INTERROGATIVE CONSTRUCTIONS IN KAVALAN AND AMIS

By

DONG-YI LIN

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

2013

1
To my parents
ACKNOWLEDGMENTS

This work could not have been completed without the help of many people. First and foremost, I thank my advisor, Dr. Eric Potsdam, for giving me valuable comments and suggestions on the drafts of the dissertation and for teaching me how to conduct rigorous linguistic research. I am also grateful to Dr. Galia Hatav, Dr. Brent Henderson, and Dr. Felicia Lee for their advice on how to improve the dissertation. I also want to thank Dr. Li-May Sung for her support for my fieldwork in Taiwan.

The analyses presented in this work could not have been developed without my Kavalan consultants (Abas, Buya, and Ngengi) and Amis consultants (Ngaday, Ofad, and Panay). I owe many thanks to them for their patience with me while teaching me their language.

I am glad that I have made many friends in the Linguistics Department at UF, especially the founding members of the Florida Linguistics Association: Joel, Lee, and Tyler. I appreciate the time we spent together discussing linguistics and our ambitions for the greater linguistics community.

Finally, my parents and my sisters deserve more than just a simple thank-you. They have always given me their full support in my academic career. Their support has been one of my major motivations to continue my research in linguistics. Without them, I would have never accomplished what I have achieved so far.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>4</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>9</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>10</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>13</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>1  OVERVIEW</td>
<td>15</td>
</tr>
<tr>
<td>1.1 Question Formation Strategies Across Languages</td>
<td>15</td>
</tr>
<tr>
<td>1.2 Research Questions</td>
<td>19</td>
</tr>
<tr>
<td>1.3 Theoretical Background</td>
<td>21</td>
</tr>
<tr>
<td>1.3.1 Government and Binding</td>
<td>22</td>
</tr>
<tr>
<td>1.3.2 Minimalist Program</td>
<td>24</td>
</tr>
<tr>
<td>1.4 A Brief Sketch of Kavalan and Amis</td>
<td>26</td>
</tr>
<tr>
<td>1.4.1 Background Information of Kavalan and Amis</td>
<td>26</td>
</tr>
<tr>
<td>1.4.2 A Sketch of Kavalan and Amis Grammar</td>
<td>27</td>
</tr>
<tr>
<td>1.4.2.1 Basic word order</td>
<td>27</td>
</tr>
<tr>
<td>1.4.2.2 Voice system</td>
<td>28</td>
</tr>
<tr>
<td>1.4.2.3 Case-marking system</td>
<td>32</td>
</tr>
<tr>
<td>1.5 Structure of the Study</td>
<td>34</td>
</tr>
<tr>
<td>2  INTERROGATIVE WORDS AND CONSTRUCTIONS IN KAVALAN AND AMIS:</td>
<td>38</td>
</tr>
<tr>
<td>A DESCRIPTIVE OVERVIEW</td>
<td></td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>38</td>
</tr>
<tr>
<td>2.2 Wh-Words in Kavalan and Amis</td>
<td>38</td>
</tr>
<tr>
<td>2.2.1 Wh-Words in Kavalan</td>
<td>38</td>
</tr>
<tr>
<td>2.2.2 Wh-Words in Amis</td>
<td>42</td>
</tr>
<tr>
<td>2.3 Interrogative Constructions in Kavalan and Amis</td>
<td>46</td>
</tr>
<tr>
<td>2.3.1 Interrogative Constructions in Main Clauses</td>
<td>46</td>
</tr>
<tr>
<td>2.3.1.1 Wh-in-situ</td>
<td>46</td>
</tr>
<tr>
<td>2.3.1.2 Wh-initial construction</td>
<td>48</td>
</tr>
<tr>
<td>2.3.1.3 Interrogative words as non-verbal predicates and interrogative verbs</td>
<td>49</td>
</tr>
<tr>
<td>2.3.2 Interrogative Constructions in Embedded Clauses</td>
<td>52</td>
</tr>
<tr>
<td>2.4 Wh-Words and Interrogative Constructions in Kavalan</td>
<td>55</td>
</tr>
<tr>
<td>2.4.1 Wh-in-Situ and Wh-Initial Constructions</td>
<td>55</td>
</tr>
<tr>
<td>2.4.2 Adverbial Interrogatives</td>
<td>61</td>
</tr>
<tr>
<td>2.5 Wh-Words and Interrogative Constructions in Amis</td>
<td>66</td>
</tr>
</tbody>
</table>
2.5.1 Wh-in-Situ and Wh-Initial Constructions ........................................... 66
2.5.2 Adverbial Interrogatives .................................................................. 71
2.6 Conclusion ..................................................................................... 73

3 VERBAL INTERROGATIVES IN KAVALAN AND AMIS ......................................... 76

3.1 Introduction ...................................................................................... 76
3.2 Diagnostics for Verbs in Kavalan and Amis ....................................... 77
3.3 Verbal Interrogatives in Kavalan and Amis ....................................... 84
3.4 Interrogative Verb Constructions ...................................................... 93
  3.4.1 Intransitive Interrogative Verbs ................................................... 94
  3.4.2 Transitive Interrogative Verbs ...................................................... 95
  3.4.3 Interrogative Verb Sequencing Construction ....................... 97
3.5 Restrictions on the Use of Interrogative Verbs .............................. 99
  3.5.1 Kavalan Tani and Amis Icuwa ............................................... 99
  3.5.2 The Interpretation of Kavalan Tani and Amis Pina ................. 107
3.6 Conclusion ..................................................................................... 109

4 THE WH-INITIAL CONSTRUCTION AS A PSEUDO-CLEFT STRUCTURE ...... 112

4.1 Introduction ...................................................................................... 112
4.2 Wh-Movement, Clefts, and Pseudo-Clefts ..................................... 114
  4.2.1 Wh-Movement ...................................................................... 114
  4.2.2 Clefts .................................................................................. 118
  4.2.3 Pseudo-Clefts ................................................................... 125
4.3 Grammatical Properties of Wh-Initial Questions ......................... 130
  4.3.1 Sentence-Initial Interrogative Phrase as the Predicate ........... 131
    4.3.1.1 Tense and aspect markers ........................................ 131
    4.3.1.2 Negation .................................................................. 133
    4.3.1.3 Epistemic markers .................................................. 134
    4.3.1.4 The common noun marker .................................... 136
  4.3.2 The Remainder as a Headless Relative Clause ...................... 138
  4.3.3 The Remainder as the Subject ............................................. 145
  4.3.4 Bi-Clausal Structure ............................................................ 148
  4.3.5 No Movement Properties ...................................................... 151
    4.3.5.1 Identity effects ......................................................... 151
    4.3.5.2 Embedded questions .............................................. 155
  4.3.6 Parallelism with Amis Pseudo-Clefts ................................... 160
  4.3.7 Summary ............................................................................. 163
4.4 The Structure of Kavalan and Amis Pseudo-Cleft Questions ....... 164
  4.4.1 The Structure of Predication ................................................ 164
  4.4.2 Non-Verbal Interrogative Clauses ....................................... 166
  4.4.3 The Structure of Pseudo-Cleft Questions ............................ 172
4.5 Conclusion ..................................................................................... 178

5 RESTRICTIONS ON WH-IN-SITU AND PSEUDO-CLEFT QUESTIONS .......... 179
<table>
<thead>
<tr>
<th>Table</th>
<th>page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Voice and applicative markers in Amis</td>
</tr>
<tr>
<td>1-2</td>
<td>Kavalan case markers</td>
</tr>
<tr>
<td>1-3</td>
<td>Amis case markers (Based on Wu 2006)</td>
</tr>
<tr>
<td>1-4</td>
<td>Amis noun classifiers (Based on Wu 2006)</td>
</tr>
<tr>
<td>1-5</td>
<td>Case markers and noun classifiers in Amis</td>
</tr>
<tr>
<td>2-1</td>
<td>Amis case markers (Based on Wu 2006)</td>
</tr>
<tr>
<td>2-2</td>
<td>Amis noun classifiers (Based on Wu 2006)</td>
</tr>
<tr>
<td>2-3</td>
<td>Case marking of wh-phrases and interrogative constructions in Kavalan</td>
</tr>
<tr>
<td>2-4</td>
<td>Case marking of wh-phrases and interrogative constructions in Amis</td>
</tr>
<tr>
<td>3-1</td>
<td>Interrogative verbs in Kavalan and Amis</td>
</tr>
<tr>
<td>3-2</td>
<td>Interrogative verb constructions in Kavalan and Amis</td>
</tr>
<tr>
<td>3-3</td>
<td>The syntactic distribution of Kavalan <em>tanian</em> and Amis <em>icuwa</em></td>
</tr>
<tr>
<td>4-1</td>
<td>Wh-movement, pseudo-cleft, and cleft structures</td>
</tr>
<tr>
<td>7-1</td>
<td>Two IVSCs in Kavalan and Amis</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>ABS</td>
<td>Absolutive</td>
</tr>
<tr>
<td>ASP</td>
<td>Aspect</td>
</tr>
<tr>
<td>AV</td>
<td>Agent Voice</td>
</tr>
<tr>
<td>BA</td>
<td>Beneficiary Applicative</td>
</tr>
<tr>
<td>CAU</td>
<td>Causative</td>
</tr>
<tr>
<td>CN</td>
<td>Common Noun</td>
</tr>
<tr>
<td>COMP</td>
<td>Complementizer</td>
</tr>
<tr>
<td>COND</td>
<td>Conditional</td>
</tr>
<tr>
<td>CV</td>
<td>Circumstantial Voice</td>
</tr>
<tr>
<td>DAT</td>
<td>Dative</td>
</tr>
<tr>
<td>DEF</td>
<td>Definite</td>
</tr>
<tr>
<td>DEM</td>
<td>Demonstrative</td>
</tr>
<tr>
<td>DET</td>
<td>Determiner</td>
</tr>
<tr>
<td>DM</td>
<td>Discourse Marker</td>
</tr>
<tr>
<td>EMP</td>
<td>Emphatic</td>
</tr>
<tr>
<td>ERG</td>
<td>Ergative</td>
</tr>
<tr>
<td>EXIST</td>
<td>Existential</td>
</tr>
<tr>
<td>FAC</td>
<td>Factual</td>
</tr>
<tr>
<td>FIL</td>
<td>Filler</td>
</tr>
<tr>
<td>FOC</td>
<td>Focus</td>
</tr>
<tr>
<td>FUT</td>
<td>Future</td>
</tr>
<tr>
<td>GEN</td>
<td>Genitive</td>
</tr>
<tr>
<td>I</td>
<td>Inclusive</td>
</tr>
<tr>
<td>IA</td>
<td>Instrumental Applicative</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>IMPV</td>
<td>Imperfective</td>
</tr>
<tr>
<td>INS</td>
<td>Instrument</td>
</tr>
<tr>
<td>INTR</td>
<td>Intransitive</td>
</tr>
<tr>
<td>IRR</td>
<td>Irrealis</td>
</tr>
<tr>
<td>IV</td>
<td>Instrumental Voice</td>
</tr>
<tr>
<td>LA</td>
<td>Locative Applicative</td>
</tr>
<tr>
<td>LNK</td>
<td>Linker</td>
</tr>
<tr>
<td>LOC</td>
<td>Locative Case</td>
</tr>
<tr>
<td>LV</td>
<td>Locative Voice</td>
</tr>
<tr>
<td>NAV</td>
<td>Non-Agent Voice</td>
</tr>
<tr>
<td>NCM</td>
<td>Non-Common Noun Marker</td>
</tr>
<tr>
<td>NEG</td>
<td>Negation</td>
</tr>
<tr>
<td>NHUM</td>
<td>Non-Human</td>
</tr>
<tr>
<td>NMZ</td>
<td>Nominalizer</td>
</tr>
<tr>
<td>NOM</td>
<td>Nominative</td>
</tr>
<tr>
<td>OBL</td>
<td>Oblique</td>
</tr>
<tr>
<td>PART</td>
<td>Particle</td>
</tr>
<tr>
<td>PASS</td>
<td>Passive</td>
</tr>
<tr>
<td>PFV</td>
<td>Perfective</td>
</tr>
<tr>
<td>PL</td>
<td>Plural</td>
</tr>
<tr>
<td>PN</td>
<td>Proper Noun</td>
</tr>
<tr>
<td>POSS</td>
<td>Possessive</td>
</tr>
<tr>
<td>PREP</td>
<td>Preposition</td>
</tr>
<tr>
<td>PST</td>
<td>Past</td>
</tr>
<tr>
<td>PV</td>
<td>Patient Voice</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Q</td>
<td>Question</td>
</tr>
<tr>
<td>REA</td>
<td>Realis</td>
</tr>
<tr>
<td>RED</td>
<td>Reduplication</td>
</tr>
<tr>
<td>REL</td>
<td>Relativizer</td>
</tr>
<tr>
<td>SG</td>
<td>Singular</td>
</tr>
<tr>
<td>TOP</td>
<td>Topic</td>
</tr>
<tr>
<td>TR</td>
<td>Transitive</td>
</tr>
</tbody>
</table>
INTERROGATIVE CONSTRUCTIONS IN KAVALAN AND AMIS

By
Dong-yi Lin
May 2013

Chair: Eric Potsdam
Major: Linguistics

This dissertation investigates the syntactic structures of wh-in-situ questions, wh-initial questions, and interrogative verbs in Kavalan and Amis, two Austronesian languages in Taiwan, and offers theoretical explanations within the framework of Generative Grammar.

It is argued that the wh-initial construction exhibits a pseudo-cleft structure and is not derived via wh-movement to Spec, CP. In both Kavalan and Amis, this question formation strategy is only available for questions where the absolutive DP is questioned. This constraint results from the predicate-initial derivation of Kavalan and Amis clauses.

An absolutive interrogative phrase in Kavalan cannot stay in-situ. This distributional pattern conforms to the account that analyzes subjects in Austronesian languages as topics and attributes the ban on in-situ subject interrogatives to this property. By contrast, Amis allows all types of interrogative phrases to stay in-situ regardless of their grammatical function or case-marking. We propose an account that relates this distributional pattern to the requirement on the formal marking of subjects based on Law’s (2006) descriptive generalization and Landau’s (2007) analysis of EPP.
Another significant component of this dissertation is concerned with the analysis of interrogative verbs. We argue for a syntactic approach to the derivation of interrogative verbs. Their grammatical properties and constraints follow from the interaction of the following factors: The inherent semantics of interrogative words, the verbal structures and semantic interpretations of the voice markers, and the syntactic principles and constraints that are crosslinguistically valid.

Finally, a syntactic analysis is proposed for the Interrogative Verb Sequencing Construction (IVSC). It is found that the syntactic relationship between the interrogative verb and the lexical verb in an IVSC is not coordination, but subordination. The interrogative verb serves as the main verb, whereas the lexical verb occurs in a reduced non-finite clause. It is argued that IVSCs encompass two different structural configurations. A ‘do how’-IVSC takes a lexical vP as its complement and features DP movement for Case checking. By contrast, the lexical vP in a ‘where’- or ‘how many’-IVSC is an adjunct and the construction is characterized by adjunct control of the theme DP.
1.1 Question Formation Strategies Across Languages

Syntactic and typological studies on constituent question formation in languages have led to the generalization that there are two main strategies to form content questions or interrogatives across languages (Cheng 1997; Cheng and Corver 2006; Chomsky 1977; C.-T. Huang 1982; Siemund 2001). One is wh-movement, whereby an interrogative word or wh-word is displaced from its original position to a sentence initial position. What follows is an English example.

(1) **What** did John eat ___? cf. John ate **pizza**.

The second principal strategy is wh-in-situ, whereby a wh-word stays in the same position as its declarative counterpart. That is, it occurs in the same position where the constituent it questions would occur in a declarative sentence. A typical example is Chinese, as illustrated in the following pair of sentences.

(2) **Chinese**

a. **ta chi le shenme**
   3SG eat PFV what
   ‘What did he eat?’

b. **ta chi le hanbao**
   3SG eat PFV hamburger
   ‘He ate a hamburger.’

Recent research on less-documented languages however has shown that there is a third structural possibility to form interrogative sentences, i.e., the use of wh-phrases as predicates. There are two sub-types. The first type utilizes a wh-phrase as a nonverbal predicate in a cleft or pseudo-cleft structure to form content questions (M.
In a pseudo-cleft question, the wh-word or wh-phrase serves as the predicate of the sentence and there is a headless relative clause that serves as the subject of the sentence. The following example from Tsou illustrates this question formation strategy.

(3) Tsou

(zou) [NP sia] ‘e-[NP m-i-ta eobak-o ta mo’o e]
EMP who NOM AV-REA-3SG hit-AV OBL Mo’o
‘Who hit Mo’o?’ (lit. The one that hit Mo’o is who?) (M. Chang 2000: 3)

The second sub-type of wh-predicate is verbal. Interrogative words or phrases in some languages behave syntactically as verbal predicates (Cysouw 2004; Hagège 2003, 2008; L. Huang, et al. 1999; Idiatov and van der Auwera 2004). Hagège’s (2008) typological study and L. Huang, et al.’s (1999) study on some Austronesian languages in Taiwan, or Formosan languages, argue for the existence of this typologically unusual question formation strategy: The use of interrogative words as verbs, or interrogative verbs. They are “a kind of word which both functions as predicates and questions the semantic content of this predicate” (Hagège 2008: 3). The following examples show that ‘do what’ and ‘do how’ are morphologically simple interrogative verbs in Cebuano and Sundanese respectively.

(4) Cebuano

mag-unsa=man=ko diha AV-do.what=PART=1SG.NOM there ‘What am I supposed to do there?’ (Tanangkingsing 2009: 247)

(5) Sundanese

ku kuring kedah di-kumaha-keun by 1 must PASS-do.how-TR ‘How should I have done it?’ (Müller-Gotama 2001: 58)

1 The references listed here about cleft or pseudo-cleft questions are not meant to be exhaustive. The relevant literature is much larger than this list.
It should be noted that the predicative use of wh-words and wh-phrases in a language does not exclude wh-in-situ or wh-movement in that language. However, interrogative predicates, including (pseudo-)cleft question and interrogative verbs, are still a distinct question formation strategy that is worth more detailed research. Unlike wh-in-situ, interrogative predicates, both verbal and non-verbal, do not occur in the canonical argument or adjunct position. While wh-movement involves the movement of a wh-phrase to a sentence-peripheral position, interrogative predicates remain in the canonical predicate position.\(^2\)

With this typology as background, this dissertation explores the possible question formation strategies utilized by Kavalan and Amis, two Austronesian languages in Taiwan, and analyzes the syntax and semantics of the interrogative constructions in the two languages. As a brief descriptive overview, Kavalan and Amis have both sub-types of predicative use of interrogative words: Pseudo-cleft questions and interrogative verbs, as illustrated in (6) and (7). Wh-in-situ is also a possible strategy to form content questions in both languages, as shown in (8). A comparison between (6) and (8) shows that tiana ‘who’ in Kavalan and cima ‘who’ in Amis can occur in a pseudo-cleft structure or the wh-in-situ construction. That is, multiple strategies are available in these languages, even for the same wh-phrase.

(6) **Pseudo-cleft**

a. Kavalan

\[
\begin{array}{llllll}
\text{tiana=ti} & \text{ya} & q<&m>an(=ay) & \text{tu} & \text{‘may-ku} \\
\text{who=}\text{PFV} & \text{ABS} & <\text{AV}>\text{eat=}\text{REL} & \text{OBL} & \text{rice-1}\text{SG.GEN}
\end{array}
\]

‘Who ate my rice?’ (Lit. The one that ate my rice was who?)

---

\(^2\) Theoretically speaking, nothing prevents an interrogative predicate from undergoing wh-movement. Whether this is empirically true requires further investigation.
b. Amis
cima ku mi-takaw-ay tu payci
who ABS AV-steal-FAC OBL money
‗Who steals money?‘ (Lit. The one that steals money is who?)

(7) **Interrogative Verbs**

a. Kavalan
q<um>uni=isu tangi
<AV>do.what=2SG.ABS now
‗What are you doing now?‘

b. Amis
mi-maan ci-panay
AV-do.what NCM-PN
‗What is Panay doing?‘

(8) **Wh-in-situ**

a. Kavalan
m-qila=ti ya tina-su tu tiana
AV-scold=PFV ABS mother-2SG.GEN OBL who
‗Who did your mother scold?‘

b. Amis
ma-keter ci-lekal tu cima
AV-scold NCM-PN OBL who
‗Who does Lekal scold?‘

The examples in (6) are pseudo-cleft questions. The wh-word *tiana* ‗who‘ in (6a) is the predicate of the sentence and the headless relative clause *q<an=ay tu ‘may-ku‘ the one that ate my rice‘ is the subject of the sentence. The interrogative sentence of Amis in (6b) exhibits the same structure with a wh-word as the predicate followed by a headless relative clause as the subject. The examples in (7) demonstrate the use of wh-words as verbs. The interrogative words *quni‘do.what‘ and *maan‘do.what‘ are morphologically simple words; they serve as the predicate of the sentence and simultaneously question their own semantic content. Their morphological and syntactic distribution is the same as other typical verbs in the two languages. For example, they
can take the agent voice marker <um> or mi- and appear in the sentence-initial predicate position.

The specific research questions that will be addressed in this dissertation are specified in Section 1.2. Section 1.3 presents the theoretical background of the syntactic framework that this dissertation adopts for analysis: The Generative Grammar. To facilitate the discussion of Kavalan and Amis data, a brief introduction to the grammar of Kavalan and Amis is offered in Section 1.4. Finally, Section 1.5 outlines the organization of this dissertation.

1.2 Research Questions

The possibility of (pseudo-)cleft questions and interrogative verbs in addition to commonly-found wh-movement and wh-in-situ strategies raises intriguing and important questions regarding the structural analysis of interrogative constructions. They pose problems for current typological and theoretical generalizations that have resulted from in-depth research on wh-movement and wh-in-situ strategies, but which have excluded pseudo-cleft questions and interrogative verbs. This dissertation thus aims to fill in this gap by exploring the range of question formation strategies in Kavalan and Amis.

There are two general goals of the present study. First of all, the dissertation will provide a descriptive analysis on the question formation strategies in Kavalan and Amis. The descriptive analysis will explore the interrogative words and interrogative constructions in the two languages and investigate whether and how different interrogative words or phrases can be used in different interrogative constructions. The similarities and differences between the two languages will also be discussed. The second goal of the dissertation is to reveal the theoretical implications of the pseudo-
cleft questions and interrogative verbs. To achieve this goal, the dissertation will provide a syntactic analysis for these two question formation strategies. The structural analysis of interrogative verbs is especially important, as there is still no work that investigates verbal interrogatives from a theoretical standpoint. Current syntactic generalizations on question formation must be tested against the syntactic analysis of verbal interrogatives to see whether they are truly universal principles underlying all human languages.

The following research questions from both descriptive and theoretical perspectives will be addressed.

(9) Descriptive Research Questions
a. What interrogative constructions are utilized to form constituent questions in Kavalan and Amis?

b. Can different question formation strategies, e.g., wh-in-situ, pseudo-cleft questions, and interrogative verbs, apply to all the interrogative phrases in Kavalan and Amis? It is shown in Section 1.1 that Kavalan tiana ‘who’ and Amis cima ‘who’ can appear in at least two interrogative constructions, i.e., pseudo-cleft and wh-in-situ. Are multiple strategies also available for other interrogative phrases?

c. What interrogative words in Kavalan and Amis can be used as verbs in addition to the examples in (7)?

d. What are the grammatical and semantic properties of Kavalan and Amis interrogative verbs? What verbal constructions can interrogative verbs occur in? Are there any constraints on the use of interrogative verbs?

e. What are the similarities and differences between interrogatives in these two languages?

(10) Theoretical Research Questions
a. What are the syntactic structures of the interrogative constructions in Kavalan and Amis?

b. Are there any constraints on the applicability of the question formation strategies in Kavalan and Amis and how can such constraints be explained from a theoretical point of view?

c. How should interrogative verbs be syntactically analyzed based on the findings in Kavalan and Amis? How can we account for the syntactic and semantic properties of interrogative verbs?
d. What are the implications of interrogative verbs for the syntactic theory of interrogative constructions and the typology of question formation strategies?

This study on the interrogative constructions in Kavalan and Amis, both of which are verb-initial languages, will have both typological and theoretical implications for the syntax of questions. Most generalizations on the structure of question formation are based on well-documented languages like English, Japanese, and Chinese. It is thus important to investigate typologically unusual languages, including verb-initial languages like Kavalan and Amis, to examine whether the current hypotheses hold universally. The answers to the research questions listed above will make significant contributions to the theory and typology of interrogatives.

1.3 Theoretical Background

The theoretical framework adopted here is a version of Principles and Parameters as developed by Noam Chomsky and his colleagues. This theory has undergone several major changes since the mid 1950s. The most recent version is the Minimalist Program as outlined in Chomsky (1995b, 2000, 2001b, 2007, 2008). The goal of the Minimalist Program is to overhaul the model of grammar developed so far and eliminate any unnecessary and redundant components, modules, or principles, especially those proposed within the Government and Binding theory as presented in Chomsky (1981, 1986a, 1986b). Section 1.3.1 offers an overview of the model of grammar advocated by the Government and Binding theory. Section 1.3.2 introduces the fundamental changes to this theory proposed by the Minimalist Program regarding the overall architecture of grammar. The two sub-sections only provide the theoretical background of our analytical approach. Specific syntactic structures, mechanisms, or principles and constraints will be introduced and discussed in more detail in the chapters or sections.
where they are relevant. The summary presented below is mostly based on Carnie (2007), Haegeman (1991), and Hornstein, Nunes, and Grohmann (2005).

1.3.1 Government and Binding

The model of grammar conceived by the Government and Binding (GB) theory consists of four levels of representation: Deep Structure, Surface Structure, Logical Form (LF), and Phonological Form (PF). Deep Structure is the base of the computational system where lexical items selected from the Lexicon are inserted into an X-bar structure. The insertion of lexical items into a phrase marker is constrained by the Theta Criterion (11) and the lexical information of these lexical items must be preserved at all levels of representation in accordance with the Projection Principle (12).

(11) Theta Criterion (Chomsky 1981)
The relationship between arguments and theta roles is bi-unique. Each argument is assigned one and only one theta role and each theta role is assigned to one and only one argument.

(12) Projection Principle (Chomsky 1981)
Lexical information is represented and preserved at every syntactic level.

The representation of a sentence at Deep Structure does not necessarily correspond to its surface form due to the application of transformational rules, or simply Move α. Move α is subject to locality constraints like the Minimal Link Condition or Relativized Minimality (13).

(13) Relativized Minimality (Rizzi 1990)
X x-governs Y only if there is no Z such that
i. Z is a typical potential x-governor for Y;
ii. Z c-commands Y and Z does not c-command X.

To put it in a non-technical way, movement must be local. However, how locality is formally defined is a matter of debate and controversy. In addition to locality constraints
that restrict movement, there are other constraints that can rule out illicit syntactic representations, e.g., the Extended Projection Principle (14) and Case filter (15).

(14) Extended Projection Principle
A sentence must have a subject. Spec, TP must be filled.

(15) Case filter
All DPs must be Case-marked.

The function of all the various constraints is to ensure that grammar generates all and only grammatical sentences.

At Surface Structure, the computational system splits into Phonological Form (PF) and Logical Form (LF). PF is an interface level where a phonetic representation can be assigned to the syntactic representation from Surface Structure. As for LF, it is an interface level where the semantics or interpretation of a sentence is determined. In other words, PF is responsible for pronunciation or form, whereas LF deals with meaning. The underlying principle that regulates well-formedness of a structure at PF and LF is called Full Interpretation, which requires every element to have an appropriate interpretation.

In addition to the levels of representation and various principles and constraints, the Government and Binding Theory is also characterized by modularity. Within this framework, grammar can be divided into several distinct modules, e.g., Binding, Case, Control, and X-Bar Theory. An important concept that unifies almost all the modules is the notion of Government, as defined in (16) by Chomsky (1986a).

(16) Government (Chomsky 1986a)
A governs B if and only if
i. A is a governor; and
ii. A m-commands B; and
iii. no barrier intervenes between A and B.
Maximal projections are barriers to government. Governors are heads.
However, the idea that Government is a fundamental principle underlying the language faculty has been abandoned with the rise of the Minimalist Program.

1.3.2 Minimalist Program

The Minimalist Program (MP) is not a theory per se, but an on-going project that aims to overhaul the model of grammar for theoretical parsimony. Based on the criteria like naturalness, simplicity, and economy, many components of grammar, including representations, modules, principles, and constraints, have either been eliminated or revised since the commencement of the Minimalist Program. The goal is to perfect the model of grammar so that it not only accounts for the important properties of human language listed in (17) but is also maximally simple at the same time. As stated by Hornstein, Nunes, and Grohmann (2005: 8), the research strategy in the Minimalist Program is to “look for the simplest theory whose operations have a least effort flavor and that accommodates the big facts” in (17).

(17) Big facts of human language (Hornstein, Nunes, and Grohmann 2005: 7)

a. Sentences are basic linguistic units.

b. Sentences are pairings of form (sound/signs) and meaning.

c. Sentences are composed of smaller expressions (words and morphemes).

d. These smaller units are composed into units with hierarchical structure, i.e., phrases, larger than words and smaller than sentences.

e. Sentences show displacement properties in the sense that expressions that appear in one position can be interpreted in another.

f. Language is recursive, that is, there’s no upper bound on the length of sentences in any given natural language.

First and foremost, the original four levels of representation in the GB theory have been reduced to two interface levels: PF and LF. These two interface levels are
necessary components of the language faculty as form and meaning are two fundamental elements that constitute linguistic expressions (17b). By contrast, Deep Structure and Surface Structure do not reflect any real properties of the language faculty. The motivation for these two levels of representation is purely theory-internal. It is thus desirable to eliminate them and look for primitive operations that reflect how the derivation of sentences proceeds.

Surface Structure is replaced by Spell-Out. Note that Spell-Out is not a level of representation. It simply stands for the point where a derivation splits into PF and LF. Deep Structure is also eliminated from the model of grammar. Instead, a more primitive operation, Merge, is proposed. Merge functions to combine syntactic objects to form a new syntactic unit. Merge is basic and necessary as phrases and clauses must be derived from the combination of words or smaller phrases (17c, 17d). Another indispensable property of language faculty is displacement. Where a linguistic expression is pronounced and where it is interpreted might not always coincide (17e). The model of grammar thus must contain operations that achieve this effect. The operation responsible for this is Movement, which can be decomposed into two more basic operations: Copy and Merge. When a syntactic object “moves”, a copy is created and merged with another syntactic object.

Another crucial difference between the GB theory and the Minimalist Program concerns how movement (copy plus merge) is constrained. In the Minimalist Program, movement is motivated or triggered by the need for interpretation. Lexical items contain both interpretable and uninterpretable features. An uninterpretable feature is not allowed at the interface levels as it cannot receive an appropriate interpretation and thus
violates Full Interpretation. Therefore, if a lexical item contains an uninterpretable feature, it must search for a syntactic object that possesses a compatible interpretable feature and attracts that syntactic object to a “nearby” position so that its uninterpretable feature can be checked off. In other words, movement cannot take place at will, but must be motivated by feature checking.

1.4 A Brief Sketch of Kavalan and Amis

1.4.1 Background Information of Kavalan and Amis

Both Kavalan and Amis belong to the Austronesian language family. They are classified as East Formosan languages (in a linguistic, not a geographical sense) along with Basay and Siraya according to the genetic classification proposed by Blust (1999) and P. Li (2001, 2004). Both languages are spoken in eastern Taiwan. There are two dialects of Kavalan: Changyuan and Xinshe. The dialectal variation mainly lies in phonology (Y.-L. Chang 1997, 2000). Amis has five dialects: Sakizaya\(^3\), Northern, Tavalong-Vataan, Central, and Southern (Tsuchida 1988).

The current population of Kavalan is about 1,000. However, the number of fluent speakers of this language is estimated to be less than 100 (Hsieh and Huang 2007; Y.-L. Chang 2000). It is thus one of the most endangered indigenous languages in Taiwan. By contrast, Amis has the largest population (about 170,000) among Formosan languages (Wu 2006), but the number of Amis speakers is less than this estimate as young generations do not speak Amis as their mother tongue now.

The dialects of Kavalan and Amis analyzed in the dissertation are Xinshe Kavalan, which is spoken in Xinshe Village, Hualien County, and Central Amis, which is spoken

---

\(^3\) Sakizaya was officially recognized as an independent language, not a dialect of Amis, by the Taiwan government in 2007.
in Changpin Village, Taitung County. The linguistic data for analysis were collected during my fieldwork on these two languages in Taiwan.\(^4\) Most data presented in this dissertation are elicited data of my fieldwork notes. Some of the data are taken from the narratives and conversations archived at the NTU Corpus of Formosan Languages (Sung, et al. 2008).\(^5\)

To facilitate the discussion of Kavalan and Amis data in this dissertation, the following section briefly introduces the clause structure of the two languages.

1.4.2 A Sketch of Kavalan and Amis Grammar

1.4.2.1 Basic word order

Both Kavalan and Amis are predicate-initial languages. Verbal predicates and non-verbal predicates both occur in the clause-initial position, as illustrated below. In an agent voice sentence, the absolutive NP can either precede or follow the oblique NP (18b, 18c, 19b, 19c). However, in a patient voice sentence, the ergative NP must immediately follow the verb, while the absolutive NP occurs at the end of the sentence (18d, 18e, 19d, 19e).

(18) Kavalan
   a. ising ya ti-utay
doctor ABS NCM-PN
‗Utay is a doctor.‘

   b. t<\textless m\textgreater anuz=ti [ya tuliq a yau] [tu wasu]
<AV=chase=PFV ABS wasp LNK that OBL dog
‗That wasp chased a dog.‘

---

\(^{4}\) The UFIRB number of this study is 2009-U-0324. Fieldwork for this study was sponsored by the research project, The Austronesians: Language, Gene, Culture, and Archaeology (95R0350-05, 96R0502-06), which was granted to Dr. Li-May Sung, National Taiwan University.

\(^{5}\) http://corpus.linguistics.ntu.edu.tw/
c. \texttt{\textlangle AV\rangle chase=PFV OBL dog ABS wasp LNK that}  \\
\texttt{\textlangle AV\rangle tanuz=ti [tu wasu] [ya tuliq a yau]}  \\
\textquote{That wasp chased a dog.}  \\

d. \texttt{\textlangle AV\rangle chase-PV-3ERG=PFV ERG wasp LNK that ABS dog that}  \\
\texttt{\textlangle AV\rangle tanuz-an-na=ti [na tuliq a yau] [ya wasu 'nay]}  \\
\textquote{That wasp chased that dog.}  \\
e. \texttt{\textlangle AV\rangle chase-PV-3ERG=PFV ABS dog that ERG wasp LNK that}  \\
\texttt{\textlangle AV\rangle *tanuz-an-na=ti [ya wasu 'nay] [na tuliq a yau]}  \\
\textquote{That wasp chased that dog.}  \\

(19) Amis  

a. \texttt{\textlangle CN\rangle singsi kaku}  \\
\texttt{\textlangle CN\rangle 1SG.ABS teacher}  \\
\textquote{I am a teacher.}  \\
b. \texttt{\textlangle AV\rangle chase ABS dog OBL child}  \\
\texttt{\textlangle AV\rangle mi-la'up [ku wacu] [tu wawa]}  \\
\textquote{The dog chases a child.}  \\
c. \texttt{\textlangle AV\rangle chase OBL child ABS dog}  \\
\texttt{\textlangle AV\rangle mi-la'up [tu wawa] [ku wacu]}  \\
\textquote{The dog chases a child.}  \\
d. \texttt{\textlangle take-PV ERG PN ABS money\rangle ala-en [ni calaw] [ku paysu]}  \\
\textquote{Calaw takes the money.}  \\
e. \texttt{\textlangle take-PV ABS money ERG PN\rangle *ala-en [ku paysu] [ni calaw]}  \\
\textquote{Calaw takes the money.}  \\

1.4.2.2 Voice system  

One of the prominent grammatical features of Formosan languages is the utilization of the Philippine-type voice system, which roughly refers to the semantic concord between the verb and the absolutive-marked NP in terms of the thematic role
that the absolutive NP plays. This phenomenon is characteristic of Philippine-type languages, including Formosan languages.

Kavalan is an ergative language (Liao 2002, 2004) and exhibits a tripartite voice system, encompassing Agent Voice (AV), Patient Voice (PV), and PV-Instrumental/Beneficiary Applicative (IA/BA). The absolutive-marked NP in the AV construction is the agent or experiencer of the sentence, e.g., (20a) and (20b); the absolutive NP in the PV construction is the patient or theme, e.g., (20c); the absolutive NP in the IA/BA construction is the instrument or the beneficiary, e.g., (20d, 20e).

(20) Kavalan
Agent Voice: m-; mu-; <m>-; Φ-  
Word order: V [ABS-agent/experiencer]
a. maynep=ti [ya sunis-ku]  
AV.Sleep=PFV ABS child-1SG.GEN  
‗My child slept.‘

Anti-passive Construction (Agent Voice Construction with an Oblique theme)  
Word order: V [ABS-agent/experiencer] [OBL-theme]
b. t<m>anuz=ti [ya tuliq a yau] [tu wasu]  
<AV>chase=PFV ABS wasp LNK that OBL dog  
‗That wasp chased a dog.‘

---

6 Note that my description of ‘voice’ as semantic/thematic concord is just an approximation for ease of exposition. Strictly speaking, there is no one-to-one correspondence between voice markers and the absolutive arguments in terms of thematic roles. For example, either agent or experiencer can be the absolutive NP in an agent voice construction. There is still much debate on the grammatical functions of the voice markers in Austronesian languages.

7 This ‘voice’ phenomenon has stimulated a huge controversy over its descriptive and theoretical adequacy (Blust 2002; Himmelmann 2002; S. Huang 2002, 2005; Ross & Teng 2005; Starosta 2002). Other common terms used in the relevant literature for the same linguistic phenomenon are ‘focus’ and ‘topic’. In order to avoid the confusion with pragmatic focus and topic, this study adopts the ‘voice’ terminology. However, it should be noted that the ‘voice’ system in Austronesian languages is different from the active-passive voice distinction in many Indo-European languages.

8 Most studies in Formosan linguistics assume a four-way distinction of voice, including agent voice, patient voice, locative voice, and instrumental voice. Following the suggestion by S. Huang (2005), Starosta (2002), and Wu (2006), we analyze the locative and instrumental “voice” markers as applicative markers instead. However, since their case marking pattern is aligned with the patient voice construction in that the agent receives ergative case, they are classified as a subtype of patient voice construction in this dissertation.
Patient Voice: -an
Word order: V [ERG-agent] [ABS-theme]
c. tanuz-an-na=ti [na tuliq a yau] [ya wasu 'nay]
    chase-PV-3ERG=PFV ERG wasp LNK that ABS dog that
    ‘That wasp chased that dog.’

Instrumental/Beneficiary Voice: ti-
Word order: V [ERG-agent] ([OBL-theme]) [ABS-instrument/beneficiary]
d. ti-kilas [ni abas] [tu esi] [ya saytu]
    IA-cut ERG PN OBL meat ABS knife
    ‘Abas cut meat with the knife.’

e. ti-sa’may [na tama-ku] [ya tina-ku]
    BA-cook ERG father-1SG.GEN ABS mother-1SG.GEN
    ‘My father cooked for my mother.’

In both the PV and IA/BA constructions, the agent is marked with the ergative case and must immediately follow the verb.

Assuming that the distinction between agent voice and patient voice is correlated with their transitivity (Liao 2002, 2004; Ross and Teng 2005), this dissertation construes the agent voice marker in Kavalan as an intransitive marker and the patient voice marker a transitive marker. Note that although verbs in the agent voice construction can take a patient argument as shown in (20b), this structure is still considered to be syntactically intransitive because the patient argument is demoted and receives oblique case (Huang and Tanangkingsing 2011; Liao 2002, 2004). That is, sentences like (20b) are an anti-passive construction. By contrast, the patient voice construction in (20c) should be analyzed as the canonical transitive construction in Kavalan.

