni yaya' i yumin gawah-i ku valihun
tell-PV GEN mother NOM PN open-LV NOM door
'Mother told Yumin to open the door.'

c. Switch-subject construction

tu'-un i t<um>ahuk su raramat nku sinsi' ku makivaq
order-PV LNK <AV>cook ACC meal GEN teacher NOM learner
'The teacher ordered the learner to cook meals.'

d. *Pa-* causative

pa-quax-an=mu ku ’ulaqi’ su payatu’

CAU-wash-LV=1.SG.GEN NOM child ACC bowl

‘I made the child wash dishes.’

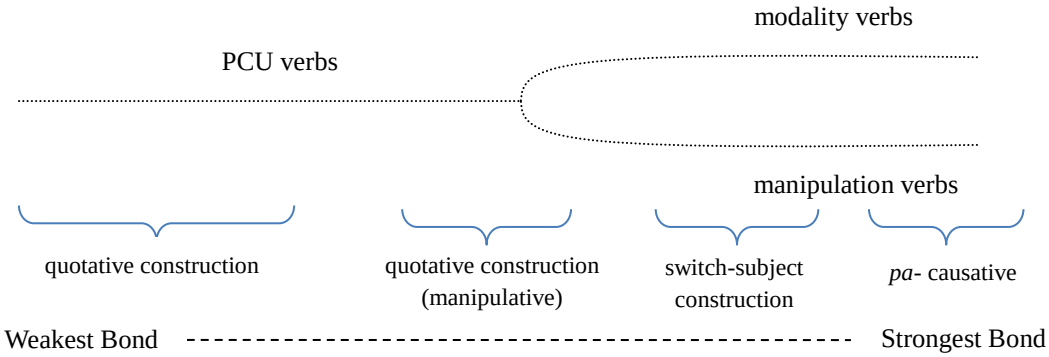


Figure 3.3 Complementation scale in Mayrinax Atayal: from utterance to causation

Figure 3.3 presents the positions of four constructions on the complementation scale. At the leftmost end lies the utterance-reporting non-causative quotative construction, which consists of two clauses that are fairly independent of each other (exemplified by (43a)). Formally, the complement verb exhibits a full range of finite markings. Referentially, the matrix and complement clauses may not show any temporal and referential co-reference. Moving rightward, at the transition from the domain of quotation into manipulation is the causation/manipulation-denoting quotative construction (exemplified by (43b)). The complement verb of this construction is marked as non-finite; the two clauses share the CAUSEE participant and thus personally co-referential. Moving further rightward, switch-subject construction exhibits even stronger clause union since there are minimal inter-clausal gap (the main verb and complement verb may be contiguous) and voice/negation constraints on the complement clause (exemplified by (43c)). Regarding reference, although both causation-encoding quotative construction and switch-subject construction are non-implicative and show temporal dependency between the main clause and the

complement clause, the latter is associated with higher probability of success, which may be facilitated by physical contact in manipulation. By contrast, the causation-encoding quotative construction involves only direct verbal communication. At the rightmost end of the scale, the *pa-* causative, as discussed in Chapter 2, is adjoined onto the scale (exemplified by (43d)). It exhibits strongest clause union and event-integration: it is mapped onto mono-clausal structures, and it is implicative.[35]

Compared with Figure 3.2 in English, the complementation patterns in Mayrinax Atayal is sparsely distributed on the scale, which means that less coding devices have been found to formally reflect semantic distinctions in English.

3.4 Cross-linguistic comparison

The previous section has presented the complementation scale of the utterance-manipulation cline in Mayrinax Atayal, which can be mapped onto the tuning-fork scale according to the correspondences between clause union and event-integration. This section includes previously studied complementation patterns of utterance and manipulation verbs in French and Kavalan for further comparison of complementation strategies as well as their distributions on the scale.

[35] Note that similar form-meaning correlations manifest in complementation patterns of the *cognition-modality* cline in Mayrinax as well, exemplified by the cognition verb *vaq* 'know':

(i) vaq-un ni hayung su kia' i payan la
know-PV GEN PN LNK EXT NOM PN PART
'Hayung knows that Payan is here.'

(ii) vaq i k<um>al su kai'=ta' ka matu'uwal i hayung
know LNK <AV>tell ACC word=1.PL.GEN LNK PN NOM PN
'Hayung can speak our Matu'uwal language.'

In (i), *vaq* functions as a cognition verb, meaning 'know'. Referentially, the matrix and complement clauses do not necessarily share referents, and co-temporality is not observed. Formally, the linker *su* introduces a finite complement clause. In (ii), *vaq* functions as a modality verb, meaning 'can'. Referentially, the main clause and the complement clause obligatorily share referents, personal deixis and temporal deixis. Formally, the defective clause introduced by *i* is AV-constrained and non-finite.

3.4.1 French

The French data in this section are drawn from four previous studies: Kayne (1981), Bonami and Godard (2008), Achard (2011), and Godard (2012). French possesses at least six complementation strategies for the coding of utterance, manipulation, and causation. As the following data show, the complementation patterns in French resemble those in English, with all the complementation strategies presented in section 3.3.2.1 except the *for-to* complementation type:

(44) Co-lexicalized complement (Achard 2011:73)
Marie fait pleurer Jean.
'Mary makes John cry.'
(45) Bare-stem complement (Achard 2011:74)
Marie laisse Jean pleurer.
'Mary lets John cry.'
(46) Infinitive complement (Achard 2011:74; Kayne 1981:351)
a. Marie force Jean à partir.
'Mary forces John to leave'
b. Je lui ai demandé de partir.
'I asked him to leave.'
(47) Subjunctive complement (Godard 2012:130)
a. Paul veut que nous soyons là.
'Paul wants that we be there.'
b. On demande que le rapport soit terminé mardi.
'We require that the report be finished by Tuesday.'
(48) Indirect quote (Bonami and Godard 2008:360)
Marie a dit que son frère était arrivé.
'Marie said that her brother had arrived.'
(49) Direct quote (Bonami and Godard 2008:360)
Marie a dit, "Mon frère est arrivé."
'Marie said, "My brother has arrived."'

(44) is an instance of the causative verb *fait* 'makes'. The complement verb must be contiguous with *faire*, forming minimal inter-clausal gap and thus strongest clause

union. In (45), the permissive causative verb *laisse* 'lets' takes a bare-stem complement verb *pleurer* 'cry', but the matrix verb and the complement verb is intervened by a direct object *Jean*. In (46), the matrix verb (manipulation verbs *forcer* 'force' and *demander* 'ask/require') and the infinitive complement verb are further separated by the infinitive markers *à* and *de* (counterpart of the English infinitive marker *to*).

In the middle of the complementation scale, in (47) lie the subjunctive complements, which are extensively used in French to encode low degree of manipulation. This low degree of manipulation is reflected by the restricted finite marking on the subjunctive verb, and the semantics of the matrix verb (e.g. *veut* 'wants' in (47a) and *demande* 'asks' in (47b)). Indirect and direct quote complements in (48) and (49) further represent the weakest clause union and event-integration between the main clause and the complement clause.

The complementation patterns in French listed above are mapped onto the tuning-fork scale below in Figure 3.4. There is indeed a correlation between the complementation strategy and the verb type. At the leftmost end of the scale, utterance verbs such as *dire* 'say' participate in complementation patterns that exhibit weakest clause union, including direct and indirect quotation. By contrast, at the rightmost end lie causative verbs such as *faire* 'make' and *laisser* 'let', which participate in complementation patterns that exhibit strongest clause union.

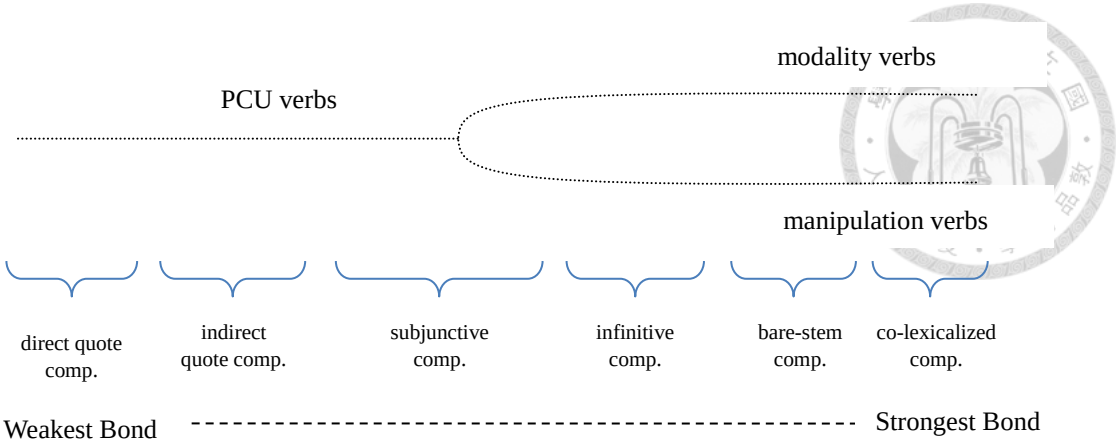


Figure 3.4 Complementation scale in French: from utterance to causation

3.4.2 Kavalan

Kavalan exhibits similar complementation patterns as Mayrinax Atayal along the utterance-manipulation cline on the scale. There are at least four complementation types that are associated with manipulation and causation (Huang *et al.* 2007; Lin and Wu 2008):

(50) *Pa-* causative (Lin and Wu 2008:3)
pa-qapaR-an=na=iku ni abas tu mutun
CAU-catch-LV=3.SG.GEN=1.SG.NOM GEN PN OBL mouse
'Abas made me catch the mouse'

(51) Verb juxtaposition (Lin and Wu 2008:3)
a. tezung-an ni utai ci-abas s<m>inap
instruct-LV GEN PN NCM-PN <AV>sweep
'Utai instructed Abas to sweep (the floor).'
b. sanu-an=na=iku ni buya qapaR tu mutun
tell-LV=3.SG.GEN=1.SG.NOM GEN PN catch OBL mouse
'Buya told me to catch the mouse.'

