ARGUMENT ALTERNATION AND ARGUMENT STRUCTURE IN SYMMETRICAL VOICE LANGUAGES: A CASE STUDY OF TRANSFER VERBS IN AMIS, PUYUMA, AND SEEDIQ

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Key words: argument alternation, exo-skeletal approach, Formosan languages, semantic map, symmetrical voice, transfer verbs
This dissertation investigates argument structure/alternation in Philippine-type symmetrical voice languages based on the study of transfer verbs in three Formosan languages: Amis, Puyuma, and Seediq. A comprehensive description of the morphosyntax of transfer verbs is provided according to the three-way classification of transfer verbs proposed in the literature. In all the three languages, a clear distinction between give/send-type verbs and throw-type verbs with respect to morphological composition is attested: the former may or may not involve the causative morpheme, while the latter never involve the causative morpheme. This finding conforms to the semantic basis of these transfer verb subclasses: give/send-type verbs lexicalize caused possession/motion, while throw-type verbs are two-argument verbs with no involvement of causative semantics.

The derivational status of voice marking in these Formosan languages is illustrated in the examination of the argument structure/alternation of transfer verbs. Most of the transfer verbs undergo argument alternation between the recipient/goal and the transported theme by means of locative/circumstantial voice (LV/CV) marking. Some “transfer verbs,” however, do not always allow argument alternation, as a particular voice form of these verbs may actually involve a thematic role (e.g., location, instrument, beneficiary, patient) other than those in a transfer event (e.g., theme/recipient/goal). Most importantly, the lexical variation in argument alternation restriction/behavior is found within subclasses of transfer verbs—an observation not predicted by the existing typology of transfer verbs and ditransitive constructions (i.e., the ditransitivity hierarchy).

To account for the presence of a sense of transfer in certain voice forms but not in others, I argue that symmetrical voice marking is able to provide a “constructional” meaning to a root. By means of the semantic map methodology, I demonstrate that Formosan LV marker is responsible for designating a number of conceptually contiguous thematic roles, including goal, recipient, location, source, and event patient. The CV marker, on the other hand, targets thematic roles including transported theme, instrument, beneficiary, and simulus/theme (of emotion). I further demonstrate how the contiguity among these roles can be established within two approaches to event structure: the localist approach and the causal approach.

Finally, I discuss whether current generative theories can account for the empirical facts about the argument structure of voice-marked verbs in Formosan languages. I first point out
the empirical problems for the applicative analyses of Formosan LV/CV verbs. The generative applicative approach assumes a pre-existing subcategorization frame (i.e., argument structure) of the verb/root. This assumption does not hold in symmetrical voice languages, where roots prove to be category-less, and therefore argument-less prior to voice affixation (i.e., verbalization). Embracing the exo-skeletal approach, I propose an event-based analysis for Formosan voice-marked verbs. By means of two approximations toward the event semantics of LV and CV verbs, I propose the feature [ground] with the functional projection (i.e., F2P) in the former and [cause] with F2P in the latter. These distinct F2Ps are responsible for verbalizing the root and introducing the internal argument among a range of conceptually related thematic roles.
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**LIST OF ABBREVIATIONS**

I adopt the following abbreviations in addition to those in the Leipzig Glossing Rules:

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<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>applied argument</td>
</tr>
<tr>
<td>ACAU</td>
<td>anticausative</td>
</tr>
<tr>
<td>ASP</td>
<td>aspect</td>
</tr>
<tr>
<td>AV</td>
<td>actor voice</td>
</tr>
<tr>
<td>CAU</td>
<td>causative</td>
</tr>
<tr>
<td>CN</td>
<td>common noun</td>
</tr>
<tr>
<td>CV</td>
<td>circumstantial voice</td>
</tr>
<tr>
<td>DF</td>
<td>definite</td>
</tr>
<tr>
<td>DOC</td>
<td>double object construction</td>
</tr>
<tr>
<td>EA</td>
<td>external argument</td>
</tr>
<tr>
<td>FLA</td>
<td>Formosan language archive</td>
</tr>
<tr>
<td>G</td>
<td>goal</td>
</tr>
<tr>
<td>ID</td>
<td>indefinite</td>
</tr>
<tr>
<td>IO</td>
<td>indirect object</td>
</tr>
<tr>
<td>L</td>
<td>location</td>
</tr>
<tr>
<td>LV</td>
<td>locative voice</td>
</tr>
<tr>
<td>I</td>
<td>instrument</td>
</tr>
<tr>
<td>IA</td>
<td>internal argument</td>
</tr>
<tr>
<td>NAV</td>
<td>non-actor voice</td>
</tr>
<tr>
<td>NEU</td>
<td>neutral (case)</td>
</tr>
<tr>
<td>NMZ</td>
<td>nominalizer</td>
</tr>
<tr>
<td>P</td>
<td>patient</td>
</tr>
<tr>
<td>PAn</td>
<td>Proto-Austronesian</td>
</tr>
<tr>
<td>PAST</td>
<td>past</td>
</tr>
<tr>
<td>PJ</td>
<td>projective</td>
</tr>
<tr>
<td>PN</td>
<td>personal/proper noun</td>
</tr>
<tr>
<td>PR</td>
<td>plurality of relations</td>
</tr>
<tr>
<td>PV</td>
<td>patient voice</td>
</tr>
<tr>
<td>R</td>
<td>recipient</td>
</tr>
<tr>
<td>RED</td>
<td>reduplication</td>
</tr>
<tr>
<td>T</td>
<td>transported theme</td>
</tr>
<tr>
<td>TAM</td>
<td>tense-aspect-mood</td>
</tr>
<tr>
<td>UV</td>
<td>undergoer voice</td>
</tr>
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</table>
## ORTHOGRAPHY OF CONSONANTS

<table>
<thead>
<tr>
<th>Amis</th>
<th>Puyuma</th>
<th>Seediq</th>
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<tbody>
<tr>
<td><strong>Alphabet</strong></td>
<td><strong>IPA symbol</strong></td>
<td><strong>Alphabet</strong></td>
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CHAPTER ONE
INTRODUCTION

1.1 Argument alternations in Formosan languages

In a classic study, English verb classes and alternations, Levin (1993:1–2) demonstrates that syntactic verb classes can be identified in terms of their argument-structure properties such as ARGUMENT ALTERNATIONS, as exemplified in (1.1) to (1.3).

(1.1) Causative alternation in English
   a. The window broke/opened/moved.
   b. The boy broke/opened/moved the window.

(1.2) Dative alternation in English
   a. My cousin gave/sent/threw me the book.
   b. My cousin gave/sent/threw the book to me.

(1.3) Benefactive alternation in English:
   a. Our grandmother baked/made/bought us a pie.
   b. Our grandmother baked/made/bought a pie for us.

The ability of certain verbs to alternate morphosyntactic expressions of their arguments as demonstrated in the examples above has been carefully studied in the past few decades for various purposes. I shall introduce three of them here. First, argument alternation patterns serve as a syntactic diagnostic for a fine-grained classification of verbs in a given language. For example, English is found to have up to 79 classes of verbs based on their shared argument alternation patterns (Levin 1993; Kipper et al. 2008). Second, when used properly, this diagnostic helps establish cross-linguistically valid verb types. Transfer verbs (or dative verbs) are a well-known example, with their near-universal constraints in argument alternations (Croft et al. 2001; Levin 2008; Malchukov et al. 2008, 2010). Third, argument alternations have proven constructive in theories of argument realization, especially those that tackle mapping from lexical semantics to syntax (Baker 1988; Borer 1994, 2005; Dowty 1991; Hale & Keyser 1993, 2002; Harley 1995, 2010; Ramchand 2008; Rappaport Hovav & Levin 1998; Van Valin 1993, to name a few).

This dissertation aims to contribute to the understanding of argument structure, argument alternation, and verb types particularly in “symmetrical voice languages” (Foley 1998; Himmelmann 2002) by investigating transfer verbs in three Formosan
languages—Amis, Puyuma, and Seediq—which are Austronesian languages spoken by indigenous groups in Taiwan. This research focuses on three subclasses of transfer verbs (e.g., give-type, lend-type, throw-type) that have been identified in the literature because of their cross-linguistic validity (Croft et al. 2001; Levin 2008). It has been demonstrated that argument alternations of transfer verbs occur in Formosan languages, and are correlated with “voice” marking (e.g., H. Chang 2011; S. Chen 2011). As a demonstration, (1.4) provides the argument alternation of beray ‘give’ in Puyuma, a Formosan language spoken on the eastern coast of Taiwan.

(1.4) Argument alternations with Puyuma beray ‘give’

a. ku=beray-ay dra paysu na yawan
   1SG.ERG=give-LV ID.OBL money DF.ABS chief
   ‘I gave the chief money.’

b. ku=beray-anay na paysu kana yawan
   1SG.ERG=give-CV DF.ABS money DF.OBL chief
   ‘I gave the money to the chief.’

Recent studies on argument alternations distinguish uncoded and coded alternations (Levin & Rappaport-Hovav 2005; Malchukov et al. 2008). With respect to alternating the O arguments (i.e. “object of transitive” in Dixon & Aikhenvald 2000), the verbs in English are uncoded (i.e., base forms have no overt marking) whereas Formosan verbs are coded with voice marking, as underlined in (1.4). In English, the recipient of a transfer event surfaces as O (indicated by the accusative case) in the double object construction (DOC) and the theme surfaces as O in the dative construction. A parallel argument alternation seems to occur in Formosan languages as well. In the Puyuma example, the recipient surfaces as the O argument (indicated by the absolutive case) when the ‘give’ verb/root is coded with locative voice (LV) marking (1.4a); the theme surfaces as the O argument in the circumstantial voice (CV) counterpart. These points are summarized in Table 1.1.

Table 1.1 Alternations of O in English and Formosan languages, with special focus on transfer events

<table>
<thead>
<tr>
<th>Coding</th>
<th>English</th>
<th>Formosan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recipient O argument</td>
<td>DOC e.g., (1.2a)</td>
<td>LV e.g., (1.4a)</td>
</tr>
<tr>
<td>Theme O argument</td>
<td>Dative e.g., (1.2b)</td>
<td>CV e.g., (1.4b)</td>
</tr>
</tbody>
</table>

Based on the alternation patterns of transfer verbs only, it is tempting to analyze Formosan
LV constructions as if they were equivalents to English double object construction, and deal with Formosan CV constructions in a similar fashion as with English dative constructions. The idea, however, becomes untenable once other verb types are taken into consideration. Take verbs of creation/performance (e.g., ‘make’, ‘sing’) for example. In English, a beneficiary role can surface as the O argument in DOC, as shown in (1.5a); in most Formosan languages (e.g., Puyuma), the beneficiary becomes the O argument when the verb is coded with CV marking, as shown in (1.5b).

(1.5) The introduction of beneficiary O argument in verbs of creation/performance

a. English ditransitive construction
   \textit{John baked his mother a cake.}

b. Puyuma CV construction
   \textit{ku=sanga'-anay dra kabung i nanali}
   1SG.ERG=make-CV ID.OBL hat SG.ABS my.mother
   ‘I made Mom a hat.’

Table 1.2 Alternations of O in English and Formosan languages, with special focus on verbs of creation/performance.

<table>
<thead>
<tr>
<th>Coding</th>
<th>English</th>
<th>Formosan (e.g., Puyuma)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneficiary O</td>
<td>DOC</td>
<td>CV</td>
</tr>
<tr>
<td>argument</td>
<td>e.g., (1.5a)</td>
<td>e.g., (1.5b)</td>
</tr>
</tbody>
</table>

Given the finding in Table 1.2, that a beneficiary is introduced as the O argument in Formosan CV construction (but not in LV construction), the parallel between English ditransitive constructions and LV/CV constructions based on the argument alternation of transfer verbs (Table 1.1) now becomes untenable. A natural question thus arises, as to why LV constructions and CV constructions in Formosan languages are responsible for introducing a variety of thematic roles as the O argument in different type of verbs. The interaction between verb types and voice marking is an issue addressed and yet to be solved in the literature.

For the sake of exposition, I roughly divide related studies into two major types. The first type of studies highlights the identifiable morphosyntactic asymmetries between actor/patient voice (AV/PV) constructions and LV/CV constructions in Formosan (and other Philippine-type languages), and maintains that the latter should be derived on top of the former. \textbf{APPLICATIVE ANALYSES} for LV/CV-coded verbs are thus motivated (e.g., M. Chang 2004; S. Chen 2007; C. Tang 2009; H. Chang 2011, 2013). The second type of studies, instead, highlights the identifiable morphosyntactic symmetries among all four voice constructions, and thus maintain that the usage of certain voice marker in these
“symmetrical” voice languages is to a large extent lexically or semantically conditioned (e.g., Foley 1998, 2008; Spitz 2002; Starosta 2002; S. Huang 2005; H. Huang & S. Huang 2007; Y. Yeh 2013; see Nojima 1996 and De Busser 2009 for a similar view).

This dissertation joins in the debate about the functions of symmetrical (or asymmetrical?) voice constructions in Formosan languages by focusing on verbs of transfer. As mentioned above, transfer verbs have been identified as a cross-linguistically valid verb class (with three subclasses). While transfer verbs have been discussed in some previous studies of Formosan languages, they are mostly used as supporting materials for other topics, and no study has focused only on Formosan transfer verbs. This dissertation thus directly contributes to the existing body of literature in at least three ways. From a descriptive perspective, most of the current reference grammars of Formosan languages do not give transfer verbs enough attention; they discuss only a restricted number of ditransitive/transfer verbs, creating a false impression that all transfer verbs have share the same argument realization. This study fills the gap by providing an accurate and comprehensive documentation of the variation in argument structure/alternation of transfer verbs in three Formosan languages.

Second, this study contributes to the research in linguistic typology. As far as transfer verbs and ditransitive constructions are concerned, the dominant typological frameworks are established primarily based on Germanic languages. As a result, the validity of these frameworks has not been put into serious examination in the context of symmetrical voice languages. This dissertation evaluates the explanatory adequacy of these methods in Formosan languages, and also expands the repertoire of the cross-linguistic studies of argument alternation. In addition, by generalizing the similarity and differences in the lexical variation of transfer verbs in three Formosan languages, I provide an internal typology for Formosan transfer verbs in general, showing how voice-coded transfer verbs differ from uncoded transfer verbs in other languages.

Finally, this study also contributes to the generative theories of argument structure. In the literature, argument structure of transfer (or ditransitive) verbs is often accounted for in terms of the applicative structures (e.g., Pylkkänen 2002, 2008; Georgala 2012). In this dissertation, I will argue against the applicative analyses for Formosan LV/CV-coded transfer verbs (as well as other verb types). I will further provide an event-based analysis to account for the symmetricity of voice marking in Formosan languages.

1.2 Objectives and research questions
The objectives of this research are four-fold: (a) to give a comprehensive morphosyntactic description/documentation of the transfer verbs across three Formosan languages; (b) to identify in these languages lexical variation of transfer verbs with respect to their morphological composition and argument structure, and discuss the implications of these findings for the existing typology of transfer verbs/ditransitive constructions; and (c) to argue for the derivational status of voice markers in these languages by showing how the usage of voice marking is semantically driven across verb types (d) to argue against the applicative analyses for Formosan LV/CV constructions, and propose alternatively an event-based analysis for the argument structure of symmetrical voice languages within the generative framework. The following research questions from descriptive, typological, and theoretical perspectives will be addressed.

(1.6) Descriptive research questions (for each Formosan language investigated)
   a. What morphemes are involved in the formation of transfer verb?
   b. In what way does the voice system affect the argument alternation behavior/restriction of transfer verbs?
   c. Is there any lexical variation of transfer verbs with respect to their morphological composition?
   d. Is there any lexical variation of transfer verbs with respect to their argument structure?

(1.7) Comparative/typological research questions
   a. To what extent can the current typology of transfer verbs account for the argument alternation behavior/restriction of transfer verbs in these Formosan languages?
   b. To what extent can the current typology of ditransitive constructions account for the argument alternation behavior/restriction of transfer verbs in these Formosan languages?
   c. What are the similarities and differences regarding the morphological composition and argument alternations of transfer verbs in Amis, Puyuma, and Seediq?
   d. What implications can the findings about lexical variation of Formosan transfer verbs provide for the current typology of transfer verbs/ditransitive constructions?
   e. What implications can the findings about lexical variation of Formosan transfer verbs provide for the (a)symmetricity of voice marking in Formosan languages?

(1.8) Theoretical research questions
   a. To what extent can the asymmetrical view of voice marking (e.g., applicative analyses) account for the argument structure of transfer verbs (and other verb types) in Formosan languages?
   b. To what extent can the symmetrical view of voice marking (e.g., event-based analyses)
account for the argument structure of transfer verbs (and other verb types) in Formosan languages?

c. Which of the current approaches to argument structure can best account for the symmetricality of voice (if any) in Formosan languages? How can this approach account for the event semantics of voice marking in Formosan languages?

The languages to be examined in this study are Amis, Puyuma, and Seediq. Located in distinct primary branches of the Austronesian language family (Blust 1999), they together form an ideal sample for a typological study of Formosan transfer verbs. In addition, as will be presented in later chapters (Chapters 4 to 7), these languages show rather distinct yet generalizable behavior with respect to the morphological composition and the argument structure of transfer verbs. I therefore believe that these three languages form a representative sample, as far as an internal typology is concerned.

1.3 Fieldwork Methodology and Data sources

This section briefly introduces how and where the linguistic data used in this study were obtained. My fieldwork is considered by the University of Hawai‘i at Mānoa (UHM) Committee on Human Studies to be exempt from Department of Health and Human Services regulations (i.e., CHS #19184 “Syntactic Research Project”, approved on April 28, 2011; revised and approved on September 13, 2013).

For the sake of comprehensiveness, my analysis is mainly based on elicited data. Natural data such as texts are also used to complement some of my arguments, when necessary. The results of grammatical judgment tasks, which were used to verify the argument alternation patterns of transfer verbs, will also be discussed to strengthen my arguments about the verbs’ syntactic structures. I focus on one particular dialect of each language, and have elicited data from multiple consultants to ensure their validity. In the following sections, I introduce important information about these languages/dialects and the consultants. Profiles and grammatical sketches of these languages will be provided in Chapter 2.

1.3.1 Amis: Central dialect

According to Tsuchida (1982, 1988), there are five major dialects of Amis: (i) Sakizaya, (ii) Northern/Nanshi, (iii) Tavalong-Vata’an, (iv) Central/Haian, and (v) Southern/Peinan and Henchun. The dialect analyzed in this dissertation is Central Amis, spoken in Changpin Township, Taitung County (see Figure 1.1).

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1 In Chapter 2, I will further justify my selection of these three languages among other Formosan languages.
The data were gathered from four consultants in two villages: Ciwkangan (長光/石門) and Kinaloka (僅那鹿角/光榮) in Amis. They are Mr. Wan-song Lin (林萬松), born in 1949, Mr. Jin-long Chen (陳金龍), born in 1949, Mr. Jin-Guang Zeng (曾進光), born in 1955, and Ms. Jin-huan Wu-Zeng (吳曾金花), born in 1953.

Figure 1.1 Map of Taiwan: Distribution of Formosan languages (adapted from P. Li 2004:6)

1.3.2 Puyuma: Nanwang (or Puyuma) dialect
There is so far no consensus on the number of dialects within Puyuma (Teng 2008). For
example, Ting (1978) identifies six varieties (i.e. Nanwang, Katipul, Rikavung, Kasavakan, Pinaski, and Ulivelivek), while Cauquelin (2004, 2008) classifies only two major groups (i.e. Puyuma and Katipul). The dialect chosen in this dissertation is arguably the most conservative. It is called ‘Puyuma’ in its own language; in Chinese, it is named after the village where it is spoken, Nanwang (南王), located in Taitung City.

The data were collected from two consultants in Nanwang village: Ms. Min-ying Sun (孫民英), female, born in 1946, and Mr. Chong-yi Tsai (蔡重義), male, born in 1945.

1.3.3 Seediq: Truku dialect

There are three dialects of Seediq: Truku, Tkdaya, and Toda (P. Li 1991). I choose the Truku dialect, which is spoken mostly in Nantou and Hualien County. The data were gathered from four consultants in two villages in Sioulin Township: Psugan (富世) and Qowgan (加灣/ 景美). They are Ms. Yu-ru Zhu (朱玉茹), female, born in 1946, Ms. Yu-hsia Lin (林玉夏), female, born in 1951, Mr. Wen-zheng Yang (楊文正), male, born in 1943, and Mr. Hsin-de Tien (田信德), male, born in 1925.

1.4 Organization and summary of chapters

This dissertation is organized as follows. Chapter 2 provides the grammatical sketch of Amis, Puyuma, and Seediq, by covering topics including morphosyntactic alignment, constituent order, pronominal marking system, pronominal system, and voice system. Chapter 3 introduces some relevant typological studies of transfer verbs and ditransitive constructions, which provides a theoretical basis for my discussion of transfer verbs in the main chapters. Chapters 4 to 6 provide thorough descriptions for the morphosyntactic behavior of transfer verbs in Amis, Puyuma, and Seediq, respectively. Based on the three-way classification of transfer verbs proposed in the literature, I scrutinize the morphological composition and argument structure of each subclass of transfer verbs, and identify lexical variation within and across these subclasses. In Chapter 7, I incorporate from the previous three chapters the relevant findings regarding the lexical variation of these transfer verbs, and discuss their implications for the current typology of transfer verbs/ditransitive constructions, as well as for the symmetricality of voice marking. Based on a comparison between Fomorsan LV/CV constructions and English ditransitive constructions, I suggest the possibility of generalizing

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2 While Truku is classified as one dialect of Seediq linguistically, the majority of community using this variety tends to classify themselves as Truku rather than Seediq.
the function(s) of voice marking by means of semantic maps. In Chapter 8, I explore the function(s) of Formosan voice markers by examining the argument structure of LV/CV constructions across a number of verb types. The result supports the derivational-symmetrical view of voice marking, and further suggests that the usage of voice markers is to a large extent semantically conditioned. In Chapter 9, I examine the formal analyses of Formosan LV/CV verbs, particularly those which treat them as applicative, and argue against them by pointing out some empirical problems. Alternatively, I propose an event-based analysis for the argument structure of Formosan LV/CV constructions across verb types. Chapter 10 is the conclusion.
CHAPTER TWO
A SKETCH GRAMMAR OF AMIS, PUYUMA, AND SEEDIQ

2.1 Background information of Amis, Puyuma, and Seediq

This chapter provides an integrated grammatical sketch of the three research languages of this dissertation: Amis, Puyuma, and Seediq. To begin with, I provide some background information about these languages. Table 2.1 gives a brief summary of their major locations, affiliated ethnic populations, numbers of speakers, and levels of endangerment.

Table 2.1 Background information of Amis, Puyuma, and Truku Seediq

<table>
<thead>
<tr>
<th>Language</th>
<th>Amis</th>
<th>Puyuma</th>
<th>Truku Seediq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Locations</td>
<td>Between Hualien and Taitung, valley plains &amp; east coast</td>
<td>East coast area south of Taitung &amp; inland</td>
<td>Hualien, Taroko Gorge &amp; Nantou</td>
</tr>
<tr>
<td>Ethnic Population</td>
<td>199,778</td>
<td>13,291</td>
<td>29,479</td>
</tr>
<tr>
<td>Number of Speakers</td>
<td>30,000</td>
<td>1,500</td>
<td>4,750</td>
</tr>
</tbody>
</table>

Spoken by the indigenous people of Taiwan, Formosan languages have for decades suffered from the dominance of the languages spoken by Han immigrants from China (mainly

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3 The information in this table is based on multiple sources, including the online version of Ethnologue (www.ethnologue.com), the UNESCO Atlas of the World’s Languages in Danger (www.unesco.org/culture/language-atlas), and the Endangered Languages Project (www.endangeredlanguages.com). The ethnic population figures come from the 2014 census published by the Council of Indigenous Peoples, Executive Yuan, Taiwan (ROC) (http://www.apc.gov.tw/portal/docList.html?CID=940F9579765AC6A0). For level of endangerment, I follow the Language Endangerment Index proposed by the Catalogue of Endangered Languages (ELCat), which relies on four factors as criteria (i.e., Intergenerational transmission, absolute number of speakers, speaker number trends, and domains of use of the language) and provides a calculation of levels of certainty based on percentages of the factors. See “About ELCat” on the the Endangered Languages Project website for more details about how endangerment and certainty levels are computed. There have been efforts on revitalizing endangered Formosan languages, made either by the government or by the speech communities. The previous attempts, however, were not very successful for many reasons, one of them being the failure of assessing the effect of language revitalization. I will not discuss this issue in detail in this dissertation, but refer interested readers to A. Tang (2011, 2014) for a better understanding about assessment of indigenous language shift and language planning in Taiwan.
Mandarin, Min Chinese, Hakka), and the indigenous communities have undergone sinicization to a certain extent. Regardless of the size of the speaking or affiliated ethnic group populations, all these languages face varying degrees of endangerment due to little intergenerational transmission. Over the last few decades, much effort has been put into documenting many of the endangered Formosan languages. Table 2.2 lists some of the documentary works on these three languages, categorized by their focus on lexicon, grammar, or texts.

Table 2.2 A sample of Amis, Puyuma, and Seediq documentation products

<table>
<thead>
<tr>
<th></th>
<th>Amis</th>
<th>Puyuma</th>
<th>(Truku) Seediq</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ogawa 2003;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M. Wu 2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>J. Wu 2000, 2006;</td>
<td>D. Shi 2004;</td>
<td>H. Chang 2000;</td>
</tr>
<tr>
<td>Texts</td>
<td>Ogawa &amp; Asai 1935;</td>
<td>Ogawa &amp; Asai 1935;</td>
<td>Ogawa &amp; Asai 1935;</td>
</tr>
<tr>
<td></td>
<td>S.-W. Huang 2014;</td>
<td>Cauqelin 2008;</td>
<td>Tsukida 1995;</td>
</tr>
<tr>
<td></td>
<td>FLA⁵; NTU Corpus⁶</td>
<td>FLA</td>
<td>NTU Corpus</td>
</tr>
</tbody>
</table>

These three languages are all spoken in Eastern Taiwan. Despite their geographic contiguity, the languages differ in terms of their phylogenic relationships, occupying different primary branches of the Austronesian (AN) language family (Blust 1999; 2009/2013), as illustrated in Figure 2.1, where each is underlined.

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⁴ This list is far from exhaustive. The works selected here represent a sample of the results of the efforts to document the three languages. These are also the main references I consult for a better understanding of these languages. Throughout this study, I use elicited data and also refer to some of these works for my analysis.

⁵ FLA refers to the Formosan Language Archive (formosan.sinica.edu.tw), developed within Academia Sinica for the purpose of collecting, conserving, and disseminating a virtual library of language and linguistic resources, which permits access to recorded and transcribed Formosan text collections.

⁶ The NTU Corpus (of Formosan Languages) (corpus.linguistics.edu.tw) was created in an attempt to preserve valuable linguistic heritage, and to systematically record these languages for the benefit of linguistic research.
Other proposals for higher-level subgrouping of AN languages (P. Li 1990; Starosta 1995; Sagart 2004, 2014; Ross 2009, 2012; Aldridge 2014; Zeitoun & Teng 2014, inter alia) do not place these three languages into distinct primary branches of the AN language family. However, all of these proposals except that of Sagart (2004, 2014) agree that Amis, Puyuma, and Seediq are located in different higher-level subgroups of the AN family. It is thus reasonable to choose these three languages as a representative sample for an internal typology of Formosan transfer verbs. The similarities and differences of transfer verbs within and across Formosan languages will be discussed in Chapters 4 to 7.

2.2 A Sketch Grammar of Amis, Puyuma, and Seediq

In this section, I present the grammar of the three research languages within the framework of Basic Linguistic Theory (Dixon 1979, 1994, 2010). The sketch presented in this chapter focuses on the morphosyntactic components that are relevant and necessary in understanding the linguistic data discussed in this dissertation. Typologically speaking, Amis, Puyuma, and Seediq share many morphosyntactic characteristics that make them “Philippine-type languages” (Himmelmann 2005). For the sake of simplicity, I do not provide an independent grammatical sketch of each language. In Section 2.2.1, I first introduce some of the most important characteristics that distinguish these languages from some other Austronesian languages. In Sections 2.2.2 to 2.2.5, I describe these languages together under discussions of

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7 Among these proposals, that of Ross (2009, 2012) is perhaps the one that has received the most attention over the past few years. According to his model, Puyuma, Rukai, Tsou and “Nuclear Austronesian” (NAn) are the four primary branches of AN, with Amis and Seediq both in NAn (with Seediq under the Atayalic subgroup). In light of this model, the question might arise of why I did not incorporate Rukai (or Tsou) into the scope of investigation. While I acknowledge the significant status of Rukai, I did not adopt it as a research language because of its deflected voice system (i.e., active/passive dichotomy; see Zeitoun 2007:143). As discussed in Chapter 1, this dissertation aims to investigate how (non-actor) “voice” markers interact with transfer verbs in Formosan languages. From this perspective, Rukai is not as ideal as Amis/Seediq, because investigation of the latter can provide more information about the function(s) of the Austronesian voice system.
several topics, with a special focus on their similarities and differences. These topics include constituent order, the prenominal marking (e.g., case marking) system, the pronominal system, and most importantly, the voice system.

### 2.2.1 Symmetrical Voice and Ergative Alignment

Typologically speaking, Amis, Puyuma, and Seediq are members of the Philippine-type languages, characterized by their rich voice systems. Take Paran Seediq, for example (the voice markers are underlined, and the NPs correlated with the voice marking are boldfaced):

(2.1) Symmetrical voice in Paran Seediq (H. Chang 1997:41; transcription/gloss mine)

<table>
<thead>
<tr>
<th>a.</th>
<th>sebet-un na pawan ka ricah</th>
<th>ABS</th>
<th>plum</th>
<th>Pawan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hit-PV</td>
<td>ERG</td>
<td>Pawan</td>
<td>ABS</td>
</tr>
<tr>
<td>‘Pawan will hit the plum.’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b.</th>
<th>sebet-an na pawan ka ricah</th>
<th>ABS</th>
<th>plum</th>
<th>Pawan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hit-LV</td>
<td>ERG</td>
<td>Pawan</td>
<td>plum</td>
</tr>
<tr>
<td>‘Pawan hit plum in the farm field.’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Philippine-type languages are well-known for their “voice” system, characterized by the

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As this dissertation is a typological study on Formosan transfer verbs, the sketch here addresses the basic grammatical components, with particular focus on the phenomena considered to be relevant to the research. By comparing the three languages in terms of carefully chosen topics, I avoid similar and repetitious descriptions. Admittedly, this type of sketch grammar sacrifices some language-particular subtleties which the readers may find interesting. The following works provide more detailed information about the grammar of these languages. For Amis, see T. Chen 1987; Zeng 1991; J. Wu 2000, 2006; Imanishi 2009; and D. Liu 2011. For Puyuma, see Y. Lin 1984; L. Huang 2000; Cauqelin 2008 and Teng 2005, 2008. For Seediq, see Holmer 1996; H. Chang 1997, 2000; Ochiai 2009; Tsukida 2005, 2009; and Tsou 2011.

I choose the Paran dialect of Seediq as the exemplar here for ease of exposition. As will be shown in Section 2.2.3, the Truku dialect has a case system in which ergative and oblique are neutralized. Presenting this dialect here might cause confusion to the reader. The other two research languages, Amis and Puyuma, are not ideal either due to their language-particular behavior regarding the voice system. In Amis, while all four voices are overtly marked, LV/CV verbs can be argued to be more marked than their AV/PV counterparts in terms of the number of the morphemes involved. In Puyuma, LV is more restricted in terms of the thematic roles it can correlate with. I choose not to highlight these issues in the general grammatical sketch, but addressed them in later chapters.

Numerous terms have been proposed in the literature (e.g., focus, pivot, topic, trigger, voice) to refer to this set of verbal affixes (see Blust 2002 for a thorough review). In this dissertation, I choose to refer to it as voice system for two reasons. First, the term “voice” has been widely adopted in recent studies. Second, this treatment enables a cross-linguistic comparison (i.e., asymmetrical vs. symmetrical voice), and also resonates with the argument-introducing ability of functional phrases (i.e., VoiceP) in the generativist framework, to be discussed in Chapter 9.
use of various verbal affixes to indicate the semantic/thematic role of the syntactic prominent NP. Most of these languages demonstrate a four-way voice system as shown in the Seediq sentences above: the **actor voice** (AV) marker correlates with the agent/actor (2.1a); the **patient voice** (PV) marker correlates with the patient/theme (2.1b); the **locative voice** (LV) marker correlates with a set of location-related roles (e.g., location, recipient, goal, source) (2.1c); and the **circumstantial voice** (CV) marker correlates with roles such as an instrument (and/or a beneficiary) (2.1d).\(^{11}\)

The properties of Formosan voice markers will be scrutinized in Section 2.2.5. Here, I simply demonstrate an important typological difference between Philippine-type languages and Germanic languages. The former have no morphologically underived forms: all are marked with overt voice morphology (2.1). In contrast, the latter have a basic form for active voice and a morphosyntactically derived form for passive voice (2.2).

(2.2) Asymmetrical voice in English

a. *John saw the dog.* (active voice: bare form)

b. *The dog was seen by John.* (passive voice: copula + participle)

Based on this morphological characteristic, Foley (1998, 2008) identifies Philippine(-type) languages as symmetrical voice languages (see also Himmelmann 2005:112), and further discusses the implications for transitivity, alignment, and lexical categories. These implications are relevant to the research objectives of this dissertation, and will be addressed in Chapter 8.

There have been continuous debates on the morphosyntactic alignment (or “actancy structure”; see Lazard 1984 and subsequent work) of Philippine-type languages. In her comprehensive survey, Liao (2004) outlines the controversy by summarizing the alignment systems proposed in the literature, including accusative, active, ergative, hybrid, fluid, and symmetrical. Here, I briefly introduce the accusative/ergative contrast, and demonstrate why the ergative view is preferred in the context of Formosan languages (except Rukai).

Basic Linguistic Theory (Dixon 1979, 1994; 2010) distinguishes four grammatical relations: S, A, O, E, which can be identified based on their distribution/function in two universal clause types, intransitive and transitive. This is illustrated in (2.3).

\(^{11}\) Jiang (2012) identifies a “fifth” voice (i.e., focus in her study) in the Takibakha dialect of Bunun: this marker differs from the CV marker in having an additional marker (i.e., *ils- vs. *ils-...-an*). In addition, the fifth voice differs from the CV marker in that the former correlates with a beneficiary while the latter correlates with an instrument. I will discuss the development of this fifth voice marker in Chapter 8.
(2.3) (Core) arguments in intransitive and transitive clauses (Dixon 1994:122–4)

a. intransitive: \( S \)

b. extended intransitive: \( S \ E \)

c. transitive: \( A \ O \)

d. extended transitive: \( A \ O \ E \)

As shown in (2.3), the single core argument of an intransitive has the \( S \) function. Canonical transitive clauses contain two core arguments: \( A \) refers to the subject of the transitive, typically the argument that initiates or controls the activity, while \( O \) refers to the object of the transitive, typically the one that is saliently affected by the activity (Dixon 2010:76). In some languages, there are extended intransitive/transitive clause types, with the additional \( E \) (i.e., the “extension to core”) argument.

The morphosyntactic alignment of a language deals with the grammatical relationship between arguments, particularly \( S \), \( A \), and \( O \). A language is said to have an (NOMINATIVE-)ACCUSATIVE alignment pattern if \( S \) and \( A \) arguments have the same grammatical relation coding (e.g., case marking, agreement, word order), as opposed to the \( O \) argument. On the other hand, a language is said to have the ERGATIVE(-ABSOLUTIVE) alignment pattern if \( S \) and \( O \) arguments have the same grammatical relation coding, in contrast with the \( A \) argument. The debate regarding whether Philippine-type languages should be treated as accusative or ergative languages stems from the fact that these languages have two (or more) dyadic voice constructions, and scholars reached different conclusions about the transitivity of these constructions. Take the Seediq sentences in (2.1) for example. Both AV and PV constructions are apparently dyadic, that is, involving an actor and an undergoer. As far as case marking is concerned, Seediq will be viewed as an accusative language if one identifies the AV construction as a transitive clause (and PV as passive); alternatively, it will be viewed as an ergative language if one identifies the PV construction as a transitive clause (and AV as antipassive). The two hypotheses are presented below, with corresponding glosses and translations to highlight the accusative/ergative contrast.

(2.4) The accusative view of Seediq: \( A \) and \( S \) have the same coding

a. AV as canonical transitive

\[
\begin{align*}
\text{s<em>ebuc} \quad \theta \quad \text{ricah} \quad \text{ka} \quad \text{pawan} \\
\langle\text{AV}\rangle \text{hit} \quad \text{ACC} \quad \text{plum} \quad \text{NOM} \quad \text{Pawan}
\end{align*}
\]

‘Pawan (A) is hitting plums (O).’

\[12\] The “plum-hitting” here refer to the act of knocking down plums from the trees.
b. PV as derived intransitive (i.e., passive construction)

\[
\text{sebet-un na pawan ka ricah} \\
\text{hit-PV OBL Pawan NOM plum} \\
\text{‘The plum (S) will be hit by Pawan (E).’}
\]

(2.5) The ergative view of Seediq: S and O have the same coding

a. AV as derived intransitive (i.e., antipassive construction)

\[
s<em>ebuc ø ricah ka pawan \\
<AV>hit OBL plum ABS Pawan \\
\text{‘Pawan (S) is hitting at [the] plums (E).’}
\]

b. PV as canonical transitive

\[
\text{sebet-un na pawan ka ricah} \\
\text{hit-PV ERG Pawan ABS plum} \\
\text{‘Pawan (A) will hit the plum (O).’}
\]

The ergative view of Formosan languages has been commonly adopted in the Formosan linguistic literature over the past decade, with arguments put forward for the transitivity of PV constructions based on multiple criteria. Take Amis for example. Under the semantic criteria, PV constructions are found to demonstrate “high transitivity” in Hopper and Thompson’s (1980) terms, because they are typically used when the undergoer of the event is individuated (and/or affected). For example, the undergoer ‘soda’ must be individuated (i.e., definite) in the PV construction (2.6b), while it is indefinite/non-specific in the AV counterpart (2.6a).

(2.6) Identifying transitivity in Amis: the semantic criteria

a. Low transitivity in AV construction: indefinite undergoer

\[
\text{mi-nanum ku tamdaw tu sayta} \\
\text{AV-water ABS person OBL soda} \\
\text{‘The person is drinking soda.’}
\]

b. High transitivity in PV construction: definite undergoer

\[
\text{ma-nanum nura}^{13} \text{ tamdaw ku sayta} \\
\text{PV-water ERG that person ABS soda} \\
\text{‘The person drank the soda.’}
\]

Under the morphological criteria, the PV construction can be treated as transitive because the AV construction can be monadic (see morphological identification tests in Gibson & Starosta 1990:199 and Liao 2004:39). This is demonstrated in (2.7). As far as syntactic criteria are concerned, the omissibility test also suggests that the AV construction is

\[^{13}\text{The prenominal markers in Amis can be decomposed into case marking, noun classifier, and deictic terms (if any). For simplicity’s sake, I will neither decompose them nor provide animacy/definiteness information in their glosses (unless necessary) in most of the examples throughout this dissertation, except those in §2.2.3.}\]
intransitive, as one of the two participants (i.e., undergoer) is not always required, and the PV construction is transitive, as both participants are obligatory. This is illustrated in (2.8).

(2.7) Identifying transitivity in Amis: the morphological criteria
a. AV construction: monadic pattern
\[
\text{mi-nanum}=\text{tu} \quad \text{ku} \quad \text{tamdaw}
\]
AV-water=PFV ABS person
‘The person has already drunk (water).’

b. AV construction: dyadic pattern
\[
\text{mi-nanum} \quad \text{ku} \quad \text{tamdaw} \quad \text{tu} \quad \text{sayta}
\]
AV-water ABS person OBL soda
‘The person is drinking soda.’

(2.8) Identifying transitivity in Amis: the syntactic criteria
a. AV construction as intransitive
\[
\text{mi-nanum}=\text{tu} \quad \text{ku} \quad \text{tamdaw} \quad (\text{tu} \quad \text{sayta})
\]
AV-water=PFV ABS person OBL soda
‘The person has already drunk (soda).’

b. PV construction as transitive
\[
\text{ma-nanum} \quad \text{nura} \quad \text{tamdaw} \quad \text{ku} \quad \text{sayta}
\]
PV-water ERG.that person ABS soda
‘That person drank the soda.’

c. \[
\text{ma-nanum} \quad \text{nura} \quad \text{tamdaw} \quad *(\text{ku} \quad \text{sayta})
\]
PV-water ERG person ABS soda

\[ \text{d. ma-nanum} \quad *(\text{nura} \quad \text{tamdaw}) \quad \text{ku} \quad \text{sayta} \]
PV-water ERG.that person ABS soda
‘That person drank the soda.’

Given these observations about PV being canonical transitive and AV, intransitive, the case alignment in these languages shows an ergative(-absolutive) pattern: A vs. S/O. The majority of recent studies on Formosan languages have shown that the languages studied in this dissertation are at least morphologically ergative (see J. Wu 2006a; Y. Chen 2008; Kuo 2013; and Lin 2013 for Amis; see Ross & Teng 2005; and Teng 2008 for Puyuma; see H. Chang 1997; and Aldridge 2004, 2008 for Seediq). Following these studies, I adopt the ergative view for my discussion of Formosan AV/NAV (i.e., intransitive/transitive) constructions throughout most of this dissertation, as indicated in my choice of ergative/absolutive glossing.

It should be noted that I embrace the ergative view as the general “denominator” for the sake of discussion and comparison across Formosan languages. I am aware that there is variation with respect to ergativity. For example, Formosan languages may differ from one another in terms of pure/split ergativity (e.g., pure ergativity in Kavalan/Atayal, argued in
Liao 2004, versus split-ergativity in Thao, Sasiyat, Amis, argued in S. Wang 2004; Hsieh & Huang 2006, Hsieh 2007; and J. Wu 2006a, respectively). Formosan languages are also argued to have different degrees of ergativity, depending, for example, on the degrees of transitivity of their AV/NAV constructions (H. Chang 2004; see also Huang & Lin 2012). These observations resonate with Ross’s (2002) claim that there may not be a unified analysis regarding the transitivity of voice constructions across Philippine-type languages (see also Dryer 1997; Kroeger 2010). In Chapter 8, I will discuss the variation regarding transitivity/ergativity across Formosan languages, and provide a possible account in the spirit of Foley’s claims about symmetrical voice languages.

### 2.2.2 Constituent Order

Like most Philippine-type languages, Amis, Puyuma, and Seediq are predicate-initial. While they all place the predicate before its arguments, these languages differ in the ordering relations of the core arguments. In this section, I illustrate the linear order of core arguments in relation to verbal predicates in the three Formosan languages. I focus on arguments that are full NPs. The order of pronominal arguments in each language is subject to its inventory, including the presence/absence of free (or bound) forms for certain grammatical relation(s), to be illustrated in Section 2.2.4.

As mentioned in §2.2.1, Amis, Puyuma, and Seediq have the ergative(-absolutive) case alignment, based on the identification of the AV construction as intransitive and the PV construction as transitive. Dyadic AV constructions thus have an S argument, marked as absolutive, and an E argument, marked as oblique. Examples (2.9) to (2.11) show that with respect to AV constructions, Amis and Puyuma have a rather flexible order between S and E, while Seediq has a fixed order, in which S must follow E.

#### (2.9) Constituent order of Amis AV constructions: VSE or VES

<table>
<thead>
<tr>
<th>Constituent Order</th>
<th>Amis Form</th>
<th>Pinyin Form</th>
<th>Meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. mi-qadup</td>
<td>kura</td>
<td>tamdaw</td>
<td>tu</td>
</tr>
<tr>
<td>AV-hunt</td>
<td>ABS.that</td>
<td>person</td>
<td>OBL pig</td>
</tr>
<tr>
<td>‘That person hunts pig.’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. mi-qadup</td>
<td>tu</td>
<td>fafuy</td>
<td>kura</td>
</tr>
<tr>
<td>AV-hunt</td>
<td>OBL pig</td>
<td>ABS.that person</td>
<td></td>
</tr>
<tr>
<td>‘The child stole money.’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### (2.10) Constituent order of Puyuma AV constructions: VSE or VES

<table>
<thead>
<tr>
<th>Constituent Order</th>
<th>Puyuma Form</th>
<th>Meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. tr&lt;em&gt;akaw</td>
<td>na</td>
<td>walak</td>
</tr>
<tr>
<td>&lt;AV&gt;steal</td>
<td>DF.ABS child</td>
<td>ID.OBL money</td>
</tr>
<tr>
<td>‘The child stole money.’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. tr&lt;em&gt;akaw</td>
<td>dra</td>
<td>paysu</td>
</tr>
<tr>
<td>&lt;AV&gt;steal</td>
<td>ID.OBL money</td>
<td>DF.ABS child</td>
</tr>
<tr>
<td>‘The child stole money.’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(2.11) Constituent order of Seediq AV constructions: VES only

a. *m-ekan  ka  laqi  ø  belbul  (*VSE)
   AV-eat  ABS child  OBL  banana

b.  m-ekan  ø  belbul  ka  laqi  (VES)
   AV-eat  OBL  banana  ABS  child
   ‘The child is eating/eats banana.’

The constituent order in NAV constructions in these three languages varies in a more complicated manner. For the sake of simplicity, I focus on the ordering relation between A and O arguments, and demonstrate it with PV constructions.

Examples (2.12) to (2.13) show that Amis and Seediq place the A argument before the O argument, and the opposite order results in ungrammaticality. Compared to these two languages, (Nanwang) Puyuma is exceptional: the A argument of the PV construction must be realized as a proclitic, attached to the verbal predicate, followed by the O argument, as exemplified in (2.14a). The full NP coreferential with the A argument, when present, is marked as oblique, and must follow the O argument. This is shown in (2.14bc). The idiosyncrasy of the constituent order in Puyuma NAV (e.g., PV) constructions originates from its case inventory, namely the lack of an ergative marker for full NPs, to be discussed in Section 2.2.3.

(2.12) Constituent order of Amis PV constructions: VAO only

a. ma-qadup  nura  tamdaw  ku  fafuy  (VAO)
   PV-hunt  ERG  that  person  ABS  pig
   ‘That person hunted the pig.’

b. *ma-qadup  ku  fafuy  nura  tamdaw  (VOA)
   PV-hunt  ABS  pig  ERG  that  person

(2.13) Constituent order of Truku Seediq PV constructions: VAO only

a. puy-un 14 ø 15  laqi  ka  sari  (VAO)
   cook-PV  ERG  child  ABS  taro
   ‘The child will cook the taro.’

b. *puy-un  ka  sari  ø  laqi  (VOA)
   cook-PV  ABS  taro  ERG  child

14 Atayalic languages are among those Austronesian languages that lack of “morphophonological transparency” (Himmelmann 2005:125). In Seediq, syllable deletion (or vowel reduction) takes place mostly in the antepenult after a stem is attached with a suffix, as in the case of puy-un (< hapuy + -un). For detailed information about Truku Seediq phonology, see Yang 1976, Tsukida 2005, 2009, and Lee 2010.

15 The constituent order of PV constructions is always VAO in all dialects of Seediq (e.g., Paran, Truku). (2.13) is an example of Truku Seediq, in which a full-NP A argument does not have an overt marking (cf. ergative marking na in Paran Seediq in 2.1). The case system in Truku will be explored in detail in Sections 2.2.3 and 2.2.4.
(2.14) Constituent order of Puyuma PV constructions:

a. $tu=trakaw-aw \ na \ paysu$ (A=V-O)
   3.ERG=steal-PV DF.ABS money
   ‘He stole the money.’

b. $tu=tu=trakaw-aw \ na \ paysu \ (kana \ walak_i)$ (A=V-O-NPiOBL)
   3.ERG=steal-PV DF.ABS money DF.OBL child
   ‘The child stole the money.’

c. $*tu=trakaw-aw \ kana \ walak \ na \ paysu \ (A_i=Value-NPiOBL-O)$
   3.ERG=steal-PV DF.OBL child ABS money

To sum up, Table 2.3 displays the possible constituent orders in AV/PV constructions in these three Formosan languages. Grammatical relations (e.g., S/A/O/E) and case information are both provided for the sake of clarity. The proclitic A argument is labeled as Pro(noun), and provided with the subscript i to indicate its co-reference with an oblique NP.

Table 2.3 The relative ordering of full NP participants in Amis, Puyuma, and Seediq sentences

<table>
<thead>
<tr>
<th></th>
<th>Amis</th>
<th>Puyuma</th>
<th>Truku Seediq</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV</td>
<td>$VE_{OBL}S_{ABS}$</td>
<td>$VE_{OBL}S_{ABS}$</td>
<td>$VE_{OBL}S_{ABS}$</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>PV</td>
<td>$VS_{ABS}E_{OBL}$</td>
<td>$VS_{ABS}E_{OBL}$</td>
<td>$(*VS_{ABS}E_{OBL})$</td>
</tr>
<tr>
<td></td>
<td>$VA_{ERG}O_{ABS}$</td>
<td>$Pro_{ERG}=VO_{ABS}NP_{OBL}$</td>
<td>$VA_{ERG}O_{ABS}$</td>
</tr>
</tbody>
</table>

2.2.3 (Pre)nominal marking system

Formosan languages employ prenominal markers in most cases to specify various kinds of information about their heads, including grammatical relation (e.g., case) distinctions, animacy (e.g., common/proper noun) distinctions, and definiteness distinctions. In this section, I scrutinize the inventory of the prenominal markers in each of the research languages based on these distinctions. I first provide a bird’s eye view of the (pre)nominal markers in all three research languages, and then I will discuss the systematic differences across these languages by investigating the properties of certain case markers.

The prenominal markers in Formosan languages provide information about case as well as some other properties of the head noun (e.g., number, definiteness). In some languages, it is possible to decompose these markers into classifiers and case markers. In other languages, the decomposition is more difficult to practice. For the sake of exposition, I will decompose...
these pronominal markers and provide detailed glossing only in the examples in this subsection. In most of the examples in this dissertation, I treat these markers as one linguistic unit for the sake of simplicity.

The pronominal markers in Amis can be decomposed into noun classifiers and case markers. Consider first, the classifier system in Figure 2.2, and the case marking system in Table 2.4. The combined pronominal marking system is presented in Table 2.5.

Figure 2.2 Central Amis noun classifier system (Liu 2011:35; adapted from L. Huang 1995 and J. Wu 2006a)

Table 2.4 Central Amis case marking system (based on D. Liu 1999; J. Wu 2006a)

<table>
<thead>
<tr>
<th>Common noun</th>
<th>ABS</th>
<th>ERG</th>
<th>OBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>k-</td>
<td></td>
<td>n-</td>
<td>t-</td>
</tr>
<tr>
<td>Ø</td>
<td></td>
<td>-an</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.5 Central Amis (pre)nominal marking system (based on J. Wu 2006a)

<table>
<thead>
<tr>
<th>Common noun</th>
<th>NEU</th>
<th>ABS</th>
<th>ERG/GEN</th>
<th>OBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>u</td>
<td>ku</td>
<td>nu</td>
<td>tu</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personal proper noun</th>
<th>NEU</th>
<th>ABS</th>
<th>ERG/GEN</th>
<th>OBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>singular</td>
<td>ci</td>
<td>ci</td>
<td>ni</td>
<td>ci...an</td>
</tr>
<tr>
<td>plural</td>
<td>ca</td>
<td>ca</td>
<td>na</td>
<td>ca...an</td>
</tr>
</tbody>
</table>
As part of the prenominal markers, the classifiers in Amis indicate the number (e.g., singular and plural) and animacy (e.g., common noun and personal/proper noun) of the heads. In addition to the three case relations (i.e., ABS, ERG, OBL) discussed in previous sections, a neutral (NEU) marker is found in Amis nominal predicates. It should be noted that in the case of personal/proper nouns, the same form is used to mark a nominal predicate (i.e., NEU) and the absolutive argument, as shown in Table 2.5 (e.g., ci The same form also surfaces as part of the oblique form (e.g., ci...an). To distinguish the absolutive form from the neutral/oblique form, I propose the involvement of a zero absolutive marker for personal/proper nouns (Table 2.5), as demonstrated in (2.15).

(2.15) Prenominal marking in Amis (with detailed gloss)

\[
\text{ma-pa-feli} \quad [n-i \quad kulas] \quad [t-u \quad paysu] \\
\text{PV-CAU-give} \quad \text{ERG-PN.SG} \quad \text{Kulas} \quad \text{OBL-CN} \quad \text{money} \\
[\omega-c-i \quad sawmah] \\
\text{ABS-PN-SG} \quad \text{Sawmah} \\
\text{‘Kulas gave money to Sawmah.’}
\]

Unlike in Amis, prenominal markers in Puyuma and Seediq are difficult to decompose, at least from a synchronic perspective. They are generally treated as one single unit in reference grammars (e.g., Teng 2008 for Puyuma; Tsukida 2009 for Seediq). Consider first the Puyuma prenominal markers, as listed in Table 2.6.

Table 2.6 Nanwang Puyuma prenominal markers (based on Teng 2008:50)

<table>
<thead>
<tr>
<th>Nouns</th>
<th>ABS</th>
<th>OBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td></td>
<td></td>
</tr>
<tr>
<td>indefinite</td>
<td>a</td>
<td>dra</td>
</tr>
<tr>
<td>definite</td>
<td>na</td>
<td>kana</td>
</tr>
<tr>
<td>Personal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>singular</td>
<td>i</td>
<td>kan</td>
</tr>
<tr>
<td>plural</td>
<td>na</td>
<td>kana</td>
</tr>
</tbody>
</table>

As shown in Table 2.6, markers of the same case relation differ based on the animacy of their head nouns. Further distinctions are attested. For common nouns, the marking differs based

---

16 Although both common nouns and proper nouns can be either animate or inanimate, they have been shown to have distinct morphosyntactic behavior across many languages, and thus been ranked differently in terms of the “animacy hierarchy” (e.g., Silverstein 1976).
on definiteness of the head noun; for personal nouns, the marking differs based on the number distinction. As these forms are difficult to decompose, they can be treated as portmanteau forms, containing more than one type of information about the head nouns. Consider, for example, (2.16):

(2.16) Prenominal marking in Puyuma (with detailed gloss)

\[ \text{tu} = \text{beray-ay} \quad \text{[dra paysu]} \quad [i \quad \text{senden}] \]

3.ERG=give-LV ID.OBL money SGPN.ABS Senden

[\text{kan sawagu}];

SGPN.OBL Sawagu

‘Sawagu gave money to Senden.’

Table 2.6 also shows that there is no ergative marking for full NPs. The A argument has to be realized as a proclitic (e.g., \text{tu=} in 2.16), whose referent is established in a full NP with oblique case (e.g., \text{kan sawagu}). This is observed particularly in the Nanwang dialect. In other dialects such as Katipul or Ulivelivek, prenominal ergative markers (e.g., \text{ni}, \text{nina}) are available for full-NP arguments (Teng 2009).

The final research language, Truku Seediq, demonstrates even more radical neutralization of the aforementioned distinctions in its (pre)nominal marking system. Consider Table 2.7.

Table 2.7 Truku Seediq (pre)nominal markers

<table>
<thead>
<tr>
<th></th>
<th>ABS</th>
<th>ERG/GEN</th>
<th>OBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Nouns</td>
<td>ka</td>
<td>ø</td>
<td>ø</td>
</tr>
<tr>
<td>Personal Nouns</td>
<td></td>
<td></td>
<td>ø / -an</td>
</tr>
</tbody>
</table>

In Truku Seediq, the number distinction does not affect the form of these markers. Furthermore, there is no common/personal noun distinction in all grammatical relations for younger generations of speakers (2.17b’). For older generations, oblique personal nouns are marked with an -\text{an} suffix, instead of zero (2.17b).

(2.17) (Pre)nominal marking in Truku Seediq

a. \text{biq-an} [\ø pila] [\ø kuras] [ka iming]

give-LV OBL money ERG Kulas ABS Iming

‘Kulas gave money to Iming.’
b. *se-begay=mu [keras-an] [ka pila] (by older generation)
   CV-give=1SGERG Kulas-OBL ABS money
   ‘I will give the money to Kulas.’

b’. *se-begay=mu [ø kuras] [ka pila] (by younger generation)
   CV-give=1SGERG OBL Kulas ABS money

Another characteristic of Truku Seediq is the lack of overt marking for the ergative argument, as opposed to the na marking in the Paran dialect. However, the ergative-absolutive case assignment still maintains in the pronominal system of Truku, to be discussed in detail in Section 2.2.4.

I have so far presented the forms of ergative, absolutive, and oblique marking in these three languages. Another important piece of information in the tables above is the identical marking of ergative and genitive case—a trait commonly found in many ergative languages (see, for example, Blake 2001:149–151; Palancar 2009:568). (2.18) demonstrates the marking of genitive case for dependents of nouns in these Formosan languages.

(2.18) Genitive case in Amis, Puyuma, and Seediq
   a. Amis
      [wacu] [nura tamdaw]
      dog GEN.that person
      ‘that person’s dog’
   b. Puyuma
      [tu_i=walak] [kana trau],
      3.GEN=child DF.OBL person
      ‘the person’s child’
   c. Truku Seediq
      [sapah] [ø seediq gaga]
      house GEN person that
      ‘that person’s house’

The genitive case is mainly used to mark noun phrases as dependents of nouns (Blake

---

17 The zero ergative marking for Truku full NPs also creates a typological anomaly with respect to structural markedness in case systems. Cross-linguistically, if there is an unmarked (zero) case, it will normally be the nominative coding (i.e., S/A) in accusative languages and the absolutive coding (i.e., S/O) in ergative languages (Blake 2001:90). Interested readers are referred to Kuo 2014, which provides an account for the development of the ergative case from na to zero in Truku based on a cross-dialectal examination.

18 The ergative/genitive homophony (or syncretism) in ergative languages is an interesting topic. Several cross-linguistic investigations have suggested that the genitive may be reanalyzed as ergative (Comrie 1978; Johns 1992; Lehmann 2002; Alexiadou 2001; Palancar 2002 inter alia). Intriguingly, support for this development appears to be found in the nominalist approach to Philippine-type voice systems (e.g., Starosta, Pawley, and Reid 1982; Kaufman 2009). In this dissertation, I do not intend to deal with the historical development of the case systems. For simplicity’s sake, I still treat ergative and genitive separately for their distinct grammatical functions.
The sentences above demonstrate a typological distinction between Puyuma and Amis/Seediq with respect to their marking strategies. In Puyuma, the dependent’s head must be marked by a genitive proclitic (e.g., tu= in 2.18b). This head is then followed by an oblique NP, which establishes the reference of the genitive. For Amis and Seediq, the information about the dependent is not marked on the head; instead, the dependent NP is marked with prenominal genitive case, as shown in (2.18a) and (2.18c), respectively. These languages thus demonstrate a typological distinction in terms of Nichols’s (1986) marking strategy: Puyuma is “head-marking” whereas Amis and Seediq are “dependent-marking.” The head-marking nature of Puyuma has important bearing on its pronominal system, to be discussed in Section 2.2.4.

Another important case(-like) marker should be mentioned here, namely the locative marker i, available in Amis and Puyuma. This marker is used to mark nominals with location-related interpretations (e.g., location, goal, source). The locative nouns with i marking deserve a special place in the grammars of Amis and Puyuma, as they can occur in different grammatical categories such as peripheral argument, E argument, or even predicate.

(2.19) Locative nouns in various grammatical categories
a. As a peripheral argument (i.e., adjunct)
\[
<tr><em>ekelr</em> i ruma’ na trau \]
\(<AV>drink\) LOC house DF.ABS person
‘The person drinks (wine) at home.’

b. As an E argument
\[
\phi-tayra i kalingku kura wawa \]
\(<AV>-go\) LOC Hualien ABS.that child
‘That child is going to Hualien.’

c. As a predicate
\[
i lutuk \phi-ci aki \]
\(<AV>mountain\) ABS-PN Aki
‘Aki is on the mountain.’

2.2.4 Pronominal System
This section describes the pronominal system in the three research languages, particularly the inventory of personal pronouns. Modern Formosan languages typically distinguish three persons (i.e., 1st/2nd/3rd) and two numbers (i.e., singular/plural) in their personal pronouns. There is, however, variation across languages with regard to case distinction and the presence of free/bound (or long/short) forms. Amis is one of the few Formosan languages that do not have free/bound (or long/short) contrast in its personal pronouns. The paradigm is shown in Table 2.8.
Table 2.8 Amis personal pronouns (based on L. Huang 1995; J. Wu 2006a)

<table>
<thead>
<tr>
<th>Number</th>
<th>Person</th>
<th>ABS/NEU</th>
<th>ERG/GEN</th>
<th>OBL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>kaku</td>
<td>aku</td>
<td>takuwanan</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>kisu</td>
<td>isu</td>
<td>tisuwanan</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>cingra</td>
<td>nira</td>
<td>cingranan</td>
</tr>
<tr>
<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; inclusive</td>
<td>kita</td>
<td>ita</td>
<td>kitanan</td>
</tr>
<tr>
<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; exclusive</td>
<td>kami</td>
<td>niyam</td>
<td>kamiyanan</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>kamu</td>
<td>namu</td>
<td>tamuanan</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>cangra</td>
<td>nangra</td>
<td>cangraan</td>
</tr>
</tbody>
</table>

As highlighted in Table 2.8, Amis free pronouns resemble full NPs in the sense that most of them incorporate into their forms the aforementioned noun classifiers and/or case markers (e.g., k-, n-, -an, c-i, c-a in Figure 2.2 and Table 2.4). The morphological composition of these forms requires further research regarding the pronouns’ historical development. In this study, I treat these items as portmanteau forms, providing them with glosses indicating number, person, and case. Amis free pronouns are found to display various grammatical relations including absolutive, ergative/genitive, and oblique. In particular, the free forms for the absolutive relation can also be used in contexts where no grammatical relation is involved. These neutral (NEU) pronouns can be found in topic phrases, nominal predicates, single-worded answers to questions, and so forth.