Amis is also an ergative language (Wu 2006). There are four voice constructions in Amis: Agent Voice (AV), Patient Voice (PV), PV-Locative Applicative (LA), and PV-

---

9 The IA/BA construction seems to have become obsolete among Kavalan speakers under the age of 60. It is mostly found in the speech of speakers over the age of 70.
Instrumental Applicative (IA). Each voice and applicative marker is associated with a set of allomorphs as shown below.\(^{10}\)

### Table 1-1. Voice and applicative markers in Amis

<table>
<thead>
<tr>
<th>Voice and Applicative</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent Voice</td>
<td>mi-, ma-, &lt;um&gt;, Ø-</td>
</tr>
<tr>
<td>Patient Voice</td>
<td>ma-, -en</td>
</tr>
<tr>
<td>PV-Locative Applicative</td>
<td>mi-...-an, ka-...-an (Patient)</td>
</tr>
<tr>
<td></td>
<td>mi-...-an (Goal)</td>
</tr>
<tr>
<td></td>
<td>pi-...-an, ka-...-um-...-an, ka-...-an (Location)</td>
</tr>
<tr>
<td>PV-Instrumental Applicative</td>
<td>sa-pi-, sa-ka-</td>
</tr>
</tbody>
</table>

The examples in (21) illustrate how the use of different voice and applicative markers is correlated with the interpretation of the absolutive NP.\(^{11}\)

(21) Amis

**Agent Voice**

Word order: V [ABS-agent/experiencer]

a. `<um>uwad=tu [cingra] <AV>get.up=PFV 3SG.ABS

‘He got up.’

**Anti-passive Construction** (Agent Voice Construction with an Oblique theme)

Word order: V [ABS-agent/experiencer] [OBL-theme]

b. mi-la'up [ku wacu] [tu wawa]

AV-chase ABS dog OBL child

‘The dog chases a child.’

**Patient Voice**

Word order: V [ERG-agent/experiencer] [ABS-theme]

c. sao'pu-en [nu-ya a wawa] [ku-ya heci

gather-PV ERG-that LNK child ABS-that fruit

nu lusay]

GEN fruit.tree

‘The child gathered the fruits.’ (Amis_Nr-pear_tamih, NTU corpus)

---

\(^{10}\) The choice of these allomorphs is conditioned by the inherent tense and aspect denotation of each allomorph and the Aktionsart and verb class of the roots that they are attached to. For a detailed and in-depth discussion, please refer to Wu (2006).

\(^{11}\) All the Amis examples that are cited from Wu (2006) in this dissertation have been reglossed to reflect my analysis of the Amis clause structure.
PV-Locative Applicative
Word order: V [ERG-agent] ([OBL-theme]) [ABS-location]

d. pi-adup-an [ni mama] [tu fafuy] [ku-ni
PI-hunt-LA ERG father OBL pig ABS-this
a lutuk]
LNK mountain
‘Father hunts mountain pigs in this mountain.’ (Wu 2006: 112)

PV-Instrumental Applicative
Word order: V [ERG-agent] ([OBL-theme]) [ABS-instrument/cause]

e. sa-pi-adup [ni mama] [tu fafuy nu lutuk]
IA-PI-hunt ERG father OBL pig GEN mountain
[ku iduc]
ABS spear
‘Father hunts mountain pigs with the spear.’ (Wu 2006: 111)

f. sa-ka-raraw [namu] [tu ccay a raraw]
IA-KA-mistake 2PL.ERG OBL one LNK mistake
[ku ‘epah]
ABS wine
‘You made one mistake because of the wine.’ (Wu 2006: 111)

In the Agent Voice construction, the absolutive argument is interpreted as the agent of
the sentence, e.g., cingra in (21a), whereas that in the Patient Voice construction is
interpreted as the patient, e.g., kuya haci nu lusay ‘fruits’ in (21c). The absolutive
argument in the Locative Applicative construction is the location, e.g., (21d). Finally, the
absolutive argument in the Instrumental Applicative construction is construed as the
instrument, e.g., (21e), or the cause, e.g., (21f), of the event denoted by the sentence.

What unifies the PV, LA, and IA constructions is that the agent argument is consistently
marked with the ergative case and immediately follows the verb.

1.4.2.3 Case-marking system

Both Kavalan and Amis exhibit Ergative-Absolutive case marking pattern. The sole
argument in an intransitive clause and the patient in a transitive clause receive
absolutive case, whereas the agent in a transitive sentence takes the ergative case marker. Please see the example sentences in the preceding section.

The case markers of Kavalan are listed in the following table.

<table>
<thead>
<tr>
<th>Noun Types</th>
<th>Absolutive</th>
<th>Ergative/Genitive</th>
<th>Oblique</th>
<th>Locative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Nouns</td>
<td>ya/a/Ø</td>
<td>na</td>
<td>tu</td>
<td>ta-…-an</td>
</tr>
<tr>
<td>Personal Proper Nouns</td>
<td>ya/a/Ø</td>
<td>ni</td>
<td>tu</td>
<td>-an</td>
</tr>
</tbody>
</table>

The absolutive case marker is optional and is often omitted, especially by younger speakers. The ergative case and genitive case are identical in form, as illustrated in (22a) and (22b). (22c) and (22d) illustrate the use of the locative case marker.

(22) Kavalan
a. Rasa-an na sunis a yau ya sudad buy-PV ERG child LNK that ABS book
   ‘That child buys the books.’

b. sudad na sunis a yau book GEN child LNK that
   ‘that child’s book’

c. ta-paw-an ni buya ya ti-imuy tangi LOC-house-LOC GEN PN ABS NCM-PN now
   ‘Imuy is at Buya’s place now.’

d. qatiw=pa=iku ci-imuy-an go=FUT=1SG.ABS NCM-PN-LOC
   ‘I am going to Imuy’s place.’

As illustrated in (21) in the preceding sub-section, Amis case markers are ku ‘ABS’, nu/ni ‘ERG’, and tu ‘OBL’. However, this is a simplified analysis. These markers can be decomposed into a case morpheme and a noun classifier morpheme. The case markers for common nouns all end in u, which also occurs before a common noun that is used as a nominal predicate. This is illustrated below. Therefore, u should be identified as the common noun marker.
The case markers and noun classifiers in Amis are listed in Table 1-3 and Table 1-4 respectively. However, as this morphological analysis has no direct bearing on our syntactic analysis, we will not separate the two morphemes in our glossing for the sake of simplicity. Please refer to Table 1-5 for the undecomposed forms.

Table 1-3. Amis case markers (Based on Wu 2006)

<table>
<thead>
<tr>
<th>Noun Types</th>
<th>Absolutive</th>
<th>Ergative/Genitive</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Nouns</td>
<td>k-</td>
<td>n-</td>
<td>t-</td>
</tr>
<tr>
<td>Personal Proper Nouns</td>
<td>Ø-</td>
<td></td>
<td>-an</td>
</tr>
</tbody>
</table>

Table 1-4. Amis noun classifiers (Based on Wu 2006)

<table>
<thead>
<tr>
<th>Noun Types</th>
<th>Classifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Nouns</td>
<td>u</td>
</tr>
<tr>
<td>Personal Proper Nouns</td>
<td>c- singular</td>
</tr>
</tbody>
</table>

Table 1-5. Case markers and noun classifiers in Amis

<table>
<thead>
<tr>
<th>Noun Types</th>
<th>Absolutive</th>
<th>Ergative/Genitive</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Nouns</td>
<td>ku-</td>
<td>nu-</td>
<td>tu-</td>
</tr>
<tr>
<td>Personal Proper Nouns</td>
<td>ci-/ca-</td>
<td>ni-/na-</td>
<td>ci----an/ca-----an</td>
</tr>
</tbody>
</table>

1.5 Structure of the Study

This dissertation is organized as follows. Chapter 2 provides a descriptive overview of the interrogative constructions in Kavalan and Amis. Three distinct interrogative constructions, or question formation strategies, are identified in the two languages: Wh-in-situ, wh-initial construction, and interrogative verbs. The constraints on the use of wh-in-situ and wh-initial constructions are also explored. The findings reveal both similarities and differences between Kavalan and Amis that require theoretical explanations. In both languages, the wh-initial construction is limited to
questions that inquire about the absolutive subject NP in a sentence. While absolutive interrogative phrases, except for \textit{mayni}=ay ‘which=REL’, in Kavalan cannot stay in-situ, an interrogative sentence with an in-situ absolutive interrogative phrase in Amis is fully grammatical.

Chapter 3 investigates what interrogative words can be used as interrogative verbs in Kavalan and Amis and discusses their grammatical properties. It is found that interrogative verbs can be used as intransitive verbs, transitive verbs, and ditransitive verbs. While intransitive interrogative verbs take the agent voice marker, transitive and ditransitive interrogative verbs must be suffixed with the patient voice marker. Interrogative verbs can also appear in the Interrogative Verb Sequencing Construction (IVSC), in which they are followed by a lexical verb. Constraints on the use of interrogative verbs are also discussed.

The structure of the wh-initial construction identified in Chapter 2 is the focus of study in Chapter 4. There are three potential structures that can all derive the wh-initial order in a predicate-initial language: Wh-movement, Clefts, and Pseudo-clefts. After reviewing the syntactic analyses of these three structures, Chapter 4 demonstrates the structural properties of the wh-initial construction and compares them to the characteristics of the three potential structures. The results indicate that the wh-initial construction in Kavalan and Amis should be analyzed as a pseudo-cleft structure. The initial interrogative phrase is the predicate and there is a headless relative clause that serves as the subject. The other two analyses fail to account for all the properties of the wh-initial construction.
The goal of Chapter 5 is to offer theoretical explanations for the constraints on the use of wh-in-situ and pseudo-cleft questions uncovered in Chapter 2. We review the approaches that have been proposed to explain similar patterns in other Austronesian languages and discuss their (in)adequacy in the context of Kavalan and Amis. We adopt VP-raising approach to explain why the pseudo-cleft strategy is only available to questions that target the absolutive subject argument. As for the constraints on the wh-in-situ construction, there is no single approach that can accommodate the patterns in both Kavalan and Amis. The Amis wh-in-situ pattern conforms to Law's (2006) observation on the relationship between argument-marking and the distribution of in-situ wh-phrases. By contrast, the Kavalan wh-in-situ pattern is explained by the conflict between the semantic/pragmatic status of the absolutive subject position and the inherent semantics of interrogative words.

To account for the syntactic properties and semantic constraints of interrogative verbs, Chapter 6 proposes a syntactic analysis for the derivation of interrogative verbs. The verbal status and the interpretation of an interrogative verb are derived from its merger with a verb-creating head in Syntax, i.e., the little \(\text{v}\). The derivation of interrogative verbs is systematic because whether an interrogative word can be used as a verb can be attributed to universal or language-specific principles or constraints of syntax and the syntactic representations of voice markers.

Chapter 7 examines the syntactic structure of the Interrogative Verb Sequencing Construction (IVSC). The issues to be addressed include the syntactic relationship between the interrogative verb and the lexical verb in this construction and the syntactic operations that derive its structural properties. We argue that the interrogative verb is
the main verb of the construction, whereas the lexical verb is subordinate to the interrogative verb. There are two subordinate structures exhibited by the IVSC. In a ‘do how’-IVSC, the lexical verb phrase is a complement to the interrogative verb. By contrast, the lexical verb phrase in a ‘where’- or ‘how many’-IVSC is an adjunct. The two types of IVSC also differ in the syntactic operations that yield the surface distributions of the NP arguments. The interrogative verb ‘do how’ acts like a raising predicate, whereas ‘where’ and ‘how many’ are characterized by adjunct control.

Finally, Chapter 8 summarizes the findings of this dissertation and discusses the implications for the theory and typology of question formation strategies. Suggestions for future research are also proposed.
CHAPTER 2
INTERROGATIVE WORDS AND CONSTRUCTIONS IN KAVALAN AND AMIS: A DESCRIPTIVE OVERVIEW

2.1 Introduction

This chapter investigates the syntactic distribution of the interrogative words in Kavalan and Amis from a descriptive perspective and discusses what types of interrogative constructions each interrogative word can occur in. Section 2.2 introduces the inventory of interrogative words in the two languages and offers a brief description of their morphological composition. The interrogative constructions available for question formation is discussed in Section 2.3, which will show that there are at least three distinct interrogative constructions in Kavalan and Amis: Wh-in-situ questions, wh-initial construction, and interrogative verbs. Sections 2.4 and 2.5 then present the distributions of the interrogative words regarding what types of interrogative constructions they can occur in. Section 2.6 summarizes the chapter and lists the empirical patterns that will be explained in subsequent chapters.

2.2 Wh-Words in Kavalan and Amis

Before we embark on the introduction of the interrogative constructions in Kavalan and Amis, it is necessary to have a basic understanding of the repertoire of interrogative words and their basic morphological composition in the two languages.

2.2.1 Wh-Words in Kavalan

The interrogative words in Kavalan are listed below.

(1) Kavalan interrogative words
a. tiana ‘who’
b. niana ‘what’
c. zanitiana(=ay) ‘whose(=REL)’
d. mayni(=ay) ‘which(=REL)’
e. tani / nani ‘how many/much’
f. qumni ‘when’
The interrogative word that denotes person, i.e., *tiana* ‘who’, can take the non-common noun marker *ti-* , which is prefixed to a personal proper name, e.g., *ti-buya* ‘NCM-PN’. The prefixation of this non-common noun marker to *tiana* is optional. That is, either *tiana* or *ti-tiana* is acceptable to my Kavalan consultants.

As pointed out by Y.-L. Chang (2000), *tiana* and *niana* have three phonetic variants each: *tiana, tianu*, and *tinu* for the former and *niana, nianu*, and *ninu* for the latter. Since *tiana* and *niana* are more common, only these two forms will appear in the examples in the following discussion to avoid confusion.

The possessive interrogative word *zanitiana* is morphologically composed of the root *tiana* ‘who’ and *zani-*, which bears a resemblance to the third person possessive pronoun, *zana*. The affix *zani-* is prefixed to personal proper names to indicate possession, e.g., *zani-Imuy* ‘Imuy’s’. In the following discussion, *zanitiana* will not be glossed as two separate morphemes for simplicity’s sake.

The relativizer =*ay* can be cliticized to *zanitiana* ‘whose’ and *mayni* ‘which’, although this is optional. The non-interrogative counterparts of *zanitiana*, i.e., the possessive pronouns, share this same distributional property, and so do demonstratives, as shown in (2).

(2) Kavalan
a. zaku=ay sudad
   1SG.POSS=REL book
   ‘my book’
b. zanitiana=ay sudad
   whose=REL book
   ‘whose book’

c. zau=ay sudad
   this=REL book
   ‘this book’

d. mayni=ay sudad
   which=REL book
   ‘which book’

In all these cases, the relativizer =ay functions to delimit the set of entities that are referred to, just like its use in a relative clause, which also serves the same function.

The interrogative word that questions quantity cannot be used alone, but must take a classifier prefix that indicates whether the following noun is human or non-human. This is illustrated by the contrast between (3a) and (3b).

(3) Kavalan
   a. kin-tani lazat p<m>ukun tu wasu
      HUM-how many person <AV>hit OBL dog
      ‘How many children hit dogs?’
   b. u-tani Ris q<m>aRat tu lima-su
      NHUM-how many mosquito <AV>bite OBL hand-2SG. GEN
      ‘How many mosquitoes sting your hands?’
   c. kin-tani ya m-RaRiw=ay
      HUM-how many ABS AV-run=REL
      ‘How many (people) run?’

As shown in (3a), when the noun that tani modifies is human, it must take the human classifier kin-, whereas when it modifies a non-human noun, it takes the non-human classifier u-. Even when the head noun is not overt, the classifier prefix is still obligatory to show the humanness of the questioned entity, as illustrated by (3c). The formal
distinction is not limited to this interrogative word. The classifiers are also obligatory on numerals.

The interrogative words that denote ‘do what’, ‘do how’, and ‘go where’ share the same root, *quni*. When this root takes the agent voice marker, *<um>* , it is interpreted as ‘do what’; when it is suffixed with the patient voice marker, *-an*, it means ‘do how’; when it occurs in its bare form, it denotes ‘go where’. The following discussion classifies these interrogative words as interrogative verbs because of the voice markers on them. Chapter 3 will discuss the criteria to identify interrogative verbs in more detail and will also offer a descriptive overview of the syntactic and semantic properties of Kavalan and Amis interrogative verbs.

Finally, *tanian* ‘where’, *pasani* ‘to where’, and *maqni* ‘from where’ all share the same root *ni*, which also occurs as part of most interrogative words in this language, including *niana* ‘what’, *mayni* ‘which’, *tani* ‘how many/much’, *qumni* ‘when’, *qumuni* ‘do what’, *qunian* ‘do how’, and *quni* ‘go where’. This morpheme also serves as the marker for a yes-no question and it occurs at the end of a question, as illustrated below.

(4) Kavalan

\[
\text{qawtu ti-imuy ni come NCM-PN Q}
\]

‘Will Imuy come?’

The morpheme *ni* can be analyzed as the interrogative morpheme of Kavalan, just like *wh* - in English, which is a morphological constituent of almost all the English interrogative words. The interrogative word *tanian* can thus be morphologically decomposed into *ni* and *ta*-…-*an*. The other two ‘where’-related words can also be decomposed into two parts, i.e., *pasa*- and *ni* for *pasani* ‘to where’ and *maq*- and *ni* for *maqni* ‘from where’. The morphemes that are attached to *ni* can also show up in non-
interrogative words and they all denote a certain aspect of space or direction. The basic function of \textit{ta-}\ldots\textit{an} is the case marker for location, as shown in (5a). The prefix \textit{pasa-} denotes direction towards a location (5b) and \textit{maq-} indicates direction from a location (5c).

(5) Kavalan

\begin{itemize}
\item[c.] \texttt{mai tu betu ta-buqan-an} \\
\texttt{NEG OBL stone LOC-sand-LOC}
\end{itemize}

‘There were no stones on the sand.’ (KavCon-Earthquake\_Abas\_Haciang, NTU corpus)

\begin{itemize}
\item[b.] \texttt{pasa-qazqaz u\-'siq} \\
\texttt{toward-seashore NHUM-one}
\end{itemize}

‘One went towards the seashore.’ (KavCon-Earthquake\_Abas\_Haciang, NTU corpus)

\begin{itemize}
\item[c.] \texttt{maq-lazing=iku mawtu} \\
\texttt{from-sea=1SG.ABS AV.come}
\end{itemize}

‘I come from the sea.’

2.2.2 Wh-Words in Amis

What follows is a list of the interrogative words in Amis.

(6) Amis interrogative words

\begin{itemize}
\item[a.] cima/nima/cimaan \textit{‘who’}
\item[b.] maan \textit{‘what; do what; do how’}
\item[c.] nima \textit{‘whose’}
\item[d.] icuwaay \textit{‘which’}
\item[e.] pina / pa-pina \textit{‘how many’}
\item[f.] hakuwa \textit{‘how much’}
\item[g.] (i)hakuwa \textit{‘when’}
\item[h.] naw \textit{‘why’}
\item[i.] icuwa \textit{‘where’}
\item[j.] talacuwa \textit{‘to where’}
\end{itemize}

The interrogative word ‘who’ in Amis is morphologically complex in that the case markers and the noun classifiers are incorporated into the different forms of this interrogative word. Compare the different forms of ‘who’ with the following case markers and noun classifiers in Amis.
Table 2-1. Amis case markers (Based on Wu 2006)

<table>
<thead>
<tr>
<th>Noun Types</th>
<th>Absolutive</th>
<th>Ergative/Genitive</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Nouns</td>
<td>k-</td>
<td>n-</td>
<td>t-</td>
</tr>
<tr>
<td>Personal Proper Nouns</td>
<td>∅-</td>
<td></td>
<td>-an</td>
</tr>
</tbody>
</table>

Table 2-2. Amis noun classifiers (Based on Wu 2006)

<table>
<thead>
<tr>
<th>Noun Types</th>
<th>Classifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Nouns</td>
<td>u</td>
</tr>
<tr>
<td>Personal Proper Nouns</td>
<td>c- singular</td>
</tr>
</tbody>
</table>

The form *cima* can be decomposed into *c*-, *i*-, and *ma*. It is the absolutive form of the interrogative word that questions a human entity and the case marker is phonetically null. The classifier of singular personal proper nouns *ci*- is inherent in this word. The form *nima* is the ergative case of this interrogative word with the ergative case marker *n*-.

The form *cimaan* is composed of the classifier for personal proper nouns, *c*-, the singular marker *i*-, and the oblique case marker for personal proper nouns, -*an*. The following sentences illustrate the syntactic distribution of these variants of ‘who’ in Amis.

(6) Amis

a. c<m>ikay cima
   <AV>run who.ABS
   ‘Who is running?’

b. keter-en nima ku wawa
   scold-PV who.ERG ABS child
   ‘Who scolds the child?’

c. mi-liso ci-ofad cimaan
   AV-visit NCM-PN who.OBL
   ‘Who does Ofad visit?’

In (6a), the agent of an agent voice sentence is questioned, so the absolutive form, *cima*, is used. In (6b), the entity that is questioned is the agent of a patient voice sentence, so the ergative form, *nima*, is used. Finally, in (6c), *cimaan*, the oblique form, is used because the entity that is questioned is the theme of an agent voice sentence.
Note that the ergative form of ‘who’, i.e., *nima*, is identical to the possessive or genitive form, i.e., ‘whose’. The identity between ergative case and genitive/possessive case is a general characteristic of the Amis case system.

By contrast, *maan* ‘what’ does not encode any information regarding case and noun classification. It takes the same set of case markers as common nouns, i.e., *ku* for absolutive case, *nu* for ergative case, and *tu* for oblique case. What is intriguing about *maan* is that it can be used as a verb and takes voice markers to mean ‘do what’ or ‘do how’. Chapter 3 will describe the verbal use of *maan* in more detail.

Like Kavalan *kin-tani* and *u-tani*, the interrogative word that questions quantity in Amis also distinguishes between human and non-human entities. The form *pina* modifies a non-human entity, whereas *pa-pina*, with Ca reduplication, modifies a human entity. The interrogative word *hakuwa* ‘how much’ also questions quantity, but it usually inquires about the quantity of uncountable nouns. The contrast among the three forms is exemplified below.

(7) Amis
a. *pina ku mi-ala-an ni utay a futing*
   *how.many ABS MI-take-LA GEN PN LNK fish*
   ‘How many fishes does Utay take?’ (Lit. The fishes that Utay takes are how many?)

b. *pa-pina ku ma-kalat-ay nu wacu a wawa*
   *HUM-how.many ABS PV-bite-FAC ERG dog LNK child*
   ‘How many children does the dog bite?’ (Lit. The children that the dog bites are how many?)

c. *hakuwa ku keter ni panay*
   *how.much ABS anger GEN PN*
   ‘How angry is Panay?’ (Lit. Panay’s anger is how much?)
In addition to ‘how much’, hakuwa could also mean ‘when’. According to Wei (2009), when it means ‘when’, it can take the preposition i, but when it means ‘how much’, it is not allowed to take the preposition.

In Amis, three interrogative words are preceded by i, i.e., icuwaay ‘which’, (i)hakuwa ‘when’, and icuwa ‘where’. This morpheme might be the preposition i in this language, which can mark temporal and locative information, as illustrated below.

(8) Amis
a. ma-alaw aku ti-panay i nacila
   PV-see 1SG.ERG NCM-PN PREP yesterday
   ‘I saw Panay yesterday.’

   b. i ruma na ngaday kaku k<um>a’en tu 'may
   PREP house GEN PN 1SG.ABS <AV>eat OBL rice
   ‘I eat at Ngaday’s place.’

The preposition i before hakuwa ‘when’ however is optional.

It is noteworthy that icuwaay ‘which’, icuwa ‘where’, and talacuwa ‘to where’ share the same root cuwa. Since icuwa and talacuwa are both interrogative words that question a location, their difference in meaning can be attributed to the morpheme that precedes them. While i is the preposition that indicates a location, tala denotes direction towards a location. How icuwaay ‘which’ and icuwa ‘where’ or talacuwa ‘to where’ are semantically related is unclear and beyond the scope of the present dissertation. It is worth noting that ‘which’ and ‘where’ in Mandarin Chinese also share the same root. ‘Where’ in Mandarin Chinese is nǎ-li, with a location suffix -li, which also occurs in deictics of space like zhī-li ‘this-LOC (here)’ and nà-li ‘that-LOC (there)’. The same morpheme nǎ also encodes ‘which’ when it is followed by an optional numeral and an obligatory classifier. Moreover, according to Cysouw (2004), the interrogative word of selection, i.e., ‘which’, is derived from the interrogative word of place, i.e., ‘where’, in
Paumari, Huallaga Quechua, and Imbabura Quechua. Therefore, the formal similarity between ‘which’ and ‘where’ in Amis does not seem to be a language-particular coincidence. It is likely that the two words are semantically or conceptually related.

In what follows, we will investigate the available question formation strategies in Kavalan and Amis, explore what question formation strategies each interrogative word can utilize, and discuss any relevant restrictions. The following discussion will reveal that a complete analysis of the interrogative words must make reference to the range of their syntactic environments.

2.3 Interrogative Constructions in Kavalan and Amis

The discussion in this section focuses on the available interrogative constructions in Kavalan and Amis to form content questions. It is divided into two subsections. The first subsection deals with interrogative constructions in main clauses, while the second subsection concerns interrogative constructions in embedded clauses.

2.3.1 Interrogative Constructions in Main Clauses

Three main types of interrogative constructions are attested in Kavalan and Amis: Wh-in-situ construction, wh-initial construction, and interrogative verbs.

2.3.1.1 Wh-in-situ

First of all, interrogative words or phrases can stay in-situ in both Kavalan and Amis. That is, they stay in the same syntactic position as their non-interrogative counterparts in a declarative sentence. Consider the following two pairs of sentences.

(9) Kavalan
a. m-qila=ti ya tina-su tu tiana
   AV-scold=PFV ABS mother-2SG.GEN OBL who
   ‘Who does your mother scold?’
b. m-qila=ti ya tina-su tu
   AV-scold=PFV ABS mother-2SG.GEN OBL
   swani-ku younger.sibling-1SG.GEN
   ‘Your mother scolds my younger sister/brother.’

(10) Amis
a. ma-ka’en nima ku titi aku
   PV-eat who.ERG ABS meat 1SG.GEN
   ‘Who eats my meat?’

b. ma-ka’en ni lekal ku titi aku
   PV-eat ERG PN ABS meat 1SG.GEN
   ‘Lekal eats my meat.’

Sentence (9b) is a declarative sentence with an oblique argument at the end of the sentence. To form a question that asks about this oblique argument, the wh-word, tiana ‘who’, is allowed to stay in the same syntactic position, as shown in (9a). The same pattern is observed in the Amis data in (10).

However, in Kavalan, there is a syntactic restriction on the case marking of the interrogatives that are allowed to stay in-situ. Questions targeting absolutive NP arguments are prohibited from utilizing the wh-in-situ strategy. As shown in the following ungrammatical sentence, if tiana ‘who’ in Kavalan receives absolutive case, it is not allowed to stay in-situ.

(11) Kavalan
   *q<m>an ya tiana tu ’may-ku
   <AV>eat ABS who OBL rice-1SG.GEN
   ‘Who eats my rice?’

By contrast, absolutive subject interrogative phrases can stay in-situ in Amis, as exemplified by (12) below.

(12) Amis
   k<um>a’en cima tu titi aku
   <AV>eat who.ABS OBL meat 1SG.GEN
   ‘Who eats my meat?’
2.3.1.2 Wh-initial construction

To form questions that target absolutive NP arguments, i.e., the agent or experiencer in the agent voice construction or the patient/theme in the patient voice construction, Kavalan must resort to the second type of interrogative construction in which an interrogative phrase is placed at the clause-initial position. This question formation strategy is also available in Amis. The following sentences are for illustration.

(13) Kavalan
tiana (ya) q<m>an(=ay) tu ’may-ku
who ABS <AV>eat=REL OBL rice-1SG.GEN
‘Who eats my rice?’

(14) Amis
cima ku-ra mi-takaw-ay tu payci
who ABS-that AV-steal-FAC OBL money
‘Who steals money?’

Both (13) and (14) exhibit a non-canonical word order on the surface. The verb does not occur in the sentence-initial position, which is occupied by the interrogative phrase instead.

It should be noted that the term ‘wh-initial construction’ is used solely for descriptive purposes because it does not denote how the wh-initial word order is derived. In a predicate-initial language, there are at least three possible ways to derive the wh-initial word order: Wh-movement, cleft, and pseudo-cleft. These strategies of deriving a wh-initial question will be elaborated in Chapter 4. We will explore the syntactic properties of Kavalan and Amis wh-initial questions and argue that they exhibit the structure of a pseudo-cleft sentence in that chapter. The rest of this subsection will only discuss a subset of the empirical properties that characterize the wh-initial construction.
As shown in (13) and (14), what follows the interrogative phrase in a wh-initial question is a DP, which receives absolutive case, *ya* or *ku*. In (13), this DP is a headless relative clause, which is formed with the relativizer clitic =*ay* in Kavalan. With the relativizer, it is not difficult to observe the existence of a relative clause in (13). Moreover, the verb in this sentence is preceded by the absolutive case marker *ya*, which indicates that what follows it should be analyzed as a nominal constituent. The verb in the Amis sentence in (14) is preceded by an absolutive-marked demonstrative *kura*, which also suggests that there is a nominal constituent after it.

The occurrence of the case marker or the case-marked demonstrative alone does not constitute a sufficient piece of evidence for the claim that there is a headless relative clause in (13) and (14) that serves as the subject of the sentence. Note that there is no overt relativizer in the Amis example. As for Kavalan, the relativizer clitic, however, is optional, as indicated by the parenthesis in (13). The absolutive case marker *ya* is optional as well. When the sentence in (13) dispenses with the relativizer and the absolutive case marker, does it still exhibit the same structure? It is likely that the wh-phrase occurs in the sentence-initial position because it undergoes wh-movement. Chapter 4 will explore this issue, arguing that even without the relativizer, (13) and (14) do not involve wh-movement, but should be analyzed as pseudo-cleft questions. The syntactic structure of such pseudo-cleft questions will also be discussed in Chapter 4.

2.3.1.3 Interrogative words as non-verbal predicates and interrogative verbs

Kavalan and Amis can also form wh-questions by using interrogative phrases as non-verbal predicates directly. In this type of wh-questions, wh-phrases are used as the predicate of the sentence and are followed by a simple DP, which takes the absolutive
case marker. As the predicate of the sentence, wh-words occur in the sentence-initial position. This structure is expected to occur in both Kavalan and Amis, where there is no overt copular verb. The following sentences are for illustration.

(15) Kavalan  
   a. zanitiana ya wasu zau  
      whose ABS dog this  
      ‘Whose dog is it?’ (Lit. This dog is whose?)  
   b. kin-tani=ti ya sunis-su  
      HUM-how.many=PFV ABS child-2SG.GEN  
      ‘How many children do you have?’ (Lit. Your children are how many?)

(16) Amis  
   a. nima ku-ra wacu  
      whose ABS-that dog  
      ‘Whose dog is it?’ (Lit. That dog is whose?)  
   b. pa-pina ku wawa isu  
      HUM-how.many ABS child 2SG.GEN  
      ‘How many children do you have?’ (Lit. Your children are how many?)

While the interrogative words in (15) and (16) serve as non-verbal predicates, some interrogative words in Kavalan and Amis behave syntactically as verbs and are characterized by distinct structural properties. Hagège (2008: 3) defines interrogative verbs as “a kind of word which both functions as predicates and questions the semantic content of this predicate.” Chapter 3, which is devoted to the description of the interrogative verbs in the two languages, will discuss the morphosyntactic diagnostics for interrogative verbs in more detail. The following discussion only provides an overview of this particular use of interrogative words.

Interrogative words as verbs not only occur in the sentence-initial position but can also take voice markers, which is a crucial diagnostic for verbs in the two languages. Consider the following two sentences.
The syntactic distribution of *tian ‘where’ and *cuwa ‘where’ above conforms to all the criteria for verbs in these two languages. They occur in the sentence-initial position. More importantly, they take the patient voice marker -an or -en, as other typical verbs do in the two languages. There is no lexical verb in these sentences that denotes the meaning ‘put’. Instead, the verbal interrogatives *tan and *cu play dual roles, functioning as an interrogative word and a verb simultaneously. Therefore, *tan in (17) and *cu in (18) are not mere predicates, but should be analyzed as full-fledged verbs.

In addition to *tan ‘where’, other interrogative verbs in Kavalan include pasani ‘to where’, quni ‘go where’, qumuni ‘do what’, qunian ‘do how’, and tani ‘how many/much’. In addition to *cu ‘where’, maan in Amis can also be used as a verb. Verbal maan is interpreted as ‘do what’ or ‘do how’ and takes voice affixes, including the agent voice markers mi- and ma-, the patient voice marker -en, and the instrumental applicative marker sa-. Another interrogative verb in Amis is (pa)pina ‘how many’.

These interrogative verbs can be used alone or can co-occur with a semantically compatible lexical verb in an Interrogative Verb Sequencing Construction (IVSC), as illustrated below.

(17) Kavalan
tian-an-su ya keliw-su
where(verb)-PV 2SG.ERG ABS money-2SG.GEN
‘Where do you put your money?’
b. pasani-an-su m-azas ya kelisiw-ta
to.where(verb)-PV 2SG.ERG AV-take ABS money-1IPLGEN
‘Where do you take our money?’

(20) Amis
a. na maan-en ni panay mi-padang kisu
PST do.how-PV ERG PN AV-help 2SG.ABS
‘How did Panay help you?’

b. icuwa-en isu mi-simed ku payci
where(verb)-PV 2SG.ERG AV-hide ABS money
‘Where do you hide the money?’

An Interrogative Verb Sequencing Construction consists of two verbs: One is a verbal interrogative word and the other is a lexical verb that specifies the action involved in the sentence. Note that the term “Verb Sequencing Construction” is adopted only for descriptive purposes. The exact syntactic structure of this construction will be discussed in Chapter 7. The issue of whether there are any syntactic and semantic constraints on the use of wh-words as verbs will be addressed in Chapter 3 and a proposal of how Kavalan and Amis interrogative verbs are syntactically derived will be presented in Chapter 6.

2.3.2 Interrogative Constructions in Embedded Clauses

As the syntactic behavior of an interrogative phrase in an embedded clause could provide indirect evidence for the structural analysis of the interrogative constructions in main clauses, this section will explore the structural possibilities of embedded questions in the two languages under investigation. The three question formation strategies introduced above are all available to form an indirect question complement. That is, indirect questions in Kavalan and Amis exhibit the same descriptive options as direct questions.
In Kavalan, embedded wh-questions are introduced by the complementizer *tu*, which is also utilized to introduce non-interrogative complement clauses. As for their structure, except for the complementizer, they exhibit the same syntactic structure as their non-embedded counterparts. The following examples demonstrate that the three types of interrogative constructions discussed above are also employed to form embedded questions in Kavalan.

(21) Kavalan

a. **Wh-in-situ**

Rayngu-an-ku [tu maytis tu niana ti-abas]

not.know-PV-1SG.ERG COMP AV.afraid OBL what NCM-PN

‗I don‘t know what Abas is afraid of.‘

b. **Wh-initial**

Rayngu-an-na ni buya [tu ti-tiana m-ala=ay

not.know-PV-3ERG ERG PN COMP NCM-who AV-take=REL
tu kelisiw]

OBL money

‗Buya doesn‘t know who takes money.‘

c. **Interrogative verb**

Rayngu-an-ku [tu pasani-an-na m-azas

not.know-PV-1SG.ERG COMP to.where(verb)-PV-3ERG AV-take

ya kelisiw]

ABS money

‗I don‘t know where he takes the money.‘

In example (21a), the oblique-marked wh-word remains in-situ in the embedded clause. The interrogative word in the embedded question in (21b) does not occur in its canonical argument position, but precedes the verb. Finally, verbal wh-words are also allowed in embedded questions, as shown in (21c). Note that in all these examples, especially in (21b) and (21c), wh-words can never precede the complementizer *tu*.

An Amis embedded question is not introduced by an overt complementizer. It exhibits the same description options as a matrix question. That is, the same question
formation strategies introduced in Section 2.3.1 are also utilized to form indirect questions. The following sentences are for illustration.

(22) Amis

a. **Wh-in-situ**
   sa-ka-fana-an kaku [ma-alaw ni panay want-KA-know-want1SG.ABS PV-see ERG PN ku maan] ABS what
   ‘I want to know what Panay sees.’

b. **Wh-initial**
   sa-ka-fana-an kaku [cima ku ka-ula-h-an want-KA-know-want1SG.ABS who ABS KA-like-LA ni panay] ERG PN
   ‘I want to know who Panay likes.’

c. **Interrogative verb**
   ma-fukil kaku [talacuwa-en ni panay AV-not.know 1SG.ABS to.where(verb)-PV ERG PN ku-ra wawa] ABS-that child
   ‘I don’t know where Panay takes that child.’

The scope of the interrogative phrases in (21) and (22) is restricted to the embedded clause. That is, these examples all belong to indirect questions.

Nevertheless, even in a direct question where a syntactically embedded interrogative phrase has semantic wide scope, the interrogative phrase is not allowed to occur in the initial position of the main clause, but must remain in the embedded clause. Consider the following examples.

(23) Kavalan

a. s<cm>anu ti-imuy [tu tiana giRuziq=ay tu <AV>say NCM-PN COMP who steal=REL OBL kelisiw-ta] money-1IPL.GEN
   ‘Who does Imuy say steals our money?’
b. *tianaʳ s<an>m-anu ti-imuy [tu tₜ kiruziq=ay tu who <AV>say NCM-PN COMP steal=REL OBL kelisiw-ta] money-1PL GEN
'tWho does Imuy say steals our money?'

(24)  Amis
a.  ma-harateng isu [cima ku k<um>a'en-ay tu PV-think 2SG.ERG who ABS <AV>eat-FAC OBL titi aku] meat 1SG.GEN
'Who do you think eats my meat?'

b.  *cimaₜ ma-harateng isu [tₜ ku k<um>a'en-ay tu who PV-think 2SG.ERG ABS <AV>eat-FAC OBL titi aku] meat 1SG.GEN
'Who do you think eats my meat?'

Both (23a) and (24a) are direct questions that request the addressee to provide a piece of information. Even though the interrogative phrases tiana ‘who’ and cima ‘who’ have wide scope over the entire sentence, they must remain in the embedded clause. Regardless of the voice of the matrix verb, an attempt to move them to the sentence-initial position would lead to ungrammaticality, as illustrated in (23b) and (24b).

2.4 Wh-Words and Interrogative Constructions in Kavalan

The previous section has briefly depicted the three primary types of interrogative constructions in Kavalan and Amis: Wh-in-situ construction, wh-initial construction, and interrogative verbs. However, not all wh-words can appear in all the three types of constructions. Different wh-words exhibit distinct syntactic patterns in that they allow and disallow different strategies for question formation.

2.4.1 Wh-in-Situ and Wh-Initial Constructions

As discussed in Section 2.3.1.1, there is a syntactic restriction on the case of wh-words that are allowed to stay in-situ. That is, absolutive wh-words in Kavalan cannot
stay in-situ. The wh-initial construction must be utilized to question an absolutive NP.

The interrogatives in Kavalan that exhibit variation between wh-in-situ and wh-initial constructions include tiana ‘who’, niana ‘what’, zanitiana (= ay) ‘whose’, mayni (= ay) ‘which’, and tani ‘how many/much’. Table 2-3 summarizes how these interrogatives interact with the two question formation strategies in terms of case marking.

<table>
<thead>
<tr>
<th>wh-phrases</th>
<th>Wh-in-situ construction</th>
<th>Wh-initial construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>tiana ‘who’</td>
<td>x (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
<tr>
<td></td>
<td>√ (locative)</td>
<td></td>
</tr>
<tr>
<td>niana ‘what’</td>
<td>x (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
<tr>
<td>zanitiana (= ay) ‘whose’</td>
<td>x (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
<tr>
<td>tani ‘how’</td>
<td>x (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td>many/much’</td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
<tr>
<td>mayni (= ay) ‘which’</td>
<td>√ (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
</tbody>
</table>

In this table, a check √ means that the wh-word with a particular case marker is allowed to occur in that interrogative construction, whereas the symbol x means that it cannot occur in that construction. Note that for zanitiana = ay ‘whose,’ mayni = ay ‘which,’ and tani ‘how many/much’, the case marking that is indicated in the table refers to the case of the entire DP in which they occur. For example, ergative tani ‘how many/much’ means the NP it modifies takes ergative case marker, e.g., na u-tani wasu ‘ERG CLF.NHUM-how.many dog’.

Some patterns are worth a more detailed investigation. First of all, regardless of the type of interrogative words, only absolutive case-marked interrogatives can occur in
the wh-initial construction. That is, only questions that target an absolutive NP argument can utilize the wh-initial construction as a strategy. The following sentences are for illustration. In all the grammatical sentences below, the NP argument that the interrogative word replaces should receive absolutive case if it occurs in a declarative sentence. If not, the use of the wh-initial construction as a question formation strategy is prohibited.