(52) Nominalization (Lin and Wu 2008:4)
a. sanu-an ni buya tu qan-an tu Raq ti-imuy
tell-LV GEN PN OBL eat-NMZ OBL wine NCM-PN
'Buya told Imuy to drink wine.'

b. pawRat-an=ku ti-abas tu qibasi-an tu qudus=ku
force-LV=1.SG.GEN NCM-PN OBL wash-NMZ OBL clothes=1.SG.GEN
'I forced Abas to wash my clothes.'

(53) Direct quote (Lin and Wu 2008:3)
qan-ka tu baut zin=na tina=ku timaizipana
eat-AV OBL fish say=3.SG.GEN mother=1.SG.GEN 3.SG.OBL
'My mother told him to eat fish.'
lit. '"Eat fish!" my mother said to him.'

As in Mayrinax, the *pa-* causative illustrated by (50) represents the strongest syntactic and semantic bond. Verb juxtaposition construction in (51) resembles switch-subject construction in Mayrinax in that manipulation verbs (*tezung-an* 'instruct (LV)' in (51a)) participate in this construction, and the complement verb may appear in AV (*s<m>inap* 'sweep (AV)'in (51a)). What differs between the two languages is that in Kavalan, the matrix verb can be an utterance verb (*sanu-an* 'tell (LV)' in (51b)), and the complement verb may appear in its stem form (*qapaR* 'catch' in (51b)).

Nominalization is a complementation strategy that is not found in Mayrinax Atayal. As (52) shows, the main verb comes in both utterance verbs (*sanu-an* 'tell (LV)' in (52a)) and manipulation verbs (*pawRat-an* 'force (LV)' in (52b)). The oblique marker *tu* introduces the nominalized clause, where a nominalization suffix *-an* marks the complement verb. The AFFECTEE, if any, is marked in oblique case. The manipulation/causation encoded by means of verb juxtaposition and that by *tu*-nominalization are not distinguished semantically in Huang *et al.* (2007) and thus await further study.

The quotative construction in Kavalan, again, has been functionally extended from the domain of quotation to that of manipulation, as in (53), where the unedited utterance precedes the utterance verb *zin=na* 'she said', the addresser *tina=ku* 'my mother' and the addressee *timaizipana* 'he'. This same utterance verb functions as a complementizer that introduces a direct quote in simple quotative constructions, as in

(54a), where the utterance verb is *semanu* 'tell (AV)'. In addition, utterance verbs may take a *tu*-marked full complement, as in (54b), which is an indirect quote that shares personal deixis with the main clause.

(54) Quotative constructions (Hsieh 2012:475-77)

a. sessen=ti=iku t<m>anan=pa=iku zin=na
cold=PFV=1.SG.NOM <AV>go.home=FUT=1.SG.NOM say=3.SG.GEN
timaiku sanu
1.SG.OBL <AV>tell
'"I am getting cold; (so) I am going home," he said to me.'

b. sanu-an=na=iku tu qatiq sa leppawan=ta ti-buya
tell-LV=3.SG.GEN=1.SG.NOM COMP go to home=1.PL.GEN NCM-PN
'(He) told me that Buya was going to come to our home.'

The complementation types discussed above are mapped onto the following figure. Compared with Figure 3.3 in Mayrinax Atayal, the two complementation types involving the marker *tu* are specific to Kavalan: it introduces indirect quotes and nominalized caused events.

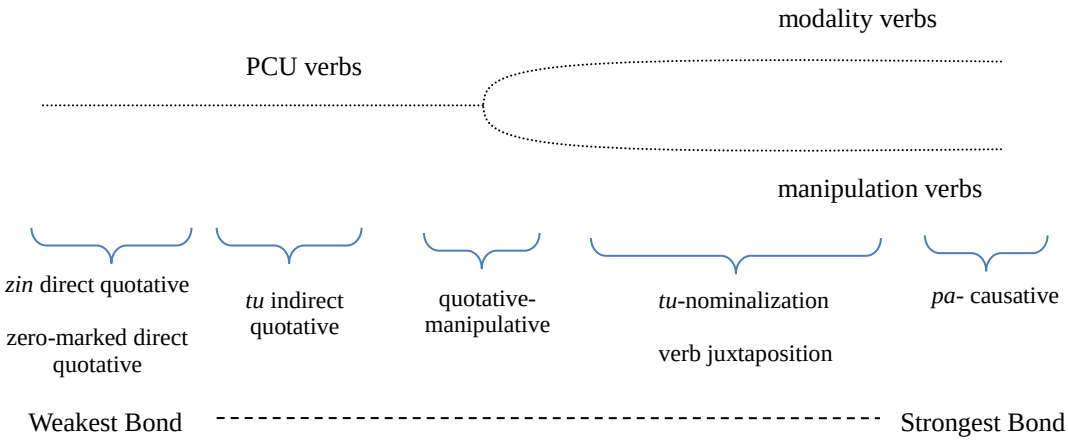


Figure 3.5 Complementation scale in Kavalan: from utterance to causation[36]

[36] The complementation patterns along the utterance-manipulation cline in Amis much resemble those in Kavalan with several differences. According to Lin and Wu (2008), direct quotes and indirect quotes in Amis are zero-marked. In Kavalan, by contrast, direct quotes can be marked by *zin* or zero-marked, and indirect quotes are marked by *tu*. Both Amis and Kavalan extensively use *tu*-nominalization as a complementation strategy, but in Kavalan, the complement verb is suffixed with the nominalizer *-an*, while in Amis, the complement verb is marked by *ka-* or *pi-*.

3.5 Summary

This chapter has examined the syntax of two analytic causation-encoding constructions (namely, quotative and switch-subject constructions) that are predominantly exploited to express more indirect causation in Mayrinax Atayal. Utterance verbs including *kal-un* 'tell (PV)' and *sal-un* 'say (PV)' participate in the causation-encoding quotative construction, where an imperative clause denoting the caused event is introduced by the quotative complementizer *mha'*. On the other hand, manipulation verbs including *tu'-un* 'order (PV)' and *siwal-an* 'allow (LV)' participate in switch-subject construction, where the complement clause in AV is introduced by *i*.

Comparison of these two constructions shows that switch-subject construction exhibits stronger clause union. These two constructions together with *pa-* morphological causatives and simple quotative construction constitute a tuning-fork scale that demonstrates the correlation between clause union and event-integration.

A cross-linguistic comparison of complementation strategies along the utterance-manipulation-causation cline in English, French, and Kavalan is further made. It has been found that English and French similarly possess a wide range of morpho-syntactic devices to mark finer semantic distinctions in the domain from utterance to manipulation and causation, while the complementation scales of Mayrinax Atayal and Kavalan are relatively sparsely distributed.

Chapter 4

Semantics and form-function correlations

4.0 Introduction

In Chapter 2 and Chapter 3, the morpho-syntactic aspects of causation-encoding constructions in Mayrinax Atayal have been discussed. This chapter takes the next step and seeks to deal with the semantic aspects in a unifying way. As the discussion unfolds, it will be shown that the event-structure-based semantics, postulated by Shibatani (2002) and Shibatani and Pardeshi (2002), makes it possible to align and compare causative forms within a single language as well as across languages. Causatives can be mapped onto the causative continuum and further be contrasted by their degree of directness. From the distributional patterns of causatives on the continuum, formal correlations (manifested by causativization mechanisms and productivity) and functional correlations (manifested by semantics of voice constructions) can be drawn.

This chapter is organized as follows: In Section 4.1, three approaches to semantics of causatives will be presented. Next in Section 4.2, a causative continuum in Mayrinax Atayal based on directness semantics is formed and its formal correlations are made. Section 4.3 relates the semantic contrasts among causatives to the semantics and functions of voice constructions. Section 4.4 summarizes the chapter.

4.1 Three approaches to semantics of causatives

In this section, three approaches to semantics of causative constructions will be

reviewed and compared, in the order of the semantic-composite approach (Saksena 1982) in section 4.1.1, the parameter approach (Dixon 2000) in section 4.1.2, and the event-structure approach (Shibatani and Pardeshi 2002) in section 4.1.3, this last one being the one adopted for the present study.

4.1.1 Saksena (1982): Semantic-composite approach

Saksena (1982) takes Hindi as an example to illustrate the semantic distinction between contactive and non-contactive causation. She argues that the notion "contact" in the grammar of causation is not a unitary notion, but should be regarded as a semantic composite that involves conditions on both the CAUSER and the CAUSEE. For a causative to qualify as contactive, the CAUSER must be personally involved in the initiation of the contact, and the CAUSEE must be affected as a result of this contact. In Hindi, these two conditions—CAUSER involvement and CAUSEE affectedness—are marked overtly by verbal suffixes and case-markings respectively, as the following table shows:

Table 4.1 Two-way contrasts on the CAUSER and the CAUSEE in Hindi (Saksena 1982:825)

	[+ involved CAUSER] *-aa*	[- involved CAUSER] *-vaa*
[+ affected CAUSEE] *-koo*	*-aa* + *-koo*	*-vaa* + *-koo*
[- affected CAUSEE] *-see*	*-aa* + *-see*	*-vaa* + *-see*

In Hindi, *-aa* and *-vaa* are causative markers attached to the verb. Saksena (1982) does not distinguish between contactive and non-contactive causatives exclusively based on these causative markers. Rather, the contrast in contact is realized in the

combination of the causative markers and the case-markings (instrumental *-see* or dative/accusative *-koo*) on the CAUSEE. Thus, contactive causation is conveyed by the combination of the *-aa* suffix on the verb and the *-koo* case-marking on the CAUSEE (marked by the dotted box in Table 4.1); the other three combinations convey non-contactive causation. The notion of affectedness is further elaborated to correspond to the subjects of all intransitives and a special class of transitives, including 'eat', 'drink', 'study' etc. (labeled "ingestives" by Masica (1976), cited from Saksena (1982)). The following are two pairs of contrastive instances:

(1) Hindi (Saksena 1982:826-27)[37]

a. mãĩ-nee makaan-koo ban-aa-yaa
   1.SG-AGT house-ACC build-CAU-PAST
   'I built the house.'

b. mãĩ-nee makaan-koo ban-vaa-yaa
   1.SG-AGT house-ACC build-CAU-PAST
   'I had a house built.'

c. mãĩ-nee raam-see kitaab paṛh-vaa-ii
   1.SG-AGT PN-INST book read-CAU-PAST
   'I had Ram read the book.'

d. mãĩ-nee raam-koo kitaab paṛh-vaa-ii
   1.SG-AGT PN-ACC book read-CAU-PAST
   'I had Ram read the book.'