Table 2.9 shows that Truku Seediq has both free forms and bound forms in its personal pronominal system.

---

19 For example, I will simply treat cingran an as ‘3SG.OBL’, as opposed to c-[ng]-ra-[n]an ‘PN-SG-that-OBL’. The latter is arguably based on the hypothesis that this form has arisen as a result of grammaticalization from a demonstrative into a third person pronoun (Givón 1984; Diessel 1999; Bhat 2004).
### Table 2.9 Truku Seediq personal pronouns (based on Tsukida 2005, 2009)

<table>
<thead>
<tr>
<th></th>
<th>free forms</th>
<th>bound forms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEU</td>
<td>OBL</td>
</tr>
<tr>
<td><strong>Singular</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>yaku</td>
<td>kenan</td>
</tr>
<tr>
<td>2nd</td>
<td>isu</td>
<td>sunan</td>
</tr>
<tr>
<td>3rd</td>
<td>hiya</td>
<td>hiyan</td>
</tr>
<tr>
<td><strong>Plural</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Inc(lusive)</td>
<td>‘ita</td>
<td>tenan</td>
</tr>
<tr>
<td>1st Exc(lusive)</td>
<td>yami</td>
<td>menan</td>
</tr>
<tr>
<td>2nd</td>
<td>yamu</td>
<td>munan</td>
</tr>
<tr>
<td>3rd</td>
<td>dehiya</td>
<td>dehiyan</td>
</tr>
</tbody>
</table>

Like in Amis, free pronouns in Seediq also resemble full NPs with regard to their grammatical marking. The absolutive category is absent in the paradigm, because the neutral pronouns can take the prenominal absolutive marker as other nouns do (e.g., *ka holing/seediq/yaku* ‘ABS dog/person/1SG’). The oblique forms involve the attachment of the oblique marker *-an*, which also applies to nouns with higher animacy (e.g., personal/proper nouns and kinship terms). The similarity between neutral pronouns and their corresponding oblique forms, however, is obscured due to several phonological processes (e.g., *ya.ku. + -an. > ya.ke.nan* ‘1SG.OBL’, as a result of nasal insertion, syllable deletion, and vowel reduction).

One final remark on the Seediq free pronouns is that they lack an “ergative/genitive” category. In Seediq, when the dependents bearing the ergative/genitive relation are pronouns, they must be realized in bound forms.

Compared to free forms, bound forms in Seediq do not manifest the oblique distinction. This is not surprising from a cross-linguistic perspective. Compared to core arguments (i.e., S/A/O), oblique arguments (i.e., E) are “less salient” in the states and events being described (Croft 1991); thus, they are less likely to be developed as markers on the verb (Du Bois 1987; Thompson 1997). Another characteristic illustrated in Table 2.9 is the lack of third person absolutive bound forms, as is commonly the case in most Formosan languages. According to Siewierska (2009), the non-development of third person object bound forms—absolutive in ergative languages, and accusative in accusative languages—is a common person asymmetry.
There have been debates on the grammatical status of Seediq bound pronouns. In a recent study, Ochiai (2009) showed that these bound pronouns demonstrate both clitic features and agreement features. In the present study, I refer to these bound forms as clitics. With regard to position, Seediq bound pronouns are Wackernagel clitics, occurring immediately after the first phonological word (Aldridge 2004). (2.20) demonstrates that they occur after the sentence-initial main predicate or preverb/auxiliary.

(2.20) Second-position enclitics in Seediq

<table>
<thead>
<tr>
<th>a.</th>
<th>me-taqi=k</th>
<th>o</th>
<th>paru</th>
<th>sapah</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV-sleep=1SG.ABS</td>
<td>OBL</td>
<td>big</td>
<td>house</td>
<td></td>
</tr>
<tr>
<td>‘I sleep in a big house/room.’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>wada=na</td>
<td>se-begay</td>
<td>leqi-an</td>
<td>ka</td>
</tr>
<tr>
<td>PAST=3SG.ERG</td>
<td>CV-give</td>
<td>child-OBL</td>
<td>ABS</td>
<td>book</td>
</tr>
<tr>
<td>‘He gave the book to a/the child.’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition to these bound forms, Seediq has so-called compound pronouns or clitic pronoun clusters which combine the absolutive participant and an ergative participant in either order. These clusters are typically attested in NAV constructions. Consider the following two sentences.

(2.21) Truku Seediq pronoun clusters

| a. | qeta-an=kuna |
| see-LV=1SG.ABS:3SG.ERG |
| ‘He saw me.’ |
| b. | qeta-an=misu |
| see-LV=1SG.ERG:2SG.ABS |
| ‘I saw you.’ |

---

20 It is impossible to observe clitic pronoun clusters in AV constructions (because of the lack of ergative participant). Interestingly, pronoun clusters can be found in nominal predication. Consider the example below.

(i) empatas ka yaku
student ABS 1SG
‘I am a student.’

(ii) empatas=kuna
student=1SG.ABS:3SG.GEN
‘I am his student.’

The sentences involving nominal predicates are understood as “equational sentences.” In (ii), =kuna attaches to the nominal predicate ‘student’. The relationship between these two pronouns can still be identified by virtue of the fact that genitive case marks the dependent of the head noun; hence the reading ‘I am his student.’

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20 It is impossible to observe clitic pronoun clusters in AV constructions (because of the lack of ergative participant). Interestingly, pronoun clusters can be found in nominal predication. Consider the example below.
The case/number of the participating pronouns can be identified based on the interpretation of the sentence. For example, =kuna in (2.21) must be analyzed as 1SG.ABS:3SG.ERG, but not 1SG.ERG:3SG.ABS, because it specifies an event in which the third person is the A argument and the first person is the O argument, rather than vice versa. A comprehensive paradigm of these clusters is provided in Table 2.10.

Table 2.10 Truku Seediq clitic pronoun clusters (based on Tsukida 2009; Kuo 2014)

<table>
<thead>
<tr>
<th>ABS</th>
<th>ERG/GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1S (=mu)</td>
<td>1PI (=nami)</td>
</tr>
<tr>
<td>1S (=ku)</td>
<td>\</td>
</tr>
<tr>
<td>1PI (=nami)</td>
<td>--</td>
</tr>
<tr>
<td>1PE (=ta)</td>
<td>--</td>
</tr>
<tr>
<td>2S (=su)</td>
<td>=misu</td>
</tr>
<tr>
<td>2P (=namu)</td>
<td>=maku</td>
</tr>
<tr>
<td>3S (--)</td>
<td>\</td>
</tr>
<tr>
<td>3P (--)</td>
<td>\</td>
</tr>
</tbody>
</table>

Types of gaps: \ systematic; -- accidental/arbitrary

Despite slight dialectal differences (see Ochiai 2009; Lee 2012), Seediq pronoun clusters can be divided into two major categories based on the order of participants and the difference in forms. The first type of clusters, represented in the shaded cells, has the absolutive component before the ergative component. They can be easily identified, because the cluster

---

21 Table 2.10 shows that not all combinations of clitic pronoun clusters are available. Two major types of gaps can be found: systematic gaps and arbitrary/accidental ones. The systematic gaps involve (a) reflexive/reciprocal events and (b) events involving a third person undergoer. Clitic pronoun clusters do not play a role in these scenarios because (a) reflexive/reciprocal events in Seediq are realized by means of valency-decreasing verbal morphology (Tsukida 2005:320–323), and (b) third person absolutive bound pronouns are available. See Kuo 2014 for further discussion.
forms are exactly the “sum of their parts” (e.g., \(=kuna\) and \(=ku=na\)). The remaining clusters belong to the second type, which are typically characterized as having the ergative-absolutive order; these forms do not directly come from the contributing bound pronouns (e.g., \(=misu\) and \(*=mu=su\)). The ordering of components within clitic pronoun clusters in Austronesian languages is a challenging issue. Here, I do not discuss it in detail, but simply provide a generalization based on person categories. That is, for all the clusters in Table 2.10, the first/second person participant always precedes the third person, regardless of case (H. Chang 1997; Kuo 2014). 22

Finally, let’s consider Puyuma personal pronouns, as summarized in Table 2.11.

Table 2.11 Puyuma personal pronouns (based on Teng 2008:61–63)

<table>
<thead>
<tr>
<th>Number</th>
<th>Person</th>
<th>ABS/NEU</th>
<th>Free forms</th>
<th>Bound forms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ERG/GEN</td>
<td>for ABS head</td>
<td>for OBL head</td>
</tr>
<tr>
<td>Singular</td>
<td>1st</td>
<td>kuiku</td>
<td>nanku</td>
<td>draku</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>yuyu</td>
<td>nanu</td>
<td>dranu</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>taytaw</td>
<td>nantu</td>
<td>dratu</td>
</tr>
<tr>
<td></td>
<td>1st Inc.</td>
<td>taita</td>
<td>nanta</td>
<td>drata/drananta</td>
</tr>
<tr>
<td></td>
<td>1st Exc.</td>
<td>mimi</td>
<td>naniam</td>
<td>draniam/drananiam</td>
</tr>
<tr>
<td>Plural</td>
<td>2nd</td>
<td>muimu</td>
<td>nanemu</td>
<td>dranemu/drananemu</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>---</td>
<td>nantu</td>
<td>dratu/dranantu</td>
</tr>
</tbody>
</table>

Table 2.11 is taken from Teng (2008), with slight adjustments for the ease of comparison with Amis and Seediq pronouns. Like Seediq, Puyuma has bound pronouns with absolutive and

---

ergative/genitive relations, and lacks the third person category in its absolutive relation. However, while all bound pronouns in Seediq are enclitics, Puyuma has proclitics for ergative participants and enclitics for absolutive participants. With respect to free pronouns, Puyuma is more similar to Amis than to Seediq in having “ergative/absolutive” free pronouns. Intriguingly, this category further splits into two subcategories based on the grammatical relation of their noun heads (i.e., absolutive/oblique). This split is in fact motivated by the head-marking nature of Puyuma (verb/noun) phrases. To illustrate, I provide an alternative analysis of “free” ergative/genitive pronouns, as exemplified in (2.22).

(2.22) Genitive free pronouns in Puyuma (Teng 2008:64–65; glosses mine)

a. tu=retra-anay [nantu=basak] kana ma idrang-an
   3.ERG=put.down-CV DF.ABS:3GEN=bag DF.OBL old-NMZ
   ‘The elders put down their bags.’

b. sagar m-ekan [drata=<in>eray] dra akan-an
   like AV-eat ID.OBL:1PL.ERG=<PFV>give ID.OBL eat-NMZ
   ‘They like to eat whatever food we have given.’

In (2.18b), I demonstrate the head-marking nature of Puyma noun phrases by showing that the possessor is obligatorily marked on the head (e.g., tu=walak ‘his child’). The same analysis can be applied to most of the “free” ergative/genitive pronouns in Table 2.11. (2.22a) involves an absolutive head noun ‘bag’, marked by a third person dependent ‘their’. (2.22b) involves a nominalized oblique head (by means of the aspect marker <in>) (i.e., ‘the given (thing)’), marked by a first person plural dependent (i.e., ‘we’ as the actor of ‘give’). These genitive (free) pronouns, in terms of decomposition, appear to derive from the combination of a head-marking proclitic (e.g., tu=, ta=) and the prenominal case marker for the head noun (e.g., na, dra). This analysis is tenable, as the na/dra are identical to the absolutive/oblique case markers for full NPs (see Table 2.6), and the proclitic forms proposed here are exactly the ones identified in Table 2.11. While this kind of decomposition is possible, following Teng (2008), I treat these free pronouns as single units, as some of them have become lexicalized forms with certain idiosyncrasies, so that not all genitive pronouns can be simply decomposed into the case marker (of the head) and the proclitic (e.g., nanku ‘DF.ABS:1SG.GEN’ as opposed to *naku=; dranemu ‘ID.OBL:2PL.GEN’ as opposed to *dramu=).

2.2.5 Voice system

In §2.2.1, I addressed the symmetricity of voice morphology in Formosan languages. This section discusses these voice markers in more detail by identifying the properties shared by
the research languages. Certain adjustments are required in this study for the purpose of comparison. First, in the literature, members of the four-way system tend to be referred to in a language-specific manner in order to address the properties these markers have in the given language. For example, Amis is analyzed as having actor voice and undergoer voice, with the latter further divided into plain transitive, locative applicative, and instrumental applicative (J. Wu 2007); Puyuma is treated as having ITR (i.e., intransitive), TR(ansitive)\textsubscript{1}, TR\textsubscript{2}, and TR\textsubscript{3} markers (Teng 2008); Truku Seediq, on the other hand, is analyzed with AV, G(oal)V\textsubscript{1}, GV\textsubscript{2}, and CV markers (Tsukida 2005, 2009). In this study, I have chosen a united terminology, calling these four types of markers AV, PV, LV, and CV, respectively. I adopt these terms for the ease of comparison; it is not my intention to ignore the language-particular properties of these markers (to be discussed and compared in later chapters).

Second, in studies of individual languages, the voice paradigm is always presented in more detail, as the markers may differ based on TAM distinctions (Zeitoun et al. 1996). For example, most Formosan languages (e.g., Puyuma) have indicative voice markers and non-indicative voice markers. In some Formosan languages (e.g., Seediq), voice markers interact with tense and aspect. In other Formosan languages, the voice markers are least affected by the TAM system (e.g., Amis). As this dissertation deals with the role of voice in argument structure/alternation of (transfer) verbs, I choose to only examine the most prominent markers of all TAM possibilities. In other words, I only present and discuss part of the voice paradigm for each language. In what follows, I outline a simplified voice system for each of the three Formosan languages. I begin with Amis, as shown in Table 2.12.

Table 2.12 Amis voice system (simplified) (based on J. Wu 2006a:114)

<table>
<thead>
<tr>
<th>AV</th>
<th>mi-</th>
<th>&lt;um&gt;</th>
<th>ma</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV</td>
<td>ma-</td>
<td>ma-</td>
<td>ma-&lt;um&gt; ma-ka-</td>
</tr>
<tr>
<td></td>
<td>mi-...an</td>
<td>ka-...an</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-en</td>
<td>-en</td>
<td>ka-...-en</td>
</tr>
<tr>
<td>LV</td>
<td>pi-...an</td>
<td>ka-&lt;um&gt;...an</td>
<td>ka-...-an</td>
</tr>
<tr>
<td>CV</td>
<td>sa-pi-</td>
<td>sa-ka-&lt;um&gt;</td>
<td>sa-ka-</td>
</tr>
</tbody>
</table>

23 Unlike in some other languages, the voice forms in Amis do not differ based on the TAM information of the event. However, the voice markers may carry certain default TAM interpretations.
The voice system in Amis is more complicated in that these forms are lexically-dependent, as indicated in separate columns in Table 2.12. For example, within the AV category, *mi-* is used for activity verbs (e.g., *mi-palu* ‘beat’; *mi-tangtang* ‘cook’; etc.); *<um>* is used for unergative verbs (e.g., *r<um>*akat ‘walk’; *c<um>*angic ‘cry’; etc.); *ma-* is used for stative verbs or unaccusative verbs (e.g., *ma-ulah* ‘like’; *ma-fanaq* ‘know’; *ma-efer* ‘fly’; *ma-sadak* ‘go out.’; etc.). The lexically conditioned distinction in voice forms is found not only within the AV category, but also in the other three types, illustrated in the corresponding cells in Table 2.12. There have been numerous studies regarding how voice forms (especially AV) differ according to the semantics of verbs. See Yang 1992, E. Liu 2003, and J. Wu 2006a for further information.

Another distinction presented in Table 2.12 is the presence of multiple PV markers (even for the same verb type) in Amis, namely *ma-*; *mi-*…-*an*, and *-en*. From a synchronic perspective, these terms exert additional “effects” on the verb and are therefore required in modern Amis. For PV constructions involving the same stem/root, the *ma-* form carries the past or perfective reading, and does not specify the intentionality of the bringing about of the event; the *-en* form is used in a somewhat complementary manner: it marks intentional events, but does not actually specify the tense or aspect. Both *ma-* and *-en* are only found in verbal predicates; *mi-*…-*an*, on the other hand, is found in verbal predicates, and can also serve as a nominalizing (e.g., relativizing) tool. See (2.23a-b) for the interpretation difference between *ma-* and *-en* PV predicates, and (2.23d) in particular, for the ability of *mi-*…-*an* to play a role in a modifying (relative) clause (in square brackets).

(2.23) PV markers in Amis and their respective interpretations/functions

<table>
<thead>
<tr>
<th>a. ma-palu</th>
<th>ni</th>
<th>kulas</th>
<th>kura</th>
<th>wawa</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-beat</td>
<td>ERG.PN</td>
<td>Kulas</td>
<td>ABS.that</td>
<td>child</td>
</tr>
<tr>
<td>‘Kulas beat that child.’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b. palu-en</th>
<th>ni</th>
<th>kulas</th>
<th>kura</th>
<th>wawa</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-beat</td>
<td>ERG.PN</td>
<td>Kulas</td>
<td>ABS.that</td>
<td>child</td>
</tr>
<tr>
<td>‘Kulas will beat that child.’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>c. mi-palu-an</th>
<th>ni</th>
<th>kulas</th>
<th>kura</th>
<th>wawa</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-beat-PV</td>
<td>ERG.PN</td>
<td>Kulas</td>
<td>ABS.that</td>
<td>child</td>
</tr>
<tr>
<td>‘Kulas beat that child.’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

24 E. Liu (2003) identifies Amis *ma*-type verbs as unaccusative/ergative verbs, and provides examples such as *ma-efer* ‘fly (up)’ and *ma-sadak* ‘go out’. The unaccusativity of these verbs is skeptical, as there is, to my knowledge, no valid morphosyntactic diagnosis to distinguish unaccusative and unergative verbs. However, from a semantic perspective, one-place *ma-* verbs do have the characteristics of unaccusative verbs, as they typically denote “internally caused” events in Levin and Rappaport Hovav’s (1995:91) terms. For more discussion, readers are referred to Kuo and Chen’s (to appear) revised analysis of verb classification in Amis (and other Formosan languages) in light of the spontaneity scale (Haselmath 1993).
Compared to Amis, Seediq and Puyuma have relatively straightforward manifestations of voice. The simplified versions of voice systems in these two languages are presented in Table 2.13 and 2.14.

Table 2.13 Seediq voice system (simplified) (based on Tsukida 2005:314)

<table>
<thead>
<tr>
<th>Category</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV</td>
<td>&lt;em&gt;, ø</td>
</tr>
<tr>
<td>PV</td>
<td>-un</td>
</tr>
<tr>
<td>LV</td>
<td>-an</td>
</tr>
<tr>
<td>CV</td>
<td>se-</td>
</tr>
</tbody>
</table>

Table 2.14 Puyuma voice system (simplified) (based on Teng 2007:156)

<table>
<thead>
<tr>
<th>Category</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV</td>
<td>M-</td>
</tr>
<tr>
<td>PV</td>
<td>-aw</td>
</tr>
<tr>
<td>LV</td>
<td>-ay</td>
</tr>
<tr>
<td>CV</td>
<td>-anay</td>
</tr>
</tbody>
</table>

Table 2.13 shows that Seediq relies on only one form for each voice category (except AV) regardless of the nature of the involved verb. This is also the case in Puyuma, as in Table 2.14. I adopt Teng’s (2008) convention and uses M- to represent a variety of AV markers (i.e., <em>, <en>, me-, m-, and even zero), the selection of which depends on the phonological environment or the semantics of the verb.

For the sake of simplicity, concrete examples of these voice constructions will be postponed until later chapters, where independent languages are investigated. In the remainder of this section, I emphasize, with minimal examples, the similarities in the functions/properties of these voice markers in the three research languages. The language-particular functions/properties of these voice markers will be presented in Chapters 4 to 6 and explored from a comparative perspective in Chapter 8.

2.2.5.1 The shared properties of voice marking

This subsection discusses four properties of voice marking shared across most of the Formosan languages, including Amis, Puyuma, and Seediq. I begin with the
intransitive/transitive distinction of AV/NAV voice marking, and then proceed to the derivational properties of voice, including its transcategorial function and its applicativization function.

Transitivity marking
The observation that Philippine-type voice markers are indicators of transitivity has been long acknowledged in the existing body of literature (with some opposing views, to be discussed in Chapter 8). For the sake of simplicity, this chapter embraces this idea, as demonstrated in my discussion of ergative-absolutive alignment of case in Formosan languages in §2.2.1. To sum up, AV constructions are (syntactically) intransitive clauses, always involving an S argument, possibly with or without an E argument, depending on the valency of the verb. NAV constructions are transitive, always involving an A argument and an O argument.

Transcategorial function
In addition to appearing in predicates headed by “typical” verbs (i.e., those denoting activities/events), voice markers are also found to change the grammatical category of a word. Voice markers are thus “verbalizers” in cases where the event interpretation of a predicate is so-derived from an object-denoting nominal root. Previously, I demonstrated (in 2.6) how ‘drink’ verb in Amis is derived from the root ‘water’ via voice affixation, repeated in (2.24). The transcategorial process is also revealed by the ability of voice markers to transfer a putative adjectival (i.e. property-denoting) root into a change-of-state verb, as exemplified in (2.25).

(2.24) The transcategorial function of Formosan (e.g., Amis) voice markers

\[
\begin{align*}
\text{a. } & \text{mi-nanum} & \text{ku} & \text{tamdaw} & \text{tu} & \text{sayta} \\
& \text{AV-water} & \text{ABS} & \text{person} & \text{OBL} & \text{soda} \\
& \text{‘The person is drinking soda.’} \\
\text{b. } & \text{ma-nanum} & \text{nura} & \text{tamdaw} & \text{ku} & \text{sayta} \\
& \text{PV-water} & \text{ERG.that} & \text{person} & \text{ABS} & \text{soda} \\
& \text{‘That person drank the soda.’}
\end{align*}
\]

(2.25) The transcategorial function of Formosan (e.g., Amis) voice markers

\[
\begin{align*}
\text{a. } & \text{ma-tuniq}^{25} & \text{ku} & \text{titi} \\
& \text{AV-soft} & \text{ABS} & \text{meat} \\
& \text{‘The meat is soft.’}
\end{align*}
\]

---

25 The root *tuniq* ‘soft’ takes *ma-* as its AV marker as it denotes a state rather than an activity/event (see Table 2.12 and related discussion). It is, however, possible for *tuniq* to take another AV marker *mi-*, with a causal interpretation. Examples of this sort strengthen the semantic alignment of voice markers in Formosan languages (Tsukida 2008; Kuo & Chen to appear). I will discuss this in more detail in Chapter 8.
Applicativization

Voice markers in Formosan languages are derivational, not only because they can change the grammatical category of a word, but also because they can increase the valency of a verb. Cross-linguistically, there are two types of strategies/morphemes responsible for valency-increasing: causative and applicative (Dixon & Aikhenvald 2000; Haspelmath & Müller-Bardey 2004). The former adds a new A argument into the event and the latter adds a new O argument. Here, I introduce the shared property of LV/CV markers, which has been widely acknowledged in the literature. For the sake of simplicity, I identify LV/CV markers as applicativizers based on their ability to introduce a (originally) peripheral argument as a core argument in the derived predicate. Consider the following Truku Seediq examples.

(2.26) Applicativizers in Formosan (e.g., Seediq) languages

a. keret-un=mu ka sagas
   cut-PV=1SG.ERG ABS watermelon
   ‘I will cut the watermelon.’

b. keret-an=mu ø sagas ka keti’inuh niyi
   cut-LV=1SG.ERG OBL watermelon ABS board this
   ‘I cut watermelon on this board.’

c. se-kerut=mu ø sagas ka bubu / ka yayu niyi
   CV-cut=1SG.ERG OBL watermelon ABS mother ABS knife this
   ‘I cut watermelon for mother/with this knife.’

The three sentences in (2.26) all involve the cutting event. The applicative analysis of LV/CV marking is based on the treatment of ‘cut’ as bivalent verb, subcategorizing for an agent (e.g., ‘I’) and an undergoer (e.g., ‘watermelon’). PV is generally conceived as the canonical transitive clause for having two core arguments, as shown in (2.26a). However, in LV or CV constructions, a third participant is obligatory as it takes the core function, i.e., O, indicated by the ABS case. LV and CV constructions are thus analyzed as applicative constructions in some studies because of this valency-increasing effect. In addition, the thematic role of the “applied argument” (boldfaced) resonates with the applicativizer (underlined) (LV for location-related participants; CV for instrument or beneficiary).

Despite the reasoning above, there have been arguments against treating LV/CV markers as typical applicativizers (Foley 1998). In §2.2.1, I pointed out one important characteristic of voice system in Formosan languages, namely its symmetricality in (morphological) marking.
Note that the applicative analysis assumes the presence of a basic, underived verb, with a default valency. It is this verb that applicative morpheme attaches to add an additional participant, and further changes the grammatical relations between the involved participants. For symmetrical voice languages, however, this assumption is dubious, because there is no morphological evidence for the presence of an underived verb (see §2.2.1).

The applicative analysis for LV/CV verbs is thus questionable at least to certain extent; it has been the center of discussion for decades. For the sake of exposition, I will use the term “applicative” for the ability of voice markers to introduce the “original” peripheral arguments (e.g., participants such as location, instrument, and beneficiary) into the event to receive the core grammatical status. In the final few chapters of this dissertation, I will argue against the applicative analysis and provide my own account for the argument structure of NAV constructions in symmetrical voice languages.

**Definiteness/Specificity requirement on the absolutive argument**

In addition to the above-mentioned properties of voice marking, which directly relate to the valency or argument structure of the derived verb, another property worth mentioning is the semantic effect voice marking has on the syntactically prominent NP (i.e., the absolutive argument). In the discussion regarding the transitivity of voice constructions in §2.2.1, I pointed out that the absolutive argument in PV constructions is individuated (e.g., 2.6). The specificity or definiteness of the absolutive NP is in fact observed in all NAV constructions across Formosan (and other Philippine-type) languages. This requirement will be demonstrated in the translation of the linguistic examples throughout this dissertation, where the absolutive argument is always specific or definite (e.g., *the*).

**2.3 Conclusion**

This chapter provides a grammatical sketch of the languages to be investigated in this dissertation, namely Amis, Puyuma, and Seediq. For the sake of simplicity, I choose not to outline each language separately, but discuss them together under several crucial topics, with special focus on how they resemble and differ from one another. The topics of investigation include constituent order, prenominal marking system, pronominal system, and voice system. The information provided here serves as an important basis for the understanding of the morphosyntax of transfer verbs and other verbs in later chapters.

Among all the chosen topics, voice system is most relevant to the research objectives of this dissertation. For the sake of comparison, I choose to target only part of the the voice forms, instead of presenting the entire voice paradigm in each language. While
Tense-Aspect-Mood (TAM) system forms a crucial aspect for the understanding of voice, I find it difficult to incorporate it into my study because of its drastic difference in each language. It is also my belief that the discussion of argument structure/alternations of verbs across Formosan languages is more feasible without taking factors such as TAM into consideration. However, I do not intend to mean that TAM is not part of the picture in understanding the argument structure in Formosan languages. Aspect, for example, has proven significant to argument structure theories, to be discussed in Chapter 9. It is my hope that the output of this dissertation, based on the single set of voice markers that is least influenced by TAM, can provide the first step toward the understanding of the role voice system plays in argument structure. A full-scale investigation including voice markers with other TAM distinctions (e.g., non-indicative mood) awaits future research.
CHAPTER THREE
TRANSFER VERBS AND DITRANSITIVE CONSTRUCTION:
A TYPOLOGICAL PERSPECTIVE

3.1 Introduction
Transfer verbs have proven both challenging and insightful to argument structure theories for their ability to alternate argument expressions across languages. In Chapter 1, I used ‘give’ as an example to demonstrate the difference between uncoded alternations (e.g., ditransitive-dative alternation in English) and coded alternations (e.g., LV-CV alternation in Formosan languages).

(3.1) Uncoded argument alternation in English (and other Germanic languages)
   a. John gave Mary a book. (core = Recipient)
   b. John gave a book to Mary. (core = Theme)

(3.2) Coded argument alternation in Puyuma (and other Formosan languages)
   a. ku=beray-av dra paisu i siber (core = Recipient)
      1SG.ERG=give-LV ID.OBL money SG.ABS Siber
      ‘I gave Siber money.’
   b. ku=beray-anay na paisu kan siber (core = Theme)
      1SG.ERG=give-CV DF.ABS money SG.OBL Siber
      ‘I gave money to Siber.’

This dissertation employs transfer verbs as a means to understand the mechanism of (voice-)coded alternations in Formosan languages, specifically, Amis, Puyuma, and Truku. In this chapter, I introduce some relevant typological studies of transfer verbs and ditransitive constructions. These studies provide the working definitions to be adopted in this research, and they also provide a theoretical base for my later discussion about the lexical variation of transfer verbs within and across Formosan languages.

This chapter is organized as follows: in Section 3.2, I introduce two cross-linguistic studies of transfer verbs (Croft et al. 2001; Levin 2008) that distinguish three subclasses within transfer verbs based on their argument alternation restrictions. Section 3.3 expands the scope of examination with two relevant studies regarding the encoding strategies of transfer events across languages (Malchukov et al. 2010; Margetts & Austin 2007). Section 3.4 is the conclusion.
3.2 Transfer verbs and their subclasses

This section identifies transfer verbs and articulates the idea of distinguishing three subclasses of transfer verbs from a cross-linguistic perspective. Intuitively, transfer verbs are those responsible for denoting a transfer of a physical entity (or abstract entity; see the discussion of verbs of mental/abstract transfer in Section 3.3.1) from one participant to another. As far as thematic roles are concerned, TRANSFER OF POSSESSION VERBS such as ‘give’ and ‘lend’ imply the involvement of a recipient, whereas TRANSFER OF LOCATION VERBS such as ‘send’ and ‘throw’ imply the involvement of a goal. However, with a proper morphosyntactic environment, it is sometimes possible for transfer of location verbs to express transfer-of-possession meaning.26 Alternatively, a three-way classification (i.e., give/send/throw) is proposed, based on its validity to generalize the argument alternation restriction of transfer verbs across languages. In the following subsection, I introduce two cross-linguistic studies that demonstrate the motivation for distinguishing these subclasses of transfer verbs.

3.2.1 The ditransitivity Hierarchy

Inspired by Levin’s (1993) thorough investigation of English verb classes,27 Croft et al. (2001) chose ‘give’, ‘send’, and ‘throw’ to represent three subclasses of transfer verbs with cross-linguistic validity, based on the (in)compatibility of these verbs with the “ditransitive construction”28 (e.g., double object construction) within and across Germanic languages. Here, I use English and Dutch as examples to demonstrate the varied yet generalizable argument alternation patterns of ‘give’, ‘send’, and ‘throw’.

(3.3) English dative alternation

a. I gave/sent/throw her a book. (double object construction)

b. I gave/sent/throw a book to her. (dative construction)

---

26 Croft et al. (2001) refer to ‘give’, ‘send’, and ‘throw’ as “transfer of possession” verbs, arguably due to their ability to introduce a recipient in some languages by means of the double object construction (e.g., I threw her a book). While I follow Croft et al. by considering all these verbs as transfer verbs, I agree with Levin (2008) and embrace the division between ‘give’ and ‘send/throw’ based on their verbal semantics. I discuss the subtle semantic differences between these transfer verbs in Sections 3.2.1 and 3.2.2.

27 According to Levin (1993), give belongs to verbs of transfer of possession (§13.1); send belongs to verbs of sending and carrying (§11.1), and throw falls under verbs of throwing (§17.1).

28 In Croft et al. (2001), a “ditransitive construction” (e.g., double object construction) is identified in contrast to an “oblique construction,” depending on the grammatical status of the recipient (see 3.3). In Section 3.3, I will introduce an alternative, cross-linguistic definition of “ditransitive construction,” which covers both constructions discussed in Croft et al.
(3.4) Dutch double object construction (DOC) (Croft et al. 2001:4)
   a. *Ik geef jou een boek
      I give you a book
      ‘I give you a book.’
   b. Ik stuur jou een brief
      I send you a letter
      ‘I send you a letter.’
   c. *Ik gooi jou de ball
      I throw you the ball

(3.5) Dutch -naar oblique construction (Croft et al. 2001:4)
   a. *Ik geef een boek naar jou
      I give a book to you
   b. Ik stuur een brief naar jou
      I send a letter to you
      ‘I send a letter to you.’
   c. Ik gooi de bal naar jou (toe)
      I throw the ball to you (to)
      ‘I throw the ball to you.’

Example (3.3) shows that English does not contrast ‘give’, ‘send’, and ‘throw’ with respect to argument (i.e., ditransitive-dative) alternation. Dutch, on the other hand, exhibits diverse alternation restrictions depending on the transfer verbs: ‘give’ allows the ditransitive construction but disallows the oblique construction (3.4a, 3.5a); ‘throw’ is incompatible with the ditransitive option but is compatible with the oblique option (3.4c, 3.5c); ‘send’ can occur in both constructions (3.4b, 3.5b). With other empirical support from Germanic languages including Icelandic and German, Croft et al. propose the well-known DITRANSITIVITY HIERARCHY shown in (3.6), which generalizes the lexical variation in terms of ditransitive/oblique alternation. Since its publication, this implicational hierarchy has been widely adopted to account for distinct encoding behaviors of transfer verbs in various languages, as illustrated in Figure 3.1.

(3.6) Ditransitivity Hierarchy: ‘give’ > ‘send’ > ‘throw’ (based on Croft et al. 2001:2)29
   a. If there are constraints on the distribution of a ditransitive construction, the construction will be associated with the higher end of the Ditransitivity Hierarchy
   b. If there are constraints on the distribution of an oblique construction, especially a spatial oblique construction, the construction will be associated with the lower end of the Ditransitivity Hierarchy.

29 Croft et al. (2001) use the symbol “<” in their ditransitivity hierarchy. Following Malchukov et al. (2010), I change the symbol into “>” to better capture the descriptions about the operation of this hierarchy in (3.6)
Figure 3.1 Encoding of transfer verbs in and beyond Germanic languages (based on Croft et al. 2001 and Malchukov et al. 2010)

<table>
<thead>
<tr>
<th>Language</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>English DOC</td>
<td>‘give’ &gt; ‘send’ &gt; ‘throw’</td>
</tr>
<tr>
<td>English dative</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Dutch DOC</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Dutch -naar oblique</td>
<td>---------------</td>
</tr>
<tr>
<td>German DOC</td>
<td>-------------------------</td>
</tr>
<tr>
<td>German zu particle</td>
<td>---------------</td>
</tr>
<tr>
<td>Even dative</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Bezhta dative</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Chinese DOC</td>
<td>-------------------------</td>
</tr>
</tbody>
</table>

In addition to presenting the ditransitivity hierarchy, Croft et al. argue for a semantic motivation. While all members anywhere on the ditransitivity hierarchy may denote transfer of possession, this change-of-possession interpretation does not always originate from the verb; instead, it might originate from a (language-)particular construction (e.g., English DOC; see more discussion in Section 3.2.2). The lexical meaning of distinct subtypes of transfer verbs thus plays an important role. Along these lines, Croft et al. propose a semantic basis for these subclasses of transfer verbs in terms of “change of possession” vis-à-vis “change of location.”

Table 3.1 Subclasses of transfer verbs/events (I) (based on Croft et al. 2001)

<table>
<thead>
<tr>
<th>Giving</th>
<th>Sending</th>
<th>Throwing</th>
</tr>
</thead>
<tbody>
<tr>
<td>purely transfer of possession event; change of location and transfer location, which may also be transfer of possession</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Croft et al. thus successfully correlate the semantics of transfer verbs with the constructions in which they may or may not occur. Elaborating on their work, Malchukov et al. (2010) suggest that the ditransitivity hierarchy presents a scale of inherent transfer: “verbs with a higher degree of inherent transfer tend to be expressed in a double object (i.e., ditransitive) construction, and verbs with a low degree tend to be expressed by a prepositional-recipient (i.e., oblique) construction” (p.54).

Following Croft et al.’s work, I will employ the alleged three-way contrast to facilitate my discussion of the lexical variation of Formosan transfer verbs in later chapters. Table 3.1 gives the first version of the semantic rationale for these subclasses. In what follows, I
discuss another related study, which presents the verbs’ semantic differences in more detail.

### 3.2.2 The verb-sensitive approach

As mentioned previously, transfer verbs have been explored for decades to refine argument structure theories. Levin (2008) (see also Rappaport Hovav & Levin 2008), in particular, addresses the issue of dative alternation and discusses the problems of the two major types of analyses that have been proposed in the literature: (a) the single meaning approach (e.g., Bresnan 1982; Baker 1988; Larson 1988), which assumes the same meaning for both DOC and dative constructions; and (b) the multiple meaning approach (e.g., Green 1974; Oehrle 1976; Pinker 1989; Krifka 1999, 2001; Hale & Keyser 2002; Harley 2003; Beck & Johnson 2004), which assumes different (but related) meanings for distinct “variants” (i.e., constructions).³⁰ Levin first acknowledges the semantic basis for the multiple meaning approach—the CAUSED POSSESSION meaning is realized by the double object construction whereas the CAUSED MOTION meaning is realized by the dative construction—as summarized in (3.7–3.8).

(3.7) Two event schemas for English dative alternation
   a. Caused possession schema: ‘x cause y to have z’
   b. Caused motion schema: ‘x cause z to be at y’

(3.8) The uniform multiple meaning approach

<table>
<thead>
<tr>
<th>to variant</th>
<th>double object variant</th>
</tr>
</thead>
<tbody>
<tr>
<td>All transfer verbs: caused motion</td>
<td>caused possession</td>
</tr>
</tbody>
</table>

Levin points out, however, that the “uniform” multiple meaning approach is not without flaws. Based on a careful examination of the syntactic characteristics of transfer verbs (i.e., “dative” verbs in Levin’s term), she proposes an alternative approach, arguing that the meaning/schema is not always construction-dependent, but can be “verb-sensitive.” This is illustrated in the comparison of (3.8) and (3.9).

---

³⁰ The single meaning approach reflects the “transformational view” of the argument structures of verbs; the multiple meaning approach proposes distinct syntax-semantics mappings for the argument realization patterns. Recent analyses have abandoned the former view and focused on the latter. See Chapter 9 for more discussion about the various approaches to argument structure/alternation.
(3.9) The verb-sensitive approach:

<table>
<thead>
<tr>
<th></th>
<th>to variant</th>
<th>double object variant</th>
</tr>
</thead>
<tbody>
<tr>
<td>give-type verb:</td>
<td>caused possession</td>
<td>caused possession</td>
</tr>
<tr>
<td>throw-type verb:</td>
<td>caused motion or caused possession</td>
<td>caused possession</td>
</tr>
<tr>
<td>send-type verb:</td>
<td>caused motion or caused possession</td>
<td>caused possession</td>
</tr>
</tbody>
</table>

Like Croft et al. (2001), Levin (2008) classifies transfer verbs into three subclasses based on their semantic nature. In the case of give-type verbs, both the dative construction and the DOC must denote the caused possession meaning, as this type of verb entails change of possession. This is supported by the ungrammatical result of an intended caused motion meaning for the dative construction of ‘give’ (e.g., *I gave a book to Mary’s house). As for send-type and throw-type verbs, they entail change of location, not possession. Thus, the caused motion meaning can be associated with the dative construction. Moreover, the caused possession meaning can be associated with either the dative construction or the DOC. Table 3.2 gives a summary of the distinction between give-type, send-type, and throw-type verbs.31

Table 3.2 Subclasses of transfer verbs/events (II) (based on Levin 2008)

<table>
<thead>
<tr>
<th>entailment</th>
<th>give</th>
<th>send</th>
<th>throw</th>
</tr>
</thead>
<tbody>
<tr>
<td>lexicalization</td>
<td>change of possession</td>
<td>change of location</td>
<td>change of location</td>
</tr>
<tr>
<td>lexicalizes</td>
<td>caused possession only</td>
<td>basically lexicalizes</td>
<td>basically lexicalizes</td>
</tr>
<tr>
<td>double object variant (examples)</td>
<td>caused possession (I gave Mary/*Mary’s house a book.)</td>
<td>caused possession (I sent Mary/*Mary’s house a letter.)</td>
<td>caused possession (I threw Mary/*Mary’s house a ball.)</td>
</tr>
<tr>
<td>to variant (examples)</td>
<td>caused possession (I gave a book to Mary/*Mary’s house.)</td>
<td>caused possession or caused motion (I sent a letter to Mary/ Mary’s house.)</td>
<td>caused possession or caused motion (I threw a ball to Mary/ Mary’s house.)</td>
</tr>
</tbody>
</table>

31 The term “lexicalization” or “lexicalize” here represents Levin’s lexical approach to argument structure, under which predicates are decomposable into “primitive predicates” such as CAUSE (i.e., causation interpretation) or ACT (i.e., activity interpretation) and stems/roots (e.g., give).
For reasons to be clarified later, I will not demonstrate how the verb-sensitive approach is applicable across languages here. Instead, I will highlight some important points of this approach, which provides an insightful argument for a decomposition analysis (to be discussed below). First, the verb-sensitive approach assumes the involvement of “causation” (e.g., caused possession/motion schemas) as one of the semantic components, despite the lack of morphological realization of the “causative semantics” in these monomorphemic transfer verbs, *give*, *send*, and *throw*. Second, this approach suggests that the meaning of the transfer events, that is, caused possession or caused motion, may originate from two possible sources: (a) the verbs themselves and (b) the constructions. For give-type verbs, the verbs are responsible for the caused possession reading across all constructions; for send-type and throw-type verbs, it is the DOC that demands the caused possession reading. Furthermore, while throw-type verbs resemble send-type verbs in terms of their entailments and associated meanings in the two constructions, the former have a different basic event schema from the latter: throw-type verbs describe events in which one entity instantaneously imparts a force on another. In other words, throw-type verbs are basically two-argument activity verbs, selecting an agent and a theme (Jackendoff 1990), although they can also participate in DOC in languages such as English. Levin’s study thus provides a solid ground for the relative positions of ‘give’, ‘send’, and ‘throw’ along the ditransitivity hierarchy. I will refer to these ideas in my account of the lexical variation in the argument alternation of Formosan transfer verbs in Chapters 4 to 6.

While Levin’s arguments for the subclasses of transfer verbs are insightful, a direct, full-scale application of the verb-sensitive approach to Formosan transfer verbs is problematic. First, Levin’s model works better for languages with morphologically underived dative verbs. It is only in these languages that the semantic component of a verb can be separated from that of a construction. In Formosan languages, the verbs of transfer are morphologically complex, including (a) a stem, (b) a causative and/or applicative morpheme (in some cases), and (c) the voice marking, coded for argument alternation. Each construction correlates with a particular verbal morphology, making it difficult to distinguish the meaning of the (morphologically complex) verb from the meaning of the construction (i.e., argument realization). Second, Levin’s model assumes the involvement of “causation” in give-type and send-type transfer verbs. In Formosan languages, however, verbs under these subclasses may involve causative and/or applicative marking. The morphological complexity of Formosan transfer verbs suggests the need for a careful decomposition analysis in the spirit of the verb-sensitive approach, to be explored in Chapters 4 to 6.
A final matter of interest in Levin’s (2008) study is her list of members of the three subclasses based on her earlier studies of the semantic nature of English verbs (Levin 1993; Rappaport Hovav & Levin 2008), as shown in (3.10).

(3.10) Members of subclasses of dative verbs (Levin 2008:4)

a. give-type verbs: give, hand, lend, loan, rent, sell…; includes “verbs of future having”: allocate, allow, bequeath, forward, grant, offer, promise…

b. send-type verbs: mail, send, ship…

c. throw-type verbs: fling, flip, kick, lob, slap, shoot, throw, toss…

The list serves as a useful reference for the comprehensive survey on Formosan transfer verbs conducted in this dissertation. In Chapters 4 to 6, I will use some of the verbs in this list as targets for my descriptive analysis of transfer verbs in Amis, Puyuma, and Seediq.

3.3 The encoding of transfer events

The studies discussed in the previous section identified “transfer verbs” and classified them into three subclasses based on their argument alternation restrictions across languages. They also demonstrated, in particular, that some subclasses of transfer verbs (e.g., ‘send’, ‘throw’) must rely on specific constructions (e.g., DOC) for the transfer(-of-possession) interpretation. In this section, I introduce two related studies regarding the encoding of transfer events across languages. These studies discuss not only transfer verbs but also other verb types, which are capable of denoting a transfer interpretation under proper constructions (or by means of proper strategies).

3.3.1 Ditransitive constructions: A typological overview

In the opening chapter of a comprehensive volume entitled Studies in Ditransitive Constructions: A Comparative Handbook, Malchukov et al. (2010) provide a working definition of ditransitive constructions and propose three major types of properties worthy of investigation and cross-linguistic comparison: (a) argument coding properties (e.g., constituent order, case marking, agreement); (b) behavioral properties (e.g., (anti-)passivization, relativization, reflexivization); and (c) lexical properties (e.g., verb lexemes, recipient marking, theme marking) (see also Malchukov et al. 2007). Further information regarding these properties can be found in Comrie et al.’s (2010) questionnaire. In this section, I focus specifically on Malchukov et al.’s (2010:48–56) discussion regarding the lexical variation in ditransitives. First, consider their definition of ditransitive constructions.
A ditransitive construction is defined here as a construction consisting of a (ditransitive) verb, an agent argument (A), a recipient-like argument (R), and a theme argument (T). (Malchukov et al. 2010:1)

Typological studies typically adopt a meaning-based definition for a research target/topic (e.g., ditransitive construction), as it enables cross-linguistic comparison. Formal/structural properties, on the other hand, are often language-specific, and are thus too heterogeneous to serve as a basis for a cross-linguistic definition. For example, if the presence of “two accusative arguments” as in the English DOC were used as a criterion for defining ditransitives, Formosan and other ergatively-aligned languages, lacking accusative case altogether, would have to be analyzed as lacking “ditransitive constructions.”32 Under the meaning-based definition given in (3.11), it is possible for one language (e.g., English) to have more than one “ditransitive construction” (e.g., DOC and dative construction). In this dissertation, I suggest that it is worthwhile to compare argument alternation between languages with different case systems (e.g., ditransitive-dative alternation in English vs. LV-CV alternation in Formosan; cf. 3.1 and 3.2). A meaning-based definition such as (3.11) renders this kind of comparison possible.

Languages differ with respect to the range of verbs that might participate in a “ditransitive construction” in Malchukov et al.’s (2010) sense. Take English DOC for example. The most typical members for a ditransitive construction (i.e., prototypical ditransitive verbs) are verbs of physical transfer (3.12a), as discussed by Croft et al. (2001) and Levin (2008).33 In most languages, some verbs of mental/abstract transfer such as ‘show’ or ‘tell’ behave in a similar way (3.12b). In some languages such as English, get-type verbs, prepare-type verbs, and verbs of performance also participate in ditransitive constructions. Despite the fact that these verbs differ from prototypical ditransitive verbs in terms of valency, they can still introduce an R (recipient-like) argument in ditransitives such as the English DOC, as shown in (3.12c–e).

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32 Saisiyat is perhaps the only exception, as it allows T and R to have the same accusative case marking. See Hsieh and Huang (2006) for the pragmatic motivation for this particular argument realization.  
33 In the literature, there have been disagreements about ‘give’ as a typical ditransitive verb. Borg & Comrie (1985) and Comrie (2003), for example, advise causation about this view, based on the findings that the morphological structure of ‘give’ may be quite differ from other transfer verbs. While I acknowledge the possible idiosyncrasies about ‘give’, I will assume with Newman 1996, 1997 and Kittilä 2006 and treat ‘give’ as the prototypical ditransitive verb from the perspective of argument realization.
(3.12) English double object constructions
   a. verbs of physical transfer (e.g., give, send, throw)
      e.g., I sent Jim a gift.
   b. verbs of abstract/mental transfer (e.g., teach, show, tell)
      e.g., I told my child the story.
   c. get-type verbs (e.g., buy, earn, get, win)
      e.g., I bought Mary a dress. (cf. I bought a dress)
   d. prepare-type verbs (e.g., bake, build, make, cook)
      e.g., I baked my dad a cake. (cf. I baked a cake)
   e. verbs of performance (e.g., dance, draw, paint, sing)
      e.g., I sang my sister a song. (cf. I sang a song)

Judging from their working definition, it is obvious that Malchukov et al.’s work covers a
wider scope of investigation than Croft et al.’s (2001) and Levin’s (2008) discussions of
transfer/dative verbs. Note that for these additional verb types (e.g., ‘buy’, ‘make’, ‘sing’),
their lexical semantics do not entail the involvement of the recipient (or goal). In other words,
these verbs alone are not responsible for the transfer interpretation. Instead, they must
“conspire” with a certain construction (e.g., DOC) in order to denote a transfer event. While
this dissertation mainly deals with transfer verbs, I will also discuss some other relevant verb
types, which may also produce a transfer interpretation given a proper construction (e.g.,
voice affixation; verb serialization). The discussion and comparison of the argument structure
of transfer verbs and other related verb types under particular “voice constructions” facilitates
our understanding about the function(s) of these “voice” markers. This will be discussed in
Chapter 7.

In discussing the correlation (or distribution) of verb types in different ditransitive
constructions of one language, Malchukov et al. (2010) adopt the semantic map methodology
(Anderson 1982; Croft 2001; Haspelmath 2003). Figure 3.2, for example, is an integrated
semantic map of English ditransitive constructions.
Figure 3.2 demonstrates the participation of different verb types in two ditransitive constructions in English. DOC functions as a Theme-Recipient construction, with give-type verbs as the prototypical members, but can be extended to other verbs with family-resemblance semantics (e.g., send, throw, tell, sell, build), possibly developing other meanings/functions (e.g., Patient Beneficiary construction for build). Similarly, the dative construction has multiple meanings/functions (e.g., Theme-Recipient; Theme-Goal), and is observed only with certain verb types (e.g. give, send, throw, tell, say, put, pull). Most importantly, the intersection between the ranges of the DOC and the dative construction delimits the verb types participating in a dative alternation.

The semantic map methodology is of particular use for cross-linguistic studies. To illustrate, Figure 3.3 shows the similarities and differences between Jamul Tiipay, Finnish, and Eskimo in terms of the mapping of ditransitive constructions across distinct semantic fields.
The semantic map methodology demonstrates the difference in the ranges of verb types to which certain constructions apply across languages. In this dissertation, I mainly investigate transfer verbs and their subclasses, while providing limited yet important discussion on other verb types (e.g., verbs of creation; change-of-state verbs). It is thus beyond my scope of research to draw a complete semantic map for ditransitive constructions in Formosan languages. However, embracing the fundamentals of the semantic map methodology, I aim to demonstrate the distribution of different verb types in different constructions (particularly LV and CV constructions), and establish the polysemy (or multifunctionality) of these constructions. This line of investigation will help identify both the shared and the (language-)particular functions of “voice” markers in Formosan languages. This will be explored carefully in Chapter 8.

3.3.2 Encoding strategies for transfer events
The typological overview of ditransitive constructions in the previous section demonstrates that transfer verbs are not the only linguistic items that might give rise to a transfer interpretation: in some cases, the construction does it for certain verbs types, whose lexical semantics do not imply transfer at all. In this section, I introduce Margetts and Austin’s (2007) cross-linguistic survey to demonstrate some important encoding strategies for transfer events.

Margetts and Austin 2007 is a survey that exhausts all the possible strategies (operating
within a single clause) across the world’s languages for the encoding of three-participant events, including events of transfer. These strategies differ in many respects, including the syntactic status of the participant(s) (e.g., syntactic argument vs. adjunct), the number of verbs (e.g., three-place predicates vs. serial verbs), and so forth. Table 3.3 lists the major types of strategies and their subcategories.

Table 3.3 Encoding strategies of three-participant events (Margetts & Austin 2007:402–3)

**Three-place predicate strategy:** All three participants are expressed as syntactic arguments of the verb.
- Direct argument strategy: All three arguments are expressed as direct arguments of the verb (which does not carry valence increasing morphology).
- Causative strategy: The verb root is restricted to two arguments, with a third argument added by a causative affix
- Applicative strategy: The verb root is restricted to two arguments, with a third argument added by an applicative affix.

**Oblique and adjunct strategies:** The verb takes two arguments, a third participant is expressed as an oblique argument or an adjunct.
- R-type obliques and adjuncts: The verb takes two arguments and a third, R-type participant is expressed as an oblique argument or an adjunct.
- T-type obliques and adjuncts: The verb takes two arguments and a third, T-type participant is expressed as an oblique argument or an adjunct.
- Oblique applicatives: The verb takes two arguments and an applicative-like marker, which licenses a third participant that is simultaneously marked as an oblique.

**Serial verb strategy:** Two (or more) verbs combine in a complex construction and share the three participants as arguments (or adjuncts) between them.
- R-type serialized P: The serialized verb introduces a R-type participant
- T-type serialized P: The serialized verb introduces a T-type participant

**Incorporation strategy:** One participant is expressed by an incorporated nominal.
- Incorporated noun with argument status: The incorporated noun is a syntactic argument of the verb
- Incorporated noun with non-argument status: The incorporated noun is not a syntactic argument of the verb

**Adnominal strategy:** The verb takes two arguments: a third participant is expressed as an adnominal dependent of one argument.
- Possessives strategy: The verb takes two arguments and the recipient is expressed as the possessor of the theme.
- Proprietive strategy: The verb takes two arguments and the theme is expressed as the dependent of the agent.

**Directional strategy:** The verb takes two arguments and an adverbial directional marker indicating transactional orientation.
Absorption strategy: There are two arguments in the clause but the verb includes information about a further participant.

a. Direct lexicalization: The verb is formally distinct from any noun denoting the event participant, but its semantics include reference to one of the participants.

b. Zero derivation: The verb derives by zero-conversion from a noun denoting one of the participants.

c. Denominal derivation: The verb derives by overt derivation from a noun denoting one of the participants.

d. Absorbed classifiers or object markers: The verb takes two arguments but the verb stem has absorbed what used to be a classifier or object marker which conveys information about a further participant.

e. Participant-based event classification: The verb carries information about one of the participants and characterizes the event with respect to one of the participants.

The major strategies and their subclasses are carefully identified and discussed by Margetts and Austin (2007). I will not examine all of them in detail, because an identification of all the possible strategies for the encoding of three-participant events in Formosan languages is a huge undertaking, which is far beyond the scope of this dissertation. However, I will demonstrate some of the strategies in more detail, as they will be mentioned throughout Chapters 4 to 6 to facilitate my discussion of the lexical variation across Formosan transfer verbs. These include the three-place predicate strategy, the oblique/adjunct strategy, the serial verb strategy, and the incorporation strategy. To illustrate, I make reference to the secondary data in Margetts and Austin (2007:404–423), some of which are provided with my own literal translations to highlight their differences.

Three-place predicate strategy

In many languages, transfer events can be encoded as full three-place verbs with all three participants expressed as syntactic arguments. Within this strategy, it is useful to distinguish between underived and derived predicates. The former involves the direct-argument strategy, while the latter relies on either causative or applicative morphology to increase the valency, hence introducing a third participant as the argument. See Examples (3.13–3.15).

(3.13) Direct argument strategy in Erromangan (Oceanic, Vanuatu) (p. 404)

\[ \text{y-ovog-o}c \quad \text{nvag} \]
\[ 3\text{SG-give-2SG} \quad \text{food} \]
‘She gave you the food.’
(3.14) Causative strategy in Saliba (Oceanic, Papua New Guinea) (p. 408)
   a. ku  kita-ya-ko
       2SG see-3SG.O-PRF
       ‘You already saw it.’
   b. tautau wa ya he-kita-go
       picture GIVEN 1SG CAU-see-2SG.O
       ‘I showed you the picture.’

(3.15) Applicative strategy in Taba (Austronesian, Eastern Indonesia) (p. 409)
   a. banda  n=ot  yan  bakan
       Banda 3SG-get  fish  be.big
       ‘Banda caught a big fish.’
   b. banda  n=ot-ik  yak  yan
       Banda 3SG=get-APPL 1SG fish
       ‘Banda gave me some fish.’

Oblique/adjunct strategy
Margetts and Austin (2007) place oblique and adjunct strategies under one major category because of the practical difficulty of distinguishing oblique arguments and adjuncts in some languages (particularly those using the same marker for both relations). In this category, the verb takes only two direct arguments and the third participant is expressed as an oblique, or introduced by an adpositional phrase. Based on the thematic role of the oblique/adjunct, R(ecipient)-type or T(heme)-type strategies can be further identified. They are demonstrated in (3.16) and (3.17), respectively.

(3.16) R-type oblique/adjunct strategy in Tibetan (Tibeto-Burman) (p. 413)
   kho-s  blo=bzang-la  deb  cig  sprad-song
   he-ERG Lobsang-LOC book a give-PRF
   ‘He gave Losang a book.’ (lit. ‘He gave a book to/in Losang.’)

(3.17) T-type oblique/adjunct strategy in Dyirbal (Pama-Nyungan) (p. 415)
   bayi  banggun  banggun  wugan
   that.ABS.MSC that.ERGF that.INST.VEG give
   ‘She gave it (e.g., food) to him.’ (lit. ‘She gave him with it.’)

Serial verb strategy
In the serial verb strategy, the three-participant event is expressed through two verbs that combine in a complex construction sharing the three participants between them. Within this

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34 Margetts and Austin (2007:401) use the term “direct arguments” to refer to unmarked arguments or arguments marked by nominative, accusative, ergative, absolute, or dative case.
35 In addition, Margetts and Austin (2007) also identify a third subcategory within this major strategy, namely the oblique “applicative” strategy, characterized by the occurrence of the applicative morpheme and the oblique marking for this “applied argument” (p. 416). I avoid discussing this strategy in detail, as it does not play a role in the encoding of transfer events in Formosan languages.
category, one can further distinguish types of serialization based on which participant (i.e., R or T) is introduced by the serial verb. In R-type serialization, the recipient is introduced by a serialized verb (e.g., ‘give’) as its direct argument, and the complex construction can thus denote a transfer event, as exemplified in (3.18).36

(3.18) R-type serialization in Cantonese (p. 418)

\[
\text{nghox sailou gei-jo fung seun bei nghox}
\]

ISG brother mail-PRF CLF letter give ISG

‘My brother mailed me a letter.’

Incorporation strategy

In this strategy, one of the three participants is expressed by a noun stem which is incorporated into the verb and may retain or lose its status as a syntactic argument. In the Blackfoot example below, a transfer event is denoted via incorporation of the transported theme (i.e., ‘ball’) into the verb, which ultimately introduces two direct arguments, the agent (i.e., ‘I’) and the recipient (i.e., ‘my child’).

(3.19) Incorporation strategy in Blackfoot (Algonquian, Canada) (p. 423)

\[
\text{Nit-ohpokon-sskoawa nokosa}
\]

I-ball-acquire.him my.child

‘I provided my child with a ball.’ (lit. ‘I ball-get my child.’)

3.4 Conclusion

This chapter presents major typological approaches to transfer verbs, including those of Croft et al. (2001) and Levin (2008). Embracing these approaches, this dissertation assumes three subclasses of transfer verbs with different degrees of “ditransitivity”: give-type verbs entail change of possession and lexicalize caused possession; send-type verbs entail change of location and lexicalize caused motion; throw-type verbs entail change of location, and may lexicalize change of location, while they are in nature two-argument activity verbs. These semantic distinctions account for some of the lexical variation in the formation and alternation patterns of these transfer verbs, as will be demonstrated in Chapters 4 to 7.

This chapter also introduces approaches to ditransitive constructions and the encoding of three-participant transfer events. Malchukov et al.’s (2010) overview of ditransitive constructions demonstrates how the semantic map methodology can portray distributional differences across verbs with respect to a particular construction. Margetts and Austin (2007),

36 In addition to R-type serialization, there is also another strategy in this category, namely T-type serialization. This strategy is typically found to denote three-participant events involving an instrument. I thus disregard it in the discussion as it does not concern transfer events.
on the other hand, provide an exhaustive survey on how three-participant events such as events of transfer can be encoded via multiple strategies in a given language. The discussion of encoding strategies is crucial to my later discussion of the lexical variation of Formosan transfer verbs. As will be repeatedly shown in Chapters 4 to 6, the transfer verbs in Formosan languages differ from one another with respect to the strategies they are associated with. In other words, transfer verbs in Formosan languages are, in Levin’s term, extremely “verb-sensitive.” In these chapters, I will also show that the three-way classification proposed in the literature and presented in §3.2 can account for only part of the lexical variation associated with transfer verbs in the context of Formosan languages. As transfer verbs are morphologically derived in Formosan languages, it is important that we understand the function and interaction of their “parts” (e.g., stem, causative/applicative morpheme, voice marker) before we attempt to explain their “sum” (e.g., argument structure). In Chapter 9, I will propose a decomposition analysis within the generative framework to demonstrate how arguments of transfer verbs are introduced by a series of functional heads.
CHAPTER FOUR
AMIS TRANSFER VERBS AND ARGUMENT STRUCTURE

4.1 Preamble

As the backbone of this dissertation, Chapters 4 to 6 investigate the morphosyntax of transfer verbs in three Formosan languages in a thorough and careful manner. I demonstrate, in particular, how transfer verbs differ within and across the Formosan research languages in terms of their morphological complexity and argument structure. Such an investigation is of documentary significance: it complements the existing reference grammars of these languages, which either treat these verbs as one homogenous category, or, because of their wide scope as grammars, provide rather limited discussion of the verbs’ lexical variation. The investigation is also typologically significant: although transfer verbs and ditransitive constructions have been examined from a cross-linguistic perspective, more attention has been paid to asymmetrical voice languages (e.g., Germanic) with uncoded ditransitive alternations (see Chapter 3). As will be demonstrated in the discussion subsections of these three main chapters, the voice-coded argument alternations of Formosan transfer verbs challenge the three-way classification proposed in the literature. Finally, the investigation is illuminating in terms of theories of argument structure. With detailed discussion of the argument structure/alternation of transfer verbs in these chapters, I justify the event-based analysis for Formosan voice markers; I then explore in a later chapter how arguments are introduced in symmetrical voice languages (Chapter 9).