(25) Kavalan *tiana 'who'
   a. *tiana (ya) q<m>an [ABS] tu ‘may-ku
      who <AV>=eat OBL rice-1SG.GEN
      ‘Who eats my rice?’ (Lit. The one that eats my rice is who?)
   b. *tiana (ya) p<m>ukun=isu [OBL]
      who <AV>hit=2SG.ABS
      ‘Who do you hit?’
   c. *tiana (ya) ala-an [ERG] ya kelisiw-ku
      who ABS take-PV ABS money-1SG.GEN
      ‘Who takes my money?’

(26) Kavalan *niana ‘what'
   a. *niana (ya) q<m>aRat [ABS] tu zapan-su
      what <AV>bite OBL leg-2SG.GEN
      ‘What bites your leg?’ (Lit. The stuff that bites your leg is what?)
   b. *niana (ya) maytis ti-abas [OBL]
      what ABS AV.afraid NCM-PN
      ‘What is Abas afraid of?’
   c. *niana (ya) qaRat-an-na [ERG] zapan-su
      what ABS bite-PV-3ERG leg-2SG.GEN
      ‘What bites your leg?’

(27) Kavalan *zanitiana=ay ‘whose’
   a. [zanitiana=aykelisiw] (ya) ala-an ni utay [ABS]
      whose=REL money ABS take-PV ERG PN
      ‘Whose money does Utay take?’ (Lit. What Utay takes is whose money?)
   b. *[zanitiana=ay kudus] (ya) qibasi ti-abas [OBL]
      whose=REL clothes ABS wash NCM-PN
      ‘Whose clothes does Abas wash?’
c. *[zanitiana=ay sunis], (ya) ala-an [ERG], kelisiw
   whose=REL child ABS take-PV money
   ‘Whose child takes the money?’

(28) Kavalan tani ‘how many’
   a. *[u-tani Ris]i (ya) q<m>aRat [ABS],
      NHUM-how.many mosquito ABS <AV>bite
      tu lima-su
      OBL hand-2SG.GEN
      ‘How many mosquitoes sting your hands?’ (Lit. The things that sting your hands are how many mosquitoes? or The mosquitoes that sting your hands are how many?)
   b. *[u-tani kelisiw], (ya) m-ala=isu [OBL],
      NHUM-how.many money ABS AV-take=2SG.ABS
      ‘How much money do you take?’
   c. *[u-tani Ris]i (ya) qaRat-an [ERG],
      NHUM-how.many mosquito ABS bite-PV
      lima-su
      hand-2SG.GEN
      ‘How many mosquitoes sting your hands?’

(29) Kavalan mayni=ay ‘which’
   a. *[mayni=ay sunis], (ya) tayta-an ni imuy [ABS],
      which=REL child ABS see-PV ERG PN
      ‘Which child does Imuy see?’ (Lit. The one that Imuy sees is which child?)
   b. *[mayni=ay saku], (ya) q<m>aRat ya wasu ‘nay [OBL],
      which=REL cat ABS <AV>bite ABS dog that
      ‘Which cat does the dog bite?’
   c. *[mayni=ay sunis], (ya) ala-an [ERG], kelisiw
      which=REL child ABS take-PV money
      ‘Which child takes the money?’

Secondly, it is worth noting that mayni(=ay) ‘which’ exhibits different patterns from all the other interrogative words. The sole conditioning factor for the distributions of tiana ‘who’, niana ‘what’, zanitiana=ay ‘whose’, and tani ‘how many’ regarding their occurrence in wh-in-situ or wh-initial questions lies in whether they receive absolutive case or not. If they receive absolutive case, the wh-initial construction must be utilized; if
not, they must occur in-situ. As exemplified by the sentences in (30) and (31), ab solutive *tiana 'who' and *niana 'what' cannot stay in-situ whereas oblique, ergative, and locative *tiana 'who' and *niana 'what' are allowed to stay in-situ.

(30)  Kavalan *tiana 'who'
   a. *q<m>an ya____tiana tu 'may-ku
      <AV>eat ABS who OBL rice-1SG. GEN
      'Who eats my rice?'
   b. m-qila ti-buy a tu____tiana
      AV-scold NCM-PN OBL who
      'Who does Buya scold?'
   c. ala-an-na=ti ni____tiana ya kelisiw-ku
      take-PV-3ERG=PFV ERG who ABS money-1SG. GEN
      'Who takes my money?'
   d. q<m>an=isu tu Raq ti-tiana-an
      <AV>eat=2SG. ABS OBL wine NCM-who-LOC
      'At whose place do you drink?'

(31)  Kavalan *niana 'what'
   a. *q<m>aRat ya____niana tu zapan-su
      <AV>bite ABS what OBL leg-2SG. GEN
      'What bites your leg?'
   b. maytis tu____niana ya ti-abas
      AV.afraid OBL what ABS NCM-PN
      'What is Abas afraid of?'
   c. qaRat-an na____niana ya zapan-su
      bite-PV ERG what ABS leg-2SG. GEN
      'What bites your leg?'

In-situ *zanitiana=ay 'whose' and *tani 'how many' exhibit the same pattern, as illustrated in (32) and (33).

(32)  Kavalan *zanitiana(=ay) 'whose'
   a. *qaRat-an na wasu 'nay ya____zanitiana saku
      bite-PV ERG dog that ABS whose cat
      'Whose cat does that dog bite?'
b. *m-ala ya zanitiana sunis tu kelisiw
   AV-take ABS whose child OBL money
   'Whose child takes money?'

c. m-ala ti-utay tu zanitiana kelisiw
   AV-take NCM-PN OBL whose money
   'Whose money does Utay take?'

d. qaRat-an na zanitiana wasu ti-utay
   bite-PV ERG whose dog NCM-PN
   'Whose dog bit Utay?'

(33) Kavalan tani ‘how many/much’
   a. *ala-an-na=ti ni buya ya u-tani kelisiw
      take-PV-3ERG=PFV ERG PN ABS NHUM-how many money
      ‘How much money does Buya take?’
   b. *t<m>ayta ya kin-tani sunis ti-buya-an
      <AV>see ABS HUM-how many child NCM-PN-OBL
      ‘How many children see Buya?’
   c. q<m>aRat ya wasu ‘nay tu kin-tani sunis
      <AV>bite ABS dog that OBL HUM-how many child
      ‘How many children does that dog bite?’
   d. pukun-an na kin-tani sunis wasu ‘nay
      hit-PV ERG NHUM-how many child dog that
      ‘How many children hit that dog?’

The interrogative word mayni(=ay) ‘which’ exhibits a different pattern in that it can
stay in-situ regardless of its case marking, as shown in (34) below. While absolutive
tiana ‘who’ and niana ‘what’ are prohibited from staying in-situ, absolutive mayni=ay
‘which’ phrase can stay in-situ.

(34) Kavalan mayni=ay ‘which’
   a. pukun-an ni utay ya mayni=ay wasu
      hit-PV ERG PN ABS which=REL dog
      ‘Which dog does Utay hit?’
   b. p<m>ukun ti-utay tu mayni=ay wasu
      <AV>hit NCM-PN OBL which=REL dog
      ‘Which dog does Utay hit?’
c. qaRat-an na mayni=ay wasu ya ti-utay
   bite-PV   ERG which=REL dog   ABS NCM-PN
   ‘Which dog bites Utay?’

The different pattern exhibited by mayni(=ay) ‘which,’ especially regarding in-situ absolutive interrogative, supports the validity of making a distinction between D-linked and non-D-linked wh-words proposed by Pesetsky (1987) and this will be discussed further in Chapter 5, which will explore how this distinction can be implemented to account for the Kavalan data.

Chapter 5 will also address the issue of how to explain the constraints on wh-in-situ and wh-initial questions regarding case marking. At least two approaches have been proposed to account for the ban on in-situ absolutive wh-phrases, or in-situ subject wh-phrases. While Richards (1998) and Sabel (2003) relate this prohibition to the semantic properties of ‘subjects’, Law (2006) resorts to the formal properties of both interrogative and non-interrogative phrase ‘subjects’. It will be argued that Sabel’s (2003) approach can better account for the Kavalan data. It will also be shown that the constraint on the formation of a wh-initial question results from the clause structure of Kavalan, i.e., how the verb-initial word order is derived.

2.4.2 Adverbial Interrogatives

In contrast to argument interrogative words like ‘who’ and ‘what,’ the interrogative word that denotes ‘when’ in Kavalan has quite free word order in that it can appear in sentence-initial, sentence-medial, or sentence-final position, as demonstrated by the following examples.

(35) Kavalan qumni ‘when’
   a. qumni tayta-an-su ti-buya
      when see-PV-2SG.ERG NCM-PN
      ‘When do you see Buya?’
b. tayta-an-su qumni ti-buya
   see-PV-2SG.ERG when NCM-PN
   ‘When do you see Buya?’

c. tayta-an-su ti-buya qumni
   see-PV-2SG.ERG NCM-PN when
   ‘When do you see Buya?’

In these examples, *qumni* ‘when’ occurs in-situ as it shares the same syntactic
distribution as the temporal adverb that it inquires about. The following declarative
sentences show that temporal expressions in Kavalan also exhibit free word order.

(36) Kavalan
   a. siRab tayta-an-ku ti-buya
      yesterday see-PV-1SG.ERG NCM-PN
      ‘I saw Buya yesterday.’

   b. tayta-an-ku siRab ti-buay
      see-PV-1SG.ERG yesterday NCM-PN
      ‘I saw Buya yesterday.’

   c. tayta-an-ku ti-buya siRab
      see-PV-1SG.ERG NCM-PN yesterday
      ‘I saw Buya yesterday.’

The word order fact suggests that *qumni* ‘when’ behaves like adverbial expressions and
the examples in (35) should be analyzed as wh-in-situ sentences. Unlike the
interrogative words discussed in the previous section, it does not exhibit variation
between in-situ and wh-initial structures.

The position of tense/aspect and pronominal clitics in Kavalan can lend further
support for the in-situ analysis of *qumni* ‘when’, especially (35a). A clitic in this language
is attached to the predicate of the clause, but it can also be cliticized to the first word,
e.g., a sentence-initial adverbial expression, and it is unselective to its host. However, in
an embedded complement clause, it can never be cliticized to the complementizer *tu*, as illustrated below.

(37) Kavalan
   a. kalingun-an-ku tu q<m>an=iku tu Raq
      forget-PV-1SG.ERG COMP <AV>eat=1SG.ABS OBL wine
      'I forgot that I drank.'
   b. *kalingun-an-ku tu=iku q<m>an tu Raq
      forget-PV-1SG.ERG COMP=1SG.ABS <AV>eat OBL wine
      'I forgot that I drank.'

One possible explanation for the ungrammaticality of (37b) is that a clitic in Kavalan cannot be attached to a word in the highest C domain. If this is on the right track, the sentence-initial *qumni* ‘when’ cannot be in the specifier of C, the assumed landing site of wh-movement, as this interrogative word can attract tense/aspect and pronominal clitics. This is illustrated in (38a). (38b) illustrates the parallel structure in a declarative sentence where the clitic =iku ‘1SG.ABS’ is attached to the sentence-initial temporal expression.

(38) Kavalan
   a. qumni=pa=isu 'tung tu babuy
      when=FUT=2SG.ABS kill OBL pig
      'When will you kill pigs?'
   b. temawaR=iku qatiw sa taipak
tomorrow=1SG.ABS go to Taipei
      'I will go to Taipei tomorrow.'

An alternative analysis is to treat a *qumni*-initial question like (35a) as a bi-clausal structure with *qumni* functioning as the predicate. That is, the interpretation of (35a) is roughly ‘When is (the time) you see Buya?’. The structure of a *qumni*-initial question is thus different from the structure of a question where *qumni* occurs in non-initial positions. The assumption of this analysis is that tense/aspect clitics and pronominal
clitics uniformly attach to the predicate. They are not second position clitics. This assumption is compatible with the empirical facts shown in (37). The clitics cannot be attached to the complementizer *tu* because it is not a predicate. By contrast, the fact that they can be attached to *qumni* in (38a) suggests that this interrogative word functions as the predicate when it occurs in the sentence-initial position.

That sentence-initial *qumni* might be distinct from sentence-medial or sentence-final *qumni* in terms of their syntactic status is supported by the word order constraint on this interrogative word when it co-occurs with *si*. The word order freedom of *qumni* is constrained by its temporal reference. This interrogative word can be combined with the conditional marker *si* to enquire about the time in the future. This is exemplified below.

(39) **Kavalan**
qumni si qatiw=isu sa taipak  
*when COND go=2SG.ABS to Taipei*  
‗When will you go to Taipei?‘

Without the conditional marker, the wh-word alone can still question a future time. There is a semantic distinction though. While *qumni* alone questions the near future, *qumni* plus the conditional marker *si* implies the distant future, as shown below.

(40) **Kavalan**
a. qumni qatapun=ita q<m>an  
*when together=1IPL.ABS <AV>eat*  
‗When are we going to eat together?‘ (near future)

b. qumni si qatapun=ita q<m>an  
*when COND together=1IPL.ABS <AV>eat*  
‗When will we eat together?‘ (distant future)

Moreover, when the interrogative word *qumni* is followed by *si*, it loses the word order freedom. Instead, it must occur in the sentence-initial position. As demonstrated in
the following examples, qumni si cannot occur sentence-medially or sentence-finally and the only grammatical position is sentence-initial.

(41) Kavalan
   a. qumni si qatiw=isu sa taipak
      when COND go=2SG.ABS to Taipei
      ‘When will you go to Taipei?’
   b. *qatiw=isu qumni si sa taipak
      go=2SG.ABS when COND to Taipei
      ‘When will you go to Taipei?’
   c. *qatiw=isu sa taipak qumni si
      go=2SG.ABS to Taipei when COND
      ‘When will you go to Taipei?’

More detailed analyses are required to shed light on how and why the conditional marker can affect the syntactic distribution of qumni. Whether sentence-initial qumni functions as the predicate or is just a variant of a wh-in-situ position is beyond the scope of this dissertation, which focuses on the structural analysis of argument wh-phrases and interrogative verbs. We leave this issue for future research.

Unlike qumni ‘when’, the interrogative word that denotes ‘why’ in Kavalan does not exhibit an adverbial nature in terms of word order. Kavalan mana ‘why’ must occur in the sentence-initial position, as suggested by the grammaticality contrast between (42a) and (42b)/(42c). (42d) further shows that mana can attract pronominal clitics. The grammaticality of (42d) suggests that mana might be a predicate as well. As the rest of the present dissertation will be devoted to the structure of argument wh-phrases and interrogative verbs, we have to leave this issue for future research too.

(42) Kavalan mana ‘why’
   a. mana ala-an-su kelisiw-ku
      why take-PV-2SG.ERG money-1SG.GEN
      ‘Why do you take my money?’
2.5 Wh-Words and Interrogative Constructions in Amis

This section provides a descriptive overview of interrogative constructions in relation to wh-words in Amis. Similarities and differences between Amis and Kavalan in this regard will also be pointed out.

### 2.5.1 Wh-in-Situ and Wh-Initial Constructions

Like Kavalan, nominal and determiner-like interrogative words in Amis can either occur in-situ or appear in the sentence-initial position.

<table>
<thead>
<tr>
<th>Wh-phrases</th>
<th>Wh-in-situ construction</th>
<th>Wh-initial construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>cima 'who'</td>
<td>√ (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
<tr>
<td>maan 'what'</td>
<td>√ (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
<tr>
<td>nima 'whose'</td>
<td>√ (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
<tr>
<td>pina 'how many'</td>
<td>√ (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
<tr>
<td>icuwaay 'which'</td>
<td>√ (absolutive)</td>
<td>√ (absolutive)</td>
</tr>
<tr>
<td></td>
<td>√ (oblique)</td>
<td>x (oblique)</td>
</tr>
<tr>
<td></td>
<td>√ (ergative)</td>
<td>x (ergative)</td>
</tr>
</tbody>
</table>
The distribution of wh-words in Amis is conditioned by their grammatical function or case marking, which might restrict them to only one construction. The results are summarized in Table 2-4.

As discussed above, in Kavalan, the wh-initial construction is utilized for question formation only when an absolutive argument is questioned. This similar constraint is also observed in Amis. An interrogative phrase can occur in the wh-initial construction only when it inquires about an absolutive argument. Consider the following examples of cima ‘who’.

(43) Amis cima ‘who’
   a. cima\textsubscript{i} ku ta-tayni [ABS]\textsubscript{i}
      who ABS IRR-come
      ‘Who will come?’ (Lit. The one that will come is who?)

   b. *cima-an\textsubscript{i} ku mi-liso ci-ofad [OBL]\textsubscript{i}
      who-OBL ABS AV-visit NCM-PN
      ‘Who does Ofad visit?’

   c. *nima\textsubscript{i} ku keter-en [ERG]\textsubscript{i} ku wawa
      who.ERG ABS scold-PV ABS child
      ‘Who scolded the child?’

In (43a), the missing argument should bear absolutive case in a declarative sentence, whereas the missing arguments in (43b) and (43c) bear oblique and ergative case respectively. Only (43a) is grammatical. The following examples illustrate the same constraint on maan ‘what’ (44), nima ‘whose’ (45), pina ‘how many’ (46), and icuwaay ‘which’ (47).

(44) Amis maan ‘what’
   a. [u maan\textsubscript{i}] ku ma-alaw-ay ni panay [ABS]\textsubscript{i}
      CN what ABS PV-see-FAC ERG PN
      ‘What does Panay see?’ (Lit. The thing that Panay sees is what?)
b. *'[u maan]ku k<um>a’en ku takula’ [OBL],
   CN what ABS <AV>eat ABS frog
   ‘What does the frog eat?’

c. *'[u maan]ku ma-ka’en [ERG], ku takula’
   CN what ABS PV-eat ABS frog
   ‘What eats the frog?’

(45) Amis nima ‘whose’
   a. [nima wawa]ku-ra ma-tulu’-ay [ABS],
      whose child ABS-that AV-fall-FAC
      ‘Whose child fell?’ (Lit. The one that fell is whose child?)

   b. *[nima pus]i ku mi-kalat ku wacu
      whose cat ABS AV-bite ABS dog
      ni panay [OBL],
      GEN PN
      ‘Whose cat does Panay’s dog bite?’

   c. *[nima wacu] ku kalat-en [ERG], ku
      whose dog ABS bite-PV ABS
      pusí aku
      cat 1SG.GEN
      ‘Whose dog bit es my cat?’

(46) Amis pina ‘how many’
   a. [pa-pina a wawa] ku ma-kalat-ay nu wacu [ABS],
      HUM-how many LNK child ABS PV-bite-FAC ERG dog
      i nacila
      PREP yesterday
      ‘How many children did the dog bite yesterday?’ (Lit. What the dog bit yesterday is how many children?)

   b. *[pina a pus]i ku mi-kalat
      how many LNK cat ABS AV-bite
      ku wacu isu [OBL],
      ABS dog 2SG.GEN
      ‘How many cats does your dog bite?’

   c. *[pina a wacu] ku kalat-en [ERG],
      how many LNK dog ABS bite-PV
      ku pusí aku
      ABS cat 1SG.GEN
      ‘How many dogs bite my cat?’
(47) Amis icuwaay ‘which’
   a. [icuwaay a wacu], ku ka-elah-an isu [ABS],
      which LNK dog ABS KA-like-LA 2SG.ERG
      ‘Which dog do you like?’ (Lit. What you like is which dog?)
   b. *[icuwaay a pusí], ku mi-kalat ku wacu
      which LNK cat ABS AV-bite ABS dog
      ni panay [OBL],
      GEN PN
      ‘Which cat does Panay’s dog bite?’
   c. *[icuwaay a wacu], ku kalat-en [ERG],
      which LNK dog ABS bite-PV
      ku pusí aku
      ABS cat 1SG.GEN
      ‘Which dog bites my cat?’

The above examples show that Kavalan and Amis share the same constraint on
the use of the wh-initial construction in terms of the grammatical function or case-
marking of the questioned NP. However, the conditioning factor for the in-situ questions
as observed in Kavalan does not exist in Amis. Whereas Kavalan does not allow
absolutive interrogative phrases to stay in-situ, except for mayni=ay ‘which’, the in-situ
strategy is available for all nominal and determiner-like interrogative phrases in Amis
regardless of their grammatical function or case-marking. For example, in (48) below,
cima ‘who’ can occur in-situ no matter what case it takes.

(48) Amis cima ‘who’
   a. c<cm>ikay cima
      <AV>run who.ABS
      ‘Who is running?’
   b. mi-liso ci-ofad i cima-an
      AV-visit NCM-PN PREP who-OBL
      ‘Who does Ofad visit?’
   c. keter-en nima ku wawa
      scold-PV who.ERG ABS child
      ‘Who scolds the child?’
The following sets of examples further demonstrate that the other nominal and
determiner-like interrogative phrases in Amis can also occur in-situ regardless of their
grammatical function or case-marking.

(49) Amis *maan* 'what'
   a. **ma-efer** ku maan
      **AV-fly** ABS *what*
   'What is flying?'
   b. **mi-aca** ci-panay tu maan
      **AV-buy** NCM-PN OBL *what*
   'What does Panay buy?'
   c. **ma-ka’en** nu maan ku takula’
      **PV-eat** ERG *what ABS frog*
   'What eats the frog?'

(50) Amis *nima* 'whose'
   a. **ma-alaw** isu ku nima wawa
      **PV-see** 2SG.ERG ABS *whose child*
   'Whose child do you see?'
   b. **mi-kalat** ku wacu ni panay tu nima a pusi
      **AV-bite** ABS dog GEN PN OBL *whose LNK cat*
   'Whose cat does Panay’s dog bite?'
   c. **kalat-en** nu nima a wacu ku pusi aku
      **bite-PV** ERG *whose LNK dog ABS cat 1SG.GEN*
   'Whose dog bites my cat?'

(51) Amis *pina* 'how many'
   a. **pa-ka’en-an** ni ngaday ku pina a wacu
      **CAU-eat-LA** ERG PN ABS *how many LNK dog*
   'How many dogs does Ngaday raise?'
   b. **mi-kalat** ku wacu isu tu pina a pusi
      **AV-bite** ABS dog 2SG.GEN OBL *how many LNK cat*
   'How many cats does your dog bite?'
   c. **kalat-en** nu pina a wacu ku pusi aku
      **bite-PV** ERG *how many LNK dog ABS cat 1SG.GEN*
   'How many dogs bite my cat?'
To summarize, in both Kavalan and Amis, the formation of a wh-initial question is conditioned by the grammatical function or case-marking of the argument that is inquired about. A wh-initial question is grammatical only when this argument is marked absolutive in the declarative counterpart. The discrepancy between the two languages lies in the formation of an in-situ question. Kavalan disallows an absolutive interrogative phrase from staying in-situ, except for *mayni=ay* ‘which=REL’, while Amis allows all interrogative phrases to stay in-situ regardless of their grammatical function or case-marking. It will be argued in Chapter 5 that the wh-in-situ pattern in Amis confirms Law’s (2006) claim that in-situ wh-phrases in Austronesian languages are allowed only when they can take the same formal maker, e.g., a determiner, as their non-interrogative counterparts. By contrast, the in-situ pattern in Kavalan is explained by the discourse constraint on the absolutive argument, which is definite and topical.

### 2.5.2 Adverbial Interrogatives

The interrogative word *(i)hakuwa* ‘when’ is used as an adverbial expression in that its word order is not fixed. It can occur sentence-initially (53a), sentence-finally (53b), or sentence-medially (53c).
The following sentences exemplify the distribution of a non-interrogative temporal expression. Like (i)hakuwa ‘when’, it can occur in the sentence-initial position (54a), the sentence-final position (54b), or the sentence-medial position (54c).

(54) Amis

a. i nacila ma-alaw aku ci-panay
   PREP yesterday PV-see 1SG.ERG NCM-PN
   ‘I saw Panay yesterday.’

b. ma-alaw aku ci-panay i nacila
   PV-see 1SG.ERG NCM-PN PREP yesterday
   ‘I saw Panay yesterday.’

c. ma-alaw aku i nacila ci-panay
   PV-see 1SG.ERG PREP yesterday NCM-PN
   ‘I saw Panay yesterday.’

Since (i)hakuwa ‘when’ shares the same syntactic distribution with its non-interrogative counterpart, we assume the questions in (53) are in-situ questions.

Like Kavalan qumni ‘when’, (i)hakuwa ‘when’ can be preceded by the conditional marker when it inquires about a future time. This is illustrated below.

(55) Amis

anu hakuwa a tayni ci-panay
COND when LNK come NCM-PN
‘When will Panay come?’
The combination with the conditional marker limits the distribution of *hakuwa* ‘when’ to the sentence-initial position. This suggests that the wh-initial position might be distinct from real wh-in-situ positions structurally. That is, the sentence-initial position occupied by (*i*) *hakuwa* might not be an ordinary adjunct position; (53a) might not be a wh-in-situ question. However, we will not further pursue this issue in the following discussion of the present dissertation.

Finally, the interrogative word *naw* ‘why’ can only occur in the sentence-initial position, as shown below.

(56) Amis

\[
\text{\textit{naw} ma-\text{ulah} ci-\text{panay} ci-\text{lekal-an}}
\]

\[
\text{\textit{why} AV-like NCM-PN NCM-PN-OBL}
\]

‘Why does Panay like Lekal?’

A separate study of the structure of adverbial wh-words is required.

**2.6 Conclusion**

This chapter has offered a descriptive overview of the interrogative constructions in Kavalan and Amis. There are three primary question formation strategies, i.e., wh-in-situ construction, wh-initial construction, and the use of interrogative words as verbs. The term “wh-initial construction” only depicts the surface word order of an interrogative sentence, but does not illuminate the syntactic structure of this construction. How a wh-initial construction is derived syntactically will be addressed in Chapter 4. It will be argued that a Kavalan and Amis wh-initial construction exhibits a pseudo-cleft structure. The interrogative phrase in a wh-initial construction does not undergo wh-movement to Spec, CP, and nor does it occupy the focus position of a cleft sentence. Only the pseudo-cleft analysis can capture all the grammatical properties of this construction.
The use of interrogative words as verbs is typologically rare and has not received due attention from linguists. The criteria to identify interrogative verbs and their unique properties thus deserve a more comprehensive description. This will be discussed in Chapter 3, which will further delineate the grammatical properties of interrogative verbs and explore the constraints on their use.

We have also discussed the constraints on the in-situ question and the wh-initial construction in relation to the grammatical function or case-marking of an interrogative word or phrase. In both Kavalan and Amis, the wh-initial construction is only available for questions where an absolutive argument is questioned. In Chapter 5, we will offer a syntactic explanation to account for this pattern. We will show that this constraint results from the predicate-initial derivation of Kavalan and Amis. As the predicate phrase is moved to the specifier of a higher functional projection, forming a syntactic island, nothing in the predicate phrase can be extracted. As the absolutive DP has moved out of the predicate phrase before the raising of the predicate phrase, it is the only DP that is available for further extraction.

Another constraint that needs explanation concerns the wh-in-situ patterns in Kavalan and Amis. While Amis allows all types of interrogative phrases to stay in-situ regardless of their grammatical function or case-marking, Kavalan interrogative phrases that receive absolutive case cannot stay in-situ, except for \textit{mayni=ay} ‘which=REL’. Chapter 5 will present two analyses that can account for the discrepancies between Kavalan and Amis. The wh-in-situ pattern in Amis corroborates Law’s (2006) account of wh-in-situ construction in other Austronesian languages, which resorts to the formal marking of subjects as an explanation. By contrast, the Kavalan pattern conforms to
Richards’s (1998) and Sabel’s (2003) account, which analyzes subjects in Austronesian languages as topics and attributes the ban on in-situ subject interrogatives to this semantic/discourse property.
CHAPTER 3
VERBAL INTERROGATIVES IN KAVALAN AND AMIS

3.1 Introduction

In addition to nominal, adjectival, and adverbial interrogative words, it has been found that interrogative words in some languages can behave syntactically as verbs (Cysouw 2004; Hagège 2003, 2008; L. Huang, et al. 1999; Idiatov and van der Auwera 2004). Hagège’s (2008) typological study and L. Huang, et al.’s (1999) study on some Austronesian languages in Taiwan argue for the existence of this typologically unusual question formation strategy: The use of interrogative words as verbs. Though rare, interrogative verbs have been found in many Formosan languages, e.g., Rukai (C. Chen 1999), Atayal dialects (L. Huang 1996; C. Lin 2005; Shih 2008), Puyuma (Teng 2007), in Australian languages such as Dyirbal (Dixon 1972), and in American Indian languages such as Jamul Tiipay (Miller 2001). It is also rather common in non-Formosan Austronesian languages, e.g., Cebuano (Tanangkingsing 2009), Maori (Bauer 1993), Mwotlap (François 2005), and Sundanese (Müller-Gotama 2001). The following two examples from Dyirbal and Jamul Tiipay show that ‘do.what’ is a morphologically simple interrogative verb in the two languages.

(1) Dyirbal
bayi yaŋ a wiyama-ɲu
NOM man.NOM do.what-INTR
‘What was man doing?’ (Dixon 1972: 55)

(2) Jamul Tiipay
me-ny-chaakeet-pu mamwi-a
2-ALI-jacket-DEM 2+do.what-Q
‘What did you do with your jacket?’ (Miller 2001: 177)

Except for Hagège’s (2008) typological study, which details the cross-linguistic properties of interrogative verbs, there has been no comprehensive survey of the
syntactic and semantic characteristics of interrogative verbs that provides sufficient
details for further theoretical analysis. This chapter will show that interrogative verbs
exhibit distinct grammatical properties that deserve a systematic theoretical analysis
with examples from Kavalan and Amis. Section 3.2 will first establish the diagnostics to
identify interrogative verbs in Kavalan and Amis. Based on these diagnostics, Section
3.3 will demonstrate what interrogative concepts can be encoded by interrogative verbs
in the two languages. The verbal constructions where the Kavalan and Amis
interrogative verbs can occur will be explored in Section 3.4. While Section 3.4 focuses
on the grammatical properties of interrogative verbs, Section 3.5 investigates the
constraints on the use of interrogative words as verbs. Section 3.6 concludes the
chapter and lists the issues that will be further addressed theoretically in Chapter 6 and
Chapter 7.

3.2 Diagnostics for Verbs in Kavalan and Amis

Hagège (2008: 3) defines interrogative verbs as “a kind of word which both
functions as predicates and questions the semantic content of this predicate.”
Morphologically, they cannot be decomposed into a verbal morpheme and an
interrogative morpheme synchronically. Main diagnostics for interrogative verbs lie in
their morphological and syntactic distribution. By definition, interrogative verbs share the
same morphological and syntactic distribution as other typical verbs. For example, they
can take the same inflectional and derivational morphemes as verbs, e.g., tense,
aspect, mood, valency, transitivity or intransitivity morphemes, voice, direction,
predicative, and person markers. The list in (3) is a summary of their morphosyntactic
features.
(3) Morphosyntactic features of interrogative verbs (Hagège 2008: 24-25)

a. They behave both as verbs and as question words (this does not mean, however, that they are the only units that cross-cut two or more categories).

b. They occur in sentences that normally do not contain a polar question marker.

c. They should not be confused with verbs inflected for the interrogative mood, such as found in certain languages.

d. They are distinct from predicatively used interrogative words.

e. Some of them are morphologically and semantically related to indefinite and deictic verbs.

f. Although they are semantically analyzable into two elements, for instance ‘do’ + ‘what’, ‘say’ + ‘what’, ‘be’ + ‘where’, etc., the majority of them are, in morphological terms, synchronically unanalyzable lexemes.

However, as verbal properties may vary from language to language, there is no single criterion that all interrogative verbs in different languages conform to. The morphological and syntactic evidence is mostly language-particular. Moreover, it is also important to distinguish between interrogative words that are used as verbal predicates and those that are used as non-verbal predicates. The criteria for the distinction may also vary from language to language.

L. Huang, et al.’s (1999) typological study of interrogative constructions in some Formosan languages identifies three syntactic categories of interrogative words in these languages: Nominal, adverbial, and verbal. Verbal interrogative words in Formosan languages, but not nominal or adverbial interrogative words, can be affixed with the so-called Philippine-type voice markers and tense/aspect markers, and host pronominal clitics (L. Huang, et al. 1999). For example, ‘how’ in Mayrinax Atayal is a verb as it can take either the agent voice marker (4a) or the patient voice marker (4b). It can also be infixed with the perfective morpheme (4a) and host pronominal clitics (4a, 4b).
Verbs in Kavalan and Amis share similar morphosyntactic properties as other Formosan languages. In the two languages, both verbs and non-verbal predicates occur in the sentence-initial position, as shown by the following examples.

(5) Kavalan
   a. k<m>ilm=iku tu iyu kya
      <AV>look.for=1SG.ABS OBL medicine PART
      ‘I looked for medicine.’ (KavCon-Angry_pilaw_abas, NTU corpus)
   b. sunis ni utay ya lazat a yau
      child GEN PN ABS person LNK that
      ‘That person is Utay’s child.’
   c. ta-paw-an ni buya aiku tangi
      LOC-house-LOC GEN PN 1SG.ABS now
      ‘I am at Buya’s place now.’

(6) Amis
   a. mi-pitpit cingra tu nasi nira
      AV-pluck 3SG.ABS OBL pear 3SG.GEN
      ‘He plucked his pears.’ (AmisNr-pear_panay, NTU corpus)
   b. u_____ amis ci-panay
      CN Amis NCM-PN
      ‘Panay is an Amis.’
   c. i_____ ciwkangan ku ruma’ ni panay
      PREP PN ABS house GEN PN
      ‘Panay’s home is at Ciwkangan.’

(5a) and (6a) demonstrate that verbs in Kavalan and Amis occur in the sentence-initial position. As shown in (5b) and (6b), nominal predicates also occupy the sentence-initial
position. Finally, (5c) and (6c) exemplify sentence-initial locative predicates in the two languages.

Both verbs and non-verbal predicates in Kavalan and Amis can take tense/aspect markers, as illustrated below. In Kavalan, both types of predicates can also attract pronominal clitics.

(7) Kavalan
a. kala-an-na=ti  a  biyat  a  yau
find-PV-3ERG=PFV  ABS  frog  LNK  that
‗He has found the frog.' (KavNr-frog_Haciang, NTU corpus)

b. bi-bidas-an-na=iku
RED-curse-PV-3ERG=1SG.ABS
‗He kept cursing me.' (KavCon-Angry_pilaw_abas, NTU corpus)

c. u-pitu=ti  naqiyan  tasaw  zin-ku  yu
NHUM-seventy=PFV  more  year  say-1SG.GEN  PART
‗(He) was in his seventies, I think.' (KavCon-earthquake_abas_Haciang, NTU corpus)

d. sunis=pama=ita,  m-duna  s<m>a-saRis  kya
child=still=1PL.ABS  AV-often  <AV>RED-hang.out  PART
‗When we were still children, we often hung out together, didn't we?' (KavCon-earthquake_abas_Haciang, NTU corpus)

(8) Amis
a.  <um>uwad=tu  cingra
<AV>get.up=PFV  3SG.ABS
‗He got up.'

b.  u  fahinayan=tu  kisu
CN  male=PFV  2SG.ABS
‗You have become a grown-up man.' (AmisNr-intro_ofad, NTU corpus)

Both (7a) and (7b) contain a verb that tense/aspect or pronominal markers can be cliticized to. This is also true of Amis verbs in (8a). (7c), (7d), and (8b) further show that tense/aspect and pronominal clitics can be attached to non-verbal predicates, e.g., nominal predicates.
The sentence-initial position and the ability to take tense/aspect markers and pronominal clitics are the properties of all types of predicates in Kavalan and Amis, but they cannot distinguish between verbs and non-verbal predicates. The crucial diagnostic for verb-hood in the two languages is the affixation of voice markers (Y.-L. Chang 1997; Wu 2006). Only verbs, but not non-verbal predicates, can take voice markers. As illustrated in (9) and (10) below, verbs can take voice markers, e.g., the agent voice marker (9a, 10a) or the patient voice marker (9b, 10b). If voice markers are affixed to non-verbal predicates, this would lead to ungrammaticality, as shown in (11) and (12).

(9) Kavalan
   a. s\textless{}m\textgreater{}anu=iku ti-utay tu lanas
      \textless{}AV\textgreater{}tell=1SG.ABS NCM-PN OBL thing
      'I tell Utay something.'
   b. kenit-an-ku ya zapan-ku
      pinch-PV-1SG.ERG ABS foot-1SG.GEN
      'I pinch my foot.'

(10) Amis
   a. ma-keter ci-ofad tu wawa nira
      AV-scold NCM-PN OBL child 3SG.GEN
      'Ofad scolds his child.'
   b. kecur-en nu-ya ekung cingra
      overlook-PV ERG-that owl 3SG.ABS
      'The owl looked at it.' (AmisNr-frog_ofad, NTU corpus)

(11) Kavalan
   a. (*m-)sunis ni utay ya lazat a yau
      AV-child GEN PN ABS person LNK that
      'That person is Utay's child.'
   b. *sunis-an-na
      child-PV-3SG.ERG
      'He is a child.'
Another morphosyntactic feature shared exclusively by verbs in Kavalan and Amis is that while the main verb in a Serial Verb Construction (SVC) can take either the agent voice marker or the non-agent voice marker, the secondary verb can only take the agent voice marker (Y.-L. Chang 2006; L. Huang 1997). This voice restriction on the secondary verb in an SVC is called AV-restriction and is illustrated below.

(13) Kavalan

a. matiw=iku q<m>an tu qawpiR
   AV.go=1SG.ABS <AV>eat OBL sweet.potato
   'I go eat sweet potatoes.'

b. *matiw=iku qan-an ya qawpiR
   AV.go=1SG.ABS eat-PV ABS sweet.potato
   'I go eat sweet potatoes.'

(14) Amis

a. lingatu-en=tu k<um>a‘en ku futing
   start-PV=PFV <AV>eat ABS fish
   'Start to eat fish!'  

b. *lingatu-en=tu ka’en-en ku futing
   start-PV=PFV eat-PV ABS fish
   'Start to eat fish!'  

---

1 The term Serial Verb Construction (SVC) is adopted only for descriptive purposes as there is controversy over whether the so-called SVC in Formosan linguistics literature is true SVC (Y. Chen 2008).
The difference between (13a) and (13b) lies in the voice marker that the second verb \textit{qan} 'eat' takes. It can only take the agent voice marker (13a), but not the patient voice marker (13b). This AV-restriction on the secondary verb can also be observed in Amis serial verb sentences where the first verb denotes aspect, manner, or emotion (Wu 2000).\textsuperscript{2} The sentences in (14) are for illustration. By contrast, when a non-verbal predicate is followed by a verb, the AV-restriction is not observed. For example, in the following Kavalan sentence, the verb following the sentence-initial predicate takes the patient voice marker and this does not result in ungrammaticality.

(15) Kavalan
\begin{verbatim}
kelisiw qiRuziq-an ni utay, usa sudad
money steal-PV ERG PN NEG book
\end{verbatim}

‘What Utay steals is money, not books.’

What follows is a summary of the morphosyntactic characteristics shared by predicates in Kavalan and Amis. Both verbs and non-verbal predicates exhibit the morphosyntactic patterns listed in (16a) and (16b), while (16c) and (16d) are unique to verbs.

(16) Morphosyntactic properties of predicates in Kavalan and Amis
a. Both verbs and non-verbal predicates occur in the sentence-initial position.
b. Both verbs and non-verbal predicates can take tense/aspect markers and attract pronominal clitics.
c. Only verbs can take voice affixes.
d. In a Serial Verb Construction, the second verb can only take the agent voice marker whereas there is no voice restriction on the main verb. A non-verbal predicate does not impose voice restriction on the verb that follows it.

This list will be used to determine whether an interrogative word in these two languages behaves as a verb or non-verbal predicate in the following section.

\textsuperscript{2} Wu (2000) classifies Amis serial verb sentences into three types based on the morphosyntactic properties of the secondary verb. Only the first type that she identifies exhibits the AV-restriction.
3.3 Verbal Interrogatives in Kavalan and Amis

The interrogative words in Kavalan and Amis are listed in (17) and (18) respectively. Not all of them can be used as verbal interrogatives.