With the CAUSEE marked by *-koo* (accusative), (1a) and (1b) contrast in the causative marker, and, according to Table 4.1, in CAUSER involvement as well as in contactive/non-contactive causation. (1c) and (1d), on the other hand, contrast in the case-markings on the CAUSEE and thus in its affectedness. The explanation given is that when the CAUSEE is marked by *-see* (dative), it serves as a "means toward the end" (in this case, to get the book read). When the CAUSEE is marked by *-koo* (accusative), it is the "recipient of the verb activity". In other words, the goal is to get the CAUSEE

[37] Codings are modified to be consistent with mine.

to read the book.

The composite approach posits the necessary conditions on the CAUSER and the CAUSEE for contactive causatives. These conditions are further extended to the semantics of the base verb. Although all the elements in a causative situation seem to be considered and connected under this approach, the meanings of the terms "contactive" and "non-contactive", however, are obscure in the first place. Saksena mentions two properties of non-contactive causatives at the beginning of her article: firstly, an intermediary AGENT may occur more than once in non-contactive *-vaa* causatives; secondly, the CAUSER of non-contactive causatives may be physically absent from the causing activity. Both of these two properties point to the second ingredient "CAUSER involvement" in the semantic composite and do not concern the first ingredient "CAUSEE affectedness". The motivation for positing the semantic composite of contactive causation then is questionable. The two ingredients "CAUSER involvement" and "CAUSEE affectedness" seem to be arbitrarily combined simply because, in Hindi, there exist contrastive causative suffixes and case markers. Furthermore, examples such as those in (1) given in Saksena (1982) all contrast in one of the two semantic ingredients; it is nowhere to know how contactive causation differs fundamentally from non-contactive causation.

From the cross-linguistic perspective, Saksena herself attempts to provide evidence for these two semantic ingredients rather than for the semantic composite as a whole. She equates the affected CAUSEE with the subject of a subset of verbs. The causativization constraints on verbal semantics observed cross-linguistically are ascribed by her to the condition of CAUSEE affectedness in the semantic composite of contactive causation. As for the semantic ingredient "CAUSER involvement," the author claims that in many languages there are contrastive causative suffixes that mark the contrast in contactive and non-contactive causation. Existing grammars, like

those for Hindi, describe these suffixes as marking first and second causation.[38] Therefore, she infers, as in Hindi, these suffixes are likely to be related to CAUSER involvement.

The simple equation between the affected CAUSEE and the subject of certain base verbs is obviously problematic, considering that with the same verb, say *paṛh* 'read' in (1c) and (1d), the CAUSEE may be either non-affected, as in (1c) or affected, as in (1d). The analogical inference on the condition of CAUSER involvement from Hindi to other languages does not sound convincing, either. No instance is provided by her to show that the contrastive causative markers in other languages signal a difference in this second semantic ingredient. Thus the status of these two semantic conditions in linguistic typology is not clearly delineated in this work, let alone that of the semantic composite of contactive causation.

Because of its unclear theoretical implication and definition, the semantic composite approach is not taken in the present study.

4.1.2 Dixon (2000): Parameter approach

Dixon (2000) lists nine parameters that operate in the semantics of causation. According to the author, these parameters are used to specify and contrast the semantics of causative mechanisms, or to characterize causative situations if they do not contrast formally. These semantic parameters relate to the base verb, the CAUSER, or the CAUSEE:

[38] The subject of the first causative (e.g. *mãĩ* 'I' in (1a)) is realized as an intermediary in the second causative (e.g. *mãĩ* 'I' in (1b)).

Table 4.2 Semantic parameters in causatives (Dixon 2000:61-74)

Relating to the verb		
1.	State/action	Does a causative mechanism apply only to a verb describing a state, or also to a verb describing an action?
2.	Transitivity	Does it apply only to intransitive verbs, or to both intransitive and simple transitive verbs, or to all types of verbs—intransitives, simple transitives and also ditransitives?
Relating to the CAUSEE		
3.	Control	Is the CAUSEE lacking control of the activity or normally having control?
4.	Volition	Does the CAUSEE do it willingly or unwillingly?
5.	Affectedness	Is the CAUSEE only partially affected by the activity, or completely affected?
Relating to the CAUSER		
6.	Directness	Does the CAUSER act directly or indirectly?
7.	Intention	Does the CAUSER achieve the result accidentally or intentionally?
8.	Naturalness	Does it happen fairly naturally or is the result achieved only with effort?
9.	Involvement	Is the CAUSER also involved in the activity or not involved?

These nine parameters are useful in specifying semantic differences that exist among alternative causatives in a language or across languages. To illustrate:

(2) Japanese (Dixon 2000:65)

a. ryooshin ga taroo o konsaato e ik-ase-ta
parents NOM PN ACC concert to go-CAU-PAST
'(His) parents made Taroo go to the concert.'

b. ryooshin ga taro ni konsaato e ik-ase-ta
parents NOM PN DAT concert to go-CAU-PAST
'(His) parents let Taroo go to the concert.'

(3) English (Dixon 2000:72)

a. He walked the dog in the park (it wanted to walk)

b. He made the dog walk in the park (although it did not want to)

The contrast between (2a) and (2b) reflects the parameter "CAUSEE volition." The CAUSEE *taroo* marked by the accusative marker *o* acts unwillingly in (2a), while that marked by the dative marker *ni* shows volition in (2b). (3a) and (3b), on the other hand, contrast in naturalness: the CAUSER in (3b) performs the causing act with effort,

while that in (3a) does not.

Despite its usefulness in specifying the typological diversity in the semantics of causation, the parameter approach is not satisfying in two related respects. First, as suggested by Dixon, these parameters are not independent from each other. For example, if intransitive verbs (Parameter 2) participate in a causative construction in one language, it means this causative construction applies to stative verbs (Parameter 1). Parameters 3 (control) and 4 (volition) usually imply each other. Parameter 4 (volition) determines (at least partially) Parameter 8 (naturalness), as illustrated by data (3). How these parameters are related then becomes the first question.

Secondly, the nine parameters taken together do not provide a unified account for different types of causative mechanisms as well as causative situations. In other words, causatives within a language and across languages cannot be compared against one single semantic yardstick. Dixon does relate these semantic parameters to a scale of formal compactness. According to him, the setting of the parameter always corresponds to either more or less compact causativization mechanisms. For instance, Dixon identifies that the contrast between the two causative suffixes in Hindi (as discussed in (1)) lies in the directness parameter. The shorter (and more compact) suffix *-a* (*-aa* in Saksena (1982)) corresponds to the direct value of the parameter; while the longer suffix *-va* (*-vaa* in Saksena) corresponds to the indirect value. As shown by instances of meaning-mechanism correlations presented in Dixon (2000), this scale of compactness is only applicable parameter by parameter, instead of to nine parameters taken together.

If the parameter values corresponding to more compact forms and those corresponding to less compact forms are taken together respectively, they constitute two artificial composite prototypes:

(4) Composite prototypes (Dixon 2000:77)

Prototype 1: CAUSER achieves a result naturally, intentionally, and directly, the CAUSEE either lacking control or having control and being willing, and being only partially affected. May only apply to intransitive verbs (or just to intransitive and simple transitive), or be more restricted and apply just to state verbs.

Prototype 2: CAUSER achieves the result accidentally, or uses effort, or acts indirectly, the CAUSEE being in control but acting unwillingly, and being completely affected. It is likely to be used with all types of verbs.

These two prototypes are not much elaborated in Dixon (2000), though they seem to point to some tendencies of two extreme causative situations. A closer look at the parameter values in these prototypes shows that the parameter values concerning the verb and CAUSER are congruent: in a situation denoted by a causativized stative verb (Prototype 1), it is easy for an intentional CAUSER to perform the action directly on the CAUSEE, which is usually non-animate, without special resistance on the part of the CAUSEE. In this situation, however, it is unlikely to have a "willing" CAUSEE (since it is usually non-animate) that is only "partially" affected. To illustrate this incongruity, consider a Mayrinax example with a causativized stative verb:

(5) pa-ka-lihka'-un ni papiray ku kulu' la
CAU-STAT-fast-PV GEN driver NOM car PART
'The driver sped up the car.'

In (5), the stative verb *ka-lihka'* 'fast' is affixed with the *pa-* causative marker. The CAUSER *papiray* 'driver' is intentional, acting directly and naturally on the CAUSEE. The CAUSEE *kulu'* 'car' should not possess any volition, and it cannot be said to be partially affected (that is, only part of it is sped up). It seems that these parameter values for the CAUSEE are aligned with those for the verb and for the CAUSER in Prototype 1 in (4) simply because they are more compact or shorter in form in certain languages, not being motivated by other mechanisms.

Since neither the semantic parameters in Table 4.2 taken together nor the two prototypes in (4) serve as a gauge that can compare causatives systematically, the semantic parameter approach is not taken in this chapter.

4.1.3 Shibatani and Pardeshi (2002): Event-structure approach

The approach adopted in the present study to account for the semantics of causative constructions in Mayrinax Atayal is the event-structure approach, proposed by Shibatani and Pardeshi (2002). In this framework, as explicated in Chapter 1, causative constructions are distinguished semantically by their directness, which is in the first place determined by the spatiotemporal features of the causing and the caused sub-events in the causative event structure.

At the two ends of the causative continuum lie prototypical direct causation and prototypical indirect causation. Direct causation, involving physical manipulation, exhibits one single spatiotemporal configuration for the whole causative event. In other words, the causing event and the caused event occur at the same time and location. Contrastively, indirect causation, usually involving verbal directives, exhibits two discrete spatiotemporal configurations, one for the causing event, the other for the caused event. This means that the two sub-events take place at different times and possibly different locations. Sociative causation, which exhibits partial overlap between the spatiotemporal configurations of the causing event and the caused event, fills up the gap between prototypical direct and indirect causation. This intermediary category, which is further divided into joint-action, assistive, and supervision subtypes, adds more explanatory power to the causative continuum by further refining the categories on the continuum.