For the sake of comparison, Chapters 4 to 6 will be organized in a similar fashion. The introductory section (e.g., §4.1) briefly addresses the important points to be discussed in the chapter, as well as presenting important information about the research language to facilitate the later discussion. The second section (e.g., §4.2) deals with lexical variation across the transfer verbs (of the given language) in terms of their morphological complexity/composition. The third section (e.g., §4.3) proceeds to their variation in terms of argument structure and argument alternation patterns. This section will end with a discussion regarding whether the lexical variation within the given language is subject to the three-way classification of transfer verbs as proposed in the literature. The fourth section concludes the chapter.

Drawing on the work of Croft et al. (2001), I identify ‘give’, ‘send’, and ‘throw’ as
transfer verbs in this dissertation, and I adopt those in Levin’s (2008) list of transfer verbs as the primary targets of investigation (see Chapter 3). It should be noted that I take the approach for the ease of description and typological discussion. As will be shown throughout these three chapters, the three-way classification of transfer verbs can only capture part of the lexical variation story in the context of Formosan languages.

Here, I shall briefly review the voice morphology in Amis prior to entering the main discussion. In Chapter 2, I addressed the fact that verbs in Formosan languages are marked with voice affixes to indicate the thematic role of the syntactic pivot (i.e., the absolutive argument, given the ergative view). The voice markers of Amis are repeated below for the readers’ convenience, with additional information about the corresponding voice forms for causative verbs (in the fourth column).

Table 4.1 Amis (simplified) voice system (modified from Table 2.12; √ for root)

<table>
<thead>
<tr>
<th></th>
<th>AV</th>
<th>&lt;um&gt;</th>
<th>ma-√</th>
<th>ma-ka-√</th>
<th>ma-pa-√</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV</td>
<td>mi-√</td>
<td>&lt;um&gt;</td>
<td>ma-√</td>
<td>ma-ka-√</td>
<td>ma-pa-√</td>
</tr>
<tr>
<td></td>
<td>ma-√</td>
<td></td>
<td>ma-√</td>
<td>ma-ka-√</td>
<td>ma-pa-√</td>
</tr>
<tr>
<td></td>
<td>mi-√-an</td>
<td>mi-√-an</td>
<td>ka-√-an</td>
<td>(mi-)&lt;pa-√-an</td>
<td></td>
</tr>
<tr>
<td>LV</td>
<td>pi-√-an</td>
<td>ka-&lt;um&gt;-√-an</td>
<td>ka-√-an</td>
<td>(pi-)&lt;pa-√-an</td>
<td></td>
</tr>
<tr>
<td>CV</td>
<td>sa-pi-√</td>
<td>sa-ka-&lt;um&gt;-√</td>
<td>sa-ka-√</td>
<td>sa-pa-√</td>
<td></td>
</tr>
</tbody>
</table>

As mentioned in §2.2.5 and repeated in Table 4.1, voice forms in Amis are lexically conditioned. Amis transfer verbs like ‘throw’, as will be shown later, are found to employ those markers in the first column. The verb thus has (at least) four voice forms: mi-tekul (AV), ma-tenuk (PV), pi-tekul-an (LV), and sa-pi-tekul (CV). However, causative verbs in Amis have different morphological manifestations of voice marking, because of the presence of the pa- causative morpheme (as indicated in the fourth column). In this chapter, my discussion of transfer verbs will cover all voice categories, particularly those in bold face in Table 4.1.38

37 Depending on the voice categories, the voice marking can be optional or even absent, as shown in Table 4.1. See Section 4.3 for concrete examples.
38 In §2.2.5, I pointed out that different forms of PV (e.g., ma-, mi-….an, -en) are required for extra effects in
4.2 The morphological complexity of Amis (AV) transfer Verbs

This section demonstrates that Amis transfer verbs can differ from one another in terms of their morphological complexity. To illustrate, I base my discussion on the three-way classification (i.e., give-type, send-type, throw-type) proposed in the literature. For practical considerations, this section addresses only the AV-marked transfer verbs. First, as will be shown later, most Amis transfer verbs involve the causative morpheme. A comparison between AV causative (transfer) verbs (i.e., \(pa \sqrt{}\)) and their non-causative counterparts (i.e., \(mi \sqrt{}\)) enables a more straightforward identification of the role the causative morpheme plays in this derivation, namely, whether it adds an additional argument (i.e., causer) to the event, changes the semantics of the original root/verb, or both. Second, AV-marked transfer verbs have a unified absolutive selection pattern (i.e., actor/causer), as opposed to their NAV counterparts, which show a great diversity. Considering the flow of presentation, I intend to discuss NAV-marked transfer verbs in a later section, after the readers become more familiar with the morphological complexity of these verbs.

4.2.1 Give-type verbs

At the morphological level, give-type verbs in Amis are always associated with a \(pa\)-morpheme, identified as a causative marker in numerous studies (Starosta 1974; Tsai and Zeng 1997; J. Wu 2006b; Shen 2008; Kuo 2013; M. Wu 2013; Shen et al. 2014). Upon scrutiny, the functions of this \(pa\)-morpheme differ from one verb to another. As a demonstration, I discuss three verbs under the give-type subclass based on Levin’s (2008) classification: ‘give’, ‘lend’, and ‘sell’. First, consider the morphological structure of ‘give’ in Amis.

(4.1) Amis AV-marked ‘give’ verb and its related derivation(s)

a. \(ø-pa\)-feli\(^{39}\) \(ø-ci\) kulas tu paysu ci mayaw-an
   AV-CAU-give ABS-PN Kulas OBL money PN Mayaw-OBL
   ‘Kulas gives money to Mayaw.’

b. \(mi\)-feli \(ø-ci\) kulas tu paysu
   AV-give ABS-PN Kulas OBL money
   ‘Kulas gives money (to someone).’

modern Amis. In this dissertation, I assume that these forms do not influence the argument structure of a verb (as they are all PV markers), and select \(ma\)- for the discussion of PV-marked transfer verbs.

\(^{39}\) As mentioned earlier, there is no overt AV marking for \(pa\)-marked causative verbs in Amis (see Table 4.1). For the sake of consistency, I use zero marking to indicate the AV function of these verbs (i.e., \(ABS =\) Agent/Causer).
As (4.1) shows, both causative and non-causative ‘give’ verbs involve the root feli. Interestingly, these ‘give’ verbs do not exactly contrast in meaning despite the presence/absence of the “causative” morphology. The difference lies in other aspects. According to my informants, pa-feli is typically used to denote a three-participant ‘giving’ event. The usage of mi-feli is marginal, normally found in cases where only one of the two non-actor arguments is expressed. Intriguingly, the non-causative ‘give’ verb can either select the theme or the recipient as the E argument (indicated by the oblique case marker) with the other inferred by context, as shown in (4.1b) and (4.1c), respectively. This suggests that the apparent causative morpheme does not serve a typical causative function as suggested in the literature: it does not add a causer, nor does it add a causative semantics to the event denoted by the original verb. For the sake of consistency, I choose to gloss the pa-morpheme as CAU(sative) in all instances, despite the idiosyncrasies of this morpheme in different cases. In Section 4.2.4, I will establish that these idiosyncrasies are the result of these forms being lexical causatives in Amis.

Similar to the ‘give’ verb, the ‘lend’ verb also involves the pa- morpheme. A typical causative function can be identified in this verb: the pa- morpheme introduces the causative semantics to the event denoted by the original verb, and adds a causer argument responsible for it. See the examples in (4.2) for the contrast between the causative ‘lend’ verb and the non-causative ‘borrow’ verb.

(4.2) Amis AV-marked ‘lend’ verb and its related derivation(s)

a. ø-pa-caliw kura tamdaw tu paliding ci sawmah-an
   AV-CAU-borrow ABS.that person OBL car PN Sawmah-OBL
   ‘That person lends a car to Sawmah.’

b. mi-caliw ø-ci sawmah tu paliding
   AV-borrow ABS-PN Sawmah OBL car
   ‘Sawmah borrows a car.’

40 Despite similar meaning, mi-feli and pa-feli differ with respect to the context of usage. At this stage, I am unable to generalize the pragmatic motivation for the selection of one form over the other. Here I focus on the difference in the number of arguments. When creating examples of mi-feli, my informants usually incorporated only R or T. For pa-feli, they provided sentences with all three participants.

41 In his cross-linguistic study, Kittilä (2009, 2013) argues that a causative morpheme can serve as a non-valency increasing device, or even a transitivity-decreasing device. The observation about causative verbs in Amis (and also Puyuma and Seediq; see Chapters 5 and 6) supports this argument. In Chapter 9, I will propose an analysis in which the causative morpheme is not responsible for the introduction of the external argument of the derived verb.
(4.2) Amis AV-marked ‘sell’ verb and its related derivation(s)

a. ø-pa-qaca kura wawa tu futing (ci lisin-an)
   AV-CAU-buy ABS.that child OBL fish PN Lisin-OBL
   ‘That child sells fish (to Lisin).’

b. mi-qaca ø-ci lisin tu futing
   AV-buy ABS-PN Lisin OBL fish
   ‘Lisin buys fish.’

c. mi-qaca ø-ci lisin tura wawa
   AV-buy ABS-PN Lisin OBL.that child
   ‘Lisin buys that child.’
   (not ‘Lisin buys (something) from/for that child.’)

d. mi-qaca ø-ci lisin tu futing nura wawa
   AV-buy ABS-PN Lisin OBL fish GEN.that child
   ‘Lisin buys that child’s fish.’

Similar to the ‘lend’ verb, the ‘sell’ verb in Amis is derived via causativization of the verb denoting an opposite direction of transfer, qaca ‘buy’. Without causativization, the
AV-marked ‘buy’ verb mi-qaca selects the agent and the theme, possibly with an optional source participant, marked as the possessor (i.e., genitive marking) of the theme, as illustrated in (4.3b–d).

While the causative morpheme appears to serve identical functions with ‘lend’ and ‘sell’ as suggested by the parallels between (4.2b-d) and (4.3b-d), there is one drastic difference between these two causative verbs in terms of their subcategorization. As suggested by the omissibility test, the causatively derived ‘lend’ verb (i.e., pa-caliw) selects both recipient and theme as the core (E) arguments, whereas the causatively derived ‘sell’ verb (i.e., pa-qaca) selects only the theme, as the recipient can be optional (compare 4.2a and 4.3a). Other evidence for the bivalent nature of ‘sell’ comes from the location interpretation when the third participant is marked with the i location marker. See (4.4) below.

(4.4) ‘sell’ as two-place predicate

\[
\begin{array}{cccccc}
\sigma & pa & qaca & kura & wawa & tu & futing & i & kalingku \\
AV-CAU-buy & ABS\text{-}that & child & OBL & fish & LOC & Hualien \\
\end{array}
\]

‘The child sells fish [in Hualien] (=location).’
(not ‘The child sells fish [to Hualien] (=goal).’)

(4.4) shows that the ‘sell’ verb in Amis does not necessarily “select” (or imply the presence of) a recipient/goal participant. It should be treated on par with the ‘buy’ verb with respect to valency, despite the involvement of the causative morphology.

Along these lines, it can be argued that the causative morpheme has distinct “functions” in these two cases: it derives a three-place ‘lend’ predicate from ‘borrow’ but a two-place ‘sell’ predicate from ‘buy’, while the original AV-marked verbs have the same valency (see 4.2b-d and 4.3b-d). In the “lend = Cause to borrow” derivation, the causer (i.e., lender) is added, with the agent and the theme of borrowing preserved; the original agent (i.e., borrower) is then conceived as the recipient. In the “sell = Cause to buy” derivation, the causer (i.e., seller) is added, but the original agent (i.e., buyer) does not enter into the subcategorization frame of the ‘sell’ verb. In other words, while pa- in both cases adds the causer into the event, it does not always keep all the arguments of the event denoted by the original verb.

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42 The omissibility test is used here for the sake of convenience. In the next subsection, I will show that this test is not the most reliable diagnostic for identifying the valency of verbs in Formosan languages. Pa-qaca ‘sell’ in fact should be identified as a two-place predicate based on (4.4). See more discussion in Section 4.2.2.

43 In §2.2.4, I addressed the fact that the i locative marker in Amis and Puyuma can be observed in different grammatical categories, including the predicate, the E argument, and the adjunct. Therefore, the presence of a locative marker does not imply the adjunct status of this participant. This has important bearing on the identification of valency, to be discussed in detail in Section 4.2.2.

44 From this perspective, the recipient interpretation as observed in (4.3a) is inferred from the animacy of the participant (i.e., the proper noun lisin). Therefore, there is no contradiction between (4.3a) and (4.4) with respect to the subcategorization of ‘sell’ in Amis.
To sum up, Table 4.2 demonstrates the idiosyncrasies of Amis give-type \textit{pa-}√ verbs, based on (4.1) to (4.4). The rows specify the causative and non-causative verbs and most importantly, the functions of the \textit{pa-} morpheme in the derivation of give-type verbs. The numbers in the parentheses specify the valency value and change of valency as a result of “causativization.”

**Table 4.2 \textit{pa-}√ give-type verbs and their non-causative counterparts**

| a. non-causative counterparts (valency) | \textit{mi-feli} ‘give’ (3) | \textit{mi-cal iw} ‘borrow’ (2) | \textit{mi-qaca} ‘buy’ (2) |
| b. causative give-type verbs (valency) | \textit{pa-feli} ‘give’ (3) | \textit{pa-cal iw} ‘lend’ (3) | \textit{pa-qaca} ‘sell’ (2) |
| c. change of meaning (i.e., causative semantics) | No | Yes | Yes |
| d. valency change | (i) adding a causer into the event | No: (+0) | Yes: (+1) | Yes: (+1) |
| | (ii) keeping all arguments of the original verb | Yes: (3) | Yes: (2) Both the agent and the theme remain (note: agent interpreted as the recipient) | No: (2-1) The theme remains; the agent is removed |

It is found that the apparent causative morpheme does not always provide causative semantics or increase valency; instead, these functions are subject to the roots to which the causative morpheme attaches. I will discuss why this is the case in Section 4.2.4, after I examine the causative morpheme in other subclasses of transfer verbs.

**4.2.2 Send-type verbs**

Similar to give-type verbs, send-type verbs in Amis are always associated with the \textit{pa-} causative morpheme. However, the causative morpheme differs in its functions within this subclass, as it does in give-type verbs. As an illustration, I discuss four causative verbs in this subclass: ‘send\textsubscript{1}’, ‘send\textsubscript{2}’, ‘return (=send back)’, and ‘mail’\textsuperscript{45}. Consider first two ‘send’ verbs in (4.5) and (4.6)\textsuperscript{46}.

\textsuperscript{45} While Levin’s (2008) list of dative/transfer verbs does not cover ‘return’, I classify this notion under the send-type verbs for its “caused motion” nature, which is supported by the decomposition of this verb (see [4.8]).

\textsuperscript{46} Note that the non-causative counterparts of these two ‘send’ verbs have distinct AV markers, rather than \textit{mi-}. As mentioned previously, the form of AV marker is lexically dependent (see §2.2.5 and §4.1). Thus, ‘go’ and ‘fly’ take zero and \textit{ma-} marking, respectively, as shown in (4.5b) and (4.6b).
Two roots are responsible for the derivation of ‘send’ verbs in Amis, namely *tayra* ‘go’ and *efer* ‘fly’: the former specifies the path and the latter specifies the manner of motion, in Talmy's (1985/2000) sense. As shown in (4.5b) and (4.6b), both of these AV-marked verbs have the moving entity as the absolutive argument. However, these verbs differ with respect to their subcategorization: ‘go’ selects the goal as the E argument; ‘fly’ on the other hand, does not imply the presence of the goal, but can have a location participant as the peripheral argument (i.e., adjunct).

The identification of core versus peripheral argument (i.e., complement vs. adjunct) here is not based on the omissibility test or the presence of the locative marker, but on the degree of “cohesion” (Chomsky 1965:131) of the locative-marked participant to the verb, articulated as an ‘internal/external’ contrast by Radford (1988). Consider the following English example.

(4.7) “Internal” versus “external” post-modifiers in English (Radford 1988:234)

a. *He laughed* [at the clown] (=internal).

b. *He laughed* [at ten o’clock] (=external).

Example (4.7) suggests that whether the participant is optional (i.e., the omissibility test) or whether it is marked as oblique (e.g., by a preposition) does not necessarily reflect the core/peripheral argument (i.e., complement/adjunct) status of this participant.

Cross-linguistically, the distinction between core and peripheral arguments is never a hard and fast one (Dixon 2010:101; see also Comrie 1993:906–907; Allerton 1994:4880; Van 47 Historically, *tayra* is decomposable into *ta-ira*: *ta-* is the directional affix ‘toward’; *ira* is a deictic term, meaning ‘that’ or ‘there’.

47 Historically, *tayra* is decomposable into *ta-ira*: *ta-* is the directional affix ‘toward’; *ira* is a deictic term, meaning ‘that’ or ‘there’.
Valin 2001:92–94). Studies of the argument structure in some Austronesian languages have reached a similar conclusion (e.g., G. Lin 2010 for Tsou; Arka 2005, 2014 for languages of eastern Indonesia and Balinese, respectively). Here, I adopt the idea that verbs impose restrictions on core arguments, but not peripheral arguments (Newman 2005:147; see also Radford 1988:192–3). I thus identify the i-marked locative NP in (4.5b) as the core, because its “goal” interpretation is restricted/implied by the path motion verb ‘go’. The locative NP in (4.6) is identified as peripheral, as the location interpretation of this NP is not bound by the semantics of the manner motion verb ‘fly’.48

Along these lines, while the same causative morpheme is responsible for the derivation of both ‘send’ verbs with the same subcategorization frame (i.e., both select a goal), this morpheme in fact serves distinct function(s), considering the fact that the original verbs (prior to causativization) have different subcategorization frames, namely, ‘go’ selects a goal and ‘fly’ does not. I shall explore this in detail later in a discussion that includes other causative send-type verbs as well. One final remark on these two ‘send’ verbs is that they do not share the same truth condition. According to my informants’ intuition, these two types of sending events differ according to the involvement of the sender. Despite both denoting an agentive transfer event, pa-tayra entails the agent’s personal execution of the transfer (i.e., agent-causer), and pa-efer simply entails the presence of the (animate) causer. In other words, pa-tayra denotes events in which both the agent and the theme arrive at the goal as a result of transfer (i.e., ‘send,’ as ‘(bring and) send’ or ‘deliver’), whereas pa-efer denotes events in which the agent calls for the transfer event, to be executed by some other individual (i.e., ‘send2’ as ‘send (indirectly) or ‘have (sth.) delivered’).49

Another related verb is ‘return’ (or ‘send back’), which by logic entails a transfer of location based on the meaning of its non-causative verb mi-tiku ‘go back’. The causativized and non-causative verbs are demonstrated in (4.8).

(4.8) Amis AV-marked ‘return (= send back)’ verb and its related derivation(s)

\[
\begin{align*}
\text{a. } & \text{o-pa-tiku} \quad \text{kura} \quad \text{tamdaw} \quad \text{tu} \quad \text{paysu} \quad (i \text{ kingku}) \\
& \text{AV-CAU-go.back ABS.that person OBL money LOC bank} \\
& \text{‘That person returns money [to the bank] (= goal).’}
\end{align*}
\]

48 Given the present discussion, I will from now on abandon the omissibility test as a criterion for identifying core/peripheral arguments. As a result, the valency of so-called transfer verbs will be identified based on whether these verbs impose interpretational restrictions on i-marked location NPs (see Table 4.3).

49 Based on this finding, pa-efer, which denotes indirect involvement in a transfer process, is conceptually very close to ‘mail’. However, I am inclined to label pa-efer as ‘send’ to address its similarities with the other ‘send’ verb pa-tayra in terms of the nature of the root and the function of the pa-morpheme. The treatment of pa-tikami as ‘mail’ in (4.9) also acknowledges the denominalizing strategy found in both Amis and English.
b. mi-tiku kura tamdaw (i lumaq)
   AV-go.back ABS.that person LOC house
   ‘That person returns [to the house] (= goal).’
   (not ‘That person returns [in the house] (= location).’)

Similar to the ‘send’ verbs in (4.5) and (4.6), ‘return’ is lexicalized by means of
causativization of a motion verb. For the AV-marked verb mi-tiku ‘go back’, the moving
entity surfaces as the absolutive argument, with the i-marked NP as the E argument
(suggested by its ‘goal’ interpretation in 4.8b). From this two-place predicate, the pa-
morpheme derives a transfer of location verb with the ‘return’ interpretation, introducing the
agent (i.e., the causer), the transported theme (i.e., the moving entity), and the goal, as
observed in (4.8a).

Another instance of send-type verbs is ‘mail’. Despite the lack of concepts related to
postal services in the Austronesian worldview, modern Formosan languages have coined
terms for long-distance indirect sending events. In Amis, the event of mailing or its
equivalent is denoted by a “denominal” verb based on the object-denoting root tikami
‘letter/mail’, which appears to be a Japanese loanword (i.e., てがみ [tegami]). The category
of this root motivates a distinct analysis of the pa- morpheme that appears with it, as
demonstrated in (4.9)

(4.9) Amis AV-marked ‘mail’ verb
   a. ø-pa-tikami ø-ci mayaw ci lisin-an (tu cecay a tikami)
      AV-CAU-letter ABS-PN Mayaw PN Lisin-OBL OBL one LNK letter
      ‘Mayaw mails Lisin (a letter).
   b. non-causative AV form: unavailable (*mi-tikami)

In Chapter 2, I addressed the derivational properties of Philippine-type voice marking,
including the ability of an AV marker to derive verbs from object-denoting roots (i.e.,
transcategorial function; §2.2.5.1). In Amis, the AV marker mi- has restricted productivity
with respect to this derivation, as it can only attach to certain object-denoting roots to denote
daily activities related to the specific object (e.g., mi-nanum ‘to drink (water)’ < nanum
‘water’; mi-futing ‘to fish’ < futing ‘fish’). The ungrammaticality of mi-tikami (4.9b)
demonstrates another function associated with pa-. In addition to providing a causative
semantics and a causer, the pa- morpheme derives the ‘mail’ verb by attaching to what
appears to be the theme of the transfer event—an instance of denominalization (e.g., English
locatum verbs such as saddle, butter, paint, mail; see Hale and Keyser 1993). This is clearly
observed in (4.9a), in which T can be absent in sentences with pa-tikami ‘mail’, where it has
been presupposed as a part of the verb lexeme. The causative morpheme pa- in verbs such as ‘mail’ thus has this specific denominalization function by means of the incorporation strategy, as described in Margetts and Austin (2007:422; see §3.3.2.).

To summarize, send-type transfer verbs in Amis also require the presence of the causative morpheme. Upon scrutiny, different kinds of “division of labor” between the pa-morpheme and its verb/root can be observed across these causative verbs. I use Table 4.3 to demonstrate more idiosyncrasies of pa- verbs in Amis.

Table 4.3 *pa-√* send-type verbs and their non-causative counterparts

<table>
<thead>
<tr>
<th>a. non-causative counterparts (valency)</th>
<th>b. causative give-type verbs (valency)</th>
<th>c. change of meaning (i.e., causative semantics)</th>
<th>d. valency change</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-tayra ‘go’ (2)</td>
<td>pa-tayra ‘send1’ (3)</td>
<td>yes</td>
<td>a. adding a causer into the event</td>
</tr>
<tr>
<td>ma-efer ‘fly’ (1)</td>
<td>pa-efer ‘send2’ (3)</td>
<td>yes</td>
<td>b. keeping all arguments of the original verb</td>
</tr>
<tr>
<td>mi-tiku ‘go back’ (2)</td>
<td>pa-tiku ‘return’ (3)</td>
<td>yes</td>
<td>Both the theme remains</td>
</tr>
<tr>
<td>tikami ‘letter’ (N.A.)</td>
<td>pa-tikami ‘mail’ (2)</td>
<td>yes</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

As in Table 4.2, the numbers in the parentheses in Table 4.3 specify the valency change as a result of “causativization.” For send-type verbs, the pa-morpheme appears to function consistently with respect to the introduction of causative semantics and the addition of the causer. However, in ‘send₂’ and ‘mail’, the causative morpheme makes an additional contribution to the valency of the derived verbs (the presence of an additional goal argument), as compared to their non-causative counterparts. This demonstrates another idiosyncrasy of pa- verbs in Amis.

4.2.3 Throw-type verbs

So far, I have identified the pa-morpheme as an obligatory element in the morphological structure of give-type and send-type verbs in Amis. As for throw-type verbs, their formation does not require this morphology. In this section, I present the morphosyntax of Amis verbs
for ‘throw’ and ‘kick’, thereby showing that the AV-marked throw-type verbs do not select the goal as the core argument. The goal participant, when specified in AV-marked throw-type verbs, is introduced by means of the serial verb strategy (Margetts and Austin 2007:419; see §3.2.2) Consider first the AV-marked ‘throw’ verb in (4.10).

(4.10) Amis ‘throw’ AV verb and the encoding of three-participant ‘throwing’ event
   a. *mi-tekul cingra tu fakeloh (i lumaq)
       AV-throw 3SG.ABS OBL stone LOC house
       ‘He throws stones (in the house) (= location).’
       (not ‘He throws stones at/into the house.’)
   b. *mi-tekul cingra tu fakeloh (pa-)tayra i lumaq
      AV-throw 3SG.ABS OBL stone CAU-go LOC house
      ‘He throws a stone to the house.’
   c. *mi-tekul cingra tu fakeloh pa-feli ci kulas-an
      AV-throw 3SG.ABS OBL stone CAU-give PN Kulas-OBL
      ‘He throws stones to Kulas.’

(4.10a) shows that the AV-marked ‘throw’ verb involves the overt voice marker *mi-, with no participation of the *pa- morpheme. However, unlike most of the previous causative transfer verbs, the AV-marked ‘throw’ verb does not select the goal as its core argument, as suggested by the location interpretation of the *i-marked NP (i.e., ‘in the house.’). To denote a three-participant transfer event, a second verb (V2) is required so that the goal or recipient as the result of throwing can be introduced in the event. This is demonstrated in (4.10b) and (4.10c).

The failure of Amis verbs like ‘throw’ to introduce the goal by themselves is not surprising from a cross-linguistic perspective (Chapter 3). Along the ditransitivity hierarchy (Croft et al. 2001), throw-type verbs have the lowest scale of inherent transfer, and thus may not imply the presence of a goal in their lexical semantics. Levin (2008), in particular, argues that throw-type verbs are two-argument activity verbs (see also Jackendoff 1990). In the schema Levin identifies for throw-type verbs, one entity instantaneously imparts a force on another: there is no entailment of transfer (of the forced entity) to a third participant. In Amis, the same observation holds: when the *i-marked locative NP is introduced with an AV-marked ‘throw’ verb, it is conceived by native speakers as the location in which the activity is performed, rather than the goal of the act of throwing.

Another throw-type verb, ‘kick’, has the same characteristic. Consider (4.11) below.
(4.11) Amis ‘kick’ AV verb as a two-place predicate

a. mi-tenuk ku tamdaw tu mali (i tafu-tafuk-an)
   AV-kick ABS person OBL ball LOC RED-sand-NMZ
   ‘The person kicks a ball (on the beach) (= location).’
   (not ‘The person kicks a ball (to the beach) (= goal).’)

b. mi-tenuk ku tamdaw tu mali (pa-)tayra i qalul
   AV-kick ABS person OBL ball CAU-go LOC river
   ‘The person kicks a ball into the river.’

c. mi-tenuk ku tamdaw tu mali pa-feli tura wawa
   AV-kick ABS person OBL ball CAU-give OBL.that child
   ‘The person a ball to that child.’

Like the AV-marked ‘throw’ verb, the AV-marked ‘kick’ verb does not require causative
morphology, and denotes a two-participant activity involving the agent and the theme (or
patient). The i-marked locative NP, when present, is interpreted as the location where kicking
takes place, rather than the ultimate whereabouts of the theme/patient after it is kicked (4.10a).
In other words, the AV-marked ‘kick’ verb by itself does not entail transfer (of location). To
encode a three-participant transfer event, a V2 is required to complement the ‘kick’ verb and
to introduce the goal or recipient into the event (4.11b–c).

4.2.4. Interim Summary

I have so far demonstrated how (AV) transfer verbs in Amis differ with respect to their
morphological complexity. Most importantly, the causative morpheme is always involved in
the formation of give-type and send-type verbs, but not in the formation of throw-type verbs.
I have also examined the ability/inability of these AV-marked transfer verbs to introduce the
third participant (i.e., recipient/goal) of the transfer event. The three-way classification
proposed in the literature proves to be useful. As shown in §4.1.3, AV-marked throw-type
verbs denote a two-place activity, and the introduction of the third participant relies on the
serial verb strategy. Give-type and send-type verbs almost always introduce three participants,
except for two cases: ‘sell’ and ‘mail’. In §4.1.1 and §4.1.2, I carefully outlined the
idiosyncrasies of Amis pa-verbs by comparing their argument structure and meaning with
the non-causative counterparts (e.g., mi-verbs). Here, I establish that these idiosyncrasies
arise from the fact that pa-verbs in Amis are lexical causatives, as opposed to productive
causatives.

Previous studies of Amis causative constructions (J. Wu 2006b; Kuo & Otsuka 2012)
identify two major types of causatives, despite the involvement of the same morpheme, pa-.
In one type, the causative morpheme attaches directly to the root without any intervening
component (i.e., pa-verbs). In the second type, there is an intervening component between the causative morpheme and the root (i.e., pa-pi-verbs or pa-ka-verbs). Consider the following example:

(4.12) Indirect vs. direct causation in Amis

a. ì-mi-nanum kura wawa (tu sayta)
   AV-water ABS-that child OBL soda
   ‘That child is drinking (soda).’

b. ø-pa-pi-nanum ø-ci kulas tura wawa (tu sayta)
   AV-CAU-PI-water ABS-PN Kulas OBL-that child OBL soda
   ‘Kulas asked that child to drink (soda).’

c. ø-pa-nanum ø-ci kulas tura wawa (tu sayta)
   AV-CAU-water ABS-PN Kulas OBL-that child OBL soda
   ‘Kulas gave the child (soda) (for him to drink).’

In Amis, the verb ‘drink’ is derived from AV affixation of an object-denoting root ‘water’, as (4.12a) shows. The causative morpheme pa- can attach either to the derived verb or directly to the root. In the former, the causativized verb pa-pi-nanum (< pa- + mi-nanum) is used to denote a causative relation in which the causee, instead of the causer, is responsible for the bringing about of the caused event, as suggested by the ‘ask (someone) to drink’ translation in (4.12b). Direct attachment of the causative morpheme to the root (i.e., pa-nanum), on the other hand, implies that the causer (instead of the causee) is responsible for the bringing about of the caused event. This is suggested by the ‘give (someone something to drink)’ translation in (4.12c). Based on the recurrent interpretation contrast observed between pa-verbs and pa-pi-verbs, Wu (2006b) and Kuo & Otsuka (2012) argue that the former is used to denote direct causation (Comrie 1985; Shibatani 2002), whereas the latter is used to denote indirect causation.

The direct attachment of pa- to the root level for transfer verbs in Amis is not surprising at all, as transfer verbs (or ditransitive constructions) by definition involve an agent responsible for the event of transfer (see Chapter 3). In the causative strategy, the causer is the newly derived agent responsible for the derived transfer verb. The causative strategy is thus commonly found in Amis transfer verbs, including not only those mentioned in Levin’s

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50 In Amis, pi- is a morphological variant of mi-, used when the verb receives further morphological marking (e.g., causative, applicative) or appears in certain constructions (e.g., negative, imperative). This pi- form may serve different functions in other Formosan languages.

51 It is also possible for the roots responsible for transfer verbs to allow for the pa-pi-verbs for an indirect causation scenario. Given the appropriate context, expressions like pa-pi-qaca ‘ask (someone) to buy’ or even pa-pi-pa-feli ‘ask (someone) to give’ are possible when the transfer events are demanded by a causer who is not directly involved in the transfer process.
(2008) (English-based) list, but also some culture-specific items. (4.13) lists some of the latter, with the closest English equivalents.

(4.13) Culture-specific Amis transfer verbs involving the causative strategy
a. *pa-ini* ‘to offer’ (< *ini* ‘here’)
b. *pa-hicera* ‘to deliver’ (< *hicera* ‘to land or drop by’)
c. *pa-lahod* ‘to offer (for rites)’ (< *lahod* ‘moisture’)\(^{52}\)
d. *pa-kuhaw* ‘to pour (soup on rice)’ (< *kuhaw* ‘soup’)
e. *pa-faking* ‘to fine’ (< *faking* ‘fine’)
f. *pa-ngiraw* ‘to give a red envelope’ (< *ngiraw* ‘wedding feast’)\(^{53}\)

The items in (4.13) as well as the aforementioned causative transfer verbs repeatedly suggest the idiosyncrasies of *pa-√* verbs: the meaning and/or valency of these derived causative verbs does not necessarily equal the sum of their parts. This is understandable if we treat *pa-√* verbs as instances of “lexical causatives” and *pa-pi-√* verbs as “productive causatives.” Shibatani and Pardeshi (2002) raise concerns about the traditional lexical/morphological/syntactic classification of causatives, and argue that languages use their own morphosyntactic strategies to demonstrate the indirect/direct causation contrast. Supporting examples come from Japanese “lexical causatives” which involve morphological marking, as well as Tagalog, in which *pag*- is analyzed as a lexical causative marker (Travis 2010).

I have now established *pa-√* verbs in Amis as instances of lexical causatives. The observation that *pa-* derives verbs whose valency cannot be predicted based on the non-causative verbs from which they derive suggests that relating *pa-√* to the AV-marked (e.g., *mi-√*) verbs is incorrect, even though they involve the same root. In other words, both the causative marker and AV marker are derivational when they attach directly to the root, resulting in verbs with their own meaning/valency. This finding has important implications for my later analysis of roots in symmetrical voice languages, to be presented in Chapter 9.

4.3 The argument structure of Amis (NAV) transfer verbs
As briefly mentioned in Chapter 3, argument alternations of transfer verbs in Formosan

\(^{52}\) The meaning of ‘offer (for rites)’ from a root with the ‘moisture’ meaning is curious. My informants cannot tell me why it can be the case. However, I tend to stipulate that it originates from a cultural practice that while drinking (alcohol), some people use their finger to dip into the drink and spill some on the ground to show respect to the ancestors.

\(^{53}\) It has been a long existing cultural practice in Sinicized area that when invited to the wedding, guests should contribute some money to the host with a red envelope to express their congratulations to the couple.
languages are “coded” by means of voice marking. This section scrutinizes the argument alternation patterns across Amis transfer verbs, with special focus on the thematic role of the absolutive argument. As AV-marked transfer verbs are syntactically intransitive, and unanimously select the agent as the absolutive argument, this section will focus on NAV-marked transfer verbs, which show diverse patterns with regard to the selection of the absolutive argument (e.g., T, R, or even none of the above). In Chapter 3, I introduced the ditransitivity hierarchy (Croft et al. 2001) and the verb-sensitive approach (Levin 2008), which make reference to three subclasses of transfer verbs that condition the alternation restrictions for languages with “uncoded” alternations (e.g., Germanic languages). Adopting the three-way classification, this section shows that these approaches face challenges when applied to a language with a symmetrical voice system, due to the presence of “subclass internal” lexical variation.

4.3.1 Give-type verbs

In §4.2.1, I introduced three Amis give-type verbs, namely pa-feli ‘give’, pa-caliw ‘lend’, and pa-qaca ‘sell’. With respect to their NAV counterparts, two patterns can be identified based on their “selection of the O argument,” or mapping between the thematic role and the absolutive case. The first pattern is observed with ‘give’ and ‘lend’, as illustrated in (4.14) and (4.15).

(4.14) Argument structure of NAV-marked ‘give’ verbs: Pattern 1

a. PV construction (T = ABS)

\[ ma-pa-feli \quad ni \quad kulas \quad kuni \quad paysu \quad ci \quad mayaw-an \]

PV-CAU-give ERG.PN Kulas ABS-this money PN Mayaw-OBL

‘Kulas gave the money to Mayaw.’

b. PV construction (R = ABS)

\[ ma-pa-feli \quad ni \quad kulas \quad tu \quad paysu \quad o-ci \quad mayaw \]

PV-CAU-give ERG.PN Kulas OBL money ABS-PN Mayaw

‘Kulas gave Mayaw money.’

c. LV construction (R = ABS)

\[ (*pi-)pa-feli-an \quad ni \quad kulas \quad tu \quad paysu \quad o-ci \quad mayaw \]

PI-CAU-give-LV ERG.PN Kulas OBL money ABS-PN Mayaw

‘Kulas gave Mayaw (some) money.’

d. CV construction (T = ABS)

\[ sa-pa-feli \quad ni \quad kulas \quad ci \quad mayaw-an \quad kuni \quad paysu \]

CV-CAU-give ERG.PN Kulas PN Mayaw-OBL ABS-this money

‘I (will) give the money to Mayaw.’
(4.15) Argument structure of NAV-marked ‘lend’ verbs: Pattern 1

a. PV construction (T = ABS)

\[ ma-pa-caliv \quad nura \quad tamdaw \quad kuni \quad paliding \quad ci \quad sawmah-an \]

PV-CAU-borrow ERG.that person ABS.this car PN Sawmah-OBL

‘That person lent the car to Sawmah.’

b. PV construction (R = ABS)

\[ ma-pa-caliv \quad nura \quad tamdaw \quad tu \quad paliding \quad o-ci \quad sawmah \]

PV-CAU-borrow ERG.that person OBL car ABS-PN Sawmah

‘That person lent Sawmah a car.’

c. LV construction (R = ABS)

\[ (*pi-)pa-caliv-an \quad nura \quad tamdaw \quad tu \quad paliding \quad o-ci \quad sawmah \]

PI-CAU-borrow-LV ERG.that person OBL car ABS-PN Sawmah

‘That person lent Sawmah a car.’

d. CV construction (T = ABS)

\[ sa-pa-caliv \quad nura \quad tamdaw \quad ci \quad sawmah-an \quad kuni \quad paliding \]

CV-CAU-borrow ERG.that person PN Sawmah-OBL ABS.this car

‘I (will) lend the car to Sawmah.’

In §4.1, I discussed NAV forms with or without the involvement of a causative morpheme (see Table 4.1). The forms of NAV-marked causative verbs are repeated here: (i) \( ma-pa-\sqrt{} \), (\( mi- \) )\( pa-\sqrt{}-an \) or \( pa-\sqrt{}-en \) ‘PV’; (ii) \( (pi-\) )\( pa-\sqrt{}-an \) ‘LV’; and (iii) \( sa-pa-\sqrt{} \) ‘CV’. In my illustration of the argument structure, I use \( ma-pa-\sqrt{} \) as the PV form. In addition, I present the contrast between the presence and absence of \( pi- \) across LV transfer verbs. Examples (4.14) and (4.15) demonstrate the same argument alternation pattern of ‘give’ and ‘lend’: either T or R as absolutive in PV form, R as absolutive in LV form, and T as absolutive in CV form. However, this pattern is not shared by all members of give-type transfer verbs. Consider, for example, the ‘sell’ verb in (4.16).

(4.16) Argument structure of NAV-marked ‘sell’ verbs: Pattern 2

a. PV construction (T = ABS)

\[ ma-pa-qaca \quad nura \quad wawa \quad ku \quad futing \quad (ci \quad lisin-an) \]

PV-CAU-buy ERG.that child ABS fish PN Lisin-OBL

‘That child sold the fish to Lisin.’

b. PV construction (*R = ABS)

*\[ ma-pa-qaca \quad nura \quad wawa \quad tu \quad futing \quad o-ci \quad lisin \]

PV-CAU-buy ERG.that child OBL fish ABS-PN Lisin

(intended: ‘That child sold Lisin fish.’)

c. LV construction (L = ABS)

\[ (pi-)pa-qaca-an \quad nura \quad wawa \quad kuya \quad lumaq \quad tu \quad futing \]

PI-CAU-buy-LV ERG.that child ABS.that house OBL fish

‘The child sold fish in that house.’

(not ‘The child sold fish to that house.’)
d. CV construction (T = ABS)

\[ sa-pa-gaca \quad mura \quad wawa \quad ci \quad lisin-an \quad kuni \quad futung \]

CV-CAU-buy \quad ERG.that \quad child \quad PN \quad Lisin-OBL \quad ABS.this \quad fish

‘The child will sell this fish to Lisin.’

The ‘sell’ verb resembles ‘give/lend’ only with respect to the argument structure of the CV form: the theme surfaces as the absolutive, as indicated in (4.16d). It has a distinct selection pattern in other NAV forms.\(^{54}\) (4.16a) shows that the PV-marked ‘sell’ verb can only select T as the absolutive argument; moreover, the recipient is only optionally realized as an oblique NP. In addition, in the LV form, the verb selects the location as the absolutive argument, as suggested by the translation in (4.17c). It is important to note that the PV and LV forms of ‘sell’, unlike the CV counterpart, do not introduce the recipient of the transfer as a third participant.

The difference in the argument structure between ‘give/lend’ and ‘sell’ NAV-marked verbs is whether or not the recipient role of the transfer event can be realized as the absolutive argument. In Pattern 1 as observed in ‘give’ and ‘lend’ NAV verbs, the recipient can become the absolutive argument by multiple means, such as PV or LV marking; in Pattern 2 as exemplified by ‘sell’ NAV verbs, the recipient can never become the absolutive argument, regardless of the NAV marking. The “theme-only” constraint (Kuo & Otsuka 2012; Kuo 2013;) observed in Pattern 2 casts doubt on the treatment of ‘sell’ on par with other give-type verbs. This contrast presents the first piece of evidence for subclass internal variation. I shall discuss this together with other evidence in Section 4.3.4.

\(^{54}\) In Kuo 2013 (see also Kuo & Otsuka 2012), I provide one example of an “LV” ‘sell’ verb with a different subject selection pattern, that is, the theme surfaces as the absolutive argument.

(i) \( pa-qaca-an \quad aku \quad ku \quad cuidad \quad ci \quad kulas-an \) (Kuo 2013:5)

CAU-buy-CAU-1SG.ERG ABS book PN Kulas-OBL

‘I sold the book to Kulas.’

In that analysis, I treated \(-an\) alone as the locative applicative (LA) marker without taking the presence or absence of \(pi\) into serious consideration. Considering the absolutive selection as shown in (i), it is more appropriate to treat this verb as an instance of PV verbs, which select the theme/patient as the absolutive argument. Given the PV analysis, (i) is reconsidered as (iib) below. The optionality of \(mi\) in (iib) in contrast to (iia) is likely due to the involvement of the causative morpheme.

(ii) Amis \(mi-\ldots-an\) PV verbs (P = ABS)

a. \(mi-qadup-an \quad mi \quad aki \quad kuni \quad fafuy\)

PV-hunt-PV ERG.PN Aki ABS.this pig

‘Aki hunted this pig.’

b. \((mi-pa-gaca-an \quad aku \quad ku \quad cuidad \quad ci \quad kulas-an\) (reanalysis of [i])

PV-CAU-buy-PV 1SG.ERG ABS book PN Kulas-OBL

‘I sold the book to Kulas.’
4.3.2 Send-type verbs

Send-type verbs also show two patterns regarding the absolutive selection of their NAV forms. For the first pattern, the transported theme is marked as absolutive in PV and CV forms, while the goal is marked as absolutive in LV form, with the other non-actor participant (i.e., goal or theme) realized as oblique. This is found with the two ‘send’ verbs and the ‘return’ verb, as demonstrated in (4.17–19).

(4.17) Argument structure of NAV-marked ‘send1’ verbs: Pattern 1

a. PV construction (T = ABS)
   *ma-pa-tayra nura matuqasay ku felac i kalingku*
   PV-CAU-go ERG.that old.man ABS rice LOC Hualien
   ‘That old man sent the rice to Hualien.’

b. PV construction (*G = ABS)
   *ma-pa-tayra nura matuqasay tu felac ku kalingku*
   PV-CAU-go ERG.that old.man OBL rice ABS Hualien
   (intended: ‘That old man sent rice to Hualien’)

c. LV construction (G = ABS)
   (*pi-)pa-tayra-an nura matuqasay tu felac ku kalingku
   PI-CAU-go-LV ERG.that old.man OBL rice ABS Hualien
   ‘That old man sent rice to Hualien.’

d. CV construction (T = ABS)
   sa-pa-tayra nura matuqasay kuni felac i kalingku
   CV-CAU-go ERG.that old.man ABS. this rice LOC Hualien
   ‘That old man will send this rice to Hualien.’

(4.18) Argument structure of NAV-marked ‘send2’ verbs: Pattern 1

a. PV construction (T = ABS)
   ma-pa-efer nu faki ku paysu tu wawa nira
   PV-CAU-fly ERG uncle ABS money OBL child 3SG.GEN
   ‘Uncle sent the money to his child.’

b. PV construction (*G = ABS)
   *ma-pa-efer nu faki tu paysu ku wawa nira*
   PV-CAU-fly ERG uncle OBL money ABS child 3SG.GEN
   (intended for ‘Uncle sent money to his child.’)

c. LV construction (G = ABS)
   (*pi-)pa-efer-an nu faki tu paysu ku wawa nira
   PI-CAU-fly-LV ERG uncle OBL money ABS child 3SG.GEN
   ‘Uncle sent his child money.’

d. CV construction (T = ABS)
   sa-pa-efer nu faki ku paysu tu wawa nira
   CV-CAU-fly ERG uncle ABS money OBL child 3SG.GEN
   ‘Uncle will send the money to his child.’
(4.19) Argument structure of NAV-marked ‘return’ verbs: Pattern 1
a. PV construction (T = ABS)

\[ \text{ma-pa-tiku nura tamdaw kuya paysu i kingku} \]
PV-CAU-go.back ERG.that.person ABS.that.money LOC bank

‘That person returned the money to the bank.’

b. PV construction (*G = ABS)

\[ *\text{ma-pa-tiku nura tamdaw tu paysu kuni kingku} \]
PV-CAU-go.back ERG.that.person OBL money ABS..this bank

(intended for ‘That person returned money to the bank.’)

c. LV construction (G = ABS)

\[ (\text{pi-pa-tiku-an nura tamdaw tu paysu kura kingku}) \]
PI-CAU-go.back-LV ERG.that.person OBL money ABS.that bank

‘That person returned the bank money.’

d. CV construction (T = ABS)

\[ \text{sa-pa-tiku nura tamdaw kuni paysu i kingku} \]
CV-CAU-go.back ERG.that.person ABS..this money LOC bank

‘That person will return the money to the bank.’

Within the send-type verbs, ‘mail’ \text{pa-tikami} has a distinct pattern with respect to absolutive selection. While it also selects the transported theme as the absolutive argument in its CV form, it selects the goal (but not the theme) in its PV form, and can select either the goal or a location in its LV form. This is shown in (4.20).

(4.20) Argument structure of NAV-marked ‘mail’ verbs: Pattern 2
a. PV construction (G = ABS)

\[ \text{ma-pa-tikami ni mayaw o-ci lisin (tu cecay a tikami}) \]
PV-CAU-letter ERG..PN Mayaw ABS-PN Lisin OBL one LNK letter

‘Mayaw mailed Lisin (a letter).’

b. LV construction (G = ABS)

\[ (*\text{pi-pa-tikami-an ni mayaw o-ci lisin tu cecay a tikami}) \]
PI-CAU-letter-LV ERG..PN Mayaw ABS-PN Lisin OBL one LNK letter

‘Mayaw mailed Lisin a letter.’

c. LV construction (L = ABS)

\[ \text{pi-pa-tikami-an ni mayaw ci lisin-an kunini a lumaq} \]
PI-CAU-letter-LV ERG..PN Mayaw PN Lisin-OBL ABS..this LNK house

‘Mayaw mailed Lisin in this house.’

(not ‘Mayaw mailed Lisin (a letter) to this house.’)

d. CV construction (T = ABS)

\[ \text{sa-pa-tikami ni mayaw ci lisin-an kunu tikami} \]
CV-CAU-letter ERG..PN Mayaw PN Lisin-OBL ABS..this letter

‘Mayaw will mail this letter to Lisin.’

So far, I have examined two subclasses of transfer verbs, both of which show
“subclass-internal” variation with respect to their ability to alternate the thematic role of the O (i.e., ABS) argument via voice marking. According to the ditransitivity hierarchy or the verb-sensitive approach, members of the same subclass should not differ from one another with respect to their argument alternation. In the next subsection, I describe another challenge for the three-way classification based on the examination of throw-type verbs.

4.3.3 Throw-type verbs

In §4.2.3, I demonstrated the absence of the causative morpheme in Amis throw-type verbs. In addition, AV-marked throw-type verbs rely on the serial verb strategy for the encoding of transfer events. Interestingly, while AV-marked throw-type verbs denote two-place activities, their NAV counterparts are more complicated with respect to their event semantics: some denote a three-participant transfer event single-handedly, whereas some denote a three-participant event that does not involve the sense of transfer at all. As an illustration, I introduce NAV-marked ‘throw’ verbs first, and then NAV-marked ‘kick’ verbs.

(4.21) Argument structure of NAV-marked ‘throw’ verbs: Pattern 1

a. PV construction (T = ABS; transfer interpretation available)

\[ \text{ma-tekul nira ku mali (i lalumaq)} \]

PV-throw 3SG.ERG ABS ball LOC inside

‘He threw the ball (inside) (=goal).’

b. LV construction (L = ABS; transfer interpretation unavailable)

\[ \text{pi-tekul-an nira tu mali ku lumaq} \]

PI-throw-LV 3SG.ERG OBL ball ABS house

‘He threw a ball [in the house] (= location).’

(not ‘He threw a ball [at/to the house] (= goal).’)

c. CV construction (T = ABS; transfer interpretation available)

\[ \text{sa-pi-tekul nira ku mali tu lumaq} \]

CV-PI-throw 3SG.ERG ABS ball OBL house

‘He will throw the ball [to/at the house] (= goal).’

(not ‘He will throw the ball [in the house] (= location).’)

The contrast between two-argument activity predicates (i.e., English throw) and three-place transfer predicates can be identified based on native speakers’ interpretation of the i-marked participant, a diagnostic presented in §4.2.2. Example (4.21) shows that PV-marked and CV-marked ‘throw’ verbs denote transfer events, as suggested by the goal interpretation of the i-marked NP in (4.21a) and the oblique NP in (4.21c), respectively. The LV-marked ‘throw’ verb, on the other hand, does not carry the transfer interpretation, as suggested by the
location interpretation of the absolutive argument in (4.21b). The absolutive selection of these verbs is subject to their interpretations: the transported theme is marked as absolutive in the PV form and the CV form, whereas the location is marked as absolutive in the LV form.

The ‘kick’ verb with the root *tenuk*, however, has a different argument realization pattern. See the sentences below.

(4.22) Argument structure of NAV-marked ‘kick’ verbs: Pattern 2

a. PV construction (P = ABS)\(^{56}\)

\[
\text{ma-tenuk nura tamdaw ku mali (tala-qalul)}
\]

PV-kick ERG.that person ABS ball to-river

‘That person kicked the ball (into the river) (=goal).’

b. LV construction (P/G = ABS)

\[
\text{pi-tenuk-an nira tu waqay ku cafeng}
\]

PI-kick-LV 3SG.ERG OBL leg ABS wall

‘He kicked the wall with (his) leg.’

(not ‘He kicked (something) with (his) leg on the wall.’)

c. CV construction (I = ABS)

\[
\text{sa-pi-tenuk nira tu cafeng ku waqay nira}
\]

CV-PI-kick 3SG.ERG OBL wall ABS leg 3SG.GEN

‘He will kick his leg against the wall.’

The PV form of ‘kick’ resembles that of ‘throw’ for its transfer interpretation, as shown in (4.22a). However, ‘kick’ is unique among all the aforementioned Amis transfer verbs (e.g., ‘give’, ‘sell’, ‘send’, ‘mail’, ‘throw’): it is the only item that does not carry the transfer interpretation in its CV form. In (4.22c), the absolutive argument ‘leg’ can not be identified as the transported theme, as it is not transferred away from the agent as a result of ‘kicking’. Conceptually speaking, ‘leg’ in (4.23c) may be viewed as an instrument with which ‘kicking’ is performed (i.e., I = ABS).\(^{57}\) Compared to the CV form, the LV form denotes a similar ‘kicking’ event, with the locational participant interpreted as the patient/goal at which kicking is directed, rather than as the location where kicking is performed (i.e., the translation in 4.22b).

To capture the contrast between the sense of transfer suggested by the CV-marked ‘throw’ verb and the lack of this sense for the CV-marked ‘kick’ verb, one may refer to the

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\(^{55}\) Compare this with LV-marked send-type verbs, whose absolutive argument has the goal reading (§4.3.2).

\(^{56}\) The label “patient” (P) for the absolutive argument in the PV form and the LV form of the ‘kick’ verb is intended to highlight the contact-denoting nature of this verb, as opposed to most of the transfer verbs. In (4.23), I will show that a kicking event does not necessarily involve a transported theme. Along this line, the participant that undergoes kicking should better be identified as the patient or goal. See Chapter 5 for more discussion about the identification of patient/goal in a ‘kicking’ event based on the affectedness of this argument.

\(^{57}\) The label “instrument” (I) is intended in (4.22c) to highlight the fact that the absolutive argument of the CV form of ‘kick’ is not necessarily transferred (i.e., theme), as is the case in other transfer verbs.
“with/against alternation” observed in certain English verbs, including ‘kick’, but not ‘throw’. This is illustrated in (4.23) and (4.24)

(4.23) With/Against alternation in English: Alternating verbs (e.g., bang, hit, kick, knock, etc.; based on Levin 1993:67)
   a. Brian kicked the wall with his leg.
   b. Brian kicked his leg against the wall.

(4.24) With/Against alternation in English: Non-alternating against only (e.g., bat, sling, throw, tip, etc.; based on Levin 1993:67)
   a. *Brian threw the fence with the stick.
   b. Brian threw the stick against the fence.

Both English and Amis examples of ‘throw’ and ‘kick’ suggest the possibility of treating these two verbs as members of distinct classes according to their morphosyntactic behaviors other than the shared dative/ditransitive alternation. This will be evaluated carefully in Section 4.3.4.

4.3.4 Discussion: Lexical variation within and across transfer verb subclasses

Table 4.4 summarizes previous findings regarding the absolutive selection of Amis NAV-marked transfer verbs, with additional information about argument alternation to facilitate my discussion about the interaction between voice and the involved verb/root.

Table 4.4 Lexical variation within and across subclasses of Amis transfer verbs

<table>
<thead>
<tr>
<th>Argument alteration</th>
<th>ABS argument selection (i.e., the thematic role of O argument)</th>
<th>Example(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PV</td>
<td>LV</td>
</tr>
<tr>
<td>give-type</td>
<td>Yes</td>
<td>T or R</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>T</td>
</tr>
<tr>
<td>send-type</td>
<td>Yes</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>Yes/No: flexible</td>
<td>G</td>
</tr>
<tr>
<td>throw-type</td>
<td>No</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P</td>
</tr>
</tbody>
</table>
The argument alternation column is intended to highlight the difference between these transfer verbs with respect to their ability to alternate the non-actor participants of the transfer events (i.e., recipient/goal and theme) by means of voice marking. As presented earlier, some transfer verbs (e.g., ‘give’, ‘send’) always select the same set of participants regardless of the voice marking; these verbs tend to allow either of the two non-actor participants to surface as the absolutive argument, given the corresponding voice marking (i.e., Yes in Table 4.4) There are also transfer verbs (e.g., ‘sell’, ‘throw’), whose NAV forms target participants other than those in a transfer event, and thus fail to alternate (i.e., No in Table 4.5). In addition, verbs like ‘mail’ have certain flexibility, based on the fact that the LV form can be interpreted as introducing either location or goal.

In the literature, the three-way classification of transfer verbs based on the ditransitivity hierarchy and the verb-sensitive approach has proven helpful in accounting for the lexical variation with respect to argument structure. Formosan languages like Amis, however, demonstrate “subclass internal” variation as summarized in Table 4.4, which the three-way classification fails to explain. The fact that NAV-marked “transfer” verbs involving the same root may or may not actually carry the transfer interpretation suggests that it is incorrect to presuppose the involvement of a sense of transfer sense for all of the items at the root level. In the literature, this issue has only been discussed for two-argument throw-type verbs, which differ from give-type and send-type verbs. However, alleged members of the give-type and send-type verbs such as ‘sell’ and ‘mail’ in Amis have the same issue of the lack of a transfer interpretation, as shown in Table 4.4.

In §4.2, I scrutinized the meaning and argument structure of causative transfer verbs and concluded that \( pa-\sqrt{\ } \) verbs should not be considered to be derived from AV-marked verbs. A parallel finding is shown in regard to these NAV-marked transfer verbs. For non-alternating verbs like ‘sell’ and ‘kick’ in Amis, LV/CV forms can be treated as derived (i.e., applicativized) from the PV counterpart (i.e., the canonical transitive under the ergative view) because of the involvement of the applied argument (e.g., location, instrument). However, for alternating verbs, it is impossible to identify one canonical transitive verb among the three NAV-marked candidates, as far as meaning and valency are concerned. The argument structure of NAV-marked Amis transfer verbs reveal the derivational properties voice marking, especially LV/CV, which increases valency only in some cases but does not change the number of arguments in others. The derivational properties of NAV markers in Formosan languages will be readdressed and highlighted in later chapters.
4.4 Conclusion

This chapter demonstrates the lexical variation among transfer verbs in Amis with respect to their morphological complexity and argument structure (e.g., absolutive selection). Section 4.2 introduces AV-marked transfer verbs. It is shown that while give-type and send-type verbs inevitably rely on the causative strategy, throw-type verbs employ the serial verb strategy for the encoding of three-participant transfer events. This observation resonates with Levin’s (2008) proposal about the involvement of the causative semantics in give/send-type verbs as well as the bivalent nature of throw-type verbs. In addition, the morphological complexity of Amis transfer verbs is scrutinized, with the conclusion that the causative morpheme is derivational in the case of pa-verbs (i.e., the lexical causative).

Section 4.3 focuses on the argument structure of Amis NAV-marked transfer verbs. Unlike languages whose alternation of transfer verbs (between dative and DOC) is semantically motivated by the three-way classification, Amis demonstrates lexical variation within all three subclasses of transfer verbs. This reveals the derivational properties of NAV markers. The applicative analysis for LV/CV markers is particularly questionable given the observation that the LV/CV forms of most of the Amis transfer verbs (except ‘sell’, ‘mail’, and ‘kick’) do not add an additional argument to the event, compared to their PV counterpart (see Table 4.4). The derivational properties of the causative morpheme and voice markers raise questions about the category of roots in Formosan languages, and further suggest an event-based analysis of voice marking. I shall deal with these issues carefully after the discussion of the other two research languages.
CHAPTER FIVE
PUYUMA TRANSFER VERBS AND ARGUMENT STRUCTURE

5.1 Preamble
This chapter examines Puyuma transfer verbs and demonstrates their lexical variation in terms of morphological composition and argument structure. The organization of this chapter follows that of the previous chapter. First, I briefly review the voice morphology in Puyuma and present the fact that not every verb can have all of the four voice forms in this language. In Section 5.2, I examine the morphological structure of Puyuma transfer verbs under the three-way classification (i.e., give/send/throw) proposed in the literature. The focus will be on AV-marked transfer verbs only, for the considerations outlined in Chapter 4. In Section 5.3, I present the argument structure and alternation patterns of NAV-marked transfer verbs. This section again demonstrates the point, established in terms of Amis in Chapter, that the three-way classification has its limitation in the context of symmetrical voice languages, as these languages show subclass internal variation. In addition, I will elaborate on the derivational properties of the causative morpheme(s) and voice markers, which suggest an event-based analysis for voice systems in Formosan languages (to be presented in Chapter 9).

In Chapter 4, I introduced the voice system in Amis, characterized by the presence of multiple forms within each category and their lexically conditioned nature (Table 4.1). In Puyuma, the interaction between voice and the verbs/roots is also lexically dependent, though in a different manner. To illustrate, Table 5.1 presents the voice system of Puyuma; it is a modification of Table 2.14, with an additional column for \(\text{pa}-\sqrt{\cdot}\) causative verbs.

Table 5.1 Puyuma (simplified) voice system (modified from Table 2.14; \(\sqrt{\cdot}\) for root)

<table>
<thead>
<tr>
<th></th>
<th>(\text{M}-\sqrt{\cdot})</th>
<th>(\text{pa}-\sqrt{\cdot})</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PV</td>
<td>(\sqrt{-aw})</td>
<td>(\text{pa}-\sqrt{-aw})</td>
</tr>
<tr>
<td>LV</td>
<td>(\sqrt{-ay})</td>
<td>(\text{pa}-\sqrt{-ay})</td>
</tr>
<tr>
<td>CV</td>
<td>(\sqrt{-anay})</td>
<td>(\text{pa}-\sqrt{-anay})</td>
</tr>
</tbody>
</table>

As mentioned in §2.2.5, the voice forms in Puyuma are relatively simple; they do not differ based on the semantics of the involved root, except for the AV category.58 The \(\text{M}\)- affix

58 By “simple,” I refer to the fact that the voice form is not sensitive to verb/root types. It should be noted that Puyuma has a more complex voice system than Amis does with respect to the TAM distinctions (see §2.2.5).
stands for the varieties, whose form is dependent on the semantics or phonological environment of the root/stem (Teng 2008). For example, the AV marker is *ma-* for state-denoting roots (e.g., *ma-ladram* ‘know’), *<em>ma-* for activity-denoting roots (e.g., *d<em>irus* ‘wash’), *m-* for vowel-initial roots (e.g., *m-uka* ‘go’), *me-* for roots that begin with /l/, /lr/, /n/, /ng/, and /r/ (e.g., *me-na’u* ‘see’), and *<em>me-* for roots that begin with /p/ or /b/ (e.g., *p<em>ia* ‘finish’). The AV marker is zero for only a small number of roots such as ‘give’ (e.g., *ø-beray*).