(17) Interrogative Words in Kavalan
a. tiana ‘who’
b. niana ‘what’
c. zanitiana(=ay) ‘whose’
d. mayni(=ay) ‘which’
e. tani ‘how many/much’
f. qumni ‘when’
g. mana ‘why’
h. (na)quni ‘do what; do how’
i. quni ‘go where’
j. tanian ‘where’
k. pasani ‘to where’
l. maqni ‘from where’

(18) Interrogative Words in Amis
a. cima/nima/cimaan ‘who’
b. maan ‘what; do what; do how’
c. nima ‘whose’
d. icuwaay ‘which’
e. pina ‘how many’
f. hakuwa ‘how much’
g. (i)hakuwa ‘when’
h. naw ‘why’
i. icuwa ‘where’
j. talacuwa ‘to where’

In Kavalan, tiana ‘who’, niana ‘what’, zanitiana(=ay) ‘whose’, and mayni(=ay) ‘which’ can occur in the sentence-initial position and take tense/aspect markers or pronominal clitics. Based on the criteria listed in (16a) and (16b), this morphosyntactic distribution suggests that they can be used as predicates, as shown in the following (a) sentences. However, they cannot be used as verbs because they cannot take voice markers, as illustrated by the ungrammaticality of the (b) sentences below. The affixation of voice markers is a crucial diagnostic for verb-hood in the two languages (16c). (19a), (20a), and (22a) are examples of the wh-initial construction. Chapter 4 will
demonstrate the morphosyntactic properties of this construction in more detail and argue that it is a pseudo-cleft structure with the interrogative word as the predicate. For the purpose of this chapter, the contrast between (a) and (b) in the following pairs of sentences is sufficient to show that these interrogative words cannot be used as verbs.

(19) Kavalan *tiana* ‘who’ as a non-verbal predicate
   a. tiana=ti ya q<m>an=ay tu 'may-ku
      who=PFV ABS <AV>eat=REL OBL rice-1SG.GEN
      ‘Who ate my rice?’ (Lit. The one that ate my rice was who?)
   
b. *tiana-an q<m>an ya/tu 'may-ku
      who-PV <AV>eat ABS/OBL rice-1SG.GEN
      ‘Who ate my rice?’

(20) Kavalan *niana* ‘what’ as a non-verbal predicate
   a. niana=ti ya q<m>aRat=ay tu zapan-su
      what=PFV ABS <AV>bite=REL OBL leg-2SG.GEN
      ‘What bit your leg?’ (Lit. The thing that bit your leg was what?)
   
b. *niana-an q<m>aRat ya/tu zapan-su
      what-PV <AV>bite ABS/OBL leg-2SG.GEN
      ‘What bit your leg?’

(21) Kavalan *zanitiana* (=ay) ‘whose’ as a non-verbal predicate
   a. zanitiana=ti ya wasu zau
      whose=PFV ABS dog this
      ‘Whose dog was it?’ (Lit. This dog was whose?)
   
b. *zanitiana-an na wasu zau
      whose-PV ERG dog this
      ‘Whose dog was it?’

(22) Kavalan *mayni* (=ay) ‘which’ as a non-verbal predicate
   a. mayni=ay ya ngid-an-su wasu
      which=REL ABS want-PV-2SG.ERG dog
      ‘Which dog do you want?’ (Lit. The dog that you want is which?)
   
b. *mayni-an ngid-an-su wasu
      which-PV want-PV-2SG.ERG dog
      ‘Which dog do you want?’
These examples also show that there is no verb serialization when these interrogative words or phrases are used as non-verbal predicates as the verbs that follow them do not observe the AV-restriction (16d).

The interrogative words qumni ‘when’ and mana ‘why’ in Kavalan cannot be used as verbs either. As demonstrated below, although they can occur in the sentence-initial position, they cannot be affixed with voice markers. The verb that follows them is not restricted to the agent voice, which suggests that no verb serialization is involved in these questions.

(23) Kavalan qumni ‘when’
   a. qumni tayta-an-su ya ti-buya
      when see-PV-2SG.ERG ABS NCM-PN
      ‘When do you see Buya?’
   b. *qumni-an-su t<m>ayta ti-buya-an
      when-PV-2SG.ERG <AV>see NCM-PN-LOC
      ‘When do you see Buya?’

(24) Kavalan mana ‘why’
   a. mana ala-an-su ya kelisiw-ku
      why take-PV-2SG.ERG ABS money-1SG.GEN
      ‘Why do you take my money?’
   c. *mana-an-su m-ala ya kelisiw-ku
      why-PV-2SG.ERG AV-take ABS money-1SG.GEN
      ‘Why do you take my money?’

The interrogative words in Kavalan that behave as verbs include those that denote notions like ‘do what’, ‘do how’, ‘where’, and ‘how many’: (na)quni ‘do what; do how’, quni ‘go where’, tanian ‘where’, pasani ‘to where’, tani ‘how many’, and sika-tani ‘do how many times’. See the following examples for illustration.

(25) Interrogative Verbs in Kavalan
   a. q<um>uni=isu tangi
      <AV>do.what=2SG.ABS just.now
      ‘What were you doing just now?’
b. sa-pa-quni-an-na sapaR
   INS-CAU-do.what-PV-3ERG wooden.plank
   ‘What did they (we Kavalan people) want wooden boards for?’ (KavCon-earthquake_abas_Haciang)

c. (na)quni-an-su m-kala ya sunis a yau
   do.how-PV-2SG.ERG AV-find ABS child LNK that
   ‘How do you find that child?’

d. quni=pa=isu
   go.where=FUT=2SG.ABS
   ‘Where are you going?’

e. tanian-an-su ya kelisiw-su
   where(verb)-PV-2SG.ERG ABS money-2SG.GEN
   ‘Where do you put your money?’

f. pasani-an-su ya kelisiw-su
   to.where(verb)-PV-2SG.ERG ABS money-2SG.GEN
   ‘Where do you take your money?’

g. u-tani-an-su ya kelisiw
   NHUM-how.many(verb)-PV-2SG.ERG ABS money
   ‘How much money do you want/take?’

h. sika-tani-an-su p<\textless m>ukun ya sunis
   times-how.many(verb)-PV-2SG.ERG <AV>hit ABS child
   ‘How many times do you hit the child?’

These interrogative words not only occur in the sentence-initial position but can also take voice markers, \(<\textit{um}>\) or \(-an\), which indicates that they share the same morphosyntactic distribution with verbs in this language. In other words, they are used as full-fledged verbs.

Note that ‘do what’, ‘do how’, and ‘go where’ share the same root \textit{quni}. When this root takes the agent voice marker as in (25a), it is interpreted as ‘do what’; when it takes the patient voice marker and the instrument causative prefixes, \textit{sa-pa-}, as in (25b), it

\footnote{\textit{Sika-tani} ‘times-how.many’ can be reduced to \textit{sikani}.}
means ‘do for what’; when it takes the patient voice marker as in (25c), it is interpreted as ‘do how’; when it is used in its bare form without any overt voice markers as in (25d), it is interpreted as ‘go where’. Although quni in (25d) does not take any overt voice markers, it is still analyzed as a verb because there is no corresponding lexical item in this sentence that expresses the meaning of ‘go’. It is possible that it takes the non-overt variant of the agent voice marker, Ø-.

All the interrogative words in (25) serve as a verb and question their own semantic content simultaneously. However, it should be noted that tanian ‘where’, pasani ‘to where’, and tani ‘how many’ cannot take the agent voice marker. They must take the patient voice marker -an to be used as a verb. For example, without the patient voice marker -an, tanian ‘where’ alone does not denote the meaning ‘put’ or ‘place’. Likewise, if tani ‘how many’ is not suffixed with the patient voice marker, the meaning of ‘want’ or ‘take’ is lost. This is illustrated by the following two sentences.

(26) Kavalan
   a. tanian ya kelisiw-su
      where ABS money-2SG.GEN
      ‘Where is your money?’
   b. u-tani ya kelisiw
      NHUM-how.many ABS money
      ‘How much money is there?’

Like their Kavalan counterparts, cima ‘who’, nima ‘whose’, and icuwaay ‘which’ in Amis can behave morphosyntactically as non-verbal predicates, but lack the verbal property of taking voice markers. As shown in the following (a) sentences, they occur in the sentence-initial position and can take tense/aspect markers. However, if they are affixed with voice markers, the sentences become ungrammatical, as illustrated in the following (b) sentences.
(27) Amis cima ‘who’ as a non-verbal predicate
a. cima=tu ku tayni-ay
   who=PFV ABS come=FAC
   ‘Who has come?’ (Lit. The one that has come was who?)

b. *ma-cima=tu ku tayni-ay
   AV-who=PFV ABS come=FAC
   ‘Who has come?’

(28) Amis nima ‘whose’ as a non-verbal predicate
a. nima=tu ku-ra wacu
   whose=PFV ABS-that dog
   ‘Whose dog was it?’ (Lit. That dog was whose?)

b. *ma-nima ku-ra wacu
   AV-whose ABS-that dog
   ‘Whose dog was it?’

(29) Amis icuwaay ‘which’ as a non-verbal predicate
a. icuwaay=tu ku ka-ulah-an isu a wacu
   which=PFV ABS KA-like=LA 2SG.ERG LNK dog
   ‘Which dog did you like?’ (Lit. The dog that you liked was which?)

b. *icuwaay-en isu ma-ulah ku wacu
   which-PV 2SG.ERG AV-like ABS dog
   ‘Which dog do you like?’

The interrogative words ihakuwa ‘when’ and naw ‘why’ in Amis cannot take voice markers either. In other words, they cannot be used as verbs. This is illustrated in (30) and (31) below.

(30) Amis ihakuwa ‘when’
    a. ihakuwa ma-alaw isu ci-panay
       when PV-see 2SG.ERG NCM-PN
       ‘When do you see Panay?’

    b. *ihakuwa-en ma-alaw isu ci-panay
       when-PV PV-see 2SG.ERG NCM-PN
       ‘When did you see Panay?’

(31) Amis naw ‘why’
    a. naw ma-ulah ci-panay ci-lekal-an
       why AV-like NCM-PN NCM-PN-OBL
       ‘Why does Panay like Lekal?’
b. *naw-en ma-elah ci-panay ci-lekal-an  
why-PV AV-like NCM-PN NCM-PN-OBL  
‘Why does Panay like Lekal?’

While the nominal interrogative ‘what’ and the verbal interrogative ‘do what’ are denoted by two different words in Kavalan, i.e., *niana ‘what’ and *quni ‘do what’, Amis uses a single lexical item to denote both interrogative concepts: *maan. The interrogative word *maan can be used as a nominal interrogative word in that it can occur in a nominal-argument position and be preceded by case markers. This is illustrated in (32a) and (32b) below.

(32) Amis nominal *maan ‘what’
   a. ma-talaw ci-lekal tu *maan  
      AV-afraid NCM-PN OBL what  
      ‘What is Lekal afraid of?’
   b. ma-ka’en nu *maan ku takula’  
      PV-eat ERG what ABS frog  
      ‘What eats the frog?’

It can also be used as a non-verbal predicate, as shown in (33), where it occurs in the sentence-initial position.

(33) Amis *maan ‘what’ as a non-verbal predicate
    *maan ku ma-alaw-ay ni panay  
    what ABS PV-see-FAC ERG PN  
    ‘What does Panay see?’ (Lit. The thing that Panay sees is what?)

Finally, *maan can take voice markers and be used as a verb. In this case, it can be interpreted as ‘do what’ when it takes the agent voice marker *mi- or the patient voice marker -en (34a, 34b), as ‘what happen’ when it takes the agent voice marker *ma- (34c), as ‘do for what’ when it takes the instrument applicative marker *sa- (34d), or as ‘do how’ when it takes the patient voice marker -en or -han (34e, 34f).
Amis *maan* ‘what’ as a verb

a. mi-maan ci-panay
   AV-do.what NCM-PN
   ‘What is Panay doing?’

b. na maan-en isu ku-ra wacu
   PST do.what-PV 2SG.ERG ABS-that dog
   ‘What did you do to the dog?’

c. ma-maan cingra
   AV-what.happen 3SG.ABS
   ‘What happened to him?’

d. sa-pi-maan kura talalikan
   IA-PI-do.what ABS-that tool.for.pounding.glutinous.rice
   ‘What is TALALIKAN used for?’

e. na maan-en ni panay mi-padang kisu
   PST do.how-PV ERG PN AV-help 2SG.ABS
   ‘How did Panay help you?’

f. na maan-han isu tayni
   PST do.how-PV 2SG.ERG come
   ‘How did you come?’

In addition to *maan*, the interrogative words that denote ‘where’ in Amis can also be used as verbs, i.e., *icuwa* ‘where’ and *talacuwa* ‘to where’. Consider the following examples.

Amis *icuwa* ‘where’ and *talacuwa* ‘to where’

a. icuwa-en isu ku payci
   where(verb)-PV 2SG.ERG ABS money
   ‘Where do you put the money?’

b. talacuwa-en ni panay ku-ra wawa
   to.where(verb)-PV ERG PN ABS-that child
   ‘Where does Panay take the child?’

The syntactic distribution of *icuwa* and *talacuwa* conforms to all the diagnostics for verb-hood in Amis. It occurs in the sentence-initial position. More importantly, it can take the patient voice marker -*en*, as other typical verbs do in the language. There is no lexical
verb in (35) that denotes the meaning ‘put’ or ‘take’. Instead, the verbal interrogatives 
icuwa and talacuwa play dual roles, functioning as an interrogative word and a verb simultaneously. Therefore, 
icuwa in (35a) and talacuwa in (35b) are not mere predicates, but should be analyzed as full-fledged verbs.

Another set of interrogative verbs in Amis questions quantity or frequency: 
pina ‘how many’, 
hakuwa ‘how much’, and 
kina-pina ‘times-how many’. As shown in the following examples, they occur in the sentence-initial position and take the patient voice marker -en.

\begin{tabular}{lllll}
(36) & Amis & pina ‘how many’, & hakuwa ‘how much’, & kina-pina ‘times-how many’ \\
\hline
a. & pina-en & ni & ofad & ku payci \\
 & how.many-PV & ERG & PN & ABS money \\
 & ‘How much money does Ofad want/take?’ \\
b. & pa-pina-en & isu & mi-lawup & ku wawa \\
 & HUM-how.many-PV & 2SG.ERG & AV-chase & ABS child \\
 & ‘How many children will you chase?’ \\
c. & hakuwa-en & isu & mi-falah & ku lakaw \\
 & how.much-PV & 2SG.ERG & AV-throw & ABS garbage \\
 & ‘How much garbage will you throw away?’ \\
d. & kina-pina-en & nu & wacu & mi-kalat & ku pusi \\
 & times-how.many-PV & ERG & dog & AV-bite & ABS cat \\
 & ‘How many times does the dog bite the cat?’ \\
\end{tabular}

Unlike \textit{maan} ‘do what; do how’, the Amis interrogative verbs that inquire about location and quantity cannot take the agent voice marker, but must be affixed with the patient voice marker. The exact same constraint is also observed in Kavalan, as already discussed above. When \textit{icuwa} ‘where’ and \textit{pina} ‘how many’ are used without the patient voice marker, they cannot express meanings like ‘put’ or ‘take’. This is illustrated in (37) below.
Table 3-1 lists what interrogative words can be used as verbs in Kavalan and Amis.

<table>
<thead>
<tr>
<th>Basic Interrogative Meaning</th>
<th>Interrogative Verbs in Kavalan</th>
<th>Interrogative Verbs in Amis</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHAT</td>
<td>q&lt;um&gt;uni ‘do what’</td>
<td>mi-maan ‘do what’</td>
</tr>
<tr>
<td></td>
<td>sa-pa-quni-an ‘do for what’</td>
<td>maan-en ‘do what’</td>
</tr>
<tr>
<td></td>
<td>(INS-CAU-do what-PV)’</td>
<td>ma-maan ‘what happen’</td>
</tr>
<tr>
<td></td>
<td>sa-pi-maan ‘do for what’</td>
<td>sa-pi-maan ‘do what’</td>
</tr>
<tr>
<td>HOW</td>
<td>(na)quni-an ‘do how-PV’</td>
<td>maan-en ‘do how-PV’</td>
</tr>
<tr>
<td></td>
<td>quni ‘go where’</td>
<td>maan-han ‘do how-PV’</td>
</tr>
<tr>
<td>WHERE</td>
<td>tanian-an ‘where-PV’</td>
<td>icuwa-en ‘where-PV’</td>
</tr>
<tr>
<td></td>
<td>pasani-an ‘to where-PV’</td>
<td>talacuwa ‘to where-PV’</td>
</tr>
<tr>
<td>HOW MANY/MUCH</td>
<td>tani-an ‘how many-PV’</td>
<td>pina-en ‘how many-PV’</td>
</tr>
<tr>
<td></td>
<td>sika-tani-an ‘times how many-PV’</td>
<td>hakuwa-en ‘how much-PV’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>kina-pina-en ‘times how many-PV’</td>
</tr>
</tbody>
</table>

It should be noted that the interrogative verbs that denote ‘do what’ and ‘do how’ share the same root in both languages. The two interrogative notions are conceptually related as a ‘do how’-question can be easily paraphrased as a ‘do what’-question. For example, ‘How did you find the child?’ can be paraphrased as ‘What did you do to find the child?’.

Due to the conceptual affinity, it should not be surprising that languages like Kavalan and Amis can utilize a single form to express both meanings.

3.4 Interrogative Verb Constructions

Interrogative verbs in Kavalan and Amis can appear in three types of verbal constructions: Intransitive construction, transitive construction, and verb sequencing construction. What verbal construction an interrogative verb can occur in is correlated
with the voice markers that it is allowed to take. If an interrogative verb takes the agent voice marker, it is used as an intransitive verb. If it takes the patient voice marker, it shows up as a transitive verb, a ditransitive verb, or as the main verb of a verb sequencing construction.

3.4.1 Intransitive Interrogative Verbs

Interrogative verbs in Kavalan and Amis show up as intransitive verbs when they are affixed with the agent voice marker, *<um>* or *∅*- in Kavalan and *mi*- or *ma*- in Amis.

Consider the following examples.

(38) Intransitive interrogative verbs in Kavalan
a. q<um>uni=isu *tangi*  
<AV>do.what=2SG.ABS  just.now
‗What were you doing just now?‘

b. quni=pa=isu  
go.where=FUT=2SG.ABS
‗Where are you going?‘

(39) Intransitive interrogative verbs in Amis
a. mi-maan  ci-panay  
<AV>do.what  NCM-PN
‗What is Panay doing?‘

b. ma-maan  cingra  
<AV>what.happen  3SG.ABS
‗What happened to him?‘

The interrogative verbs in (38) and (39) have only one argument, agent (38a, 38b, 39a) or theme (39b). The contrast between (39a) and (39b) supports previous findings on how the different agent voice markers in Amis can influence the interpretation of roots.

According to Wu (2006), Amis verbs that are prefixed with *mi-* usually express purposive or progressive meaning, whereas *ma-* is usually associated with states or change of state. When *maan* takes *mi-*, the composite form acquires the progressive
meaning of *mi-* and is thus interpreted as ‘be doing what’. When the same interrogative root is affixed with *ma-* the composite form denotes a state or change of state, ‘what happen to’, due to the Aktionsart semantics of *ma*.

### 3.4.2 Transitive Interrogative Verbs

Interrogative verbs in Kavalan and Amis can also be used as transitive or ditransitive verbs when they take non-agent voice markers, as shown in (40) and (41).

All the transitive interrogative verbs above take non-agent voice markers: The patient voice marker or the instrument applicative marker. They all involve two arguments, an agent and a theme.

(40) Transitive interrogative verbs in Kavalan

a. quni-an na wasu ya saku ‘nay
do.what-PV  ERG  dog ABS  cat that
‘What does the dog do to that cat?’

b. tanian-an-su ya kelisiw-su
where(PV)-PV-2SG.ERG  ABS  money-2SG.GEN
‘Where do you put your money?’

c. u-tani-an-su ya kelisiw
NHUM-how.many(PV)-PV-2SG.ERG  ABS  money
‘How much money do you want/take?’

(41) Transitive interrogative verbs in Amis

a. na maan-en isu ku-ra wacu
PST  do.what-PV  2SG.ERG  ABS-that  dog
‘What did you do to that dog?’

b. sa-pi-maan ku-ra talalikan
IA-PI-do.what  ABS-that  tool.for.pounding.glutinous.rice
‘What is TALALIKAN used for?’

c. na maan-han ni panay ku pi-tangtang
PST  do.how-PV  ERG  PN  ABS  PI-cook
tu-na dateng
OBL-that  dish
‘How did Panay cook that dish?’ (Lit. How was the cooking of that dish done by Panay?)
d. icuwa-en isu ku payci
     where(verb)-PV 2SG.ERG ABS money
     'Where do you put the money?'

e. pina-en ni ofad ku paysu
     how many-PV ERG PN ABS money
     'How much money does Ofad want/take?'

For example, when Amis maan is suffixed with the patient voice marker -en, the
composite form maan-en (41a) denotes a transitive scenario ‘A does what to B’. This is
in stark contrast to the agent voice construction in (39) and (39b). When maan is
affixed with mi-, an agent voice marker, the action that is inquired about does not
specify any specific theme. When it is affixed with another agent voice marker ma-, the
question concerns the state of a theme argument without the implication that an agent is
involved. Moreover, some of these transitive interrogative verbs can be analyzed as
ditransitive verbs, e.g., tanian (40b) and icuwa (41d). The basic interrogative meaning of
these words concerns location, i.e., ‘where’. In addition to functioning as a verb, they
question the location of the theme argument of a ditransitive event, e.g., the location of
kelisiw-su ‘your money’ in (40b). In other words, they denote the meaning of a
ditransitive verb, e.g., ‘put’ or ‘take’, and question its location argument simultaneously.

A comparison between intransitive and transitive interrogative verbs suggests that
the transitivity of interrogative verbs in Kavalan and Amis is correlated with their voice
markers. Agent-voice–marked interrogative verbs are intransitive verbs while non-
agent-voice–marked interrogative verbs are transitive or ditransitive. This finding is
consistent with the result of previous studies on the transitivity in Formosan languages.
It has been argued that the crucial distinction between agent voice and patient voice (or
non-agent voice in general) lies in their transitivity (Huang and Tanangkingsing 2011;
Liao 2002, 2004; Ross and Teng 2005). The canonical transitive sentence in Kavalan is the patient voice construction with the -an suffix on the verb, while the agent voice construction is intransitive or antipassive (Huang and Tanangkingsing 2011; Liao 2002, 2004). Likewise, the patient voice marker -en in Amis is correlated with high agentivity or transitivity (Wu 2006). Therefore, it is highly likely that what renders an interrogative word a verb in Kavalan and Amis is the voice marker on it and the choice among different voice markers could further induce differences in transitivity. Chapter 6 will discuss the syntactic derivation of interrogative verbs along this line of analysis.

3.4.3 Interrogative Verb Sequencing Construction

Some interrogative verbs in Kavalan and Amis can also appear in a verb sequencing construction where they precede a lexical verb. This construction is termed ‘Interrogative Verb Sequencing Construction’, or IVSC, in the present dissertation. The following sentences are for illustration.

(42) Interrogative Verb Sequencing Construction in Kavalan
a. naquni-an-su m-kala ya sunis a yau
do.how-PV-2SG.ERG AV-find ABS child LNK that
‗How do you find that child?‘

b. tanian-an-su m-nubi ya kelisiw-ta
where(verb)-PV-2SG.ERG AV-hide ABS money-1PL.GEN
‗Where do you hide our money?‘

c. u-tani-an-su m-ala ya kelisiw
NHUM-how.many(verb)-PV-2SG.ERG AV-take ABS money
‗How much money do you take?‘

(43) Interrogative Verb Sequencing Construction in Amis
a. na maan-en ni panay (a) mi-padang kisu
PST do.how-PV ERG PN LNK AV-help 2SG.ABS
‗How did Panay help you?‘

b. icuwa-en isu (a) mi-simed ku payci
where(verb)-PV 2SG.ERG LNK AV-hide ABS money
‗Where do you hide the money?‘

97
c. pina-en isu (a) mi-pacuk ku fafuy
how many (verb) - PV 2SG. ERG LNK AV-kill ABS pig
‘How many pigs do you kill?’

What follows is the general surface pattern of an IVSC.

(44) IVSC
[Interrogative. Verb - PV ERG-Agent AV-Lexical. Verb ABS-Theme]

The interrogative verb must precede the lexical verb and must be affixed with the patient voice marker. By contrast, the lexical verb can only take the agent voice marker. Note that there is an optional linker before the lexical verb in an Amis IVSC.

The term ‘Interrogative Verb Sequencing Construction’ is adopted for descriptive purposes. It only captures the surface pattern of this construction. Its exact syntactic structure is the focus of Chapter 7. It will be argued that this construction should not be analyzed as a coordinate structure. Instead, empirical evidence will be presented to show that the interrogative verb is the main verb of the construction. As sentences with a sequence of verbs in Formosan languages tend to be indiscriminately discussed under the rubric of Serial Verb Construction (SVC) in Formosan linguistics literature, whether the structural term SVC can adequately reflect the syntactic properties of Kavalan and Amis IVSCs will be briefly addressed as well. Chapter 7 will also investigate the syntactic relationship between the interrogative verb and the lexical verb and discuss the syntactic operations that derive this construction.

Table 3-2 is a summary of the findings on the structures of interrogative verb constructions. It lists the interrogative words that can be used in the different verbal constructions in Kavalan and Amis. There are three verbal constructions in total: Intransitive construction, transitive construction, and verb sequencing construction.
Table 3-2. Interrogative verb constructions in Kavalan and Amis

<table>
<thead>
<tr>
<th>Interrogative Verb Constructions</th>
<th>Kavalan</th>
<th>Amis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intransitive Construction</td>
<td>q&lt;um&gt;uni ‘&lt;AV&gt;do.what’</td>
<td>mi-maan ‘AV-do.what’</td>
</tr>
<tr>
<td>(AV-marked)</td>
<td>quni ‘go where’</td>
<td>ma-maan ‘AV-what.happen’</td>
</tr>
<tr>
<td>Transitive Construction</td>
<td>quni-an ‘do what to’</td>
<td>maan-en ‘do what to’</td>
</tr>
<tr>
<td>(Non-AV–marked)</td>
<td>(do.what-PV)’</td>
<td>(do.what-PV)’</td>
</tr>
<tr>
<td></td>
<td>sa-pa-quni-an ‘do for’</td>
<td>sa-pi-maan ‘do for what’</td>
</tr>
<tr>
<td></td>
<td>what (INS-CAU-do.what-PV)</td>
<td>(IA-PI-do.what)’</td>
</tr>
<tr>
<td></td>
<td>tanian-an ‘where-PV’</td>
<td>maan-han ‘do.how-PV’</td>
</tr>
<tr>
<td></td>
<td>pasani-an ‘to.where-PV’</td>
<td>icuwa-en ‘where-PV’</td>
</tr>
<tr>
<td></td>
<td>tani-an ‘how.many-PV’</td>
<td>talacuwa-en ‘to.where-PV’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pina-en ‘how.many-PV’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>hakuwa-en ‘how.much-PV’</td>
</tr>
<tr>
<td>Interrogative Verb Sequencing</td>
<td>naquni-an ‘do.how-PV’</td>
<td>maan-en ‘do.how-PV’</td>
</tr>
<tr>
<td>Construction</td>
<td>tanian-an ‘where-PV’</td>
<td>icuwa-en ‘where-PV’</td>
</tr>
<tr>
<td></td>
<td>pasani-an ‘to.where-PV’</td>
<td>talacuwa-en ‘to.where-PV’</td>
</tr>
<tr>
<td></td>
<td>tani-an ‘how.many-PV’</td>
<td>pina-en ‘how.many-PV’</td>
</tr>
<tr>
<td></td>
<td>sika-tani-an ‘times-how.many-PV’</td>
<td>hakuwa-en ‘how.much-PV’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>kina-pina-en ‘times-how.many-PV’</td>
</tr>
</tbody>
</table>

3.5 Restrictions on the Use of Interrogative Verbs

Section 3.3 has shown that only certain interrogative words can be used as verbs in Kavalan and Amis. Section 3.4 has further discussed the grammatical properties of the interrogative verbs and found that the different verbal uses of the interrogative words are correlated with the voice markers that they take. However, it is not uncommon for a wh-word to belong to more than one syntactic category. This section will probe into the semantic and syntactic restrictions that condition the categorical properties of interrogative words.

3.5.1 Kavalan Tanian and Amis Icuwa

The interrogative words that inquire about location in Kavalan and Amis, tanian and icuwa, can occur in different interrogative constructions depending on their
semantics and scope. First of all, they can be used as the non-verbal predicate in a question that asks about the location of an individual or an entity. This is illustrated in (45) and (46) below.

(45) Kavalan

tanian ya wasu-su
where ABS dog-2SG.GEN
‗Where is your dog?‘

(46) Amis

icuwa=tu ku-ya c’cay a langa aki
where=PFV ABS-that one LNK basket 1SG.GEN
‗Where was one of my baskets?‘ (pear_cuomei, NTU corpus)

For example, the question in (45) inquires about the location of wasu-su ‘dog-2SG.GEN’. The wh-word tanian serves as the non-verbal predicate of the sentence, which can be translated as ‘be.where’ in English.

The interrogative word tanian can also be used to ask about the location of an event. There are two strategies to form such questions. The first strategy is to use tanian in an existential construction with the existential marker yau. Consider the following sentences.

(47) Kavalan

a. yau=isu tanian q<m>an tu babuy
EXIST=2SG.ABS where <AV>eat OBL pig
‗Where do you eat pork?‘

b. yau=iku ti-buya-an q<m>an tu babuy
EXIST=1SG.ABS NCM-PN-LOC <AV>eat OBL pig
‗I eat pork at Buya’s place.‘

The sentence in (47a) questions the location of an event, i.e., where the addressee eats pork. The existential marker yau occurs in the sentence-initial position followed by tanian, which in turn is followed by the verb phrase. This syntactic distribution is the
same as the declarative counterpart of *yau*, as exemplified in (47b). In example (47b), the locative expression also occurs after the existential marker like *tanian* in (47a).

In addition, *tanian* can also be used alone to question the location of an event without resort to the existential marker *yau*. Compare (48a) with (48b).

(48) Kavalan
   a. tanian tanuz-an na tuliq ya wasu
      where chase-PV ERG bee ABS dog
      ‘Where do the bees chase the dog?’
   b. tanuz-an na tuliq ya wasu tanian
      chase-PV ERG bee ABS dog where
      ‘Where do the bees chase the dog?’

A comparison between the two sentences suggests that *tanian* is an adverbial expression in this type of question. It does not have a fixed position. Moreover, when it occurs in the sentence-initial position, the lexical verb following it can take the patient voice marker, which indicates that (48a) is not an Interrogative Verb Sequencing Construction. Regardless of its linear position, its semantic scope ranges over the whole sentence or event.

The examples in (49) below illustrate that Amis *icuwa* also behaves like an adverbial expression, which does not have a fixed syntactic position, when it is used to question the location of an event. The fact that the verb following *icuwa* in (49c) can take the patient voice marker suggests that this sentence is not an Interrogative Verb Sequencing Construction. In this type of question concerning the location where an event takes place, *icuwa* exhibits grammatical properties of an adverbial expression.

(49) Amis
   a. icuwa kisu k<um>a'en tu 'may
      where 2SG.ABS <AV>eat OBL rice
      ‘Where do you eat?’
Finally, as shown in the preceding discussion, the two interrogative words are also able to take the patient voice marker like a verb. However, the use of Kavalan *tanian* and Amis *icuwa* as a verb is restricted to questions that inquire about the location of the theme argument in a ditransitive event.

(50) Kavalan

a. tanian-an-su ya kelisiw-su
   where(verb)-PV 2SG.ERG ABS money-2SG.GEN
   ‘Where do you put your money?’

b. tanian-an-su m-nubi ya kelisiw-ta
   where(verb)-PV 2SG.ERG AV-hide ABS money-1IPL.GEN
   ‘Where do you hide our money?’

(51) Amis

a. icuwa-en isu ku payci
   where(verb)-PV 2SG.ERG ABS money
   ‘Where do you put the money?’

b. icuwa-en isu mi-simed ku payci
   where(verb)-PV 2SG.ERG AV-hide ABS money
   ‘Where do you hide the money?’

They can be the only verb in this type of question, expressing the meaning of a ditransitive verb and the interrogative notion simultaneously (50a, 51a). They can also occur in an IVSC with a ditransitive verb that specifies what type of ditransitive event is involved (50b, 51b). In either case, the question is not about where an event takes place, but about where the theme argument is. The question is intended to ask about the location of the theme argument in a ditransitive event like putting something
somewhere or hiding something somewhere. For example, (50b) can be paraphrased as ‘You hide our money somewhere and where is the money?’.

Questions about the location where an event takes place cannot utilize tanian or icuwa as a verb. In such questions, tanian and icuwa cannot take the voice markers like -an or -en. This is illustrated by the following ungrammatical sentences, which are intended to ask where someone does something.

(52) Kavalan
   a. *tanian-an-su q<m>an tu/ya babuy
      where-PV-2SG.ERG <AV>eat OBL/ABS pig
      ‘Where do you eat pork?’
   b. *tanian-an-su kelawkaway
      where-PV-2SG.ERG work
      ‘Where do you work?’

(53) Amis
   a. *icuwa-en isu mi-saosi ku cudad
      where-PV 2SG.ERG AV-study ABS book
      ‘Where do you read the book?’
   b. *icuwa-en isu ma-tayal
      where-PV 2SG.ERG AV-work
      ‘Where do you work?’

It is also worth noting that while the existential yau construction in Kavalan is compatible with questions that target the location of an event, it is not compatible with questions concerning the location of the theme argument in a ditransitive sentence. Consider the examples in (54). The intended meaning of (54a) is ‘Where do you put our money?’. That is, the question is intended to elicit information about the location of the theme argument of the ditransitive verb pizi ‘put’. However, the use of yau makes this sentence ungrammatical in contrast to example (54b), which concerns the location where the addressee eats pork. To make (54a) sound more acceptable, the only way is
to interpret this sentence as a question about the location where the event takes place. That is, this sentence is mildly acceptable if tanian is conceived of as the semantic adjunct of this sentence instead of the semantic argument of the ditransitive verb conceptually.

(54) Kavalan
  a. */?yau=isu tanian pizi tu kelisiw-ta
      EXIST=2SG.ABS where put OBL money-1PL.GEN
      ‘Where do you put our money?’
      ‘Where are you when you put our money?’
  b. yau=isu tanian q<m>an tu babuy
      EXIST=2SG.ABS where <AV>eat OBL pig
      ‘Where do you eat pork?’

Moreover, only verbs that require an obligatory location argument or allow an additional location argument can follow verbal tanian or icuwa. Such verbs in Kavalan include, but are not limited to, pizi ‘put’, spaw ‘pack’, ala ‘take’, nubi ‘hide’, talin ‘move’, Rupu ‘shut’, buwaq ‘pour’, sepez ‘pack’, walin ‘throw’, subulin ‘leave’, siyup ‘blow’, and tungaw ‘send; deliver’. Such verbs in Amis include teli ‘put’, na’ang ‘pack’, kerir ‘take’, simed ‘hide’, curo ‘move’, rufu ‘shut’, pasiket ‘tie’, sni’ ‘pour’, fala ‘throw’, tekul ‘throw’, siday ‘leave’, and paluwad ‘send; deliver’. These verbs must or can take a location argument that denotes the location of the theme. The interrogative words tanian and icuwa can be used as a verb only when the question targets the location argument of this kind of verbs. The sentences in (55) and (56) provide some examples for illustration.

(55) Kavalan
  a. Rupu-an ni abas ya adam ‘nay ta-Rupu-an
      shut-PV ERG PN ABS bird that LOC-cage-LOC
      ‘Abas shuts the bird in the cage.’
b. tanian-an ni abas m-Rupu ya adam 'nay
  where(verb)-PV ERG PN AV-shut ABS bird that
  'Where does Abas shut the bird?'

c. subulin-an ni imuy sunis-na ta-paw-an
  leave-PV ERG PN child-3GEN LOC-home-LOC
  'Imuy leaves her child at home.'

d. tanian-an ni imuy s<ubulin ya sunis-na
  where(verb)-PV ERG PN <AV>leave ABS child-3GEN
  'Where does Imuy leave her child?'

(56) Amis

a. ma-pasiket aku ku wacu i paputal
  PV-tie 1SG.ERG ABS dog PREP outside
  'I tie the dog outside.'

b. icuwa-en isu pasiket ku wacu
  where(verb)-PV 2SG.ERG tie ABS dog
  'Where do you tie the dog?'

c. mi-na’ang kaku tu riku’ i haku
  AV-pack 1SG.ABS OBL clothes PREP box
  'I pack the clothes into the box.'

d. icuwa-en isu mi-na’ang ku riku’
  where(verb)-PV 2SG.ERG AV-pack ABS clothes
  'Where do you pack the clothes?'

In (55a), the expression ta-Rupu-an ‘LOC-cage-LOC’ refers to the location of the theme argument, adam ‘bird’. In its interrogative counterpart, (55b), this location argument is questioned and the interrogative word tanian is used as the main verb, occurring in the sentence-initial position and taking the patient voice marker. (55c) and (55d) exhibit the same pattern and so do the Amis examples in (56).

When Amis icuwa co-occurs with a ditransitive verb, but does not take the patient voice marker, it is conceived of as a location adjunct semantically. This can be manifested by the contrast between the following two sentences.
In (57a), which inquires about the location of the theme ‘box’, *icuwa* takes the patient voice marker. By contrast, *icuwa* does not take the patient voice marker in (57b) and the question is interpreted in a different way. (57b) is intended to inquire about the location where the event of Ofad’s moving boxes occurs.

To summarize, there is a correlation between the morphosyntax of *tanian* and *icuwa* and their intended semantics in a question, that is, location as an argument in a ditransitive event or location as an adjunct.

Table 3-3. The syntactic distribution of Kavalan *tanian* and Amis *icuwa*

<table>
<thead>
<tr>
<th>Syntactic properties</th>
<th>Location where an event takes place</th>
<th>Location argument of a ditransitive event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being able to occur in an existential construction or in the non-predicate position</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Being able to take the patient voice marker -an or -en</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>As the only verb</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>As the main verb in IVSC</td>
<td>x</td>
<td>✓</td>
</tr>
</tbody>
</table>

When utilized to question the location argument of a ditransitive event, they exhibit verbal properties, taking voice markers. By contrast, when they question the location where an event takes place, they are not allowed to take voice markers and behave like adverbial expressions. The findings of this sub-section are summarized in Table 3-3.
3.5.2 The Interpretation of Kavalan Tani and Amis Pina

The use of the interrogative words denoting ‘how many/much’ as a verb observes a similar restriction to verbal tanian and icuwa ‘where’ regarding what argument they could question. When tanian ‘how many/much’ in Kavalan and pina ‘how many’ or hakuwa ‘how much’ in Amis are used as a verb and takes the patient voice marker, the target of the question always concerns the quantity of the theme argument, which is realized as the absolutive argument in the patient voice construction. Consider the following examples.

(58) Kavalan
u-tani-an na wasu q<m>aRat ya saku
NHUM-how.many-PV ERG dog <AV>take ABS cat
‘How many cats does the dog bite?’

(59) Amis
pina-en nu wacu mi-kalat ku pusi
how.many-PV ERG dog AV-bite ABS cat
‘How many cats does the dog bite?’

In both (58) and (59), ‘how many’ is used as a verb and it is the quantity of the absolutive theme argument that the question targets. Likewise, when tanian ‘where’ or icuwa ‘where’ takes the patient voice marker and is used as a verb, the target of the question is always the location of the theme argument, which is case-marked absolutive in the patient voice construction.

When the quantity of an agent argument is questioned, tani and pina can only be utilized as a non-verbal predicate, to which the patient voice marker cannot be attached, in a pseudo-cleft question or stay in-situ, as illustrated below.

(60) Kavalan
a. kin-tani ya m-lawut=ay tu qenaswani-ku
HUM-how.many ABS AV-visit=REL OBL relatives-1SG GEN
‘How many people visit my relatives?’ (Lit. The people that visit my relatives are how many?)
b. pukun-an na kin-tani sunis ya wasu 'nay
hit-PV ERG HUM-how.many child ABS dog that
‗How many children hit that dog?‘

(61) Amis
a. pina ku-ra mi-awaw-ay a wacu
how.many ABS-that AV-bark-FAC LNK dog
‗How many dogs are barking?‘ (Lit. The dogs that are barking are how
many?)

b. kalat-en nu pina a wacu ku pusi aku
bite-PV ERG how.many LNK dog ABS cat 1SG.GEN
‗How many dogs bite my cat?‘

None of the sentences in (60) and (61) involves the use of pina ‘how many’ as a verb
that can take voice markers.