The event-structure approach has three direct advantages over the semantic-composite approach and the parameter approach reviewed in previous

sections. Firstly, directness semantics makes comparison of any types of causatives possible, since every causative situation must possess its own event-structure. The directness dimension forms a continuum where any given causative can be situated at some point. Once mapped onto this continuum, causatives within a language as well as across languages can be compared directly against this semantic yardstick.

Secondly, other semantic parameters that are used for description of causatives, such as those listed in Dixon (2000), are readily conflated into the notion of directness as defined by the event-structure. First of all, spatiotemporal features interact with the agentivity of the CAUSEE. It is reflected in perceived world events that direct causation is prototypically associated with a patientive CAUSEE, who, typically an inanimate entity, does not possess volition and thus cannot execute a caused event spatiotemporally separate from the causing event. By contrast, indirect causation is associated with an agentive CAUSEE who is capable of executing an action involving lapse of time and spatial displacement.

This agentivity of the CAUSEE is further correlated with the semantics of the base verb. The CAUSEE is perceived as agentive if it performs a transitive action, but as patientive if it performs an intransitive action or undergoes a change of state designated by stative verbs. In addition, the continuum is directly correlated with the control of the CAUSER. Greater spatiotemporal overlap of the causing event and the caused event means greater control on the part of the CAUSER over the caused event (or lower degree of autonomy on the part of the CAUSEE). Less spatiotemporal overlap, conversely, reflects less control of the CAUSER and greater autonomy of the CAUSEE. In this vein of theory, then, the continuum represents "a hierarchy of this dominance relation of the CAUSER with regard to the caused event" (Shibatani 2002:16).

The third advantage of the event-structure approach is that the semantic continuum, composed of direct, sociative, and indirect causation, has its formal

significance. The continuum reflects formal dimensions: degree of synthesis and productivity. Causatives that encode direct causative situations exhibit low degree of productivity and stronger formal synthesis. They usually belong to the pure lexical or non-productive morphological causatives. By contrast, causatives that encode indirect causative situations exhibit high degree of productivity and weak formal synthesis. These are usually analytic causatives.

In line with Shibatani and Pardeshi (2002), Givón (2001) adopts a similar event-structure approach to verbal complementation. The semantic dimensions of event-integration include:

(6) Semantic dimension of event-integration (Givón 2001:44)
   a. implicativity
   b. co-temporality (temporal integration)
   c. direct contact (spatial integration)
   d. co-reference (referential integration)
   e. intentionality
   f. control
   g. coercive power

(6a) pertains to the logic; (6b) to (6d) pertain to eventhood; (6e) to (6g) pertain to the notion of agentivity. These dimensions are useful if the sub-events are realized as clauses, since co-reference is an inter-clausal phenomenon, and in addition, the dimensions regarding agentivity are observed in interpersonal manipulation, which is usually realized analytically.

Of the seven dimensions, (6b) and (6c) are exactly the core values in the directness semantics in Shibatani and Pardeshi (2002) (in their term "spatiotemporal configurations"). These are dimensions that apply universally to any causative situations. As for the other dimensions in (6), they interact with temporal and spatial integration through "pragmatic inference" (Givón 2001:44). Thus for wider

application (to all types of causatives, including lexical, morphological, and analytic ones) and for theoretical economicality, Shibatani and Pardeshi's (2002) approach is preferred over Givón's (2001).

The next section presents the causative continuum in Mayrinax Atayal based on directness semantics.

4.2 Causative continuum

Adopting Shibatani and Pardeshi's (2002) event-structure approach, this section first presents the causative continuum in Mayrinax Atayal. Next, the correlations between form and meaning observed in the continuum will be pointed out.

4.2.1 Mapping Mayrinax causatives onto the continuum

In Chapter 2 and Chapter 3, the structural properties and participant realization of morphological causatives with the *pa-* prefix, and of the two analytic causation-encoding constructions, namely, quotative construction and switch-subject construction, have been presented. These causatives, coupled with lexical causatives (in PV, marked by *-un*)[39], form a causative continuum, with lexical and morphological ones leaning toward direct causation and analytic ones toward indirect causation, as Figure 4.1 shows:

[39] Lexical causatives in Mayrinax Atayal occur in PV, marked by *-un*, with non-causative counterparts in AV. For instance:

(i) ma-vka' ku qahi
AV-break NOM cup
'The cup broke.'

(ii) vaka'-un na 'ulaqi' ku qahi
break-PV GEN child NOM cup
'A child broke the cup.'

As (i) and (ii) show, in lexical causatives, there is no causative marker. The notion of causation is obtained through voice alternation. Another non-causative/causative pair is *m-agiay* 'leave (AV)'/*pagiar-un* 'make someone leave (PV)'.

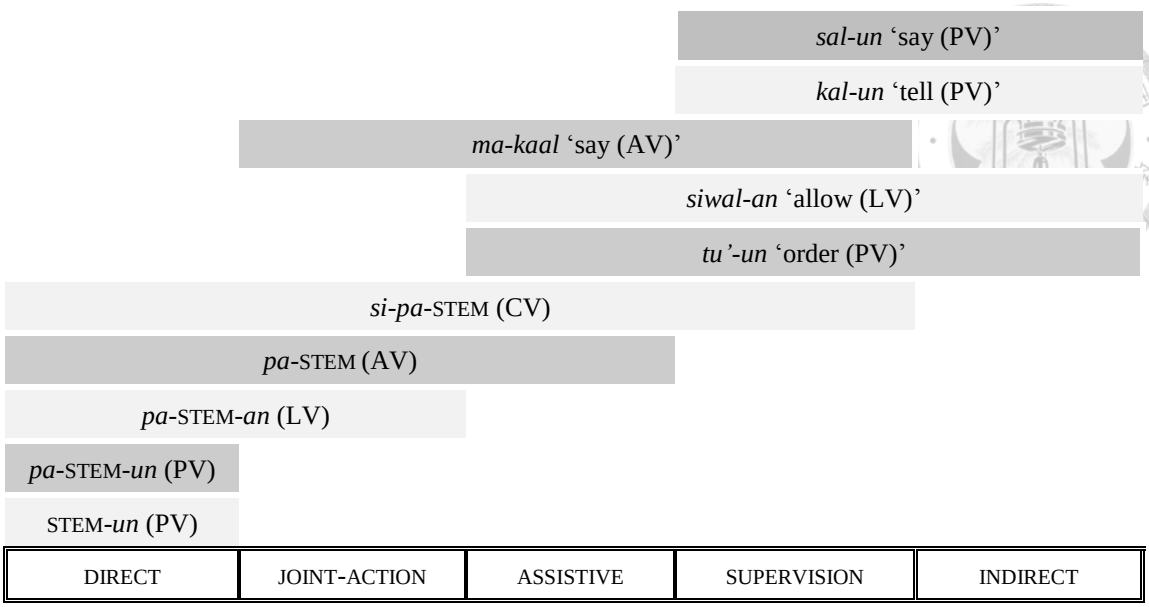


Figure 4.1 Causative continuum in Mayrinax

Figure 4.1 presents a causative continuum stipulated by directness semantics. Restricted to the leftmost end of the causative continuum, lexical causatives such as *vaka'-un* 'break (PV)' encode direct causation, with the causing event (operation of some external force) and the caused event (the breaking of an entity) happening at the same time and location.

Morphological causatives straddle over direct and sociative causation. Within morphological causatives, the four voices and their interaction with *pa-* spread themselves along the continuum according to the directness of causation they encode. It has been shown in Chapter 2 that *pa-* prefixation is possible with stative verbs in all the four voices. These resultant *pa-* causatives actually encode direct causative situations. For instance:

(7) Direct causation

a. pa-ka-qanaruux cku lalavah hani i yata'
CAU-STAT-long ACC cloth this NOM aunt
'Aunt lengthens this cloth.'

b. pa-ka-qanarux-un ni yata' ku lalavah hani
CAU-STAT-long-PV GEN aunt NOM cloth this
'Aunt lengthened this cloth.'

c. p<in>ka-qanarux-an ni yata' ku lalavah hani
CAU<PFV>STAT-long-LV GEN aunt NOM cloth this
'Aunt lengthened this cloth.'

d. si-pa-ka-qanaruux ni yata' ku lalavah hani
CV-CAU-STAT-long GEN aunt NOM cloth this
'Aunt lengthens this cloth.'

(7a) through (7d) are *pa-* causatives based on the same stative verb *ka-qanaruux* 'long'. These causative forms all encode direct causation, where the causing event (that is, the CAUSER *yata'* 'aunt' does something to the CAUSEE *lalavah* 'cloth') and the caused event (that is, the CAUSEE *lalavah* 'cloth' undergoes a change of state) take place at the same time and location. This is a situation where the CAUSEE is most affected and the CAUSER has full control that reaches over the caused event. There is physical contact between the two participants, since physical manipulation is involved.

Among the four *pa-* causatives, only the PV *pa-* causative [*pa*-STEM-*un*] is restricted to direct causation, and it is the voice where causativized stative verbs tend to occur by default. These two facts lead to the hypothesis that [*pa*-STEM-*un*] (PV) encodes prototypical direct causation, where the CAUSER acts directly on the CAUSEE, ensuring full spatiotemporal overlap between the causing event and the caused event.

Pa- causatives in the other three voices, i.e. LV, AV, and CV, on the other hand, are not restricted to the left end of the causative continuum. Direct causation is coerced only with stative verbs. Where the base verb comes from other categories, these *pa-* causatives spread to the sociative domain. It will be shown in the following discussion that from sociative causation on to the rightmost end of the continuum, the causative event involves interpersonal manipulation, where the CAUSEE is volitional,

thus animate (if not human).