The lack of multiple forms for NAV categories shown in Table 5.1 does not mean that the Puyuma voice system does not interact with the semantics of the involved root. In fact, it has a different type of interaction. In Amis, the majority of roots might allow any of the NAV markings (i.e., PV/LV/CV), given the corresponding form. In Puyuma, on the other hand, there are more “lexical gaps,” by which I mean that Puyuma roots are selective in terms of the four voice categories they allow. For example, some roots (e.g., ‘give’) do not allow a PV form whereas others (e.g., ‘burn’) do not allow an LV form. The Puyuma voice system is thus lexically conditioned, as the Amis voice system is, but in a different manner. Concrete examples of the gaps in Puyuma transfer verbs (i.e., lack of PV-marked forms) will be presented in Section 5.3.

One final point to be made before I enter the main discussion has to do with *pa-*√ causative verbs, which involve the same morpheme as Amis causative verbs do. While it is the case that Amis and Puyuma may have inherited the same causative morpheme *pa-* (Blust 2003a, 2009/2012), Puyuma *pa-*√ verbs do not always denote direct causation. More discussion regarding the causative morpheme(s) in Puyuma will be provided in Section 5.2.4.

5.2 The morphological complexity of Puyuma (AV) transfer verbs
This section presents the morphological structure of Puyuma transfer verbs. Adopting the organization of §4.2, I discuss give-type, send-type, and throw-type verbs in turn, and demonstrate the lexical variation within and across these subclasses in terms of their morphological makeup. To illustrate, I focus mainly on AV-marked verbs in most of the cases (except ‘sell’). The NAV-marked transfer verbs will be examined carefully in Section 5.3.

5.2.1 Give-type verbs
In Chapter 4, I showed that give-type verbs in Amis always involve the causative morpheme. In Puyuma, however, this is not the case. Consider, for example, the morphological structure of ‘give’ in (5.1).
(5.1) Puyuma ‘give’ AV-marked verb and its related derivation(s)

a. ø-beray=ku d ra paysu kan senden
   AV-give=1SG.ABS ID.OBL money SG.OBL Senden
   ‘I gave money to Senden.’

b. ø-ki-beray=ku kan senden d ra paysu
   AV-KI-give=1SG.ABS SG.OBL Senden ID.OBL money
   ‘I received money from Senden.’

Unlike the Amis ‘give’ verb pa-feli, the Puyuma ‘give’ verb beray does not involve a causative morpheme, as shown in (5.1a). Despite the lack of overt voice morphology, beray alone should be analyzed as an AV verb based on the thematic role of the absolutive argument (i.e., the agent). In Puyuma, zero AV marking can occur only with a restricted number of roots, including ‘give’, ‘help’, ‘follow’, and so forth (Teng 2008). Another characteristic of transfer verbs in Puyuma is that they can allow the the ki-morpheme, which is responsible for “reversing” the direction of transfer. This is exemplified in the contrast between (5.1a) and (5.1b): the agent of the derived verb ki-beray turns out to be the recipient of the transfer event. (5.1b) shows how ‘receive’ can be derived from the ‘give’ root based on a change of perspective.

The ki-morpheme deserves more discussion here, as it plays an important role in my discussion of the semantic nature of transfer verbs/roots in Puyuma. First, the mechanism for the ki-morpheme to transform ‘give’ into ‘receive’ is curious. As far as the voice function is concerned, there are good reasons for an AV analysis of ki-beray, as suggested by (5.1b). First, the null morphology is only found for AV but not in any of the NAV categories (i.e., PV/LV/CV). Second, as mentioned in Chapter 2, NAV verbs in Formosan languages must involve an ergative argument. Puyuma ki-√ verbs, however, never involve such an argument (unless further attached by an NAV marker; see 5.2b). The AV nature of ki-√ verbs, as well as the ability of this morpheme to reverse transfer, suggests a “passive(-like)” analysis (e.g., Cauquelin 2008, in press). Namely, it is tempting to interpret (5.1b) as ‘I was given money by Senden’. Teng (2008), in fact, identifies ki- in Puyuma as “passive,” with quotation marks to distinguish it from the typical passive morpheme in accusative languages. Most importantly, the ki-morpheme in general does not function like a passive morpheme in an inflectional sense. Instead, this morpheme is derivational, given its transcategorial function and its ability to allow further voice affixation, as shown in (5.2a) and (5.2b), respectively.
(5.2) Derivational properties of *ki* in Puyuma

a. ø-*ki-`aputr=ku=la* (Teng 2008:182; gloss mine)
   AV-KI-flower=1SG.ABS=PFV
   ‘I’ve picked flowers.’ (lit. ‘I have flower-picked.’)

b. *niam=ki-beray-ay=yu*
   1EPL=KI-give-LV=2SG.ABS
   ‘We will receive (something) from you.’

(5.2a) shows that *ki* can “verbalize” an object-denoting root into an event-denoting predicate (‘pick flower’ < ‘flower’). The passive analysis, at first glance, may be motivated in the case of (5.2b), based on an interpretation of the receiver as the undergoer of a giving event (i.e., possibly translated as ‘We will be given (something) by you’, with the same truth condition regarding the ultimate possessor of the theme). This analysis, however, is untenable upon scrutiny of the argument structure and voice/case marking. In (5.2b), the recipient of ‘give’ is an ergative argument, rather than the syntactic pivot (ABS) as “passivization” predicts. The LV marking thus has the effect of rearranging the argument structure, not only making the recipient as an ergative, but also indicating the transitivity of the clause. This suggests that *ki*-marking in Puyuma plays no role in syntactic transitivity and should thus be considered as derivational. Teng (2008) argues that this *ki*-morpheme in Puyuma has the special effect of highlighting the volitionality of the undergoer (of the original verb/root), thus turning it into the agent of the derived verb.59

The *ki*-morpheme with such a function is only attested in some Formosan languages such as Puyuma (Teng 2008), Rukai (Zeitoun and Teng 2006), and Paiwan (A. Chang 2006; W. Huang 2012; H. Lin 2013). As a result, Puyuma is one of the few languages that have an alternative strategy to manipulate the direction of transfer (e.g., ‘give/receive’), in addition to the causative strategy introduced earlier in the discussion of Amis. Interestingly, the ‘lend/borrow’ verb pair in Puyuma demonstrates the contrastive effect between the causative and the *ki*-morpheme. See (5.3).

(5.3) Puyuma ‘lend’ AV-marked verb and its related derivation(s)

a. ø-*pa-bulras* dra palridri kana yawan i siber
   AV-CAU-replace ID.OBL car DF.OBL chief SG.ABS Siber
   ‘Siber lent the chief a car.’

59 “volitionality” is the term Teng (2008) uses based on a comparison between verbs with and without the *ki*-morpheme. The claim that an undergoer of the original verb becomes the (volitional) agent in the derived *ki*-verb holds only in cases where the original root is event-denoting (e.g., ‘give’). For cases such as (5.2a), there is no undergoer for the original object-denoting root ‘flower’. However, in both (5.2a) and (5.2b), *ki*- has the function of deriving a verb that denotes an event in which an actor gains control over the activity (e.g., similar to the function of English *get* in both ‘get N’ and ‘get V-ed’ cases.
In Chapter 4, I demonstrated the idiosyncrasies of the *pa-* verbs in Amis by comparing their meaning/valency with that of their non-causative counterparts (Tables 4.2–4.3). I concluded that Amis *pa-* verbs are not always equal to the sum of their parts; hence, the causative morpheme is derivational. In Puyuma, *pa-* transfer verbs have the same characteristics. Take the ‘lend’ verb for example. It involves the root *bulras*, whose non-causative counterpart carries the ‘pass on’ or ‘replace’ meaning, as suggested by (5.3c). However, the transfer interpretation arises from either *pa-* or *ki-*: the former derives the ‘lend’ verb and the latter derives the ‘borrow’ verb, as shown in (5.3a) and (5.3b), respectively. As far as valency is concerned, the causative verb introduces three participants, whereas the non-causative counterpart is only bivalent.

So far, I have demonstrated the variation between the roots responsible for ‘give’ and ‘lend’ verbs. The former, *beray*, does not require a causative morpheme for the ‘give’ interpretation, whereas the latter, *bulras*, does require it for the ‘lend’ interpretation. In addition, both allow the *ki-* morpheme to derive a transfer event with an opposite direction (e.g., ‘receive’ and ‘borrow’). Finally, I introduce how ‘sell’ verbs are derived in Puyuma and show that the alleged members of the category of give-type verbs as proposed by Levin (2008) do not always have identical morphological/syntactic behavior in Formosan languages.

Consider ‘sell1’, first, which involves the root *niwan*.

(5.4) Puyuma ‘sell1 (= peddle)’ AV-marked verb and its related derivation(s)

a. *me-niwan dra kuraw i pilay (i trima-trima’-an)*  
   AV-peddle ID.OBL fish SG.ABS Pilay LOC RED-trade-NMZ  
   ‘Pilay sells fish (in the market) (= location).’  
   (not ‘Pilay sells fish to the market (=goal).’)

b. *ki-*marked AV form: unavailable (*ø-ki-niwan*)
According to my consultants, the root *niwan* is used to describe the peddling activity. Cauquelin’s (in press) *Puyuma Dictionary* identifies another meaning for this root: ‘wholesale’. Despite the meaning difference, ‘peddle’ and ‘wholesale’ both refer to a transaction activity from the seller’s perspective, aiming to have the merchandise transferred away from the agent. As far as morphological structure is concerned, ‘sell1’, unlike ‘lend’ (*pa-bulras*), does not require the causative morpheme. The AV marker is *me-* (as opposed to the zero marking for ‘give’), due to its phonological environment, as shown in (5.4a). An additional contrast between ‘sell1’ and ‘give/lend’ is the failure of the former to allow *ki-* affixation, as shown in (5.4b).

Previously, I followed Teng (2008) in identifying *ki-* as a morpheme to transform one event into another by highlighting the volitionality of the undergoer of the event denoted by the root (e.g., from ‘give (someone)’ to ‘(someone) receive’). The impossibility of reversing the ‘sell’ event by means of *ki-* suggests that the root *niwan* originally does not entail a sense of transfer. This fits the ‘peddle’ gloss I provide in (5.4a). Further support for the lack of transfer comes from my informants’ interpretation for the optional *i-* marked NP, a diagnostic I adopted for establishing the valency of these transfer verbs (see §4.2.2). As shown in (5.4a), ‘market’ in the sentence with the AV-marked ‘sell1’ verb can only be conceived as the location in which the activity is performed, rather than the goal of transfer.

In addition to *me-niwan* ‘sell1’, there is another verb that can also bear the ‘sell’ interpretation. It involves the root *trima*. Intriguingly, the ‘sell’ interpretation is only associated with the CV-marked verb. See Example (5.5).

(5.5) Puyuma ‘sell2 (= trade)’ CV verb and its related derivation(s)

a. *ku=trima’-anay na ruma’* *(kan atrung)*
   1SG.ERG=trade-CV DF.ABS house SG.OBL Atrung
   ‘I sold the house to Atrung.’

b. \( \text{tr}<\text{em}>\text{ima}’ \text{ dra ruma’ i atrung} \)
   \(<\text{AV}>\text{trade ID.OBL house SG.ABS Atrung} \)
   ‘Atrung bought a house.’ (not ‘Atrung sold a house.’)

For the sake of exposition, I refer to *me-niwan* and *trima’-anay* as ‘sell1’ and ‘sell2’, as they involve different roots. To gloss *trima*, I use the more neutral term ‘trade’ to embrace its flexibility to denote either direction of transaction, depending on the voice marking. Example (5.5b) shows that the AV-marked verb is used for a buying event, and (5.5a) shows that the CV-marked verb is used for the opposite scenario (i.e., ‘sell2’). It is reasonable to argue that the ‘sell’ meaning is derived by means of the applicative function of the CV marking (see
§2.2.5. It is generally assumed that the beneficiary of a trading event is the recipient of the merchandise as a result of the transaction. I will discuss the beneficiary-introducing function of the Puyuma CV marker in Section 5.3.4.

To sum up, with respect to morphological structure, alleged members of the give-type subclass are not identical to one another. For example, the ‘lend’ verb requires the causative morpheme whereas the ‘give’ and ‘sell’ verbs do not. The ‘give’ and ‘sell’ verbs also differ based on the affixation of *ki*. This suggests that the root responsible for ‘give’ entails a sense of transfer, while the one responsible for ‘sell’ does not.

### 5.2.2 Send-type verbs

Similar to give-type verbs, send-type verbs in Puyuma differ from one verb to another regarding the involvement of the causative morpheme. Consider the ‘send’ verb in (5.6).

(5.6) Puyuma ‘send’ AV-marked verb and its related derivation(s)

| a. | m-atedr | na | ma’idrang-an | dra | bu’ir (i kalingku) |
| AV-send | DF.ABS | old-NMZ | ID.OBL | taro | LOC Hualien |

‘The old man sent taro (to Hualien).’

| b. | ø-ki-’atedr=ku | kan | siber | i | kalingku |
| AV-KI-send=1SG.ABS | SGOBL | Siber | LOC Hualien |

‘I had Siber send me to Hualien.’

Unlike Amis pa-tayra ‘send’, Puyuma ‘send’ does not involve the causative morpheme *pa*; it is simply derived via overt AV affixation *m*- to the root *’atedr*, as (5.6a) shows. Despite the lack of causative morpheme, the AV-marked ‘send’ verb entails a sense of transfer, as suggested by the goal interpretation of the optional *i*-marked NP ‘Hualien’. The grammaticality of *ki*- affixation as in (5.6b) is further proof for the transfer interpretation embedded in the root. The *ki*- morpheme derives from the original ‘send’ verb a predicate with a slightly different meaning, where the original undergoer of transfer (i.e., theme) is volitional in the sense that he/she is capable of “making the call,” as reflected in the translation provided in (5.6b).  

The second verb examined within this subclass is ‘mail’, which in Puyuma shares the root with the aforementioned ‘send’ verb. It is derived by means of causativization of *atedr*. Compare (5.7a) and (5.7b).

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Because of the volitionality carried by the *ki*- morpheme, the derived verb (i.e., *ki-’atedr*) will thus carry a “side effect” which is not found in the original verb (i.e., *m-’atedr*). The former must involve an animate theme (which is able to ask for transfer), whereas the latter does not.
(5.7) Puyuma ‘mail’ AV-marked verb and its related derivation(s)

a. \( \text{o-}p-a-'\text{atedr}=\text{ku} \) \\
AV-CAU-send=1SG.ABS ID.OBL letter LOC Hualien
\( (i \text{ kalingku}) \)
‘I mailed a letter (to Hualien) (= goal).’

b. \( m-\text{atedr}=\text{ku} \) \\
AV-send=1SG.ABS ID.OBL letter LOC Hualien
\( (i \text{ kalingku}) \)
‘I sent a letter (to Hualien) (= goal) (in person).’

(5.7a) and (5.7b) describe events of sending involving the same set of participants (i.e., ‘I’ = Agent; ‘letter’ = Theme; ‘Hualien’ = Goal). The two verbs differ with respect to the role of the “sender” in the transfer process. According to my informants, \( m-\text{atedr} \) denotes a sending event in which the actor performs the sending by himself/herself (e.g., English deliver). In contrast, the causative verb \( p-a-\text{atedr} \) denotes a transfer event demanded by the actor (or causer, more precisely), but executed by some other individual (e.g., the postal service). I thus refer to \( p-a-\text{atedr} \) in (5.7a) as ‘mail’ to address the indirect participation of the actor. The ‘mail/send’ verb pair is another example showing the idiosyncrasies of \( p-a-\sqrt{\text{verbs}} \): the causative morpheme here manipulates the meaning (i.e., the ‘send/mail’ contrast), but does not necessarily add another argument into the event denoted by the original verb.

Another instance of a send-type verb that also involves the causative morpheme is ‘return’, as illustrated in (5.8).

(5.8) Puyuma ‘return (= send back)’ AV verb and its related derivation(s)

a. \( \text{o-}p-a-\text{belrias}=\text{ku} \) \\
AV-CAU-go.back=1SG.ABS ID.OBL book SGOBL Siber
\( (i \text{ rum\text{'}a}) \)
‘I returned Senden a book.’

b. \( \text{mar-}\text{belrias}=\text{ku} \) \\
PR-go.back=1S.GABS LOC house
\( (i \text{ rum\text{'}a}) \)
‘I went back (to the house) again.’

The ‘return (= send back)’ verb is derived from the root \( \text{belrias} \) ‘go back’, which specifies the path of motion. In the sentences I elicited, this root does not take the normal AV marker (i.e., \( b<\text{en}>\text{elrias} \)). Instead, a special \( \text{mar-} \) prefix is involved. Teng (2008) identifies this prefix as what corresponds to the marker of “plurality of relations” (PR) in Oceanic languages (Lichtenberk 2000), which encodes a variety of situations (e.g., collective, chaining, distributed, repitive). In (5.8b), this marker indicates the plurality of situation of leaving and going back. In the non-causative ‘go back’ verb, the moving entity surfaces as the absolutive argument, with the \( i-\text{marked NP} \) as the E argument, as shown in (5.8b). The PR marker is not found in the causative verb \( p-a-\text{belrias} \) ‘return’. As shown in (5.8a), the causer is introduced
into the event, with the moving entity (i.e., ‘book’) and the goal (i.e., ‘siber’) as obliques. Here, we observe a case of a pa-verb whose causative morpheme appears to be valency-increasing, compared to the non-causative counterpart.

In sum, like give-type verbs, send-type verbs exhibit lexical variation in terms of morphological structure. Some members (e.g., ‘mail’ and ‘return’) may require the causative morpheme whereas others (e.g., ‘send’) do not. Most importantly, the comparison between ‘mail’ and ‘send’ renders further support to the idiosyncratic nature of Puyuma pa-verbs.

5.2.3 Throw-type verbs

Puyuma throw-type verbs resemble Amis throw-type verbs (§4.2.3) with respect to their morphological structure: the members in this subclass never involve the causative morpheme. Furthermore, as the AV-marked verbs are used to denote two-argument activities, the serial verb strategy is required for the introduction of a third participant of the transfer events related to these activities. To illustrate, I discuss three ‘throw’ verbs with different roots and one ‘kick’ verb below. Consider the ‘throw’ verbs first.

(5.9) Puyuma ‘throw (in the air far away)’ AV-marked verb as a two-place predicate
a. \(<\text{AV}>\)throw=1SG.ABS ID.OBL stone LOC house ‘I threw a stone (in the house) (= location).’
b. \(<\text{AV}>\)throw=1SG.ABS ID.OBL stone +AV-go LOC house ‘(lit. ‘I threw a stone so that it went into the house.’)

(5.10) Puyuma ‘throw (a small object overhand)’ AV-marked verb as a two-place predicate
a. \(<\text{AV}>\)throw ID.OBL ball LOC house ‘(He) threw a ball (in the house) (= location).’
b. \(<\text{AV}>\)throw ID.OBL ball AV-go LOC house ‘(He) threw a ball into the house.’

(5.11) Puyuma ‘throw (a stick)’ AV-marked verb as a two-place predicate
a. m-apelrit dra kawi na walak AV-throw ID.OBL wood DF.ABS child ‘The child threw a stick.’

62 Unlike Amis and Seediq, Puyuma allows AV sentences with no overt absolutive argument (Teng 2008). In these cases, the sentences will be interpreted as having a covert third person argument.
b. m-apelrit dra kavi na walak *(m-haka) i sabak
   AV-throw ID.OBL wood DF.ABS child AV-go LOC inside
   ‘The child threw a stick (into) inside.’
   (lit. ‘The child threw a stick so that it went inside.’)

Despite slight differences in meaning, all these AV ‘throw’ verbs introduce the agent and the
theme (5.9–5.11a), and require a V2 (e.g., m-uka ‘AV-go’ in 5.9–5.11b) to introduce the goal
of the throwing event. Consider ‘kick’ for another example:

(5.12) Puyuma ‘kick’ AV verb as a two-place predicate
   a. s<em>alepad dra mali na walak (i ruma’)
      <AV>kick ID.OBL ball DF.ABS child LOC house
      ‘The child kicked a ball (in the house).’
   b. s<em>alepad dra mali na walak *(m-uka) i ruma’
      <AV>kick ID.OBL ball DF.ABS child AV-go LOC house
      ‘The child kicked a ball into the house.’

The sentences above show that the ‘kick’ verb requires no causative morphology, and simply
involves voice affixation to the root salepad. The AV-marked ‘kick’ verb denotes a
two-participant event, as suggested by the location interpretation of the optional i-marked NP
‘house’, as in (5.12a). For this NP to be understood as the goal of a transfer event (as a result
of kicking), verb serialization is required, as demonstrated in (5.12b).

To summarize, throw-type verbs do not differ from one another with respect to their
morphological structure: none of them involves the causative morpheme, and all of them are
attached with overt voice marking. In addition, as far as AV-marked verbs are concerned, this
subclass appears to be congruent in terms of valency and the encoding strategy for transfer
events: they all denote two-argument activities, and thus need a serial verb construction for
the introduction of a goal/recipient participant. While this is the case for AV-marked forms, I
will present, in Section 5.3, lexical variation within this subclass (e.g., between ‘throw’ and
‘kick’) in terms of the argument structure of the NAV counterparts.

5.2.4 Interim Summary
In §5.2.1, I demonstrated that give-type verbs in Puyuma may involve the causative
morpheme in some items but not in others. The same observation holds for send-type verbs,
as shown in §5.2.2. In §5.2.3, I showed that the throw-type subclass appears to be the only
one whose morphological structure is consistent. Puyuma is rather different from Amis,
which has overt causative morphology for give-type and send-type verbs (see §4.2.4). In this
subsection, I explain how Amis and Puyuma have ended up having different morphological
structures for the same transfer of possession/location verbs (e.g., ‘give’, ‘lend’) as a result of
differences in the development of their causative constructions. To facilitate my discussion, I
review the difference between Amis, Puyuma, and English transfer verbs in the Table 5.2.

Table 5.2 The morphological structure of Puyuma transfer verbs: A generalization (in
comparison with Amis and English)

<table>
<thead>
<tr>
<th></th>
<th>Amis</th>
<th>Puyuma</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>give-type</td>
<td>involving causative</td>
<td>involving causative</td>
<td>stem forms</td>
</tr>
<tr>
<td></td>
<td>morphology (e.g., ‘lend’)</td>
<td>morphology (e.g.,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘give’)</td>
<td></td>
</tr>
<tr>
<td>send-type</td>
<td>involving causative</td>
<td>involving causative</td>
<td>stem forms</td>
</tr>
<tr>
<td></td>
<td>morphology (e.g., ‘mail’,</td>
<td>morphology (e.g.,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘return’)</td>
<td>‘send’)</td>
<td></td>
</tr>
<tr>
<td>throw-type</td>
<td>involving no causative</td>
<td>involving no causative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>morphology</td>
<td>morphology</td>
<td>stem forms</td>
</tr>
</tbody>
</table>

Table 5.2 shows that it is easier to generalize the morphological structure of transfer verbs
based on the three-way classification in Amis and English than in Puyuma. For the former
two languages, the morphological structure remains consistent within each subclass,
regardless of the difference in morphological complexity (i.e., derived in Amis vs. stems in
English). Puyuma, however, demonstrates a challenging case in that verbs of the same
subclass may involve different derivational processes. As far as these three languages are
concerned, Puyuma is unique in this lexical split. However, as will be shown in the next
chapter, Truku exhibits a similar split regarding the derivation of give-type and send-type
verbs. As a matter of fact, Amis proves to be more unusual among Formosan languages in
requiring all give/send-type verbs to take the causative morpheme. Table 5.3 demonstrates the
special status of Amis (and Paiwan) among Formosan languages with the most prototypical
transfer verb, ‘give’.
Table 5.3 The morphological structure of (AV) ‘give’ across Formosan languages

<table>
<thead>
<tr>
<th>Language (Formosan)</th>
<th>AV ‘give’</th>
<th>causative morpheme</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puyuma</td>
<td>ø-beray</td>
<td>NO</td>
<td>primary data</td>
</tr>
<tr>
<td>Rukai</td>
<td>ø-avi ’i</td>
<td>NO</td>
<td>Zeitoun 2007</td>
</tr>
<tr>
<td>Tsou (Tsouic)</td>
<td>mo-fi</td>
<td>NO</td>
<td>Chang 2011</td>
</tr>
<tr>
<td>Thao (Western Plains)</td>
<td>ø-lhay</td>
<td>NO</td>
<td>Blust 2003b</td>
</tr>
<tr>
<td>Atayal (Atayalic)</td>
<td>maiq (&lt; biq)</td>
<td>NO</td>
<td>Egerod 1980, 1999</td>
</tr>
<tr>
<td>Seediq (Atayalic)</td>
<td>megay (&lt; begay)</td>
<td>NO</td>
<td>primary data</td>
</tr>
<tr>
<td>Saisiyat (NorthWest Formosan)</td>
<td>mo-bay</td>
<td>NO</td>
<td>Yeh 2003; Hsieh &amp; Huang 2006; Zeitoun et al. 2015</td>
</tr>
<tr>
<td>Bunun</td>
<td>ma-saiv</td>
<td>NO</td>
<td>De Busser 2009; L. Li 2010</td>
</tr>
<tr>
<td>Kavalan (East Formosan)</td>
<td>ø-bora</td>
<td>NO</td>
<td>P. Li &amp; Tsuchida 2006</td>
</tr>
<tr>
<td>Amis (East Formosan)</td>
<td>pa-feli</td>
<td>YES</td>
<td>primary data</td>
</tr>
<tr>
<td>Paiwan</td>
<td>pa-vai</td>
<td>YES</td>
<td>Ferrell 1982; A. Chang 2006</td>
</tr>
</tbody>
</table>

In Chapter 4, I correlated the obligatoriness of the pa- morpheme in give/send-type verbs in Amis with the causative semantics of these two subclasses as argued by Levin (2008). To recapitulate, give-type verbs lexicalize caused possession whereas send-type verbs lexicalize caused motion (§3.2.2). I presented, in particular, the dichotomy of Amis causatives in Section 4.2.4: pa-√ verbs and pa-pi-√ (and pa-ka-√ verbs) for direct and indirect causation, respectively. The attachment of the causative morpheme directly to the root represents a closer relation between the causer and the event, and therefore indicates the agentivity of the causer (i.e., the iconicity principle).

From a cross-linguistic perspective, it is not always the case that a verb must carry an overt morpheme for the causative meaning. Take English, for example. Not only the well-known kill verb (i.e., ‘Cause to die’), but transfer verbs such as give and send, and causative/inchoative verb pairs such as break intr/breaker, open intr/opener, have been analyzed as involving the causative component. From this perspective, it is not surprising for Formosan languages such as Puyuma to have some of their roots entail a sense of causation without an overt causativizer. In other words, Puyuma has both overtly marked lexical causatives (e.g., pa-bulras ‘lend’) and morphologically null lexical causatives (e.g., beray ‘give’), and the same is attested in most of the Formosan languages. Supporting evidence comes from the fact that Puyuma pa-√ verbs, unlike Amis pa-√ verbs, may denote direct causation in some cases (e.g., pa-bulras ‘lend’; pa-ladram ‘teach’) and indirect causation in others (e.g., pa-dirus ‘make (somebody) wash’). Here, we observe another derivational property of the pa-causative morpheme: the direct versus indirect causation reading of pa-√ verbs in Puyuma is subject to the (semantic nature) of the root.
In addition to the *pa- morpheme, Puyuma exhibits two more causative morphemes, *pi- and *pu- (Cauquelin 2008; Teng 2008), which can also contribute to the transfer of possession/location meaning. Diachronically, these two morphemes are inherited from PAn, that is, *pi- ‘causative of location’ and *pu- ‘causative of motion’ (Blust 2003a). (5.13) provides some typical examples.

\[(5.13)\] *pi- ‘causative of location’ and *pu- ‘causative of motion’ in Puyuma

\[a.\] *pi-verbs: *pi-alras ‘wear an ankle ornament’; *pi-kiping ‘put clothes (on someone)’; *pi-tuki ‘wear (a watch)’...

\[b.\] *pu-verbs: *pu-’ami (to take north’); *pu-beruk ‘send away’; *pu-isatr ‘put on’ (< isatr ‘up’)...

The causative of location/motion contrast in PAn is preserved in some of the Puyuma causative verbs, as in (5.13). However, such a contrast is not always manifested clearly in all instances. In modern Puyuma, these two causative morphemes have been employed as a tool to create various causation-related meanings from the same object-denoting root, as observed in (5.14).

\[(5.14)\] Puyuma *pi- and *pu- causative verbs involving the same root

\[a.\] *pi-anger ‘make (someone) think of’ vs. *pu-anger ‘give advice to (someone)’ (< anger ‘thought’)  

\[b.\] *pi-lawlaw ‘bring a lamp’ vs. *pu-lawlaw ‘turn on a lamp’ (< lawlaw ‘lamp’)  

\[c.\] *pi-walak ‘adopt (a child)’ vs. *pu-walak ‘make pregnant’ (< walak ‘child’)

Note that some instances of *pi- or *pu-verbs (e.g., *pi-kiping in 5.16a or *pu-beruk in 5.13b) may fall into the category of transfer (of possession/location) verbs as defined in Chapter 3.63

It is now clear that Puyuma and Amis do not have identical causative systems: Puyuma relies on *pa-/pi-/pu-, and the direct/indirect causation interpretation (and derived meaning) is highly dependent on the nature of the root. Amis appears to be more straightforward in its dichotomy for the direct/indirect causation interpretation, without *pi-/*pu- causative morphemes. In addition to the *pa- verbs discussed in §5.2.1–2 and §5.2.4, I provide some culture-specific Puyuma transfer verbs involving the *pa- morpheme, with the closest English equivalents.

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63 *pi-kiping ‘put cloth on’ can be analyzed on par with the Amis ‘mail’ verb *pa-tikami, in which a transported theme is incorporated into the predicate. As a result, the ‘cloth’ is presupposed in the predicate and does not really have to surface as the argument. For *pu-beruk ‘send away’, the goal is optional, but should be classified as the (E) argument because of its interpretation.
(5.15) Culture-specific Puyuma transfer verbs with the causative morphome pa-
a. pa-nini ‘to distribute/share’  (< nini ‘share’)  
b. pa-tabang ‘to offer (for rites)’  (< tabang ‘look upward’)  
c. pa-ka-sagar ‘to reward’  (< sagar ‘happy’)  

5.3 The argument structure of Puyuma (NA V) transfer verbs

This section scrutinizes the argument structure of NA V-marked transfer verbs in Puyuma. As will be demonstrated in Sections 5.3.1 to 5.3.3, Puyuma exhibits “subclass internal” lexical variation in terms of argument structure (i.e., the thematic role of the absolutive argument) and the availability of certain voice forms (i.e., “lexical gaps”). In Section 5.3.4, I provide a brief summary and elaborate on the derivational properties of Puyuma NA V markers, particularly LV and CV.

5.3.1 Give-type verbs

In §4.3, I showed that every transfer verb in Amis allows any of the NA V markers, despite variation in the thematic role of the absolutive argument. In the introduction section of this chapter, I mentioned that Puyuma is different: the verbs/roots in this language are selective in terms of voice subcategories. Teng (2005), for example, reports that “for a verb to have how many and which voice forms is to an extent unpredictable,” and “certain voices are missing because of the semantics of [a] given verb” (p. 139). The “lexical gaps” found in many Formosan languages such as Puyuma (and Tsou and Saisiyat; see S. Huang 2005 and H. Huang & S. Huang 2007) reflect the derivational nature of voice markers in Formosan languages.

Among other verb types, give-type verbs in Puyuma are selective in terms of the availability of NA V forms. Specifically, only LV-marked and CV-marked forms are available, while the PV counterpart is not attested. Despite this restriction, verbs within this subclass may have different mappings between the thematic role and the absolutive argument. First, consider the argument structure of NA V-marked ‘give’ and ‘lend’ verbs.

(5.16) Argument structure of NA V-marked ‘give’ verbs: Pattern 1

a. PV construction: unavailable (i.e., *beray-aw)
   
   ku=beray-ay    dra    paysu    na    yawan  
   1S.ERG=give-LV  ID.OBL  money  DF.ABS  chief  
   ‘I gave money to the chief.’  

b. LV construction (R = ABS)
   
   ku=beray-ay    dra    paysu    na    yawan  
   1S.ERG=give-LV  ID.OBL  money  DF.ABS  chief  
   ‘I gave money to the chief.’
(5.17) Argument structure of NAV-marked ‘lend’ verbs: Pattern 1
a. PV construction: unavailable (i.e., *pa-bulras-aw)

b. LV construction (R = ABS)

3.ERG=CAU-replace-LV ID.OBL car SG.ABS Sawagu

‘He lent Sawagu a car.’

c. CV construction (T = ABS)

1SG.ERG=CAU-replace-CV this.ABS DF.ABS car SG.OBL Sawagu

‘I lent this car to Sawagu.’

With ‘give’ and ‘lend’ verbs, the recipient gets the absolutive case in the LV form, and the theme gets it in the CV form, as shown in the sentences above. This pattern is identical to the one observed for Amis ‘give’ and ‘lend’, and for Seediq as well, as will be demonstrated in Chapter 6. Recall that in Amis, this kind of mapping is not shared exclusively by all members of the give-type verbs; the ‘sell’ verb is different. In Puyuma, this is also the case. Section 5.2.1 introduced two lexical items with the ‘sell’ interpretation: AV-marked ‘sell1’ me-niwan and CV-marked ‘sell2’ trima’-anay. Examples (5.18) and (5.19) illustrate the argument structure of these “verbs” (or roots, more precisely) under different voices.

(5.18) Argument structure of NAV-marked ‘sell1 (= peddle)’ verbs: Pattern 2
a. PV construction: unavailable (i.e., *niwan-aw)

b. LV construction (T = ABS)

1SG.ERG=peddle-LV DF.ABS fish SG.OBL Senden

‘I sold this fish to Senden.’

c. CV construction (T = ABS)

1SG.ERG=peddle-CV DF.ABS fish SG.OBL Senden

‘I sold the fish to Senden.’

(5.19) Argument structure of NAV-marked ‘sell2 (= trade)’ verbs: Pattern 3
a. PV construction: unavailable (i.e., *trima’-aw)

b. LV construction (T = ABS)

3.ERG=trade-LV DF.ABS fish

‘He bought the fish.’
c. CV construction (T = ABS)
\[ ku=trima'-anay \quad na \quad ruma' \quad (kan \quad atru) \]
1S.ERG=trade-CV DF.ABS house SG.OBL Atrung
‘I sold the house to Atrung.’

d. CV construction (B = ABS)
\[ tu=trima'-anay=ku \quad dra \quad kuraw \]
3.ERG=trade-CV=1S.ABS ID.OBL fish
‘He bought fish for me.’ or ‘He bought me fish.’

In §5.2.1, I identified ‘sell1’ based on the concept of ‘peddle’ or ‘wholesale’, which always entails a transfer of the merchandise away from the agent. ‘sell2’, on the other hand, is derived from the concept of ‘trade’, whose direction of transfer is dependent on the voice marking. In particular, the ‘buy’ interpretation is associated with LV (and AV), and the ‘buy/sell’ interpretation can be ambiguous for the CV form, depending on whether the theme or the beneficiary is selected as the absolutive argument. With respect to argument structure, the LV form of both verbs has the theme as the absolutive argument, as shown in (5.18b) and (5.19b). However, the CV form of ‘sell2’ is more flexible in terms of the thematic role of the absolutive argument: it can select either the theme or the beneficiary, as (5.19c-d) show.

Embracing the idea that ‘trade’ is a (directionwise) neutral two-argument transaction verb involving the agent and the theme, it may be argued that the CV marking in (5.19d) applicativizes this verb, thus introducing the beneficiary into the trading event and promoting it as the core argument (i.e., absolutive case). Here, I avoid discussing the theoretical issues for the applicative analysis (which will be covered in Chapter 9), but focus on the fact that most give-type transfer verbs never allow the “B = ABS” pattern, in contrast to the ‘sell2’ case, as highlighted in the following grammaticality judgment test.

(5.20) Lexical variation between give-type verbs in terms of beneficiary introduction

a. *\[ ku=beray-anay \quad dra \quad paysu \quad na \quad yawan \] (cf. 5.16c)
\[
1SG.ERG=give-CV \quad ID.OBL \quad money \quad DF.ABS \quad chief
\]
Intended: ‘I gave money for the chief.’

b. *\[ ku=pa-bulras-anay \quad dra \quad palridring \quad i \quad sawagu \] (cf. 5.17c)
\[
1SG.ERG=CAU-replace-CV \quad ID.OBL \quad car \quad SG.ABS \quad Sawagu
\]
Intended: ‘I lent a car for Sawagu.’

c. *\[ ku=niwan-anay \quad dra \quad kuraw \quad i \quad senden \] (cf. 5.18c)
\[
1SG.ERG=peddle-CV \quad ID.OBL \quad fish \quad SG.ABS \quad Senden
\]
Intended: ‘I sold fish for Senden.’

d. \[ tu=trima' -anay=ku \quad dra \quad kuraw \] (= 5.19d)
\[
3.ERG=trade-CV=1S.ABS \quad ID.OBL \quad fish
\]
‘He bought fish for me.’ or ‘He bought me fish.’
Logically speaking, it is possible for events such as ‘giving’, ‘lending’, or ‘peddling’ to involve a beneficiary participant. However, the CV marking fails to satisfy this applicativization function especially for these lexical items. This further proves the derivational property of voice marking, especial CV. In later chapters, I will revisit this significant finding when establishing the basic event structure associated with CV verbs across Formosan languages. Here, for the sake of simplicity, I provide a simple semantically based generalization for such a restriction in most of the give-type verbs: it seems to be the case that for verbs/roots entailing a sense of transfer (e.g., ‘give’, ‘lend’, ‘peddle’), their CV-marked forms must select the transported theme, whereas for verbs/roots without such an entailment, their CV forms have the flexibility to introduce either the beneficiary or a transported theme. This particular finding in Puyuma resonates in some way with the “theme-only” constraint observed in Amis give-type verbs (§4.3.1), as both phenomena demonstrate the split between transaction verbs such as ‘sell’ and real transfer of possession verbs. This strengthens my questioning of whether ‘sell’ is a legitimate member of give-type verbs across languages.\footnote{Puyuma and Seediq (see Section 6.3.1) both exhibit this phenomenon, as is also the case in the majority of Formosan languages, to the best of my knowledge. In Chapter 4, I do not introduce this important observation because the Amis CV marker lacks the beneficiary-introducing function.} I shall discuss this in more detail in Chapter 7.

5.3.2 Send-type verbs

Similar to give-type verbs, some Puyuma send-type verbs do not allow the PV form, and only have the LV and CV counterparts. With respect to argument structure, three patterns are observed based on the examination of three verbs ‘send’, ‘mail’, and ‘return’. Consider the first pattern in (5.21).

(5.21) Argument structure of NAV-marked ‘send’ verbs: Pattern 1
a. PV construction: unavailable (i.e., *’atedr-aw)

b. LV construction (G = ABS)
\[
\begin{array}{cccc}
\text{ku=} & \text{’atedr-ay} & \text{dra} & \text{lrumay} & \text{senden} \\
\text{1SG.ABS=} & \text{send-LV} & \text{ID.OBL} & \text{rice} & \text{SG.ABS} & \text{Senden} \\
\end{array}
\]
‘I sent Senden (some) rice.’

c. CV construction (T = ABS)
\[
\begin{array}{cccc}
\text{ku=} & \text{’atedr-anay} & \text{na} & \text{lrumay} & \text{kalingku} \\
\text{1SG.ERG=} & \text{send-CV} & \text{DF.ABS} & \text{rice} & \text{LOC} & \text{Hualien} \\
\end{array}
\]
‘I sent the rice (to Hualien).’

(5.21) shows that the LV-marked ‘send’ verb selects the goal as the absolutive argument, whereas its CV counterpart selects the theme as the absolutive argument. The LV/CV
alternation can be treated on par with the one observed for ‘give/lend’, considering that the recipient/goal contrast is lexically inherent (i.e., caused possession for give-type and caused motion for send-type). The ‘mail’ verb, derived via causativization of ‘send’, has a more complicated pattern in terms of the absolutive selection. This is exemplified in (5.22).

(5.22) Argument structure of NAV-marked ‘mail’ verbs: Pattern 2

a. PV construction: attested for ‘cause to send’ interpretation (Causee = ABS)

\[
\begin{align*}
&ku=pa^\prime-\text{atedr-aw} & i & sib\text{er} & dra & tigami \\
&1\text{SG.ERG}=\text{CAU-send-PV} & \text{SG.ABS} & \text{Siber} & \text{ID.OBL} & \text{letter} \\
\end{align*}
\]

‘I asked Siber to send a letter.’

(not ‘I mailed Siber the letter.’)

b. LV construction (Causee = ABS)

\[
\begin{align*}
&ku=\text{pa-\prime ate}d\text{r-ay} & dra & tigami & i & senden \\
&1\text{SG.ERG}=\text{CAU-send-LV} & \text{ID.OBL} & \text{letter} & \text{SG.ABS} & \text{Senden} \\
\end{align*}
\]

‘I asked Senden to send a letter.’

c. LV construction (G = ABS)

\[
\begin{align*}
&ku=\text{pa-\prime ate}d\text{r-ay} & dra & tigami & i & kalingku^{65} \\
&1\text{SG.ERG}=\text{CAU-send-LV} & \text{ID.OBL} & \text{letter} & \text{ABS} & \text{Hualien} \\
\end{align*}
\]

‘I mailed a letter to Hualien.’

(d. CV construction (T = ABS)

\[
\begin{align*}
&ku=\text{pa-\prime ate}d\text{r-anay} & na & tigami & (i & kalingku) \\
&1\text{S.ERG}=\text{CAU-send-CV} & \text{DF.ABS} & \text{letter} & \text{LOC} & \text{Hualien} \\
\end{align*}
\]

‘I mailed the letter (to Hualien/Siber) (= Goal).’

(not ‘I asked Hualien/Siber to send the letter.’)

In §5.2.1, I introduced the derivation of ‘mail’ by means of causativization. In brief, Puyma uses causativization of ‘send’ to mean ‘mail’ based on its indirect causation meaning. Interestingly, the spirit of this verb is captured and preserved when it comes to NAV forms. Both ‘mail’ and ‘cause to send’ readings are confirmed by my informants, despite their slight disagreement regarding the argument alternation patterns, as summarized in (5.22a-d). The PV form is associated with the ‘cause to send’ meaning, with the causee (i.e., the agent of ‘send’) realized as the absolutive argument. The LV counterpart, on the other hand, can be associated with either the ‘cause to send’ or the ‘mail’ reading, selecting the causee or the goal, respectively. Finally, the CV form, which selects the theme as the absolutive argument, is always associated with the ‘mail’ reading.

With respect to the interaction with NAV categories, this verb does not really challenge my previous observation regarding the lack of a PV form for give/send-type verbs in general.

\[^{65}\text{The grammatical status of this i-marked NP is curious. I choose to gloss it as ABS (which typically applies to person nouns) for consistency of the ergative-absolutive case pattern, although it is possible that i can be simply analyzed as a locative marker.}\]
As already discussed, the PV form in (5.22a) does not denote a transfer event, for it selects the causer, the causee (i.e., original agent), and the causand (i.e., original theme), without the involvement of the recipient or the goal. However, a third case of send-type verbs, namely ‘return’, exhibits the PV form, as demonstrated in (5.23a).

(5.23) Argument structure of NA V-marked ‘return (= send back)’ verbs: Pattern 3
a. PV construction (P = ABS)
\[tu=pa-belrias-aw\]
\[na\]
\[tilril\]
3.ERG=CAU-go.back-PV DF.ABS book
‘He has returned the book (for a refund).’

b. LV construction (G = ABS)
\[tu=pa-belrias-ay\]
\[=ku\]
\[dra\]
\[tilril\]
3.ERG-CAU-go.back-LV=1S.ABS ID.OBL book
‘He returned me a book.’

c. CV construction (T = ABS)
\[ku=pa-belrias-anay\]
\[idri\]
\[na\]
\[tilril\] (kan siber)
1S.ERG=CAU\(_2\)-go.back-CV this.ABS DF.ABS book SG.OBL Siber
‘I returned this book (to Siber) (= Goal).’

The LV/CV alternation of ‘return’ is identical to that of ‘send’: the goal is assigned absolutive case in the LV form and theme in the CV form. The only difference is the presence of the PV counterpart. According to my consultants, while these NAV verbs in (5.23) involve the same base, belrias, the PV form specifies “the returning of something previously purchased for a refund,” as opposed to a more neutral ‘return’ meaning provided by the AV/LV/CV forms. (5.23a) also suggests that the PV-marked ‘return’ verb is not a typical transfer verb for it does not require a goal participant. This PV predicate thus can be treated as a special ‘return’ verb, whose undergoer is more patient-like than theme-like, considering the degree of affectedness. The item (i.e., ‘book’) in the ‘returning (for refund)’ event can be understood to be more affected than the same item in a normal ‘borrowing/lending’ situation, because the ownership of the item in the former situation is first changed (through purchasing) and then defined (through returning), whereas the ownership of this item does not change at all in the latter situation.66

5.3.3 Throw-type verbs

The throw-type verbs are strikingly different from the other two subclasses in the presence of PV forms, which are frequently produced by my informants during elicitation. This behavior is expected given the bivalent nature of these verbs as reviewed in Chapter 3. In her reference

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66 I thank Yuko Otsuka for pointing out the difference in terms of the ownership in these two events.
grammar of Puyuma, Teng (2008) argues that the affectedness of the theme by the action denoted by the root plays a huge role in determining among two-argument PV, LV, and CV verbs. With respect to events like ‘throwing’ or ‘kicking’, it is not surprising to conceive the undergoer as severely affected by the action; thus, PV forms are attested (e.g., 5.24a and 5.25a). The correlation between voice and event/verb types in Formosan languages will be carefully discussed in Chapters 7 and 8. In this section, I focus on the argument structure of throw-type verbs. Two patterns can be identified, as illustrated by the ‘throw’ verb and the ‘kick’ verb.

(5.24) Argument structure of NAV-marked ‘throw’ verbs: Pattern 1

a. PV construction (P = ABS)
   \[bulu\-'aw\ dra\ barasa\ na\ lratu\ (, aw mu-'atel)\]
   'A stone was thrown to the mango (so it (= the mango) fell off.).'

b. LV construction (G = ABS)
   \[tu=bulu\-'ay\ dra\ barasa\ i\ sawagu\]
   'He threw a stone at Sawagu.'

c. CV construction (T = ABS)
   \[tu=bulu\-'anay\ na\ mali\ i\ ruma\]
   'He threw the ball to the house (= Goal).'
   (not 'He threw the ball in the house (= Location).')

(5.25) Argument alternations of ‘kick’: Pattern 2

a. PV construction (P = ABS)
   \[tu=salepad-aw\ na\ mali\]
   'He kicked the ball.'

b. LV construction (G = ABS)
   \[ku=salepad-ay\ tu=tedrek\ kananku\ katagwin\]
   'I kicked at my spouse’s buttocks.'

c. CV construction (B = ABS)
   \[ku=salepad-anay\ dra\ mali\ i\ nanali\]
   'I kicked a ball for my mother.'

In §4.2.3, I identified lexical variation within Amis throw-type verbs based on the applicability of LV/CV alternation in parallel with English with/against alternation. To

67 For simplicity’s sake, I present only one of the three ‘throw’ verbs introduced in §5.2.3, because the main issue here is the lexical variation between ‘throw’ and ‘kick’.
recapitulate, ‘throw’ does not show with/against alternation in its LV/CV alternation whereas ‘kick’ does. In Puyuma, this contrast between ‘throw’ and ‘kick’ is maintained, though it is not realized in exactly the same manner. Consider, in particular, the absolutive selection of LV/CV ‘throw’ and ‘kick’ verbs. As shown in (5.24b) and (5.25b), both LV forms select the goal argument, so-analyzed based on a lower degree of affectedness as compared to the PV scenarios. Importantly, CV ‘throw’ and ‘kick’ verbs differ in the thematic role of the absolutive argument: the former selects the transported theme and the latter selects a beneficiary, but not vice versa, as illustrated in (5.24c) and (5.25c), respectively. The lexical variation in the argument alternation across CV throw-type verbs suggests further subclassification of these members. I will return to this point in Chapter 7.

5.3.4 Discussion: Lexical variation within and across Puyuma transfer verb subclasses

Table 5.4 is a summary of the argument structure of Puyuma NA V-marked transfer verbs, with special focus on their absolutive selection. Following §4.3.4, I identify the argument alternation category based on whether these verbs introduce the participants of the transfer event in all available NA V forms so that either of the two non-actor participants (e.g., R/G and T) can surface as the absolutive argument by means of a corresponding voice marker.

Table 5.4 Lexical variation within and across subclasses of Puyuma transfer verbs

<table>
<thead>
<tr>
<th>Argument alternation</th>
<th>ABS argument selection (i.e., the thematic role of O argument)</th>
<th>Example(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PV</td>
<td>LV</td>
</tr>
<tr>
<td>give-type</td>
<td>Yes</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>send-type</td>
<td>Yes</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
<td>Causee/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>throw-type</td>
<td>Yes</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>P</td>
</tr>
</tbody>
</table>

68 I characterize a number of transfer verbs as “miscellaneous” based on the observation that these verbs can alternate the theme and the goal, but may also actually involve an arguments irrelevant to a transfer event (e.g., causee, patient) in certain NAV forms.
As shown in Table 5.4, transfer verbs in Puyuma provide a huge challenge to the three-way classification proposed in the literature, which predicts a uniform argument alternating behavior for members of the same subclass. Leaving the details aside, I focus on two simple observations: (a) there is “subclass internal” variation in terms of the availability of NAV categories (e.g., PV); and (b) there is “subclass internal” variation in terms of the argument alternation between the recipient/goal and the theme participants. Most importantly, in these so-called transfer verbs, we observe the presence of thematic roles that do not concern the transfer event (e.g., patient, causee, beneficiary) realized as the absolutive arguments (i.e., “No” argument alternation in Table 5.4). This, in my opinion, suggests two possibilities. First, the transfer sense entailed in some of the verbs/roots can be “overridden” by means of voice affixation (e.g., the selection of a “causee” for ‘mail’ by means of PV/LV marking). Second, the transfer interpretation can be “given”, by means of proper voice affixation, to verbs/roots that do not entail transfer in the first place (e.g., the selection of a theme for ‘trade’ and ‘throw’ via CV marking).

The distinct argument structure of NAV-marked transfer verbs strengthens the view that voice markers in Formosan languages are derivational. Along these lines, it may be problematic to presuppose a determined argument structure for the verb/root prior to voice affixation. In later chapters, I will explore this idea by incorporating more verb/root types into discussion, and argue for an event-based analysis of voice marking in Formosan languages.

One final remark on Table 5.3 regards the (beneficiary-introducing) applicative function of CV marking, which applies only to a limited number of verbs/roots. In §5.3.1, I briefly provided my account for the (in)ability of Puyuma verbs/roots to introduce in their CV forms a beneficiary based on their semantic nature—whether the transfer sense is entailed. A detailed discussion regarding the “applicative(-like)” function of voice marking will be presented in later chapters after the examination of Seediq transfer verbs in Chapter 6.

5.4 Conclusion

This chapter demonstrates the lexical variation among transfer verbs in Puyuma with respect to their morphological complexity and argument structure. Section 5.2 focuses on AV-marked transfer verbs. I establish a distinction between give/send-type verbs and throw-type verbs that is compatible with Levin’s (2008) semantically motivated approach. Give/send-type verbs bear causative semantics, thereby entailing a sense of transfer (of possession/location); they are capable of introducing all three participants of transfer. Throw-type verbs are merely two-argument activity verbs; thus a serial verb construction is required to introduce the third
participant. Give/send-type verbs in Puyuma, however, unlike in Amis, exhibit variation in terms of their morphological structure: some require the causative morpheme whereas others do not. To account for this, I compare Puyuma and Amis causative morphemes carefully, and argue that Puyuma can have overtly marked lexical causatives (as required by Amis) and morphologically null lexical causatives (as found in English).

Section 5.3 focuses on the argument structure of Puyuma NAV-marked transfer verbs. Like Amis, Puyuma demonstrates lexical variation within subclasses of transfer verbs, which is not predicted by Croft et al. (2001) or Levin (2008). It is not the case that all members of one subclass have the same “voice options” (i.e., lexical gaps), and it is not the case that all members have the same mapping between thematic role and the absolutive argument for a certain NAV form (Table 5.4).

This examination of Puyuma transfer verbs demonstrates the derivational properties of the causative morpheme(s) and the voice markers, and casts doubt on the feasibility of an applicative analysis for some of the NAV markers (e.g., CV), as in the case of Amis (Chapter 4) and, as will be shown also in Seediq (Chapter 6). The study of transfer verbs in these languages suggests an alternative proposal regarding the introduction of arguments by means of “event-type indicators” (i.e., voice markers) in symmetrical voice languages. I will explore this idea carefully in Chapters 8 and 9.
CHAPTER SIX
SEEDIQ TRANSFER VERBS AND ARGUMENT STRUCTURE

6.1 Preamble

This chapter investigates transfer verbs in the third research language of this dissertation, namely (Truku) Seediq. Following the organization of the previous two chapters, I first review the language’s voice system, and I introduce a special characteristic of PV/LV marking in this language, which partially accounts for the argument structure of transfer verbs, as will be discussed later. In Section 6.2, I demonstrate the morphological composition of Seediq AV-marked transfer verbs under the three-way classification. Section 6.3 examines the argument structure of and alternation patterns of NAV-marked transfer verbs. In these two sections I will again show that the three-way classification has limitations, as the previous two chapters have demonstrated. The findings about transfer verbs in Seediq indicates the derivational properties of the causative morpheme and the voice markers, and suggests that it might be problematic to assume a certain argument structure for a transfer verb/root prior to affixation of these morphemes. Section 6.4 is the conclusion.

The voice system of Seediq, which was introduced in Chapter 2, is presented again here. Table 6.1 is a modified version of Table 2.13, with an additional column for the voice paradigm of ṭe- causative verbs. Arguably, this causative morpheme is a reflex of PAn *pa-.

Table 6.1 Seediq (simplified) voice system (modified from Table 2.13; √ for root)

<table>
<thead>
<tr>
<th>Category</th>
<th>Marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV</td>
<td>&lt;em&gt;√, °-√&lt;/em&gt;</td>
</tr>
<tr>
<td>PV</td>
<td>√-un</td>
</tr>
<tr>
<td>LV</td>
<td>√-an</td>
</tr>
<tr>
<td>CV</td>
<td>se-√</td>
</tr>
</tbody>
</table>

In addition to ṭe-, another causative morpheme se- can be identified in modern Seediq, which is found to have the same form with the CV marker, as shown in Table 6.1. I will discuss the relationship between causative and CV morphology in Section 6.2.4. The most important observation to be drawn from the table above is that the voice marking for each category (except AV) does not differ according to the semantics of the verb/root. In other words, Seediq resembles Puyuma, but not Amis, with respect to the inventory of the voice system. There is, however, one striking difference between Seediq and Puyuma with respect to the
interaction between voice and verb/root types. In Chapter 5, I demonstrated that the Puyuma voice system is lexically conditioned in having “lexical gaps.” For example, most give-type verbs allow LV/CV forms but lack the PV counterpart. In Seediq, however, such gaps are rare. In general, the verbs/roots are not selective between PV and LV regardless of their semantics. Thus, as will be shown in my later discussion, no ungrammatical PV/LV forms will be found among the transfer verbs.

Concrete examples of PV/LV-marked transfer verbs will be provided in Section 6.3. Here, I introduce a special characteristic found in some of the Seediq PV/LV-marked verbs. Consider the following examples.

(6.1) Seediq PV/LV verbs with the same argument structure (Tsukida 2009:367; gloss mine)

a. seqet-un ø laqi ka waray  
cut-PV OBL child ABS thread  
‘(The/A) child will cut the thread.’

b. seqet-an ø laqi kedediyax ka waray  
cut-LV OBL child everyday ABS thread  
‘The/A child cuts the thread everyday.’

(6.2) Seediq PV/LV verbs with the same argument structure (A. Tang 2010:9; gloss mine)

a. wada keret-un sehiga ka qesurux  
already cut-PV yesterday ABS fish  
‘The fish was cut yesterday.’

b. gaga keret-an ka qesurux  
PROG cut-LV ABS fish  
‘The fish is being cut.’

In Chapter 2, I described the voice system in Formosan languages as a set of verbal morphemes that correlate with the semantic/thematic role of the syntactically prominent NP (i.e., the absolutive argument). As suggested by the terminology, PV typically indicates the involvement of a patient(-like) participant whereas LV generally indicates the involvement of a location-related participant. However, as exemplified in (6.1) and (6.2), the voice system in modern Seediq appears to have developed somewhat differently, as the so-called PV (i.e., -un) and LV (i.e., -an) markers do not necessarily correlate with distinct semantic/thematic roles: they may have identical argument structure and differ in TAM readings.69 This motivates

69 It is rather difficult to identify a default TAM interpretation for Seediq LV/PV markers as these markers also interact with the sentence-intial auxiliaries (if present), which also have TAM readings. As aspect is not the main focus in this dissertation, I will only acknowledge the difference with the translation of the examples. More discussion about the TAM readings of Seediq PV/LV verbs is provided in Tsukida (2009:366-373). See also Tang 2010, for her account for the usage of –un/-an on the basis of semantic transitivity (Hopper and Thompson 1980).

For ease of comparison across Formosan languages, I maintain the “PV” and “LV” terms while acknowledging the fact that these markers do not always result in distinct argument structures of the derived verbs. Here, I do not discuss the difference in TAM reading in PV-marked and LV-marked verbs. Instead, I briefly address why these verbs may have the same argument structure, by which I mean the same mapping between the thematic role (i.e., patient-like/location-related roles) and the absolutive argument. In fact, merger between PV and LV forms seems to be widely observable in Formosan languages (e.g., Atayal, Seediq, Saisiyat, Tsou, and Thao). Take Thao for example. PV and LV forms “have begun to lose any distinguishing syntactic or semantic characteristics and have become largely interchangeable” (Blust 2003b:92). From a localist perspective, S. Huang (2005) argues that such a merger is motivated by the conceptual contiguity of Location and Object; hence the former sometimes gets reinterpreted as the latter.70 This accounts for the neutralization between PV/LV-marked verbs with respect to their argument structure. In Section 6.3, I will demonstrate how this affects the argument structure of NAV-marked transfer verbs in Seediq.

6.2 The morphological complexity of Seediq (AV) transfer verbs

Following the organization of previous chapters, I discuss in the first three subsections the morphological composition of AV-marked verbs in Seediq based on three subclasses: give-type, send-type, and throw-type. I demonstrate, in particular, the lexical variation within each of these subclasses, and discuss its implications in Section 6.2.4.

6.2.1 Give-type verbs

Like Puyuma, Seediq exhibits variation within give-type verbs in terms of morphological composition. Some members (e.g., ‘give’) do not have the causative morpheme at all, whereas others (e.g., ‘lend’, ‘sell’) must involve the causative morpheme in order to express the corresponding meaning. Consider first, the AV-marked ‘give’ verbs in (6.3).

70 The localist approach takes events involving motion and location in space to be central to the construal of all events. More discussion about this approach will be presented in Chapters 8 and 9.
(6.3) Truku Seediq ‘give’ AV-marked verbs

a. megay ø pila\(^{71}\) kenan ka iming
   AV.give OBL money 1SG.OBL ABS Iming
   ‘Iming gives money to me.’

b. muway ø pila kenan ka iming
   AV.give OBL money 1SG.OBL ABS Iming
   ‘Iming gives money to me.’

The ‘give’ verb in Seediq involves no overt causative morpheme (e.g., pe- or se-). As (6.3) shows, the AV marker attaches directly to the root begay or buway (depending on the speech community), resulting in the surface form megay (< bemegay) or muway (< bemuway) as a result of “pseudo nasal substitution” (PNS) (Blust 2009/2013).\(^{72}\)

As far as ‘give’ is concerned, Seediq resembles Puyuma, but not Amis, in that the verb does not require the causative morpheme. In Chapter 5, I mentioned ki- affixation as an alternative strategy in Puyuma to reverse the direction of transfer and alter the meaning of the derived verb accordingly (e.g., from ‘give’ to ‘receive’). This strategy, however, is not attested in Seediq as this language lacks the ki- morpheme.

The causative morpheme plays a role in the formation of some other give-type verbs. The ‘lend’ verb, for example, is derived via causativization of kesiyuk ’borrow’, as illustrated in (6.4).

(6.4) Truku ‘lend’ AV-marked verb and its related derivation(s)

a. ø-pe-kesiyuk ø patas eming-an ka yaku
   AV-CAU-borrow OBL book Iming-OBL ABS 1SG
   ‘I lend Iming a book.’

b. k<em>esyuk ø patas kenan ka iming
   <AV>borrow OBL book 1SG.OBL ABS Iming
   ‘Iming borrows a book from me.’