The second restriction on verbal tani and pina concerns their influence on the
interpretation of the question. A question where tani or pina is employed as a verb and
takes the patient voice marker as in (58) and (59) always implies that the quantity of the
affected theme argument will or might change from the perspective of the speaker. For
example, the utterance of (58) or (59) is appropriate in a scenario where the speaker
expects the dog to bite fewer cats, but the contextual evidence s/he has suggests that it
might bite or might have bitten more cats. Thus, a more appropriate translation of (58)
or (59) might be ‘HOW MANY MORE cats does/will the dog bite?‘. This type of
implication is absent in a pseudo-cleft question with tani or pina as a nonverbal
predicate, as illustrated in (60a) and (61a). The questions in (58) and (59), where ‘how
many’ is suffixed with the patient voice marker, emphasize the intention of the agent
and simultaneously imply a change of state, specifically the change of the quantity of
the theme argument that might be affected.
3.6 Conclusion

Although the use of interrogative verbs as a question formation strategy is rare in most well-documented languages, it is a common phenomenon among Formosan languages. This chapter has investigated the range of meanings that the interrogative verbs in Kavalan and Amis can encode. In addition to ‘do what’, ‘what happen’, and ‘do how’, which are expressed by a morphologically simple verb in most Formosan languages, Kavalan and Amis are unique in utilizing interrogative verbs to inquire about location and quantity.

It has also been found that the interrogative verbs in Kavalan and Amis can show up as intransitive, transitive, and ditransitive verbs. Some of them can also occur in a verb sequencing construction with a following lexical verb. Moreover, there are restrictions on the type of location and quantity that can be questioned with interrogative verbs. Only when a question concerns the location of the theme argument in a ditransitive event can Kavalan tanian and Amis icuwa ‘where’ be used as a verb and affixed with the patient voice marker. By contrast, when a question inquires about the location where an event takes place, these two interrogative words do not exhibit any verbal properties. When Kavalan tani and Amis pina/hakuwa ‘how many/much’ are used as verbs, they can only question the quantity of a theme argument, but not an agent argument, and the question where they occur is always associated with an implication that the quantity might change.

The linguistic patterns and restrictions of interrogative verbs presented in this chapter require further theoretical explanation. What follows is the list of research questions of Kavalan/Amis interrogative verbs that will be discussed in Chapter 6 and Chapter 7.
Research questions of interrogative verbs in Kavalan and Amis

a. Why can interrogative words based on ‘what’, ‘how’, ‘where’, and ‘how many’ be used as verbs, but others cannot?

b. Why is there a correlation between the interrogative verb constructions and the voice markers?

c. Why is there a correlation between the choice of voice markers and the interpretation of an interrogative root?

d. Why are interrogative verbs that denote ‘where’ and ‘how many’ limited to a certain type of question, or associated with a particular interpretation?

e. How can interrogative verbs that denote ‘where’ and ‘how many’ be verbal predicates and at the same time question an argument of another verb?

f. What is the syntactic relationship between the interrogative verb and the lexical verb in an Interrogative Verb Sequencing Construction (IVSC)?

g. Is an IVSC parallel to Serial Verb Construction (SVC) or should it be classified as a distinct structure?

h. What syntactic operations are involved in the derivation of an IVSC?

(62a), (62b), (62c), (62d), and (62e) will be addressed in Chapter 6, which will propose a unified syntactic account for the derivation of interrogative verbs. It will be argued that the grammatical properties and semantic restrictions of interrogative verbs follow from the interaction of the following factors: The inherent semantics of interrogative words, the available interpretation of the question where they occur, the verbal structures of the voice markers, and universal syntactic principles and constraints. The issues in (62f), (62g), and (62h) will be explored in Chapter 7, which will elaborate on the syntactic structure of an IVSC. We will present more empirical facts of an IVSC to show that the interrogative verb in this construction, not the lexical verb, is the main verb. A comparison between Kavalan and Amis IVSCs also suggests that the structural term SVC is not adequate for the description of verb sequencing constructions in the two languages. Finally, it will also be argued that there are two types of IVSCs. One type
features complementation of the lexical verb and NP raising for Case checking, whereas the other is characterized by the adjunction of the lexical verb and adjunct control.
CHAPTER 4
THE WH-INITIAL CONSTRUCTION AS A PSEUDO-CLEFT STRUCTURE

4.1 Introduction

Chapter 2 and Chapter 3 have provided a descriptive overview of the available question formation strategies in Kavalan and Amis: Wh-in-situ, wh-initial questions, and interrogative verbs. This chapter will investigate the structure of wh-initial questions in Kavalan and Amis in more detail. A wh-initial question is an interrogative sentence with a sentence-initial interrogative phrase that is not affixed with any voice markers, as illustrated in (1) and (2) below.

(1) Kavalan
   a. tiana q<m>an tu ’may-ku
      who <AV>eat OBL rice-1SG.GEN
      ‘Who eats my rice?’
   b. niana q<m>aRat tu zapan-su
      what <AV>bite OBL leg-2SG.GEN
      ‘What bites your leg?’

(2) Amis
   a. cima ku-ra mi-takaw-ay tu payci
      who ABS-that AV-steal-FAC OBL money
      ‘Who steals money?’
   b. u maan ku ma-alaw-ay ni panay
      CN what ABS PV-see-FAC GEN PN
      ‘What does Panay see?’

This distributional property of interrogative phrases in Kavalan and Amis conforms to the typological generalization that a verb-initial language tends to have wh-initial questions (Greenberg 1966; Hawkins 1983; Keenan 1978).

However, the term, wh-initial questions, only describes the surface linear order of an interrogative phrase but does not adequately reflect the syntactic structure of such questions. As summarized in Potsdam and Polinsky (2011), there are three syntactic
strategies that can all derive wh-initial questions in predicate-initial languages that lack a copula and an expletive: Wh-movement, clefts, and pseudo-clefts. Kavalan and Amis are both predicate-initial languages that do not have a copula. The following impersonal constructions show that the two languages lack an expletive.

(3) Kavalan
   a. uzan=pa tangi
      rain=FUT today
      '(It) will rain today.'
   b. m-utuz=ti
      AV-earthquake=PFV
      'There was an earthquake.' (Lit. (It) earthquaked.)

(4) Amis
   ma-orad anini
   AV-rain now
   'It is raining now.'

A wh-initial question in Kavalan and Amis is thus structurally ambiguous. For example, (1a) might have one of the following three structural representations.

(5) a. Wh-movement
tiana_ q<m>an tiana_ tu 'may-ku
who <AV>eat OBL rice-1SG GEN
'Who eats my rice?'

b. Cleft
[predicate tiana] q<m>an tu 'may-ku [expletive subject]
who <AV>eat OBL rice-1SG GEN
'Lit. It is who that eats my rice?'

c. Pseudo-cleft
[predicate tiana] [subject q<m>an tu 'may-ku]
who <AV>eat OBL rice-1SG GEN
'Lit. The one that eats my rice is who?'

The interrogative word in (5a) is base-generated in the subject position and is moved to the sentence-initial position. In (5b) and (5c), the interrogative word is used as a non-verbal predicate. The crucial difference between (5b) and (5c) is that there is an
expletive subject in (5b), but the subject in (5c) is a headless relative clause. These structures are all possible syntactic representations of wh-initial questions in Kavalan and Amis because the lack of a copula and an expletive in the two languages results in the same linear order and surface constituency of the three syntactic structures.

To elucidate the syntactic structure of the wh-initial construction, the present chapter will probe into the grammatical characteristics of this construction. Section 4.2 will first expound the structural properties of wh-movement, clefts, and pseudo-clefts as a basis for the argumentation in Section 4.3. Evidence against the wh-movement derivation and cleft analysis will be presented in Section 4.3. It will be argued that the sentence-initial position of an interrogative phrase in sentences like (1) and (2) results from the use of the interrogative phrase as the predicate in a pseudo-cleft structure. Section 4.4 will discuss the syntactic derivation of pseudo-cleft questions. Finally, the findings of this chapter are summarized in Section 4.5.

**4.2 Wh-Movement, Clefts, and Pseudo-Clefts**

This section will delineate the distinguishing properties of wh-movement, clefts, and pseudo-clefts. These properties will serve as the diagnostics to identify the syntactic structure of Kavalan and Amis wh-initial questions in Section 4.3.

**4.2.1 Wh-Movement**

The syntactic structure of interrogative constructions derived by wh-movement has been extensively studied in Generative Grammar, e.g., Adger and Ramchand (2005), Cable (2008), Cheng and Cover (2006), Chomsky (1977; 2000), Ishii (2006), and Richards (1997), just to name a few. A typical wh-movement language is English, where all types of interrogative phrases must be moved to the sentence-initial position to form a non-echo constituent question.
(6)  a. Who\textsubscript{i} does your friend like who\textsubscript{i}?
b. What\textsubscript{i} did your kid eat what\textsubscript{i}?
c. Whose umbrella\textsubscript{i} did you take whose umbrella\textsubscript{i}?
d. Which of these\textsubscript{i} do you like which of these\textsubscript{i}?
e. When\textsubscript{i} will you leave for New York when\textsubscript{i}?
d. Where\textsubscript{i} can I see the comet where\textsubscript{i}?

As illustrated in (6), an interrogative phrase in an English content question undergoes movement from its base position to the sentence-initial position. This movement is obligatory.

The standard analysis of wh-movement in the Minimalist framework is that an interrogative phrase is moved to Spec, CP in order to check a strong [\textit{wh}] feature on C\textsubscript{0}. The structure can be schematically represented in (7).

(7)

```
CP
  Wh-XP
    C
      [+WH]
      IP
        ...
        Wh-XP ...
```

The syntactic derivation represented in (7) yields the wh-initial word order in wh-movement languages and provides a feature-based explanation for the movement of the interrogative phrase. The strong [\textit{wh}] feature on C\textsubscript{0} needs to be checked before Spell-Out and this need for convergence thus prompts the interrogative phrase to move to Spec, CP. As the linear position of Spec, CP precedes C\textsubscript{0}, the structure in (7) also explains why the interrogative phrases in (6) all immediately occur before the auxiliaries (or some forms of dummy \textit{do}), which have been raised to C.
As the landing site of an interrogative phrase in a wh-movement language is the specifier of CP, which is not a predicate position, the fronted interrogative phrase is not associated with any predicate features. In other words, an interrogative phrase that appears in the sentence-initial position due to wh-movement to Spec, CP does not serve as the predicate of the sentence. An interrogative phrase in a wh-movement structure thus does not exhibit predicate properties.

The structure in (7) also reveals that the fronted interrogative phrase and the remainder of the wh-movement structure belong to one single clause. The movement of the interrogative phrase to Spec, CP does not create another clause. An interrogative sentence with a fronted interrogative phrase is thus a mono-clausal structure. The remainder of a wh-movement structure, i.e., the part which an interrogative phrase moves out of, is not a dependent clause.

Moreover, wh-movement is also characterized by locality effects and island constraints. Since Chomsky (1977), locality effects and island constraints have long been adopted as the diagnostics of A’-dependency constructions. Wh-movement must observe island constraints in that an interrogative phrase cannot move out of a syntactic island, e.g., a clausal adjunct, a relative clause, or a wh-island. This is illustrated by the following ungrammatical sentences.

(8)  a. *What, did Kevin have dinner [before he read what,]?
b. *What, did you see the man [that drank what,]?

The bracketed clause in (8a) is an adverbial clause adjunct; that in (8b) is a relative clause; that in (8c) is an embedded interrogative clause. Movement of an interrogative phrase out of any of such clauses leads to ungrammaticality.
Wh-movement also features unboundedness, which means that it can move cyclically across more than one clause boundary as long as it does not move out of a syntactic island.

(9)  a. Who did you say [CP who [that Tim hired who]]?  
     b. Who do you think [CP who [that John said [CP who [that Tim hired who]]]]?  

The interrogative phrase in (9a) is base-generated in the object position in the embedded complement clause and moves to Spec, CP of the complement clause first before moving to Spec, CP of the matrix clause. The interrogative phrase in (9b) also undergoes successive-cyclic movement, stopping at Spec, CP of the two complement clauses before moving to the final landing site.

Finally, as argued by Adger and Ramchand (2005), movement constructions should exhibit identity effects. If movement consists of Copy and Re-merge as proposed by Chomsky (1993), it is expected that the copies of a moved phrase should be identical to each other. When an element is displaced from its original position, the two copies of this element should manifest the same features regarding selection, agreement, and case. Interrogative constructions in English show identity/connectivity effects, e.g., reconstruction (10a) and idiom chunks (10b).

(10)  a. [Which picture of herself] does Sarah like [which picture of herself] best?  
      b. [How much advantage] was taken [how much advantage] of Sarah?  

In order for Sarah to bind herself in (10a) per Binding Principle A, the wh-phrase or the reflexive pronoun must be reconstructed to its base position at LF. On the analysis of movement as Copy and Re-merge, Sarah binds the lower copy of the reflexive pronoun and thus Binding Principle A is satisfied. (10b) exhibits a similar effect of reconstruction. On the assumption that the component parts of an idiomatic expression cannot be
separated from each other at LF (Chomsky 1993), the idiomatic interpretation of (10b) can be attributed to the reconstruction of the wh-phrase to its base position at LF or arises from the integrity of the idiom that contains the lower copy of the wh-phrase. In a base-generation derivation, since no copies are involved, identity effects may not arise. Identity effects can thus be a reliable test on whether Kavalan and Amis interrogative sentences are derived via wh-movement. On the wh-movement account, the sentence-initial interrogative phrase and its copy in the original position are identical and should exhibit identity effects. If we instead find anti-identity effects, this will be a strong piece of evidence against the movement analysis.

To summarize, wh-movement has the following characteristics.

(11) Properties of Wh-movement
a. It involves the fronting of an interrogative phrase to the sentence-initial position. In the structural representation, the landing site is Spec, CP and thus the interrogative phrase immediately precedes whatever occupies C⁰.

b. The interrogative phrase has no predicate properties.

c. The rest of the clause is not a dependent clause. That is, the whole sentence is mono-clausal.

d. It is unbounded, but observes island constraints.

e. It exhibits identity effects. The copies of a moved wh-phrase should manifest the same features regarding selection, agreement, and case.

4.2.2 Clefts

An English cleft sentence has the following surface structure.

(12) Cleft Pronoun (Expletive) + Copula + Clefted XP + Cleft Clause

It contains two primary semantic and syntactic components: One is the clefted XP that represents the focus, foreground, or the new information of the sentence and the other
is the cleft clause that encodes the presupposition, background, or old information. The following sentences are for illustration.

(13)   English Cleft Sentences  
a.   It was [Jessica] [that met Ryan last week].  
b.   It was [Ryan] [that Jessica met last week].  
c.   It was [last week] [that Jessica met Ryan].

There have been many proposals of the syntactic structure of a cleft sentence, but there is still no consensus on how a cleft sentence is syntactically derived. Part of the disagreement is due to the analysis of the cleft pronoun in this construction. Some linguists treat the cleft pronoun as a real dummy/expletive element (Chomsky 1977; Williams 1980; Delahunty 1982; É. Kiss 1998), while others argue that the cleft pronoun is non-expletive because the cleft clause and the cleft pronoun together function like a discontinuous definite description (Akmajian 1970; Hedberg 2000; Percus 1997; Reeve 2011). Following Reeve (2011), we will call the first proposal the expletive analysis and will refer to the second proposal as the specificational analysis in the following discussion.

On the expletive analysis, the expletive pronoun and the cleft clause are neither syntactically nor semantically related. The expletive pronoun has no semantic content at all. Instead, the cleft clause and the clefted XP form a syntactic and/or semantic unit. For example, É. Kiss (1998) argues that the clefted XP and the cleft clause form a focus phrase (FP) headed by the copula. As represented by the tree diagram in (14), the cleft clause is the complement of this FP and the clefted XP occupies the specifier position of this phrase.
By contrast, the specificational analysis does not treat the cleft pronoun as a dummy element. On this analysis, the cleft pronoun and the cleft clause constitute a definite description. For Akmajian (1970) and Percus (1997), the cleft clause is base-generated as the modifier of the surface subject DP and is extraposed to the sentence-final position. The structure in (15) is a schematic representation of Percus’s (1997) analysis of clefts.

Other proponents of the specificational analysis like Hedberg (2000) and Reeve (2011), however, contend that the cleft clause is base-generated in the clause-final position as
an adjunct of the clefted XP. On this account, the semantic relationship between the
cleft pronoun and the cleft clause is established at LF via some kind of interpretative
rule. (16) is a schematic representation of the base-generation approach to the
specificational analysis.

(16)

Despite their differences in detail, the proposed syntactic structures of clefts still
share three characteristics in common. First of all, unlike a wh-movement construction,
which is mono-clausal, a cleft sentence must be bi-clausal in that the cleft clause is a
dependent clause (CP) regardless of its base position. In other words, in addition to the
matrix predicate, there is also a dependent predicate in the cleft clause. If a Kavalan or
Amis wh-initial sentence exhibits a bi-clausal structure and/or if we can identify two
predicates in this construction, this can be an indication that a wh-initial sentence in
Kavalan and Amis is not derived via wh-movement but might be a cleft structure.
Secondly, whether the cleft clause is base-generated in the sentence-final position or is
extraposed to this position, it does not function as the subject of the sentence. It does
not exhibit any morphosyntactic properties of a subject. Therefore, whether the
remainder of a Kavalan/Amis wh-initial sentence, i.e., the part without the interrogative phrase, is associated with any subject properties is another empirical piece of evidence for or against the cleft analysis of this construction. Thirdly, the clefted XP is base-generated in the complement or specifier position of the phrase headed by the copular verb and does not undergo wh-movement. The cleft analysis of a Kavalan and Amis wh-initial question thus predicts that it will not exhibit movement-induced identity effects. Note that the cleft clause might exhibit island constraints, as it shows properties of a relative clause, which will be discussed below. The standard analysis of a relative clause assumes that there is an empty operator that undergoes wh-movement. Island constraints are thus expected to be observed in the cleft clause. However, if the clefted XP is base-generated outside the cleft clause instead of moving out of it, non-identity between the clefted XP and the empty operator is still expected to occur.

Moreover, in spite of the semantic relationship between the cleft clause and the cleft pronoun, the cleft clause is a syntactic modifier of the clefted XP. According to Reeve (2011), the cleft clause is a restrictive relative clause whose antecedent is the clefted XP. The cleft clause is parallel to a restrictive relative clause in the following ways. First of all, both types of clauses can be introduced by an overt relative pronoun, an overt complementizer, or a null complementizer. This alternation is not observed in other constructions derived from A’-movement to Spec, CP. This is illustrated by the following examples.

\[(17) \text{Reeve (2011: 152)}\]

a. It was the vodka which/that/0 Boris drank.
b. I bought the vodka which/that/0 Boris drank.
c. What/"that/*0 did Boris drank? 
d. I drank what/"that/*0 Boris drank.
e. The vodka, _what/"that/*0 Boris drank.
Secondly, while the complementizer *that* cannot be followed by a trace in complement CPs in English (18c), neither cleft clauses nor restrictive relative clauses exhibit this *that*-trace effect (18a, 18b).

(18) (Reeve 2011: 153)
   a. It was Boris that * bought the vodka.
   b. I know the man that * bought the vodka.
   c. *Boris, you said that * bought the vodka.

Finally, just like a relative clause, the cleft clause in an English cleft sentence constitutes a strong syntactic island, which disallows argument and adjunct extraction, as illustrated below.¹

(19) (Reeve 2011: 153)
   a. ?*Which drink did it Boris [that bought it]?
   b. *How was it Boris [that bought the drink it]?

Reeve (2011) also argues that the clefted XP is the antecedent of the cleft clause. The clefted XP must correspond to the gap in the cleft clause, as shown by the contrast between (20a) and (20b). This is in stark contrast to an equational sentence, which can be either specificational (20c) or predicational (20d).

(20) Reeve (2011: 157-158)
   a. It is the cat that I am pointing at. (I am pointing at the cat.)
   b. *It is feline that I am pointing at. (*I am pointing at feline.)
   c. The thing that I am pointing at is the cat.
   d. The thing that I am pointing at is feline.

Moreover, like a restrictive relative clause, the choice of the relative pronoun that can introduce the cleft clause is also conditioned solely by the features of its antecedent, the clefted XP, as illustrated below.

¹ Potsdam (p.c.) points out that the cleft clause is not identical to a restrictive relative clause in every way. Personal proper names and prepositional phrases can be clefted, but they cannot be modified by a restrictive relative clause. Moreover, the cleft clause does not receive the same interpretation as a restrictive relative clause.
(21) Reeve (2011: 158)
   a. It is the teachers who/*which are/*is tired.
   b. The teachers who/*which are/*is tired will not be coming in.

To summarize, in a cleft sentence, the cleft clause is a restrictive relative clause and the clefted XP is the head noun of this relative clause. As the cleft clause is not a headless relative clause, it is impossible for it to have another dummy head in addition to the clefted XP that it modifies. The (im)possibility of a dummy head in the remainder of a Kavalan/Amis wh-initial sentence can thus serve as another indicator of whether this construction is a cleft structure or not.

Finally, the cleft pronoun does not need to be spelled out as *it*; other determiners like *this* and *that* can also serve as the subject of an English cleft sentence. According to Hedberg (2000), the choice of which determiner to use as the subject is governed by the same discourse constraints, the givenness hierarchy, that determine the selection of the definite determiners of other definite descriptions. The use of propositional anaphors as the surface subject of cleft sentences is also observed in German, French, and Russian. This is illustrated by the following French examples.

(22) French (Hedberg 2000: 893)
   a. Il/?ce/?cela me semble que tu as tort.
      It/this to.me seems that you have wrong
      'It seems to me that you're wrong.'
   b. Il/*ce/?ca neige
      It/this snows
      'It's snowing.'
   c. *Il/c'est John que j'ai vu
      It/this is John that I have seen
      'It's John that I saw.'
   d. *Il/ce n'est pas vrai
      It/this NEG is not true
      'It isn't true.'
(22a) and (22b) shows that propositional anaphors cannot be the subject of an impersonal construction. Only *il* can serve as the subject of an impersonal construction. (22d) further shows that *il* cannot be used as a propositional anaphor. *Il* cannot be the subject of a cleft sentence either, as illustrated in (22c). The subject of a French cleft sentence must be a propositional anaphor. Although the possibility of replacing *it* with other determiners or propositional anaphors in a cleft sentence might be unique to languages like English, German, and French, it can at least serve as a test to see whether a Kavalan/Amis wh-initial sentence is similar to English *it*-clefts or not.

In summary, a cleft sentence features the following structural properties, which can serve as the diagnostics to determine whether a Kavalan/Amis wh-initial sentence is a cleft structure.

(23) Structural properties of a cleft sentence
a. A cleft sentence is bi-clausal. The cleft clause is a dependent clause.

b. The cleft clause does not function as the subject of the sentence. It has no nominal properties.

c. The clefted XP is base-generated in the complement or specifier position of the phrase headed by the copula and does not exhibit movement-induced identity effects.

d. The cleft clause is a restrictive relative clause whose antecedent is the clefted XP. Thus, it is impossible for it to have another dummy head.

e. The cleft pronoun (in an English *it*-cleft) can be replaced by other determiners like *this* and *that*.

### 4.2.3 Pseudo-CLEFTS

A pseudo-cleft sentence is similar to a cleft sentence in that both constructions involve two semantic and syntactic components. One is the clefted XP that represents the focus, foreground, or the new information of the sentence and the other is the cleft
clause that encodes the presupposition, background, or old information. An English pseudo-cleft sentence has the following general surface structure.

(24) Cleft Clause + Copula + Clefted XP

One conspicuous difference between a pseudo-cleft sentence and a cleft sentence is that the former lacks a cleft pronoun. They also differ in what serves as the subject on the surface. In a pseudo-cleft sentence, the subject is the cleft clause, not a cleft pronoun. The following examples illustrate the pseudo-cleft structure in English.

(25) English pseudo-cleft sentences
   a. [What Robert ate yesterday] was [pork].
   b. [What Ken talked about last night] was [his career].

There have been quite a few proposals of the syntactic derivation of the pseudo-cleft construction. These proposals can be roughly classified into two types of analysis: Nonmovement analysis and movement analysis. On the nonmovement analysis, the cleft clause is a headless relative clause that is base-generated in the subject position (Bošković 1997; Schlenker 2003). It is either base-generated in Spec, IP, or moved there from a VP-internal subject position. (26) is a simplified schematic representation of the nonmovement analysis of the pseudo-cleft construction.

(26)

By contrast, the proponents of the movement analysis, e.g., Williams (1983), den Dikken (2006), and Paul (2008), argue that the cleft clause is base-generated as the
predicate of a small clause and that the clefted XP is the subject of this small clause. The cleft clause has to undergo movement to the matrix clause subject position and/or the topic position. The tree in (27) represents the syntactic structure of the pseudo-cleft construction proposed by the movement analysis.

(27)

The structures of (26) and (27) share several common properties. The clefted XP stays in the Predicate Phrase throughout the derivation. It is thus expected that in a language without a copular verb, predicate properties will be realized on the clefted XP instead. Moreover, the clefted XP is base-generated in the Predicate Phrase and does not undergo wh-movement. A pseudo-cleft analysis of the Kavalan and Amis wh-initial construction thus predicts that the sentence-initial wh-phrase acts like a predicate syntactically and does not exhibit movement-induced identity effects. The headless RC might show island constraints, but non-identity between the wh-phrase and the gap in the headless RC might still occur if the wh-phrase is base-generated as a predicate instead of undergoing movement out of the headless RC. Based on the structures in (26) and (27), a pseudo-cleft sentence is also bi-clausal, just like a cleft sentence. There
is a headless relative clause that serves as the dependent clause inside the matrix clause. A bi-clausal structure can distinguish a pseudo-cleft or cleft question from a wh-movement sentence. Specifically, there must be two predicates in a pseudo-cleft sentence. One is the predicate of the matrix clause, i.e., the clefted XP, and the other is the predicate of the headless relative clause. Therefore, if we can identify two obligatory predicates in the Kavalan and Amis wh-initial construction, this means that it is either a pseudo-cleft or cleft structure instead of a wh-movement sentence.

On both the nonmovement analysis and the movement analysis of the pseudo-cleft construction, the headless RC DP occupies the final subject position, although they advocate different ways to derive its subject status: Base-generation vs. movement. This means that the cleft clause in a pseudo-cleft sentence is associated with both nominal and subject properties. This feature is unique to a pseudo-cleft construction and is not observed in a cleft sentence or a wh-movement sentence. Therefore, whether the remainder of the Kavalan and Amis wh-initial construction, i.e., the part of the construction following the wh-phrase, has nominal properties and behaves as the subject is crucial to the pseudo-cleft analysis of this construction.

Another distinguishing property of the pseudo-cleft construction concerns the syntactic relationship between the clefted XP and the cleft clause. While the cleft clause in a cleft sentence is a restrictive relative clause whose head noun is the clefted XP (Reeve 2011), the cleft clause in a pseudo-cleft sentence is a headless relative clause that is not a clausal adjunct of the clefted XP. The structures in (26) and (27) show that the clefted XP in the pseudo-cleft construction is not the head noun of the cleft clause. The clefted XP and the cleft clause syntactically constitute a predicational structure, not
a modificational adjunction structure. As the cleft clause is a headless RC and the
clefted XP is not its head noun, it should be possible for the cleft clause to modify a
dummy head noun like *person* and *thing*. This structural property can distinguish a
pseudo-cleft sentence from a cleft sentence and a wh-movement sentence. It thus
constitutes another reliable criterion to identify the structure of the Kavalan and Amis
wh-initial construction.

The following list is a summary of the structural properties of the pseudo-cleft
construction.

(28) Structural properties of a pseudo-cleft sentence
a. The clefted XP is the predicate of the matrix clause. It does not undergo wh-
movement and thus there are no movement-induced identity effects.
b. A pseudo-cleft sentence is bi-clausal. The cleft clause is a dependent clause.
c. The cleft clause is associated with both nominal and subject properties.
d. The cleft clause is a headless relative clause and the clefted XP is not its head
noun. It is thus possible for the cleft clause to modify a dummy head noun like
*person* and *thing*.

To determine the syntactic structure of a Kavalan/Amis wh-initial question, the
following section will investigate the grammatical properties of this construction in
relation to the structural properties of wh-movement, cleft, and pseudo-cleft
constructions listed in (11), (23), and (28). The distinguishing properties of the three
constructions are summarized in Table 4-1 for ease of comparison. These three
constructions can all yield the wh-initial word order in a predicate-initial language
without an expletive and a copula like Kavalan and Amis. The following three structures
in (29) are all potential analyses of a Kavalan/Amis wh-initial question. The term,
remainder, refers to the part of an interrogative clause that follows the sentence-initial
wh-phrase. Which of the three analyses can account for the grammatical properties of
the Kavalan/Amis wh-initial construction is the focus of the following section.

(29) a. Wh-movement
   \[CP \text{ Wh-phrase} [\text{IP Remainder Wh-phrase}]\]

b. Cleft
   \[[\text{predicate Wh-phrase}] [\text{Remainder – Cleft clause} [\text{expletive subject}]]\]

c. Pseudo-cleft
   \[[\text{précipite Wh-phrase}] [\text{subject Remainder – Headless RC}]\]

Table 4-1. Wh-movement, pseudo-cleft, and cleft structures

<table>
<thead>
<tr>
<th>Properties</th>
<th>WH-MOVEMENT</th>
<th>CLEFT</th>
<th>PSEUDO-CLEFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>clausal organization</td>
<td>mono-clausal</td>
<td>bi-clausal</td>
<td>bi-clausal</td>
</tr>
<tr>
<td>matrix clause</td>
<td>no</td>
<td>dependent clause</td>
<td>dependent clause</td>
</tr>
<tr>
<td>syntactic status of the remainder</td>
<td></td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>wh-phrase has predicate properties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>identity effects</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>remainder has nominal properties</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>remainder has subject properties</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>expletive or propositional anaphors as</td>
<td>NA</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>the subject properties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>parallels between</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>remainder and headless</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>relative clauses (‘dummy’ head possible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in remainder)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3 Grammatical Properties of Wh-Initial Questions

This section explores the structural properties of wh-initial questions in Kavalan
and Amis and compares them with the characteristics of wh-movement, cleft, and
pseudo-cleft constructions. The findings suggest that a Kavalan/Amis wh-initial question
exhibits a pseudo-cleft structure with a headless relative clause as the subject. The
sentence-initial interrogative phrase is the predicate of the sentence, while the
remainder of the clause is a headless relative clause, which serves as the subject of the sentence.

4.3.1 Sentence-Initial Interrogative Phrase as the Predicate

One of the properties that can distinguish the wh-movement construction from the cleft or pseudo-cleft construction concerns whether the sentence-initial interrogative phrase is the predicate of the sentence. A fronted interrogative phrase in a wh-movement sentence does not serve as the predicate of the sentence, whereas the sentence-initial interrogative phrase in a cleft or pseudo-cleft question functions as the predicate and is thus associated with the morphosyntactic properties of a predicate. The following discussion in this sub-section will demonstrate that the interrogative phrase in a Kavalan/Amis wh-initial sentence has the same morphosyntactic distribution of a non-verbal predicate. This structural property is a piece of evidence against the wh-movement analysis of a wh-initial sentence in the two languages.

4.3.1.1 Tense and aspect markers

First of all, predicates in Kavalan and Amis can take tense and aspect markers. Kavalan has one perfective aspect marker, =ti, and two future tense markers, qa= and =pa. The difference between qa= and =pa is that the former describes a future event that the speaker is unsure of. The sentences in (30) are for illustration. There are two aspectual markers in Amis: =tu and =ho. The former marks perfective aspect and the latter signals imperfective aspect. Both of them are attached to the predicate in a sentence, as shown below in (31a) and (31b). Amis also has a tense marker, na. It denotes past tense and always appears in the sentence-initial position before the predicate, as illustrated in (31c).
(30) Kavalan
   a.  q<\textless m\textgreater an=ti=iku  tu  esi  na  babuy
       <AV>eat=PFV=1SG.ABS  OBL  meat  GEN  pig
       'I ate pork.'
   b.  qa=uzan  temawaR
       FUT=rain  tomorrow
       'It might rain tomorrow.'
   c.  qatiw=pa=iku  timaisuan
       go=FUT=1SG.ABS  2SG.LOC
       'I will go to your place.'

(31) Amis
   a.  k<\textless um\textgreater a\textquoteright en=tu  ci-ofad  tu  pawli
       <AV>eat=PFV  NCM-PN  OBL  banana
       'Ofad has eaten a banana.'
   b.  mi-nanum=ho  ci-ofad
       AV-drink=IPFV  NCM-PN
       'Ofad is still drinking.'
   c.  na  k<\textless um\textgreater a\textquoteright en  ci-ofad  tu  pawli
       PST  <AV>eat  NCM-PN  OBL  banana
       'Ofad ate a banana.'

Like predicates, the interrogative phrase in a Kavalan/Amis wh-initial sentence can also take the tense and aspect markers. In (32a) and (32b), \textit{tiana} 'who' not only occurs in the sentence-initial position but also takes the future tense marker \texttt{=pa} or \texttt{qa=}. (32c) shows that an interrogative phrase in the sentence-initial position can also take the perfective aspect marker \texttt{=ti}.

(32) Kavalan
   a.  tiana=pa  ya  paRaRiw
       who=FUT  ABS  run
       'Who is going to run?' (Lit. The one that runs is going to be who?)
   b.  qa=tiana  ya  paRaRiw
       FUT=who  ABS  run
       'Who will run (probably)?' (Lit. The one that runs will (probably) be who?)
The following Amis wh-initial sentences illustrate the same pattern. In (33a), the perfective aspect marker is attached to the interrogative phrase *cima* ‘who’; in (33b), the past tense marker immediately precedes the interrogative phrase *maan* ‘what’.

(33) Amis

a. *cima=tu ku tayni-ay*  
   who=PFV ABS come-FAC  
   ‘Who has come?’ (Lit. The one that came was who?)

b. *na maan ku ma-alaw-ay ni panay*  
   PST what ABS PV-see-FAC ERG PN  
   ‘What did Panay see?’ (Lit. The thing that Panay saw was what?)

4.3.1.2 Negation

The position of a negation marker is another distributional test to identify predicates in Kavalan and Amis. In both languages, a sentential negation marker must immediately precede the predicate. Moreover, the choice of the negation markers in Kavalan is contingent on the type of predicate to be negated. To negate a nominal predicate, *usa* is utilized, whereas the negation of a verbal predicate is achieved through the negation marker *mai*. The contrast is illustrated by the following sentences. Note that the negation markers must appear immediately before the predicate to denote sentential negation.

(34) Kavalan

a. *usa sunis ya ti-buya*  
   NEG child ABS NCM-PN  
   ‘Buya is not a child.’

b. *mai=pa m-kalingu timaita*  
   NEG=FUT AV-forget 1PL.OBL  
   ‘(They) will not forget us.’ (KavCon_buya_ngengi, NTU corpus)
The sentence-initial interrogative words in Kavalan can be negated via *usa*, the negation marker for nominal predicates, but they cannot be negated via *mai*, the negation marker for non-nominal predicates. This is illustrated below.

(35) Kavalan
   a. usa/*mai ti-tiana ya mawtu siRab
      NEG NCM-who ABS AV.come yesterday
      ‘Lit. The one that came yesterday is not who?’
   b. usa/*mai niana ya t<m>anbaseR ta-dedan-an
      NEG what ABS <AV>fly LOC-sky-LOC
      ‘Lit. The thing that is flying in the sky is not what?’

Although sentences with a negated interrogative predicate like (35) tend to be interpreted as echo-questions and it is also likely for the interrogative words to be interpreted as indefinites under this situation, the grammaticality of such sentences where the interrogative words can be preceded by the negation marker, *usa*, suggests that the sentence-initial interrogative words should be structurally analyzed as the predicates.

4.3.1.3 Epistemic markers

Another piece of evidence for the predicate analysis of the interrogative phrase in a Kavalan/Amis wh-initial sentence concerns the distribution of the epistemic markers,

---

2 We will further discuss the implication of this property, i.e., interrogatives as indefinites, for the structural analysis of pseudo-cleft questions in 4.4.

3 When a nominal predicate in an equational sentence is negated by *ca’ay* in Amis, the negation marker occurs in the sentence-initial position and the original declarative sentence is preceded by the absolutive case marker *ku*. This is illustrated below. It seems that the syntactic status of the nominal predicate in a negative equational sentence is distinct from its declarative counterpart. Moreover, when a wh-word in Amis is negated, it is no longer interpreted as a question word, but must be treated as an indefinite. Therefore, the negation test is not a reliable criterion to identify whether a sentence-initial wh-word in Amis is a predicate or not.

   a. u singsi kaku
      CN teacher 1SG.ABS
      ‘I am a teacher.’
   b. *ca’ay ku* singsi kaku
      NEG ABS teacher 1SG.ABS
      ‘I am not a teacher.’
e.g., *pasi* ‘possible’ in Kavalan and *latek* ‘maybe’ in Amis. An epistemic marker immediately precedes the predicate of a sentence. If there is a circumstantial adverb, e.g., a sentential temporal adverb, the epistemic marker must follow the adverb and precede the predicate. In other words, the order of these phrases is fixed: Adverbial + *pasi* + Predicate. The following Kavalan sentences illustrate the distribution of *pasi* ‘possible’.

(36) Kavalan
a. temawaR *pasi* Riwawa tu sunis ti-imuy
tomorrow possible take.care.of OBL child NCM-PN
‗It is possible that Imuy will take care of children tomorrow.’

b. *pasi* temawaR Riwawa tu sunis ti-imuy
possible tomorrow take.care.of OBL child NCM-PN
‗It is possible that Imuy will take care of children tomorrow.’

c. *temawaR Riwawa *pasi* tu sunis ti-imuy
tomorrow take.care.of possible OBL child NCM-PN
‗It is possible that Imuy will take care of children tomorrow.’

d. *temawaR Riwawa tu sunis *pasi* ti-imuy
tomorrow take.care.of OBL child possible NCM-PN
‗It is possible that Imuy will take care of children tomorrow.’

e. *temawaR Riwawa tu sunis ti-imuy *pasi*
tomorrow take.care.of OBL child NCM-PN possible
‗It is possible that Imuy will take care of children tomorrow.’

Among the sentences in (36), only (36a), where *pasi* ‘possible’ immediately precedes the predicate *Riwawa* ‘take care of’, is grammatical.

(37) Kavalan
a. temawaR *pasi* ti-tiana Riwawa tu sunis
possible NCM-who take.care.of OBL child
‗Who will possibly take care of children tomorrow?’ (Lit. It is possible that the one that will take care of children tomorrow is who?)

b. *pasi* temawaR ti-tiana Riwawa tu sunis
possible tomorrow NCM-who take.care.of OBL child
‗Who will possibly take care of children tomorrow?’
The interrogative phrase in a Kavalan wh-initial sentence shares the same syntactic distribution with predicates when the epistemic marker *pasi* is present. It must immediately follow *pasi*, as illustrated by the examples in (37).

The epistemic marker *latek* ‘maybe’ in Amis has the same distributional properties of Kavalan *pasi* ‘possible’. It must immediately precede the predicate as well. The following sentences are for illustration.

(38) Amis
a. *latek* ma-lipahak ci-panay
   ‘Panay might be happy.’
   (AV-happy NCM-PN)

b. *latek* ma-ulah ci-ofad ci-sawmah-an
   ‘Ofad might like Sawmah.’
   (AV-like NCM-PN NCM-PN-OBL)

The interrogative phrase in an Amis wh-initial sentence can also be preceded by *latek* ‘maybe’, as shown below.

(39) Amis
a. *latek* cima=tu ku tayni-ay
   ‘Who might have come?’ (Lit. The one that came might be who?)
   (who=PFV ABS come-FAC)

b. *latek* maan ku ma-alaw-ay ni panay
   ‘What might Panay see?’ (Lit. The thing that Panay saw might be what?)
   (ABS PV-see-FAC ERG PN)

4.3.1.4 The common noun marker

The final empirical evidence that suggests sentence-initial wh-phrases are predicates is that Amis *maan* ‘what’ can be preceded by the common noun marker *u*.

When a common noun phrase functions as an argument in a sentence, it must take a
composite marker that consists of a case morpheme, \( k \)-‘ABS’, \( n \)-‘ERG’, or \( t \)-‘OBL’, and the common noun morpheme, \( u \). However, when a common noun phrase is used as a nominal predicate, it cannot take any case morphemes, but it can be optionally preceded by the common noun marker \( u \). The Amis sentence in (40a) contains a nominal predicate with the common noun marker \( u \). The sentence in (40b), where the nominal predicate takes a case marker, is ungrammatical.