To begin with, *pa-* causative in LV is exploited to convey joint-action:

(8) Sociative causation: *pa*-STEM-*an* (LV)
pa-langlung-an=mu cku waw ku ’ulaqi’
CAU-think-LV=1.SG.GEN ACC thing NOM child
‘I made the child think about this thing.’ (joint-action)

With the cognition verb *langlung* ‘think’, the causative [*pa*-STEM-*an*] conveys a causative event where the CAUSER makes the CAUSEE ‘think’ by joining with him. In the case of (8), *mu* ‘I’ made *’ulaqi’* ‘child’ think by discussing with him. Compared with direct causation expressed in (7), the joint-action subtype of sociative causation as exemplified in (8) exhibits a longer lapse of time before the caused event is actualized. The CAUSEE, who possesses agentivity, is not directly acted on, so the execution of the caused event must (at least partially) hinge on his volition.

In AV, *pa-* causatives realize the assistive subtype of sociative causation in addition to the joint-action subtype:

(9) Sociative causation: *pa*-STEM (AV)
a. pa-qaniq su qulih cku xuil i yata’
CAU-eat ACC fish ACC dog NOM aunt
‘Aunt fed the dog with fish.’ (assistive)
b. pa-tayhuk cku ’ulaqi’ i tangtung na ragiyax i yava’
CAU-arrive ACC child LOC top GEN mountain NOM father
‘Father made the child arrive at the mountain top.’ (joint-action)

(9a) encodes an assistive causative situation where the CAUSER *yata’* ‘aunt’ made the CAUSEE *xuil* ‘dog’ eat by offering. The CAUSER does not act with the CAUSEE, thus less physical proximity and less control over the caused event. As (9b) shows, [*pa*-STEM] (AV) encodes joint-action as well. In this instance, the CAUSER *yava’* ‘father’ made the CAUSEE *’ulaqi’* ‘child’ arrive by accompanying him.

Pa- causatives in CV further lean toward indirect causation at the right end of the continuum. It is the construction in which causativized transitive verbs (if possible) occur.[40] As Figure 4.1 shows, [*si-pa-*STEM] (CV) enodes the widest range of causation types among the four *pa-* causatives, including direct causation and the full range of sociative causation. To illustrate:

(10) Sociative causation: *si-pa-*STEM (CV)

a. si-pa-kitaal su viru' ni yaya' ku 'ulaqi'
CV-CAU-see ACC book GEN mother NOM child
'Mother made the child read a book.' (supervision)

b. si-pa-himu kuing ni yava' i yata'
CV-CAU-kiss 1.SG.NEU GEN father NOM aunt
'Father had Aunt kiss me.' (assistive)

c. si-pa-qilaap ni yata' ku 'ulaqi'=nia'
CV-CAU-sleep GEN aunt NOM child=3.SG.GEN
'Aunt made her child sleep.' (joint-action)

Sociative causative situations expressed by [*si-pa-*STEM] (CV) include the supervision subtype, which exhibits a looser spatiotemporal relation between the causing event and the caused event, since the CAUSER does not do anything that facilitates the caused event but is only present at the situation. Unlike joint-action and assistive subtypes, in (10a), there is no physical manipulation involved. The CAUSER's (*yaya'* 'mother') control over the caused event is weakened and narrowed down to her supervising presence.[41] By contrast, in assistive and joint-action causative events, the CAUSER is involved in part of the caused event. In (10b), the CAUSER *yava'* 'father' assisted the CAUSEE *yata'* 'aunt' by offering the AFFECTEE *kuing* 'I' to her. In (10c), the CAUSER *yata'* 'aunt' made the CAUSEE *'ulaqi'=nia'* 'her child' sleep by bringing

[40] Recall that there is a transitivity constraint on the formation of *pa-* causatives: certain transitive verbs do not form *pa-* causatives; *pa-* causativization on ditransitives is even completely impossible.
[41] The supervising presence of the CAUSER is not necessarily proximate in space to the CAUSEE. In the case of (10a), it is possible that the CAUSER *yata'* 'mother' supervised the CAUSEE *'ulaqi'* 'child' in a room next to the one where the child read a book.

him and sleeping with him.

Toward the rightmost end of the causative continuum in Mayrinax lie analytic constructions, namely, quotative constructions involving utterance verbs (such as *ma-kaal* 'tell (AV)', *kal-un* 'tell (PV)' and *sal-un* 'say (PV)') and switch-subject constructions involving manipulation verbs (such as *tu'-un* 'order (PV)' and *siwal-an* 'allow (LV)'). These analytic constructions express both sociative and indirect causation.

It has been shown in Section 3.1 that quotative construction in AV encodes sociative causation, repeated below:

(11) Sociative causation: *ma-kaal* (AV) quotative construction
ma-kaal cku 'ulaqi' ku kanayrin mha' tuting ku xuil=nia'
AV-tell ACC child NOM woman QUO beat NOM dog=3.SG.GEN
'The woman told the child to beat his dog.' (joint-action)

In (11), the CAUSER *kanayrin* 'woman' made the CAUSEE *'ulaqi'* 'child' execute the caused event (beating another person's dog) by joining with him. The caused event takes place at little distance from the causing event (i.e. where the CAUSER's utterance is made).

Switch-subject construction, on the other hand, conveys the assistive and supervision subtypes of sociative causation, illustrated by (12):

(12) Sociative causation: *tu'-un* (PV) and *siwal-an* (LV) switch-subject constructions
a. siwal-an ni yumin i yaya'=nia' i g<um>awah su valihun
allow-LV GEN PN NOM mother=3.SG.GEN LNK <AV>open ACC door
'Yumin allowed his mother to open the door.' (assistive)
b. tu'-un nku sinsi' i t<um>ahuk su raramat ku makivaq
order-PV GEN teacher LNK <AV>cook ACC meal NOM learner
'The teacher ordered the learner to cook.' (supervision)

(12a) and (12b) belong to sociative causation, since there is partial overlap between

the spatiotemporal configurations of the causing event and the caused event. (12a) is a permissive situation (which is also encoded by [*si-pa*-STEM] (CV)) where the door is originally locked. The CAUSER *yumin* assists the CAUSEE *yaya'=nia'* 'his mother' by unlocking the door, thus more temporal overlap than in (12b), where the caused event involves a complex process, but is ensured only by the presence of the CAUSER.

Within the intermediate category on the continuum, quotative construction in PV is further restricted to the rightmost subtype, i.e. supervision, illustrated by (13):

(13) Sociative causation: *kal-un* (PV) quotative construction
kal-un nku sinsi' ku paviru' mha' viru'-i ku inuahan=mamu
tell-PV GEN teacher NOM student QUO write-LV NOM experience=2.PL.GEN
'The teacher told the students to write about their stories.' (supervision)

In (13), again, the CAUSER *sinsi'* 'teacher' supervises the CAUSEE *paviru'* 'student' in the execution of the caused event. The causing event is realized in the form of verbal command by the CAUSER, who does not join nor assist the CAUSEE in the caused event.

At the rightmost end of the causative continuum in Figure 4.1 lies indirect causation, which exhibits discrete spatiotemporal configurations of its sub-events. Both quotative construction and switch-subject construction are exploited to express indirect causation, for instance:

(14) Indirect causation
a. tu'-un=mu yumin m-usa' q<um>uriq su waylung
order-PV=1.SG.GEN PN AV-go <AV>steal ACC chicken
'I ordered Yumin to go steal a chicken.'
b. kal-un ni yaya' i yumin mha' gawah-i ku valihun
tell-PV GEN mother NOM PN QUO open-LV NOM door
'Mother told Yumin to open the door.'

In (14a) and (14b), the causative events clearly involve displacement and lapse of time. In other words, the caused event takes place at a different time and location from

the causing event. Thus, in (14a), the AFFECTEE *waylung* 'chicken' is somewhere other than at the location where the order is given, and in (14b), the AFFECTEE *valihun* 'door' is at some distance from the CAUSER, in contrast with the sociative causation in (12a), where the door is within reach from both the CAUSER and the CAUSEE.

In Chapter 3, it has been shown that quotative construction and switch-subject construction in Mayrinax Atayal are non-implicative. This observation is not surprising, since these two analytic constructions encode sociative and indirect causation, in which the CAUSEE is agentive, and agentivity in CAUSEE is generally in inverse proportion to the probability of manipulative success (Givón 2001:45). It is especially true in indirect causation, where the CAUSER is not involved in any part of the caused event at all, not even being present as in the supervision subtype of sociative causation.

The semantic contrasts among causative forms and their connection with each causation type emerge more clearly when they causativize on the same base verb. This is illustrated with the ingestive verb *nuvuag* 'drink' in (15):

(15) a. pa-nuvuw-an nku yata' su vuvu' na katin ku 'ulaqi'=nia'
CAU-drink-LV GEN aunt ACC milk GEN cow NOM child=3.SG.GEN
'Aunt fed her child with milk.' (direct causation)

b. pa-nuvuag su vuvu' na katin i yata' cku 'ulaqi'=nia'
CAU-drink ACC milk GEN cow NOM aunt ACC child=3.SG.GEN
'Aunt had her child drink milk.' (sociative causation)

c. si-pa-nuvuag nku yata' su vuvu' na katin ku 'ulaqi'=nia'
CV-CAU-drink GEN aunt ACC milk GEN cow NOM child=3.SG.GEN
'Aunt had her child drink milk.' (sociative causation)

d. tu'-un nku yata' ku 'ulaqi'=nia' i ma-nuvuag su vuvu' na katin
order-PV GEN aunt nom child=3.SG.GEN LNK AV-drink ACC milk GEN cow
'Aunt ordered her child to drink milk.' (indirect causation)

e. kal-un nku yata' ku 'ulaqi'=nia' mha' nuvuag ku vuvu' na katin
tell-PV GEN aunt NOM child=3.SG.GEN QUO drink NOM milk GEN cow
'Aunt told her child to drink the milk.' (indirect causation)

As the translation indicates, *pa-* causative of *nuvuag* ‘drink’ in LV (15a) represents direct causation, where the causing event and the caused event happen almost at the same time and location, as in a situation of feeding a baby. *Pa-* causatives in AV (15b) and CV (15c) are less direct, but are still implicative, as in situations where the CAUSER makes the CAUSEE drink by offering him the drink. With the CAUSER only assisting, the CAUSEE must be agentive. Because physically the two participants are close to each other, there is partial spatiotemporal overlap between the two causative sub-events. By contrast, with analytic constructions in (15d) and (15e), indirect causation is expressed. A verbal command is involved and the caused event (that is, drinking) takes place at some distance, thus the spatiotemporal separation of the two sub-events.