(6.4a) shows that the ‘lend’ verb involves the causative morpheme pe-. Like in Amis and Puyuma, there is no overt AV marking for causative verbs in Seediq (i.e., zero).\(^{73}\) The

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\(^{71}\) As stated in Chapter 2, there is no overt oblique marker for full NPs in the Truku dialect of Seediq (except -an for proper names used by older generation; see §2.2.3). For the purpose of comparison across three Formosan languages, I choose to insert ø in front of these nominals and provide case glossary throughout the Truku Seediq examples.

\(^{72}\) According to Blust (2013:244), PNS refers to the deletion of the first CV- syllable, triggered by the avoidance of non-identical labials in successive syllables after infixation (e.g., p-um-CVCV or b-um-CVCV). PNS is found in some Formosan languages including Thao and Atayalic languages, as well as in some Malayo-Polynesian languages.

\(^{73}\) Following Tsukida (2009), I analyze those causativized verbs without overt voice markers as AV verbs based on their argument selection patterns (i.e., agent = ABS). Therefore, I insert “zero morphology” to indicate the AV function of these causative verbs in Seediq, as well as in Amis/Puyuma (see Chapters 4 and 5). It should be
non-causative counterpart, as shown in (6.4b), is a ‘borrow’ verb with the typical AV marking <em>. Note that the causative pe- is slightly different in form from the pa- morpheme attested in Amis and Puyuma. From a comparative perspective, these morphemes have the same origin. The reflex of PAn *pa- in modern Seediq is arguably conditioned by its phonology; pe- thus arises as a result of vowel reduction.

The ‘sell’ verb in Seediq also involves the causative strategy. However, it contains a different form of causative: se-. Consider in Example (6.5) the causative ‘sell’ verb and the non-causative ‘buy’ counterpart.

(6.5) Truku ‘sell’ AV-marked verb and its related derivation(s)\(^{74}\)

| a. se-<m>barig/pe-barig   o   sari   ka   kuras |
|----------------------------|---|---|---|---|
| CAU-<AV>buy               OBL taro ABS Kulas |
| ‘Kulas sells taro.’       |

| b. marig       o   sari   ka   kuras |
|----------------|---|---|---|---|
| AV.buy         OBL taro ABS Kulas |
| ‘Kulas buys taro.’ |

As (6.5) shows, the ‘sell’ verb is special in having the se- morpheme, analyzed as the causative marker in Tsukida’s (2009) reference grammar. As far as the ‘sell’ case is concerned, it is descriptively adequate to simply treat se- as an instance of a causative based on the meaning contrast of the presence/absence of this morpheme (i.e., ‘sell’ vs. ‘buy’).\(^{75}\) Tsukida (2009) provides additional examples to justify the treatment of se- as the causative morpheme. Here, I accept the causative analysis of se- from a synchronic perspective. However, it is noteworthy that pe- and se- morphemes are not interchangeable. The distribution is lexically conditioned, that is, dependent on the root involved (e.g., pe- for kesiyuk and se- for barig). In addition, unlike pe-√ verbs, which do not have overt AV marking, se-√ verbs carry overt AV

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74 Phonetically speaking, word-final /g/ is not pronounced. See Yang 1976 and Lee 2010 for the phonology of Seediq.

75 I gloss the root barig as ‘buy’ to highlight the meaning contrast between the causative verb (e.g., ‘sell’) and its non-causative counterpart. As a matter of fact, barig might better be glossed as ‘trade’, as it may denote a selling event without the causative morpheme (Tsou 2011:90). This is also supported by the derivation of ‘sell’ by means of applicativization as a result of the causative/applicative polysemy (to be discussed in detail in Section 6.2.4), suggesting that the root by itself is neutral with respect to the direction of transaction.
marking, as demonstrated in (6.5a). I will return to this important observation in Section 6.2.4, where I discuss the origin of the se-√ causative verbs.

In Chapters 4 and 5, I identified ‘sell’ as an exceptional case in give-type verbs in Formosan languages such as Amis and Puyuma for its lack of entailment of transfer. In other words, the ‘sell’ verb does not introduce the recipient argument, as opposed to ‘give’ and ‘lend’. This is also the case in Seediq. A comparison between (6.5a) and (6.5b) shows that while the se- morpheme provides the causative semantics and adds a “causer” (i.e., seller) to the event denoted by the original root, it does not increase the valency of the verb/root.76, 77

To sum up, give-type verbs in Seediq exhibit variation in terms of their morphological composition. Members like ‘give’ do not require the causative morpheme, whereas some other members (e.g., ‘lend’ and ‘sell’) do, and further differ with respect to the causative morpheme involved (pe- vs. se-).

6.2.2 Send-type verbs

Like give-type verbs, send-type verbs also vary with respect to their morphological structure, particularly the involvement of the causative morpheme. To illustrate, I discuss ‘send’, ‘mail, and ‘return’. Among these verbs, ‘send’ is the one that does not require the causative morpheme, as shown in (6.6)

(6.6) Truku ‘send’ AV-marked verb

\[
\begin{align*}
    h & \quad <em>\text{adu}^{78} & \quad \emptyset & \quad \text{sari} (\emptyset \quad \text{sapah}=\text{na}) & \quad \text{ka} & \quad \text{ikung} \\
\text{AV} & \quad \text{send} & \quad \text{OBL tardo} & \quad \text{OBL house}=3\text{SG.GEN} & \quad \text{ABS Ikung} \\
\end{align*}
\]

‘Ikung sends tardo (to his house) (=Goal).’

As suggested by the goal interpretation of ‘house’ in (6.6), the AV-marked ‘send’ verb entails a sense of transfer without the involvement of the causative morpheme. However, not all send-type verbs are derived independent of the causative morpheme. The ‘mail’ verb in Seediq, for example, is derived via causativization of the ‘bring’ root ‘adas. See (6.7).

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76 In the previous two chapters, I use the interpretation of (locative) i-marked NP as a diagnostic for the valency of transfer verbs (i.e., three-argument transfer verbs for those with the recipient/goal interpretation and two-argument activity verbs for those with the location interpretation). This test does not have much value in Seediq for a lack of i-marked locative NP.

77 In addition to two overt arguments in the AV-form of causative ‘sell’ verb in (6.5a), it is actually possible for an animate oblique participant to occur and receives the recipient interpretation. This, I argue, does not challenge my treatment of this verb as a two-argument verb. In §4.2.1, I discussed Amis AV ‘sell’ verb and mentioned that the recipient reading of the oblique participant can be inferred from the animacy. The same observation holds here: when an inanimate participant occurs in (6.5) as a third participant, it will be interpreted as a location, rather than a goal.

78 In Chapter 4, I introduced the formation of the ‘send’ verb in Amis by means of causativization of the motion verb ‘go’ (i.e. pa-taurya). While the same derivation process is attested in Seediq, the verb powsa (< pa-usa ‘CAU-go’) is used to denote an event of placement, and should thus be glossed as ‘put’, rather than ‘send’. 
(6.7) Truku ‘mail’ AV-marked verb and its related derivation(s)

a. \( \text{ø-pe-'adas=ku} \quad \text{ø pila} \)  
\( \text{(keras-an)} \)
AV-CAU-bring=1SG.ABS OBL money Kulas-OBL
‘I am mailing money (to Kulas) (= Goal).’

b. \( m-adas=ku \quad \text{ø pila} \)
AV-bring=1SG.ABS OBL money
‘I bring money (with me).’

As far as valency is concerned, the \( \text{pe} \) morpheme in (6.7a) contributes to the transfer meaning, suggested by the goal interpretation of the oblique NP ‘Kulas’, in contrast to the two-place ‘bring’ verb in (6.7b). However, there is a gap in meaning between ‘mail’ and ‘cause to bring’: the former does not equal the latter in a compositional sense. \( \text{pe-'adas} \) ‘mail’ is thus an instance of lexicalization based on the derivational property of the causative morpheme, already demonstrated in the other research languages, Amis and Puyuma. It is noteworthy that while the ‘mail’ sense is associated with the AV form, as in (6.7a), the compositional ‘cause to bring’ meaning is preserved in a particular NAV form (i.e., CV), to be introduced in Section 6.3.2.

Another instance of send-type verbs involving the causative morpheme is ‘return’, which originates from the root \( \text{ririh} \) ‘replace’, as shown in (6.8a) and (6.8b), respectively.

(6.8) Truku ‘return’ AV-marked verb and its related derivation(s)

a. \( \text{ø-pe-ririh=ku} \quad \text{ø tederuy} \)  
\( \text{(hiya-an)} \)
AV-CAU-replace=1SG.ABS OBL car 3SG-OBL
‘I return a car (to him) (= Goal).’

b. \( r<\text{em}>\text{ririh=ku} \quad \text{hiya-an} \)  
\( \text{(m-usa} \quad \text{ø petas-an} \text{)} \)  
\( \text{<AV>replace=1SG.ABS} \)  
\( 3SG-OBL \)  
\( \text{AV-go} \)  
\( \text{OBL write-NMZ} \)
‘I replace him (e.g., the teacher) (to go to school).’

Without the causative morpheme, the AV-marked ‘replace’ is a two-place predicate with no transfer interpretation, as suggested in (6.8b). The \( \text{pe} \) causative morpheme derives the ‘return’ verb from the ‘replace’ root, providing the transfer interpretation, as suggested by the goal interpretation of the oblique NP ‘him’ in (6.8a).

Compared with the other two research languages, in which the ‘return’ verb is derived via causativization of a motion-denoting verb/root ‘go back’ (e.g., \( \text{pa-tiku} \) in Amis; \( \text{pa-belrias} \) in Puyuma), Seediq clearly involves a different root ‘replace’. Intriguingly, the combination of the causative with the ‘replace’ root results in the ‘lend’ verb rather than ‘return’ in

\[ ^{79} \text{The word ‘school’ in Seediq is coined based on the nominalization of the root patas ‘write’, which also means ‘book’}. \]
Puyuma (§5.2.1). These findings all indicate the idiosyncrasies of *pa-√* (and *pe-√*) verbs in Formosan languages, suggesting that these verbs should be viewed as lexical causatives. This has important bearing on my formal analysis, to be presented in Chapter 9.

### 6.2.3 Throw-type verbs

In the previous two chapters, I showed that throw-type verbs do not involve the causative morphology in Amis and Puyuma. The same observation holds in Seediq. To illustrate, I discuss three ‘throw’ verbs with different roots and one ‘kick’ verb. The first ‘throw’ verb involves the root *qada*, as shown in (6.9)

(6.9) Truku ‘throw (away)’ AV-marked verb

$$q<em>ada=ku \ o \ betunux (\ o \ gesirung)$$

<AV>throw=1SG OBL stone OBL ocean

‘I throw stones away (to the ocean) (=goal).

In Chapters 4 and 5, I identified throw-type verbs in Formosan languages as two-argument activity verbs along the lines of Levin’s (2008) analysis, and further showed that a serial verb strategy is required for this subclass for the introduction of the third participant of the transfer event. The serial verb strategy, however, does not apply to this ‘throw’ verb (nor to the other ‘throw’ verbs for different reasons, to be discussed below). In (6.9), the oblique NP ‘ocean’, though optional, is interpreted by the informants as the goal, but not the location.

Following the *i*-marked NP interpretation diagnostic proposed in Chapter 4 and 5, the ‘throw’ verb here might need to be analyzed as entailing a sense of transfer, thus forming a ‘throw’ verb of its own kind, in contrast to Levin’s (2008) proposal. While this ‘throw’ verb is special in its semantics, it does not actually entail a sense of transfer. According to my informants, the AV form *qeda* is specifically used for events of ‘throwing away’ or ‘discarding’. In other words, instead of treating *qada* ‘throw’ as transfer-denoting, I treat it on par with other two-argument ‘throw’ verbs, and argue that the goal interpretation is inferred from the conventionalized ‘throw (away)’ meaning of the AV form only. This is also supported by the observation that the ‘throw away’ or ‘discard’ meaning is only associated with the AV-marked verb. When *qada* receives NAV affixation, a more neutral ‘throw’ meaning arises. I will discuss this in Section 6.3.3.

Another instance of an AV ‘throw’ verb involves the root *sebu*, which I gloss as ‘throw.hit’ based on its argument structure, as shown in (6.10) below.
The sentences above suggest that the AV-marked verb \( se<m>bu \) can introduce either the theme (e.g., ‘stone’) of the transfer event (6.10a), or the goal (or patient, depending on the affectedness) (e.g., ‘deer’) to which the transfer is directed (6.10b), or even both (6.10c). Therefore, a serial verb strategy is not required for the introduction of the goal participant.

According to the argument structure of this particular verb, it may be argued that \( s<em>bu \) denotes an event involving the theme and the goal. It is thus tempting to treat this verb as a three-argument verb, which resembles send-type verb based on the thematic roles involved. However, I reject this idea, and instead analyze the AV form above as a two-argument verb. The motivation of this analysis comes from a careful examination of the semantics of the root. I consider the root \( sebu \) to be responsible for a contact event rather than a transfer event based on the literal translation ‘shoot’ my informants provide to me. The contact-denoting nature of this root will also be demonstrated in the discussion of the NAV forms in Section 6.3.3.

The last ‘throw’ verb I examine involves an object-denoting root \( qahur \) ‘pebble’. The ‘throw (small object)’ meaning is created by means of AV affixation, so-derived based on the transcategorial function of voice marking (§2.2.5). Consider Example (6.11) below.

(6.11) Truku ‘throw (small object)’ AV-marked verb as a two-place predicate
\[
q<em>ahur=ku \quad \emptyset \quad huling
\]
\(<AV>pebble=1SG.ABS \quad OBL \quad dog\>
‘I throw stones at a dog.’

As the transported theme is presupposed as a result of incorporation, the verb by itself selects the goal participant, as (6.11) shows. The serial verb strategy is thus not required for the introduction of the goal participant.

The usage of the serial verb strategy, which suggests a distinction between give/send-type verbs and throw-type verbs as proposed by Levin (2008), is found in the
‘kick’ verb in Seediq, which involves the root *guleqah*. When attached by an AV marker, the ‘kick’ verb simply selects the patient, as illustrated in (6.12a). The introduction of the goal participant in the case of the AV ‘kick’ verb requires a second verb, *mequri* ‘move toward’, as shown in (6.12b).80

(6.12) Truku ‘kick’ AV-marked verb as a two-place predicate

a. *qe*<m>*guleqah=ku* ø *tele’ngan gaga*  
<AV>*kick=1SG.ABS OBL chair that*  
‘I kick that chair.’

b. *qe*<m>*guleqah=ku* ø *tele’ngan gaga*  
<AV>*kick=1SG.ABS OBL chair that*  
*(me-quri) ø *sapah=na*  
AV-toward OBL house=3SG.GEN  
‘I kick that chair to his house.’

In sum, throw-type verbs in Seediq are no different from those in Amis and Puyuma with respect to their morphological composition, namely the lack of the causative morpheme. Despite the lack of participation of the serial verb strategy in some throw-type verbs, the distinction between give/send-type verbs and throw-type verbs is maintained in general: the former entail a sense of transfer and thus introduce the third participant of the transfer event, whereas the latter lack such an entailment, and may need other devices (i.e., verb serialization; incorporation) for the introduction of the third participant. This supports Levin’s (2008) semantic account for the division of transfer verbs.

### 6.2.4 Interim summary

In §6.2.1, I showed that give-type verbs in Seediq may, but do not always involve the causative morpheme in their morphological structure. The same observation holds for send-type verbs, as shown in §6.2.2. The third subsection shows that throw-type verbs uniformly lack the causative morpheme. As in §5.2.4, I here provide a table summarizing the lexical split in terms of morphological composition in Seediq transfer verbs.

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80 According to Tsukida (2009), *quri* is a multifunctional preposition (e.g., ‘about’, ‘for’, ‘in’) in Seediq, and can allow further voice affixation for a ‘toward’ meaning.

(i) *me-quri daya ka ‘elug niyi* (Tsukida 2009:351; gloss mine)  
AV-toward north ABS road this  
‘This road leads to (the direction of) north.’
Table 6.2 The morphological structure of Seediq transfer verbs: A generalization (in comparison with Amis, Puyuma, and English)

<table>
<thead>
<tr>
<th></th>
<th>Amis</th>
<th>Seediq (and Puyuma)</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>give-type</td>
<td>involving causative morphology (e.g., ‘lend’)</td>
<td>involving no causative morphology (e.g., ‘give’)</td>
<td>stem forms</td>
</tr>
<tr>
<td>send-type</td>
<td>involving causative morphology (e.g., ‘mail’, ‘return’)</td>
<td>involving no causative morphology (e.g., ‘send’)</td>
<td>stem forms</td>
</tr>
<tr>
<td>throw-type</td>
<td>involving no causative morphology</td>
<td>involving no causative morphology</td>
<td>stem forms</td>
</tr>
</tbody>
</table>

As indicated in Table 6.2, Seediq resembles Puyuma in having contrastive morphological composition in two of the three subclasses of transfer verbs. In Chapter 5, I compared the causative constructions of Puyuma and Amis in detail and concluded that there is nothing unusual in such a lexical split: some Formosan languages (e.g., Puyuma) may have both overtly marked lexical causatives (e.g., pa-verbs) and morphologically null lexical causatives (e.g., AV-marked verbs with no overt causative morpheme), while others languages (e.g., Amis) may choose to overtly mark their lexical causatives (see §5.2.4).

A basic examination of Seediq causative constructions is required before I treat Seediq on par with Puyuma with respect to the structure of lexical causatives. I have identified two causative morphemes, including the historically traceable pe-, and a somewhat innovative se-. In §6.2.1, I mentioned that these two morphemes are not interchangeable. Though lexically conditioned, the distribution is rather difficult to generalize. For example, Tsukida’s (2009:651–656) discussion suggests no clear-cut contrast in semantics/functions between pe-/se- causatives. While se- tends to target stative (i.e., property-denoting) roots as its hosts, pe- can target stative roots in some cases and dynamic roots in others. In addition, both indirect and direct causation interpretations are found with pe-/se- causative verbs. Thus, from a synchronic perspective, one can only claim that the distribution of pe- and se-
causative morphemes is lexically dependent in a somewhat arbitrary manner.

The fuzzy boundary regarding the usage of the *pe*- or *se*- causative morpheme, as well as the lack of a direct/indirect causation dichotomy, suggests that Seediq resembles Puyuma in having multiple, lexically dependent manifestations of lexical causatives. In particular, it has overtly marked causatives (e.g., *pe*-√ verbs) and morphologically null lexical causatives (e.g., <*em>√ verbs).

It is worthwhile to explore the origin of the *se*-√ causative in modern Seediq. I argue for the development of the CV morpheme *se*- into causative, motivated by the causative/applicative polysemy (or syncretism) observed in a range of Western Austronesian languages including Old Malay, colloquial Indonesian, Nias, and Kambera (Himmelmann 2005:170), as well as members of other language families (Austin 1997, 2005; Kulikov 2001; Lobben 2010; Bostoen & Mundeke 2011). The idea is tenable from theoretical and empirical perspectives. Theoretically, applicative and causative resemble each other regarding their valency-increasing functions. The CV marker, in particular, has the function of introducing an argument whose thematic roles may be easily reinterpreted as the causer. S. Huang (2005:794), for example, discusses CV-marked emotion/motion verbs in Tsou to account for such a correlation:

Whether an NP is to be interpreted as denoting a cause or an affectee is a function of both the semantics of the verb and the [grammatical subject] in question. For example, in {Pasuya is happy about something.}, the *something* functions as a cause triggering the emotion of happiness. In {Pasuya ran for Mo’o.}, the default meaning is {‘Pasuya ran for the benefit of Mo’o.}, and can cover the following functions: {‘[Pasuya] ran for the sake of Mo’o,’}; or {‘Pasuya ran because Mo’o told him to.’}. In these cases, Mo’o can be both a cause and a beneficiary.

The causative/applicative polysemy provides ideal semantic grounds for a reanalysis of the CV morpheme into a causativizer. What remains to be solved is the problem of the difference between these two morphemes with regard to the grammatical status of the arguments they introduce: the causative is concerned with the external argument whereas the applicative is concerned with the internal argument. In the literature, there has been related discussion regarding how this can be achieved.81 Here, I provide two pieces of empirical evidence for the reanalysis of CV in Seediq. Compare the AV/CV forms for *pe*- and *se*- causative verbs.

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81 I choose not to discuss the details of these works as most of them are theory-bound. Interested readers can see Austin 2005; Arka et al. 2009; and Hemmings 2013, among others, for finer-grained analyses of causative/applicative syncretism.
(6.13) Seediq AV/CV-marked pe- causative verbs
   a. *pe-kesiyuk=ku/ pe<es>kesiyuk=ku
      AV-CAU-borrow=1SGABS OBL book Kulas-OBL
      ‘I lend a book to Kulas.’
   b. pe kesiyuk=ku/ patas keras-an
      patas Kulas-OBL
      ‘I lend a book to Kulas.’

(6.14) Seediq AV/CV-marked se- causative verbs
   a. se*(<m>) barig=ku
      CAU2<AV>buy=1SGABS OBL taro
      ‘I sell taro.’
   b. CV form: unavailable (*se-se-barig)

In Seediq, causative verbs with the pe- morpheme cannot have overt AV marking, as mentioned in §6.2.1. (6.13a) repeats this observation and further shows that an additional AV affixation (i.e., <m>) results in ungrammaticality. Moreover, pe- verbs allow CV affixation to alternate the argument structure (to be explored thoroughly in Section 6.3). As for causative verbs with the se- morpheme, they require overt voice morphology for the AV form, and disallow the CV counterpart, as shown in (6.14a) and (6.14b), respectively. These findings with se- causative verbs make sense if one considers se- ‘causative’ to originate from the CV morpheme, and nicely account for the presence of an overt AV voice marking, which is used to “override” the original voice function and get rid of the ergative-absolutive case pattern. And, if the se- causative originates from the CV morpheme, se- causative verbs naturally cannot take another CV marking.

As mentioned previously, the distribution of pe-/se- in modern Seediq causative verbs is lexically dependent. In some cases, both pe- and se- are required for causativization. The articulation of the division of labor between these two morphemes requires an independent study, and is beyond the scope of this dissertation. To end this discussion, I show a number of culture-specific transfer verbs in Seediq that involve the causative strategy.

(6.15) Seediq culture-specific transfer verbs with the causative morpheme
   a. se-ke-cicih ‘to distribute (small amount)’
      (<cicih ‘small amount’)
   b. se-<n>dehug ‘to promise’
      (<dehug ‘locked’)

---

82 One might argue that the ungrammaticality has to do with pseudo nasal substitution (PNS) (see §6.2.1). As the infixation creates two non-identical labials in successive syllables pemekesiuy, the output should be reduced into pemekesiuy, which creates a problem for the hearers’ failure to establish the ‘lend (cause to borrow)’ meaning due to the loss of the trace of causative pe-. While this might be a convincing argument for Seediq, it cannot account for the lack of overt AV marking in causative verbs in other Formosan languages such as Amis and Puyuma, where PNS is not attested (Chapters 4 and 5).
c. pe-demut ‘to allocate’ (< demut ‘unit of measurement’)
d. pe-deremul ‘to share’ (< deremul ‘dewdrop’)
e. se-pe-hici ‘to leave (message)’ (< hici ‘stay’)

6.3 Argument structure of Seediq (NA V) transfer verbs

This section scrutinizes the argument alternation patterns across Seediq NA V transfer verbs, with special focus on the thematic role of the absolutive argument. Following the organization of the previous two chapters, I demonstrate lexical variation within different subclasses of transfer verbs in Sections 6.3.1-6.3.3. In Section 6.3.4, I provide a brief summary and elaborate on the derivational properties of Seediq NA V markers, especially LV and CV.

In § 6.1, I pointed out that PV/LV verbs in Seediq may share an identical argument structure. Consequently, this results in special argument structure patterns in Seediq NAV-marked transfer verbs. As this dissertation focuses on the mapping between the thematic role and the absolutive argument, I avoid discussion about native speakers’ usage of PV/LV verbs, given the same argument structure (except for presenting their TAM readings in the translation of examples).

6.3.1 Give-type verbs

§6.2.1 introduced three give-type verbs: ‘give’, ‘lend’, and ‘sell’. With respect to the argument structure of their NAV-marked verbs, ‘give’ and ‘lend’ share the same pattern, whereas ‘sell’ demonstrates the other. Consider the first pattern, exemplified in (6.16) and (6.17).

(6.16) Argument structure of NAV-marked ‘give’ verb: Pattern 1

a. PV construction (R = ABS)

\[ \text{biq-un=mu} \quad \varnothing \quad \text{pila} \quad \text{ka} \quad \text{iming} \]
‘I will give Iming money.’

b. PV construction (T = ABS)

\[ \text{biq-un=mu} \quad \varnothing \quad \text{iming} \quad \text{ka} \quad \text{pila} \quad \text{gaga} \]
‘I will give that money to Iming.’

c. LV construction (R = ABS)

\[ \text{biq-an=mu} \quad \varnothing \quad \text{pila} \quad \text{ka} \quad \text{iming} \]
‘I gave Iming money.’

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I begin with the argument structure of CV-marked give-type verbs, which is the same in selecting the theme as the absolutive argument in all three research languages, including Amis, Puyuma, and Seediq (e.g., 6.16e-f and 6.17e-f). While CV-marked give-type verbs tend to have the same argument structure across Formosan languages, PV/LV-marked verbs are
rather different. Unlike in Puyuma, where PV-marked give-type verbs are unavailable, both PV-marked and LV-marked verbs are well-formed in Seediq. As opposed to the cases in Amis, PV/LV-marked give-type verbs have a relatively flexible “selection of O,” allowing either theme or recipient to be the absolutive argument, as shown in (6.16a-d) and (6.17a-d).

The flexibility regarding the O argument selection of PV/LV verbs becomes understandable if we take two factors into consideration. First, the conceptual contiguity of Location and Object discussed §6.1 provides a motivation for the same argument structure for PV/LV verbs. Second, the distinction between theme and recipient in typical transfer scenario—inanimate entity as the theme and animate entity as the recipient—enables the hearer to establish the truth condition of the transfer event easily, without the need to resort to voice morphology (which typically can serve as a linguistic cue for identifying the event based on its correlated thematic role). These two factors in combination explain why the argument structure can be neutralized in PV/LV forms of transfer verbs in Seediq.

In contrast to ‘give’ and ‘lend’, the ‘sell’ verb in Seediq has a slightly different argument realization pattern. As far as PV and LV forms are concerned, ‘sell’ has the same degree of flexibility: it allows either theme or recipient to be the absolutive argument. However, there is no CV counterpart for ‘sell’, due to the lexicalization of ‘sell’ from reanalysis of CV into causative, as discussed in §6.2.4. See (6.18) for the argument realization pattern of NAV-marked ‘sell’ verbs.

(6.18) Argument structure of NAV-marked ‘sell (=trade)’ verb: Pattern 2
a. PV construction (R = ABS)
\[
\text{se-berig-un} = \text{mu} \quad \varnothing \quad \text{sari} \quad \text{ka} \quad \text{masa} \\
\text{CAU-trade-PV=1SG.ERG OBL taro ABS Masa}
\]
‘I will sell Masa taro.’

b. PV construction (T = ABS)
\[
\text{se-berig-un} = \text{mu} \quad \varnothing \quad \text{masa} \quad \text{ka} \quad \text{sari} \quad \text{gaga} \\
\text{CAU-trade-PV=1SG.ERG OBL Masa ABS taro that}
\]
‘I will lend that taro to Masa.’

c. LV construction: (R = ABS)
\[
\text{se-berig-an} = \text{mu} \quad \varnothing \quad \text{sari} \quad \text{ka} \quad \text{masa} \\
\text{CAU-trade-LV=1SG.ERG OBL taro ABS Masa}
\]
‘I sold Masa taro.’

d. LV construction (T = ABS)
\[
\text{se-berig-an} = \text{mu} \quad \varnothing \quad \text{masa} \quad \text{ka} \quad \text{sari} \quad \text{gaga} \\
\text{CAU-trade-LV=1SG.ERG OBL Masa ABS taro that}
\]
‘I sold that taro to Masa.’

e. CV construction: unavailable (i.e., *se-se-barig)
6.3.2 Send-type verbs

This section shows that the three send-type verbs ‘send’, ‘mail’, and ‘return’ have distinct argument realization patterns. (6.19) demonstrates the similarity between ‘send’ and ‘give’ (e.g., 6.16) with respect to their selection of an absolutive argument.

(6.19) Argument structure of NAV-marked ‘send’ verb: Pattern 1

a. PV construction (G = ABS)

\[
\text{had-un} = \mu \quad \emptyset \quad \text{sari} \quad \text{ka} \quad \text{sapah} = \text{na}
\]

send-PV=1SG.ERG OBL taro ABS house=3SG.GEN

‘I will send taro to his house.’

b. PV construction (T = ABS)

\[
\text{had-un} = \mu \quad \emptyset \quad \text{sapah} = \text{na} \quad \text{ka} \quad \text{sari} \quad \text{gaga}
\]

send-PV=1SG.ERG OBL house=3SG.GEN ABS taro that

‘I will send that taro to his house.’

c. LV construction (G = ABS)

\[
\text{had-an} = \mu \quad \emptyset \quad \text{sari} \quad \text{ka} \quad \text{sapah} = \text{na}
\]

send-LV=1SG.ERG OBL taro ABS house=3SG.GEN

‘I sent taro to his house.’

d. LV construction (T = ABS)

\[
\text{had-an} = \mu \quad \emptyset \quad \text{sapah} = \text{na} \quad \text{ka} \quad \text{sari} \quad \text{gaga}
\]

send-LV=1SG.ERG OBL house=3SG.GEN ABS taro that

‘I sent that taro to his house.’

e. CV construction (T = ABS)

\[
\text{se-hadut} = \mu \quad \emptyset \quad \text{sapah} = \text{na} \quad \text{ka} \quad \text{sari} \quad \text{gaga}
\]

CV-send=1SG.ERG OBL house=3SG.GEN ABS taro that

‘I will send that taro to his house.’

f. CV construction (*G = ABS)

\[
*\text{se-hadut} = \mu \quad \emptyset \quad \text{sari} \quad \text{ka} \quad \text{sapah} = \text{na}
\]

CV-send=1SG.ERG OBL taro ABS house=3SG.GEN

Intended: ‘I will send taro to his house.’

As shown in (6.19a-d), ‘send’ PV/LV-marked verbs have the same flexibility regarding the selection of theme/goal as the absolutive argument. The CV counterpart is more restricted, as it can only select the theme as the absolutive argument (e.g., 6.19e-f).

As introduced in §6.2.2, the ‘mail’ verb in Seediq is derived from causativization of ‘bring’. Interestingly, the idiosyncratic ‘mail’ meaning is associated with the PV/LV forms, while the CV form maintains the compositional ‘cause to bring’ meaning. This is illustrated

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83 Tsukida (2009:207) reports a restricted number of roots in Seediq, whose form undergoes irregular change (rather than syllable or vowel reduction) when attached with verbal suffixes. These include begay ‘give’ (cf. biq-un), ekan ‘eat’ (cf. uq-un), and so forth. She does not report the ‘send’ case, which appears to also undergo irregular change after PV (or LV) affixation (i.e., hadut vs had-un).
in (6.20) below.

(6.20) Argument structure of NAV-marked ‘mail’ verb: Pattern 2

a. PV construction (G = ABS)

pe-des-un = mu
CAU-bring-PV=1SG.ERG OBL letter ABS Iming
‘I will mail Iming a letter.’

b. PV construction (T = ABS)

pe-des-un = mu
CAU-bring-PV=1SG.ERG OBL Iming ABS letter that
‘I will mail that letter to Iming.’

c. LV construction (G = ABS)

pe-des-an = mu
CAU-bring-LV=1SG.ERG OBL letter ABS Iming
‘I mailed Iming a letter.’

d. LV construction (T = ABS)

pe-des-an = mu
CAU-bring-LV=1SG.ERG OBL Iming ABS letter that
‘I mailed that letter to Iming.’

e. CV construction (Causand = ABS)

se-pa-adas
CV-CAU-bring OBL Iming ABS letter that
‘I ask Iming to bring the letter.’
(not ‘I will mail that letter to Iming.’)

For PV and LV ‘mail’ verbs, the flexibility regarding the selection of the O argument remains: either the goal or the theme surfaces as the absolutive argument, as shown in (6.20a-d). The CV form does not bear the ‘mail’ interpretation, but carries the indirect causation interpretation ‘cause to bring’. As (6.20e) shows, the three participants involved in this predicate include an actor who demands the (bringing) event (i.e., causer), and actor who is caused to perform the event (i.e., causee), and an undergoer of the event (i.e., causand).

The ‘return’ verb has the third argument alternation pattern: while it shows a similar flexibility regarding the selection of absolutive argument in PV/LV-marked verbs, there seems to be no CV-marked form for this special item. Compare the following sentences.

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84 The causative morpheme in (6.20) is pronounced as [pa] rather than [pə] as a result of vowel assimilation (due to the presence of a following /a/). The assimilation of [a] to [æ] is not reported in Tsukida’s (2009) reference grammar, but proposed by Lee (2010:146).

85 At this stage, I have no explanation for the ungrammaticality of the CV form se-pe-riih, and thus can only treat it as a lexical gap.
(6.21) Argument structure of NAV-marked ‘return’ verb: Pattern 3

a. PV construction (G = ABS)
   \[pe-rih-un=mu \quad \emptyset \quad tederuy \quad ka \quad iming\]
   CAU-replace-PV=1SG.ERG OBL car ABS Iming
   ‘I will return Iming a car.’

b. PV construction (T = ABS)
   \[pe-rih-un=mu \quad \emptyset \quad iming \quad ka \quad tederuy \quad gaga\]
   CAU-replace-PV=1SG.ERG OBL Iming ABS car that
   ‘I will return that car to Iming.’

c. LV construction (G = ABS)
   \[pe-rih-an=mu \quad \emptyset \quad tederuy \quad ka \quad iming\]
   CAU-replace-LV=1SG.ERG OBL car ABS Iming
   ‘I returned a car to Iming.’

d. LV construction (T = ABS)
   \[pe-rih-an=mu \quad \emptyset \quad iming \quad ka \quad tederuy \quad gaga\]
   CAU-replace-LV=1SG.ERG OBL Iming ABS car that
   ‘I returned that car to Iming.’

e. CV construction: unavailable (*se-pe-ririh)

6.3.3 Throw-type verbs

In §6.2.3, I discussed three ‘throw’ AV verbs involving different roots and argued that a goal participant is presupposed by the semantics of these predicates. Here, I show that these verbs have distinct argument realization patterns in their NAV forms. Consider first, the NAV forms derived from *qada* ‘throw away’.

(6.22) Argument structure of NAV-marked ‘throw (away)’ verb: Pattern 1

a. PV construction (G = ABS)
   \[qeda-nun=mu86 \quad \emptyset \quad qurug \quad ka \quad kulu \quad niyi\]
   throw-PV=1SG.ERG OBL ball ABS box this
   ‘I will throw a ball to this box.’

b. PV construction (T = ABS)
   \[qeda-nun=mu \quad \emptyset \quad kulu \quad ka \quad qurug \quad niyi\]
   throw-PV=1SG.ERG OBL box ABS ball this
   ‘I will throw this ball to a box.’

c. LV construction (G = ABS)
   \[qeda-nan=mu \quad \emptyset \quad qurug \quad ka \quad kulu \quad niyi\]
   throw-LV=1SG.ERG OBL ball ABS box this
   ‘I threw a ball to this box.’

86 An intervening *n* between PV/LV marker and the root *qada* (as well as some other vowel-final roots) is provided by some of my Truku Seediq informants. For other informants, however, both *qada-un* and *qada-nun* are acceptable. So far, I have not been able to provide an account for the appearance of *n*.
d. LV construction (T = ABS)
\[ \text{geda-nan}=mu \quad \emptyset \quad kulu \quad ka \quad qurug \quad niyi \]
throw-LV=1SG.ERG OBL box ABS ball this
‘I threw this ball to a box.’

e. CV construction (T = ABS)
\[ se\text{-}qada=mu \quad \emptyset \quad kulu \quad ka \quad qurug \quad niyi \]
\[ \text{CV-throw}=1SG.ERG OBL box ABS ball this \]
‘He will throw this ball to a box.’

As identified in §6.2.3, the AV-marked verb \( q<em>ada \) bears the ‘throw away’ (or ‘discard’) meaning. However, when the same root is attached with NAV marking, the ‘discard’ meaning no longer holds; these forms instead denote the throwing event. Examples (6.22a–d) show that PV and LV forms can select either the theme or the goal as the absolutive argument. The CV form, on the other hand, has the theme assigned the absolutive case, as (6.22e) shows.

The second ‘throw’ verb involves the root \( sebu \), which is glossed as ‘throw.hit’ for the reasons provided in §6.2.3. Consider the argument realization of the NAV-marked verbs below.

(6.23) Argument structure of NAV-marked ‘throw and hit’ verb: Pattern 2

a. PV construction (G = ABS;)
\[ bu\text{-}un=mu \quad \emptyset \quad qurug \quad ka \quad laqi \quad gaga \]
throw.hit-PV=1SG.ERG OBL ball ABS child that
‘I will throw a ball at that child.’ (or ‘I will hit the child with a ball.’)

b. PV construction (*T = ABS)
\[ *bu\text{-}un=mu \quad \emptyset \quad laqi \quad ka \quad qurug \quad gaga \]
throw.hit-PV=1SG.ERG OBL child ABS ball that
Intended: ‘I will throw that ball to a child’

c. LV construction (G = ABS)
\[ bu\text{-}an=mu \quad \emptyset \quad qurug \quad ka \quad laqi \quad gaga \]
throw.hit-LV=1SG.ERG OBL ball ABS child that
‘I threw a ball at that child.’ (or ‘I hit the child with a ball.’)

d. LV construction (*T = ABS)
\[ *bu\text{-}an=mu \quad \emptyset \quad laqi \quad ka \quad qurug \quad gaga \]
throw.hit-LV=1SG.ERG OBL child ABS ball that
Intended: ‘I threw that ball to a child’ (or ‘I hit/shoot a child with that ball.’)

e. CV construction (I/T= ABS)
\[ se\text{-}sebu=mu \quad \emptyset \quad laqi \quad ka \quad qurug \quad gaga \]
\[ \text{CV-throw-hit}=1SG.ERG OBL child ABS ball that \]
‘I will hit/shoot a child with that ball.’ (or ‘I will throw the ball at a child.’)

The ‘throw and hit’ nature of the root is captured in the argument structure of the PV and LV forms, which arguably denote an event of surface contact (i.e., ‘to hit’ as a result of throwing),
suggested by the fixed mapping between the goal and the absolutive argument in (6.23a) and (6.23c). The theme argument, on the other hand, cannot surface as the absolutive argument, as demonstrated in (6.23b) and (6.23d). As for the CV counterpart, the absolutive argument ‘ball’ in (6.23e) can be interpreted as an instrument under the “surface-contact” view (e.g., to hit with ‘a ball’), or simply as the transported theme given the “transfer of location” view. The ‘throw and hit’ case here demonstrates how the thematic interpretation can be subject to the identification of event/verb type. I will elaborate on this issue in detail in Chapters 8 and 9.

The last ‘throw’ verb to be examined, as discussed previously, contains the object-denoting root *qahur* ‘pebble’. In discussing its AV form in §6.2.3, I showed that it selects the goal, as the transported theme (e.g., pebble or small object) has been presupposed in the predicate as a result of incorporation. With respect to the NAV forms, this denominal verb is rather flexible in terms of its absolutive argument. Not only can PV/LV forms select either theme or goal as the absolutive argument, but the CV form also allows this kind of variation. (6.24) demonstrates this exceptional argument alternation pattern, observed only in this particular verb/root in Seediq.

(6.24) Argument structure of NAV-marked ‘throw (small object)’ verb: Pattern 3

a. PV construction (G=ABS)

\[ \text{qehur-un}=\text{mu} \quad \emptyset \quad \text{betunux} \quad \text{ka} \quad \text{walis} \]

\[ \text{throw-PV}=1\text{SG.ERG} \quad \text{OBL} \quad \text{stone} \quad \text{ABS} \quad \text{Walis} \]

‘I will throw stones to Walis.’

b. PV construction (T=ABS)

\[ \text{qehur-un}=\text{mu} \quad \emptyset \quad \text{walis} \quad \text{ka} \quad \text{betunux} \quad \text{niyi} \]

\[ \text{throw-PV}=1\text{SG.ERG} \quad \text{OBL} \quad \text{Walis} \quad \text{ABS} \quad \text{stone} \quad \text{this} \]

‘I will throw this stone to Walis.’

c. LV construction (G=ABS)

\[ \text{qehur-an}=\text{mu} \quad \emptyset \quad \text{betunux} \quad \text{ka} \quad \text{walis} \]

\[ \text{throw-LV}=1\text{SG.ERG} \quad \text{OBL} \quad \text{stone} \quad \text{ABS} \quad \text{Walis} \]

‘I threw stones to Walis.’

d. LV construction (T=ABS)

\[ \text{qehur-un}=\text{mu} \quad \emptyset \quad \text{walis} \quad \text{ka} \quad \text{betunux} \quad \text{niyi} \]

\[ \text{throw-PV}=1\text{SG.ERG} \quad \text{OBL} \quad \text{Walis} \quad \text{ABS} \quad \text{stone} \quad \text{this} \]

‘I threw this stone to Walis.’

e. CV construction (G=ABS)

\[ \text{se}-\text{qahur}=\text{mu} \quad \emptyset \quad \text{betunux} \quad \text{ka} \quad \text{walis} \]

\[ \text{CV-throw}=1\text{SG.ERG} \quad \text{OBL} \quad \text{stone} \quad \text{ABS} \quad \text{Walis} \]

‘I will throw stones to Walis.’
f. CV construction (T = ABS)

\[ \text{se-qahur}=\text{mu} \quad \emptyset \quad \text{walis} \quad \text{ka} \quad \text{betunux} \quad \text{niyi} \]

CV-throw=1SG.ERG OBL Walis ABS stone this

‘I will throw this stone to Walis.’

(6.25) presents the case of the ‘kick’ verb, which has a distinct argument alternation pattern from all the ‘throw’ verbs above. All NAV forms select one particular thematic role as the absolutive argument: the PV form and LV form select the patient whereas the CV form selects the instrument. The LV/CV (or PV/LV) alternation of ‘kick’ is similar to English with/against alternation as discussed in Chapter 4.

(6.25) Argument structure of NAV-marked ‘kick’ verb: Pattern 4

a. PV construction (P = ABS)

\[ \text{qeleqah-un}=\text{mu} \quad (\emptyset \quad \text{iril} \quad \text{qaqay}) \quad \text{ka} \quad \text{qurug} \quad \text{gaga} \]

kick-PV=1SG.ERG OBL left foot ABS ball that

‘I will kick that ball (with the left foot).’

b. LV construction (P = ABS)

\[ \text{qeleqah-an}=\text{mu} \quad (\emptyset \quad \text{iril} \quad \text{qaqay}) \quad \text{ka} \quad \text{qurug} \quad \text{gaga} \]

kick-LV=1SG.ERG OBL left foot ABS ball that

‘I kicked that ball (with the left foot).’

c. CV construction (I = ABS)

\[ \text{se-qeleqah}=\text{mu} \quad \emptyset \quad \text{qurug} \quad \text{ka} \quad \text{iril} \quad \text{qaqay} \]

CV-kick=1SG.ERG OBL ball ABS left foot

‘I will kick my left foot against a ball.’

6.3.4 Summary: Lexical variation within and across transfer verb subclasses

Table 6.3 provides a summary of the argument structure of Seediq NAV-marked transfer verbs, with particular focus on their absolutive arguments. Following the previous two chapters, I use the “argument alternation” category to highlight the difference between transfer verbs that can alternate the theme and the recipient/goal and transfer verbs that involve other type of thematic roles.
Table 6.3 Argument alternation patterns of Seediq NAV transfer verbs

<table>
<thead>
<tr>
<th>Argument alternation</th>
<th>Thematic role of ABS in NAV constructions</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PV</td>
<td>LV</td>
</tr>
<tr>
<td>give-type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>T/R</td>
<td>T/R</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
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<td>T/R</td>
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</tr>
<tr>
<td>send-type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>T/G</td>
<td>T/G</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>T/G</td>
<td>T/G</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
</tr>
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<td>T/G</td>
<td>T/G</td>
</tr>
<tr>
<td>throw-type</td>
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<td></td>
</tr>
<tr>
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<td>T/G</td>
<td>T/G</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
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</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Table 6.3 shows that lexical variation with respect to the argument structure is found within each subclass, an observation that does not conform to Croft et al.’s (2001) and Levin’s (2008) approaches. In the previous two chapters, I have addressed the morphological complexity of verbs in Formosan languages, and moreover, the derivational properties of voice markers, which account for the heterogenous morphosyntactic behavior of the alleged members of the same subclass. In Seediq, the derivational properties of the voice system are partially reduced, due to the neutralization of PV/LV verbs. As summarized in Table 6.3, all transfer verbs are found to have the same argument structure in their PV and LV forms. Despite this language-particular characteristic, there is subclass internal variation with respect to the absolutive argument of CV-marked verbs. In this language, there are members in each subclass that do not necessarily alternate the recipient/goal and theme by means of LV/CV marking. The distinction between “alternating” and “non-alternating” transfer verbs thus
challenges the view that these transfer verbs, like those in Germanic languages, have a basic argument structure at the stem/root level.

The argument structure of LV/CV transfer verbs further challenges the validity of the applicative analysis for these two voice markers. As far as LV in these transfer verbs is concerned, it does not add an applied argument into the event denoted by the verb/root (based on a comparison with the argument structure of the PV counterparts). As for CV marking, the only two cases that can be treated as instances of “applicativization” in a loose sense are ‘throw (and hit)’ and ‘kick’. Assuming that both roots denote a two-participant surface-contact event (i.e., agent and goal), their CV counterparts then appear to introduce a peripheral argument (i.e., instrument) as the core argument. This chapter shows that the “applicative function” of LV/CV markers, namely the ability of these markers to increase the valency of the predicate (compared to their PV counterparts) is rarely seen in the case of transfer verbs. This provides further support for the symmetricality of voice marking in Formosan languages such as Seediq (and Amis and Puyuma). In the next two chapters, I will explore the interaction between voice and verb/root types in these languages beyond transfer verbs.

6.4 Conclusion

This chapter demonstrates the lexical variation among transfer verbs in the third research language of this dissertation, Truku Seediq. Section 6.2 touches upon AV-marked transfer verbs, and displays a distinction between give/send-type verbs and throw-type verbs, which is compatible with Levin’s (2008) verb sensitive approach. As in other languages, give-type verbs (except for ‘sell’) and send-type verbs in Seediq lexicalize caused possession and caused motion, respectively. Like Puyuma, Seediq has overtly marked lexical causatives (i.e., pe-verbs) and morphologically null lexical causatives (e.g. <em>verbs), which accounts for the split in terms of the morphological composition in these two subclasses. Throw-type verbs, on the other hand, basically lexicalize a two-argument activity that does not involve causative semantics. Thus they do not involve causative marking at all. In addition to the pe-causative verbs inherited from the ancestral language, modern Seediq has innovative se-causative verbs. In Section 6.2.4, I provide theoretical and empirical arguments in favor of the “applicative as causative” reanalysis.

Section 6.3 examines the argument structure of NAV-marked transfer verbs. The neutralization of PV/LV verbs in Seediq plays an important role, and results in quite distinct argument realization patterns of Seediq transfer verbs, as compared to those observed in Amis
and Puyuma. Despite the same absolutive argument in PV/LV forms of the same transfer verbs, the lexical variation with respect to the argument structure of CV-marked verbs within each subclass, particularly the contrast in terms of argument alternation, clearly supports a parametric difference between voice-marked transfer verbs in Formosan languages and underived ones in Germanic languages.

Chapters 4 to 6 complement the existing grammars of these three languages by providing more details regarding lexical variation among transfer verbs. Furthermore, the arguments outlined in these chapters have several implications for the typology of transfer verbs and ditransitive constructions. I will deal with this issue in Chapter 7. These chapters also provide important background for an event-based analysis of symmetrical voice marking. I will provide more supporting evidence for such an analysis in Chapter 8 by examining other verb types, and develop in Chapter 9 my own analysis for the argument structure of voice-marked verbs in symmetrical voice languages.
CHAPTER SEVEN
FORMOSAN TRANSFER VERBS AND ARGUMENT ALTERNATION: A
TYPOLOGICAL PERSPECTIVE

7.1 Introduction
In Chapters 4 to 6, I provided a comprehensive description of transfer verbs in my three research languages. In this chapter, I integrate the significant findings reported in those chapters and discuss Formosan transfer verbs and their argument structure/alternation from a typological perspective. In addition to discussing the differences across Amis, Puyuma, and Seediq, I emphasize the differences between Formosan languages (in general) and English, with respect to the derivation and argument structure of transfer verbs. The chapter is organized as follows: in Section 7.2, I revisit transfer verbs in the three languages under investigation, discussing particularly how they resemble and differ from one another, and present some implications for the typology of transfer verbs. Section 7.3 deals with the same issue with a wider scope. I compare English ditransitive constructions with Formosan LV/CV constructions based on their (in)ability to alternate arguments across verb types. Section 7.4 is the conclusion.

7.2 Formosan transfer verbs: A typological perspective
In previous chapters, I discussed three subclasses (i.e., give-type, send-type, throw-type) of transfer verbs for each of the research languages, Amis, Puyuma, and Seediq. In this section, I compare the three languages, highlight the cases that might challenge the three-way classification of transfer verbs proposed in the literature, and discuss the typological implications of those cases.

Before beginning the discussion, it will be helpful to review the semantic basis for the three-way classification of transfer verbs mentioned in Chapter 3. Table 7.1 is a simplified version of Table 3.2. According to Levin (2008), give-type verbs always entail change of possession, while send-type and throw-type always entail change of location; give-type and send-type verbs always involve causative semantics, whereas throw-type verbs do not bear causative semantics, and basically denote a two-participant activity.
The three-way classification of transfer verbs has proven to be useful in accounting for lexical variation across the world's languages (Levin 2008, 2011). However, as shown in Chapters 4 through 6, the validity of this classification is challenged by Formosan languages due to the presence of “subclass internal” variation in terms of morphological composition or argument realization. Note that Levin’s (2008) and Croft et al.’s (2001) studies are based on morphological underived transfer verbs and therefore do not address the possibility of difference in terms of morphological structure. In Chapters 5 and 6, I have explained that this is not an issue, some “transfer” verbs require the causative morpheme to be able to denote a transfer event, whereas others contain causative semantics at the root level.

The real challenge about the three-way classification of transfer verbs concerns the argument realization. Croft et al. (2001) explicitly argue that argument alternation restriction/behavior of transfer verbs across and within languages is conditioned/predicted by the ranking of three subclasses transfer verbs along the ditransitivity hierarchy. Levin’s (2008) verb-sensitive approach establish the semantic basis for the three-way classification more throrougly, but it still resorts to the ditransitivity hierarchy to account for lexical variation. Subclass internal variation is therefore an issue, as it cannot be explained in terms of the ditransitivity hierarchy. In the following subsections, I revisit the challenges found in each subclass across three Formosan languages. In Section 7.2.4, I will propose a solution for these challenges, not by rejecting the semantic basis for the proposed three-way classification, but by advising causation about the membership of these subclasses.

### 7.2.1 Give-type verbs

For ease of comparison, I summarize in tables the relevant information about the previously examined members of give-type verbs in the three languages. The English equivalents are also presented. The first three rows of these tables concern the formation (or morphological structure) of transfer verbs; I provide the “citation form” and its decomposition, and I identify
the presence/absence of causative morphology. The final piece of information refers to the argument structure. To avoid complications, I simply take highlight “argument alternation” category (established in earlier chapters), which serves as an important indicator of the difference between Formosan and English transfer verbs. Consider ‘give’ first in Table 7.2.

Table 7.2 ‘give’ in three Formosan languages (and English)

<table>
<thead>
<tr>
<th>Citation form</th>
<th>Amis</th>
<th>Puyuma</th>
<th>Seediq</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition</td>
<td>ø-pa-feli</td>
<td>ø-beray</td>
<td>megay/muway</td>
<td>give</td>
</tr>
<tr>
<td>Causative morpheme</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Argument alternation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 7.2 readdresses the typological anomaly of Amis, in which ‘give’ requires the causative morpheme (for the purpose of maintaining all three participants of a transfer; see §4.2.1). Puyuma and Seediq do not require the causative morphology in the formation of ‘give’. In §5.2.4, I explained that most Formosan languages resemble English in terms of the absence of overt causative morphology: causative semantics can be entailed by the root itself (i.e., lexical causatives). One striking contrast between Formosan languages and English is that even the most prototypical transfer verb ‘give’ is morphologically complex in Formosan languages: voice is always involved regardless of its form (i.e., overt or zero). I will discuss the functions of Formosan voice marking in more detail in Section 7.3 (and Chapters 8 and 9). Finally, all ‘give’ verbs are can undergo argument alternation by means of voice marking: the LV form selects the recipient as the absolutive argument and the CV form selects the theme.

Unlike ‘give’, the ‘lend’ verbs require causative morphology in all of these three Formosan languages. This is shown in Table 7.3.

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87 To focus on the morphological structure of these transfer verbs in general, I provide here the “citation form,” elicited from informants based on a simple question “how do you say ___ (e.g., ‘give’) in your native language?” (Mandarin Chinese is mostly used for elicitation). It is shown that most of the citation forms of transfer verbs in Formosan languages are AV forms, while only some of them are NAV forms.

88 I base my discussion of Formosan transfer verbs on the three research languages, Amis, Puyuma, and Seediq. As presented in Chapters 4 to 6, these languages show rather distinct yet generalizable behavior with respect to the morphological composition and the argument structure of transfer verbs. I therefore believe that these three languages form a representative sample, as far as an internal typology is concerned. Investigation on other Formosan languages awaits further study, which is beyond the scope of this dissertation.
Despite the different meaning of the root (e.g., ‘borrow’ and ‘replace’), the ‘lend’ verbs in all these languages are similar in requiring causative morphology. This suggests that unlike English, Formosan languages lack an independent root for ‘lend’. For these ‘lend’ verbs, it is the overt morpheme that provides causative semantics responsible for the transfer sense, instead of with the root (as is the case for English ‘lend’). In addition, with respect to argument alternation, these causative ‘lend’ verbs, like English ‘lend’, allow either the recipient and the theme to be the O argument absolutive argument, by means of LV and CV marking, respectively.

The challenge Formosan languages bring to the give-type subclass arises with the ‘sell’ verbs. I present the issue again in Table 7.4.

Table 7.4 ‘sell’ in three Formosan languages (and English)

<table>
<thead>
<tr>
<th></th>
<th>Amis</th>
<th>Puyuma</th>
<th>Seediq</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation form</td>
<td>ø-pa-qaca</td>
<td>me-niwan or trima-‘anay</td>
<td>se-&lt;m&gt;barig</td>
<td>sell</td>
</tr>
<tr>
<td>Decomposition</td>
<td>AV-CAU-buy</td>
<td>AV-peddle or trade-CV</td>
<td>CAU-&lt;AV&gt;buy</td>
<td>--</td>
</tr>
<tr>
<td>Causative morpheme</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Argument alternation</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 7.4 shows that ‘sell’ verbs in Formosan languages are morphologically complex. In addition, the decomposition provided in the table suggests that these Formosan languages (except perhaps for the ‘peddle’ case) lack an independent lexeme for ‘sell’: the ‘sell’ meaning has to rely on either the causative or a particular CV marking (i.e., the beneficiary of
‘trade/buy’, interpreted as the recipient of ‘sell’). The former is observed in Amis and the latter in Puyuma. In Seediq, the causative morpheme se- is not the reflex of PAn *pa-; this innovative form is likely to originate from a reanalysis of the CV marker se- based on the causative/benefactive syncretism (see §6.2.4).

In addition to their distinct morphological compositions, ‘sell’ verbs in Formosan languages, most importantly, have distinct argument structures. To illustrate, I simply focus on their argument (structure) alternability, as summarized in the fourth row of Table 7.4. While English sell can alternate the theme and the recipient (between dative/double-object constructions), it is not the case in Formosan languages: in Amis, the LV form of ‘sell’ introduces the location (rather than the recipient) as the absolutive argument (see §4.3.1); in Puyuma, the LV form of ‘sell’ introduce the theme (as does the CV form) (see §5.3.1); in Seediq, the LV form can introduce the theme (or the recipient), but the CV form is ill-formed (see §6.3.1).

As mentioned previously, both Levin’s (2008) and Croft et al.’s (2001) only discuss how argument alternation restriction/behavior of transfer verbs may differ from one subclass to another across languages, as predicted by the ditransitivity hierarchy. The variation between ‘sell’ and ‘give’ verbs in terms of argument alternation thus provides a challenge to the three-way classification.

### 7.2.2 Send-type verbs

Send-type verbs in Formosan languages also exhibit morphological complexity, involving voice marking, and for certain members, the causative morpheme. In previous chapters, I covered ‘send’, ‘mail’, and additionally, ‘return’, to enrich the discussion of morphosyntax in this subclass. Here, I focus only on ‘send’ and ‘mail’ for the validity of the comparison, as ‘return’ is not incorporated in the inventory of send-type verbs proposed by Levin (2008). Table 7.5 summarizes the characteristics of the ‘send’ verbs in the three Formosan languages.
Table 7.5 ‘send’ in three Formosan languages (and English)

<table>
<thead>
<tr>
<th></th>
<th>Amis</th>
<th>Puyuma</th>
<th>Seediq</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation form</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(\text{o-pa-tayra}) or (\text{o-pa-efer})</td>
<td>(m-\text{atedr})</td>
<td>(h&lt;em&gt;adut)</td>
<td>\text{send}</td>
</tr>
<tr>
<td>Decomposition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AV-CAU-go or AV-CAU-fly</td>
<td>AV-send</td>
<td>(&lt;AV&gt;\text{send})</td>
<td>--</td>
</tr>
<tr>
<td>Causative morpheme</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Argument alternation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

In Puyuma and Seediq, like in English, there is an independent root for the notion ‘send’, despite the obligatory voice marking in real usage. In Amis, the notion of ‘send’ is causatively derived from a motion-denoting root (e.g., ‘go’ or ‘fly’). Despite their distinct morphological structures, these ‘send’ verbs allow argument alternation: the LV form realizes the goal as the absolutive argument, while the CV form chooses the theme.

There is no independent root for ‘mail’ in all three Formosan languages; the ‘mail’ verbs are derived by means of causativization, and involve different roots, as shown in Table 7.6.

Table 7.6 ‘mail’ in three Formosan languages (and English)

<table>
<thead>
<tr>
<th></th>
<th>Amis</th>
<th>Puyuma</th>
<th>Seediq</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation form</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(\text{o-pa-tikami})</td>
<td>(\text{o-pa-\text{atedr}})</td>
<td>(\text{o-pe-\text{adas}})</td>
<td>\text{mail}</td>
</tr>
<tr>
<td>Decomposition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AV-CAU-letter</td>
<td>AV-CAU-send</td>
<td>CAU-bring</td>
<td>--</td>
</tr>
<tr>
<td>Causative morpheme</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Argument alternation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes/No: flexible</td>
<td>miscellaneous</td>
<td>miscellaneous</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

The ‘mail’ verbs, compared with the ‘send’ verbs, represent another subclass internal variation. Causative ‘mail’ verbs in Puyuma and Seediq are miscellaneous in terms of argument alternation, as some particular voice forms are used to denote an indirect causation interpretation involving the causee, or even the causand (see §5.3.2 and §6.3.2), rather than the lexicalized ‘mail’ interpretation. In Amis, the ‘mail’ verb has the flexibility of introducing the goal of transfer or the location of the (‘mailing’) activity in its LV form.

In English, there is no distinction between ‘send’ and ‘mail’ in terms of an argument
alternation restriction: both allow the dative construction and the double object construction. The identical argument realization pattern, however, is not attested in Formosan languages: ‘send’ verbs always allow argument alternation while ‘mail’ verbs vary from one language to another.

### 7.2.3 Throw-type verbs

In addition to give-type and send-type verbs, throw-type verbs also exhibit lexical variation within the subclass, as evidenced by the ‘throw/kick’ contrast discussed in previous chapters. Here, I highlight this contrast with one item chosen from among the many ‘throw’ verbs (with different roots), which I compare with the ‘kick’ verb. Consider Table 7.7 below.

**Table 7.7 ‘throw’ in three Formosan languages (and English)**

<table>
<thead>
<tr>
<th></th>
<th>Amis</th>
<th>Puyuma</th>
<th>Seediq</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation form</td>
<td><em>mi-tekul</em></td>
<td><em>b&lt;en&gt;ulu’</em></td>
<td><em>q&lt;em&gt;ada</em></td>
<td><em>throw</em></td>
</tr>
<tr>
<td>Decomposition</td>
<td>AV-throw</td>
<td>&lt;AV&gt;throw</td>
<td>&lt;AV&gt;throw</td>
<td>--</td>
</tr>
<tr>
<td>Causative morpheme</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Argument alternation</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

As mentioned in the previous chapters, throw-type verbs in the research languages are consistent in their lack of a causative morpheme. The citation forms simply involve the (actor) voice morpheme, as shown in Table 7.7. Following Levin (2008), I distinguish give/send-type and throw-type verbs in Formosan languages based on the involvement of causative semantics (see Table 7.1). Despite having the similarity in their morphological structures, ‘throw’ verbs may have distinct argument structures across Formosan languages. Argument alternation is observed in Puyuma and Seediq: the goal surfaces as the absolutive argument in the LV form and the theme surfaces as the absolutive argument in the CV form. In Amis, however, while the theme becomes the absolutive argument in the CV form, it is the location (rather than the goal) that becomes the absolutive argument in the LV form.