(40) Amis

a. \( u \) fafahian kaku
   CN woman 1SG.ABS
   ‘I am a woman.’

b. \( *ku/*nu/*tu \) fafahian kaku
   ABS/ERG/OBL woman 1SG.ABS
   ‘I am a woman.’

When Amis \( maan \) ‘what’ occurs in a wh-initial sentence, it can also take the common noun marker \( u \). However, it cannot take any case morphemes, as indicated by the ungrammaticality of (41b).

(41) Amis

a. \( u \) maan ku ma-alaw-ay ni panay
   CN what ABS PV-see-FAC ERG PN
   ‘What did Panay see?’ (Lit. The thing that Panay saw is what?)

b. \( *ku/*nu/*tu \) maan ku ma-alaw-ay ni panay
   ABS/ERG/OBL what ABS PV-see-FAC ERG PN
   ‘What did Panay see?’ (Lit. The thing that Panay saw is what?)

The contrast between (41a) and (41b) suggests that \( maan \) in a wh-initial sentence does not function as an argument. Instead, it serves as the nominal predicate of the sentence.

The morphosyntactic distributions of the interrogative phrase in a Kavalan/Amis wh-initial sentence suggest that it should be analyzed as the predicate of the
construction. It occurs in the same morphosyntactic position where a predicate normally occurs. It takes tense and aspect markers and immediately follows a negation marker or an epistemic marker. Moreover, like a nominal predicate, Amis *maan* 'what' is preceded by the common noun marker without any case morpheme. The fact that the interrogative phrase in a Kavalan/Amis wh-initial sentence exhibits predicate properties indicates that this construction is not derived via wh movimiento. The fronted interrogative phrase in a wh movimiento sentence does not function as the predicate and thus should not exhibit any predicate properties. Instead, a Kavalan/Amis wh-initial sentence might involve either a pseudo-cleft or cleft structure. The following section will present empirical evidence to show that the remainder of a Kavalan/Amis wh-initial sentence is a headless relative clause, which suggests that this construction is a pseudo-cleft structure.

### 4.3.2 The Remainder as a Headless Relative Clause

This subsection will argue that what follows the interrogative phrase in a Kavalan/Amis wh-initial sentence is a dependent clause. Specifically, it is a headless relative clause.

A relative clause in Kavalan is marked by an optional relativizer, =*ay*, on the verb or the end of the clause. The bracketed clauses in the following sentences are examples of Kavalan relative clauses.

(42) Kavalan

a. Rubatang tazungan [q<m>an(=ay) ___ tu qawpiR]
   beautiful girl <AV>eat=REL OBL yam
   'The girl that is eating yams is beautiful.'

b. q<m>an=i ku tu tamun [Ramaz-an-na(=ay) ni abas ___ ]
   <AV>eat=1SG.ABS OBL dish cook-PV-3ERG=REL ERG PN
   'I am eating the dish that Abas cooked.'
In both examples above, there is a gap inside the clause. In the bracketed clause in (42a), the absolutive subject of the verb qan ‘eat’ is missing, as indicated by the underline. This missing element is co-referential with the head noun of the relative clause, i.e., tazungan ‘girl’. The missing element of the relative clause in (42b) is the patient argument of the verb Ramaz ‘cook’. This argument should have appeared in the underlined position if the clause were not a relative clause. The missing element in (42b) is co-referential with the head noun, tamun ‘dish’, which the relative clause modifies. In both sentences, the relative clause follows the head noun. However, it can also precede the head noun, as illustrated below.

(43) Kavalan
   a. Rubatang [q<m>an(=ay) ___ tu qawpiR] tazungan beautiful <AV>eat=REL OBL yam girl
      ‘The girl that is eating yams is beautiful.’
   b. q<m>an=iku tu [Ramaz-an-na(=ay) ni abas ___ ]
      <AV>eat=1SG.ABS OBL cook-PV-3ERG=REL ERG PN tamun dish
      ‘I am eating the dish that Abas cooked.’

The relativizer =ay can also be attached to the verb in a Kavalan wh-initial sentence, as illustrated below.

(44) Kavalan
   a. tiana q<m>an(=ay) tu ’may-ku who <AV>eat=REL OBL rice-1SG.GEN
      ‘Who eats my rice?’ (Lit. The one that eats my rice is who?)
   b. niana q<m>aRat(=ay) tu zapan-su what <AV>bite=REL OBL leg-2SG.GEN
      ‘What bites your leg?’ (Lit. The stuff that bites your leg is what?)

The remainder of the wh-initial sentence in (44a) and (44b) takes the relativizer =ay.

This grammatical property suggests that it is a dependent relative clause. On the wh-
movement account of a Kavalan wh-initial sentence, the possibility of a relativizer on the verb is surprising and is difficult to explain. This grammatical feature is only compatible with a cleft or pseudo-cleft analysis. On the cleft account, the remainder of a wh-initial sentence is a restrictive relative clause whose head is the sentence-initial interrogative phrase; on the pseudo-cleft account, the remainder of a wh-initial sentence is a headless relative clause. Both accounts predict that the remainder of a Kavalan wh-initial sentence is able to take the relativizer =ay.

However, the cleft account and the pseudo-cleft account differ in their predictions about the possibility of a dummy head in the remainder. The cleft account predicts that it is not possible to insert a dummy head in the remainder because the sentence-initial interrogative phrase is the head noun. The pseudo-cleft account predicts that the insertion of a dummy head in the remainder is possible because the remainder is a headless relative clause. As illustrated in (45a) and (45b) below, the insertion of a dummy head, e.g., lazat ‘person’ or Ribang ‘thing’, in the remainder is grammatical in Kavalan.

(45) Kavalan
a. tiana lazat m-ala=ay tu kelisiw-ku
   who person AV-take=REL OBL money-1SG.GEN
   ‘Who takes my money?’ (Lit. The person that takes my money is who?)

b. niana Ribang q<m>aRat=ay tu zapan-su
   what thing <AV>bite=REL OBL leg-2SG.GEN
   ‘What bites your leg?’ (Lit. The thing that bites your leg is what?)

The grammaticality of (45a) and (45b) suggests that the sentence-initial interrogative phrase is not the head noun of the remainder and that the remainder is a headless relative clause.
Amis does not have an overt relativizer that introduces a relative clause.\(^4\) An Amis restrictive relative clause precedes the head noun it modifies and the two elements are connected by the linker \(a\).

\[(46)\] Amis

\[a.\] ma-kera nira ku-ya [mi-pitpit-ay ____]
PV-encounter 3SG.ERG ABS-that AV-pluck-FAC
tu heci nu lusay] a faki
OBL fruit GEN fruit.tree LNK uncle
‘He met the uncle who was picking fruits.’ (Amis-Nr_pear-ofad, NTU corpus)

\[b.\] tayra ci-panay mi-ladum i [pi-ladum-an ni go NCM-PN AV-fetch.water PREP PI-fetch.water-LA ERG aki ____] a tefun
PN LNK well
‘Panay went to fetch water at the well where Aki fetched water.’ (Wu 2006: 363)

The relative clauses in (46a) and (46b) are bracketed. They precede the head noun that they modify respectively, i.e., \(faki\) ‘uncle’ and \(tefun\) ‘well’. There is a gap in both clauses.

The gapped NP in (46a) is the absolutive agent argument of the AV-marked verb. In (46b), the gapped NP is the absolutive location argument of the LA-marked verb.

A dummy head can also appear in the remainder of an Amis wh-initial sentence. In (47a), the dummy head \(tamdaw\) ‘person’ is placed at the end of a ‘who’-question; in (47b), which is a ‘what’-question, the dummy head \(demak\) ‘thing’ is inserted.

\[^4\] The marker -\(ay\) in (46a) is treated as a relativizer or nominalizer by some Amis linguists (M. Lin 1995; D. Liu 1999). However, as demonstrated in (46b), not all relative clauses take this marker. Moreover, this marker can also appear in non-relative clauses. It functions to emphasize that something does happen or to indicate a permanent state, as illustrated below (Wu 2006: 125). We thus adopt Wu’s (2006) analysis that -\(ay\) is a mood marker that indicates factuality.

\[a.\] mi-kilim-ay kaku ci-panay-an
AV-search-FAC 1SG.ABS NCM-PN-OBL
‘I did look for Panay.’

\[b.\] kimulmul-*(ay) ku cidal
round-FAC ABS sun
‘The sun is round.’
The grammaticality of the two sentences indicates that the sentence-initial interrogative phrase in an Amis wh-initial question is not the head noun of the remainder.

(47) Amis

\[
\begin{align*}
\text{a. } & \text{cima ku } k<\text{um}>\text{a'en-ay tu titi aku a} \\
& \text{who ABS <AV>eat-FAC OBL meat 1SG.GEN LNK} \\
& \text{tamdaw} \\
& \text{person} \\
& \text{'Who ate my meat?' (Lit. The person that ate my meat is who?)} \\
\text{a. } & \text{u maan ku ma-alaw-ay ni panay a } \text{demak} \\
& \text{CN what ABS PV-see-FAC ERG PN LNK thing} \\
& \text{'What did Panay see?' (Lit. The thing that Panay saw is what?)}
\end{align*}
\]

In other words, an Amis wh-initial question does not exhibit the structure of a cleft sentence where the cleft clause is a restrictive relative clause and the clefted XP is its head noun. Instead, the possibility of the insertion of a dummy head with the optional linker \text{a} suggests that the remainder in this construction is a headless relative clause. Like Kavalan, an Amis wh-initial question also exhibits a pseudo-cleft structure.\(^5\)

The analysis of the remainder as a headless relative clause is corroborated by the same grammatical restrictions shared by both wh-initial questions and relative clauses. As demonstrated in Chapter 2, only questions that target an absolutive-case–marked DP argument can utilize the wh-initial construction. The relevant examples are repeated below for ease of reference. In the grammatical sentences below, i.e., (48a) and (49a), the DP argument that the interrogative phrase inquires about should receive absolutive case if it occurs in a corresponding declarative sentence. If not, the use of the wh-initial construction as a question formation strategy is prohibited, e.g., (48b), (48c), (49b), and (49c), where an oblique or ergative nominal argument is questioned.

---

\(^5\) We cannot rule out the possibility that the wh-initial questions with a dummy head have a different structure than those without a dummy head. How to verify or disprove this requires further investigation.
Relative clauses in the two languages have the same grammatical restriction in that only an absolutive DP can be relativized. This is illustrated in (50) and (51). In these examples, the head noun is underlined and the gapped DP argument in the relative clause is represented by its grammatical case in square brackets, e.g., [ABS]. This same grammatical restriction on the formation of relative clauses has been found in many other Austronesian languages (Guilfoyle, Hung, and Travis 1992; Keenan and Comrie 1977).

(50) Kavalan
a. qatapung-an-ku siRab ya sunis ‘nay, meet-PV-1SG.ERG yesterday ABS child that [qiRuziq=ay [ABS] tu kelisiw-ku]
   steal=REL OBL money-1SG.GEN
   ‘Yesterday, I met the child that stole my money.’
b. *pakala-an-ku ya kelisiw, [qIRuziq=ay ya find-PV-1SG.ERG ABS money steal=REL ABS sunis 'nay [OBL],] child that 'I found the money that the child stole.'

c. *qatapung-an-ku ya sunis 'nay, [qIRuziq-an=ay [ERG], meet-PV-1SG.ERG ABS child that steal-PV=REL ya kelisiw-ku] ABS money-1SG.GEN 'I met the child that stole my money.'

(51) Amis
a. ma-kera nira ku-ya [mi-pitpit-ay [ABS], PV-encounter 3SG.ERG ABS-that AV-pluck-FAC tu heci nu lusay] a faki, OBL fruit GEN fruit.tree LNK uncle 'He met the uncle who was picking fruits.' (Amis-Nr_pear-ofad, NTU corpus)

b. *tati"ih ku-ya [mi-pitpit-ay ci-panay [OBL]] bad ABS-that AV-pluck-FAC NCM-PN a heci nu lusay, LNK fruit GEN fruit.tree 'The fruit that Panay plucked is bad.'

c. *ma-nengneng nira ku-ya [ma-ka'en-ay [ERG], PV-see 3SG.ERG ABS-that PV-eat-FAC ku heci nu lusay] a wawa, ABS fruit GEN fruit.tree LNK child 'He saw the child that ate the fruit.'

In (50a), the relative clause with the =ay marker follows the head noun sunis 'nay 'that child', which is co-referential with the gapped absolutive argument in the embedded relative clause. If it is an oblique or ergative argument that is gapped in a relative clause, the sentence is considered ungrammatical, as in (50b) and (50c). In Amis, a relative clause precedes the head noun that it modifies. There is a linker a between the relative clause and the head noun. In (51a), the head noun faki 'uncle' is co-referential with the gapped absolutive argument in the embedded relative clause. (51b) and (51c)
are ungrammatical because the head noun is co-referential with a gapped oblique argument or a gapped ergative argument.

Therefore, wh-initial questions and relative clauses in Kavalan and Amis have the same grammatical restriction in that only an absolutive argument could be questioned or gapped. This lends further support to the analysis that wh-initial questions in the two languages contain a dependent relative clause. What follows the interrogative phrase in a wh-initial question is a dependent clause. This dependent clause is a headless relative clause. This explains in a straightforward way why only absolutive arguments can be questioned in (48) and (49).

4.3.3 The Remainder as the Subject

The predicate properties of the interrogative phrase and the headless RC structure of the remainder in a Kavalan and Amis wh-initial question together suggest that this syntactic construction is characterized by a pseudo-cleft structure. These two grammatical characteristics are only compatible with the pseudo-cleft analysis. This subsection will provide more empirical evidence for this analysis.

First of all, the remainder in a Kavalan/Amis wh-initial question exhibits nominal properties. The sentences in (52) and (53) show that it has the same distribution as other noun phrases. (52a) and (53a) are interrogative sentences. What follows the wh-phrase in the two sentences can replace a noun phrase in a declarative sentence. For example, m-ala tu kelisiw-ku ‘the one that takes my money’ can replace sunis ‘nay ‘that child’ in (52b), as shown in (52c). Sentences like (52c) and (53c) should be ungrammatical on the wh-movement account and the cleft account of wh-initial questions in Kavalan and Amis. If (52a) and (53a) were it-cleft questions, the remainder of the clause would be expected not to have the same syntactic distribution as a noun
phrase, contrary to fact. The wh-movement analysis also predicts (52c) and (53c) to be ungrammatical as the remainder of a wh-movement sentence is a finite IP and does not exhibit nominal properties. On the pseudo-cleft analysis, the remainder is a headless relative clause, which functions like a nominal element and this prediction is borne out.

(52) Kavalan
   a. tiana ya m-alal m-alal tu kelisiw-ku
      who ABS AV-take OBL money-1SG.GEN
      ‘Who takes my money?’ (Lit. The one that takes my money is who?)
   b. tayta-an ni buya ya sunis ‘nay
      see-PV ERG PN ABS child that
      ‘Buya sees that child.’
   c. tayta-an ni buya ya m-alal m-alal tu kelisiw-ku
      see-PV ERG PN ABS AV-take OBL money-1SG.GEN
      ‘Buya sees the one that takes my money.’

(53) Amis
   a. cima ku k<um>a’en-ay tu titi aku
      who ABS <AV>eat-FAC OBL meat 1SG.GEN
      ‘Who eats my meat?’ (Lit. The one that eats my meat is who?)
   b. ma-puling ku-ra wawa
      AV-fall ABS-that child
      ‘That child falls down.’
   c. ma-puling ku-ra k<um>a’en-ay tu titi aku
      AV-fall ABS-that <AV>eat-FAC OBL meat 1SG.GEN
      ‘The one that eats my meat falls down.’

Moreover, the remainder of a Kavalan/Amis wh-initial question, which is a headless relative clause, serves as the subject of the interrogative sentence. Its subject status is morphologically marked by the preceding absolutive case marker \( ya \) in Kavalan or \( ku \) in Amis, as illustrated in (54) and (55). In both Kavalan and Amis, case markers precede the noun phrase that they are associated with. The fact that the absolutive case marker can precede the remainder of a Kavalan/Amis wh-initial
question also shows that the remainder functions like a nominal element. Moreover, it
serves as the subject of the sentence. That the remainder is a headless RC functioning
as the subject conforms to the structure of a pseudo-cleft sentence, the subject of which
is also a headless relative clause. Neither the wh-movement account nor the cleft
account can accommodate this empirical fact. A headless RC serving as the subject is
not a defining property of a wh-movement sentence. A cleft sentence contains a relative
clause, but this relative clause does not function as the subject.

(54) Kavalan
   a. tiana ya q<m>an tu 'may-ku
      who ABS <AV>eat OBL rice-1SG.GEN
      ‘Who eats my rice?’ (Lit. The one that eats my rice is who?)
   b. niana ya q<m>aRat tu zapan-su
      what ABS <AV>bite OBL leg-2SG.GEN
      ‘What bites your leg?’ (Lit. The thing that bites your leg is what?)

(55) Amis
   a. cima ku mi-takaw-ay tu payci
      who ABS AV-steal-FAC OBL money
      ‘Who steals money?’ (Lit. The one that steals money is who?)
   b. u maan ku ma-alaw-ay ni panay
      CN what ABS PV-see-FAC ERG PN
      ‘What does Panay see?’ (Lit. The thing that Panay sees is what?)

What serves as the subject in a cleft sentence is an expletive pronoun instead.

According to Hedberg (2000), the so-called expletive subject in a cleft sentence has
propositional content and can be replaced with demonstratives like this or that. Although
Kavalan and Amis do not have an expletive pronoun, they do have demonstrative
pronouns. Unlike English it-cleft sentences, the demonstrative pronouns cannot function
as the subject of a Kavalan and Amis wh-initial question. The sentences in (56) and (57)
are ungrammatical due to the presence of a demonstrative pronoun at the sentence-
final subject position. Although the ungrammaticality of these sentences does not
decisively rule out the cleft analysis, it still suggests that a Kavalan/Amis wh-initial
question is different from an English *it*-cleft structure.

(56) Kavalan
   a. *tiana q<m>an tu ‘may-ku  zau/nay
      who  <AV>eat  OBL  rice-1SG.GEN this/that
      ‘This/that is who that eats my rice?’
   b. *niana q<m>aRat tu zapan-su zau/nay
      what  <AV>bite  OBL  leg-2SG.GEN this/that
      ‘This/that is what that bites your leg?’

(57) Amis
   a. *cima ku mi-takaw-ay tu payci  ku-ni/ku-ya
      who  ABS  AV-steal-FAC  OBL  money  ABS-this/ABS-that
      ‘This/that is who that steals money?’
   b. *u  maan ku  ma-alaw-ay ni  panay ku-ni/ku-ya
      CN  what  ABS  PV-see-FAC  ERG  PN  ABS-this/ABS-that
      ‘This/that is what that Panay sees?’

4.3.4 Bi-Clausal Structure

Section 4.3.1 has shown that the interrogative phrase in a Kavalan/Amis wh-initial
sentence exhibits properties of a predicate. Then it is argued in Section 4.3.2 and
Section 4.3.3 that the remainder of this construction is a headless relative clause that
functions as the subject. The two findings suggest that a wh-initial sentence in Kavalan
and Amis is a bi-clausal structure. In addition to the matrix wh-predicate, there should
be another predicate inside the remainder, a headless RC. What follows in this
subsection will offer more evidence for the bi-clausal structure of the Kavalan/Amis wh-
initial construction.

As there are two predicates in a Kavalan/Amis wh-initial sentence, it is predicted
that each predicate can host its own TAM and negation markers. This prediction is
borne out.
(58) Kavalan
  a. tiana=pa ya paRaRiw
     who=FUT ABS run
     ‘Who is going to run?’ (Lit. The one that runs is going to be who?)
  b. tiana ya paRaRiw=pa
     who ABS run=FUT
     ‘Who is going to run?’ (Lit. The one that is going to run is who?)
  c. niana=ti ya tayta-an ni buya
     what=PFV ABS see-PV ERG PN
     ‘What did Buya see?’ (Lit. The thing that Buya saw was what?)
  d. niana ya tayta-an=ti ni buya
     what ABS see-PV=PFV ERG PN
     ‘What did Buya see?’ (Lit. The thing that Buya saw is what?)

(59) Amis
  a. cima=tu ku tayni-ay
     who=PFV ABS come-FAC
     ‘Who has come?’ (Lit. The one that came was who?)
  b. cima ku ta-tayni
     who ABS IRR-come
     ‘Who will come?’ (Lit. The one that will come is who?)

In (58a) and (58c), the tense/aspect markers =pa and =ti are attached to the sentence-initial interrogative phrase, which serves as the matrix predicate. As the remainder also contains a predicate, it is possible to attach tense/aspect markers to the embedded predicate too. This is illustrated by (58b) and (58d). This is also true of Amis. In (59a), the interrogative phrase, cima ‘who’, takes the perfective aspect marker and the embedded predicate takes a separate factual mood marker -ay. In (59b), the embedded predicate is marked irrealis through Ca reduplication. The empirical pattern presented in (58) and (59) supports the bi-clausal analysis of a Kavalan/Amis wh-initial question. A mono-clausal analysis like the wh-movement account cannot provide a straightforward
explanation for the fact that both the interrogative phrase and the predicate of the remainder are able to host tense and aspect markers.

The interrogative phrase and the remainder in a wh-initial construction can also take their own respective negation marker, as illustrated below.

(60) Kavalan
   a. usa ti-tiana ya mai mawtu siRab
      NEG NCM-who ABS NEG AV.come yesterday
      ‘The one that didn’t come yesterday is not who?’
   b. usa niana mai t<m>anbaseR ta-dedan-an
      NEG what NEG <AV>fly LOC-sky-LOC
      ‘The thing that is not flying in the sky is not what?’

The interrogative phrases in (60) are preceded by the negation marker for nominal predicates, *usa*, whereas the remainder is negated by the negation marker for non-nominal predicates, *mai*.

Finally, the epistemic markers that must immediately precede a predicate can occur either right before the interrogative phrase or immediately before the embedded predicate.

(61) Kavalan
   a. pasi ti-tiana ya Riwawa tu sunis
      possible NCM-who ABS take.care.of OBL child
      ‘Who possibly takes care of children?’ (Lit. The one that takes care of children might be who?)
   b. ti-tiana ya pasi Riwawa tu sunis
      NCM-who ABS possible take.care.of OBL child
      ‘Who possibly takes care of children?’ (Lit. The one that possibly takes care of children is who?)

(62) Amis
   a. latek maan ku ka-talaw-an ni utay
      maybe what ABS KA-afraid-LA ERG PN
      ‘What might Utay be afraid of?’ (Lit. The thing that Utay is afraid of might be what?)
b. maan ku latek ka-talaw-an ni utay
what ABS maybe KA-afraid-LA ERG PN
‘What might Utay be afraid of?’ (Lit. The thing that Utay might be afraid of is what?)

In (61a) and (62a), the epistemic marker immediately precedes the interrogative phrase, whereas it appears right before the embedded predicate in (61b) and (62b). The bi-clausal analysis can explain this pattern in a straightforward manner. As there are two predicates in a wh-initial sentence, it is expected that the epistemic markers *pasi* and *latek* can immediately precede either predicate. This pattern is elusive on a mono-clausal account like the wh-movement analysis.

4.3.5 No Movement Properties

This section will provide two more pieces of evidence against the wh-movement account of a Kavalan and Amis wh-initial question. Unlike a wh-movement question, the wh-initial construction in Kavalan and Amis does not exhibit identity effects of the supposedly moved element. The structure of embedded questions also constitutes indirect evidence for a non-movement analysis of this construction.

4.3.5.1 Identity effects

As discussed in Section 4.2.1, under the assumption that movement should be decomposed into Copy and Re-merge (Chomsky 1993), copies of a moved element should exhibit identity effects (Adger and Ramchand 2005). When an element is displaced from its original position, the two copies of this element should manifest the same features regarding selection, agreement, and case. In a base-generation derivation, since no copies are involved, identity effects may not arise. Identity effects can thus be a reliable test on whether Kavalan and Amis wh-initial sentences are derived via wh-movement. On the wh-movement account, the sentence-initial
interrogative phrase and its copy in the original position are identical and should exhibit identity effects. If we instead find anti-identity effects, this will be a strong piece of evidence against the movement analysis.

Consider the following two interrogative sentences.

(63) Kavalan
niana q<m>aRat tu zapan-su
what <AV>bite OBL leg-2SG GEN
‗What bites your leg?’ (Lit. The thing that bites your leg is what?)

(64) Amis
u maan ku ma-alaw-ay ni panay
CN what ABS PV-see-FAC ERG PN
‗What does Panay see?’ (Lit. The thing that Panay sees is what?)

If the sentence-initial order of the interrogative phrases in (63) and (64) is derived via movement, they should have a copy in their base-generated position. On this account, niana ‘what’ in (63) is the agent of the AV-marked verb and should thus have checked absolutive case before movement to Spec, CP; maan ‘what’ in (64) is the theme argument of the PV-marked verb and should thus have checked absolutive case before movement. In other words, on the wh-movement account, both niana ‘what’ in (63) and maan ‘what’ in (64) should occupy Spec, CP and have a copy that is marked absolutive case in Spec, TP, as represented by (65) and (66) respectively.

(65) Wh-movement analysis of (63)
[CP niana [TP q<m>aRat tu zapan-su ya niana]]
what <AV>bite OBL leg-2SG GEN ABS what
‗What bit your leg?’

(66) Wh-movement analysis of (64)
[CP u maan [TP ku ma-alaw-ay ni panay ku maan]]
CN what ABS PV-see-FAC ERG PN ABS what
‗What did Panay see?’
The problem is that the higher copy of the interrogative phrase and its lower copy do not exhibit any identity effect regarding case. The sentence-initial interrogative phrase in Kavalan cannot take the absolutive case marker. Although the Amis sentence-initial interrogative phrase can take the common noun marker, it cannot be case-marked as absolutive. This is illustrated by the ungrammaticality of the following two sentences.

(67) Kavalan  
*[CP ya niana [TP q<m>aRat tu zapan-su ya niana]]  
ABS what <AV>bite OBL leg-2SG.GEN ABS what  
‘What bit your leg?’

(68) Amis  
*[CP ku maan [TP ku ma-alaw ay ni panay ku maan]]  
ABS what ABS PV-see-FAC ERG PN ABS what  
‘What did Panay see?’

The ungrammaticality of (67) and (68) is unexpected on the movement account of Kavalan and Amis wh-initial sentences. Since the movement is from a case-marked position to a non-case-marked A’ position, the case marking should not be altered. Note that as already shown in Chapter 2, the interrogative phrases in Kavalan and Amis are able to take case markers when they occur in-situ. There is thus no language-specific constraint that forbids an interrogative phrase from taking case markers in the two languages. The movement account has to provide extra stipulations to explain why the copies of an interrogative phrase do not exhibit identity effects regarding case. The anti-identity effect of case marking thus corroborates the pseudo-cleft analysis of Kavalan and Amis interrogative sentences. As the sentence-initial interrogative phrase is a predicate, it occurs in its default form without any overt case markers.

In fact, the anti-identity effect illustrated above disproves not only the wh-movement analysis but also any account that posits movement of the interrogative
phrase from a case-marked position to a non-case-marked position. Law (2007) argues against the pseudo-cleft analysis of the Malagasy cleft construction and proposes a clausal complement analysis, which is schematically represented by the structure in (69) below.

(69)

According to Law (2007), the clefted XP in the Malagasy cleft construction is base-generated in the IP complement of a functional head, F, and undergoes movement to the specifier of the matrix VP. V is a null copula and F is realized as the focus particle no. Suppose the Kavalan and Amis wh-initial construction manifests the same structure as the Malagasy cleft construction. On this assumption, the sentence-initial interrogative phrase is base-generated in the IP complement of FP and is moved to Spec, VP in the matrix clause. It is thus expected that the copies of the interrogative phrase will show identity effects. The interrogative phrase can check case in the embedded IP, so when it is moved to Spec, VP, it should retain its case. The empirical facts presented in (67) and (68) contradict this prediction. The sentence-initial interrogative phrase in the
Kavalan/Amis wh-initial construction cannot take case markers; there is no movement-induced identity effect.

4.3.5.2 Embedded questions

The syntactic structure of embedded questions provides further evidence against the claim that the wh-initial questions in Kavalan and Amis are derived via wh-movement. Consider the examples in (70).

(70) Kavalan

a. Rayngu-an-na ni buya tu ti-tiana mala
   not.know-PV-3SG.ERG ERG PN COMP NCM-who AV-take
   tu kelisiw
   OBL money
   'Buya doesn't know who takes the money.' (Lit. Buya doesn't know the one that takes the money is who.)

b. *Rayngu-an-na ni buya ti-tiana tu mala
   not.know-PV-3SG.ERG ERG PN NCM-who COMP AV-take
   tu kelisiw
   OBL money

c. Rayngu-an-ku tu niana=ti ya ni-tayta-an
   not.know-PV-1SG.ERG COMP what=PFV ABS PFV-see-PV
   ni buya
   ERG PN
   'I don't know what Buya sees.' (Lit. I don't know the thing that Buya sees is what.)

d. *Rayngu-an-ku niana=ti tu ya ni-tayta-an
   not.know-PV-1SG.ERG what=PFV COMP ABS PFV-see-PV
   ni buya
   ERG PN

In Kavalan, embedded wh-questions are introduced by the complementizer tu. Section 2.3.2 has shown that except for the complementizer, they exhibit the same description options and surface structure as their non-embedded counterparts. They also conform to the same grammatical restriction that only an absolutive argument can be questioned. In the examples in (70), the wh-phrases can never precede the
complementizer *tu*, which indicates that interrogative phrases in Kavalan do not involve movement to Spec, CP, the landing site of a wh-phrase on the standard account. If they do, we would expect them to move to a position before the complementizer.  

The scope of the interrogative phrase in (70a) or (70c) is restricted to the embedded clause. As already demonstrated in Section 2.3.2, even if an interrogative phrase has wide scope, it still must occur in the embedded clause and after the complementizer. It cannot move overtly to the sentence-initial position. This is illustrated by the contrast between the sentences in (71). The interrogative phrase, *tiana* ‘who’, in (71a) receives a wide scope interpretation even though it occurs in the embedded clause. As indicated by the ungrammaticality of (71b) and (71c), it cannot occupy the position right before the complementizer *tu* and neither can it overtly move to the sentence-initial position.

(71) Kavalan  

a. s <m> anu ti-imuy tu tiana qiRuziq tu kelisiw  
   <AV> say NCM-PN COMP who steal OBL money  
   ‘Who does Imuy say steals money?’ (Lit. Imuy says that the one that steals money is who?)

b. *s <m> anu ti-imuy tiana tu qiRuziq tu kelisiw  
   <AV> say NCM-PN who COMP steal OBL money  
   ‘Who does Imuy say steals our money?’

c. *tiana s <m> anu ti-imuy tu t₁ qiRuziq tu kelisiw  
   who <AV> say NCM-PN COMP steal OBL money  
   ‘Who does Imuy say steals money?’

---

6 However, on Rizzi’s (1997) proposal of an expanded CP, a wh-phrase following a complementizer can still be derived from wh-movement. It is possible that the complementizer is in the Force head, whereas the wh-phrase is in a lower specifier.
Note that the inability of a Kavalan interrogative phrase to precede the complementizer cannot be attributed to the Doubly-Filled-COMP Filter, which prohibits the simultaneous phonetic realization of the specifier of CP and the head C. This is a language-specific filter and is found in languages like standard English and German, as illustrated below.

(72) I wonder who (*that) he saw.

(73) Standard German
Ich weiss nicht wieviel (*dass) er für das Auto bezahlt hat
I know not how much that he for the car paid has
‘I don’t know how much he paid for the car.’ (Bayer and Brandner 2008: 87)

Both (72) and (73) become ungrammatical if C, that in standard English and dass in standard German, is overtly pronounced. However, there are dialects of the two languages that do not observe the Doubly-Filled-COMP Filter. For example, an embedded interrogative phrase can co-occur with an overt complementizer in Belfast English and Alemannic German. This is illustrated by the examples in (74) and (75).

The doubly-filled-COMP filter is not a universal constraint that every language has to obey.

(74) Belfast English
They discussed a certain model, but they didn’t know which model that they discussed. (Baltin 2010: 331)

(75) Alemannic German
I woass it wieviel dass er für des Auto zahlt hät
I know not how much that he for the car paid has
‘I don’t know how much he paid for the car.’ (Bayer and Brandner 2008: 87)

Like Kavalan, an Amis embedded wh-question has the same structural properties of a matrix wh-question. In other words, it also contains a headless relative clause as its
subject, as illustrated below. Note that there is no overt complementizer in the following Amis sentences.

(76) Amis
a. sa-ka-fana-an kaku cima ku ka-ulah-an ni panay
want-KA-know-want 1SG.ABS who ABS KA-like-LA ERG PN
‘I want to know who Panay likes.’ (Lit. I want to know the one that Panay likes is who.)

b. sa-ka-fana-an kaku maan ku ni-aca-an ni lekal
want-KA-know-want 1SG.ABS what ABS PFV-buy-LA ERG PN
‘I want to know what Lekal buys.’ (Lit. I want to know the thing that Lekal buys is what.)

Embedded interrogative phrases that have a wider scope over the main clause do not move overtly to the sentence-initial position either. They must stay within the embedded clause, as illustrated below.

(77) Amis
a. ma-harateng isu cima ku k<um>a’en-ay tu
PV-think 2SG.ERG who ABS <AV>eat-FAC OBL
titi aku meat 1SG.GEN
‘Who do you think eats my meat?’ (Lit. You think the one that eats my meat is who?)

b. *cima ma-harateng isu ti ku k<um>a’en-ay tu
who PV-think 2SG.ERG ABS <AV>eat-FAC OBL
titi aku meat 1SG.GEN
‘Who do you think eats my meat?’

Sentences like (71a) and (77a), where an interrogative phrase has a wide scope interpretation but occurs inside an embedded clause, suggest that the interrogative phrase in a Kavalan/Amis wh-initial question does not exhibit one property of movement-induced A’-dependencies: unboundedness, i.e., a wh-phrase can move cyclically across more than one clause boundary. The ungrammaticality of (71c) and
(77b) is unexpected on the wh-movement account of Kavalan and Amis wh-initial sentences.

The following sentences seem to be counterexamples to the non-movement analysis of embedded questions in Amis. The wh-phrases do not stay in the embedded clause but occur in the sentence-initial position. They thus seem to exhibit unboundedness.

(78) Amis
a. cima ku ma-alaw-ay isu mi-sti’ tu-ra wawa
   who ABS PV-see-FAC 2SG.ERG AV-beat OBL-that child
   ‘Who do you see beat that child?’ (Lit. The one that you see beat that child is who?)

b. u maan ku ma-alaw-ay isu tu ni-aca-an
   CN what ABS PV-see-FAC 2SG.ERG OBL PFV-buy-LA ni lekal
   ERG PN
   ‘What do you see Lekal buy?’ (Lit. The thing that you see Lekal buy is what?)

A closer inspection reveals otherwise. In the two sentences, the wh-phrase still functions as the predicate. What follows the interrogative phrase is a complex DP subject marked by the absolutive case marker ku. This complex DP is a headless relative clause where the verb takes another verb phrase as its complement. Moreover, maan ‘what’ in (78b) takes the common noun marker without any case morpheme. This is a morphosyntactic property of a nominal predicate. Therefore, the examples in (78) in fact lend further support for the pseudo-cleft analysis of Amis wh-questions. What actually exhibits unboundedness is the phonetically null operator inside the relative clause subject, not the wh-phrase itself, on the standard account of how a relative clause is derived. In other words, the null relative operator in the RC subject of a wh-
initial question does undergo A’-movement and thus shows unboundedness, but the interrogative phrase in this construction does not.

4.3.6 Parallelism with Amis Pseudo-Clefts

In addition to the cross-linguistic differences between a pseudo-cleft structure and a cleft structure as discussed in Section 4.2, D. Liu (1999) has revealed other syntactic differences that are specific to the Amis cleft and pseudo-cleft constructions. While the remainder clause of an Amis pseudo-cleft construction is preceded by the absolutive case marker ku, the remainder in a cleft construction can only be marked by the common noun marker u. This is illustrated below. According to Liu's (1999) analysis, (79a) is a pseudo-cleft sentence and (79b) is a cleft sentence.7

(79) Amis
a. u-ya wacu ku c<um>kay-ay i lalan
   CN-that dog ABS <AV>run-FAC PREP road
   ‘What runs on the road is that dog.’ (D. Liu 1999: 101)

b. u-ya wacu u c<um>kay-ay i lalan
   CN-that dog CN <AV>run-FAC PREP road
   ‘It is that dog that runs on the road.’ (D. Liu 1999: 108)

The structure of an Amis interrogative sentence is consistent with the pseudo-cleft construction in that the remainder can be marked by the absolutive case marker ku, but not the common noun marker u, as exemplified below.

(80) Amis
a. cima ku k<um>a’en-ay tu titi aku
   who ABS <AV>eat-FAC OBL meat 1SG.GEN
   ‘Who eats my meat?’ (Lit. The one that eats my meat is who?)

b. *cima u k<um>a’en-ay tu titi aku
   who CN <AV>eat-FAC OBL meat 1SG.GEN
   ‘Who eats my meat?’

---

7 The examples from D. Liu (1999) have been reglossed to reflect my analysis of the Amis clause structure.
Another discrepancy between the pseudo-cleft structure and the cleft structure in Amis concerns the voice alternation of the remainder clause. All four types of voice and applicative constructions can be utilized as the remainder clause of a pseudo-cleft sentence, as demonstrated below.

(81) Amis

a. u-ya kayin ku [citangar-ay]
   CN-that lady ABS AV.clever-FAC
   ‘The one that is clever is that lady.’ (D. Liu 1999: 103)

b. u-ni dateng ku [ma-cirah-ay aku]
   CN-this vegetable ABS PV-pickle-FAC 1SG.ERG
   ‘What I pickle is this vegetable.’ (D. Liu 1999: 104)

c. u-ra lutuk ku [pi-’eli-an ni rekar]
   CN-that mountain ABS PI-weed-LA ERG PN
   ‘The place where Rekar weeded is that mountain.’ (D. Liu 1999: 104)

d. u-ra pitaw ku [sa-pi-ara aku tu-ni saytaw]
   CN-that hoe ABS IA-PI-dig.out 1SG.ERG OBL-this turnip
   ‘The tool with which I dig out this turnip is that hoe.’ (D. Liu 1999: 104)

(81a) illustrates the use of the agent voice construction as the remainder clause. The verb in the remainder clause of (81b) takes the patient voice marker. In (81c) and (81d), the headless RC subject is a locative applicative construction and an instrumental applicative construction respectively. By contrast, the verb in the remainder of a cleft structure can only take the agent or patient voice marker. LA-marked and IA-marked verbs are not allowed to be the predicates of the remainder in a cleft sentence, as illustrated by the ungrammaticality of (82c) and (82d).

(82) Amis

a. ci-utay u mi-takaw-ay tu payci aku
   NCM-PN CN AV-steal-FAC OBL money 1SG.GEN
   ‘It is Utay that stole my money.’
b. ci-panay u ma-alaw-ay aku
   NCM-PN CN PV-see-FAC 1SG.ERG
   ‘It is Panay that I saw.’

c. *u lutuk u pi'-eli-an ni rekar
   CN mountain CN PI-weed-LA ERG PN
   ‘It is in the mountain that Rekar weeded.’ (D. Liu 1999: 113)

d. *u pitaw u sa-pi-ara aku tu saytaw
   CN hoe CN IA-PI-dig.out 1SG.ERG OBL turnip
   ‘It is the hoe that I used to dig out turnip.’ (D. Liu 1999: 113)

The structure of an Amis wh-initial sentence is parallel to the pseudo-cleft construction in this respect. An Amis interrogative sentence allows not only the agent voice and patient voice constructions to be the remainder clause (83a, 83b), but also the locative applicative and instrumental applicative constructions (83c, 83d).

(83) Amis
a. cima ku-ra [mi-takaw-ay tu payci]
   who ABS-that AV-steal-FAC OBL money
   ‘Who steals money?’ (Lit. The one that steals money is who?)

b. u maan ku [ma-alaw-ay ni panay]
   CN what ABS PV-see-FAC ERG PN
   ‘What does Panay see?’ (Lit. The thing that Panay sees is what?)

c. cima ku-ra [pi-ac-a-an isu tu-ra futing]
   who ABS-that PI-buy-LA 2SG.ERG OBL-that fish
   ‘Who do you buy fish from?’ (Lit. The one that you buy fish from is who?)

d. u maan ku [sa-ka-k<um>a’en ni aki tu futing]
   CN what ABS IA-KA-<AV>eat ERG PN OBL fish
   ‘What does Aki eat fish with?’ (Lit. The tool that Aki eats fish with is what?)