4.2.2 Form-meaning correlations

Although the causative continuum presented in Figure 4.1 is formed based on directness semantics, a formal dimension is observable from it, and this dimension is also a continuum in nature. The simple tripartite formal classification[42] of causatives into lexical, morphological, and syntactic ones is limited in its explanatory power if applied to the causative continuum. The continuum does show that causativization mechanisms exhibit correlations to causation types: Lexical causatives such as *vaka’-un* ‘break (PV)’ are restricted to direct causation; morphological causatives (namely, *pa-* causatives) are associated with direct causation and sociative causation; constructions that encode causation and manipulation analytically lean toward indirect causation. This general statement, however, obscures the semantic differences among causatives within the same causative type (namely, within morphological causatives

[42] One study that presents such a three-way typology is Comrie (1989), which is reviewed in Chapter 1. He notes, though, that there are intermediate categories in-between these three types.

or within analytic constructions). It has been shown in section 4.2.1 that *pa-* causatives encode different ranges of causation if in different voices, and that the range of causation expressed by analytic constructions varies with the voice as well as which construction (quotative or switch-subject construction) is involved. Therefore, morpho-syntactic measures that make distinctions finer than the three-way typology are necessary to distinguish these members within each class in terms of their form and to further correlate them with directness semantics. In the present study, morphological productivity and clause union have been employed to discuss the formal aspect of causative constructions, in Chapter 2 for *pa-* causatives, and in Chapter 3 for analytic constructions respectively.

Degrees of formal synthesis between the causative verb and the complement verb can be examined by at least four measures: co-lexicalization, case-marking and grammatical relations, finite morphology, and inter-clausal gap (Givón 2001). These syntactic devices, among others, have been used in Chapter 3 to compare the complementation patterns and degree of clause union of analytic constructions that encode causation and manipulation in Mayrinax Atayal. The comparison yields the result that switch-subject construction exhibits stronger clause union than quotative construction. Indeed, strength of clause union is reflected in directness semantics. If related to the causative continuum presented in Figure 4.1, stronger clause union of switch-subject construction corresponds to more direct causation, while weaker clause union of quotative construction corresponds to more indirect causation.

The measures mentioned above are useful in determining the strength of clause union in causatives where clausal complementation is involved. Morphological causatives, on the other hand, contrast in their varying productivity, which is diagnosed by the analyzability of the causative morpheme. In Marathi, for instance, morphological causatives are divided into three groups: pure lexical (including labile

forms and suppletive forms), fusional, and agglutinative causatives (Shibatani and Pardeshi 2002:109). These subtypes of morphological causatives, along with analytic causatives, form a formal causative continuum based on productivity, visualized below:[43]

pure lexical < fusional < agglutinative < analytic/syntactic

Figure 4.2 Formal causative continuum (Shibatani and Pardeshi 2002:109)

This formal causative continuum reflects degree of regularity/productivity: Pure lexical causatives are strictly lexically determined and do not have many instances, while analytic causatives usually accommodate both intransitive and transitive verbs, thus exhibiting the greatest productivity among all mechanisms of causative formation.

The syntactic criteria on formal synthesis do not make distinctions among *pa*-causatives in Mayrinax in terms of their form, since the four *pa*- causatives are all structured on simple clauses, with the same analyzable causative morpheme *pa*-. Rather, it is the productivity parameter that distinguishes the four *pa*- causatives, as discussed in Chapter 2: [*Pa*-STEM-*un*] (PV) is the most lexically restricted form (with verbs following causativization patterns 1 and 3 in Table 2.7), while [*si*-*pa*-STEM] (CV) is the most productive (with verbs following causativization patterns 1 through 5). The correlation between productivity and directness semantics becomes clear once the productivity parameter is imposed onto the semantic dimension of the causative continuum in Figure 4.1: The least productive form [*pa*-STEM-*un*] (PV) represents prototypical direct causation at the leftmost end of the continuum; toward the right

[43] Dixon (2000:74) makes a formal typology of causatives based on the "formal compactness" instead of the productivity of causative forms proposed by Shibatani and Pardeshi. His causative types include lexical, morphological, complex-predicate, and periphrastic causatives.

end are analytic causation-encoding constructions, which, expressing indirect causation, are the most productive causativization devices, accommodating verbs that does not form causatives with the *pa-* prefix; [*si-pa*-STEM] (CV), being more productive than [*pa*-STEM-*un*] (PV) but less so than analytic constructions, are associated with sociative causation, straddling over the middle of the causative continuum.

The strong correlations between productivity and semantics in causation have been attested in many other languages (e.g. Quechua, Turkish, Japanese, English, Korean, and Marathi, see Shibatani and Pardeshi 2002:112). It is argued by Shibatani and Pardeshi that, cross-linguistically, productivity is a better predictor on causative semantics than a pure formal measuring criterion, since there are sometimes multiple causative morphemes in a language that are equally analyzable in their forms, but differing in regularity and in the encoded causation type (e.g. causative suffixes *-as*, *-e*, *-os* and *-sase*[44] in Japanese). In addition, the same causation type, say indirect causation, may be coded morphologically in one language (e.g. *-sase* in Japanese) but analytically in another (e.g. *make* in English). Predictions made purely based on formal synthesis would fail to account for the phenomena that morphological causatives with varying productivity in one language encode different causation types and that the same causation type is encoded in morphological causatives and analytic causatives in different languages. In such cases, productivity becomes one consistent parameter that complements the formal synthesis parameter if causatives are to be compared in terms of their form-function correlations.

In sum, causation-encoding constructions in Mayrinax Atayal exhibit

[44] Shibatani and Pardeshi (2002:107-108) contrasts the more productive causative suffix *-sase*, which encodes sociative and indirect causation (e.g. *mi-sase-ru* see-CAU-PRESENT 'show'), with the lexically determined causative suffixes *-as*, *-e*, and *-os*, which encode direct causation, causativizing intransitive verbs (e.g. *kawak-as-u* dry-CAU-PRESENT 'dry (transitive)').

form-meaning correlations which are made clear by the causative continuum. The semantic dimension on the continuum, namely, directness semantics, parallels the formal dimension, namely productivity and formal synthesis. Lexical causatives, being the least productive and the most formally synthesized causative type, encode direct causation. Among the four *pa-* causatives, [*pa*-STEM-*un*] (PV), the least productive one, encodes direct causation, while others extend to the domain of sociative causation. Whereas switch-subject construction and quotative construction both encode causation and manipulation analytically, the former, exhibiting stronger clause union, covers a wider range of sociative causation, and the latter, exhibiting looser clause union, leans toward indirect causation.

4.3 Interplay with voice

The previous sections have seen the coding of different causation types involving the same causative prefix *pa-* or the same quasi-causative verbs (e.g. the utterance verb *kaal* 'tell') in Mayrinax Atayal. The four voices divide *pa-* causatives into four subtypes, and the analytic construction with *kaal* 'tell' into PV and AV subtypes. Each of these causative subtypes occupies a different semantic range on the causative continuum. The distribution of these causatives on the causative continuum and their voice marking are not irrelevant, but motivated. In the following sections, the semantic differences among causative forms in different voices will be related to the semantics and functions borne by voices in non-causative clauses.

4.3.1 Degree of affectedness: PV and LV

Figure 4.1 shows that, at the leftmost end of the causative continuum, there is

much overlap of distribution between [*pa*-STEM-*un*] (PV) and [*pa*-STEM-*an*] (LV). Both encode direct causation, but [*pa*-STEM-*an*] (LV) further extends into the domain of sociative causation. The similarity and difference in degree of directness in causation may well find their origin in the functional difference among non-causative voice constructions.

Based on data of non-causative clauses, Huang (2001:60-63) notes that both PV and LV can pivot a PATIENT argument, but this pivoted argument in LV is not a prototypical PATIENT, to illustrate:

(16) PATIENT argument in LV construction

a. tal-an=mu ku ruwas hani
see-LV=1.SG.GEN NOM book this
'I read this book.'

b. pasiaq-an=mu limuy
laugh-LV=1.SG.GEN PN
'I laughed at Limuy.'

In Mayrinax Atayal, verbs such as *kitaal* 'see' in (16a) and *pasiaq* 'laugh' in (16b) do not have PV forms. LV instead is used to serve similar functions, pivoting a PATIENT-like argument. Huang turns to the notion of "affectedness" to account for this phenomenon, claiming that the in-focus argument (such as the thing read in (16a) and the one laughed at in (16b)) in the LV construction is actually not "totally affected full-fledged PATIENTS".

The difference between PV and LV in terms of affectedness is even more obvious with verbs that occur in both voices to convey similar propositions. Consider the following clauses with the ingestive verb *nuvuag* 'drink' in non-causative clauses:

(17) a. nuvuw-<u>un</u>=mu ku quwaw
drink-PV=1.SG.GEN NOM wine
'I drank the wine up (in the cup).' (full affectedness)

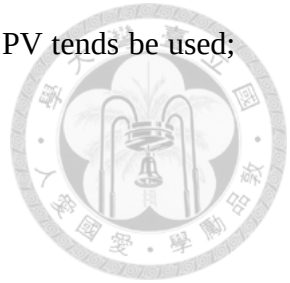
b. nuvuw-<u>an</u>=mu ku quwaw
drink-LV=1.SG.GEN NOM wine
'I drank the wine (from the bottle).' (partial affectedness)

(17a) and (17b) are non-causative clauses with the same argument structure and almost the same propositional meaning. Nonetheless, there is some connotational difference: (17a), in PV, implies that the wine, as contained in a cup, was consumed completely, while (17b), in LV, implies that the wine was consumed only partially, either from a bottle or from the stock.