The ‘throw’ verbs presented in Table 7.7 do not weaken the argument in favor of Levin’s (2008) verb-sensitive approach. Throw-type verbs, as the least prototypical ditransitive verbs (i.e., rightmost in the ditransitivity hierarchy), may in some languages exhibit an argument alternation restriction, in contrast to give-type and send-type verbs (see §3.2). The real problem arises when the ‘kick’ verbs are taken into consideration, as shown in their argument
ternation restriction; see Table 7.8.

<table>
<thead>
<tr>
<th>Citation form</th>
<th>Amis</th>
<th>Puyuma</th>
<th>Seediq</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition</td>
<td>mi-tenuk</td>
<td>s&lt;em&gt;alepad</td>
<td>q&lt;em&gt;eleqah</td>
<td>kick</td>
</tr>
<tr>
<td>Causative morpheme</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Argument alternation</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

In Amis, both ‘throw’ and ‘kick’ exhibit argument alternation restriction. Lexical variation is observed between ‘throw’ and ‘kick’ in the other two languages. The ‘kick’ verb fails to alternate the goal and the theme, because, as a matter of fact, the LV/CV forms of ‘kick’ in these languages are not associated with a transfer interpretation at all. In previous chapters, I identified ‘kick’ NAV-marked verbs in Formosan languages as denoting events of “surface contact” instead of events of transfer.

It should be noted that while no semantic contrast between ‘throw’ and ‘kick’ is proposed in Levin’s (2008) verb-sensitive approach, a notable contrast between them is in fact articulated in her earlier study of English verbs (Levin 1993), based on compatibility with the with/against alternation (see §4.2.3). The failure of ‘kick’ to alternate theme and goal by means of voice marking reflects its usage to denote a contact event without transfer. This argument has solid semantic grounds, considering that a throwing activity typically involves movement (of a transported theme), while a kicking activity can target either a movable or immovable object, and thus does not necessarily entail transfer.

7.2.4 Implications

In the previous subsections, I have highlighted the similarities and differences in transfer verbs between the three Formosan languages. Here, I focus on the challenges these transfer verbs present to the three-way classification established in the literature, and I discuss the typological implications. To recapitulate, I have shown that the validity of such a classification appears to be weakened by “subclass internal” variation: (a) ‘sell’ differs from ‘give/lend’ within give-type verbs; (b) ‘mail’ differs from ‘send’ within send-type verbs; and (c) ‘kick’ differs from ‘throw’ within throw-type verbs. The discussion here focuses on the first and second observations. The third has been justified in the literature (Levin 1993), as
discussed in §7.2.3.

As mentioned repeatedly throughout this dissertation, Formosan languages and Germanic languages are different with respect to the characteristics of verbs: verbs in the former are morphologically complex, and are coded for argument alternation, while verbs in the latter can simply be monomorphemic and thus uncoded for argument alternation. As mentioned in Chapter 3, the three-way classification of transfer verbs, originated in Croft et al.’s. (2001) work, is based on Germanic languages. It is therefore not surprising to find limitations of this model outside the Germanic context such as Formosan languages.

It should be noted that the purpose of discussion here is not to suggest complete abandonment (or replacement) of such a classification. In my description of Formosan transfer verbs, I embraced the semantic basis for these subclasses (Table 7.1), and provided evidence for the causative semantics for give/send-type verbs and the lack of causative semantics for throw-type verbs. Instead of entirely rejecting the three-way classification, I propose a simple, straightforward solution for the subclass internal variation exhibited in Formosan languages, that is, a reconsideration of the membership of these subclasses. For instance, ‘sell’ is not a counterexample for give-type verbs if it is simply excluded from this subclass. Similarly, ‘mail’ does not serve as a counterexample for send-type verbs if it is simply excluded from this subclass.

The proposal here is not ad hoc. Consider, for example, the difference between English sell and give. With respect to transitivity, sell can be simply viewed as a transitive verb, selecting a theme, as shown in (7.1c), while give must be identified as a ditransitive verb, selecting both a theme and a recipient, as shown in (7.1a-b). From this perspective, sell can simply be treated on par with throw as a two-argument activity verb, and thus does not necessarily lexicalize caused possession.

(7.1) Transitivity of give and sell in English
a. I gave some apples *(to Mary).
   
   b. I gave Mary *(some apples).
   
   c. I sold some apples (to Mary).
   
   d. I sold Mary *(some apples).

It is understandable that Levin’s study of (dative-)ditransitive alternation incorporates sell into give-type verbs, considering the transfer-of-possession interpretation it shares with give in the double object construction (DOC) (e.g., 7.1d and 7.1b). Although this practice is
convenient and useful in accounting for ditransitive usages, it sacrifices the subtlety of sell: the transitivity of this verb shows that it can involve no causative semantics at all. Under this view, the recipient of English sell is introduced by DOC, which has been argued in the literature as involving a causative or applicative structure (see more discussion in Chapter 9).

It is difficult to argue for a difference between English mail and send, given that both allow the transitive and ditransitive usage. However, in Formosan languages, there is a clear contrast between these two in terms of their argument structure. Take Amis for example. While both ‘send’ and ‘mail’ verbs are causatively derived (i.e., pa-tayra ‘CAU-go’ and pa-tikami ‘CAU-letter’, respectively), they involve different argument structures (7.4). In Chapter 4, I discussed the derivational properties of the causative morpheme by showing that the valency and the argument structure of the causative verbs do not equal the sum of their parts. Most importantly, while causative semantics can be identified by overt causative marking, this marking does not necessarily guarantee the transfer-of-location interpretation. The following sentences show that the LV form of the causative ‘send’ verb entails a sense of transfer, according to the goal interpretation of the i-marked NP, while the LV form of the causative ‘mail’ verb simply denotes a two-place activity, according to the location interpretation of the i-marked NP.

(7.2) Argument structure of causative ‘send’ and ‘mail’ verbs in Amis

a. (*pi-)pa-tayra-an nura matuqasay tu felac ku kalingku (=4.17c)
   PI-CAU-go-LV ERG.that old.man OBL rice ABS Hualien
   ‘That old man sent rice to Hualien.’

b. pi-pa-tikami-an ni mayaw ci lisin-an kunini a lumaq (=4.20c)
   PI-CAU-letter-LV ERG.PN Mayaw PN Lisin-OBL ABS.this LNK house
   ‘Mayaw mailed Lisin in this house.’
   (not ‘Mayaw mailed Lisin (a letter) to this house.’)

The discussion of English sell in comparison with give shows that (causative semantics responsible for) the transfer interpretation can be associated with a particular construction such as DOC, but not always with the lexical verb itself. The distinction is difficult to make in Germanic languages where transfer verbs are uncoded, thus having the same form in various argument realization patterns (e.g., transitive, DOC, dative). The discussion of Formosan (e.g., Amis) ‘mail’ in comparison with ‘send’ shows that causative semantics might

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89 In this example, the distinct argument structures of ‘send’ and ‘mail’ appear to be associated with the presence/absence of a pi- marker. It may be argued that modern Amis has developed this mechanism to distinguish the argument of the verb (i.e., goal) and the applied argument of the applicative verb (i.e., location) among location-related roles. I will address this hypothesis in Chapter 9.
merely contribute to the derivation of a verb that does not necessarily entail a sense of transfer (7.2b). These observations suggest that one should not take for granted the membership of the three transfer verb subclasses. In investigating a language, one should examine each “transfer verb” carefully so that the origin of the transfer interpretation can be identified, be it the verbal lexeme, the (causative or voice) morphology, or a particular construction. The claim is compatible with Croft’s (2012:379-380) argument for the separation of verb meaning from “constructional” meaning, and his proposal of a componential analysis, which divides ditransitive verbs into different types.

To sum up, the study of Formosan transfer verbs in this dissertation suggests caution in the application of Levin’s (2008) model. While I acknowledge the semantic basis for the three-way classification of transfer verbs, I suggest the possibility that alleged members of Levin’s (2008) inventory should be ruled out of their subclasses, and I highlight the relevance of identifying the origin of the transfer interpretation. In the context of Formosan languages, a predicate decomposition approach is helpful to identify the semantic components, and even account for the argument structure of the derived verb. I will present how this can be done in Chapter 9.

7.3 Argument alternations in Formosan languages: A typological perspective

In the previous section, I summarized the lexical variation of Formosan transfer verbs and discussed its implications for the existing typology of transfer verbs. In particular, I illustrated how the morphological complexity of Formosan transfer verbs results in different argument structures with the example of causative transfer verbs. In addition to the causative morpheme, a more crucial element is voice morphology, which is always attested in Formosan transfer verbs. As discussed earlier, (non-actor) voice marking in Formosan languages alternates arguments in (many) transfer verbs. Focusing on this phenomenon, this section compares the argument alternations by means of LV/CV marker in Formosan languages (in general) and English ditransitive alternations, and discusses the typological implications of this comparison. In Chapter 3, I briefly stated the difference in the coding of argument alternation between Formosan languages and English. The examples are repeated in (7.3).

(7.3) Coded argument alternation in Puyuma (=3.2)

a. ku=beray-av dra paysu i siber (core = Recipient)
1SG.ERG=give-LV ID.OBL money SG.ABS Siber
‘I gave Siber money.’
b. ku=beray-anay na paysu kan siber (core = Theme)  
1SG.ERG=give-CV DF.ABS money SGOBL Siber  
‘I gave money to Siber.’

(7.4) Uncoded argument alternation in English
a. John gave Mary a book.  (core = Recipient)  (=3.1)

b. John gave a book to Mary.  (core = Theme)

The sentences above illustrate that argument alternation in Formosan languages is coded by the voice marking, while argument alternation of English transfer verbs is uncoded. Instead of overt marking on the verb, the alternation in English is manifested by means of the marking and the linear order of the two non-actor arguments, known in the literature as the “DOC/dative” contrast, as shown in (7.4a) and (7.4b). Alternation of transfer verbs in Formosan languages is exactly the opposite. As shown in (7.3), there is “no difference” in the marking of non-actor arguments, in the sense that one must be assigned absolutive and the other oblique (in contrast to the alternation of two accusatives and one accusative, one oblique in English). In addition, the ordering between these two arguments is not correlated with the voice marking. Based on these characteristics, it is reasonable to identify voice marking as the sole element responsible for the argument alternation in Formosan languages.

The discussion here avoids PV constructions intentionally, based on the consideration that PV marking does not always alternate arguments of transfer verbs; it might event result in ungrammaticality in languages such as Puyuma (see Chapter 5). However, it should be noted that while LV/CV constructions reflect argument alternation for some transfer verbs (e.g., ‘give’, ‘lend’, ‘send’), they fail to do so for other transfer verbs (e.g., ‘sell’, ‘throw’, ‘kick’). In the following subsections, I explore this issue from a typological perspective. The discussion will first be based on a tentative parallel between English dative/double-object constructions and Formosan CV/LV constructions, considering their similar argument-alternating abilities as suggested by (7.3) and (7.4). As the discussion proceeds, I intend to demonstrate that this parallel is untenable, when verb classes other than transfer verbs are taken into consideration.

7.3.1 Two types of ditransitive alternations in English
In Chapter 3, I introduced Malchukov et al.’s (2010) typological overview of ditransitive constructions, and showed that ditransitive constructions apply to a range of verb types. English DOC for example, allows get-type verbs, prepare-type verbs, and verbs of
performance to be the predicate, in addition to (physical/mental) transfer verbs. See the following examples.

(7.5) English DOC and compatible verb types  (=3.12)
a. verbs of physical transfer (e.g., *give, send, throw*)
   e.g., *I sent Jim a gift.*

b. verbs of abstract/mental transfer (e.g., *teach, show, tell*)
   e.g., *I told my child the story.*

c. get-type verbs (e.g., *buy, earn, get, win*)
   e.g., *I bought Mary a dress.* (cf. *I bought a dress*)

d. prepare-type verbs (e.g., *bake, build, make, cook*)
   e.g., *I baked my dad a cake.* (cf. *I baked a cake*)

e. verbs of performance (e.g., *dance, draw, paint, sing*)
   e.g., *I sang my sister a song.* (cf. *I sang a song*)

As far as argument alternation is concerned, English verbs can be roughly divided into two major types: (a) transfer (of possession/location) verbs, which exhibit the dative-ditransitive alternation, and (b) verbs of creation/performance, which exhibit the benefactive-ditransitive alternation, as illustrated in (7.6) and (7.7), respectively.

(7.6) Dative-Ditransitive alternation in English
   a. The dative variant:
      e.g., *John gave/sent/ threw a ball to Mary.*

   b. The ditransitive (i.e., DOC) variant:
      e.g., *John gave/sent/ threw Mary a ball.*

(7.7) Benefactive-Ditransitive alternation in English
   a. The benefactive variant:
      e.g., *John made/sang/wrote a song for Mary.*

   b. The ditransitive (i.e., DOC) variant:
      e.g., *John made/sang/wrote Mary a song.*

As the main focus of this dissertation, the transfer verbs and their corresponding alternation as exemplified in (7.6) have been discussed thoroughly in previous chapters. The second type of ditransitive alternation, namely “benefactive-ditransitive” (Levin 1993; Levin and Rappaport Hovav 2005), as shown in (7.7), has so far been left undiscussed. In the following subsections, I identify some of the characteristics of LV/CV constructions in Formosan languages by incorporating these additional verb types.
7.3.2 Comparing Formosan LV/CV alternations with English ditransitive alternations

As far as (most) transfer verbs are concerned, it might be reasonable to treat the Formosan LV construction on par with English DOC, as both constructions select the recipient rather than the theme as the core argument (i.e., accusative in English; absolutive in Formosan; see 7.3 and 7.4). However, such a parallel is untenable based on (at least) three observations. First, the similarity between DOC and LV constructions is only maintained in the case of (most) transfer verbs. For verbs of creation/performance, English DOC is responsible for the introduction of a beneficiary as the core argument, while Formosan languages in general use the CV construction, rather than the LV construction, for the introduction of a beneficiary. Consider the following Puyuma and Seediq examples.

(7.8) Verbs of creation/performance (e.g., *sanga* ‘make’) in Puyuma
   a. LV construction: unavailable (e.g., *sanga*-ay)
   b. CV construction:
      \[\begin{array}{llll}
      ku=sanga'-anay & dra & kabung & i & nanali \\
      1SG.ERG=make-CV & OBL & hat & SG.ABS & my.mother
      \end{array}\]
      ‘I made my mom a hat.’

(7.9) Verbs of creation/performance (e.g., salu ‘make’) in Seediq
   a. LV construction:
      \[\begin{array}{llll}
      selu-an=na & ka & sapah & niyi \\
      make-LV=3SG.ERG & ABS & house & this
      \end{array}\]
      ‘She/He made this house.’
   b. CV construction:
      \[\begin{array}{llllll}
      se-salu=na & ø & sapah & ka & laqi=na \\
      CV-make=3SG.ERG & OBL & house & ABS & child=3SG.GEN
      \end{array}\]
      ‘She/He made her/his child a/the house.’

(7.8) and (7.9) show that the beneficiary is realized as the core argument in the CV construction in Puyuma and Seediq. This is not unfamiliar, as I introduced in Chapter 2 the applicative function of CV marking, which introduces an instrument (e.g., Amis) or a beneficiary (e.g., Puyuma, Seediq) as core absolutive argument, depending on the language. The Puyuma example shows that lexical gaps occur in these verb types as well as in transfer verbs. Transfer verbs typically disallow the PV form, as discussed in §5.3, while verbs of creation/performance like ‘make’ typically lack the LV form. I will discuss this issue specifically in Chapter 8.

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90 Not all my informants agree with this use of the LV form of ‘make’. Tsou (2011) reports the same finding, and shows that some informants prefer using the AV form with the aspect marker (e.g., *s<em><en>alu) for an event like (7.9a).
The second observation that distinguishes the Formosan LV construction and English DOC is that the former does not have any animacy requirement, whereas the latter is well-known for its “animacy restriction” (e.g., Bresnan 1978; Pinker 1989; Levin 1993 Goldberg 1995). The following is taken from Bresnan 1978.

(7.10) Animacy restriction on English DOC
a. I sent the boarder/*the border a package.

b. I sent a package to the boarder/the border.

As (7.10a) shows, the goal participant in DOC must be animate; (7.10b) shows that no such restriction is observed in the dative construction. The animacy restriction is introduced in a slightly different manner in Levin’s (2008) approach, namely as the “caused possession” schema for which DOC is responsible, regardless the subclass of transfer verbs (e.g., give/send/throw-type) (see Chapter 3).

From this perspective, Formosan LV constructions clearly do not resemble DOC at all in the lack of such a restriction, as exemplified in the argument structure of the LV-marked ‘send’ verbs below. To my knowledge, LV constructions across Philippine-type languages do not have any animacy restriction on their absolutive argument. Naturally, this voice marker would not have been labeled “Locative” if such a restriction had been discovered.

(7.11) Lack of animacy restriction on Formosan (e.g., Amis) LV constructions
a. apa-tayra-an akutufuting kuluumaq nira (Amis)
   CAU-go-LV 1SG.ERG OBL fish ABS house 3SG.GEN
   ‘I sent fish to his house.’

b. ku=’atedr-ay dra lrumay i________taipak (Puyuma)
   1SG.ERG=send-LV ID.OBL rice SG.ABS Taipei
   ‘I sent rice to Taipei.’

c. had-an=mu o sari ka________sapah=na (Seediq)
   send-LV=1SG.ERG OBL taro ABS house=3SG.GEN
   ‘I sent taro to his house.’

The third observation that challenges the parallel between Formosan LV/CV alternations and English ditransitive alternations is that LV/CV alternation may actually reflect another type of alternation in English. For example, I showed in §4.2.3 that the Amis LV/CV alternation of ‘kick’ resemble English with/against alternation in terms of the argument realization. The sentences are repeated in (7.12).
It now becomes evident that the LV/CV constructions are multi-functional in terms of argument alternation. For “typical” transfer verbs (i.e., the ones that entail a transfer sense), LV/CV constructions are parallel to ditransitive alternation in English; for surface contact verbs (e.g., ‘kick’), LV/CV constructions are parallel to *with/against* alternation in English. This observation holds not only in Amis, but also in Puyuma and Seediq as well.

More characteristics of Formosan LV/CV constructions will be introduced in Chapter 8. Here, I conclude this subsection by establishing that LV/CV constructions in Formosan languages do not function exactly the same way as English double-object/dative constructions. It appears to be the case at first glance, when the examination is restricted to transfer verbs. However, when other verb types are taken into consideration, it becomes clear that LV and CV constructions “partake” for the argument-alternating ability of DOC: a recipient is realized as the absolutive argument in LV-marked (transfer) verbs, while a beneficiary is realized as the absolutive argument in CV-marked verbs (of creation/performance). In addition, the animacy restriction is only found in DOC, but not in Formosan LV constructions. Finally, depending on the semantic nature of the verb, LV/CV constructions can reflect English ditransitive alternation or *with/against* alternation. Although the proposed parallel between Formosan voice alternations and English ditransitive alternations proves to be untenable, the practice of such a comparison is typologically illuminating in many respects. I will discuss its implications in the next subsection.

### 7.3.4 Implications

In §3.3, I introduced the “semantic map” (Anderson 1982; Croft 2001; Haspelmath 2003) as an ideal methodology to discuss the interaction between verb types and their (in)compatibility with ditransitive constructions in a given language (or across languages). To illustrate, consider the following figure, repeated from Figure 3.2.

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91 To maintain this tentative parallelism between Formosan LV/CV alternations and English ditransitive alternations, I deliberately avoid discussing two-participant LV/CV constructions. In Chapter 8, I will present these cases, thereby promoting an event-based analysis for voice-marked verbs in Formosan languages.
The semantic map above shows the distribution of verb types in different ditransitive constructions in English, namely DOC and the dative construction. It also shows that the meanings/functions of the construction differ based on the verb type involved. Take English DOC for example. Its core function is to introduce arguments of a transfer of possession event (i.e., “Theme-Recipient Construction”). Natural candidates are transfer of possession verbs such as give; in addition, the recipient reading is enforced when this construction applies to transfer of location verbs (e.g., send, throw) (i.e., the animacy restriction). Besides the core function, an extended function can be identified, as English DOC is able to introduce a beneficiary into an (originally) two-participant event (i.e., “Patient Beneficiary Construction”). Natural candidates are verbs of creation/performance (e.g. build, make, etc.), as the purpose of performing such activities can be beneficial to another individual.

Ideally, I should provide the semantic maps for LV and CV constructions in each Formosan language to carefully identify the interaction between verb types and voice morphology. However, because the dissertation covers three Formosan languages, and because its special focus is on transfer verbs only, it is beyond my current ability to complete such a task. However, the discussion in this section covers at least some additional verb types other than transfer verbs, and thus suffices to capture some fundamental differences between
Formosan LV/CV constructions and English ditransitive constructions with respect to argument realization.

Let us go back to English DOC, where the animacy restriction is observed. From a cognitive perspective, it is reasonable for some languages (e.g., English) to develop a particular encoding strategy (e.g., DOC) to unite a recipient and a beneficiary, based on their ambiguity in many cases (Kittilä 2005). This does not mean, however, that any language will have this unique encoding strategy for the recipient-beneficiary role (or “beneficient” in Malchukov et al. 2010). The previous discussion has shown that Formosan languages differ from English typologically in that the recipient and the beneficiary are introduced (as the core argument) by means of different linguistic devices, namely LV and CV marking respectively. Animacy, therefore, is not a factor that affects the choice between LV/CV constructions.

I shall conclude by providing an approximation of the functions of Formosan LV/CV constructions inspired by their interaction with verb types. Formosan LV constructions introduce the recipient or goal when applied to transfer verbs and introduce the goal when applied to surface contact verbs. This suggests that Formosan LV constructions in general are used to specify a goal, rather than a recipient, as the former is the denominator across verb types. Formosan CV constructions, on the other hand, introduce a transported theme when applied to transfer verbs, and an instrument and/or beneficiary when applied to some other verb types. Intriguingly, the instrument-introducing function (i.e., “Patient-Instrumental Construction”) and the beneficiary-introducing function (i.e., “Patient-Beneficiary Construction”) can be linked with the (transported-)theme-introducing function (i.e., “Theme-Recipient Construction), according to the semantic map in Figure 7.1. This suggests that the Formosan CV constructions in general are used to specify a “causing participant” of the event across verb types. This “causing participant” can be established to neutralize the thematic roles targeted by CV marking. I will articulate this idea in more detail in Chapter 9.

7.4 Conclusion
This chapter examines Formosan transfer verbs from a typological perspective. Section 7.2 summarizes the significant findings about lexical variation within each subclass of transfer verbs in the three Formosan languages, which seem to challenge the validity of the three-way classification as proposed by Levin (2008) (and Croft et al. 2001). To address these challenges, I embrace the semantic basis for the three-way classification, but advice caution about the membership of each subclass provided by Levin (2008). I suggest that one should not assume the transfer interpretation to be always associated with the lexeme, regardless of
which subclass it seems to belong to, given its translation (e.g., ‘sell’ in give-type, ‘mail’ in send-type). I thus consider the separation between verb meaning and constructional meaning crucial, as also claimed in Croft’s (2012) study of ditransitive constructions.

Section 7.3 discusses the functions of Formosan LV and CV marking by comparing their argument-alternating ability with that of English ditransitive constructions. By incorporating additional verb types into the discussion, I argue that neither LV nor CV constructions should be treated on par with English ditransitive constructions. Importantly, LV and CV constructions (a) “partake” of the argument-alternating ability of DOC (i.e., recipient and beneficiary, respectively), (b) lack the animacy restriction, and (c) may reflect another type of argument alternation (e.g., English with/against alternation). In light of the semantic map methodology, I discuss the functions of Formosan LV and CV constructions in general. The former target a goal participant, and the latter target a causing component across verb types. More discussion on Formosan LV and CV constructions will be provided in Chapters 8 and 9.
CHAPTER EIGHT
VOICE IN FORMOSAN LANGUAGES: A CROSS-LINGUISTIC PERSPECTIVE

8.1 Introduction
This chapter scrutinizes the function(s) of voice marking in Formosan languages, a controversial issue that has been the topic of serious debate for decades. In §2.2.5, I simply summarized the function(s) shared across Formosan voice marking (e.g., indicating (in)transitivity, applicativization), for the purpose of a grammatical sketch. In subsequent chapters (Chapters 4 to 6), I have demonstrated a more complex nature of Formosan voice systems, particularly how they can affect the morphosyntactic behavior/restriction of the (derived) transfer verb, including (a) the finding of “lexical” gaps (i.e., lack of PV form in Puyuma; Chapter 5) and (b) the difference in argument structure (i.e., alternating vs. non-alternating ability of voice marking; Chapters 4 to 6). This line of findings is compatible with the derivational view of voice marking in Philippine-type languages (Foley 1998, 2008; Spitz 2002; Starosta 2002; S. Huang 2005, inter alia), to be reviewed later.

Based on a comparison of argument alternation between English and Formosan languages, I suggest in Chapter 7 that voice marking adds the “constructional” meaning (e.g., causative semantics) to the transfer “verb” (or root, precisely), and may serve multiple functions, depending on the verb/root type involved. For example, an LV marking is found to introduce a goal in verbs/roots entailing a sense of transfer (e.g., ‘give’, ‘lend’), but introduce a location in others (e.g., ‘sell’, ‘mail’). In this chapter, I discuss the interaction between voice and verb types in more detail, with a special focus on LV and CV marking. I argue, along with others (e.g., Foley 1998, 2008; Starosta 2002), that voice system in Formosan languages should not be treated as a grammatical/inflectional device that simply manipulates the syntactic transivity of a verb’s underlying argument structure (i.e., subcategorization). Embracing the derivational nature of voice marking, I propose Formosan voice markers as event-type indicators, by which I mean that voice markers derive from a root verbs of of their own kind, with generalizable semantic characteristics.

Note that the purpose of the present chapter is not to deny the existence of language-specific functions/characteristics of voice systems in modern Formosan (and other Philippine-type) languages (e.g., PV/LV merger in Seediq). In Chapter 2, I have expressed my stance regarding the analysis of voice, that there may not be a unified analysis regarding
(the transitivity of) voice constructions across Philippine-type languages (Dryer 1997; Ross 2002). This, of course, does not mean that a comparison of voice systems in these languages is futile. Taking a cross-linguistic perspective, this chapter examines the argument structure of LV/CV verbs across a variety of verb types (including transfer verbs) in Amis, Puyuma, and Seediq. The result not only supports the derivational status of Formosan voice marking, but further demonstrates the semantic characterics of LV/CV-coded verbs, based on the contiguity of thematic roles of the absolutive argument (to be demonstrated by means of the semantic map methodology).

This chapter is organized as follows: Section 8.2 reviews some relevant works on the derivational properties of Philippine-type voice marking, which lay out the foundation for an event-based analysis. Section 8.3 presents my case study, with special focus on LV/CV verbs in the three languages. I first distinguish “valency-increasing” and “valency-determining” functions according to the argument realization of the derived verbs. Then I discuss the similarities as well as differences between these languages in terms of these two functions across three verb types: change-of-state verbs, surface contact verbs (Fillmore 1970), and transfer verbs. I demonstrate that (a) the mapping between the valency-determining function of LV/CV marking and verb/root types remains consistent across all of the three Formosan languages, and (b) the mapping between the valency-increasing function and verb types is language-specific. Section 8.4 discusses these findings by means of the semantic maps, thereby suggesting an event-based analysis for symmetrical voice marking. Section 8.5 is the conclusion.

8.2 Derivational properties of “voice” marking in Philippine-type languages: A brief review

This section briefly reviews some of the works which explicitly or implicitly argue for the derivational nature of voice marking in Philippine-type languages. In reviewing these studies, I also discuss how they connect with some of the findings on Formosan transfer verbs proposed earlier in this dissertation. To facilitate later discussion, I provide in Table 8.1 the contrast between inflection and derivation.
Table 8.1 Properties of inflection and derivation (based on Haselow 2011:241)

<table>
<thead>
<tr>
<th>Inflection</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. obligatory</td>
<td>optional</td>
</tr>
<tr>
<td>b. regular application</td>
<td>irregular (gaps)</td>
</tr>
<tr>
<td>c. paradigmatic</td>
<td>not paradigmatic</td>
</tr>
<tr>
<td>d. relevant to syntax</td>
<td>irrelevant to syntax</td>
</tr>
<tr>
<td>e. no effect on the meaning of the base</td>
<td>changes the meaning of the base</td>
</tr>
<tr>
<td>f. no change of word-class</td>
<td>may change word-class</td>
</tr>
<tr>
<td>g. consistent meaning</td>
<td>often idiosyncrasy, lexicalization</td>
</tr>
<tr>
<td>h. position: outside derivation</td>
<td>position: inside inflection</td>
</tr>
<tr>
<td>i. forms a complete word</td>
<td>forms a stem that takes inflections</td>
</tr>
</tbody>
</table>

In linguistic morphology textbooks (e.g., Bauer 2003; Lieber 2009; Booji 2012), inflection and derivation are treated as distinct processes, given their contrastive nature. Table 8.1 demonstrate the properties of these two with respect to word formation (e.g., b, f, h, i), morphosyntactic operation (e.g., a, c, d) and meaning (e.g., e, g). Prior to the identification of symmetrical voice system demonstrated by the Philippine-type languages, voice morphology is typically considered to be inflectional for having those corresponding characteristics as outlined in Table 8.1. Voice marking in Philippine-type languages, on the other hand, has characteristics of derivation, to be reviewed carefully in following subsections.

It should be clarified that instead of a clear-cut inflection/derivation dichotomy, empirical facts suggest grey areas, motivating an inflection-derivation continuum, with more or less prototypical affixes falling in-between (Bybee 1985; Dressler 1989; Haselow 2011), as exemplified in Figure 8.1.

Figure 8.1 The inflection-derivation continuum (Haselow 2011:245)

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Lexicon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflection</td>
<td></td>
</tr>
<tr>
<td>Meaning:</td>
<td>general</td>
</tr>
<tr>
<td>Function:</td>
<td>relational</td>
</tr>
</tbody>
</table>

The inflection-derivation continuum provides more flexibility for the analysis of voice marking in Formosan languages. A certain voice affix may not be entirely inflectional or derivational. For simplicity’s sake, I treat voice markers in Formosan languages as
derivational, for they exhibit the corresponding characteristics listed in Table 8.1.

8.2.1 Starosta (1986, 2002)

In his attempt to distinguish Austronesian “focus” (i.e., what we refer to as “voice”) from the typical voice markers, which are strictly inflectional/grammatical, Starosta (2002) evaluates the arguments in some earlier studies in favor of the inflectional view (De Guzman 1978, 1991; Reid 1992; Holmer 1996; H. Chang 1999, inter alia). Based on the fact that focus markers are also used in nominalization, he further justifies the derivational/lexical status within the framework of Seamless Morphology and Lexicase. For the sake of simplicity, I only highlight in (8.1a-c) the important observations that correspond with characteristics of derivation in Table 8.1.

(8.1) The derivational properties of “focus” in Austronesian languages (based on Starosta 2002:455-463)

a. Inflection is productive; but focus is not: it is not the case that all the (four) foci are available for every root.

b. Inflected forms alternate in the same syntactic slot (= the subcategorization determined by the lexical verb) but focus forms do not.

c. The members of the paradigm differ semantically in unpredictable ways.

I will not provide concrete examples discussed in Starosta (2002), as these observations have been covered in my investigation of Formosan transfer verbs. The restricted productivity of voice marking (i.e., 8.1a) mentioned is observed in Puyuma (i.e., lack of PV form). The difference in the argument structure of transfer verbs (e.g., the verbs’ subcategorization of the O argument) based on the voice marking (i.e., 8.1b) is found in all three languages. For the difference in semantics between the members of the paradigm (i.e., 8.1c), causative transfer verbs provide the strongest argument; for example, in the case of causatively derived ‘mail’, this lexicalized meaning is associated with only some of the NAV forms, but not others, which has the ‘cause to send’ reading.

The derivational nature of voice marking has now become widely acknowledged in Formosan linguistic literature. In Chapter 5, I have introduced the productivity restriction of voice, with the terminology of “lexical gaps,” implying my view of voice being derivational. While I agree with most of Starosta's observations, I do not hold an extreme lexical (i.e., derivational) view of voice with respect to the lexical gaps and the derived meanings. As will 92 In my main chapters, I do not address the issue regarding whether there is distinction between the verbs and nouns in terms of their morphological (e.g., voice) composition. I will discuss this issue in Section 8.2.2 and Chapter 9.
be argued later (along with S. Huang 2005) in this chapter, the unavailability of certain voice forms and the meaning/argument-structure of available voice forms are to large extent predictable.

8.2.2 Foley (1998, 2008)

Unlike Starosta’s (2002), Foley’s (1998, 2008) discussion of voice system does not directly make reference to the characteristics mentioned in Table 8.1. Instead, he discusses the effect voice marking brings to the “verb” (or root, more precisely) regarding transitivity and argument structure. He concludes that voice in Philippine-type languages is “symmetrical (or symmetric)” in terms of both morphological structure and syntactic realization (e.g., argument structure). For simplicity’s sake, I first summarize the properties of symmetrical voice (languages) in (8.2), and show how they imply the derivational status of voice marking.

(8.2) Four properties of (or diagnostics for) symmetrical voice languages (modified based on Foley 1998)

a. There are no neutral voice forms of the verb; all forms are morphologically equally marked as derived forms (although one of the voice affixes may be a zero morpheme).

b. Actor participants continue to appear as core arguments when they fail to appear as the syntactic pivot; undergoer participants continue to appear as core arguments in voice constructions in which non-subcategorized erstwhile oblique participants like locative or instrumental function as pivot.

c. The voice forms make non-subcategorized participants like locatives and instrumentals directly accessible to pivot function without going through an intermediate applicative derivation.

d. There is a lack of a clear noun/verb contrast in the lexical roots of the language.

(8.2a) addresses the symmetry of voice from a morphological perspective, a point that has been addressed in this dissertation (§2.2.1). (8.2b) and (8.2c) address the symmetry of voice in terms of syntax. First, he proposes that symmetrical voice languages have their own alignment system, as opposed to the (nominative-)accusative and ergative(-absolutive) alignment, by suggesting that verbs are equally transitive regardless of which voice marking they take. For example, the presence of actor as core (glossed as ERG in this dissertation) in NAV sentences identified in (8.2b) argues against an accusative view of symmetrical voice languages (in which it should be marked as nominative, the same way as the S argument). In addition, Foley rejects the applicative analysis of LV/CV verbs: although these verbs treat corresponding adjuncts (i.e., non-subcategorized participants in 8.2c) as the pivot (i.e., syntactically prominent NP), there is no involvement of an intermediate applicative
derivation, as these verbs are equally marked (there is no extra applicative morphology in LV/CV-marked verbs compared to the AV/PV counterpart). Finally, Foley points out the lack of a clear noun/verb contrast in the lexical roots in symmetrical voice languages (8.2d), and proposes that this lack of category in roots gives rise to a symmetrical voice system.

Foley’s (1998) radical claims about symmetrical voice languages, including (a) neither accusative nor ergative, but alignment of their own kind, and (b) lack of noun/verb distinction at the root level, have been severely questioned (and even countered) by later studies focusing on particular languages (Kroeger 1998; Himmelmann 2002; Liao 2004, inter alia). I also remain conservative about Foley’s claim about alignment in the context of (most) Formosan languages, which have proven to exhibit an ergative pattern, despite their apparent symmetricality in terms of morphology. However, I think Foley’s observation about the argument structure of voice-marked verbs is illuminating. Most importantly, he proposes the “precategoriality” of roots in symmetrical voice languages, essentially suggesting the derivational status of voice marking.

(8.3) “Precategoriality” of roots in symmetrical voice languages (Foley 1998):
Roots do not entail argument structure at all; true argument structure is only introduced when the roots are derived with the voice markers.

The idea about roots being precategorial (or a-categorial) arises from the reasoning based on the observation of the symmetricality of voice-marked verbs in terms of both morphology and syntax. Under this view, (transfer) “verbs” as referred to throughout this dissertation can be identified as verbs after voice affixation. The lexical roots, even if they are by nature event-denoting (e.g., ‘give’), cannot be treated as having any subcategorization frame.

The precategoriality of roots is another radical claim not welcomed in most of the frameworks of descriptive grammar. However, this idea has been articulated in recent (generative) theories of argument structure. In the previous chapters, I have shown that Formosan transfer verbs can have distinct argument structure and denote different events under different voice marking (e.g. location-involving ‘throwing’ activity and goal-involving transfer ‘throwing’ event in Amis, denoted by the LV form and the CV form, respectively). This finding is rather difficult to explain when one assumes a predetermined subcategorization frame of the root. In Chapter 9, I will propose a formal analysis of the argument structure in Formosan languages, which conforms to Foley’s claim about the precategoriality of roots.
8.2.3 S. Huang (2005)

S. Huang’s (2005) study of voice (i.e., focus in his work) in Formosan languages provides a solid semantic basis for the interaction between voice and verb types. He argues that Formosan (and other Philippine-type) languages exhibit a “Split O” phenomenon based principally on the semantic nature of verbs.93 To understand the split O phenomenon, it is helpful to begin with the discussion of Split-S system, which is relatively well-known in the literature regarding alignment, that is, the encoding of S, A, and O arguments, as previously mentioned in Chapter 2.

In addition to accusative or ergative alignment, languages may exhibit, in Donihue & Wichmann’s (2008) term, “semantic alignment,” characterized by a split in the morphological encoding of arguments according to some feature of the lexical semantics of the verbs (Donohue 2008:174). Depending on the languages, split is realized either by the encoding of the argument (e.g., S) or the encoding of the verb/clause (e.g., monovalent/intransitive). In the so-called active/agentive system, the sole participant (i.e., S) of an intransitive verb can receive the same grammatical coding as either the A or the O of a transitive verb, hence the “split S” (i.e., SA vs SO): more agentive (and/or less affected) S receives the same marking as A and less agentive (and/or more affected) S receives the same marking as O.

Alternatively, some languages demonstrate the semantic alignment by splitting monovalent predicates into different categories: e.g., unaccusative verbs with a patient-like argument and unergative verbs with an agent-like argument. This kind of alignment is observed in most Formosan languages. For example, in introducing Amis voice system in §2.2.5, I mentioned that the AV (i.e., intransitive) marking differ according to the semantics of the verb/root. Tsukida (2008), in fact, shows that the split of these verbs is semantically driven.94 The division of labor of four distinct AV markers in Amis to cover the semantic differences of their corresponding monovalent predicate is a huge undertaking, which will not be discussed in detail here (see Tsukida 2008; Kuo and Chen to appear). For simplicity’s sake, I show in the following Amis examples that <um> is used for events involving an agent-like participant (i.e., S), and ma- is used for eventualities involving a theme/patient-like participant (i.e., S).

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93 In addition to verbal semantics, Huang (2005) also discusses discourse-pragmatics as another factor that influences the choice of voice marking. In this dissertation, I will focus on the semantics of voice marking.
94 It should be noted that Tsukida’s (2008) study targets the Fata’an dialect of Amis, and scrutinizes the semantic characteristics of four AV markers. For simplicity’s sake, I discuss only two markers in Central dialect of Amis, which also exhibits the semantic alignment.
(8.4) Amis \(<um>\sqrt{\phantom{0}}\) verbs: 
\(r<um>\text{akat} \text{ 'walk'}, r<um>\text{adiw} \text{ 'sing'}, s<um>\text{uwal} \text{ 'speak'}, t<um>\text{angie} \text{ 'cry'},\ldots\)

(8.5) Amis \(ma-\sqrt{\phantom{0}}\) verbs: 
\(ma-qorad \text{ 'rain'}, ma-fali \text{ 'windy'}, ma-su'su' \text{ 'fat'}, ma-biring \text{ 'jealous'},\ldots\)

As the encoding of Formosan monovalent/intransitive verbs (i.e., \(A V\)-marked verbs) can be semantically driven (i.e., split \(S\)), S. Huang argues that the encoding of bivalent/transitive (or trivalent/ditransitive) verbs (i.e., \(NA V\)-marked verbs) can be understood as the split \(O\) phenomenon, where the use of different forms is governed by the semantic nature of \(O\). He argues for this analysis by carefully investigating the gaps in the voice paradigm exhibited by different verb types across some Formosan and Philippine languages, including Atayal, Saisiyat, Tsou, and Cebuano. Taking a localist perspective, which conceptualizes events in terms of location and motion (of the participants), he provides a generalization of the verb/event semantics associated with different \(NA V\) markers, summarized in (8.6).

(8.6) Split \(O\) in Formosan languages: a localist interpretation (based on S. Huang 2005)

- PV verbs and LV verbs appear to correlate the distinction between change-of-state verbs/eventualities and surface contact verbs/events (Fillmore 1970).
- CV verbs typically encode the movement of a transported theme (i.e., transfer of possession/location verbs/events).

Huang’s observation about the division of labor between \(NA V\) markers in Formosan languages can be reinterpreted in terms of thematic roles. PV marking is typically used for events involving a patient participant, LV is typically used for events involving a goal participant, whereas CV is typically used for events involving a (transported) theme participant.

Huang’s discovery of split \(O\) phenomenon argues for the derivational status of voice marking in Formosan languages. It shows that the application of voice marking is lexically dependent (in the sense that it correlates with the verb/event types). He further shows that, contra Starosta 2002, the (un)availability of certain voice forms is not unpredictable, but is

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95 More discussion on the localist approach to event structure will be presented in Chapter 9.
96 It should be clarified that Huang (2005) does not mean to argue for a perfect split \(O\) phenomenon for every modern Formosan language. While he establishes the correlation between \(NA V\) marking with verb/event types, he also acknowledges the fact that it is possible for \(NA V\) markers to apply across verb types other than the verb types as identified in (8.6). For example, the PV/LV merger in Seediq introduced earlier in Chapter 6 provides a case where the voice marking does not really indicates particular verb types. Huang, however, argues that the “interpenetrability of the various types of \(O\) arguments” (p. 784) across \(NA V\) constructions is well-motivated if one embraces the conceptual contiguity of these thematic roles (e.g., between Location and Object; see§6.1). In Section 8.4, I will discuss the contiguity of thematic roles with semantic maps.
8.3. Symmetrical voice as event-type indicators: a case study of LV/CV-marked verbs in three Formosan languages

This section provides more arguments for the derivational status of Formosan voice marking. I examine in three Formosan languages the argument structure of three conceptually distinguishable verb types, based on the semantic nature of O (S. Huang 2005). They are change-of-state verbs (e.g., ‘break’, ‘burn’), surface-contact verbs (e.g., ‘sweep’, ‘kick’), and transfer verbs (e.g., ‘give’, ‘send’). I further narrow the scope of investigation by only discussing LV forms and CV forms, which is relevant to the discussion on the LV/CV argument alternation in Chapter 7. For the purpose of exposition, I assume a distinction between the “valency-increasing” function and the “valency-determining” function of LV/CV markers, based on the effect they have on the argument structure of the (derived) verb.97 This distinction is introduced in Section 8.3.1. In Section 8.3.2, I summarize the mapping between these functions and verb types across the three research Formosan languages (i.e., Amis, Puyuma, Seediq). By means of comparison, I show that (a) the mapping between the valency-determining function of LV/CV marking and verb/root types remains consistent across all of the three Formosan languages, and (b) the mapping between the valency-increasing function and verb types is language-specific. These findings support S. Huang’s (2005) claims about a strong correlation between Formosan voice marking and verb/event types.

8.3.1 Valency-increasing vs. valency-determining function of LV/CV marking

The valency-increasing function of LV/CV marking is identified based on the assumption that the lexical verbs/roots have a valency value, or even a fixed subcategorization frame. On top of this, the affixation of LV or CV marking increases the valency by introducing a previously non-subcategorized element (i.e., adjunct) into the event. In §2.2.5, I refer to this as the applicative function of LV/CV marking. Consider the sentences below.

97 Note that this division is based on the assumption that verb/root can have a valency value (and a fixed subcategorization frame) prior to LV/CV affixation. This assumption is rejected by Foley (1998), and will also prove to be incorrect in Chapter 9.
The applicative or valency-increasing function of LV/CV marking is observed in (8.7), assuming that kerut ‘cut’ is a two-argument “verb,” subcategorizing for an agent and a patient/theme. The ergative view of voice marking suggests PV-marked verb to be the basic form, selecting the patient as the syntactically prominent NP (8.7b). AV form is the anti-passive form, as reflected by the case marking pattern in (8.7a). As (8.7c-d) show, LV and CV markers “applicativize” the two-argument verb, and introduce an additional participant (i.e., location in 8.7c; instrument or beneficiary in 8.7d), which in turn serves as the syntactic pivot (i.e., O argument) of the derived verb.

In Chapter 2, I have challenged the validity of the applicative analysis based on the morphological structure of these verbs (i.e., all are equally marked; Foley 1998). More discussion about the weakness of the applicative analysis will be presented in Chapter 9. In this section, I shall maintain this “applicative view” for the purpose of exposition/comparison.

LV and CV marking, however, does not always have the valency-increasing function. To illustrate the other function, I present some two-argument LV/CV verbs below.

(8.8) Two-argument LV surface contact verbs (e.g., ‘kick’, ‘sweep’) in Puyuma

a. ku=salepad-aw na mali
   1SG.ERG=kick-PV DF.ABS ball
   ‘I kicked the ball.’

b. ku=salepad-ay na lribeng
   1SG.ERG=kick-LV DF.ABS wall
   ‘I kicked (at) the wall.’
(8.9) Two-argument CV transfer verbs (e.g., ‘mail’, ‘throw’) in Puyuma

a. bulu ’aw dra barasa’ na lratu (, aw mu-’atel)
   throw-PV ID.OBL stone DF.ABS mango so ACAU-drop
   ‘A stone was thrown to the mango(, so it (= the mango) fell off)’

b. tu=bulu ’-anay na mali
   3.ERG=throw-CV DF.ABS ball
   ‘He threw the ball.’

The Puyuma sentences above show that the LV-marked or CV-marked verbs do not result in a change of valency, compared to the PV form, which is assumed to be the base form of the verb under the ergative view. In Chapter 5, I have demonstrated the presence of lexical gaps in Puyuma. In other words, Puyuma distinguishes two kinds of O arguments, showing a type of split-O phenomenon (in S. Huang’s terms) at least to certain degree. This is evident for the presence of LV-marked surface contact verbs (8.8b) and CV-marked transfer verbs (8.9b).

The claim that the voice marking is indicative of the event type rather than the argument structure in the examples like (8.8) and (8.9) is also supported by the fact that the PV forms have the same number of arguments as the corresponding LV/CV verbs (cf. 8.8b, 8.9b). This situation is what we observe in the examples given in (8.7), where the LV/CV marking adds an additional participant originally not selected by the verb/root. To distinguish this particular function of LV/CV markers in (8.8) and (8.9) from the valency-increasing function in (8.7), I use the term “valency-determining” to capture the fact that the LV/CV markers (and even the PV marker) here are used to assigns/determine a particular subcategorization frame/argument structure tp the root.

8.3.2 Interaction between verb/root types and voice marking: A cross-linguistic perspective

This section provides a summary of my case study of the functions of LV/CV marking in three verb types, including transfer verbs (e.g., ‘give’, ‘send’), surface contact verbs (e.g., ‘sweep’, ‘kick’), and change-of-state verbs (e.g., ‘break’, ‘burn’) across three Formosan languages: Amis, Puyuma, and Seediq. For the sake of simplicity, I present the result with tables with a design similar to Booji’s (2005, 2010, 2012) “inheritance tree” model. The linguistic data from which the result is drawn are provided in Appendix A. I use the symbol ‘x’ to represent the meaning of the lexical verb/root (e.g., ‘give’), and particularly, ‘y’, to represent the previously non-subcategorized element (i.e., location, instrument, beneficiary). Accordingly, the valency-determining function is represented simply by the “perform x” format, while the representation of the valency-increasing function varies based on the
thematic role: “perform x at/in/on y” for location, “perform x with y” for instrument, and “perform x for y” for beneficiary. These tables enable us to identify and compare the functions of LV/CV marking, which strongly correlate with verb type across all three Formosan languages. Consider first, the LV-marked verbs, as shown in Tables 8.2 to 8.4.

Table 8.2 The functions of Amis LV marker pi-...-an across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
</tr>
</thead>
<tbody>
<tr>
<td>valency-determining: 'perform x'</td>
<td>Yes</td>
<td>Yes</td>
<td>N.A.</td>
</tr>
<tr>
<td>valency-increasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. location-introducing: 'perform x at/in/on y'</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 8.3 The functions of Puyuma LV marker -an across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
</tr>
</thead>
<tbody>
<tr>
<td>valency-determining: 'perform x'</td>
<td>Yes</td>
<td>Yes</td>
<td>N.A.</td>
</tr>
<tr>
<td>valency-increasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. location-introducing: 'perform x at/in/on y'</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Table 8.4 The functions of Seediq LV marker -ay across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
</tr>
</thead>
<tbody>
<tr>
<td>valency-determining: 'perform x'</td>
<td>Yes</td>
<td>Yes</td>
<td>N.A.</td>
</tr>
<tr>
<td>valency-increasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. location-introducing: 'perform x at/in/on y'</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The comparison of the mapping between the two functions and verb types across Amis, Puyuma, and Seediq demonstrates that the use of LV marking in Formosan languages is semantically governed. First, S. Huang’s (2005) claim about the usage of LV marking for surface contact verbs is attested in all three languages. Most importantly, the function of LV marking in these verbs is valency-determining: it designates the goal participant (rather than the location), which appears to be the typical argument subcategorized for by this verb type. In the case of transfer verbs, LV marking does not exhibit the valency-increasing function either. Instead of adding a location participant, LV is used to specify the goal participant,

98 With respect to LV and CV marking, Amis is quite different from other Formosan languages, as it appears to carry an additional morphology pi-. The difference is disregarded here, as the comparison is conducted on the basis of functions of these Formosan LV/CV markers. In Chapter 10, I will briefly address this issue and argue that voice system in Amis might have undergone grammaticalization to the extent that LV and CV markers become real applicativizers.
which is originally entailed by the transfer verb (i.e., LV/CV argument alternation as discussed in Chapters 4 to 6). Interestingly, for change-of-state verbs, LV never serves the valency-determining function. As for the valency-increasing function, LV demonstrates this function to introduce the location participant of the event in Amis and Seediq, but not in Puyuma. This finding is significant. It shows that the valency-determining function of LV marking is shared in Formosan languages and consistent across verb types (the shaded cells), while the valency-increasing function may vary from one language to another (highlighted in boldface). The same observation holds for CV verbs, as summarized in Tables 8.5 to 8.7.

Table 8.5 The functions of Amis CV marker sa-pi- across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
</tr>
</thead>
<tbody>
<tr>
<td>valency-determining:</td>
<td>Yes</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>‘perform x’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>valency increasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. instrument:</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>‘perform x with y’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. beneficiary:</td>
<td>N.A</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>‘perform x for y’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8.6 The functions of Amis CV marker -anay across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
</tr>
</thead>
<tbody>
<tr>
<td>valency-determining:</td>
<td>Yes</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>‘perform x’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>valency increasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. instrument:</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>‘perform x with y’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. beneficiary:</td>
<td>N.A</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>‘perform x for y’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8.7 The functions of Seediq CV marker se- across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
</tr>
</thead>
<tbody>
<tr>
<td>valency-determining:</td>
<td>Yes</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>‘perform x’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>valency increasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. instrument:</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>‘perform x with y’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. beneficiary:</td>
<td>N.A</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>‘perform x for y’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to S. Huang, CV marking is typically used for transfer events. The result of the cross-linguistic comparison supports this claim. In all the three Formosan languages, the CV marking does not increase the valency by adding an instrument or beneficiary to the transfer
event (i.e. valency-increasing function); it simply designates the transported theme which is originally subcategorized for by the transfer verbs (i.e., valency-determining function). For surface contact verbs and change-of-state verbs, the CV marking has the effect of introducing a participant that is not originally subcategorized for to the event. 99 However, whether or not CV has the valency-increasing function depends on the language (e.g., Amis vs. Puyuma/Seediq). Tables 8.5 to 8.7 together present the same findings regarding the mapping between derivational functions of voice markers and verb types. The valency-determining function is consistently shared in all these Formosan languages across verb types (the shaded cells), whereas the valency-increasing function is language-specific (highlighted in boldface).

Based on the cross-examination conducted in this section, I show that the usage of voice marking is to a large extent semantically governed, as there is a clear correlation between voice marking and verb types in all Formosan languages. Admittedly, the case study presented here covers only three Formosan languages and examines only a limited number of lexical items which I consider to be representative of the verb types. With the incorporation of more verbs and more languages, it is likely that the semantic basis of voice marking argued by S. Huang (2005) and in this section needs to be modified (if not totally withdrawn). I will leave this for future study.

8.4 Discussion: the semantic map of LV/CV constructions

Combining the findings presented in Chapter 7 and in the present chapter, I am now able to correlate LV/CV marking in Formosan languages with verb types in a more systematic manner. In Chapter 7, I used English ditransitive constructions as an example to demonstrate the merits of semantic map to generalize the distribution of verb types and their associated functions in a specific construction. In their discussion of ditransitive constructions, Malchukov et al. (2010) provide a version of semantic map (different from the one presented in Chapters 3 and 7), which connects the functions of DOC in terms of thematic roles. This is shown in Figure 8.2.

99 For the sake of exposition, I identify this CV marking as valency-increasing based on the “perform x with y” format. I do need to raise the issue that it is possible to identify the CV marking in some related verbs as valency-determining. For example, for locative/placement verbs (e.g., ‘load’, ‘put’), CV marking specify the theme of placement. The LV/CV alternation between the theme and goal in this type of verbs resembles English spray/load alternation. The present discussion raises a question about whether it is possible to clearly distinguish the valency-increasing function from the valency-determining function of CV/LV voice marking. As mentioned in §8.3.1, the division of these two functions is intended for the purpose of highlighting the interaction between voice marking and verb types. In Chapter 9, I will present an event-based analysis, and suggest that these two functions are in fact neutralized in symmetrical voice languages.
The semantic map is proposed to account for the ability of a construction to apply across verb types to realize a range of thematic roles as a core argument when applied to different verb types. For example, English DOC have the core function of introducing the recipient when used with transfer of possession verbs (e.g., give), but is also able to introduce the goal as well as the beneficiary when applied to transfer of location verbs (e.g., send, throw) (with the animacy restriction), and verbs of certain/performace (e.g., make, sing), respectively.

In the previous section, I have demonstrated the interaction between voice marking and verb types in terms of the distinction between valency-increasing and valency-determining functions. The semantic map provides a useful alternative perspective to interpret the result of the cross-linguistic comparison. For LV marking, the valency-determining function (i.e., designating the goal as a core argument), which is observed in all three languages, can thus be treated as the core function, and the valency-increasing function (i.e., designating the location as a core argument) as the extended function of LV marking (see Tsukida in press for a similar analysis for Seediq LV construction). The contiguity between Goal and Location provides an ideal motivation for the usage of the same marker to denote events with family resemblance. The identification of the goal-introducing as the core function of LV marking shared in the three Formosan languages (as also discussed in Chapter 7) also accounts for the language-particular function(s) of voice marking. From a perspective of the semantic map, this amounts to the mapping of a particular construction to a particular range of roles. The

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100 In her study of ditransitive constructions in Seediq, Tsukida (in press) composes a semantic map similar to Malchukov et al.’s, and identifies Recipient, Source, Patient, Goal, and Location as the O argument in LV verbs. While my finding about Seediq LV construction is similar to hers, I advise caution in a direct application of the recipient-centered thematic map to Seediq LV constructions. As discussed previously, the core function of Formosan LV marker should be goal-introducing, as opposed to that of English DOC, which is recipient-introducing (i.e., the animacy restriction).
application range of a voice marker might differ from one language to another, just as the application range of DOC may vary from one Germanic language to another (e.g., Croft et al. 2001, Levin 2008). In Chapter 9, I will discuss all possible thematic roles that can surface as the O argument with LV marker, and argue that they all can be subsumed under the concept of “ground” (as opposed to “figure”) in the localist conceptualization of event.

The thematic roles correlating with the CV marking, however, are more difficult to unify. The Recipient-centered semantic map in Figure 8.2 is not very helpful, as it fails to cover the relevant thematic roles introduced by CV marking, such as transported theme and instrument. However, as mentioned at the end of Chapter 7, the connection between those thematic roles can be established in the general semantic map proposed by Malchukov et al. (2007) for ditransitives, which includes “Patient-Instrument,” “Recipient-Theme,” and “Patient-Beneficiary” constructions. The relevant map is reproduced here:

As presented in Chapter 7, these roles involve the transported theme, the instrument, and the beneficiary. It is thus possible to propose a Theme-centered semantic map in order to unite the thematic roles introduced by Formosan CV constructions, as shown in Figure 8.4.
As mentioned previously, S. Huang (2005) argues that the core function of Formosan CV is to encode movement of a transported theme (e.g., 8.6b). He thus views “causation” as the essential component of the event semantics in all types of CV verbs (see Y. Yeh 2013 for the same argument for Atayal CV verbs). The reanalysis of the CV marker into a causative marker in modern Seediq, as discussed in Chapter 6, suggests the contiguity between a cause and the affectee (i.e., beneficiary) of the event. Embracing the idea of semantic map, S. Huang (2005) argues that both the instrument and the beneficiary functions of CV clauses are derived from the most basic function of encoding transported theme. The contiguity between these roles is proposed in Figure 8.4. Theme and Instrument are connected together, not only because they are typically inanimate entities, but also because they have the same status in the causal chains of event (e.g., as an intermediate point in a series of causal chains toward completion of the event; see Section 9.4.3 for a detailed discussion). Instrument can be considered as the causing component role of an event; it thus connects with a more general Cause, including, for example, the reason of an event (e.g., I ran because of Mary.) or a theme/stimulus of an emotion (e.g., I am happy for Mary.). A beneficiary is connected to Cause, as it can be understood as a member of it by metaphorical extension.

The contiguity between these thematic roles will be justified in Chapter 9 in light of the causal approach to event structure (Croft 2001, 2012). Here, I present additional evidence for placing beneficiary as the most distant role in the theme-centered semantic map for Formosan CV constructions, as shown in Figure 8.4. In the Takibahka dialect of Bunun, a fifth voice/focus has been developed, in addition to the four-way distinction (Jiang 2012). This innovative voice marker has the form of ɾs-...-an, which can be decomposed into the CV marker (i.e., ɾs-; IF marker in Jiang 2012) and the LV (i.e., -an) marker in this language. Despite the traceable origin, Jiang (2012:82) treats this combined linguistic item as an independent unit based on the particular thematic role it correlates with. That is, the CV
marker in this language correlates with Instrument and Theme, whereas this fifth voice marker correlates with Beneficiary, but not vice versa. This is illustrated in the following examples.

(8.10) IV marker in Takibahka Bunun

a. ḡstabal=ku a via lukits (Jiang 2012:88; gloss mine)
   IV.chop=1SG.ERG ABS knife tree
   ‘I use the knife to cut trees.’ (‘I cut trees with the knife.’)

b. ḡstsaiv ḡaku luku huŋ di (Jiang 2012:88; gloss mine)
   IV.give 1SG.ERG Luku book this
   ‘I give this book to Luku.’

(8.11) BV marker in Takibahka Bunun

ḡstasian=ku a luku i butsul (Jiang 2012:89; gloss mine)
BV.make=1SG.ERG ABS Luku OBL gun
‘I made a gun for Luku.’

The usage of CV (or IV) marker to correlate with Theme and Instrument in Takibahka Bunun strengthen the S. Huang’s (2005) arguments about the typical function of CV marker (i.e., the encoding of transfer) and the contiguity between these two thematic roles. More importantly, the fact that Beneficiary relies on a distinct voice marker provides empirical support for a more distant relationship in terms of its contiguity with the roles mentioned in Figure 8.4.

8.5 Conclusion

This chapter explores the function(s) of voice marking in symmetrical voice languages, and argues for the derivational status of voice marking, especially LV and CV markers in Formosan languages. I begin with reviewing studies arguing for the derivational nature of voice markers in Philippine-type languages. Starosta (2002) and Foley (1998), for example, identify many characteristics of voice. Importantly, the argument structure of the verb might differ from one voice form to another. Based on this observation, as well as the lack of clear noun/verb distinction in Philippine-type languages, Foley claims that roots in symmetrical voice languages are precategorial; it contains no true argument structure until being verbalized by means of the voice marking.

The derivationl nature of Formosan NAV markers, in particular, is demonstrated by S. Huang (2005) with the identification of the split-O phenomenon, where the usage of certain NAV marking is semantically governed. To pursue this line of research, I conduct a
cross-linguistic comparison of LV/CV verbs in the three research languages of this
dissertation across multiple verb types, including transfer verbs, surface contact verbs, and
change-of-state verbs. I demonstrate that the valency-determining function of LV/CV
marking map with the verb types consistently in all these languages, whereas the
valency-increasing function is language-specific. In the discussion section, I show that the
distinction between the two functions regarding valency can be captured in terms of semantic
maps, which illustrates the relationship between conceptually contiguous thematic roles in the
form of a network. Along this line, it is possible to unite the function(s) of voice marking
based on the similarity in terms of event (structure). This idea will be pursued and articulated
within the generative framework in Chapter 9.
CHAPTER NINE
INTRODUCING ARGUMENTS IN SYMMETRICAL VOICE LANGUAGES: AN EXO-SKELETAL APPROACH

9.1 Introduction

Through the examination of transfer verbs (and some other verb types) in previous chapters, I have shown that voice markers in Formosan languages are quite different from voice markers in Germanic languages with respect to function. Symmetrical voice markers are lexical/derivational; they carry certain semantics, and can apply to the same root and result in distinct argument structures. Asymmetrical voice markers are grammatical/inflectional; they typically apply to the verb and result in distinct transitivity, with no semantic contribution. This chapter discusses how the function(s) of symmetrical voice markers can be articulated within the generative framework. The analysis provided in this chapter focuses on Formosan LV and CV verbs. In Chapters 7 and 8, I have demonstrated with semantic maps that Formosan LV marker is associated with thematic roles such as recipient, goal, location, and event source, while CV marker is associated with thematic roles such as instrument, transported theme, and beneficiary. As mentioned in Chapter 1, LV/CV verbs in Formosan and (some other Philippine-type languages) have been treated as involving applicative structures, especially by generativists (e.g., Rackowski 2002; Aldridge 2004, 2008; Rackowski and Richards 2005; H. Chang 2009, 2011, 2013, to appear; C. Tang 2009), based on the identifiable syntactic asymmetries between them and their PV (or AV) counterpart. In this chapter, I argue against the applicative analyses for Formosan LV/CV verbs and instead propose an event-based analysis, in which all the thematic roles that surface as the absolutive argument in LV or CV verbs can be unified based on the feature associated with the voice marker.