The grammatical properties of an Amis wh-initial sentence regarding the case marking of the remainder and the voice alternation corroborate our analysis that it involves a pseudo-cleft structure, not a cleft structure.
4.3.7 Summary

To sum up, a wh-initial question in Kavalan and Amis exhibits the following properties.

(84) Properties of Kavalan and Amis wh-initial sentences
a. The interrogative phrase has predicate properties.
b. It is possible to have a dummy head in the remainder. The remainder is a headless relative clause, has nominal properties, and functions as the subject of the sentence.
c. Propositional anaphors cannot serve as the subject.
d. They exhibit a bi-clausal structure.
e. They do not exhibit movement-induced identity effects.
f. The interrogative phrase in an embedded wh-question cannot precede the complementizer tu in Kavalan.
g. The interrogative phrase in an embedded wh-question cannot move to the sentence-initial position, even if it takes wide scope.
h. An Amis wh-initial question shows morphosyntactic parallelism with an Amis pseudo-cleft sentence regarding the case marking of the remainder and the voice alternation.

These properties are incompatible with the predictions of the wh-movement analysis. The cleft analysis captures the fact that a Kavalan/Amis wh-initial question is a bi-clausal structure with the interrogative phrase as the predicate. However, it fails to account for the possibility of a dummy head in the remainder and the subject status of the remainder. All the properties listed in (84) conform to the predictions made by the pseudo-cleft analysis. A Kavalan/Amis wh-initial question exhibits syntactic characteristics of a pseudo-cleft sentence, with the wh-phrase as the predicate and a headless relative clause as the subject.
4.4 The Structure of Kavalan and Amis Pseudo-Cleft Questions

Having shown that Kavalan and Amis interrogative sentences with a sentence-initial interrogative phrase involve a pseudo-cleft structure, we will further explore their structural representation in this section. Since the wh-initial construction contains a non-verbal predicate, we will first discuss the syntactic structure of predication in Section 4.4.1 and then extend this analysis to non-verbal interrogative clauses in Sections 4.4.2 and 4.4.3.

4.4.1 The Structure of Predication

Neither Kavalan nor Amis has an overt copula that introduces a non-verbal predicate. Non-case–marked nominal phrases and locative phrases can function as predicates directly when they occur in the clause-initial position, as illustrated below.

(85) Kavalan
   a. [ti-utay] ya sunis 'nay
      NCM-PN   ABS   child that
      ‘That child is Utay.’
   b. [qanas] ya Ribang 'nay
      basket  ABS  thing that
      ‘That thing is a basket.’
   c. [ta-paw-an ni buya] ya ti-imuy tangi
      LOC-house-LOC GEN PN ABS NCM-PN now
      ‘Imuy is at Buya’s house now.’

(86) Amis
   a. [ci-lekal] ku-ra tamdaw
      NCM-PN   ABS-that person
      ‘That person is Lekal.’
   b. [ci-ofad] ku nangan nira
      NCM-PN   ABS  name 3SG.GEN
      ‘His name is Ofad.’
   c. [i ciwkangan] ku ruma’ ni panay
      PREP PN   ABS  house GEN PN
      ‘Panay’s house is in Ciwkangan.’ (Panay lives in Ciwkangan.)
The examples above also demonstrate that the subject of a non-verbal sentence takes the absolutive case marker, *ya* or *ku*.

Adopting the analysis of predication by Adger & Ramchand (2003) and Bowers (1993), we assume that a predicate is licensed by a Predicate head. The subject of a non-verbal sentence is introduced in the specifier of the Predicate Phrase and the non-verbal predicate is merged as the complement of this phrase. (87) is a schematic representation of the structure of non-verbal predication.

(87)

The XP complement of the null predicate head can be DP, AP, or PP.

The structure in (87) does not reflect the predicate-initial word order of Kavalan and Amis. More derivational steps are involved. The subject DP needs to move to Spec, TP to check absolutive case. We further adopt Aldridge’s (2006) and Pearson’s (2001) analysis of verb-initial word order derivation and assume that the subject DP has to move to a topic position.\(^8\) This is followed by the movement of the remnant TP to a focus position, which is higher than the topic position. The predicate-initial word order is thus derived. This derivation is schematically represented in (88).

---

\(^8\) We adopt this analysis for concreteness, but there are other equally plausible analyses that can derive the predicate-initial word order.
4.4.2 Non-Verbal Interrogative Clauses

Interrogative words can also be used as non-verbal predicates in Kavalan and Amis. The interrogative words that can occur in the predicate position of a non-verbal sentence are listed below.

(89) Interrogative words that could be used as non-verbal predicates


They question notions like person, object, possession, quantity, and location. As illustrated by the following examples, they occur in the sentence-initial position and are followed by a simple DP subject.

(90) Kavalan
a. *tiana ya sunis ‘nay*
   who ABS child that

   ‘Who is that child?’

b. *niana ya Ribang ‘nay*
   what ABS thing that

   ‘What is that thing?’
c. zanitiana ya wasu zau
   whose ABS dog this
   'Whose dog is it?'

d. kin-tani=ti ya sunis-su
   HUM-how many=PFV ABS child-2SG.GEN
   'How many children do you have?' (Lit. Your children are how many?)

e. tanian ya wasu-su
   where ABS dog-2SG.GEN
   'Where is your dog?'

(91) Amis
a. cima ku-ra tamdaw
   who ABS-that person
   'Who is that person?'

b. maan ku-ra fao
   what ABS-that worm
   'What is that worm?'

c. nima ku-ra wacu
   whose ABS-that dog
   'Whose dog is it?'

d. pa-pina ku wawa isu
   HUM-how many ABS child 2SG.GEN
   'How many children do you have?' (Lit. Your children are how many?)

e. icuwa kisu anini
   where 2SG.ABS now
   'Where are you now?'

Note that the nominal phrases following the interrogative words in these examples are all preceded by the absolutive case marker, *ya* or *ku*. There is no overt copula in these sentences. Instead, what appears in the sentence-initial predicate position is an interrogative phrase. Simple interrogative clauses and their corresponding declarative clauses thus have the same surface structure in (92).

(92) \[ [ØBE Predicate] [Subject DP] \]
Both types of clauses also manifest the same syntactic structure of predication as in (87) and (88).

Despite the structural similarities outlined above, there are crucial differences between a non-verbal interrogative clause and its corresponding declarative clause in terms of their semantics and interpretation. First of all, in a declarative non-verbal sentence like the examples in (85) and (86), the predicate phrase is of type \(<e,t>\). When this function is applied to the subject DP, the truth conditions of the sentence can be specified and the truth value can thus be evaluated. By contrast, an interrogative clause does not have any truth values. Hamblin (1973) and Karttunen (1977) claim that the intension of questions is a set of answers. For Kartunnen (1977), only true answers to a question are contained in its denotation. For example, the question in (93a) can be interpreted as (93b) in an informal way.

(93) Kavalan

\begin{enumerate}
\item a. tiana ya sunis ‘nay
who ABS child that
‘Who is that child?’
\item b. \(\{P|(\exists x)(\text{person}(x) \& P = ^\wedge (x \text{ is that child}) \& \text{true}(P))\}\)
\item c. \(\{ti\text{-}buya ya sunis ‘nay ‘Buya is that child.’\}\)
\end{enumerate}

The interpretation in (93b) refers to the set of propositions that can be true answers to the question, e.g., (93c).

To account for the semantics of non-verbal interrogative clauses in Kavalan and Amis, we assume Cable’s (2008) proposal that a constituent question must be dominated by an interrogative Force Phrase (ForceP\(_\alpha\)). The tree in (94) represents the complete clause structure for a non-verbal interrogative sentence in Kavalan and Amis. It is this interrogative Force Phrase in a wh-question that distinguishes an interrogative
clause like the examples in (90) and (91) from a declarative clause like the examples in (85) and (86). The interrogative Force head functions to map a proposition $<s, t>$ into the set of propositions $<<s, t>, t>$ that can be true answers to a question.

(94)

The postulation of the interrogative Force Phrase is crucial for the interpretation of an interrogative phrase as a true interrogative because Kavalan and Amis interrogative phrases can also function as indefinites. This phenomenon is quite common in Formosan languages (Chen and Sung 2005; Tsai 1997b; Wei 2009). The following examples demonstrate the use of Kavalan and Amis interrogatives as indefinites.

(95)  Kavalan

a. $\text{ti-tiana} \ mawtu=ay, \ m-lizaq=iku$
   NCM-who AV.come=REL AV-happy=1SG.ABS
   ‘No matter who comes, I will be happy.’

b. $\text{anu bula-an-na} \ ni \ buya \ tu \ niana \ ya \ ti-abas,$
   if give-PV-3SG.ERG ERG PN OBL what ABS NCM-PN
   $\text{m-lizaq ti-abas}$
   AV-happy NCM-PN
   ‘If Buya gives Abas something, Abas will be happy.’
(96) Amis

a. cima=tu ku mi-takaw-ay tu payci, who=PFV ABS AV-steal-FAC OBL money ma-keter ku ina AV-angry ABS mother 'No matter who steals money, Mother will be angry.'

b. anu ma-sti’ ira ku cima-cima i, if PV-hit 3SG.ERG ABS RED-who TOP awa cingra NEG 3SG.ABS 'If he hits someone, he is not good.' (Wei 2009: 358)

c. cima ku ca’ay ka-tayni, ma-pasti cingra who ABS NEG KA-come PV-hit 3SG.ABS 'Whoever does not come, he will be hit.'

d. aka pi-ala tu maa-maan NEG PI-take OBL RED-what 'Don’t take anything.' (Wei 2009: 356)

An interrogative phrase in Kavalan and Amis can be interpreted as an indefinite in certain syntactic environments: Concessive clauses (95a, 96a), conditional clauses (95b, 96b), donkey sentences (95c, 96c), and negation (95d, 96d). These examples suggest that Kavalan and Amis interrogatives are polarity items without any quantificational force. Their interpretation is determined by an Operator through unselective binding (Aoun and Li 1993). The existence of the ForcePQ in (94) can thus ensure that the interrogative predicate will be interpreted as an interrogative element.
However, we leave the semantics of Kavalan and Amis interrogatives and wh-indefinites for future research.

Another difference related to the interrogative Force Phrase concerns the syntactic distribution of *smani* in Kavalan and *hakia* in Amis. These two words denote lack of knowledge or a desire or curiosity to know something, roughly corresponding to English ‘I wonder’ or ‘I do not know’. They can only appear in a content question, as illustrated in (97) and (98). As shown in (97a), (97b), (98a), and (98b), *smani* and *hakia* can occur at the end of the sentence or immediately after the interrogative predicate. They however cannot occur in a declarative sentence without an interrogative phrase, as shown by the ungrammaticality of (97c), (97d), (98c), and (98d). Their inherent semantics is compatible with the interrogative Force of a question, but not with a non-interrogative clause. Since they express a speaker’s epistemic knowledge of the answer to a question, we assume that they must select for an interrogative Force Phrase, i.e., ForceP. A declarative sentence cannot be the complement of *smani* and *hakia* for lack of an interrogative Force Phrase, hence the ungrammaticality of (97c), (97d), (98c), and (98d). How the two different word orders, i.e., at the end of the sentence or immediately after the interrogative predicate, are derived will be discussed in the following section on the structure of pseudo-cleft questions.

(97) Kavalan
   a. tanian ya wasu-su *smani*
      where ABS dog-2SG.GEN I.wonder
      ‘I wonder/don’t know where your dog is.’

   b. tanian *smani* ya wasu-su
      where I.wonder ABS dog-2SG.GEN
      ‘I wonder/don’t know where your dog is.’
4.4.3 The Structure of Pseudo-Cleft Questions

The structural analysis of simple non-verbal interrogative clauses can be extended to the wh-initial construction, or pseudo-cleft questions. As argued in Section 4.3, the interrogative phrase in the wh-initial construction is the predicate of the sentence and there is a complex DP that functions as the subject argument. This complex DP is a headless relative clause. In other words, the wh-initial construction manifests the following simplified surface structure of a pseudo-cleft question.

(99) \[\text{[precipate Wh-phrase]} \quad \text{[subject DP (Headless RC)]}\]

As reviewed in Section 4.2.3, there are two approaches to the syntactic analysis of a pseudo-cleft. One approach considers the headless relative clause, or the free relative, to be base-generated in the subject position (Bošković 1997; Higgins 1979;
Schlenker 2003), while the other argues that the headless relative clause is base-generated as the predicate of a small clause and then moves to the subject position of the matrix clause (den Dikken 2006; Paul 2008; Williams 1983). Due to the semantic parallelism between a pseudo-cleft question and a specificational clause, Potsdam (2007) assumes Mikkelsen’s (2004) approach to specificational clauses and adopts the movement analysis for Malagasy pseudo-cleft questions. We will however adopt the non-movement analysis of a pseudo-cleft for the Kavalan/Amis wh-initial construction as there is no decisive evidence that shows the headless relative clause in a Kavalan or Amis pseudo-cleft sentence undergoes movement from the predicate position of a small clause to the matrix subject position. Which analysis can better account for the pseudo-cleft structure in Kavalan and Amis remains to be seen though.

On the non-movement account, Kavalan/Amis pseudo-cleft questions share the same basic clause structure with simple non-verbal interrogative clauses presented in Section 4.4.2. Both involve the use of an interrogative word or phrase as the predicate of the sentence. They only differ in the structural complexity of the subject DP.
The subject DP of a simple non-verbal interrogative clause is a simple nominal phrase, whereas that in a pseudo-cleft question is a complex DP, a headless relative clause. (100) is the basic clause structure for a pseudo-cleft question. The subject DP moves to Spec, TP to check case and then raises to the Topic Phrase. The remnant TP undergoes further movement to a higher Focus position. This way, the predicate-initial word order is derived. Moreover, as discussed in the previous section, the Focus Phrase is dominated by an interrogative Force Phrase to ensure the correct interpretation of the sentence as a constituent question. The structure in (101) is a schematic representation of a pseudo-cleft question in Kavalan and Amis.

(101)

Therefore, the wh-initial construction, or the pseudo-cleft question, is just a structural variant of the non-verbal interrogative construction, which involves the use of an interrogative phrase as a non-verbal predicate.

What differentiates interrogative clauses like pseudo-cleft questions from declarative pseudo-cleft sentences is the projection of an interrogative Force head.
Particles like *smani in Kavalan or *hakia in Amis, which denote ‘I wonder’ or ‘I do not know’, are compatible with the semantics of a pseudo-cleft question, as shown below.

Note that these two particles must occur at the end of the sentence, i.e., after the headless relative clause, as in (102a) and (103a), or immediately after the interrogative phrase, as in (102b) and (103b). They can never occur in the sentence-initial position, as shown by the ungrammaticality of (102c) and (103c).

(102) Kavalan
a. tiana ya m-ala(=ay) tu kelisiw-ku  *smani
   who  ABS AV-take=REL OBL money-1SG.GEN I.wonder
   ‘I wonder/don’t know who took my money.’

b. tiana  smani  ya m-ala(=ay) tu kelisiw-ku
   who I.wonder ABS AV-take=REL OBL money-1SG.GEN
   ‘I wonder/don’t know who took my money.’

c. *smani  tiana  ya  m-ala=ay  tu  kelisiw-ku
   I.wonder who ABS AV-take=REL OBL money-1SG.GEN
   ‘I wonder/don’t know who took my money.’

(103) Amis
a. cima ku mi-takaw-ay tu payci  *hakia
   who  ABS AV-steal-FAC OBL money I.wonder
   ‘I wonder/don’t know who stole the money.’

b. cima  hakia  ku mi-takaw-ay tu payci
   who I.wonder ABS AV-steal-FAC OBL money
   ‘I wonder/don’t know who stole the money.’

c. *hakia  cima  ku  mi-takaw-ay  tu  payci
   I.wonder who ABS AV-steal-FAC OBL money
   ‘I wonder/don’t know who stole the money.’

As the two particles are concerned about a speaker’s knowledge of the answer to a question, we assume that they select for an interrogative ForceP when entering the derivation, as schematically represented in (104). In (104), *smani or *hakia heads the epistemic phrase, or EpisP, and selects for an interrogative sentence. Their surface
word order can be derived via further movement if we assume that they have an uninterpretable feature to be valued. As they express the lack of knowledge on the content of the focused interrogative phrase, we further assume that the uninterpretable feature they possess is related to focus. The feature valuation can thus be achieved by either moving the focused TP or the entire focus phrase to the specifier to EpisP. The reason why FocP has a focus feature might be due to the percolation from TP in its specifier position.

(104)

If we further assume that the percolation of the relevant feature in this case is optional, we can account for the two different word orders of *smani* or *hakia*. If there is no percolation, TP is attracted to the specifier of EpisP; if there is percolation, FocP is attracted instead. Either TP or FocP can move to Spec, EpisP to check the uninterpretable feature without violating relativized minimality. The two convergent derivations are represented in (105) and (106).
If it is TP that moves to Spec, EpisP, *smani* or *hakia* immediately follows the interrogative predicate and precedes the subject DP, as shown in (105). If what moves to Spec, EpisP is FocP, *smani* or *hakia* ends up being in the sentence-final position, as shown in (106). The two possible convergent derivations thus lead to the word order variation of the two particles.
4.5 Conclusion

This chapter has argued that the wh-initial construction in Kavalan and Amis should be analyzed as a pseudo-cleft structure instead of a wh-movement or cleft structure. The grammatical properties of this construction can be explained by the pseudo-cleft analysis in a straightforward manner. The sentence-initial interrogative phrase exhibits predicate properties, whereas the remainder has the same distribution as a nominal phrase and behaves as the subject. Moreover, the remainder is a headless relative clause and is able to modify a dummy head noun. The interrogative phrase does not exhibit identity effects regarding case-marking. Finally, the Amis wh-initial construction is characterized by the same language-specific grammatical properties as the pseudo-cleft structure and manifests distinct characteristics from the cleft structure. All of these empirical facts point to the conclusion that the wh-initial construction is parallel to a pseudo-cleft structure. However, as a pseudo-cleft question only minimally differs from a non-verbal equative interrogative clause in the complexity of the subject DP, it is suggested that both constructions are just variants of the same question formation strategy: The use of interrogative phrases as non-verbal predicates.
CHAPTER 5
RESTRICTIONS ON WH-IN-SITU AND PSEUDO-CLEFT QUESTIONS

5.1 Introduction

As discussed in Chapter 2 and Chapter 4, the wh-initial construction, or the pseudo-cleft structure, is one of the strategies for question formation in both Kavalan and Amis. However, it is not available to all types of interrogative phrases or all cases of interrogative phrases. A pseudo-cleft question can be formed only when the question targets the absolutive DP. Questions that target ergative and oblique DPs cannot appeal to the pseudo-cleft structure. The following Kavalan examples of ‘who’-questions illustrate this pattern.

(1) Kavalan tiana ‘who’
   a. tiana; (ya) q<m>an [ABS] tu ’may-ku
      who ABS <AV>eat OBL rice-1SG.GEN
      ‘Who eats my rice?’ (Lit. The one that eats my rice is who?)
   b. *tiana; (ya) p<m>ukun=isu [OBL]
      who ABS <AV>hit=2SG.ABS
      ‘Who do you hit?’
   c. *tiana; (ya) a-la-an [ERG] ya kelisiw-ku
      who ABS take-PV ABS money-1SG.GEN
      ‘Who takes my money?’

As the Kavalan and Amis wh-initial construction involves a pseudo-cleft structure that has a headless RC as the subject, the case restriction might be related to the formation of relative clauses in the two languages, where only absolutive arguments or subjects can be relativized (Y.-L. Chang 1997; Wu 2006). This extraction issue regarding syntactic constructions that are derived via A’-movement, especially interrogative constructions and relative clauses, has been documented by many Austronesian linguists (Aldridge 2002, 2006; Chang 1997; Chung 2006; Cole and Hermon 2008; Guilfoyle, Hung, and Travis 1992; Rackowski and Travis 2000).
following examples illustrate the same phenomenon in Tagalog and Seediq, where the
only DP that can be extracted for A’-movement is the argument whose thematic role
corresponds to the voice marker on the verb. For example, to form a wh-question on the
agent argument, the verb must take the agent voice marker. That is, the agent must
bear the absolutive case or be the subject in the corresponding declarative sentence.

(2) Tagalog (Guilfoyle, Hung, and Travis 1992: 385)
   a. sino ang bumili ng damit para sa bata’
      who ABS AV.bought OBL dress for OBL child
      ‘Who bought the dress for the child?’

   b. *sino ang binili para sa bata’ ang damit
      who ABS PV-bought for OBL child ABS dress

   c. *sino ang ibinili ng damit ang bata’?
      who ABS BV-bought OBL dress ABS child

(3) Seediq (Aldridge 2002:394)
   a. ima ka wada m-ari patis-ni
      who ABS PFV AV-buy book-DEF
      ‘Who bought this book?’

   b. *ima ka wada burig-un patis-ni
      who ABS PFV buy-PV book-DEF

Several solutions have been proposed to account for the extraction issue. We will
review these proposals in Section 5.2 and discuss their (in)adequacy in relation to
Kavalan and Amis interrogative sentences.

The empirical patterns of the wh-in-situ construction also require an explanation.

As shown in Chapter 2, except for mayni=ay ‘which=REL’, absolutive-marked
interrogative phrases in Kavalan cannot stay in-situ to form content questions, while
ergative and oblique interrogative phrases can. The following ‘what’-questions and
‘which’-questions are for illustration.
5.2 Restrictions on Pseudo-Cleft Questions

The goal of this section is to provide a theoretical account to explain why only absolutive-marked DPs, or “subjects”, can be questioned via the pseudo-cleft question in Kavalan and Amis. Several analyses have been proposed to account for the similar pattern in other Austronesian languages. Section 5.2.1 reviews the proposals of Guilfoyle, Hung, and Travis (1992), Y.-L. Chang (1997), and Rackowski and Richards (2005), which all attribute the extraction restriction to how the “subject” is derived syntactically. Section 5.2.2 examines Kaufman’s (2009) nominalist analysis of
Austronesian clause structure, which views the extraction restriction as a consequence of the ban on genitive predicates. Section 5.2.3 explores the predicate-raising approach to the derivation of the Austronesian predicate-initial word order (Aldridge 2002; Chung 2006; Cole and Hermon 2008; Holmer 2005; Pearson 2001). On this account, it is because non-subjects are contained in a syntactic island due to predicate-raising that they cannot be extracted. After the discussion of these approaches in relation to Kavalan and Amis pseudo-cleft questions, Section 5.2.4 adopts the predicate-raising approach and offers an explanation for the extraction restriction in Kavalan and Amis.

5.2.1 Extraction Restriction as Restriction on Subjects

Despite their differences in details, Guilfoyle, Hung, and Travis (1992), Y.-L. Chang (1997), and Rackowski and Richards (2005) all relate the extraction restriction to the syntactic derivation of “subjects” in Austronesian languages.

5.2.1.1 Guilfoyle, Hung, and Travis (1992)

The structure in (6) below is adopted by Guilfoyle, Hung, and Travis (1992) to derive the verb-initial word order in Austronesian languages.

(6) Guilfoyle, Hung, and Travis (1992)

Under the assumption that the directionality of specifiers can be parameterized, verb-initial and subject-final word order can be derived by simply projecting the specifier of IP.
to the right. This results in a structure where the verb occurs in the sentence-initial position and the subject always appears at the end. In (6), the subject is base-generated in the specifier of VP per VP-Internal Subject Hypothesis and undergoes movement to the right specifier of IP, deriving VOS. It is argued that this structure can account for the split of subject properties in Austronesian languages, showing that while extraction facts and floating quantifiers are associated with Spec, IP, reflexivization and Equi-NP deletion are properties of Spec, VP.

For Guilfoyle, Hung, and Travis (1992), the subject position in Spec, IP plays an important syntactic role in extraction in that only arguments that move to this position are eligible to undergo further A'-movement. As for the theoretical motivation for movement to Spec, IP, they suggest that this movement is Case-driven. In an agent voice construction, the agent voice marker is base-generated in V and V can assign Case to the theme. The Case-less agent thus has to move to Spec, IP for Case. In a patient voice construction, the patient voice marker is base-generated in INFL and assigns Case to the agent. The theme is Case-less and thus moves to Spec, IP to receive Case. Finally, in a circumstantial voice construction, where the verb takes a circumfix composed of both AV and PV, the agent can receive Case from PV and the theme can receive Case from AV; a third NP argument, e.g., instrument, which does not have Case, thus moves to Spec, IP for Case.

5.2.1.2 Y.-L. Chang (1997)

The right specifier analysis is also adopted by Y.-L. Chang (1997) to explain the word order of two Formosan languages: Seediq and Kavalan. Unlike Guilfoyle, Hung, and Travis (1992), however, he argues that the movement to Spec, IP is not Case-
driven, but is motivated by the Obligatory Voice-Checking Constraint as formulated below.

(7) The Obligatory Voice-Checking Constraint
Sentence subjects are required to move through Spec VoiceP to voice-check their thematic features with the voice head before they reach Spec, IP. (Y.-L. Chang 1997: 172)

Y.-L. Chang (1997) assumes that voice markers head their own projections, i.e., Voice Phrase. Due to the Extended Projection Principle, a sentence must have a subject. Before the subject DP can move to the right specifier of IP, it must raise to an intermediate position, i.e., the specifier of VoiceP in order to check its thematic features against the head of the VoiceP. This can be shown schematically in (8).


Y.-L. Chang (1997) further argues that the Obligatory Voice-checking Constraint can account for the celebrated extraction facts by showing that syntactic operations that involve A’-movement are voice-sensitive in that the moved DP, like the subject in (8), must agree with the voice marker on the verb in terms of its thematic role. In other words, if the verb takes the agent voice marker, the moved DP must be the agent; if the verb takes the patient voice marker, the moved DP must be the theme. The structure in
(8) can thus explain not only the verb-initial word order but also the fact that only the subject DP can undergo A’-movement. The following examples are Seediq relative clauses and they demonstrate that only nominative subjects can be relativized.

(9) Seediq (Chang 1997: 142)

a. egu (ka) seediq [m-ari patis Nominative]
   many NOM person AV-buy book
   ‘The people who buy books are many in number.’

b. *egu (ka) patisi [m-ari Accusative seediq]
   many NOM book AV-buy person
   ‘The books that people buy are many in number.’

c. egu (ka) patisi [burig-un na seediq Nominative]
   many NOM book buy-PV GEN person
   ‘The books that people buy are many in number.’

d. *egi (ka) seediqi [burig-un Genitive patis]
   many NOM person buy-PV book
   ‘The people who buy books are many in number.’

As shown in (9), relative clauses in Seediq follow the head noun they modify. In (9a) and (9c), the gapped DPs, or the empty operators, serve as the subject. In (9b) and (9d), the gapped DPs are not subjects. Only (9a) and (9c) are grammatical. This can be explained by the Obligatory Voice-Checking Constraint according to Chang (1997).

When the empty operator in a relative clause moves out of VP, it must land in the specifier of VoiceP to check its thematic features. If there is a clash, e.g., the patient theta role against the agent voice marker (9b) or the agent theta role against the patient voice marker (9d), the Obligatory Voice-Checking Constraint would be violated and the derivation would crash.

5.2.1.3 Rackowski and Richards (2005)

Rackowski and Richards (2005) argue that specific arguments must undergo “object” shift to the edge of vP for correct semantic interpretation in Tagalog in a similar
way to object shift in Germanic languages. Crucial to their analysis is the assumption that the so-called voice affixes in Tagalog are Case morphological agreement on the verb with the shifted argument. Consider the following examples.

(10) Tagalog (Rackowski and Richards 2005: 566)

a. \(b<\text{um}>\text{ili} \text{ ang } \text{bata} \text{ ng } \text{tela} \text{ sa } \text{palengke} \text{ para}\)

\(<\text{NOM}>\text{buy} \text{ ANG } \text{child} \text{ OBL } \text{cloth} \text{ DAT } \text{market} \text{ for}\)

\(\text{sa} \text{ nanay}\)

\(<\text{DAT}>\text{Mother}\)

‘The child bought cloth at the market for Mother.’

b. \(b<\text{in}>\text{ili-}∅ \text{ ng } \text{bata} \text{ ang } \text{tela} \text{ sa } \text{palengke} \text{ para}\)

\(<\text{ASP}>\text{buy-ACC} \text{ OBL } \text{child} \text{ ANG } \text{cloth} \text{ DAT } \text{market} \text{ for}\)

\(\text{sa} \text{ nanay}\)

\(<\text{DAT}>\text{Mother}\)

‘The child bought the cloth at the market for Mother.’

c. \(b<\text{in}>\text{ilh-an} \text{ ng } \text{bata} \text{ ng } \text{tela} \text{ ang } \text{palengke} \text{ para}\)

\(<\text{ASP}>\text{buy-DAT} \text{ OBL } \text{child} \text{ OBL } \text{cloth} \text{ ANG } \text{market} \text{ for}\)

\(\text{sa} \text{ nanay}\)

\(<\text{DAT}>\text{Mother}\)

‘The child bought (the) cloth at the market for Mother.’

d. \(i-b<\text{in}>\text{ili} \text{ ng } \text{bata} \text{ ng } \text{tela} \text{ sa } \text{palengke}\)

\(<\text{OBL-ASP}>\text{buy} \text{ OBL } \text{child} \text{ OBL } \text{cloth} \text{ DAT } \text{market}\)

\(\text{ang} \text{ nanay}\)

\(<\text{ANG}>\text{Mother}\)

‘The child bought (the) cloth at the market for Mother.’

The “subjects” in these examples are marked by \(\text{ang}\) and they must be interpreted as specific arguments. On Rackowski and Richards’s (2005) analysis, they all move to the edge of vP due to the EPP feature on v and is assigned a specific interpretation. (11) is a simplified structure for the derivation of a shifted direct object, e.g., ‘the cloth’ in (10b). When a specific argument is shifted to the edge of vP, it triggers the Case agreement morphology on the verb. For example, in (10b), the shifted argument is the direct object, so the accusative Case affix is realized. Likewise, when the shifted argument denotes location, as in (10c), the dative Case agreement is triggered. Therefore, the so-called
voice markers in Philippine-type languages are viewed as grammatical affixes that indicate Case agreement with a specific shifted argument.

(11)

As vP is a phase and only phrases that occupy the edge of a phase can be extracted (Chomsky 2000, 2001b), it follows that only shifted arguments in the edge of vP can undergo wh-movement in Tagalog. The restriction that only “subjects” can be extracted in Tagalog is thus derived. Please refer to (2) for examples.

5.2.1.4 Discussion

The proposals reviewed above are all able to account for the case restriction on the formation of pseudo-cleft questions in Kavalan and Amis. Consider the examples in (12) and (13) from Kavalan and Amis.

(12) Kavalan
a. niana ya [Op_i ala-an ni utay ABS]
   what ABS take-PV ERG PN
   ‘What does Utay take?’ (Lit. The thing that Utay takes is what?)

b. *niana ya [Op_i maytis ti-abas OBL]
   what ABS AV.afraid NCM-PN
   ‘What is Abas afraid of?’
As a Kavalan and Amis pseudo-cleft question takes a headless relative clause as the subject, the case-marking restriction on its formation can be reduced to the extraction restriction on the operator movement in the headless relative clause.

On the standard analysis, a relative clause is formed via the A’-movement of an empty operator to the specifier of CP. In (12a), the empty operator is the theme argument of the verb in a patient voice construction. On Guilfoyle, Hung, and Travis’s (1992) account, the patient voice marker can only assign Case to the agent argument, so the empty operator, which bears the theme theta role, must move to Spec, IP for Case. It can further move to the C-domain as Spec, IP is a legitimate position for extraction. On Y.-L. Chang’s (1997) account, as a theme argument, this empty operator can pass the Obligatory Voice-Checking Constraint because it can move to the specifier of VoiceP to voice-check the thematic feature against the patient voice marker. It can thus undergo further movement to Spec, IP and then to Spec, CP. For Rackowski and Richards (2005), the empty operator is attracted to the edge of vP by the EPP feature
on v and triggers accusative Case agreement on the verb (the patient voice marker in our terminology). The derivation of the headless relative clause in (13a) works in a similar fashion. The derivations of both (12a) and (13a) are thus convergent as no constraints regarding Case, voice-checking, or Phase Impenetrability Condition are violated.

By contrast, the empty operators in (12b), (12c), (13b), and (13c) cannot be extracted to Spec, CP. In both (12b) and (13b), the empty operator corresponds to the oblique theme argument of the verb in an agent voice construction. It is not allowed to move to Spec, IP either because it is already assigned Case by the agent voice marker per Guilfoyle, Hung, and Travis (1992) or because its thematic feature contradicts the agent voice marker in violation of the Obligatory Voice-Checking Constraint formulated by Y.-L. Chang (1997). Not being able to move to Spec, IP, the only legitimate position for extraction, its movement to Spec, CP is also banned. On Rackowski and Richards’s (2005) account, they do not occupy the edge of the vP phase and thus are not eligible for extraction. This is also true of the empty operators in (12c) and (13c). Their derivations thus crash.

Despite the ostensible explanation for the constraints on Kavalan and Amis pseudo-cleft questions, these approaches are faced with either empirical or theoretical challenges. The first issue concerns the generalization on the legitimate position for extraction. Irrespective of the theoretical motivation for movement, what is crucial to Guilfoyle, Hung, and Travis (1992) and Y.-L. Chang (1997) is that only subject arguments that can first move to Spec, IP are allowed to be A'-extracted. This assumption is supported by Keenan and Comrie’s (1977) Noun Phrase Accessibility
Hierarchy. Subject is the highest on this hierarchy and is most accessible to extraction across languages. The theoretical reason for the contrast between subjects and non-subjects concerning extraction to Spec, CP is not directly dealt with in Guilfoyle, Hung, and Travis (1992). The lack of a theoretical explanation does not mean that their approach is wrong, but this is an important issue that must be addressed. Y.-L. Chang (2007) and Rackowski and Richards (2005) do provide their own respective explanation, but their approaches are inadequate in the context of Kavalan and Amis.

The Obligatory Voice-Checking Constraint proposed by Y.-L. Chang (2007) stipulates that the argument that moves out of VP should first raise to Spec, VoiceP to check its thematic feature against the voice marker. This explains the contrast between subjects and non-subjects concerning extraction to Spec, CP as non-subjects fail to pass this constraint and thus can never raise to Spec, IP and Spec, CP. However, this semantic agreement approach is problematic in that there is no one-to-one correspondence between the voice marker and the thematic role of the absolutive subject argument. For example, the absolutive argument of an agent voice sentence in Kavalan and Amis can be an agent (14a, 15a), an experiencer (14b, 15b), or the theme of an unaccusative verb (14c, 15c).

(14) Kavalan
a. $t<m>anuz=ti$ $ya$ $tuliq$ $a$ $yau$ $tu$ $wasu$
   $<AV>chase=PFV$ $ABS$ wasp $LNK$ that $OBL$ dog
   ‘That wasp chased a dog.’

b. $mu$-$Retut=iku$ $t<m>a$ $aita$ $ti$-$abas$-$an$
   $AV$-$surprised=1SG.ABS$ $<AV>see$ $NCM$-$PN$-$LOC$
   ‘I am surprised to see Abas.’

c. $t<m>ibuq=ti$ $ya$ $gubu-na$
   $<AV>fall=PFV$ $ABS$ hat-$3SG.GEN$
   ‘His hat fell.’ (KavNr-pear_ipay, NTU corpus)
The Obligatory Voice-Checking Constraint, which relies on the agreement between a voice marker and the thematic role of an NP, does not adequately reflect the function of voice markers. It is thus highly improbable that it is the underlying mechanism for the derivation of Kavalan and Amis clauses. It is not a satisfactory explanation for the constraint that only absolutive subjects can be extracted to Spec, CP.

Rackowski and Richards’s (2005) explanation is based on the phase-based theory of syntax, especially the Phase Impenetrability Condition. The most crucial assumption of their explanation is that the so-called voice markers are Case agreement affixes on verbs. When a specific argument is shifted to the specifier of vP for correct semantic interpretation, it triggers a corresponding Case agreement affix on the verb. Such agreement affixes are viewed as overt morphological evidence for the movement of a DP to the edge of vP. However, this explanation cannot apply to Kavalan and Amis. As will be demonstrated in Section 6.2, voice markers in Kavalan and Amis are not inflectional affixes that agree with a specific DP in Case. They should be analyzed as verbal derivational affixes. Therefore, they do not constitute evidence for “object” shift to
the vP edge in Kavalan and Amis. Whether the phase-based approach can better explain the extraction restriction in Kavalan and Amis remains unclear.

5.2.2 Extraction Restriction as Ban on Genitive Predicates

While the proposals discussed in the preceding section all resort to the derivation of subjects in their attempt to explain the extraction restriction, Kaufman (2009) advocates a radical approach to the clause structure of Austronesian languages and suggests that the extraction restriction be reformulated as the restriction on the types of predicates that are allowed. Before we can discuss Kaufman’s (2009) explanation for the extraction restriction, a brief introduction to the motivation for his proposal is necessary.

It has long been observed that voice markers in Austronesian languages can participate in both the verbal and nominal derivations (Ferrell 1982; P. Li 2002; Starosta 2002). This is illustrated by the following examples from Pazih, a Formosan language.

(16) Pazih (P. Li 2002: 233)
   a. saa-xe’et
      IV-tie
      ‘string’
   b. saa-xe’et nuang ki kahuy
      IV-tie cow NOM tree
      ‘The tree is used to tie a cow.’
   c. pu-batu’-an
      pave-stone-LV
      ‘a place paved with stones’
   d. pu-batu’-an lia ki babaw daran
      pave-stone-LV ASP NOM above road
      ‘The surface of the road has been paved with stones.’

The instrumental voice marker saa- is a verbal prefix in (16b), but it functions to derive a noun in (16a). The locative voice marker -an also has dual functions, as illustrated by
(16c) and (16d). The following examples demonstrate that voice-affixed forms can also be interpreted as nouns in Tagalog. Each voice marker derives a specific type of nouns. The agent voice marker derives an agent (17a) and the patient voice marker derives a patient (17b). Likewise, the locative voice marker derives a location (17c) and the circumstantial voice marker derives an instrument or a beneficiary (17d).

(17) Tagalog (Kaufman 2009: 5)

a. ang=b<um>ili
   NOM=<AV>buy
   'the buyer/one who bought'

b. ang=b<in>ili-∅
   NOM=<ASP>buy-PV
   'the (thing) bought'

c. ang=b<in>il-han
   NOM=<ASP>buy-LV
   'the (place) bought at'

d. ang=i-b<in>ili
   NOM=CV-<ASP>buy
   'the one bought for'

In order to account for the syncretism of voice markers and nominalization markers in Austronesian languages, Kaufman (2009) proposes a nominalist analysis of Austronesian clause structure. He argues that there is no v, the category-determining head of verbs, in these languages. Instead, lexical roots have to merge with n. What is most crucial to his analysis is that the so-called voice markers in Austronesian languages are similar to English -er/-ee nominalizations. In other words, voice markers derive nouns, not verbs. The structure of a voice-marked nominal clause is represented in (18). As shown in this structure, lexical roots must be merged with n. This explains why lexical roots always denote entities when they occur alone. The phrase that is
merged in Spec, \( nP \) receives genitive case and is interpreted as a possessor by default. The phrases in (19) are examples of \( nP \) in Tagalog.

(18)

\[
\text{DP} \\
\emptyset \\
D \\
D' \\
\text{VoiceP} \\
\text{AGENT Voice'} \\
\text{Voice} \\
\text{nP} \\
\text{POSS n'} \\
\text{n rootP} \\
\emptyset \\
\text{root'} \\
\text{root THEME}
\]

(19) Tagalog (Kaufman 2009: 33)

a. sūlat ni=Juan
   write GEN=Juan
   ‘Juan’s letter’

b. patay ni=Juan
   kill GEN=Juan
   ‘Juan’s killed person’

When an \( nP \) is merged with Voice, the head where the so-called voice markers are inserted, the root moves to Voice and the voice marker restricts the denotation of the root to a particular type of participant, i.e., agent, patient, location, and instrument or beneficiary. This results in the forms exemplified in (17), where each voice marker derives a corresponding type of noun. If the phrase in Spec, \( nP \) moves to Spec, VoiceP, it will acquire the theta role of an agent.

On this account, as there are no verbs, a full finite clause must be derived via predication, as shown in (20). In (20), the subject DP is base-generated as the
complement of T, whereas the predicate DP is contained in PredP, which is merged in Spec, TP.