The role that the notion "affectedness" plays in the PV/LV voice alternation has been noted by other researchers as well. Ross (2006), for instance, refers to an LV clause with two core arguments such as (17b) as the "partial effect" construction, which is also observed in Paiwan, Tsou, and Puyuma. He labels the pivoted argument in this construction as the "affected entity" so as to distinguish it from the thematic roles PATIENT and LOCATION.

The semantic contrast between non-causative PV and LV constructions presented above is believed to be (at least partially) the source of the semantic contrast between causative PV and LV: the contrast in affectedness in non-causative constructions contributes to the contrast in directness in causation in causative constructions. In other words, full affectedness is retained in causative PV construction, while partial affectedness is retained in causative LV construction. In fact, it has been mentioned in Sections 4.0 and 4.1 that the notion of CAUSEE affectedness can be conflated into directness of the causative event. In the PV *pa-* causative, the pivoted argument (the CAUSEE) undergoes stronger force imposition than that in the LV *pa-* causative. On the other hand, from the lexical point of view, verbal semantics constrains the conceptualized affectedness of the PATIENT (in a non-causative clause) and CAUSEE (in a causative clause), which is the parameter that further determines the choice of voice.

If the PATIENT and the CAUSEE are conceptualized as fully affected, PV tends be used; if they are conceptualized as partially affected, LV tends to be used.



4.3.2 AV as intermediate categories on the causative continuum

Figure 4.1 shows that the AV forms of both morphological and analytic causation-encoding constructions cover the middle range of the causative continuum: [*pa*-STEM] (AV) extends from direct causation to the joint-action and assistive subtypes of sociative causation, and the AV form of the utterance verb *kaal* 'say' is limited to sociative causation. The connection between sociative causation and AV can be explained by the facts that AV is also the voice where reciprocals occur in Mayrinax Atayal and that *pa-* is (part of) the untensed form of the reciprocal marker, to illustrate:

(18) a. m-anata' i watan gi mapa-tuting ku 'u-'ulaqi'
AV-angry NOM PN CONJ REC-beat NOM RED-child
'Watan is angry because the children fought each other.'

b. ma-langlung i payan ki limuy
REC-think NOM PN COM PN
'Payan and Limuy miss each other.'

c. ini pa-langlung i payan ki limuy
NEG REC-think NOM PN COM PN
'Payan and Limuy do not miss each other.'

d. mapa-langlung i payan ki limuy
REC-think NOM PN COM PN
'Payan and Limuy miss each other.'

Table 4.3 Reciprocals in Mayrinax Atayal

***ma-* reciprocals**	ma-kasa'ang	REC-scold	'scold each other'
	ma-pasivaq	REC-teach	'teach each other'
	ma-kitaal	REC-see	'meet each other'
***mas-* reciprocals**	mas-valayq	REC-good	'like each other'
	mas-aqih	REC-bad	'hate each other'
***mapa-* reciprocals**	mapa-haynas	REC-pass	'overpass each other'
	mapa-kitaal	REC-see	'look at each other'
	mapa-paqut	REC-ask	'ask each other'
	mapa-svu'	REC-throw	'throw to each other'
	mapa-ra-raw	REC-help	'help each other'
	mapa-langlung	REC-think	'miss each other'

The instances in (18) and Table 4.1 all express reciprocal events. The core meaning of reciprocals, according to Sung and Shen (2006:246), is that "one of the participants (agents) is doing the same action to the other member of the set at approximately the same time and in the same place." In Mayrinax Atayal, reciprocal constructions can involve bilateral actions, as in (18b), where there are two actors *payan* and *limuy*, the latter being a comitative marked by *ki*. It is also possible that the reciprocal verb takes a plural argument (*'u-'ulaqi'* 'children' in (18a)) in NOM, which receives different interpretations as to the number of actors (two or more) and the reciprocal relations among the actors.

Regarding the form, three realis non-past reciprocal markers are observed: *ma-*, *mas-*, and *mapa-*, presented in Table 4.1. In irrealis mood, the *m-~p-* alternation is observed (e.g. *pa-langlung* 'miss each other (IRREALIS)' in (18c)). The prefixation of one of these three reciprocal markers seems to be lexically determined. For certain base verbs, both *ma-* and *mapa-* are possible. One of such cases is *lalung* 'think', which can be prefixed with *ma-*, in (18b), or *mapa-*, in (18d), without any semantic difference between them. For other cases where prefixation of either prefix is acceptable, however, a semantic difference is found. With the same root *kitaal* 'see',

prefixation of *ma-* leads to the meaning 'meet each other' while prefixation of *mapa-* leads to the meaning 'look at each other'.

That the actor voice is associated with both sociative causation and reciprocality in Mayrinax Atayal is not pure coincidence. Instead, it points to the fact that among the four voices, the actor voice is the one that is congruent with a situation with multiple actors, part or all of whom are at the same time affected.[45] In a reciprocal event, all of the participants are actors, but part or all of them are simultaneously the ones acted on, depending on the interpretation of reciprocal relations among the participants. In a sociative causative situation, the CAUSER is involved in the CAUSEE's action on an AFFECTEE, but of the two actors, only the CAUSEE is affected, since it is subject to the influence of the CAUSER.

4.3.3 Causative/applicative syncretism in CV

It is discussed in Shibatani and Pardeshi (2002:116-22) that in some languages, including Malay, which is from the Austronesian family, causative morphemes are associated with applicative functions, introducing a comitative, instrumental, or benefactive argument. In Mayrinax Atayal, such a phenomenon of causative/applicative syncretism is also observed with the conveyance voice, with the voice marker *si-*. Without *pa-* prefixation, CV construction carries both causative and applicative meanings, illustrated below:

(19) a. si-quax=mu su payatu' i yaya'
CV-wash=1.SG.GEN ACC bowl NOM mother
'I washed dishes for Mother.' (applicative: BENEFICIARY)

[45] It should be noted that reciprocals are not always associated with AV. In Kavalan, for instance, reciprocals can occur in NAV when the base verbs are ditransitives (Sung and Shen 2006:256-59).

b. si-quax=mu su payatu' ku qusia
CV-wash=1.SG.GEN ACC bowl NOM water
'I washed dishes with water.' (applicative: INSTRUMENT)

c. si-vayq=mu cku yata' ku kulu' hani
CV-give=1.SG.GEN DAT aunt NOM car this
'I gave my aunt this car.' (applicative: THEME)

d. si-ka-kitihu=mu ku siam
CV-STAT-fat=1.SG.GEN NOM pork
'(Eating) the pork makes me fat.' (applicative: CAUSE)

e. si-pasiaq=mu ku hani
CV-laugh=1.SG.GEN NOM this
'I laughed because of this.' (applicative: CAUSE)

f. si-kiluh=mu ku raramat hani
CV-hot=1.SG.GEN NOM meal this
'I warmed this meal.' (causative)

As an applicative construction, CV introduces an O argument that is not a prototypical PATIENT into the nominative slot. Candidate semantic roles include peripheral elements such as INSTRUMENT, BENEFICIARY, REASON, and THEME (Huang 2001:62). (19a) exemplifies the benefactive construction, introducing a BENEFICIARY *yaya'* 'mother' of the action of *quax* 'wash'. (19b) is an instrumental construction, with the INSTRUMENT *qusia* 'water' in the nominative position. (19c) is a ditransitive construction, with the THEME *kulu' hani* 'this car' in the nominative position.

In (19d) and (19e), the CV construction introduces a CAUSE[46]. In a general sense, these two instances are linguistic realization of causation, but they do not consist of a causing event and a caused event. In other words, there is no CAUSER who acts on a CAUSEE. Rather, there is only a CAUSE to which the occurrence of an event is ascribed. By contrast, in situations coded by causative constructions described in Chapters 2 and 3, the CAUSER initiates a causal chain that is extended to affect the CAUSEE and

[46] The term CAUSE is adopted instead of Huang's term REASON because REASON seems to connote volition of the actor. In instances such as (19d), however, the genitive-marked argument does not do something volitionally for a certain reason.

AFFECTEE.

In (19f), the bare CV marker *si-* functions as a causative marker, and the causative verb exhibits the same argument structure as *pa-* causatives based on intransitive verbs, with a genitive-marked CAUSER and a nominative-marked CAUSEE. Semantically, direct causation is denoted, with no spatiotemporal overlap between the causing event and the caused event. *Si-* causatives are extremely lexically restricted; no other causative use of the applicative marker has been found in my database.

The causative/applicative split phenomenon exemplified in (19a-f) manifests the strong connection of the marker *si-* with causation: for one thing, one of the wide semantic range of participants introduced through the applicative function is CAUSE; for another, *si-* is a non-productive causative marker. Its association with causation does not end there, though. The applicative meanings complicate *pa-* causatives. Shibatani and Pardeshi (2002:118) suggest that "applicative meanings of comitative, instrumental, and benefactive forms be connected to sociative causatives." The distribution of [*si-pa-*STEM] (CV) on the causative continuum indeed witnesses this claim. This connection arises from the conceptual parallels between the peripheral elements in applicatives and the CAUSEE in causatives: The task performed with an INSTRUMENT cannot be rendered possible without the control of the AGENT, as in a sociative causative event, the CAUSEE is accompanied or assisted by the CAUSER. On the other hand, the CAUSEE who is accompanied and assisted may well be interpreted as the BENEFICIARY of the causative event.

4.4 Summary

This chapter has discussed the semantics of causation-encoding constructions in Mayrinax Atayal and the correlations to their forms as well as to related functions of

voice. Among the three approaches presented in Section 4.1, the event-structure approach has greater explanatory and unifying power, being able to incorporate related semantic notions under directness semantics. Based on directness semantics, a causative continuum is formed: Lexical causatives such as *vaka'-un* 'break (PV)' occupies the leftmost end of the continuum, conveying direct causation; morphological *pa-* causatives range over direct and sociative causation in the middle; the analytic switch-subject and quotative constructions lean toward the right end, conveying sociative and indirect causation.

The semantic contrasts among causative forms are further related to the formal aspects as well as to voice semantics. It is found that productivity and formal synthesis are predictive of the directness of causation associated each causative form. Thus, lexical causatives, the least productive and formally the most synthesized form on the continuum, encode direct causation, while analytic constructions, being the most productive and formally least synthesized, encode indirect causation. Within *pa-* causatives, differences in morphological productivity reflect different positions on the causative continuum. Similarly, among the analytic constructions, differences in strength of clause union reflect the encoded directness of causation.