This chapter is organized as follows. Section 9.2 introduces the important theoretical constructs responsible for the introduction of arguments under the constructivist approach, which has become widely accepted due to its explanatory adequacy. I focus on presenting the hierarchical position arguments in general can occupy in a phrase structure, as well as the lexical/functional projections responsible for the introduction of external and internal arguments, respectively. I also show how this approach has been applied to the argument structure of the AV/PV verbs in ergatively aligned Philippine-type languages.
Given this background information, I examine in Section 9.3 the applicative analyses for Formosan LV/CV verbs in a thorough manner. First, I introduce what seems to be supporting evidence for these applicative analyses, based on the valency-changing effect this voice marker brings to the derived verb. Assuming the validity of the applicative view of LV/CV verbs, I continue to introduce two mostly frequently adopted applicative approaches. After presenting these approaches, I argue against these applicative analyses by demonstrating a number of empirical problems, upon scrutiny of the interaction between voice and verb types.

Section 9.4 aims to provide a solution for these problems. I first introduce the exo-skeletal approach, which proposes the separation of all arguments from the verb. This approach resonates with the derivational nature of voice marking, and most importantly, demonstrates how internal arguments are introduced by Merge of a functional projection with a category-less, argument-less root. In order to identify the properties of the functional projection for Formosan LV/CV verbs, I conduct two approximations based on the insights drawn from the localist approach and the causal approach to event structure. As a result, I propose a feature-based analysis for the event semantics of LV/CV verbs, thereby uniting the thematic roles of the absolutive argument in these verbs. Section 9.5 addresses the residual issues of the proposed analysis. Section 9.6 is the conclusion.

9.2 Constructivist approach to argument structure

My formal analysis of Formosan argument structure and voice marking follows the constructivist approach. Before presenting its content in detail, I briefly summarize the major approaches to argument structure in the literature.¹⁰¹ The LEXICAL APPROACH to argument structure (e.g., Pinker 1989; Levin 1993; Levin & Rappaport Hovav 1995, 2005; Müller & Wechsler 2014) embraces the view that the lexical properties of a verb determine its syntactic representation. The argument structure is established based on the linking principles derived from the lexical semantics of verbs. The PROJECTIONIST APPROACH (e.g., Hale & Keyser 1993, 2002; Travis 2000, 2010) considers argument structure to be projected from the lexical meaning of the verb. This approach tackles the lexicon-syntax interface with the assumption that a verb’s lexical entry registers some kind of semantically anchored argument structure, and the realization of a verb’s arguments is calculated via certain mapping algorithms. The CONSTRUCTIVIST (or CONSTRUCTIONIST) APPROACH (e.g., Halle & Marantz 1993; Harley 1995, 2008; Kratzer 1996; Marantz 1997, 2001; Cuervo 2003; Borer 1994, 2005; Ramchand 2008)

maintains that argument structures are (a) provided with a configurational meaning that is
independent from the conceptual contribution of the verb, and (b) constructed out of the
lexical entry of the verb. Along these lines, the “linking” of arguments or the “mapping” from
the lexicon to syntax as suggested in the former two approaches is no longer meaningful, as
the syntax narrows down possible semantic interpretations of predicates and arguments.

Compared to the other two approaches, the constructivist approach has gradually
become the mainstream in modern theories of argument structure, because of its ability to
account for the lexical flexibility with respect to argument realization. A famous example is
demonstrated below.

(9.1) Lexical flexibility of English siren (Borer 2005; from Clark and Clark 1979)
   a. The fire station \textit{sirened} [throughout the raid].
   b. The factory \textit{sirened} [midday] and everyone stopped for lunch.
   c. The police \textit{sirened} [the Porsche] [to a stop].
   d. The police car \textit{sirened} [up] [to the accident].
   e. The police car \textit{sirened} [the daylights] [out of me].

Different terms have been used in the literature (e.g., “variable-behavior verbs” in Borer 2005;
“constructional variability” in Ramchand 2013; “lexical flexibility” in Lohndal 2014;
“elasticity” in Mateu 2014), to demonstrate the cross-linguistically attested phenomenon that
a large number of verbs including even conventionalized items (e.g., English \textit{siren}) may
allow “multiple argument realization” (Levin & Rappaport Hovav 2005), as exemplified in
(9.16). Lexical flexibility provides more challenges to the lexical/projectionist approaches
(than to the constructivist approach), as these approaches deal with the lexicon-syntax
interface with ideas like “linking” or “mapping.” Constructivists, instead, considers argument
structure of (a verb) to be an output of the combination of the lexical item with a syntactic
template. The syntactic template has the effect of adding a (constructional) meaning to the
verb. It is the interaction between the template and the lexical item that determines the
meaning (and argument structure) of a verb. Multiple argument realization, under this view, is
taken to be the norm, instead of a challenge, given the potential for lexical items to enter
more than one syntactic template (e.g., 9.1).

Although I embrace the constructivist approach, I avoid jumping directly to recent
theories, but instead choose to first introduce some basic theoretical assumptions about
phrase structure. This “preliminaries” section not only help nongenerativists get familiar with
the technical terms, which will be addressed throughout this chapter, but also establish a link between past and modern proposals regarding the hierarchical position of arguments (of verbs).

9.2.1 Preliminaries

The basic assumption held among generativists is that a phrase has a complex hierarchical structure, as demonstrated in (9.2).

(9.2) The structure of phrases

```
  XP
   \___ YP
         X’

   specifier

   X

   ZP
```

(9.2) represents the binary branching hypothesis of a phrase. Three components are distinguished within a phrase according to their relative hierarchical position: the head, the complement, and the specifier (Spec). The label XP is intended to demonstrate the headedness of a phrase, that is, morphosyntactic properties (or features) of the head project through the structures, so that the larger structures end up having properties of smaller properties within them.

Heads are the only obligatory element of the three in a phrase. They can be divided into two major types, lexical (e.g., Verb, Noun) and functional (e.g., Tense, Determiner). Complements and specifiers are identified based on their hierarchical position in relation to the head (and the projection): heads combine with complements, forming the intermediate structure (e.g., X’ or X-bar), a specifier, if available, combines with this structure and forms the largest projection (e.g., XP).\(^{102}\) As opposed to head, which must be the terminal node of a tree structure, complements and specifiers are phrasal, that is, they are projections of other heads (e.g., YP, ZP in 9.2).

With this basic assumption, I now discuss the hierarchical position of arguments in a verb phrase (VP). This is illustrated in (9.2).

\(^{102}\) I maintain the labels used in the X-bar theory in this chapter as it helps present the difference between a complement and a specifier.
The distinction between two major types of arguments is widely assumed in theories of argument structure. For example, the subject of transitive verbs (e.g., *kicked*) is taken to correspond to the external argument (EA) and the (direct) object to the internal argument (IA). This distinction is captured in an earlier transformational analysis of VP (9.3): EA is in the specifier position whereas IA occupies the complement position.

Modern theories of argument structure have suggested more intricate structures involving functional projections to better capture the asymmetries between EAs and IAs, or to account for cases where a noun phrase (NP) is “moved” from its original (i.e. based-generated) position to another position, thus becoming an internal (or external) argument of the verb. In the following two subsections, I incorporate the constructivist approach to argument structure and introduce the relevant projections responsible for the introduction of EAs and IAs, respectively.

**9.2.2 Introducing external arguments: VoiceP/vP and CAUSEP**

Modern theories of argument structure no longer maintain that EA is within VP (cf. 9.2). Instead, a functional projection is argued to be responsible for introducing an EA to accommodate different cases, such as the involvement of a derived subject (e.g., passivization). The relevant functional is called little v (Chomsky 1995) or Voice (Kratzer 1996). The following tree structure illustrates this alternative proposal.

(9.4) The position of EA in relation to Voice (or v) and VP

```
VoiceP (vP)
  
    EA  Voice' (v')
    
      The child  Voice (v)  VP

  kicked the ball
```
In addition to Voice, another functional head, CAUSE, is often mentioned in the
discussion of external arguments. From a descriptive perspective, a causative morpheme adds
a causer into the event denoted by the original verb. Generativists hold different opinions
regarding the position of this new EA (i.e., the A argument of causative verbs in Dixon 1994).
Some propose that the functional head that introduces it is an abstract light verb (little v)
that Voice and CAUSE are two distinct functional heads. Specifically, she argues that the
CAUSE head introduces a syntactically implicit event argument that contributes to the
semantics (of the causative verb), and most importantly, that this CAUSE head does not
introduce an EA (i.e., the causer). Therefore, all EAs, regardless of their roles in the event
(e.g., causer or agent), are consistently introduced in Spec of VoiceP.

The brief review of the proposals regarding the introduction of the EA in causative verbs
is important to this study. As shown in Chapters 4 to 6, some transfer verbs in the three
Formosan languages (investigated in this dissertation) require a causative morpheme (e.g.,
\(\text{pa-}\), \(\text{pe-}\), \(\text{se-}\)). In Section 9.4.4, I will argue that the causative marker in transfer verbs is not
responsible for the introduction of EA.

9.2.3 Introducing internal arguments: VP and ApplP
The identification of IA in the complement position of V (e.g., 9.3) is motivated by the view
that the object is subcategorized for by the verb. Most modern generative theories keep this
view and thus do not propose change regarding the position of IA: it is still identified as the
complement of the verb. The difference between EA and IA is quite remarkable in a structural
sense: not only does it reflect a contrast between a specifier and a complement, it also reflects,
more importantly, a contrast between their position in relation to the VP domain. The view
that EAs should be severed from the verb while IAs remain in VP is widely held by
generativists, except for those who promote a radical version of the constructivist approach
(e.g., the “exo-skeletal” approach in Borer 2003, 2005, and Lohndal 2014; revised Distributed
Morphology in Marantz 2005 and Siddiqi 2009; to be presented later in this chapter).

In addition to VP, an APPLICATIVE (Appl) functional head is found to be responsible for
the introduction of an “applied (internal) argument” (i.e., derived O argument). In the
literature, different types of ApplPs have been proposed to account for the applicative
asymmetries. Here, I simply address the consistency that all applied arguments (AAs) occur
in Spec of ApplP, regardless of the applicative type, and leave the details to Section 9.3. This
is illustrated in the tree structure in (9.6)
(9.6) The position of EA, AA and IA\textsuperscript{103}

\[
\text{VoiceP}
\]
\[
\text{EA} \quad \text{Voice'}
\]
\[
\text{The child} \quad \text{ApplP}
\]
\[
\text{Voice} \quad \text{kicked}
\]
\[
\text{AA} \quad \text{V'}
\]
\[
\text{Mary} \quad \text{Appl} \quad \text{VP}
\]
\[
\text{V} \quad \text{IA}
\]
\[
(kicked) \quad \text{a ball}
\]

For the readers’ convenience, I incorporate VoiceP and VP into the tree structure in (9.6) to demonstrate the relative position of EA, IA, and AA,. This tree diagram gives a summary of the aforementioned relevant projections (excluding CAUSEP) responsible for the introduction of all types of arguments: EA is introduced by the Voice head as its specifier; IA (direct object) is introduced as V’s complement; and AA (applied object) takes the specifier position of the Appl head.

\textbf{9.2.4 A constructivist analysis for Formosan AV/PV verbs}

In this section, I briefly illustrate how the constructivist approach can be applied to the argument structure in ergatively aligned Formosan languages. For the sake of simplicity, I focus on the syntactic derivation of AV and PV verbs, and identify the relative position of EA and IA in the tree diagram. I also briefly discuss how Case is assigned to the arguments in intransitive/transitive clauses.

Aldridge (2004, 2008) proposes a feature-based analysis of voice-marked verbs in Philippine-type languages such as Tagalog and Seediq. She considers these languages to be ergative and treats AV forms to be intransitive and PV forms to be transitive. With regard to argument structure, she proposes that AV forms and their NAV (e.g., PV) counterparts involve different functional heads Voice\textsubscript{intr(ansitive)} and Voice\textsubscript{tr(ansitive)}\textsuperscript{104}. While both Voice\textsubscript{intr} and Voice\textsubscript{tr}

\textsuperscript{103} For simplicity’s sake, I disregard the functional projection responsible for the tense interpretation in the sentence. In addition, the linear order EA-V-AA-IA (e.g., The child kicked Mary a ball) is derived as a result of head movement from V to Appl to Voice. As linear order is not the main topic of this dissertation, it will be addressed minimally in this chapter.

\textsuperscript{104} Aldridge (2004) labels the functional head as v rather than Voice. However, the “v” functional head is used in some literature to specify event structure of the verb (to be discussed in Section 9.4) with no inflectional
heads are responsible for the introduction of EA, they carry different formal features, thereby resulting in different Case assignment to the EA and IA of the relevant verbs. Here, I discuss Seediq as an example, Aldridge (2004) argues that the difference between the two Voice heads are as follows: (a) Voice<sub>tr</sub> has a Case feature [ERG], while Voice<sub>intr</sub> does not; and (b) Voice<sub>tr</sub> but not Voice<sub>intr</sub>, has an EPP feature (Chomsky 2000, 2001), a feature which licenses the movement of IA to its Spec position. She also argues that the absolutive Case is uniformly assigned by T.\textsuperscript{105} Consider first, the AV clause in (9.7).

(9.7) The argument structure of Formosan (e.g., Seediq) AV verbs

\begin{itemize}
  \item a. \textit{s}ebuc \textit{ricah} \textit{ka} \textit{pawan} (=2.1a)
  \begin{center}
  \text{TP} \quad \text{T} \quad \text{VoiceP} \\
  \text{V}+\text{Voice}_{\text{intr}}+\text{T} \quad \text{VoiceP} \\
  \text{EA} \quad \text{Voice'} \\
  \text{ka pawan} \quad \text{VP} \\
  \text{tv}+\text{Voice} \quad \text{IA} \\
  \text{(sebuc)} \quad \text{\theta ricah}
  \end{center}
  \begin{center}
  \text{\textit{pawan} is hitting plums.}
  \end{center}

  \item b. Syntactic structure
  \item c. Case assignment

\end{itemize}

For the purpose of exposition, I demonstrate how the AV clause in (9.7a) is syntactically derived in (9.7b), and specify how the Cases of EA and IA are assigned in a separate diagram (9.7c). Aldridge’s analysis reflects the dominant view in the constructivist approach, that EA (i.e., ‘Pawan’) is introduced in the specifier position of VoiceP and IA (i.e., ‘plum’) in the complement position of VP. With respect to Case marking, AV verbs involve the functional head Voice<sub>intr</sub> (or Voice<sub>Antipassive</sub>), which bears no Case feature (in contrast with Voice<sub>tr</sub> in PV verbs; see 9.8). In Seediq, the T(ense) functional head always bears a Case feature [Abs]. In AV clauses, EA receives the absolutive Case from T. As for IA, Aldridge proposes that it

\textsuperscript{105} Aldridge (2004, 2008) identifies two types of ergative languages: T-type (e.g., Seediq), in which ABS is uniformly assigned by T; and v-type (e.g., Tagalog), in which ABS on the S argument is assigned by T, but ABS on the O argument is assigned by v (Voice in our term).
receives an inherent oblique Case from the lexical V head. The verb-initial order is derived as a result of head movement from V to Voice to T.

For PV verbs, EA and IA are originated in the same position as they are in AV verbs. However, Aldridge proposes that the Voice\textsubscript{r} has an EPP feature, responsible for the raising of IA to its outer Spec, above EA. Consider (9.8) for example.

(9.8) The argument structure of a Formosan (e.g., Seediq) PV verb

\begin{itemize}
  \item a. \textit{sebet-un} na \textit{pawan} \textit{ka ricah} (\textit{hit-PV} ERG Pawan ABS plum)
  \item b. syntactic structure
  \item c. Case assignment
\end{itemize}

As shown (9.8), EA (i.e., ‘Pawan’) of PV verbs is introduced by Voice\textsubscript{r} in the specifier position. Aldridge proposes that this Voice\textsubscript{r} assigns inherent ergative Case to EA. Inherent Case is associated with a particular thematic role, agent, in this case. In addition to this ergative Case feature, Voice\textsubscript{r} also carries an EPP feature, which is responsible for the movement of IA (i.e., ‘plum’) from its base position (i.e., complement of VP) to the edge of the VoiceP, the outer Spec of VoiceP. IA thus receives absolutive Case in this position.\textsuperscript{106}

Aldridge’s feature-based analysis of voice-marked verbs has been adopted by many researchers working on Formosan languages (e.g., H. Chang 2013; Kuo 2013; C. Wu 2013; C. Shi & Manqoqo 2013, 2014). In the following section, I will discuss how LV/CV verbs are

\textsuperscript{106} The presence of this absolutive DP (i.e., IA) in a higher position than the ergative DP (i.e., EA) is so proposed not only based on Case assignment, but also based on the empirical facts including the definiteness/specificity reading of and the A’-extraction constraint on the absolutive argument. See Aldridge (2004) for more discussion.
treated in this approach.

9.3 Applicative analyses for Formosan LV/CV verbs

In §2.2.5, I introduced the applicative (i.e., valency-increasing) function of LV/CV marking in Formosan languages. In later chapters, I demonstrate that the applicative function of LV/CV marking is restricted: (a) this function is verb-dependent, found only in certain verb types, but not others, and (b) the function is language-specific (e.g., CV marking can introduce either a beneficiary or an instrument in Puyuma/Seediq, but cannot introduce beneficiary in Amis). However, most of the recent formal studies still embrace the applicative view of Formosan LV and CV verbs (e.g., M. Chang 2004; S. Chen 2007; Y. Chen 2008; C. Tang 2009; H. Chang 2009, 2011, 2013, to appear; Kuo & Otsuka 2012; C. Shi & Manqoqo 2013, 2014) The purpose of this section is to argue against these applicative analyses upon scrutiny of the interaction between voice and verb types, a line of investigation highlighted in studies regarding the derivational properties of voice marking (as discussed in Chapter 8), but overlooked in many generative studies of Formosan voice constructions.

This section is organized as follows. In Section 9.3.1, I first present two sets of linguistic data to demonstrate a plausible motivation for adopting the applicative analyses for Formosan LV/CV verbs. I then introduce in Section 9.3.2 Pylkkänen 2002 and Georgala 2012, the two applicative approaches widely adopted by generativists to account for Formosan LV/CV verbs. In introducing these approaches, I also demonstrate their seemingly accountability in the context of Formosan languages. In Section 9.3.3, I present some empirical problems for the applicative approach to Formosan LV/CV verbs. Most importantly, I will point out that that the applicative approach assumes a pre-determined subcategorization frame (or argument structure) of the verb/root prior to applicativization, and that such an assumption does not seem to hold in Formosan languages, given their symmetrical voice systems, as discussed in Chapter 8, reinterpreted in this chapter in generative terms.

9.3.1 Motivation

In the literature, LV/CV verbs in Philippine-type languages have been analyzed as applicative (e.g., Rackowski 2002; Aldridge 2004, 2008; Rackowski and Richards 2005; and for Formosan languages specifically, M. Chang 2004; J. Wu 2006a, 2007; C. Tang 2009; H. Chang 2009, 2011, 2013, to appear; among others). A plausible motivation for the applicative analysis of LV/CV constructions is the identification of two valency-related functions of applicatives. Consider first, the typical valency-increasing function of applicative, as illustrated in (9.9).
(9.9) Increasing valency by means of Formosan (e.g., Seediq) LV/CV marking

a. \textit{keret-un}= \textit{mu} \quad \textit{ka} \quad \textit{sagas}
\text{cut-PV}=1SG.\text{ERG} \quad \text{ABS} \quad \text{watermelon}
\text{‘I will cut the watermelon.’}

b. \textit{keret-an}= \textit{mu} \quad \emptyset \quad \textit{sagas} \quad \textit{ka} \quad \textit{keti’inuh} \quad \textit{niyi}
\text{cut-LV}=1SG.\text{ERG} \quad \text{OBL} \quad \text{watermelon} \quad \text{ABS} \quad \text{board} \quad \text{this}
\text{‘The child cuts watermelon on this board.’}

c. \textit{se-kerut}= \textit{mu} \quad \emptyset \quad \textit{sagas} \quad \textit{ka} \quad \textit{bubu}/\textit{ka} \quad \textit{yayu} \quad \textit{niyi}
\text{CV-cut}=1SG.\text{ERG} \quad \text{OBL} \quad \text{watermelon} \quad \text{ABS} \quad \text{mother}/\text{ABS} \quad \text{knife} \quad \text{this}
\text{‘The child cuts watermelon for Mother/with this knife.’}

The argument structure of Seediq ‘cut’ verbs in all four voice constructions has been discussed in Chapter 2 and Chapter 8. I repeat only the NAV constructions in (9.9). As mentioned previously, the valency-increasing function is identified based on the observation that LV or CV marker is responsible for the addition of a non-subcategorized participant (e.g., Location, Beneficiary, and Instrument) to the two-argument ‘cut’ verb. In LV and CV constructions (9.9b-c), the patient argument ‘watermelon’, originally realized as the O argument (indicated by ABS marking) in PV construction in (9.9a), appears as the oblique argument, and the location/beneficiary occurs as AA (i.e., derived O), marked as ABS.

In addition to valency-increasing function, cross-linguistic studies suggest another function of the applicative morpheme, that is, the ability to “rearrange the valency” (Comrie 1985; Dixon and Aikhenvald 2000) of the verb without changing the number of the participants. As shown in my discussion of transfer verbs in previous chapters, Formosan LV/CV markers also exhibit this function. Consider the example below.

(9.10) Rearranging valency by means of Formosan (e.g., Seediq) LV/CV marking

a. \textit{biq-an}= \textit{mu} \quad \emptyset \quad \textit{pila} \quad \textit{ka} \quad \textit{iming}
\text{give-LV}=1SG.\text{ERG} \quad \text{OBL} \quad \text{money} \quad \text{ABS} \quad \text{Iming}
\text{‘I gave Iming (some) money.’}

b. \textit{se-begay}= \textit{mu} \quad \emptyset \quad \textit{iming} \quad \textit{ka} \quad \textit{pila} \quad \textit{gaga}
\text{CV-give}=1SG.\text{ERG} \quad \text{OBL} \quad \text{Iming} \quad \text{ABS} \quad \text{money} \quad \text{that}
\text{‘I gave that money to Iming.’}

As a prototypical transfer verb, ‘give’ is assumed to be a three-argument verb that selects an agent, a theme, and a recipient. Under this view, the presence of LV/CV markers does not necessarily add a non-subcategorized argument to the verb, as the number of arguments remains the same in LV/CV constructions (9.10a-b). Instead, the voice marking affects selection of O argument (i.e., one that is marked as ABS): the recipient/goal is realized as the
absolutive argument in the LV form, while the theme is realized as the absolutive argument in the CV form.

To the best of my knowledge, LV and CV markers in most Formosan languages (and other Philippine-type languages) exhibit these two functions. It is therefore not surprising that the applicative structure is adopted for Formosan LV/CV verbs in many recent generative studies (e.g., M. Chang 2004; S. Chen 2007; Y. Chen 2008; H. Chang 2009, 2011, 2013, to appear; Kuo & Otsuka 2012; Shih and Manqoqo 2013, 2014). These studies adopt either the structures proposed by Pylkkänen 2002 or those proposed by Georgala 2012. In what follows, I introduce these two approaches and demonstrate how the valency-increasing and valency-rearranging functions of Formosan LV/CV markers may be accounted for in these approaches.

### 9.3.2 Applicative approaches and their accountability for Formosan LV/CV verbs

The structure of applicative constructions has been a topic of serious debate for decades. Two approaches have been proposed in recent literature to deal with the “applicutive (a)symmetry,” a cross-linguistically attested phenomenon that some AAs behave like direct objects while others don’t (Baker 1988; Marantz 1993; McGinnis 2003). In the following two subsections, I discusses Pylkkänen’s (2002) high/low applicatives and Georgala’s (2012) thematic/raising applicative. For the purpose of this study, I focus on the position of AA in relation to the VP.

#### 9.3.2.1 Pylkkänen (2002, 2008)

Pylkkänen (2002, 2008) propose two possible positions the applicative phrase may occupy to account for the syntactic (as well as the semantic) characteristics of AA. Consider the following tree diagrams.

(9.11) High/Low Applicative phrases (Pylkkänen 2002:19)

<table>
<thead>
<tr>
<th>a. High Applicative</th>
<th>b. Low Applicative</th>
</tr>
</thead>
<tbody>
<tr>
<td>VoiceP</td>
<td>VoiceP</td>
</tr>
<tr>
<td>ApplP</td>
<td>V</td>
</tr>
<tr>
<td>AA</td>
<td>IA</td>
</tr>
<tr>
<td>Appl</td>
<td>VP</td>
</tr>
<tr>
<td>e.g. Chaga</td>
<td>e.g. English</td>
</tr>
</tbody>
</table>
As Pylkkänen argues, **HIGH APPLICATIVES** denote a relation between an event (denoted by VP) and an individual (i.e., the applied argument), and thus occupy the position above VP (9.11a). Well-known instances of High applicatives are found in Bantu languages (e.g., Chaga), supported by the fact that the structure/construction can introduce a beneficiary into an event originally denoted by an unergative verb. **LOW APPLICATIVES**, on the other hand, denote a relation between two individuals. For instance, Pylkkänen analyze English DOC as involving the low applicative head, in order to capture the relation between the recipient and the theme. To account for the relation between two individuals of the event, Pylkkänen proposes this Appl head to be below VP in the structure, as shown in (9.11b). In her analysis, the low applicative may introduce an AA which is originally not subcategorized for by the transitive verb (e.g., *I bought/made John a cake*), or simply provides a slot for an argument subcategorized for by the ditransitive verb (e.g., *I gave/lend John some money*.) In other words, low applicative does not necessarily have the function of increasing the valency.

In §9.3.1, I mentioned two cross-linguistically identifiable functions of applicative, and argued this to be a plausible motivation for the applicative analyses of LV/CV markers, which also exhibits these two functions. In terms of Pylkkänen’s high/low parameter, it may be argued that high applicative head is responsible for the valency-increasing function, that is, the introduction of the applied arguments (e.g., Beneficiary, Location, Instrument) originally not selected by the verb. This Appl head occupies above VP to account for the relation between AA and the event denoted by the verb (9.11a). With respect to the valency-rearranging function, low applicative head appears to be the only likely candidate. As illustrated earlier by means of English DOC, this head may introduce an additional argument bearing a special relation with the (direct) object of the verb (i.e, *I bought/made John a cake*.), or simply creates a space for the true argument of the original verb (i.e., *I gave/lend John some money*).

### 9.3.2.2 Georgala (2012)

Georgala (2012) proposes an alternative proposal for the applicative asymmetries. Contra Pylkkänen, she maintains that all applicative phrases are above VP (as in Pylkkänen’s high applicative) and that the difference between the two types of applicative lies in where the applied argument originates. In **THEMATIC APPLICATIVES**, AA is generated in the specifier position of ApplP (9.12a), whereas in **RAISING APPLICATIVES**, “AA” is (base-)generated in the specifier of VP, and is subsequently moved to the specifier position of ApplP (9.12b).

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107 Raising applicative is referred to as “expletive applicative” by Georgala, Paul and Whitman (2008).
movement is licensed by the (raising) Appl head. I give this “applied argument” the label IA to highlight its origin (i.e., under VP).

(9.12) Thematic/Raising Applicative phrases (based on Georgala 2012)

a. Thematic Applicative

```
VoiceP
   ApplP
      AA
         Appl
             V
                 IA
```

b. Raising Applicative

```
VoiceP
   ApplP
      IA = {IO}
         Appl
             V
                 IA = {DO}
```

Georgala’s approach appears to provide a more straightforward mapping between applicative structures and the two valency-related functions. It can be fairly argued that thematic applicative head is responsible for the valency-increasing function, based on the same observation that this head introduces the non-subcategorized participant (9.12a). More importantly, the structure of raising applicative proposed by Georgala straightforwardly accounts for the valency-rearranging function, by virtue of the design that this argument (i.e., IA) originates from the Spec of VP, rather than from Appl. (9.12b).

9.3.3 Empirical Problems

So far, I have demonstrated the empirical facts about Formosan LV/CV verbs that motivates an applicative analysis (§9.3.1), and most importantly, the seeming accountability of either Pylkkänen’s or Georgala’s approaches (§9.3.2). I identified, in particular, the valency-increasing function and the valency-rearranging function of these voice markers, and show that each function may be accounted for in terms of different applicative heads assumed in Pylkkänen’s (High/Low) and Georgala’s (Thematic/Raising) models of applicatives. In this section, I show that despite this initial appeal, applicative analyses for Formosan LV/CV verbs are untenable when more verb types of taken into consideration.

I begin my discussion by revisiting exactly the same LV/CV verbs presented in (9.9) and (9.10). In (9.13) and (9.14), they are presented according to their voice marking so as to highlight the different effects/functions these voice markers carry in relation to the verb/root.
(9.13) LV-marked verbs in Formosan (e.g., Seediq) languages
a. “Valency-increasing” function (e.g., ‘cut’, ‘cook’, ‘make’, etc.)
   \[ \text{keret-} \text{an=mu} \ o \ sagas \ ka \ kei’inuh \ niyi \ (=9.9b) \]
   cut-LV=1SG.ERG OBL watermelon ABS board this
   ‘The child cuts watermelon on this board.’

b. “Valency-rearranging” function (e.g., ‘give’, ‘lend’, ‘send’, etc)
   \[ \text{biq-} \text{an=mu} \ o \ pila \ ka \ iming \ (=9.10a) \]
   give-LV=1SG.ERG OBL money ABS Iming
   ‘I gave Iming (some) money.’

(9.14) CV-marked verbs in Formosan (e.g., Seediq) languages
a. “Valency-increasing” function (e.g., ‘cut’, ‘cook’, ‘make’, etc)
   \[ \text{se-} \text{kerut=} \text{mu} \ o \ sagas \ ka \ bubu / ka yayu \ niyi \ (=9.9c) \]
   CV-cut=1SG.ERG OBL watermelon ABS mother/ABS knife this
   ‘The child cuts watermelon for Mother/with this knife.’

b. “Valency-rearranging” function (e.g., ‘give’, ‘lend’, ‘send’, etc)
   \[ \text{se-} \text{begay=} \text{mu} \ o \ iming \ ka \ pila \ gaga \ (=9.10b) \]
   CV-give=1SG.ERG OBL Iming ABS money that
   ‘I gave that money to Iming.’

The first empirical problem for the applicative analyses is that the same
voice/applicative morpheme apparently has the “valency-increasing” function in some cases,
but the “valency-rearranging” function in others. To implement the applicative analyses, one
is forced to argue that LV (or CV) marking can be either High or Low applicative head, or
either Thematic or Raising applicative head, depending on the verb/root it attaches. This
stance has been taken explicitly in some generative studies of Formosan LV/CV constructions
(e.g., S. Chen 2007 for Atayal) or at least implied in some other works (e.g., H. Chang 2009,
2011 for Tsou; Shih & Manqoqo 2013, 2014 for Bunun).

However, in Pylkkänen’s (2002) and Georgala’s (2012) original studies, the applicative
constructions do not exhibit functional differences according to the verb/root. A particular
construction (e.g., English/Japanese/Korean DOC, Hebrew possessive-dative construction,
Chaga applicative construction) is shown to have a shared characteristic across verb types,
and is therefore identified as involving one of the two applicative heads. In other words, in
both models, one type of applicative head cannot have both functions; nor can a particular
morpheme serve as both types of applicative heads. In the context of Formosan languages,
one has to acknowledge the interaction between the so-called applicativizer and its verb/root.
This type of interaction, unfortunately, can not be captured in either Pylkkänen’s (2002) or
Georgala’s (2012) models of applicatives.

For ease of pointing out the rest of the empirical problems for correlating either
Pylkkänen’s or Georgala’s applicative structures with Formosan LV/CV verbs, I summarize these two models in terms of labeled brackets in (9.15) and (9.16), with boldface to highlight the relative position between Appl and V heads, and underlines for the position of the applied argument.

(9.15) Pylkkänen’s (2002) High/Low applicatives
a. High applicative:
\[\text{VoiceP DPAGENT } \text{Voice } \text{ApplP DP}_{\text{BNF/LOC/INST}} \ldots \text{Appl’ Appl } \text{VP V DP}]]\]

b. Low applicative:
\[\text{VoiceP DPAGENT } \text{Voice } \text{VP V } \text{ApplP DP}_{\text{GOAL/SOURCE}} \text{Appl’ Appl DP THEME}]]\]

(9.16) Georgala’s (2012) Thematic/Raising applicatives
a. Thematic applicative:
\[\text{VoiceP DPAGENT } \text{Voice } \text{ApplP DP}_{\text{BNF/LOC/INST}} \ldots \text{Appl’ Appl } \text{VP V DP}]]\]

b. Raising applicative:
\[\text{VoiceP DPAGENT } \text{Voice } \text{ApplP DP}_{\text{RECIPIENT}} \text{Appl’ Appl DP THEME}]]\]

The second empirical concern for the applicative analyses is a mismatch between LV/CV transfer verbs and the applicative structures. In Chapter 7, I examined argument alternations between LV/CV constructions carefully, and concluded that it is incorrect to treat LV constructions on par with English DOC, as the former does not exhibit the animacy restriction, which is a defining characteristic of the latter. This finding has important bearing, because English DOC is analyzed as an instance of applicative by both Pylkkänen and Georgala. Particularly, the anicamy restriction of DOC represents a specific relationship between the two internal arguments, captured by the Low applicative head (i.e., 9.15b) or the Raising applicative head (i.e., 9.16b). In Formosan languages, such a relation (i.e., possessor-possessee) does not always hold in LV constructions, as the O argument in some Formosan LV verbs can simply be the location where the event is performed. Based on this finding, it is problematic to resort to either (Low or Raising) applicative as the structure of Formosan LV verbs.

The situation is even more devastating in the case of CV transfer verbs. As evidenced in Chapters 4 to 7, Formosan transfer verbs typically alternate their non-actor arguments (i.e., recipient/goal and theme) by means of LV and CV marking, while the usage of PV is restricted. If Formosan CV constructions are uniformly analyzed as involving an applicative structure, there is no clear explanation for the presence of theme as AA in the case of CV transfer verbs. For example, according to the view that transported theme is subcategorized
for by the transfer verbs, the Low applicative or Raising applicative analysis for CV constructions such as (9.14b) should be preferable. However, neither Pylkkänen (2002) nor Gerogala (2012) discusses the possibility for a theme to be AA in these structures (e.g., 9.15b or 9.16b). Another solution would be to analyze CV transfer verbs as involving High applicative or Thematic applicative, and account for the presence of the theme as AA based on its conceptual contiguity with the instrument role (e.g., ‘I gave [an apple]Theme to Mary’ realized in terms of applicative in Formosan languages, based on the conceptualization ‘I perform (the act of) giving to Mary [with an apple]Inst.’; see 9.15a or 9.16a). This line of argument, however, sacrifices the basis on which these applicative models are proposed, namely the assumption that internal arguments (e.g., a transported theme) are subcategorized for by the (transfer) verbs.

The third empirical problem for the applicative analyses arises from “two-argument” LV/CV verbs, which have been shown to represent the semantic motivation of LV and CV marking in Chapter 8. Some examples are presented in (9.17) and (9.18).

(9.17) “Two-argument” LV verbs in Formosan (e.g., Puyuma) languages
a. locative verbs (e.g., ‘spread’, ‘spray’, ‘fill’)
   \[ku=ba’ba-ay\quad na\quad sa’ub\]
   1SG.ERG=spread-LV      DF.ABS roof
   ‘I spread the roof.’

b. surface contact verbs (e.g., ‘kick’, ‘sweep’)
   \[ku=selrap-ay\quad na\quad tilril\]
   1SG.ERG=sweep-LV      DF.ABS book
   ‘I swept (the dust off) the book.

(9.18) “Two-argument” CV verbs in Formosan (e.g., Puyuma) languages
a. emotion verbs (e.g., ‘desire’)\(^{108}\)
   \[ku=’iling-anay\quad i\quad siber\]
   1SG.ERG=fancy-CV      SG.ABS Siber
   ‘I desire Siber.’

b. “throw-type” (Levin 2008) transfer verbs
   \[ku=baretek-anay\quad na\quad barasa’\]
   1SG.ERG=throw-CV      DF.ABS stone
   ‘I threw a stone.’

Example (9.17) demonstrates the goal-designating ability (i.e., valency-determining function as discussed in Chapter 8) of Formosan LV marking. (9.18a) demonstrates the CV

\(^{108}\) The usage of CV marking for emotion verbs is quite restricted, compared to other verb types. However, I am inclined to incorporate emotion verbs into my event-based analysis. This will be justified in Section 9.4.
marker’s ability to designate a stimulus/theme role in the argument structure of the derived (emotion) verb, in addition to its theme-designating ability in the context of transfer verbs (e.g. 9.18b). More discussion about emotion verbs will be presented in Section 9.4.3. Here, I focus on the observation that these verbs require only two overt participants, and thus may be identified as two-argument verbs according to the omissibility test.\textsuperscript{109}

The presence of these two-argument LV/CV verbs undermines the applicative analyses. First, within Pylkkänen’s (2002) framework, two-argument applicative verbs must derive from monovalent verbs/roots. Therefore, in order for Pylkkänen’s analysis to hold for (9.17) and (9.18), one must claim that these verbs/roots are intransitive/monovalent prior to “applicativization.” Such a claim is not convincing, considering the verb types under discussion. Despite their semantic subtleties, concepts for locative/contact events, transfer events and emotions like ‘fancy/desire’, like the aforementioned ‘kick’ case, should be naturally taken to be involving more than one participant.

A possible solution for maintaining an applicative view of these two-argument verbs lies in Georgagla’s model of applicatives. It is tempting to associate these verbs with Raising applicative, under the assumption that the sole internal argument is based-generated inside VP. Consider (9.19) for a tentative analysis for Formosan two-argument LV/CV verbs.

\begin{equation}
(9.19) \text{A tentative “raising applicative” analysis for two-argument Formosan LV/CV verbs} \\
[\text{VoiceP DPAGENT [Voice’ Voice [AppP DPGOAL/THEME... [Appl’ Appl [VP V DP ]]]]} ]
\end{equation}

However, the analysis is problematic in many respects for the lack of motivation. First, the O arguments under discussion here include various thematic roles, including the goal (9.17a-b), the theme (or stimulus) of emotion (9.18a), and the transported theme (9.18b). These thematic roles are not generally assumed to be the targets of applicativization from a cross-linguistic perspective. Second, in Georgala’s framework, Raising applicative is particularly used to license an indirect object (IO) (i.e., Recipient) base-generated in (the specifier position of) VP. She stipulates that this Appl head bears an EPP feature, which is responsible for the syntactic licensing of IO. To extend Georgala’s Raising applicative

\textsuperscript{109} For the sake of exposition, I treat these LV verbs as “two-argument” verbs based on the observation that only two participants are overt. It should be noted that these verbs can also allow an additional oblique argument. For example, the LV ‘spread’ verb is used to denote a locative/placement event involving the spreading of certain material (e.g., ‘grass’) on the goal (to be discussed in 9.14). In other words, it is not really clear whether these verbs should be identified as two-argument verbs or three-argument verbs. Here, I treat these LV verbs as two-argument verbs on par with other two-argument CV verbs and present the problem they bring to the applicative analyses. As will be presented later, the same LV verbs raise empirical concerns for the applicative analyses even when they are identified as three-argument verbs.
structure to these two-argument LV/CV verbs, one must claim that Raising applicative in Formosan languages can particularly (a) target various thematic roles other than IO, and (b) attract a DP which is base-generated in the complement of VP (as there is no motivation for these arguments to be base-generated in the specifier position of VP). These additional claims are rather stipulative with no empirical support.

The final empirical concern I raise is the ability for LV/CV markers to alternate arguments. In addition to alternating two non-actor participants of a transfer event (e.g., 9.10), the LV/CV pair is also capable of alternating the non-actor participants of a goal-relating event. In Chapter 4 and Chapter 7, I discuss how LV and CV marking on the ‘kick’ verb in Formosan languages (e.g., Amis) alternate the patient/goal and instrument, respectively, and thus resemble English with/against alternation. In the following example, I present the argument alternation of a locative/placement event by means of LV/CV marking.

(9.20) Puyuma CV/LV alternation (in parallel with English spray/load alternation; Levin 1993:50)

a. \textit{ku}=\textit{ba’ba-ay} \textit{na} \textit{sa’ub} (\textit{dra} \textit{rabutr})
\begin{tabular}{c|c|c|c}
1SG.ERG & spread-LV & DF.ABS & roof \\
\hline
ID.OBL & grass & & \\
\end{tabular}
‘I spread the roof (with some grass).’

b. \textit{ku}=\textit{ba’ba-anay} \textit{na} \textit{rabutr} (\textit{dra} \textit{sa’ub})
\begin{tabular}{c|c|c|c}
1SG.ERG & spread-LV & DF.ABS & grass \\
\hline
ID.OBL & roof & & \\
\end{tabular}
‘I spread the grass (on the roof).’

The Puyuma LV-marked ‘spread’ has been presented earlier (e.g., 9.17a), identified as a “two-argument” verb based on the omissibility test. However, as discussed in Chapter 4, the omissibility test is not always a reliable diagnostic for the valency of a verb. Example (9.20) presents an alternative analysis of LV (and CV) ‘spread’ verb as three-argument verb, which selects two non-actor arguments, according to the nature of the locative/placement event. The thematic roles of these two arguments are rather ambiguous. Depending on the perspective one takes, events of this sort may be analyzed to involve a patient and an instrument (e.g., ‘\textit{spread} [roof]\text{ Pat} [with grass]_{ins}$) or involve a theme and a goal (e.g., ‘\textit{spread} [grass]\text{ theme} [on the roof]_{goal}$).

The thematic labels are irrelevant as far as the present discussion is concerned. The ‘spread’ case is intended to demonstrate that the applicative analyses are always problematic no matter whether the verb is treated as a two-argument verb (see related discussion for 9.17 and 9.18), or as a three-argument verb. As pointed out in my discussion of transfer verbs, Pylkkänen (2002) and Georgala (2012) only partially address the argument alternation.
phenomenon by associating an applicative structure with DOC. However, the applicative structures they propose are not intended to deal with argument alternation in general. When applicative analyses are imposed on LV/CV alternations such as (9.20), one is forced to argue that the verb/root has two subcategorization frames: it selects either the theme or the goal as IA, but not both. As a result, the verb needs to be “applicativized” for the remaining participant to occur as AA. Such a flexibility or indeterminancy regarding argument structure of the verb, particularly the selection of IA, creates a problem for the applicative analyses.

To sum up, I present four empirical concerns for the applicative analyses for LV/CV verbs upon scrutiny of the interaction between verb types and these voice markers; they include (a) the lack of one-to-one mapping between LV/CV marker and certain applicative structure, (b) the mismatch between LV/CV transfer verbs and applicative structures, (c) the presence of two-argument “applicative” verbs and (d) the difficulty of accounting for LV/CV alternation under the applicative analyses. These empirical challenges, I argue, basically arise from the derivational status of voice markers. Instead of treating Formosan LV/CV markers as applicative heads that (a) add a certain argument to the existing argument structure of the verb (i.e., valency-increasing) or (b) rearrange the argument structure presupposed by the verb (i.e., valency-rearranging), I remain skeptical about the “alleged valency” (or subcategorization frame/argument structure) for these “verbs” in Formosan languages before voice marking. In the next section, I present an alternative, event-based analysis for Formosan argument structure and voice marking.

9.4 An event-based analysis for Formosan LV/CV verbs
In this section, I present an event-based analysis for Formosan LV/CV constructions. The analysis is inspired by the exo-skeletal approach to argument structure, under which not only external arguments, but also internal arguments (i.e., direct objects) are considered to be introduced by a functional projection, instead of being selected by the lexical verb/root (Borer 2003, 2005; J. Lin 2004; Marantz 2005; Lohndal 2014; see also Jelinek 1988; Ramchand 2008; Siddiqi 2009; and Bowers 2010 for similar views). The exo-skeletal approach embraces the idea that argument structure reflects the event structure. The identification/characterization of functional heads with respect to their contribution to the (sub)event structure is one of the most important challenges for these analyses of argument structure in this approach. For example, the “little v” hypothesis is widely held among generativists, where v is a functional head that merges with the root to determine the event/argument structure of the derived verb (e.g., Harley 1995, 2009; Cuervo 2003;
Alexiadou et al. 2006; Ramchand 2008). In this hypothesis, the argument/event structure of a verb is mediated by different “flavors of v” (e.g., vCause, vBecome, vDo, vBe in Harley 2009; see also Arad 2002; Embick 2004; Folli & Harley 2005; and Kallulli 2006, 2007). In §9.2, I discussed the functional head Voice, which is responsible for the introduction of EA. In the literature, the label v is usually adopted in studies working on the derivational properties (e.g., verbalization) of functional heads, whereas the label Voice is adopted in studies dealing with the inflectional properties (e.g., detransitivization) of functional heads.

While the little v system has recently been incorporated in some Formosan studies (e.g., C. Li 2010; D. Lin in press; Kuo in press), whether this system alone suffices to account for the argument structure of all types of verbs in Formosan languages is questionable. For simplicity’s sake, I point out just two concerns for the direct application of the little v system to Formosan voice-marked verbs. First, despite their slight differences, approaches based on the little v system are proposed to address the aspectual properties of the verbs (e.g., vBe for states, vDo for activities, vBecome for achievements). As will be shown later, voice markers in Formosan languages provide different kind of information relevant to the event structure of the verbs, not limited to lexical aspect. Second, the little v approach, to the best of my understanding, does not suggest “full thematic separation” from the verb (Lohndal 2014). While acknowledging that the little v “verbalizes” the lexical root, the approach still maintains that internal arguments are selected by the lexical root in its complement position. In critically evaluating the applicative analyses of Formosan LV/CV verbs above, I have argued that it is problematic to assume a subcategorization frame at the root level, prior to voice affixation. Based on these two concerns, I seek other types of functional projections (rather than vPs proposed in the literature) in my analysis to account for the introduction of internal arguments in Formosan LV/CV verbs.

The section is organized as follows: In the first subsection, I demonstrate the motivation and rationale for the exo-skeletal approach (Borer 2003, 2005; Lohndal 2014). I highlight particularly two important components in this model: the category-less “roots” and functional projections, based on which argument structure is syntactically derived. Along this line, I introduce in Sections 9.4.2 and 9.4.3 the steps I take toward identifying the properties of the functional projections that are involved across Formosan LV/CV verbs. Instead of adopting

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110 Recently, there have been proposals for distinguishing Voice and v as two functional heads (Alexiadou et al. 2006; Harley 2013). Personally, I favor this kind of treatment, as it separates the derivational functions from inflectional functions (see Kuo in press, for the division of Voice and v to account for the argument structure of Amis Experience verbs). As the focus of this chapter is on the introduction of IA, to avoid complication, I simply assume only one functional head responsible for event semantics and transitivity, rather than arguing for two functional heads (i.e., v and Voice).
aspect (e.g., telicity) as an important property (as Borer does in her analysis of English argument structure), I explore the event semantics of Formosan LV/CV constructions from localist and causal perspectives.\textsuperscript{111} Based on these findings, I present in Section 9.4.4 an event-based analysis for Formosan argument structure. Specifically, I propose that each of the voice markers in Formosan languages involves a functional projection with its corresponding event-specifying feature (e.g., [ground], [cause]). Mostly importantly, I show that the range of thematic roles associated with the O argument of LV/CV verbs can be subsumed under a single category based on the feature associated with the relevant functional projection. In the end of this section, I discuss some examples of causative transfer verbs and show that the present analysis is capable of capturing the interplay between derivational causative and derivational voice morphemes, thereby accounting for the the selection of IA (i.e., the absolutive argument in causative NAV verbs).

9.4.1 Background: The exo-skeletal approach

Borer’s (2003, 2005) exo-skeletal approach is a radical version of the constructivist approach, which argues that there is no projection of argument properties from lexical items. To “disassociate” the subcategorization function from the lexical verb, she views lexical items to be category-less, and hence argument-less. Consequently, argument structure (of a “verb”) is derived by means of the insertion of a lexical item into syntactic templates in which functional projections are piled up, each introducing an argument in its specifier position. The idea is articulated in the following tree diagram.

(9.21) Arguments as specifiers (based on Borer 2005:30)

As shown in (9.21), the traditional distinction between “external” and “internal” arguments makes little sense in this model: both are severed from the lexical domain (L-D) and merged in dedicated functional projections (FPs). Particularly, arguments are found only

\textsuperscript{111} Some of the recent studies on the event structure of Formosan languages make reference to the aspectual approach (e.g., C. Li 2010; K. Lin 2010). These studies primarily focus on AV/PV verbs, and do not discuss LV/CV verbs in detail.
in the specifier position, and never in the complement position: the architecture of a clause starts from the lexical domain at the bottom, consisting of the category-less root (see also Alexiadou, Borer, and Schäfer 2014). Roots do not have information that affects the syntactic derivation, and thus have great flexibility in terms of argument realization (i.e., multiple argument realization in 9.1).\(^{112}\)

For studies adopting the constructivist approach, FPs are analyzed as having special properties, or being assigned special features to reflect the event/argument structure they contribute to. Considering their ability to introduce arguments, these functional heads can be said to “verbalize” the root. Constructivists, however, disagree as to how roots get verbalized in a language. Take English for example. Contrary to the advocates of the little v approach (e.g., Harley 1995, 2009; Alexiadou et al. 2006), Borer (2005) considers “telicity” to be the key feature of FPs (e.g., AspQP), and Ramchand (2008) correlates FPs with subevents (e.g., causing/process/result projections). Despite their differences, all these analyses take aspect as the basis for understanding the argument structure of English.

Given the significant findings discussed throughout this dissertation, I take the exo-skeletal approach for my analysis of Formosan LV/CV constructions. Therefore, I consider lexical roots to be category-less and argument-less prior to voice affixation, a view already taken by Foley (1998). In addition, I assume voice markers to be the heads of functional projections: they verbalize the root, introduce (external/internal) arguments in the specifier position, and encode the event (structure) of a clause. The greatest challenge for this event-based analysis concerns the characterization of FPs in different voice constructions. Unlike Borer (2005) or Ramchand (2008), I do not take aspect as the basis for the characterization of Formosan voice constructions, mainly because of the difficulty of establishing a straightforward correlation between aspect and voice constructions across Formosan languages. In the following two subsections, I approach the event semantics of Formosan LV/CV constructions by embracing the localist approach and causal approach to event structure.

9.4.2 First approximation toward the event semantics of Formosan LV/CV verbs: A localist perspective

Based on how events are conceptualized across languages, Levin and Rappaport Hovav

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112 This does not mean that the lexical flexibility is not unconstrained in the constructivist perspective. While syntactic structure arises autonomously, not all roots are equally compatible with all syntactic structures, as the felicity of the results depends on how compatible the core meaning of the root is with that of the construction (Borer 2005).
L&RH (2005) classify approaches to argument/event structure into three types: the localist approach (e.g., Gruber 1965; Jackendoff 1972 and subsequent work; Talmy 1978, 2000), the aspectual approach (e.g., Dowty 1979, Verkuyl 1972 and subsequent work; Tenny 1987 and subsequent work; Borer 1994 and subsequent work), and the causal approach (e.g., Talmy 1976, 1988; Croft 1991, 1994, 1998, 2012; Langacker 1987 and subsequent work). In this subsection, I characterize the event semantics of Formosan LV verbs and CV verbs from the localist perspective.

The basic claim behind the localist approach is that events involving motion and location in space are central to the construal of all events (L&RH 2005:79). A classification of event structure based on the located/moved entity and the location is well-motivated. To illustrate, I demonstrate the “Figure/Ground” contrast as proposed by Talmy (1978, 2000) in the following example.

(9.22) The Figure-Ground asymmetry (Talmy 2000)

a. The Figure is a moving or conceptually movable entity whose path, site, or orientation is conceived of as a variable, the particular value of which is the relevant issue.

b. The Ground is the reference entity, one that has stationary setting relative to a reference frame, with respect to which the Figure’s path, site, or orientation is characterized.

In Chapters 4 to 6, I have identified the argument alternation of Formosan transfer verbs by means of LV/CV marking: the recipient/goal participant is selected as the O argument in the LV form and the transported theme is selected as the O argument in the CV form. Under the exo-skeletal approach, one may account for the argument alternation by treating the LV marker as the functional head responsible for the introduction of those thematic roles with the characteristics of a “ground” (i.e., recipient/goal, as the reference entity) and the CV marker as the functional head responsible for the introduction of transported theme as the “figure” (see Y. Yeh 2013 for a similar proposal under the cognitive approach).

I thus take “ground” and “figure” as the first approximation toward identifying the event semantics of Formosan LV and CV verbs, because of their explanatory adequacy. This resonates with S. Huang’s (2005) localist interpretation of NAV constructions as presented in Chapter 8. To recapitulate, LV marking is typically used for surface contact verbs (e.g., ‘kick’, ‘sweep’) while CV marking is typically used for causation of motion verbs (e.g., ‘give’, ‘lend’, ‘throw’). Following Huang, I further established in Chapters 7 and 8 that LV marking across Formosan languages is goal-introducing (e.g., surface contact verbs;
locative/placement verbs), and may be responsible for the introduction of a location, a source, and a patient in some languages. It is intuitive to unify recipient, goal, and source altogether, as they typically serve as the the reference point of a transfer event. A location meets the definition of a ground as well, as it can serve as a reference point of a theme/patient in an activity. The introduction of these ground-related thematic roles as the O argument (i.e., absolutive argument) by means of Formosan LV marking is shown in (9.23a-d). This analysis can be further extended to those patient-introducing LV verbs in some Formosan languages (e.g., 9.23e), given the conceptual contiguity of Location and Object (i.e., patient) as argued by S. Huang (2005), as well as observed in Malchukov et al.’s (2007) semantic map (see Chapters 7 and 8).

(9.23) The thematics roles of O argument in Formosan LV verbs

a. Recipient

\[ ku=berey-ay \quad dra \quad paysu \quad na \quad yawan \quad (Puyuma) \]

1SG.ERG=give-LV ID.OBL money DF.ABS chief

‘I gave money to the chief.’

b. Goal

\[ ku='atedr-ay \quad dra \quad irumay \quad i \quad kalingku \quad (Puyuma) \]

1SG.ERG=send-LV ID.OBL rice ABS Hualien

‘I sent rice to Hualien (county name).’

c. Source

\[ tu=trakaw-ay=ku \quad dra \quad paysu \quad (Puyuma) \]

3ERG=steal-LV=1SG.ABS ID.OBL money

‘(He) steals money from me.’

d. Location

\[ pi-qadup-an \quad ni \quad kulas \quad tu \quad fafuy \quad kuni \quad a \quad lutuk \quad (Amis) \]

PI-hunt-LV ERG.PN Kulas OBL pig ABS.this LNK mountain

‘Kulas hunts pigs in this mountain.’

e. Patient

\[ sequx-an \quad o \quad laqi \quad kedediyax \quad ka \quad waray \quad (Seediq) \]

cut-LV ERG child everyday ABS thread

‘The/A child cuts the thread everyday.’ (=6.1b)

Note that the “figure/ground” contrast is proposed in the cognitive framework. To my knowledge, such a contrast from a localist perspective is not acknowledged within the generative framework. The closest equivalents, which at least address the spirit of the “figure/ground” contrast to certain extent, are proposed in the causative analyses of English DOC and dative construction (e.g., Harley 1997, 2003; see also Beck and Johnson 2004). Consider the following diagrams.
As shown in (9.24), Harley (2003) proposes null, abstract prepositional heads, $P_{\text{HAVE}}$ and $P_{\text{LOC}}$ to account for the relative structural position and semantic relation between the two internal arguments for English dative construction and double object construction, respectively. Here, I evaluate the possibility to replace the “figure/ground” contrast as characterized by Formosan CV/LV constructions with a relatively well-known $P_{\text{HAVE}}$/PLOC analysis. In other words, I discuss the feasibility of analyzing LV marker as $P_{\text{HAVE}}$ (which introduces “ground”-related roles in its specifier position) and CV marker as $P_{\text{LOC}}$ (which introduces “figure”-related roles in its specifier position).

The $P_{\text{HAVE}}$/PLOC analysis of LV/CV constructions, I argue, is untenable for two reasons. First, as shown in Chapter 7, Formosan LV construction does not exhibit animacy restriction. The $P_{\text{HAVE}}$ analysis thus becomes questionable, as it targets only recipient, animate goals, and possessors. The second problem is even more crucial. In Chapter 7, I showed that the core

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Harley’s analysis assumes a particular relationship between the two internal arguments within PP. According to her analysis, PP headed by $P_{\text{LOC}}$ must uniformly encode caused motion, whereas PP headed by $P_{\text{HAVE}}$ always implies the affectedness of the recipient (e.g., *John taught French to the children* vs. *John taught the children French*). These predictions have proven to be incorrect in the literature. See for example, Larson (2014:76–80) for a critical review of Harley’s approach.
function of Formosan CV marking is to introduce a transported theme. In addition, this marker also has extended functions such as the introduction of an instrument or a beneficiary. In this chapter, I further present the case of CV emotion verbs where the theme/stimulus is realized as the O argument (9.18a). None of these thematic roles except the transported theme can be easily related to the “figure” notion, or the P Loc head in Harley’s terms.

The discussion above clearly shows a difference between Formosan LV and CV constructions in terms of the accountability of the localist approach. The notion “ground” can be used to unify most of the thematic roles of the O argument of Formosan LV verbs (including even a patient, given its conceptual contiguity with the location). The notion “figure,” however, has its limitation in account for CV verbs, as it fails to characterize events involving an instrument, a beneficiary, or a stimulus/theme. A second approximation for the event semantics of Formosan LV and CV verbs is thus needed, especially for the latter.

9.4.3 Second approximation toward the event semantics of Formosan LV/CV verbs: A causal perspective

This subsection explores the event semantics of Formosan LV/CV verbs (particularly CV verbs) from the causal perspective. The causal approach models “a simple event” (i.e., what is named by the verb) as a causal chain, consisting of a series of relations, each of which relates two participants in the event (Levin & Rapport Hovav 2005:117). The idea is schematized in (9.25). To illustrate, I provide an analysis of an English sentence based on this cognitive model in (9.26)

(9.25) Idealized cognitive model of a simple event (Croft 1994:37)

```
Initiator ----> Endpoint      (Endpoint)      (Endpoint)  
• CAUSE       • CHANGE       (•) STATE    (•)  
```

(9.26) *Harry broke the vase.* (Croft et al. 1994:38)

```
Harry  vase  (vase)  (vase)  
• CAUSE      • CHANGE       (•) STATE    (•) Obj  
Subj  break
```  

Instead of explaining the model in details, I highlight the three relations in the digram as shown in (9.26): (a) Harry acts on the vase (i.e., CAUSE), (b) the vase changes its state (i.e.,
CHANGE), and (c) the vase is in a result state (i.e., broken) (i.e., STATE). The initiator is realized as the subject and the endpoint of STATE is realized as the object of the sentence. In this case, there is no linguistic item representing the CAUSE and STATE relationship; a monomorphemic form break is used to represent the entire chain.\textsuperscript{114}

In pursuing this approach, it is necessary to clarify the term CAUSE in a more careful manner. In §9.2.2, I introduced CAUSE as a functional head (henceforth Cause\textsuperscript{0}) that contributes to causative semantics in the derivation of a verb. In the causal approach, however, the term CAUSE is used to referred to the first chain among all “force-dynamic” (Talmy 1988) relations (e.g., CAUSE, CHANGE, STATE; introduced as sub-events in other frameworks, e.g., Ramchand 2008). I refer to this CAUSE relation as →CAUSE to avoid confusion with Cause\textsuperscript{0}. For example, the following sentences all involve →CAUSE as defined in the causal approach, because of an identifiable initiator-endpoint pair in terms of force-dynamics. These sentences, under the decomposition approach, do not necessarily contain Cause\textsuperscript{0} that adds causative semantics to the verb/root.

(9.27) Sentences involving "causing events" in terms of force-dynamics (Croft 2012:204)

a. I kicked the ball.

b. I pushed the ball.

c. I held the ball.

d. I stopped the ball.

The causal approach is insightful to the understanding of the Formosan CV constructions. I argue that the thematic roles of the O argument in various CV verbs can be unified under →CAUSE. The relevant thematic roles include the transported theme, the instrument, the beneficiary, and the theme/stimulus (of emotion), summarized in the (9.28) for the reader’s convenience.

\textsuperscript{114} I provide the notation in (9.26) here according to Croft (1994): a dot indicates a participant; an arrow indicates a relationship of transmission of force, which can be described by the capitalized label below it (e.g., CAUSE); a line without an arrowhead indicates a noncausal (stative) relation; a parenthesized dot indicates that it is the same participant as in the preceding causal (or noncausal) segment.

In addition to these markers, the symbol ### specifies the way a causal chain is “delimited.” Therefore, different event types can be represented by means of the positioning of ###. Consider the following example:

(i) Some possible event-types encoded as simple verbs (taken from Levin 2007:10)

\begin{verbatim}
Initiator     Endpoint      (Endpoint)       (Endpoint)
•    •    →    •    •    •    •
###     CAUSE     CHANGE     •    •    •

###    CAUSATIVE
###    INCHOTATIVE
###    STATIVE
\end{verbatim}
(9.28) The thematic roles of the O arguments in Formosan CV verbs
   a. Instrument
      sa-pi-qadup aku tu fafuy kuni kowang (Amis)
      CV-PI-hunt 1SG.ERG OBL pig ABS.this gun
      ‘I hunt pigs with this gun.’
   b. Transported theme
      se-begay=na ø kuras ka pila (Seediq)
      CV-give=3SG.ERG OBL Kulas ABS money
      ‘He gave kulas the money.’
   c. Beneficiary
      ku=sanga’-anay dra kabung i nanali (Puyuma)
      1SG.ERG=make-CV OBL hat ABS my.mother
      ‘I made Mom a hat.’
   d. Theme/Stimulus (of emotion)
      ku=’iling-anay i siber (Puyuma)
      1SG.ERG=fancy-CV SG.ABS Siber
      ‘I desire Siber.’

Taking the exo-skeletal approach, I propose that CV marker in Formosan languages specifies
the first relation of the causal chains, namely →\text{CAUSE} in (9.28); the functional head with this
special property is thus responsible for the introduction of multiple thematic roles as the O
argument, given that all these roles can be conceived as the first endpoint that bears a causal
relation with the initiator.\textsuperscript{115}

Before justifying →\text{CAUSE} shared by all these thematic roles in Formosan CV
constructions, I shall clarify the status of the patient thematic role in causal chains. In the
causal approach, transitive clauses involving a typical patient such as \textit{Johnny broke the}
\textit{window} are also analyzed as involving →\text{CAUSE}. However, Croft identifies the patient(-like)
role as the endpoint of CHANGE (or STATE) relation, rather than that of →\text{CAUSE}, because of
its affectedness nature. Consider the following example.

(9.29) The force-dynamic analysis for a change-of-state event (based on Croft 1991)
   a. \textit{Johnny broke the window (with a hammer)}.
      Johnny \rightarrow hammer \rightarrow window \rightarrow window
      CAUSE \rightarrow CHANGE \rightarrow STATE

\textsuperscript{115} At first glance, (9.28d) is contradictory to the argument I propose here, as the theme/stimulus of emotion
appears to “trigger/cause” the emotion, and should therefore be analyzed as the initiator of the causal chain,
rather than the endpoint. In the later discussion, I will justify the treatment of this role as the endpoint from the
conceptual perspective. I will further demonstrate that this idea is adopted in the generative literature as well.
(9.28) shows that a patient(-like) role (e.g., ‘window’) is not actually in a CAUSE relation with the initiator of the event (e.g., ‘Johnny’); in addition, it is not the case that all endpoints of an event should be realized in the sentence (e.g., the optional prepositional phrase with a hammer). Recall that in Formosan languages, the patient is typically selected as the O argument in PV construction, but not in CV constructions. This finding conforms to the causal approach as demonstrated in (9.29) and (9.27). I thus claim that (a) Formosan CV marker identifies \( \text{\textup{CAUSE}} \) of an event, and (b) the marker serves as a functional head that introduces those thematic roles that serve as the endpoint of this relation (i.e., the four roles in 9.28), but not others (e.g., agent, patient, and “ground”/location related roles) In the following, I justify these claims by carefully examining each of the thematic roles that can serve as the O argument in Formosan CV verbs. I review, in particular, the relevant generative studies which not only suggest the relation of these thematic roles with \( \text{\textup{CAUSE}} \), but also imply the endpoint status of these roles.

I begin my discussion with the transported theme, the most transparent case, considering its direct relation with \( \text{\textup{CAUSE}} \). From the causal perspective, transported theme is not mapped with the endpoint of CHANGE or STATE relation, but with the endpoint of \( \text{\textup{CAUSE}} \), because of its lack of affectedness. From the localist approach, the “figure” in the transfer event is typically moved to the “ground” by some kind of outer force (i.e. initiator); thus it serves as the endpoint of \( \text{\textup{CAUSE}} \). The relation is articulated in generative studies as well: under the predicate decomposition approach, theme can be said to be “caused” by an initiator (i.e., agent) to move from one place to the other (e.g., goal/recipient) (e.g., Harley 2003).

The status of instrument as the endpoint of \( \text{\textup{CAUSE}} \) is illustrated in (9.29). In the generative literature, the attempts to correlate instrument with “cause” are not unfamiliar. Reinhart (2002), for example, proposes the same set of features for instrument and cause roles: [+cause change, -mental state]. While “cause” in Reinhart is treated as a theta role, but not a relation, the [+cause change] feature the instrument bears does suggest the CAUSE relation addressed in the causal approach to argument structure. One complicated issue regarding the instrument, however, is its dual ability to serve as the initiator as well as the endpoint of \( \text{\textup{CAUSE}} \) in the event. Consider the following English sentences.

(9.30) Instrument as the initiator/endpoint

a. The new gadget opened the jar. \([\text{instrument-initiator}]\]

b. The cook opened the jar with the new gadget. \([\text{instrument-endpoint}]\)
(9.31) Instrument as the endpoint only
   a. *The fork ate the sliced banana. [instrument-initiator]
   b. Shelly ate the sliced banana with a fork. [instrument-endpoint]

It should be noted that it is the nature of the verb, not that of the instruments, that determines the availability of particular interpretation. No instrument can serve as the subject (i.e., initiator) of English *eat* (9.30), whereas *open* allows an instrument in the subject position (9.31). Under the causal approach, both an eating event and an opening event involve $\rightarrow_{\text{CAUSE}}$, namely a transmission of force from the initiator of a causal chain to a particular endpoint. Lexical decomposition (RH&L 1998) of these two verbs demonstrates the distinct lexico-syntactic nature of these two English verbs: *eat* is an activity verb that does not involve Cause$^0$, whereas *open*, when used transitively, is analyzed as having Cause$^0$. As transitive *open* involve causative semantics (i.e., the presence of Cause$^0$), an instrument serves a natural initiator, according to its [+cause change] feature (i.e., “intermediary instrument” in L&RH 2005). As for *eat*, an animacy restriction on the initiator seems to be the determining factor, that is, an ‘eater’ must be animate. The instrument role as defined in Reinhart 2002 (i.e., [-mental state]) thus fails to initiate the eating event by itself, and can only facilitate the event (i.e., “facilitating instrument” in L&RH 2005).

The preceding discussion shows the possibility of the instrument role to serve as the initiator or endpoint of $\rightarrow_{\text{CAUSE}}$: the intermediary instrument serves as the former (e.g., 9.30a) and the facilitating instrument serves as the latter (e.g., 9.30b and 9.31b; see also 9.29). As mentioned earlier, the instrument role can serve as the O argument in Formosan CV constructions, which I argue to involve $\rightarrow_{\text{CAUSE}}$. One significant finding about Formosan CV verbs is that the instrument always serves as the endpoint (i.e., O argument), but not the initiator (i.e., A argument). This is shown in (9.32).

(9.32) Instrument as endpoint in Formosan (e.g. Amis) CV verbs
   a. *sa-pi-qadup aku tu fafuy kuni kowang  
      CV-PI-hunt 1SG.ERG OBL pig ABS.this gun
      ‘I hunt pigs with this gun.’

   b. *sa-pi-qadup nuni kowang ku fafuy  
      CV-PI-hunt ERG.this gun ABS pig
      Intended: 'This gun hunts the pig.'

   c. sa-pi-fohat aku tura fawahan kuni pogot  
      CV-PI-open 1SG.ERG OBL that door ABS.this knife
      ‘I open that door with this knife.’
d. *sa-pi-fohat  nuni  poqot  kura  fawahan
   CV-PI-open  ERG.this  knife  ABS.that  door
   Intended: ‘This knife opens that door.’

(9.32) shows that an instrument in Formosan CV verbs is always introduced as the endpoint in the CAUSE relation, regardless of the verb/root types (e.g., activity verb ‘hunt’ and result verb ‘open’), a curious finding that awaits future investigation. To generalize this finding, I propose an “animacy requirement” on the A argument (i.e., ergative argument) of Formosan CV verbs. Interestingly, this requirement does not apply to LV (or PV) verbs. It is possible for inanimate participant to serve as the initiator in LV (or PV) verbs. To my understanding, most of the previous studies of Formosan NA V constructions have overlooked the difference in the nature of the A argument (e.g., animacy), as they tended to focus on the nature of the O argument. While the evidence for the animacy requirement on the A argument in Formosan CV constructions is abundant (i.e., found in all CV sentences), the claim for the lack of animacy requirement in LV constructions needs caution, as most of the LV usages I collected still contain an animate A argument, while cases with an inanimate A argument are quite rare (e.g., 9.33). Future research is required to confirm this tentative proposal.

Though its occurrence is much rarer compared to that of transported theme and instrument, the theme/stimulus of emotion may also serve as the O argument in Formosan CV construction. This is attested not only in Puyuma, but also in Saisiyat, Seediq, Atayal, and Tsou (S. Huang 2005; H. Huang & S. Huang 2007). Intuitively, one may simply establish the correlation between this participant and CAUSE based on the thematic label “stimulus,” which suggests a causal relation. However, the stimulus is typically considered to be the initiator of an experiencer’s emotion (e.g., [His comments]Stimulus annoys [me]Experiencer.).

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116 It is also possible that such an animacy requirement is language-specific. While I am confident with the difference between LV and CV constructions regarding the animacy requirement (on A) in all my research languages (i.e., Amis, Puyuma, and Seediq), H. Huang (personal communication) points out that all A arguments in Tsou NAV constructions (collected from natural spoken data) must be animate. I thus leave this issue to future study.
view appears to be incompatible with my proposal that CV marker specifies the endpoint of the CAUSE relation.

Such an incompatibility may be solved when we consider Pesetsky’s (1995) argument that the stimulus (i.e., labeled as “Causer” in his framework) is base-generated under the experiencer DP, which occupies the specifier of a prepositional phrase headed by PCAUSE. This is illustrated in (9.34)

(9.34) A stimulus base-generated under the experiencer (based on Pesetsky 1995:199)

(9.34) demonstrates the possibility to identify the stimulus/theme of emotion as an internal argument under experiencer (i.e., the complement of $P_{CAUS}$). The hierarchical position of the experiencer and the stimulus/theme, namely the former c-commanding the latter, suggests the possibility of treating the experiencer as the initiator and the stimulus/theme as the endpoint, as is the case in the discussion of subject/obect instrument in (9.30–31).

The proposal about stimulus/theme serving as the endpoint is further supported, considering its conceptual contiguity with the beneficiary, the final thematic role which I argue to be related to the CAUSE relation. Typically, a beneficiary does not perform an action on his/her own, but benefits from someone’s initiating an action (e.g., *John made a cake for mom*). As far as the CAUSE relation is concerned, this role does not naturally take the initiative. However, the ambiguity between causer and beneficiary does exist because of their conceptual contiguity (i.e., the “causative-benefactive syncretism”). In Chapters 6 and 8, I referred to S. Huang’s (2005) account and showed that the beneficiary may be reinterpreted as the causer/initiator of an event (compare *I ran for (the benefit of) Mo’o* and *I ran for (the sake of) Mo’o*). By the same logic, it is reasonable to argue that either the theme/stimulus or the experiencer may serve as the initiator or the endpoint in the CAUSE relation (compare *I am happy for John* and *John makes me happy*).

To sum up, I have demonstrated that all thematic roles serving as the O argument in
Formosan CV constructions can be subsumed under a single category, given the CAUSE relation they have. That is, CV marking can be argued to have the function of introducing the endpoint of CAUSE, including the transported theme, the (facilitating) instrument, the theme/stimulus (of emotion), and beneficiary, but not agent, patient, and the “ground”/location-related roles. In the following subsection, I show how these important findings about the event semantics of Formosan LV/CV verbs can be integrated with the exo-skeletal approach.

9.4.4 The proposal

In this section, I demonstrate how the event semantics of Formosan LV/CV verbs can be articulated within the generative framework. Before presenting my analysis, I briefly review the rationale for the exo-skeletal approach to argument structure (Borer 2003, 2005).

Consider the following tree diagram.

(9.35) Arguments as specifiers (= 9.21)

Embracing the fundamentals of the exo-skeletal approach, I consider all arguments of verbs to be introduced by dedicated functional projections (FPs) with event-related properties/features (e.g., [ground], [cause]; see discussion below). To highlight this approach, I adopt the term F₁P for the functional projection responsible for the introduction of EA, and F₂P for the one responsible for the introduction of IA. F₁P is similar to “VoiceP” (or vP) as proposed in the generative analyses of Philippine-type languages (e.g., Aldridge 2004, 2008; see §9.2.4). The proposal about the existence of F₂P separates my analysis from others, particularly the applicative analyses discussed in §9.3. In this analysis, I assume no real AA, due to the lack of evidence for real applicative head (in the sense of Pylkkänen and Gerogala) in Formosan languages (see discussion in §9.3.3). Participants that are traditionally taken as non-subcategorized elements (i.e., adjuncts) of the “verb,” such as an instrument or a beneficiary, are introduced in the specifier position of FPs, as typical IAs are. In (9.36), I lay out my analysis for Formosan LV/CV verbs by means of labeled brackets, with special focus on the feature in the corresponding F₂P. As the main focus is on the introduction of IA, I
disregard the features of \( F_1 \) here, and simply use the label \( \text{DP}_{\text{originator}} \) to represent EA in LV/CV verbs. More discussion about \( F_1 \)Ps and their corresponding arguments will be presented in Section 9.5.1.

(9.36) An event-based exo-skeletal analysis for Formosan LV/CV verbs

\begin{align*}
a. \text{LV verbs:} \quad & [F_1P \ \text{DP}_{\text{originator}} \ [F_1' \ F_1P \ [F_2P \ \text{DP}_{uF: \text{ground}}] \ [F_2' \ F_2\text{[uF:ground]} \ [\sqrt{\cdots}] ]]] \\
b. \text{CV verbs:} \quad & [F_1P \ \text{DP}_{\text{originator}} \ [F_1' \ F_1P \ [F_2P \ \text{DP}_{uF: \text{cause}}] \ [F_2' \ F_2\text{[uF:cause]} \ [\sqrt{\cdots}] ]]]
\end{align*}

The exo-skeletal approach treats argument structure as a result of insertion of category-less lexical item into the syntactic templates. The syntactic representations in (9.36) reflect this idea. I use \( \sqrt{\cdots} \) to represent the category-less “root” (or lexical base, more precisely, considering that it can be polymorphemic, to be discussed later), and present (event) functional projections \( F_1P \) and \( F_2P \), for the introduction of EA and IA, respectively. The syntax is built up, in Minimalist’s terms, by Merge of \( F_2 \) with the root first, followed by Merge of \( F_1 \). A root gets “verbalized” only after Merge of an (event) functional head (e.g., \( F_{1/2} \)) takes place. Most importantly, IA is originated in [Spec, FP], rather than in the complement of \( \sqrt{P} \).

I further propose that Merge of DP with \( F_2 \) (and \( F_1 \)) is motivated by the presence of an uninterpretable feature (i.e., \( uF \)) in FP, which specifies the event semantics/structure of the voice-marked verbs (see Section 9.5.1 for the features of \( F_1 \)s). Based on two approximations conducted in §9.4.2 and §9.4.3, I propose that the \( F_2 \) head in Formosan LV and CV verbs has an uninterpretable feature \( [uF] \) with a specific value: \( [uF: \text{ground}] \) for LV and \( [uF: \text{cause}] \) for CV. This \( uF \) needs to be checked by a matching feature (type). I also assume that a DP has an unvalued \( [uF: __] \) feature. \( F_2 \)’s \( uF \) is checked by means of Merge of a DP in its specifier position. By virtue of this Merge, the unvalued \( uF \) on the DP gets valuated by \( F_2 \)’s \( uF \) (i.e., \( \text{[ground]} \) if LV; \( \text{[cause]} \) if CV). The DP then receives a specific thematic interpretation/role that is compatible with the value received and the verb’s/root’s semantics. In addition to EA and IA, a third argument can be introduced by means of a (null) preposition, a point to be discussed in Section 9.5.1. To further illustrate how this analysis works, I present the tree structure of a Puyuma LV and a Seediq CV transfer verb in (9.37) and (9.38), respectively.

Consider the LV verb first:

\[\text{...}\]

117 Following Borer (2005), I use \( \text{DP}_{\text{originator}} \) to refer to the initiator of an eventuality (e.g., an event or a state). As a matter of fact, this role can be further classified into different types based on the semantics of the eventuality. See Section 9.5.1 for more discussion.
(9.37) An event-based exo-skeletal analysis for Formosan (e.g., Puyuma) LV transfer verbs

a. \( ku=berey-ay \) dra paysu na yawan

\[ 1SG.ERG=give-LV \quad ID.OBL \quad money \quad DF.ABS \quad chief \]

‘I gave money to the chief.’

b.

\[ \begin{array}{c}
TP \\
(beray) \\
PP \\
\end{array} \]

For simplicity’s sake, I avoid discussing Case assignment, the features of \( F_1P \), and the introduction of the oblique argument by means of a preposition. These issues will be addressed in Section 9.5. I also disregard the issue of clitics, as it is irrelevant to the main point of discussion. (9.37a) repeats the observation that the recipient serves as the O argument (i.e., ABS argument) when the transfer “verb” is marked with LV in Formosan languages. In this proposed analysis, the O argument (i.e., ‘chief’) is not selected by the verb/root, instead it is originated in the [Spec, F2P], motivated by the need for its uF to be valued from the event-specifying feature in F2 (i.e., uF: ground). This DP, with its event-specifying feature valued, can be computed in the Logical Form (LF) (Chomsky 1995 and subsequent work). The particular thematic role, namely Recipient, is interpreted in LF based on the nature of the root (i.e., encyclopedic entry in Borer 2005 and Lohndal 2014). This accounts for why LV marking allows a range of “ground”-related thematic roles (e.g., recipient, goal, source, location, or even patient) to serve as the O argument, depending on the verb types (root types, more precisely).

The event-based analysis can be applied to CV verbs as well. Consider the following
An exo-skeletal analysis for Formosan (e.g., Seediq) CV transfer verbs

(9.38) a. \textit{se-begay}=\textit{na} \quad \varnothing \quad \textit{ku ras} \quad \textit{ka} \quad \textit{p ila} \quad (=9.27b)

\begin{align*}
\text{CV-give}=3\text{SG.ERG} & \quad \text{OBL} & \quad \text{Kulas} & \quad \text{ABS} & \quad \text{money} \\
\end{align*}

‘He gave kulas the money.’

b. \begin{align*}
\text{TP} & \quad \text{F}_1 \text{P} \\
\text{se-begay} & \quad \text{DP}_{\text{originator}} \quad \text{\textit{F}_1'} \\
=\textit{na} & \quad \text{t}\sqrt{+t\text{F}_2, t\text{F}_1+T} \quad \text{F}_2 \text{P} \\
\text{DP}_{[\text{uf:cause}]} & \quad \text{\textit{ka} \text{ p ila}} \quad \text{\textit{\sqrt{P}}}
\end{align*}

\begin{align*}
\text{t}\sqrt{+t\text{F}_2}_{[\text{uf:cause}]} & \quad \text{\sqrt{PP}} \\
\text{(begay)} & \quad \varnothing \text{ ku ras}
\end{align*}

(9.38) represent the generalization established throughout this dissertation, that is, a transported theme (i.e., ‘money’) serves as the O argument of CV transfer verbs. In §9.4.3, I demonstrate how a series of thematic roles serving as the O argument of CV verbs (including the transported theme) can be unified based on the causal approach. In the proposed analysis, the O argument is originated in [Spec, F2P]. The event-related uF of this DP gets value from the [cause] feature in F2P. The thematic interpretation depends on the nature of the lexical root. For example, the O argument is a transported theme for roots conceived as transfer-deoniting (e.g., ‘give’, ‘send’); it is an instrument for roots conceived as activity-denoting (e.g., ‘cut’); it becomes a beneficiary for roots related to creation/performance (e.g., ‘make’, ‘sing’); it is a stimulus for roots related to emotion or psychological states (e.g., ‘desire’).

I shall briefly address the phonological output (or Phonetic Form) of these overtly voice-marked verbs in Formosan languages. In Aldridge’s transitive approach and those derivative applicative analyses for Formosan LV/CV verbs, voice/applicative markers are
treated as the phonological output of functional heads such as Voice or Appl. In my analysis, NAV verbs contain two functional projections $F_1$ and $F_2$. I therefore treat overt LV markers (e.g., -an in Amis and Seediq; -ay in Puyuma) and CV markers (e.g., sa- in Amis; se- in Seediq; -anay in Puyuma) as the phonological output of the combined $F_1$-$F_2$ heads. In other words, the form of a voice-marked verb (e.g., Puyuma beray-ay ‘give-LV’) represents the (late) lexical insetation of the predicate as a result of head movement from $\sqrt{\cdot}$ to $F_2$ to $F_1$ to $T$.

A final remark needs to be made before I end this subsection, as I have not discussed the role of the causative morpheme (e.g., $pa$-) in Formosan LV/CV verbs. In Chapters 4 to 6, I have presented evidence showing that both the causative morpheme and the voice marker are derivational. A natural question arises about the position of the causative morpheme (in terms of the structure in 9.36), that is, whether a root merges with the causative morpheme before it merges with voice marking (i.e., $F_{1/2}$), or the other way around.

In Chapter 8, I discussed the distinction between derivation and inflection and suggest, following others, that these two concepts form a continuum. Given this view, the causative morpheme is found to be “more derivational” than voice marking, based on the observation that the former does not provide grammatical information at all, whereas the latter indicates the syntactic (in)transitivity of the clause. In other words, causative verbs can either be intransitive or transitive, depending on the voice marking it takes, as shown in the ergative case alignment in the following example.

(9.39) Intransitive and transitive causative verbs in Formosan (e.g., Amis) languages

a. $o$-pa-caliw kura tamdaw tu paliding ci sawmah-an (=4.2a) 
   AV-CAU-borrow ABS.that person OBL car PN Sawmah-OBL
   ‘That person lends a car to Sawmah.’

b. sa-pa-caliw nura tamdaw ci sawmah-an kuni paliding (=4.15d) 
   CV-CAU-borrow ERG.that person PN Sawmah-OBL ABS.this car
   ‘I (will) lend the car to Sawmah.’

The ability for voice marking to indicate transitivity suggests that the causative morpheme applies to the root prior to voice affixation (see H. Chang to appear, for the same finding for Tsou $pa$- verbs). This finding is crucial, as it suggests that it is problematic to analyze voice-marked causative verbs (e.g., $pa$-caliw-an) as involving Merge of the root with voice marking first, followed by Merge of the causative (e.g., [$pa$-[caliw-an]])—an analysis to be proposed when voice marking is incorrectly treated as the applicative head. The correct analysis (contra my previous study in Kuo 2013), I argue, is for the root to Merge with the causative morpheme first, thereby creating a new lexical base (i.e., lexical causative,
identified in Chapters 4 to 6) upon which argument/event structure can be built (by Merge of F1P and F2P, respectively). The argument structure of CV causative verbs can also be accounted for by this causative-first derivation. In these verbs, the [cause] feature of FP does not provide causative semantics, but introduces a DP that has a causal relation with the initiator.

9.5 Residual issues
The analysis proposed in §9.4.4 represents an attempt to articulate the event semantics of LV/CV verbs across Formosan languages within the generative framework. For ease of demonstrating the main idea of my analysis, I deliberately avoided addressing some important issues in the previous section. For example, I have no discussed how this event-based analysis of voice marking can be applied to AV/PV verbs. I have not stated how Case assignment works in this alternative analysis. And I have not explained the presence of an oblique argument in LV/CV verbs in detail. This section aims to demonstrate how these issues can be handled in this analysis.

9.5.1 The event structure of Formosan AV/NAV verbs
In §9.4.4, I only provided the syntactic representation of Formosan LV/CV verbs. Naturally, the event-based analysis cannot be considered a valid one unless it proves to account for the argument structure of Formosan AV and PV verbs as well. However, by choosing argument structure/alternation of Formosan transfer verbs as the case study of this dissertation, I have gained an imbalanced understanding among four voice constructions in Formosan languages. Consequently, I feel more confident with presenting the event-based analysis for LV/CV Formosan verbs.

It is, however, my strong belief that an event-based analysis is motivated. In Chapter 8, I demonstrated that languages may exhibit “semantic alignment” (Donohue 2008), in addition to morphosyntactic alignment (e.g., ergative/accusative). In particular, I have explained the phenomenon of split S/O, namely the use of different coding on the monovalent/bivalent verbs to indicate the semantic nature. I also provided evidence that both split S and split O are attested in Formosan languages. The exo-skeletal approach, in fact, can be used to capture both split S and split O in Formosan languages. In the following, I provide a tentative analysis for Formosan NAV verbs, including PV verbs.
(9.40) Split O in Formosan languages: an exo-skeletal analysis
a. PV verbs: \([F_1P\ DP_{\text{originator}} [F_1' F_1 [F_2P\ DP_{[uF: \text{change}]} [F_2' F_2_{[uF: \text{change}]} [\sqrt{\text{ ] \]]]]\]

b. LV verbs: \([F_1P\ DP_{\text{originator}} [F_1' F_1 [F_2P\ DP_{[uF: \text{ground}]} [F_2' F_2_{[uF: \text{ground}]} [\sqrt{\text{ ] \]]]]\]

c. CV verbs: \([F_1P\ DP_{\text{originator}} [F_1' F_1 [F_2P\ DP_{[uF: \text{cause}]} [F_2' F_2_{[uF: \text{cause}]} [\sqrt{\text{ ] \]]]]\]

The syntactic transitivity and Case marking of NAV verbs will be discussed in the next subsection. Here, I focus on the potential of this feature-based analysis to account for the generalizable event semantics of each of the three NAV markers. Based on a careful, two-step approximation presented in §9.4.2 and §9.4.3, I argued that the [ground] feature and [cause] feature are perhaps the most suitable ones to address the event semantics of Formosan LV and CV verbs, respectively. While I fail to discuss the event semantics of Formosan PV verbs in the same quality/quantity as I do for LV/CV verbs. It is reasonable to propose a [change] (or [affect]) feature for the F2P in PV verbs, to account for the affectedness of O argument (i.e., Formosan PV verbs as change-of-state verbs; S. Huang 2005).

The Split O phenomenon represents the symmetricity of NAV voice marking: all NAV verbs rely on the functional projection for the introduction of their IA, it is only the feature of the functional projection that makes the difference. Along this line, the split S phenomenon can also be articulated by means of a feature-based model. The A-marking and O-marking difference of Amis actor voice marking as discussed in Chapter 8, for example, can be captured by the tentative analysis in (9.41).

(9.41) Split S in Formosan (e.g., Amis) languages
a. Amis \(<\text{um}>\sqrt{\text{ \text{verbs}}:}
\quad \left[\left[F_1P\ DP_{\text{originator}}_{[uF: \text{Do}]} \left[F' F_1_{[uF: \text{Do}]} [\sqrt{\text{ }]} \right]\right]\right]
\quad (\text{e.g., } r<\text{um}>akat ‘walk’, s<\text{um}>uwal ‘speak’, t<\text{um}>angie ‘cry’)

b. Amis \(ma-\sqrt{\text{ \text{verbs}}:
\quad \left[\left[F_1P\ DP_{\text{originator}}_{[uF: \text{Be}]} \left[F' F_1_{[uF: \text{Be}]} [\sqrt{\text{ }]} \right]\right]\right]
\quad (\text{e.g., } ma-qorad ‘rain’, ma-fali ‘windy’, ma-su’su’ ‘fat’, ma-biring ‘jealous’)

I will discuss bilavent AV verbs in the next subsection. (9.41) demonstrates a similar practice as (9.39), where different features are proposed to specify the event-semantics of the derived verbs. In the case of monovalent AV verbs, the relevant features should be associated with F1. Inspired by the little v systems (e.g., Harley 2009), which primarily deal with the introduction of EA, I tentatively propose the feature [Do] for the FP in AV verbs whose sole argument is an actor (i.e., \(S_A\)) and the feature [Be] for the FP in AV verbs whose sole argument is a
“state-holder” in the sense of Ramchand (2008).\textsuperscript{118} It should be noted that S in Formosan languages can split in more than two ways (e.g., \(a\), \(<um>\), \(mi-, ma-\) in Amis). The two-way model in (9.41) is intended to demonstrate the potential of an event-based analysis for AV verbs, in addition to NAV verbs. Future research is required to see whether the flavors of \(v\) (i.e., \(v_{Do}, v_{Be}, v_{Cause}, v_{Become}\)) as proposed in the literature can be applied in its entirety to account for split S in Formosan languages.

9.5.2 The transitivity and Case marking in Formosan AV/NAV verbs

So far, I have only demonstrated how category-less lexical bases get verbalized via Merge of F1 (and F2) (i.e., voice markers) in Formosan languages. I have not addressed how such an event-based analysis deals with the syntactic transitivity and Case marking of voice-marked verbs. In this subsection, I briefly demonstrate that the current transitivity approach to argument structure can be incorporated into the proposed system without damaging the crux of the event-based analysis, that IAs are introduced by functional heads, rather than based-generated in the complement of VP/√P. In other words, I do not aim to propose an alternative proposal about the assignment of ergative and absolutive Case in T-type ergative languages. I do, however, hold a different opinion as to how oblique Case is assigned. The oblique argument will thus be the focus of this subsection.

In §9.2.4, I briefly demonstrated how Aldridge’s transitive approach accounts for the Case marking of arguments in AV/PV verbs. To simply recapitulate, for T-type ergative languages such as Seediq, T is responsible for assigning absolutive Case in both AV/PV verbs to the highest DP. The Voice functional heads are responsible for the syntactic transitivity. AV verbs contain the Voice\textsubscript{intr} head, which bears no EPP feature. As a result, EA gets the absolutive Case from T and IA gets an inherent Case from the lexical verb, as shown in (9.42a). PV verbs contain the Voice\textsubscript{extr} head, which bears an EPP feature that motivates the movement of IA to the edge of VoiceP. As a result, this IA receives the absolutive Case from T, and EA receives an inherent ergative Case from the Voice\textsubscript{ex} head, as shown in (9.42b).

\textsuperscript{118} As for monovalent verbs whose sole argument is theme/patient-like (i.e., \(S_{0}\)), it is possible to propose a different feature such as \([\text{Become}]\), or propose the same \([\text{Be}]\) feature, and resort to the nature of the root (e.g., ‘fall’, ‘melt’) for its change-of-state reading. Which one is a better analysis awaits future study.
As mentioned previously, the fundamental difference between my event-analysis and most of the current generative analyses for Formosan voice-marked verbs is that I identify two functional heads $F_1$ and $F_2$, responsible for the introduction of EA and IA, respectively, rather than just one functional head (i.e., VoiceP; e.g., 9.42). At this stage, I maintain a similar analysis as proposed in the transitive approach (as proposed by Aldridge 2004) to account for the intransitity/transitivity difference between Formosan AV/NAV verbs. I thus embrace the possibility of incorporating the difference between $\text{Voice}_{\text{intr}}$ and $\text{Voice}_{\text{intr}}$ into my model. In other words, in addition to the event-related features (i.e., [Do] and [Be]) which I argue to be associated with $F_1$ heads, I may assume the similar distinction between $F_1_{\text{intr}}$ (for AV verbs) and $F_1_{\text{tr}}$ (for NAV verbs), with the same set of features for these heads, as they are with Voice heads in the current transitive approach: $F_1_{\text{intr}}$ has no EPP feature; $F_1_{\text{tr}}$ assigns ergative Case to EA, and most importantly, bears an EPP feature, which motivates IA to move (from [Spec, $F_2P$]) to the edge of $F_1P$, to be assigned absolutive Case from T. I thus propose the implementation of $F_1_{\text{intr}}$ and $F_1_{\text{tr}}$ heads to account for the (ergative-)absolutive Case alignment in Formosan languages, most of which have been identified as T-type ergative languages.\(^{119}\)

\(^{119}\) Empirical evidence for T-type ergativity comes from the observation that the absolutive marking cannot be found in nonfinite clauses, whereas v-Type ergativity languages allow the absolutive marking in nonfinite clauses. According to this diagnostic, most Formosan languages including at least Amis, Puyuma, Seediq, Bunu, and Tsou all belong to T-type ergative languages (V. Chen 2014).
however, the oblique argument should be severed from the verb. It is hence counterintuitive
to argue that the oblique case comes from the category-less lexical base/root.

Borer (2005) addresses the possibility for arguments to be attached within the lexical
domain (i.e., prior to verbalization). She considers cases of English argument alternation such
as *Kim stuffed [the pillow]_{Goal} [with feathers]_{Theme} and Kim stuffed [the feathers]_{Theme} [into
the pillow]_{Goal}, where only two of the arguments can be structurally licensed (i.e., Subject and
DO). To account for the presence of the oblique argument, she argues that these roles (such as
theme or goal) “do not have any formal status within the event structure and if anything,
could only be properties of complements of some particular prepositions.” (p.91). In her
approach, this DP argument is identified within the category-less lexical domain. In addition,
the attachment of this DP is possible when a root merges with a preposition.

Along this line, I argue that a third participant other than EA and IA can appear in
Formosan LV/CV verbs when a root merges with a P. This P assigns both inherent case and
an appropriate interpretation to the DP thus constructed (Borer 2005:87). To illustrate, I
repeat the example of argument alternation of locative verb ‘spread’ in (9.43). I argue that
“three-argument” and “two-argument” LV/CV verbs have the same event semantics, as far as
the features of F1 and F2 are concerned: the difference lies in whether a third participant
(actually the “first participant,” considering the order of derivations) is merged with root via a
preposition. This is illustrated in (9.44).

(9.43) Puyuma CV/LV alternation    (=9.20)
  a. ku=ba’ba’ay na sa’ub (dra rabutr)
1SG.ERG=spread-LV DF.ABS grass
   ‘I spread the roof (with some grass).’
  b. ku=ba’ba-anay na rabutr (dra sa’ub)
1SG.ERG=spread-LV DF.ABS grass
   ‘I spread the grass (on the roof).’

(9.44) An event-based analysis for two/three-argument Formosan LV/CV verbs
  a. LV verbs: [F1 P_{originator} [F1’ F1 [F2 P_{ground} [F2’ F2_{ground} [(\sqrt{P})\neg(P DP)]]]]]
  b. CV verbs: [F1 P_{originator} [F1’ F1 [F2 P_{cause} [F2’ F2_{cause} [(\sqrt{P})\neg(P DP)]]]]]

Despite the lack of overt preposition as shown in (9.43), I propose in the syntax the presence
of null P to be responsible for the introduction of the oblique argument, be it a theme (or

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120 According to Borer (2005), the DP that merges with P is selected in the lexical domain (i.e., \(\sqrt{P}\) in 9.44), not
in syntax proper. This treatment thus does not contradict to the exo-skeletal approach, in which real arguments
are introduced by Merge of functional projections with the root.
patient) (in LV construction) or a goal (in CV construction). A similar proposal is found in Baker (2012). In his analysis, a null P is required for the licensing and Case assignment of an oblique argument in Amharic (Semitic). With respect to semantics, he argues that the meaning of this P head is rather general and abstract. Unlike overt prepositions like English with or on, which is selective with respect to thematic role of its complement (e.g., instrument and location, respectively), the P head under discussion is largely or completely redundant with the meanings of the verb/root. Upon scrutiny of the thematic roles of the oblique argument in Formosan LV/CV verbs, a null P analysis is thus justified, as these roles such as theme or goal are semantically related to the verb/root.\footnote{In Aldridge’s (2004, 2008) analysis, an oblique argument in AV clauses receives an inherent oblique Case from the lexical V head. In this exo-skeletal analysis, it is tempting to propose an involvement of a null P responsible for introduction/licensing of the oblique argument, as this argument is typically a patient, which is semantically related to the verb/root, as is in the case of NAV verbs.}

This analysis has at least one advantage. In §9.3.2, I demonstrated that it is quite difficult to establish the valency of a voice-marked verb. The LV-marked ‘spread’ in (9.42a) can be viewed as a two-argument verb based on the omissibility test, but as a three-argument verb when alternation is taken into consideration. The difficulty of identifying true arguments and obliques is also argued in some other Austronesian languages (Arka 2005, 2014). It should be noted that this sort of vagueness is problematic only when the lexical item is assumed to bear a valency value. In the exo-skeletal approach, FP only indicates the event semantics, and guarantees the participation of an IA, the introduction of a third DP into the event, as well as its interpretation, is simply dependent on the nature of the root.

9.6 Conclusion

This chapter is intended to demonstrate how the semantic characteristics of symmetrical voice marking can be articulated within the generative framework. The discussion focuses on Formosan LV/CV verbs, as they are examined in more detail throughout the dissertation (both in the study of transfer verbs and other verb types), as compared to AV/PV verbs. I begin with a general introduction about the constructivist approach to argument structure, where I present a widely accepted assumption: an external argument is introduced outside VP whereas an internal argument is subcategorized under VP. I also introduce Aldridge’s transitive approach to demonstrate how the idea is practiced in the context of Formosan languages. I then discuss the applicative analyses for Formosan LV/CV verbs carefully. Upon scrutiny with the interaction between verb types and these voice markers, I point out a number of empirical problems for these applicative analyses, which seem to originate from
the false assumption that verbs/roots in Formosan languages has a pre-existing subcategorization frame (i.e., argument structure) prior to voice affixation (i.e., applicativization in these analyses).

After showing the vulnerability of applicative analyses, I aim to develop an event-based analysis for Formosan LV/CV verbs. I conduct two approximations toward generalizing the event semantics of LV/CV verbs from localist and causal perspectives, and propose, accordingly the feature [ground] and [cause] for the functional projection (i.e., F2P) in LV and CV verbs. I demonstrate, in particular, how internal arguments can be introduced in the specifier position to receive an event-related feature, and how the valuation of this feature “limits” the selection of O argument within a range of conceptually related thematic roles (i.e., ground-related roles for LV verbs; cause-related roles for CV verbs). In the last section, I briefly discuss how the event-based analysis proposed in this chapter accounts for the event structure of AV/PV verbs, which represent the split S/O phenomenon attested across Formosan languages. I also present the possibility of incorporating the features proposed in the transitive approach into my model, to account for Case assignment. Finally, I present an alternative view as to how oblique Case is assigned in Formosan LV/CV verbs.
CHAPTER TEN
CONCLUSION

10.1 Recapitulation
This dissertation investigates argument structure and argument alternation in Philippine-type symmetrical voice languages based on the study of transfer verbs in three Formosan languages: Amis, Puyuma, and Seediq. The purpose of this dissertation is four-fold: (a) to provide a comprehensive documentation and description of the lexical variation of transfer verbs within and across these languages, (b) to discuss the implications of these findings for the existing typology of transfer verbs/ditransitive constructions, (c) to demonstrate the derivational status, hence the “symmetricity”, of voice marking in Formosan languages, and (d) to thus argue against applicative analyses for LV/CV verbs, and propose an alternative event-based analysis for the argument structure of symmetrical voice languages within the generative framework.

To highlight the relevant findings/claims in this dissertation, I revisit the research questions proposed in Chapter 1. First, consider the descriptive research questions below.

(10.1) Descriptive research questions (for each Formosan language investigated) (=1.6)
  a. What morphemes are involved in the formation of transfer verb?
  b. In what way does the voice system affect the argument alternation behavior/restriction of transfer verbs?
  c. Is there any lexical variation of transfer verbs with respect to their morphological composition?
  d. Is there any lexical variation of transfer verbs with respect to their argument structure?

In this dissertation, I assume the three-way classification of transfer verbs proposed in the literature (Croft et al. 2001; Levin 2008). Under this view, a clear distinction between give/send-type verbs and throw-type verbs with respect to morphological composition is attested in all three Formosan languages: the former may or may not involve the causative morpheme (depending on the verb and the language), while the latter never involves the causative morpheme. This finding conforms to the semantic basis of these transfer verb subclasses: give/send-type verbs lexicalize caused possession/motion, while throw-type verbs lexicalize two-participant activities.

The derivational status of voice marking is revealed in the examination of the argument
structure/alternation of the “same” transfer verb. Most of the transfer verbs undergo argument alternation between the recipient/goal and the transported theme (as the absolutive argument) by means of LV and CV voice marking. Some other “transfer verbs” (e.g., sell, mail, kick), identified according to Levin’s (2008) list, however, do not always allow argument alternation by means of voice marking, by virtue of the fact that a particular voice form of these “verbs” may actually involve a thematic role (e.g., location, instrument, beneficiary, patient) other than the one involved in a transfer event (e.g., theme/recipient/goal). I also discuss how language-specific functions of voice marking affect the argument realization of these transfer verbs, including, for example, “lexical gaps” in Puyuma (i.e., ungrammatical PV forms), and merger of PV/LV in Seediq transfer verbs.

The description/documentation of Formosan transfer verbs, provided in Chapters 4 to 6 and integrated in Chapter 7, demonstrates subclass internal lexical variation in terms of both morphological composition and argument alternation. Naturally, lexical variation in morphological structure is not an issue for Croft et al (2001) and Levin (2008), as their models deal with asymmetrical voice languages, where transfer verbs are basically morphologically underived (e.g., give, send, throw). Subclass internal lexical variation in argument alternation restriction/behavior, however, creates a challenge for the cross-linguistic validity of this three-way classification. Consider the following research questions from a comparative/typological perspective.

(10.2) Comparative/typological research questions (=1.7)
   a. To what extent can the current typology of transfer verbs account for the argument alternation behavior/restriction of transfer verbs in these Formosan languages?
   b. To what extent can the current typology of ditransitive constructions account for the argument alternation behavior/restriction of transfer verbs in these Formosan languages?
   c. What are the similarities and differences regarding the morphological composition and argument alternations of transfer verbs in Amis, Puyuma, and Seediq?
   d. What implications can the findings about lexical variation of Formosan transfer verbs provide for the current typology of transfer verbs/ditransitive constructions?
   e. What implications can the findings about lexical variation of Formosan transfer verbs provide for the (a)symmetricity of voice marking in Formosan languages?

The potential challenge Formosan languages provide to Croft et al.’s (2001) and Levin’s (2008) models is the observation of subclass internal lexical variation regarding argument alternation (e.g., difference between ‘give’ and ‘sell’, between ‘mail’ and ‘send’, and between
‘throw’ and ‘kick’ in all three Formosan languages), which is not predicted by the ditransitivity hierarchy, based on which the three-way classification is established. In Chapter 7, I argue that this is understandable, as these two models target languages whose argument alternation is not coded on the verb (e.g., John gave [Mary]R a book and John gave [a book]T to Mary). Symmetrical voice languages exhibit coding difference on the (transfer) verb (i.e., voice marking), which correlates with a thematic role of the O argument (i.e., ABS argument in ergatively aligned Formosan languages). Acknowledging this characteristic, I advise caution about the alleged membership of the subclasses of transfer verbs: in Formosan languages, lexical items that appear to fall into Levin’s give/send-type subclasses (e.g., ‘sell’, ‘mail’) do not necessarily entail a sense of transfer.

To account for the transfer sense identified in certain voice forms but not in others, I argue that symmetrical voice marking is able to provide a “constructional” meaning (Croft 2012) to a root. I then discuss in Chapter 7 the meanings LV/CV marking may contribute to the derived verb. I start with a tentative parallel between LV/CV constructions and English double object/dative constructions. Adopting the semantic map methodology, I show that Formosan LV marking is responsible for designating a number of conceptually contiguous thematic roles, including goal, recipient, location, source, and event patient. The connection between these roles is clearly established in Malchukov et al.’s (2007, 2010) (recipient-centered) semantic map. The CV marking, on the other hand, targets thematic roles including transported theme, instrument, beneficiary, and simulus/theme (of emotion), whose connection is not clearly articulated in Malchukov et al’s (2010) typology. Inspired by S. Huang (2005), I compose a theme-centered semantic map to demonstrate the contiguity between these roles.

Based on this careful elaboration on the functions of LV/CV voice marking in Chapter 7, Chapter 8 contributes to the debate regarding the symmetricity/asymmetricity of voice marking in Philippine-type languages. First, I introduce relevant studies arguing for the symmetricity of voice marking in Philippine-type languages. In my case study, I further justify the derivational status of voice marking, according to the findings that the ability for LV/CV markers markers to “determine” the valency of the verb is shared across the three Formosan languages, whereas the ability for these markers to “increase” the valency (provided the assumption that the root has a valency value prior to voice affixation) is language-specific and verb/root-depedent.

In Chapter 9, I discuss whether current generative theories of argument structure can account for the empirical facts about the argument structure of voice-marked verbs in
Formosan languages. The relevant questions are listed below.

(10.3) Theoretical research questions (=1.8)

a. To what extent can the asymmetrical view of voice marking (e.g., applicative analyses) account for the argument structure of transfer verbs (and other verb types) in Formosan languages?

b. To what extent can the symmetrical view of voice marking (e.g., event-based analyses) account for the argument structure of transfer verbs (and other verb types) in Formosan languages?

c. Which of the current approaches to argument structure can best account for the symmetricality of voice (if any) in Formosan languages? How can this approach account for the event semantics of voice marking in Formosan languages?

In Chapter 9, the symmetrical status of voice marking in Formosan languages is represented and articulated in generative terms. After a basic introduction about the constructivist approach to argument structure, I review two applicative approaches (i.e., Pylkkänen 2002; Georgala 2012) adopted in most of the recent studies on the argument structure of Formosan LV/CV verbs. By examining a range of verb types, I point out several empirical problems for these applicative analyses, which seem to originate from a false assumption that verbs/roots in Formosan languages has a pre-existing subcategorization frame (i.e., argument structure) prior to voice affixation (i.e., applicativization in these analyses). I argue that a better analysis for Formosan LV/CV verbs should be based on the event semantics shared by verbs with the same voice marking. In addition, to capture the derivational status of voice, I adopt the exo-skeletal approach (Boroer 2003, 2005), which severs both external and internal arguments from the “verb.” The event semantics of LV and CV verbs is approached from localist and causal perspectives. Accordingly, I propose the features [ground] and [cause] to be responsible for the introduction/selection of the O argument (i.e., ABS argument) among a range of conceptually related thematic roles in LV and CV verbs, respectively.

10.2 Implications, contributions and future research

To conclude this dissertation, I address in this section some important implications/contributions of this study, and present some possible directions for future research. In §10.1, I have demonstrated the contributions of this dissertation for linguistic typology, including transfer verbs (e.g., Croft et al. 2001; Levin 2008), ditransitive constructions (e.g., Malchukov et al. 2010), and even “voice” (in a broad sense) (e.g., Foley 1998; Himmelmann 2005). This section thus focuses on the theoretical implications and
historical implications.

I begin by revisiting the derivational status of voice marking from a perspective taken by some Formosan scholars. Among others, M. Yeh (2003) and H. Chang & M. Yeh (2008) identify the pervasive “thematic mismatches” underlying the voice/focus systems across Formosan languages. Consider the following diagram.

Figure 10.1 The mapping between thematic roles and O argument in Formosan NAV constructions (H. Chang to appear)

![Diagram of thematic roles and O argument in Formosan NAV constructions](image)

The figure above reflects the derivational status of voice (e.g., NAV) markers in Formosan languages, particularly the view that the argument structure (e.g., O argument) of a certain voice form of a verb/root is unpredictable (see also Starosta 2002 and Teng 2005), for there is no one-to-one mapping between a thematic role and the O argument in any of the NAV marking. However, these mismatches are reinterpreted by S. Huang’s (2005) demonstration of split O phenomenon, supported by a related case study (of change-of-state verbs, contact verbs, and transfer verbs) in this dissertation (Chapter 8). Instead of considering NAV marking to be arbitrarily correlating with thematic roles, I demonstrate a strong semantic basis for the correlation between these thematic roles and voice marking. I thus argue against the seeming thematic mismatches underlying Formosan voice systems as presented in Figure 10.1. I maintain that the event semantics of voice marking can be identified through a careful examination of the argument structure of the voice-marked verbs across verb/root types.

Contrained by the focus of this dissertation, I present strong empirical evidence for the event semantics of LV/CV verbs across Formosan languages (§9.4), but introduce only a tentative proposal for the event semantics of AV/PV verbs (§9.5). Future research is thus required for a full scale investigation on the event semantics of AV and PV verbs. Despite the limitation of this study, it successfully argues against the applicative analyses for LV/CV verbs, which incorrectly assume a pre-determined subcategorization frame at the root level,
prior to the “applicativization.” The precategoriality of roots in symmetrical voice languages has important theoretical implications: it resonates with the exo-skeletal approach, a recently proposed radical version of the constructivist approach that servers both external arguments and internal arguments from the verb (e.g., Borer 2003, 2005; J. Lin 2004; Lohndal 2014; see also Marantz 2005; Sidiqqi 2009). Empirical evidence for such a proposal is less concrete in the context of asymmetrical voice languages (e.g., English, Mandarin), because of the lack of overt functional head assumed to merge with the root (i.e., the verb is uncoded in these languages). Overt verbal marking in symmetrical voice languages, as shown in the argument structure/alternation in these derived verbs, thus provides empirical evidence for this approach.

The most important contribution this dissertation provides to current syntactic theories is the connection it establishes between the localist/causal approach to event structure and the constructivist approach to argument structure. In the literature, the former is generally adopted by functionalists whereas the latter is widely assumed by generativists. To the best of my knowledge, existing constructivist analyses in the literature primarily tackle with event structure from the aspectual perspective (e.g., the little v system in Harley 1995, 2009; Cuervo 2003; and Alexiadou et al. 2006; the first-phase syntax model in Ramchand 2008; the ASP0P in Borer 2005). The event semantics of Formosan voice-marked verbs demonstrates the need for theories of argument structure to expand and incorporate other types of functional heads.

In addition to the implications for syntactic theories, this dissertation has historical implications. In recent literature concerning the higher-level subgrouping of Austronesian languages, there has been a serious debate regarding (a) the type of morphosyntactic alignment possessed by Proto-Austronesian (PAn) (e.g., ergative or accusative), and (b) whether change of alignment (e.g., from ergative to accusative, or the other way around) can serve as a valid criterion for linguistic subgrouping. With respect to the first issue, Ross (2009) reconstructs PAn with the type of ergative alignment found in modern Puyuma; Aldridge (2014), instead, proposes PAn as an accusatively aligned language (see also V. Chen’s 2014 proposal for accusativity in pre-PAn), with Rukai as the only daughter language preserving the accusative alignment, and the rest of the Formosan languages forming a subgroup, characterized by change from accusative to ergative.

I argue for a third possibility with respect to the alignment of PAn, considering the event semantics of voice marking in Formosan languages. In Chapter 8, I demonstrate that the “valency-determining” function of LV/CV marking is shared across three Formosan
languages Amis, Puyuma, and Seediq, whereas the “valency-increasing” function is language-specific. I also relate this finding with S. Huang’s (2005) discussion of split O phenomenon in other Formosan languages such as Tsou, Saisiyat, Atayal, and even in other Philippine-type languages (e.g., Cebuano). These observations show that NAV marking is used across Formosan languages to split its O argument; there is also evidence for AV marking to be used to split its S argument in a number of Formosan languages (e.g., see Tsukida 2008 for Amis; Kuo & Chen to appear for Amis, Puyuma, and Seediq). In Bunun, the use of (at least) some voice markers is semantically governed; they are thus identified as verb classifiers (Nojima 1996) or event-type affixes (De Busser 2009). Along these lines, it is possible to argue PAn to be neither accusative nor ergative, but a language with pure semantic alignment.

The development from semantic alignment to morphosyntactic alignment is possible under the hypothesis that voice marking in PAn is neutral with respect to syntactic transitivity. That is, voice marking in PAn may be purely used to indicate the event semantics of the verb, and to introduce a compatible thematic role as the syntactically prominent NP. This is similar to Foley’s (1998) idea that both AV and NAV verbs can be “transitive” (or dyadic, more precisely). The accusativity of the daughter languages of PAn (such as Ruaki) might have arisen from a reanalysis of dyadic AV verbs into transitive, whereas the ergativity of daughter languages of PAn might have orginated from a reanalysis of dyadic NAV verbs into transitive. In the literature, there have been proposals about change from semantic alignment to syntactic alignment. For example, Klimov (1973) hypothesizes unidirectional development of alignment (i.e., active > ergative > accusative). In the literature concerning Austronesian voice systems, Katagiri (2002) proposes a similar view, suggesting a development from a system with semantic alignment (e.g., PAn, Cebuano) to either an accusative or an ergative system (e.g., Kapampangan).

The directionality of change, however, requires more caution. Harris & Campbell (1995), for example, argue against the unidirectionality hypothesis by presenting empirical evidence for nominative-to-ergative change (e.g., Indo-Iranian languages), and most importantly, for ergative-to-active change (e.g., Kartvelian languages). Wichmann’s (2008:21–23) discussion about the diachrony of semantic alignment also suggests that change between semantic alignment and morphosyntactic alignment can be bi-directional. Further investigation is required to justify the type of alignment PAn possesses. The bottomline is that, if PAn proves to be a language with pure semantic alignment, both Ross’s and Aldridge’s proposals about the higher-level subgrouping of Austronesian languages will be at stake, as they assume the
morphosyntactic alignment of PAn.

My final remark has to do with the selected scope of this research regarding Formosan voice systems. For ease of comparison, this study investigates only a particular set of voice markers, namely the indicative neutral voice markers. During my field work, I was able to collect pieces of information about the argument structure of verbs marked with non-indicative voice markers. As the information is insufficient, a full scale of research containing both indicative and non-indicative voice-marked verbs awaits further study. What is also lacking in this dissertation is a discussion of the interaction between aspect and voice systems, a topic I deliberately disregard, in order to facilitate the comparison between these three Formosan languages. In this dissertation, I have successfully demonstrated how these voice markers correlate with the event structure of the derived verbs by downplaying the aspect factor. Admittedly, an aspectual approach to the voice-marked verbs in Formosan languages can be worthwhile (e.g., Travis 2010; Aldridge 2014): it may serve as a third approximation toward understanding the event semantics of symmetrical voice marking in Philippine-type languages. In my dissertation, I also disregard the nominalist analysis of NAV verbs (e.g., Starosta, Pawley, Reid 1982; Kaufman 2009) as the origin of morphological ergativity. As demonstrated previously, the event-based analysis I propose for Formosan voice-coded verbs suggests an alternative origin for ergativity (as well as accusativity). I leave the comparison between my event-based analysis and the nominalization-into-verb analysis for future study.
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APPENDIX A
FORMOSAN LV/CV MARKING: A CROSS-LINGUISTIC PERSPECTIVE

The tables provided in §8.3.2 (repeated below) are based on the following examples.

(1) Amis LV marker (for Table 8.2)
   a. transfer verbs:
      (*pi-)pa-feli-an ni kulas tu paysu ø-ci mayaw (=4.14c)
      PI-CAU-give-LV ERG.PN Kulas OBL money ABS-PN Mayaw
      ‘Kulas gave Mayaw (some) money.’

   b. surface contact verbs:
      pi-temuk-an nira tu waqay ku cafeng (=4.22b)
      PI-kick-LV 3SG.ERG OBL leg ABS wall
      ‘He kicked the wall with (his) leg.’

   c. change-of-state verbs:
      pi-peleng-an aku tu sasingaran ku lumaq nira
      PI-break-LV 1SG.ERG OBL window ABS house 3SG.GEN
      ‘I broke a window in his house.’

(2) Puyuma LV marker (for Table 8.3)
   a. transfer verbs:
      ku=beray-ay dra paysu na yawan (=5.16b)
      1S.ERG=give-LV ID.OBL money DF.ABS chief
      ‘I gave money to the chief.’

   b. surface contact verbs:
      ku=salepad-ay tu=tedrek kananku katagwin
      1SG.ERG=kick-LV 3.GEN=buttocks DF.OBL:1SG.GEN spouse
      ‘I kicked at my spouse’s buttocks.’

   c. change-of-state verbs: unavailable
      (e.g., *belritru-ay ‘break-LV’; *dreletr-ay ‘burn-LV’; *pinatray-ay ‘kill-LV’)

(3) Seediq LV marjer (for Table 8.4)
   a. transfer verbs:
      big-an=mu ø pila ka iming (=6.16c)
      give-LV=1SG.ERG OBL money ABS Iming
      ‘I gave Iming money.’

   b. surface contact verbs:
      gelegah-an=mu (ø iril qagay) ka qurug gaga (=6.25b)
      kick-LV=1SG.ERG OBL left foot ABS ball that
      ‘I kicked that ball (with the left foot).’

   c. change-of-state verbs:
      serub-an=mu ø rapit ka nabi niyi
      burn-LV=1SG.ERG OBL flying.squirrel ABS pot this
      ‘I burn the (body hair of) flying squirrel with this pot.’
### Table 8.2 The functions of Amis LV marker *pi-...-an* across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
</tr>
</thead>
<tbody>
<tr>
<td>valency-determining: ‘perform x’</td>
<td>Yes</td>
<td>Yes</td>
<td>N.A.</td>
</tr>
<tr>
<td>valency-increasing</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Yes</td>
</tr>
<tr>
<td>a. location-introducing: ‘perform x at/in/on y’</td>
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</tbody>
</table>

### Table 8.3 The functions of Puyuma LV marker *-an* across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
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<tbody>
<tr>
<td>valency-determining: ‘perform x’</td>
<td>Yes</td>
<td>Yes</td>
<td>N.A.</td>
</tr>
<tr>
<td>valency-increasing</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>a. location-introducing: ‘perform x at/in/on y’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 8.4 The functions of Seediq LV marker *-ay* across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
<th>change-of-state</th>
</tr>
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<tr>
<td>valency-determining: ‘perform x’</td>
<td>Yes</td>
<td>Yes</td>
<td>N.A.</td>
</tr>
<tr>
<td>valency-increasing</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Yes</td>
</tr>
<tr>
<td>a. location-introducing: ‘perform x at/in/on y’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(4) Amis CV marker (for Table 8.5)
   a. transfer verbs:
      sa-pa-feli ni kulas ci mayaw-an kuni paysu (=4.14d)
      CV-CAU-give ERG.PN Kulas PN Mayaw-OBL ABS this money
      ‘I (will) give the money to Mayaw.’

   b. surface contact verbs:
      sa-pi-tenuk nira tu cafeng ku waqay nira (=4.22c)
      CV-PI-kick 3SG.ERG OBL wall ABS leg 3SG.GEN
      ‘He will kick his leg against the wall.’

   c. change-of-state verbs:
      sa-pi-peleng aku tu sasingaran ku samukun
      CV-PI-break 1SG.ERG OBL window ABS hammer
      ‘I broke a window with the hammer.’

(5) Puyuma CV marker (for Table 8.6)
   a. transfer verbs:
      ku=beray-anay na paysu kana yawan (=5.16c)
      1S.ERG.give-CV DF.ABS money DF.OBL chief
      ‘I gave the money to the chief.’

   b. surface contact verbs:
      ku=salepad-anay dra mali i nanali (=5.25c)
      1SG.ERG=kick-CV ID.OBL ball SG.ABS my.mother
      ‘I kicked a ball for my mother.’

   b.’ surface contact verbs:
      tu=selrap-anay na sa-selrap i babalru
      3ERG=sweep-CV DF.ABS RED-sweep LOC courtyard
      ‘He used the broom to sweep the courtyard.’

   c. change-of-state verbs:
      nu=pisak-anay=ku kana tilril (Cauquelin in press)
      2SG.ERG=tear-CV=1SG.ABS DF.OBL book
      ‘(You) tear the book for me.’

   c’. change-of-state verbs:
      nu-dreletr-anay na ayron kanku drapal (Cauquelin in press)
      2SG.ERG-burn-CV DF.ABS iron OBL.1SG foot
      ‘You burned my foot with the iron.’

(6) Seediq CV marker (for Table 8.7)
   a. transfer verbs:
      se-begay=mu ø iming ka pila gaga (=6.16e)
      CV-give=1SG.ERG OBL Iming ABS money that
      ‘I will give that money to Iming.’

   b. surface contact verbs:
      se-qeleqah=mu ø qurug ka iril qaqay (=6.25c)
      CV-kick=1SG.ERG OBL ball ABS left foot
      ‘I will kick my left foot against a ball.’
c. change-of-state verbs:

\[
\text{se-rewah}=\mu \quad \theta \quad \text{neduk} \quad \text{ka} \quad \text{bubu}
\]
CV-open=1SG.ERG OBL door ABS Mother

‘I opened a door for my mother.’

c’ change-of-state verbs

\[
\text{se-rewah}=\mu \quad \theta \quad \text{neduk} \quad \text{ka} \quad \text{berehug} \quad \text{niyi}
\]
CV-open=1SG.ERG OBL door ABS key this

‘I opened a door with this key.’

Table 8.5 The functions of Amis CV marker \textit{sa-pi} across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
<th>transfer</th>
<th>surface contact</th>
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<td>valency-determining: ‘perform x’</td>
<td>Yes</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>valency increasing</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a. instrument: ‘perform x with y’</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>b. beneficiary: ‘perform x for y’</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Table 8.6 The functions of Amis CV marker \textit{-anay} across verb types

<table>
<thead>
<tr>
<th>Root/Verb types</th>
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<th>surface contact</th>
<th>change-of-state</th>
</tr>
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<tbody>
<tr>
<td>valency-determining: ‘perform x’</td>
<td>Yes</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>valency increasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. instrument: ‘perform x with y’</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>b. beneficiary: ‘perform x for y’</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 8.7 The functions of Seediq CV marker \textit{se} across verb types

<table>
<thead>
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<td>valency-determining: ‘perform x’</td>
<td>Yes</td>
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<td>N.A.</td>
</tr>
<tr>
<td>valency increasing</td>
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<tr>
<td>a. instrument: ‘perform x with y’</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>b. beneficiary: ‘perform x for y’</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
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</table>