It is believed that functions of voices in causative constructions are related to their functions in non-causative constructions: non-causative PV pivots a fully affected PATIENT, and thus is congruent with direct causative situations, where the CAUSEE is fully affected. AV is the voice for reciprocals, where there are multiple agentive arguments that are simultaneously affected, just as in a sociative causative situation. The applicative meanings of CV (e.g. benefactive and instrumental) introduce a co-actor and place [*si-pa-*STEM] (CV) in the middle of the causative continuum.

Chapter 5

Conclusion

This chapter concludes the thesis by first giving a general summary of the discussion and results presented in previous chapters, and then some theoretical implications and possible directions for future studies.

5.1 A general summary

This thesis has detailed the way causation is encoded formally in Mayrinax Atayal (especially at the morphological and syntactic levels), and how the formal aspects of these causation-encoding forms are correlated with their semantics. Adopting the event-structure approach of Shibatani (2002) and Shibatani and Pardeshi (2002), the present study maps the causation-encoding forms in Mayrinax Atayal onto a causative continuum which is headed by direct and indirect causation at its two ends. The causative continuum not only encompasses semantic dimensions (directness semantics), but it also exhibits correlated formal dimensions (morphological productivity and formal synthesis). It is this multi-dimensional nature of the causative continuum that renders itself a good platform to discuss the interface between morpho-syntax and semantics of causatives.

At the morphological level, the causative prefix *pa-* is the most exploited causation-encoding device in Mayrinax Atayal. Chapter 2 has examined how the notion "morphological productivity," one of the two formal dimensions of the causative continuum, is realized among *pa-* causatives. Base verbs from different verb classes are examined to see if they can be *pa-* causativized in all the four voices. Six

causativization patterns are observed in terms of the voice paradigm. Generalized from these six patterns, it has been found that voice and verbal semantics are the two interacting constraints on the formation of *pa-* causatives. Among the *pa-* causatives in the four voices, [*pa*-STEM-*un*] (PV) is the least productive. It allows stative and intransitive verbs but few transitives. By contrast, [*si-pa*-STEM] (CV) is the most productive, causativizing transitive verbs in addition to stative and intransitive verbs.

The other constraint on *pa-* causativization, namely, verbal semantics, shapes a causativization hierarchy in Mayrinax Atayal. This hierarchy largely conforms to Shibatani's (2002) prediction that inactive intransitives are easier to causativize through morphology while morphological causativization on transitives is faced with more difficulty. This causativization hierarchy in Mayrinax also endorses Shibatani's identification of the fourth verb class "middle/ingestive" in the study of morphological causatives: middles follow Pattern 1 and ingestives follow Pattern 2 *pa-* causativization. Despite the correct predictions made by Shibatani, a closer look at the Mayrinax hierarchy shows that under transitives, at least two subcategories, namely perception/cognition/utterance verbs and social action verbs should be identified.

In addition to morphological means, causation is encoded through analytic means as well, especially in situations where interpersonal manipulation is involved (in other words, with human CAUSER and human CAUSEE), or where transitive and ditransitive verbs are to be causativized (in other words, where *pa-* prefixation is impossible). Chapter 3 has examined two constructions that are employed to encode causation analytically: quotative construction and switch-subject construction. These two constructions have first been described in terms of their form, along with their variant constructions. Quotative construction consists of an utterance verb, such as *kal-un* 'tell (PV)' or *sal-un* 'say (PV)', CAUSER, CAUSEE, and an imperative

complement clause marked by the quotative marker *mha'*. Switch-subject construction consists of a manipulation verb, such as *tu'-un* 'order (PV)' or *siwal-an* 'allow (LV)', CAUSER, CAUSEE, and an AV-constrained complement clause introduced by the linker *i*.

To determine the strength of clause union (i.e. formal synthesis, the other formal dimension of the causative continuum), complementation in the two constructions has been measured against various syntactic coding devices, mainly provided by Givón (2001). The formal comparison shows that switch-subject construction exhibits stronger degree of synthesis regarding inter-clausal gap, restriction on voice and negation, and personal deixis agreement. These two analytic causation-encoding constructions, together with the non-causative quotative construction and *pa*-causatives form a complementation scale along the utterance-manipulation-causation cline in Mayrinax Atayal. For a cross-linguistic comparison of complementation strategies, the complementation scales in English, French, and Kavalan have been presented as well. It has been found that English and French exhibit more diversified complementation strategies than Mayrinax Atayal and Kavalan along the utterance-manipulation-causation cline.

As the morpho-syntactic aspects of the causation-encoding constructions in Mayrinax Atayal have been presented in Chapter 2 (for morphological means) and Chapter 3 (for syntactic means), Chapter 4 further addresses the semantic dimensions and forms a causative continuum (Shibatani and Pardeshi 2002) in Mayrinax Atayal based on these constructions. Through this causative continuum, the semantics of the causation-encoding constructions along the directness dimension has been discussed. It has been found that, on the continuum, lexical causatives and morphological *pa*-causatives, lean toward direct causation, while constructions that encode causation analytically, namely, quotative construction and switch-subject construction, lean

toward indirect causation. Sociative causation (the intermediate category) is expressed through *pa-* causatives in CV and quotative construction in AV.

The distributional patterns of these constructions on the causative continuum have been related to their formal properties. Lexical causatives, such as *vaka'-un* 'break (PV)', which are formally most synthesized and morphologically least productive, encode direct causation. Among *pa-* causatives, morphological productivity is correlated with directness of causation: the least productive *pa-* causative [*pa-*STEM-*un*] (PV) encodes direct causation, where physical manipulation is involved, and the causing event and the caused event occur at the same time and location. By contrast, the most productive *pa-* causative [*si-pa-*STEM] (CV) encodes sociative causation, where the CAUSER is less involved in the caused event, and there is only partial overlap in the spatiotemporal configurations of the causing and caused events. Between the two analytic causation-encoding constructions, switch-subject construction, which exhibits stronger clause union, occupies the domain of sociative construction. By contrast, quotative construction, which exhibits weaker clause union, leans toward the end of indirect causation.

The semantics of non-causative voice constructions has been argued to contribute to the semantic differences within the causation-encoding constructions. The notion "full affectedness" encoded in non-causative PV construction is carried over to the *pa-* causative construction in PV, which encodes direct causation with a fully affected CAUSEE. Causation-encoding constructions in AV ([*pa-*STEM] and *ma-kaal* 'tell (AV)') and CV ([*si-pa-*STEM]) are associated with sociative causation. This association has been attributed to the reciprocal/comitative function borne by AV construction, and the applicative functions borne by CV construction.

5.2 Implications and future studies

This thesis has described and discussed how causation is encoded linguistically at the morphological and syntactic levels in Mayrinax Atayal. Causation-encoding constructions have been detailed regarding their form, and two dimensions have been focused on: morphological productivity and formal synthesis. Based on these constructions, a causative continuum has been formed. The causative continuum approach has not only proved to be useful in accounting for the semantics and its formal correlates in Mayrinax causatives, but it also facilitates linguistic typology in terms of linguistic coding patterns of causation.

The directness semantics, which is defined by the spatiotemporal configurations of the causing event and the caused event, provides a consistent measure against which all the causation-encoding constructions can be readily compared. Other semantic notions, such as the agentivity of CAUSEE, involvement of CAUSER, and transitivity of the base verb, can be inferred from directness semantics. Through the causative continuum, directness semantics are related to the two formal dimensions, namely, productivity and formal synthesis, in a clear way.

Throughout the discussion on linguistic coding of causation in Mayrinax Atayal, voice has been witnessed repetitively to play an important role: Voice constructions are the templates on which *pa-* causatives are structured; morphological productivity has been measured by the possibility of causativized verbs' occurrence in each voice; voices diversify *pa-* causatives as well as analytic constructions, leading to differences in directness semantics; two voice markers *-un* (PV) and *si-* (C) may form causatives, though they are lexically restricted. Thus, considering the role voice plays in Mayrinax Atayal, it is foreseeable that similar complications of voice in causation-encoding constructions can be found in other Austronesian languages.

In linguistic typology, the causative continuum not only enables comparisons of causation-encoding constructions within a single language regarding their form and meaning, as has been done in Chapter 4 in Mayrinax Atayal, but it also enables comparisons of constructions from different languages by aligning them on the continuum, just as Shibatani and Pardeshi (2002) has already done (see Figure 1.5, where constructions from five languages are compared). One possible direction for further study then is the comparison of *pa-* (or its related forms) constructions across Formosan languages. From previous studies (Starosta 1974; Huang *et al.* 2006; Wu 2006; Shen 2008; Huang 2010), it can be generalized that cross-linguistically, *pa-* causatives exhibit different degrees of productivity and formal synthesis. Once the formal and semantic aspects of these *pa-* forms in Formosan languages are detailed, these forms can be mapped onto a causative continuum for comparison.

In addition to comparison of constructions, languages can be compared as well in their coding patterns of causation. The causative continuum in Mayrinax Atayal shows that direct causation is encoded lexically and morphologically; indirect causation is encoded analytically; sociative causation is encoded both morphologically and analytically. By aligning causative continua of different languages, coding strategies for each category of causation are conveniently contrasted. For instance, the coding strategies of causation in Formosan languages can be compared in terms of distributional patterns of causation-encoding constructions on the continuum, under the precondition that the formal and semantic descriptions of the causation-encoding constructions are completed.

Beyond the morphological and syntactic levels, the coding of causation can be further investigated at the discourse level, as has been done by Huang and Su (2005) in Saisiyat, where the causal relation at the discourse level is manifested mainly through apposition of two or more verbs. The verb that represents the CAUSE of the

whole causative event is not a causative or quasi-causative verb. Instead, it could be verbs that encode the mode of action, that is, how the causing event is realized. The further study on the coding of causation beyond the sentential level in Mayrinax Atayal should have theoretical implications on the grammr of causation as well as on discourse in Formosan languages.

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