(20)

On this nominalist analysis, a more literal translation of the following Tagalog sentence in (21a) should be ‘The cat was the eater of a rat’, not ‘The cat ate a rat’. The subject of this sentence, i.e., ang=púsa ‘NOM=cat’, is based-generated as the complement of T in (20). The predicate is also a DP, k<um>áin nang=dagà ‘<AV>eat GEN=rat’, which is derived via the affixation of the agent voice marker and thus denotes the agent participant of this event, i.e., ‘the eater of a rat’.

(21) Tagalog

a. k<um>áin nang=dagà ang=púsa
   <AV>eat GEN=rat NOM=cat
   ‘The cat was the eater of a rat.’ (Kaufman 2009: 6)

b. áso ang=nag-íngay
   dog NOM=AV-noise
   ‘The noise-maker was a dog.’ (Kaufman 2009: 19)

Moreover, what used to be analyzed as a headless relative clause, e.g., the nominative-marked clause in (21b), is in fact a DP that is derived by attaching the voice marker to the root, as in the structure represented in (18).

A concomitant consequence of the nominalist analysis that is pertinent to Kavalan and Amis interrogative sentences is that what we consider to be a pseudo-cleft question
would not have a headless relative clause as the subject. Instead, the subject is a DP that takes the nominal-deriving marker, i.e., the voice marker, without the syntactic operation of relativization. For example, the subject of (22) would be translated as ‘the biter of your leg'; that of (23) would be ‘the see-ee of Panay’.

(22) Kavalan
    niana ya [q<m>aRat tu zapan-su]
    what ABS <AV>bite OBL leg-2SG.GEN
    ‘What bites your leg?’ (Lit. The thing that bites your leg is what?)
    (Kaufman’s analysis: ‘The biter of your leg is what?’)

(23) Amis
    u maan ku [ma-alaw-ay ni panay]
    CN what ABS PV-see-FAC GEN PN
    ‘What does Panay see?’ (Lit. The thing that Panay sees is what?)
    (Kaufman’s analysis: ‘The see-ee of Panay is what?’)

On this interpretation, the celebrated extraction condition in Austronesian languages cannot result from the syntactic constraints on wh-movement or A'-movement, whatever they may be, as there is no such movement at all.

Kaufman (2009) instead argues that the extraction restriction observed in Austronesian languages should be re-formulated as the restriction on the types of predicates that are allowed. The contrast between the following two sentences illustrates that Tagalog does not allow a genitive phrase to be utilized as a predicate.

(24) Tagalog (Kaufman 2009: 28)
    a. *ni=juan ang=koponan
       GEN=PN NOM=team
       ‘The team is Juan’s.’
    b. kay=juan ang=koponan
       OBL=PN NOM=team
       ‘The team is Juan’s.’

The possessor predicate must take the oblique case marker (24b), but not the genitive case marker (24a). Therefore, the ungrammaticality of (25a) is not due to any restriction
on what DPs can be extracted, but arises from the general ban on genitive predicates in the language.

(25) Tagalog

a. *nino ang=binili
   who.GEN NOM=buy.PV
   ‘Who bought it?’
   (Kaufman 2009: 31)

b. sino ang=b<um>ili nang=téla
   who.NOM NOM=<AV>buy GEN=cloth
   ‘Who bought the cloth?’
   (Kaufman 2009: 4)

Kaufman’s (2009) proposal that the extraction restriction in Austronesian languages should be re-conceived of as the general ban on genitive predicates cannot apply to Kavalan and Amis interrogative sentences.¹ First of all, unlike Tagalog, genitive predicates in Kavalan and Amis are allowed whether they are interrogative or non-interrogative. In Kavalan, the genitive/possessive pronominal form of a proper name is formed via the affixation of *zani- to the proper name. The genitive/possessive form of the person interrogative word, i.e., *zanitiana ‘whose’, can be decomposed into *zani- and *tiana ‘who’. Both genitive/possessive forms can be utilized as a predicate, as shown in (26). The examples in (27) illustrate that genitive/possessive forms of personal pronouns and interrogative phrases in Amis can also occur in the predicate position. Therefore, there is no ban on genitive predicates in the two languages and the restriction on the formation of a pseudo-cleft question cannot be attributed to this factor. That is, the fact that a genitive/ergative argument cannot be questioned via the pseudo-

¹ There are other problems of the nominalist analysis when it is applied to Kavalan and Amis clause structure. We will limit our discussion here to the problems that are relevant to the formation of interrogative sentences. Interested readers can refer to D. Lin (2010) for a more detailed discussion on why the nominalist analysis cannot account for the clause structure derivation in Kavalan.
cleft strategy does not arise from the condition that governs what types of phrases can be used as predicates in the two languages.

(26) Kavalan
   a. zani-imuy ya wasu zau
      POSS-PN ABS dog this
      ‘This dog is Imuy’s.’
   b. zanitiana=ay kelisiw ya ala-an=ay ni utay
      whose=REL money ABS take-PV=REL ERG PN
      ‘Whose money does Utay take?’ (Lit. The stuff that Utay takes is whose money?)

(27) Amis
   a. maku ku-ra wacu
      1SG.POSS ABS-that dog
      ‘That dog is mine.’
   b. nima wawa ku-ra ma-tulu’-ay
      whose child ABS-that AV-fall-FAC
      ‘Whose child fell?’ (Lit. The one that fell is whose child?)

Another problem of Kaufman’s proposal is that it only addresses the issue of genitive arguments as predicates in a pseudo-cleft structure, but does not offer an explanation for why oblique arguments cannot be questioned via this strategy either. In Chapter 2, we have shown that a question that targets the genitive or oblique argument cannot be formed via the pseudo-cleft strategy. Kaufman’s conception that there is a ban on genitive predicates cannot be extended to resolve the same issue regarding oblique arguments because oblique predicates are possible in Tagalog, as already shown in (24b). The explanation offered by Kaufman is not general enough to capture the same restriction on the extraction of genitive and oblique arguments and is thus dispreferred.
5.2.3 Extraction Restriction and Predicate Raising

The final approach to the explanation of the extraction restriction that we will discuss attributes the restriction to how the verb-initial word order in Austronesian languages is derived. Despite variations in technical details, the proponents of this approach all argue that the Austronesian verb-initial word order results from the movement of the predicate phrase to the specifier position of some functional head that is structurally higher than the nominative/absolutive argument. Setting aside the exact theoretical mechanisms, the basic argument is that since the predicate phrase occurs in a specifier position, a syntactic island for extraction, nothing in the predicate phrase can be extracted, whereas the nominative/absolutive argument is exempt from this restriction due to its position outside the predicate phrase island. We adopt this approach and show that it can successfully account for the restriction on the formation of pseudo-cleft questions in Kavalan and Amis in Section 5.2.4.

Kayne’s (1994) Antisymmetry proposal has prompted many linguists working on verb-initial languages to re-examine the right specifier analysis and provide alternative ways to derive verb-initial word order from the underlying SVO order. One recent popular view is that verb-initial word order, especially VOS, is derived by Predicate Raising, which involves the fronting of VP, TP, or even higher functional projections (Aldridge 2002; Chung 2006; Cole and Hermon 2008; Holmer 2005; Pearson 2001). This approach claims that after the subject DP moves out of VP/PredP/TP, the remnant VP/PredP/TP, along with the complement and the trace of the subject, undergoes phrasal movement to the specifier of a functional projection that is higher than the landing site of the subject. The tree in (28) is a schematic representation of this analysis.
This derivation for verb-initial word order does not need to resort to right specifiers and is thus compatible with Kayne’s (1994) Antisymmetry.

In addition to the theoretical concern of Antisymmetry, it is also argued that the predicate raising approach to verb-initial word order can provide a natural account for a number of empirical facts in these languages. It makes a strong prediction about extraction or movement. Since the predicate phrase, VP or TP, moves to the specifier position of a functional projection, it becomes a syntactic island out of which nothing can be extracted. This prediction is borne out in many verb-initial languages where only subjects, but not other arguments in VP, can be extracted for movement (Aldridge 2002, 2006; Chung 2006; Cole and Hermon 2008; Rackowski and Travis 2000). As shown in (28), since the subject has moved out of the predicate phrase, it is not contained in the predicate phrase island and can thus be extracted and undergo further movement. By contrast, the object moves along with the predicate phrase to the specifier and remains inside the island. It thus cannot be extracted.

Consider the following wh-questions of Seediq.

(29) Seediq (Aldridge 2002: 394-395)
   'Who bought this book?'

c. [m-n-ari inu patis] Ape AV-PFV-buy where book Ape
   'Where did Ape buy books.'

d. *inu_i [m-n-ari ti patis] Ape where AV-PFV-buy book Ape
   'Where did Ape buy books?'

Argument wh-questions in Seediq are pseudo-clefts with an interrogative predicate followed by a headless relative clause, e.g., (29a). In this headless relative clause, only the absolutive operator can be extracted, as shown in (29a). If the operator is not the absolutive subject, the extraction is ungrammatical, as shown in (29b). Unlike argument wh-questions, adverbial wh-questions in Seediq are in-situ, e.g., (29c). Extraction of the interrogative adverbial, inu 'where', to the sentence-initial position in (29d) results in ungrammaticality. These facts about extraction can be explained in a straightforward way under the predicate raising analysis. The absolutive subject in Seediq has moved out of the predicate phrase before the predicate phrase is fronted to the specifier of a higher functional projection. It is not within the PredP island and thus its extraction is legitimate. By contrast, ergative arguments and adverbial interrogative phrases remain inside the predicate phrase when the predicate phrase moves. Any attempt to extract them out of PredP would incur a violation of the island constraint. Extraction facts thus provide a strong empirical argument for the predicate raising approach to verb-initial word order.
5.2.4 Restrictions on Pseudo-Cleft Questions in Kavalan and Amis

With this background on predicate raising, we can now elucidate how this approach can account for the case restrictions on the formation of pseudo-cleft questions in Kavalan and Amis. In order to formalize the derivation of the headless RC subject in a pseudo-cleft question, we adopt the standard analysis of the derivation of RCs. That is, a relative clause is a CP that is adjoined to an NP. The relative clause CP contains a null operator that corresponds to the gap of the relative clause and undergoes wh-movement to Spec, CP. We further assume with Aldridge (2002, 2006) and Pearson (2001) that the absolutive subject argument must move to the Topic Phrase (TopP) and this is followed by the movement of TP to the Focus Phrase (FocP) or the outer specifier of the Topic Phrase. The empirical evidence for the movement of the absolutive subject to TopP in Kavalan will be discussed in Section 5.3.4. The movement of the absolutive subject to Spec, TP is triggered by the need for feature checking. Top has uninterpretable [op] and [D] features that need to be checked against compatible features before spell-out. The absolutive DP argument is eligible to check both features because it not only possesses the inherent [D] feature but is also assigned an interpretable [op] feature, which is responsible for the scope property of topics.

We will use the pseudo-cleft questions in (30) and (31) for illustration.

(30) Kavalan  
  a. ti-tiana ya [Op, q<m>an tu ‘may-ku ABS]  
     NCM-who ABS <AV>eat OBL rice-1SG.GEN  
     ‘Who eats my rice?’ (Lit. The one that eats my rice is who?)  

  b. *ti-tiana ya [Op, p<m>ukun=isu OBL]  
     NCM-who ABS <AV>hit=2SG.ABS  
     ‘Who do you hit?’
c.  *ni tiana ya [Op, ala-an ERG, ya kelisiw-ku]
    ERG who ABS take-PV ABS money-1SG.GEN
    'Who takes my money?'

(31) Amis
a.  cima ku [Op, mi-takaw-ay tu payci ABS,]
    who ABS AV-steal-FAC OBL money
    'Who steals money?' (Lit. The one that steals money is who?)

b.  *cima ku [Op, mi-la’up-ay ku wacu OBL,]
    who ABS AV-chase-FAC ABS dog
    'Who did the dog chase?'

    who ABS PV-forget-FAC NCM-PN
    'Who forgot Panay?'

(32)

Take (30a) as an example. The sentence contains a headless relative clause as the subject. The gapped DP argument in the relative clause is the agent argument of the AV-marked verb and is syntactically represented by a null operator. The null operator can value the uninterpretable absolutive Case feature on the finite T of this relative clause. Next, it moves to Spec, TopP to check the uninterpretable [op] and [D] features.
on Top. This movement is followed by the movement of the remnant TP to Spec, FocP. As the null operator has moved out of TP to Spec, TopP, it is not trapped inside a syntactic island. It can thus be extracted to Spec, CP. The tree in (32) represents the derivation.

By contrast, if the null operator in the headless RC subject is not the absolutive argument, it will appear in a syntactic island after TP moves to Spec, FocP. We will use (30c) for illustration. In the headless RC subject of this sentence, the null operator, or the gapped argument, is the agent argument of the PV-marked verb and can thus receive the inherent ergative case from the patient voice marker. It is the absolutive theme argument, *ya kelisiw-ku* ‘ABS money-1SG.GEN’ that can value the uninterpretable absolutive case feature on the finite T and check the uninterpretable [op] and [D] features on Top. After TP moves to FocP, the empty operator cannot be extracted to Spec, CP because TP occupies a specifier position and constitutes a syntactic island. If it is extracted out of TP, as in (30c), the derivation cannot converge. The derivation of the headless RC subject in (30c) can be schematically represented by the tree in (33).

(33)
To summarize, the reason why a pseudo-cleft question can only inquire about the absolutive argument is because only the null absolutive operator in the headless RC subject can be extracted to Spec, CP. It moves to Spec, TopP before TP raises to Spec, FocP. It is not inside a syntactic island and is thus eligible for extraction. By contrast, if the null operator stands for an ergative or oblique argument, it will move to Spec, FocP together with TP. As it appears in a syntactic island, no extraction is allowed. Therefore, the predicate raising approach not only derives the predicate-initial word order of Kavalan and Amis in a Kaynian system of phrase structure but also accounts for the extraction restriction in a straightforward way without invoking any special mechanisms.

The only problem is that it does not easily explain why the predicate or TP is fronted to a position higher than the subject. One plausible explanation concerns the information structure of verb-initial Austronesian languages. According to Aldridge (2006), in verb-initial Austronesian languages, the phrase in the clause-initial position tends to be interpreted as focus, whereas the DP that follows it denotes presupposed information. When a DP moves to the CP domain, e.g., Spec, TopP, a non-DP must subsequently move to a higher position and precede the DP. Aldridge (2006) thus makes the descriptive generalization that movement of an absolutive DP to Spec, TopP triggers the projection of FocP and the movement of a predicate phrase to Spec, FocP. How this idea can be implemented in a more formal way is beyond the scope of this dissertation.

5.3 Restrictions on Wh-in-Situ

After the discussion of the restriction on the formation of pseudo-cleft questions, this section turns to the issue of the wh-in-situ construction in Kavalan and Amis. The
two languages exhibit distinct patterns of grammatical wh-in-situ sentences. All types of interrogative phrases in Amis, regardless of their case or grammatical function, can stay in-situ to form a constituent question. By contrast, a Kavalan constituent question is ungrammatical if it contains an in-situ interrogative phrase that receives absolutive case and functions as a subject. However, *mayni=ay ‘which=REL’* is an exception to this constraint. The noun phrase that it modifies can stay in-situ regardless of its case or grammatical function.

The issue of what types of interrogative phrases can stay in-situ in a non-cleft construction does not receive as much attention as the issue of cleft or pseudo-cleft questions in Austronesian linguistics. The primary view invokes the semantic/pragmatic status of the absolutive DP subject as an explanation (Cole, et al. 2003; Richards 1998; Sabel 2003), which will be reviewed in Section 5.3.1. Law (2006), however, presents different empirical facts of the wh-in-situ construction and ascribes the grammaticality of a wh-in-situ sentence to the formal marking of the in-situ wh-phrase. Law’s (2006) proposal will be reviewed in Section 5.3.2. The applicability of the two views to the analysis of the Kavalan and Amis wh-in-situ construction will be explored in Sections 5.3.3 and 5.3.4. The findings suggest that no single approach is able to accommodate the empirical facts in both Kavalan and Amis. While Amis conforms to Law’s (2006) generalization, the wh-in-situ pattern in Kavalan can be explained by the primary view.

5.3.1 Absolutive DP Subject as Topic

According to Cole, et al. (2003), Richards (1998), and Sabel (2003), a wh-phrase cannot appear in the structural subject position in Javanese, Tagalog, and Malagasy. That is, a constituent question that contains an in-situ wh-phrase in the subject position is ungrammatical in these Austronesian languages. This constraint is illustrated by the
contrast between (a) and (b) in the following pairs of sentences from Tagalog and Malagasy.

(34)  Tagalog (Richards 1998: 266)
   a. b<um>ili ang lalaki ng ano sa tindahan
      <AV>buy ANG man OBL what DAT store
      ‘What did the man buy at the store?’

   b. *b<in>ili ng lalaki ang ano sa tindahan
      <ASP>buy.PVOBL man ANG what DAT store
      ‘What did the man buy at the store?’

(35)  Malagasy (Sabel 2003)
   a. nivydi inona Rabe
      buy.PST.AV what Rabe
      ‘What has Rabe bought?’

   b. *novidin- dRabe inona
      buy.PST.PV Rabe what
      ‘What has Rabe bought?’

In (34a), which is an agent voice sentence, ano ‘what’ is in the object position marked by ng and the sentence is grammatical. However, (34b), which is a patient voice sentence with ano ‘what’ as the subject marked by ang, is ungrammatical. The Malagasy examples in (35) show the same pattern. In-situ inona ‘what’ can appear in the object position in (35a), but it cannot appear in the sentence-final subject position, as shown by the ungrammaticality of (35b).

Cole, et al. (2003), Richards (1998), and Sabel (2003) all suggest that the ban on in-situ interrogative subjects is due to the semantic or pragmatic status of the subject position. On their account, the so-called subjects in Austronesian languages are topics and they must be definite or specific. For example, in the following patient voice sentence from Tagalog, the subject, or the topic, must be interpreted as a specific entity, whereas the non-subject argument can be either specific or non-specific.
Tagalog (Richards 1998: 265)
\[ b\text{-}\text{in}\text{-}\text{i} \quad \text{ng} \quad \text{lalaki} \quad \text{ang} \quad \text{kalabaw} \]
\[ <\text{ASP}>\text{buy} \quad \text{OBL} \quad \text{man} \quad \text{ANG} \quad \text{water.buffalo} \]
‘A/the man bought the/a certain/*a water buffalo.’

Likewise, subjects in Malagasy cannot be indefinite, as illustrated below.

Malagasy (Sabel 2003)
\[ \text{a.} \quad \text{matory} \quad \text{zaza} \quad \text{sleeps} \quad \text{child} \]
‘A child sleeps.’

\[ \text{b.} \quad \text{matory} \quad \text{ny} \quad \text{zaza} \quad \text{sleeps} \quad \text{the} \quad \text{child} \]
‘The child sleeps.’

As the use of a wh-phrase in a real question inherently indicates the speaker’s lack of knowledge of a referent, it is difficult to interpret it as specific or definite without a special context. Therefore, these Austronesian linguists conclude that the wh-in-situ restriction in Austronesian languages results from the incompatibility between the semantics/pragmatics of a wh-phrase and the subject position, which is always associated with topic features.

5.3.2 Formal Marking of Subject DP

Law (2006) investigates the distribution of in-situ interrogative phrases in Malagasy, Tagalog, and Tsou, and argues that the ban on in-situ interrogative phrases in the subject position does not result from the definiteness/specificity requirement on the subject. He claims that as long as an interrogative phrase in the subject position can be formally marked in the same way as its non-interrogative counterpart, it can stay in-situ. In other words, if its formal marking fails to conform to the requirement on how a subject DP should be marked, it is forbidden from staying in-situ.

We will illustrate Law’s (2006) proposal with Malagasy examples. According to Law, the nominative DP subject in sentence-final argument position cannot be a bare N,
but must be headed by an overt D. If it is a common noun, it must be preceded by the
determiner *ny or a demonstrative, as illustrated in (38a), (38b), and (38c). Pronouns
belong to the category of D, so they can occur in the nominative subject position alone,
as shown in (38d). Proper names often take the prefix *ra or *i, which is assumed to be of
the category D, so they can also occupy the nominative argument position without the
determiner *ny, as shown in (38e).

(38) Malagasy (Law 2006: 169)

a. novidin-dRabe *(ny) trondro
   bought.PV-PN DET fish
   ‘Rabe bought the fish.’

b. nividy (ny) trondro *(ny) vehivavy
   bought.AV DET fish DET woman
   ‘The woman bought (the) fish.’

c. nividy (ny) trondro (*ny) ity vehivavy ity
   bought.AV DET fish DET this woman this
   ‘This woman bought (the) fish.’

d. nividy (ny) trondro (*ny) izy
   bought.AV DET fish DET 3.SG
   ‘She/he bought (the) fish.’

e. nividy (ny) trondro (*ny) Rasoa
   bought.AV DET fish DET PN
   ‘Rasoa bought (the) fish.’

Paul (2009) argues that the determiner *ny in the subject position is not associated with
definiteness or familiarity. This suggests that the obligatory presence of *ny in the subject
position is a formal requirement on the Malagasy subject, not a semantic or discourse
requirement.

shows that if an interrogative phrase in the subject position can be headed by the overt
D, *ny, it can stay in-situ in the sentence-final subject position. This is illustrated by the
following grammatical sentences, where the interrogative phrase is preceded by *ny* and occurs in-situ.

(39) Malagasy (Law 2006: 177)

a. hitan-dRabe ny sarin'-iza see.PV-PN DET picture-who
   ‘Who did Rabe see pictures of?’

b. hitan-dRabe ny inona see.PV-PN DET what
   ‘What did Rabe see?’

c. vakin-dRabe ny fiara iza buy.PV-PN DET car what
   ‘Which car did Rabe buy?’

In other words, as long as a nominative interrogative phrase obeys the requirement that a nominative DP subject be headed by an overt D, it can stay in-situ. This requirement is independently needed for non-interrogative nominative arguments too. By contrast, this requirement of formal marking does not apply to non-nominative or non-subject arguments, whether they are interrogative or not. Therefore, if an interrogative phrase is not the nominative argument in the subject position, there is no constraint on its formal marking and thus it can stay in-situ without an overt D. This is illustrated by the following sentences with an in-situ non-nominative interrogative phrase.

(40) Malagasy (Law 2006: 179)

a. nahita sarin'-ina/iza i Rabe saw.AV picture-what/who PN
   ‘What/who did Rabe see a picture of?’

b. mandihy miaraka amin' inona/iza ianao dance.AV together PREP what/who 2SG
   ‘What/who do you dance with?’

c. mipetraka eo kaikin' inona/iza i Rasoa sit.AV here next what/who PN
   ‘What/who does Rasoa sit next to?’
It is worth noting that the interrogative phrase *iza ‘who’ can never occur in-situ when it serves as the nominative subject, whether it takes the determiner *ny or not. The following two sentences are both ungrammatical.

(41) Malagasy (Law 2006: 178, 180)
  a. *nivydy trondro *iza
     bought.AV fish who
     ‘Who bought fish?’
  b. *nivydy trondro *ny iza
     bought.AV fish DET who
     ‘Who bought fish?’

This seems to constitute a counterexample to the generalization that a nominative interrogative phrase can occur in-situ as long as it is headed by an overt D. Nevertheless, Law (2006) attributes the ungrammaticality of (41b) to *iza’s inherent inability to take an overt determiner. As shown in (42a) and (42b) below, when a non-human interrogative phrase occurs in the preverbal position before the focus marker *no, it can optionally take *ny. The interrogative phrase *iza ‘who’ is different in that it can never be preceded by *ny, as illustrated by (42c). As *iza ‘who’ is unable to take an overt D, it can never fulfill the requirement on the formal marking of a subject. Therefore, it can never appear in-situ in the subject position at the end of a sentence (41b).

(42) Malagasy (Law 2006: 179)
  a. (ny) inona no hitan-dRabe
     DET what FOC saw.PV-PN
     ‘What did Rabe see?’
  b. (ny) fiara iza no vakin-dRabe
     DET car who FOC buy.PV-PN
     ‘Which car did Rabe buy?’
  c. (*ny) iza no nahita *ny zaza
     DET who FOC see.AV DET child
     ‘Who saw the child?’
5.3.3 Wh-in-Situ in Amis

Sabel’s (2003) and Richards’s (1998) proposal that an interrogative phrase in the subject position is banned due to the topic-like status of this syntactic position does not apply to Amis. Unlike the Malagasy and Tagalog data discussed in Sabel (2003) and Richards (1998), Amis absolutive interrogative phrases can stay in-situ in pragmatically neutral contexts. Some relevant examples are repeated in (43).

(43) Amis
a. c<m>ikay cima
   <AV>run who.ABS
   ‘Who is running?’

b. ma-alaw isu ku nima wawa
   PV-see 2SG.ERG ABS whose child
   ‘Whose child do you see?’

c. ma-efer ku maan
   AV-fly ABS what
   ‘What is flying?’

d. ka-ulah-an isu ku icuwaay a wacu
   KA-like-LA 2SG.ERG ABS which LNK dog
   ‘Which dog do you like?’

e. pa-ka’en-an ni ngaday ku pina a wacu
   CAU-eat-LA ERG PN ABS how.many LNK dog
   ‘How many dogs did Ngaday raise?’

This pattern is unexpected on the analysis that attributes the ban on in-situ absolutive-marked interrogative phrases to the [+specific] or [+definite] features associated with this syntactic position. The grammaticality of the sentences in (43) suggests that this restriction does not exist in Amis. Instead, we will argue that the well-formedness of in-situ absolutive interrogative phrases in Amis can be explained by the requirement on the formal marking of absolutive phrases, as proposed by Law (2006) for Malagasy, Tagalog, and Tsou. Moreover, we will show that this formal requirement arises from the
EPP feature on T that must be locally satisfied by a phrase with a phonologically realized head per Landau’s (2007) conception of EPP.

As reviewed in Section 5.3.2, the subject of a Malagasy sentence cannot be a bare N, but must be preceded by a determiner. There is a similar formal requirement in Amis. When an Amis common noun occurs in the absolutive/subject position, it must be preceded by an overt absolutive case marker. Consider the following sentences.

(44) Amis
   a. ma-la’op nu wacu *(ku) wawa
      PV-chase ERG dog ABS child
      ‘The dog chased the child.’
   b. ma-la’op nu wacu *(ku)-ra wawa
      PV-chase ERG dog ABS-that child
      ‘The dog chased that child.’
   c. ma-la’op nu wacu *(ku)-ni wawa
      PV-chase ERG dog ABS-this child
      ‘The dog chased this child.’

As demonstrated by the examples in (44), the absolutive case marker is obligatory in Amis.² It cannot be omitted regardless of the presence/absence of a demonstrative. Personal proper names cannot be preceded by ku, but they must take the non-common noun marker ci-, as illustrated below.

(45) Amis
   a. ma-la’op nu wacu *(ci-)panay
      PV-chase ERG dog NCM-PN
      ‘The dog chased Panay.’
   b. ma-la’op nu wacu *(ku) ci-panay
      PV-chase ERG dog ABS NCM-PN
      ‘The dog chased Panay.’

² As discussed in Chapter 1, ku can be decomposed into k and u. The former is the absolutive case marker, while the latter is the common noun classifier. As the internal structure of this marker is not directly relevant to the argumentation presented here, we ignore this detail here for ease of exposition.
Therefore, like Malagasy, the absolutive phrase in an Amis sentence must be preceded by a phonologically overt element: \textit{ku} for common nouns and \textit{ci-} for personal proper names.

According to Law’s (2006) approach, this formal requirement should also apply to interrogative phrases. An absolutive interrogative phrase can occur in-situ as long as it conforms to this formal requirement. This prediction is borne out as Amis absolutive interrogative phrases can take the same markers and occur in-situ. As illustrated in (43), the interrogative phrases that belong to the category of common nouns take the absolutive case marker \textit{ku}. Just like their declarative counterparts, the absolutive case marker cannot be omitted, or otherwise ungrammaticality arises, as illustrated below.

\textbf{(46) Amis}

a. *ma-alaw isu nima\underline{wawa}  
   PV-see 2SG.ERG whose child
   ‘Whose child do you see?’

b. *ma-efer \underline{maan}  
   AV-fly what
   ‘What is flying?’

c. *ka-ulah-an isu icuwaay \underline{a} \underline{wacu}  
   KA-like-LA 2SG.ERG which LNK dog
   ‘Which dog do you like?’

d. *pa-ka’an-an ni ngaday pina\underline{a} \underline{wacu}  
   CAU-eat-LA ERG PN how.many LNK dog
   ‘How many dogs did Ngaday raise?’

As for the interrogative word for personal proper names, the non-common noun marker \textit{ci-} is an inherent and obligatory morphological component of this word, \textit{cima} ‘who’. In other words, the internal morphological structure of \textit{cima} ‘who’ already fulfills the requirement that a personal proper name be preceded by the non-common noun marker. It is thus able to stay in-situ per Law’s (2006) account.
Despite its descriptive accuracy, this analysis does not provide a principled formal explanation. It is theoretically incomplete as it does not explain the connection between the presence of a phonologically overt element before an interrogative phrase and the interrogative phrase’s ability to stay in-situ. The following discussion will complement Law’s (2006) analysis by arguing that the descriptive generalization of this analysis finds a natural explanation in Landau’s (2007) EPP account.³

According to Landau (2007), EPP is a PF condition that must be satisfied by a phonologically visible element. Moreover, the phonologically overt element that can satisfy the EPP condition must be the head of the selected phrase. That is, in the following configuration where H bears an EPP feature [P], the head of the selected phrase ZP in the specifier must have some phonetic material.

(47)  \[ H_P \ ZP \ [H \ H_{[P]} \ldots] \]

The EPP condition formulated by Landau (2007) offers a straightforward explanation for the distribution of bare nouns in Romance languages concerning the contrast between subject and object positions.

(48) Spanish (Landau 2007: 491)
   a. Quiero café.
      ‘I want coffee’
   b. *Café me gusta.
      coffee me pleases
      ‘I like coffee.’
   c. El café me gusta.
      the coffee me pleases
      ‘I like coffee.’

³ I would like to thank Dr. Eric Potsdam for suggesting Landau’s (2007) EPP account as a possible explanation for the formal requirement on the subject in Malagasy and Amis. Paul (2009) mentions the possibility of this analysis in passing but does not provide a detailed and thorough discussion.
As demonstrated by the Spanish and Italian examples in (48) and (49), bare nouns can occur in the object position (48a, 49a), but they cannot occupy the subject position (48b, 49b). When they occur in the subject position, they must be preceded by an overt determiner (48c, 49c).

Landau (2007) thus argues that T has an EPP feature that selects for a specifier with an overt D head in Spanish and Italian. The subjects in (48c) and (49c) fulfill this PF requirement due to the presence of an overt determiner. For lack of a phonologically overt determiner, the subjects in (48b) and (49b) cannot pass this PF condition and the sentences thus crash at PF. By contrast, bare nouns can occur in the object position because V does not bear an EPP feature and the PF requirement of an overt D is not imposed on object arguments. As EPP can distinguish subject positions from object positions in other aspects of syntax, one theoretical advantage of the analysis of EPP as a PF condition is that it can use the same principle to explain their contrast in the presence/absence of an overt D without stipulating additional theoretical mechanisms like the Empty Category Principle.

On Landau's (2007) account of EPP, Law's (2006) observation that the subject in a Malagasy sentence must have an overt D can be viewed as a concomitant
consequence of an EPP feature on T that selects for D. If the subject in Spec, TP is a bare NP without the projection of D or with a null c-commanding D head, the EPP requirement of T will not be satisfied and the derivation will crash at PF. Likewise, the generalization that a phrase occupying the absolutive position must be preceded by the absolutive case marker in Amis can be attributed to an EPP feature on T to be satisfied by an overt head K at PF. (50) is a legitimate configuration of the TP part of the Amis clause structure.

(50) EPP on T in Amis

The category of K in this structure might be D. The case marker ku in Amis serves the functions of D both syntactically and semantically. One of the functions of D is to turn an NP into an argument that can be manipulated in Syntax (Szabolcsi 1994). Case markers in Amis serve this function because all the NP arguments must be preceded by one of the case markers, ku, nu, or tu. In addition to NP arguments, they are also able to introduce a clausal argument. Amis complement clauses can be nominal and are case-marked. If the matrix verb takes the agent voice marker, the nominal complement clause is case-marked as oblique, as shown in (51a), just like the theme argument in an agent voice sentence. If the matrix verb takes the patient voice marker, the nominal complement clause is instead preceded by the absolutive case marker ku, as illustrated in (51b). Amis nominal complement clauses can serve as either the oblique argument of
an agent voice sentence or the absolutive argument of a patient voice sentence. The case markers that introduce clausal arguments are obligatory as well. They can turn a nominal clause into an argument to be manipulated in Syntax.

(51) Amis
a. mi-nanay kaku tu [pi-padang ni aki]
   AV-hope 1SG.ABS OBL PI-help GEN PN
   tu safa
   OBL younger.sibling
   'I hope that Aki helped (her) brother.' (I hope for Aki’s helping of her brother.)

b. ma-araw aku ku [pi-kalat nu wacu ci-ofad-an]
   PV-see 1SG.ERG ABS PI-bite GEN dog NCM-PN-OBL
   'I saw that the dog bit Ofad.' (I saw the dog’s biting of Ofad.)

According to Chierchia and Turner (1988), Ns are predicative, whereas D functions to provide referentiality for Ns. This function of D can be observed in the contrast between a nominal predicate and a nominal argument in Amis in terms of their formal marking. While nominal arguments in Amis must take one of the case markers, nominal predicates can only be preceded by the optional classifier \textit{u}. Consider the following sentences.

(52) Amis
a. (u) fafahian ku singsi aku
   CN woman ABS teacher 1SG.GEN
   'My teacher is a woman.'

b. (u) singsi ku-ra fafahian
   CN teacher ABS-that woman
   'That woman is a teacher.'

The noun \textit{fafahian} ‘woman’ in (52a) is the predicate of the sentence and can optionally take the common noun marker \textit{u}. It cannot be preceded by a case marker. By contrast, it is used as an argument in (52b), where it must take the absolutive case marker \textit{ku}.

The noun \textit{singsi} ‘teacher’ exhibits the same formal contrast between its use as an
argument in (52a) and its use as a predicate in (52b). Bare NPs in Amis, with or without a classifier, can directly serve as nominal predicates. The addition of a case marker to an NP provides referentiality to the NP and turns it into an argument. Therefore, case markers in Amis can be viewed as D. It is not unclear whether it is also associated with definiteness effect, but this is not crucial to its syntactic status as D (Simpson 2002).

Personal proper nouns in Amis cannot take the absolutive case marker ku. We assume that they move to D when they are used as arguments in Syntax. The requirement that an Amis absolutive phrase must be preceded by a phonologically overt element, ku or ci-, can thus be formalized as an EPP satisfaction requirement. The phrase in the specifier of a TP must be a DP and the head of this DP must have some phonetic material. Otherwise, the derivation will crash at PF. Amis non-human interrogative phrases in the absolutive position can stay in-situ because they are able to fulfill this EPP requirement. They can be preceded by the absolutive case marker ku, the head D. As for cima ‘who’, it inherently takes the non-common noun classifier ci- and like its non-interrogative counterparts, can move to D when utilized as an argument. In either case, D is phonologically visible and thus the EPP requirement can be satisfied.

5.3.4 Wh-in-Situ in Kavalan

While absolutive interrogative phrases in Amis are able to stay in-situ, this is not true of Kavalan. Except for mayni=ay ‘which=REL’, Kavalan interrogative phrases cannot appear in the absolutive subject position.

(53) Kavalan
   a. *q<m>an ya tiana tu ‘may-ku
      <AV>eat ABS who OBL rice-1SG.GEN
      ‘Who eats my rice?’
In what follows, we will argue that Law’s (2006) generalization on the formal marking of interrogative phrases cannot be extended to Kavalan. Instead, the Kavalan wh-in-situ pattern is compatible with Sabel’s (2003) and Richards’s (1998) analysis.

The explanation based on the formal requirement of the absolutive subject cannot account for the wh-in-situ pattern in Kavalan, where the absolutive subject does not need to be headed by an overt D in order to be licensed in that position. As shown below, the absolutive argument in Kavalan can optionally take the case marker ya for both common nouns and personal proper names.

(54) Kavalan
a. m-uRin (ya) sunis (‘nay)  
   AV-cry ABS child that  
   ‘The/That child is crying.’

b. m-tawa (ya) ti-buya  
   AV-laugh ABS NCM-PN  
   ‘Buya is laughing.’

The sentences in (54) demonstrate that the absolutive argument can be a bare NP without an overt D. The case marker is optional and so is the demonstrative in (54a). Kavalan is thus distinct from Amis and Malagasy in terms of the formal requirement on the absolutive argument. The formal requirement that an absolutive subject be
accompanied by a phonologically overt element does not license Kavalan absolutive arguments.

Since the absolutive argument in Kavalan does not need to be headed by an overt D and the absolutive case marker ya is optional, Kavalan does not seem to impose any restriction on the formal marking of the absolutive argument. On Law’s (2006) account, this implies that there will be no requirement on the formal marking of in-situ absolutive interrogative phrases either. We would thus expect that an absolutive interrogative phrase should be able to occur in-situ, whether it takes the absolutive case marker overtly or not. This prediction turns out to be wrong as Kavalan absolutive interrogative phrases cannot stay in-situ, except for mayni=ay ‘which=REL’.

Unlike Amis, the EPP feature on T in Kavalan is not anchored by D and thus the phrase occupying Spec, TP does not need to have an overt D head. It is not anchored by N either. This is because the absolutive phrase can be a headless relative clause without an overt N, as illustrated below.

(55)  Kavalan
ti-utay  (ya) [m-ala=ay tu kelisiw-ku]
NCM-PN  ABS  AV-take=REL  OBL  money-1SG.GEN
‘The one that takes my money is Utay.’

In (55), the head noun of the relative clause is phonetically empty and the absolutive marker is optional. This contrasts with Amis, where a headless relative clause must be preceded by the absolutive case marker ku to function as the subject. This is illustrated below.

(56)  Amis
ci-utay *(ku) [mi-takaw-ay tu payci aku]
NCM-PN  ABS  AV-steal-FAC  OBL  money  1SG.GEN
‘The one that steals my money is Utay.’
Therefore, neither an overt D nor a pronounced N licenses an absolutive phrase in Kavalan.

Nevertheless, there is still a constraint on what type of phrase can occur in the absolutive position in Kavalan. The head of the absolutive phrase must contain inherent phi-features or [D]-features, whether it is pronounced or not. Overt nouns, proper nouns, unpronounced nouns, and pronouns can all occupy the absolutive subject position in Kavalan. A complement clause in Kavalan, however, cannot be promoted to the absolutive subject position in a patient voice sentence, in contrast to Amis, which allows a complement clause to occupy the absolutive position as long as it is preceded by the case marker ku, as shown in (51b). Complement clauses in Kavalan are headed by the complementizer tu. They can be a full finite clause with their own tense or aspect markers, as shown in (57a) and (57b). They can also be nominalized clauses with the clausal nominalizer, -an, on the verb. This is illustrated in (57c) and (57d). Note that although the complementizer tu is identical to the oblique case marker tu in form, they should receive separate treatments. This is because regardless of the voice marking on the matrix verb, a complement clause in Kavalan is always preceded by tu. It cannot take the absolutive case marker ya even if the verb takes the patient voice marker, as illustrated by the ungrammaticality of (57e). The ungrammaticality of absolutive CPs in Kavalan suggests that only a phrase whose head contains phi-features can occupy the absolutive subject position, regardless of its phonological realization (cf. Amis in (51)).

(57) Kavalan

a. ipil=iku tu [m-qila=ti ya ti-utai
  hear=1SG.ABS COMP AV-scold=PFV ABS NCM-PN
  ti-abas-an] NCM-PN-LOC
  ‘I heard that Utai scolded Abas.’
b. kasianem-an-ku tu [m-lizaq ti-utai t<m>ayta
remember-PV-1SG.ERG COMP AV-like NCM-PN <AV>see
tu salekiaw-an]
OBL dance-NMZ
‘I remember that Utai likes to see (others) dance.’

c. sanu-an-na=iku ni utay tu [qa-lizaq-an ni buya
tell-PV-3SG.ERG=1SG.ABS ERG PN COMP QA-like-NMZ GEN PN
tu tazungan ‘nay]
OBL girl that
‘Utay told me that Buya liked that girl.’

d. qa-qenut-an-ku aisu tu [ni-pukun-an-su
QA-angry-PV-1SG.ERG 2SG.ABS COMP PFV-hit-NMZ-2SG.GEN
tu lazat ‘nay]
OBL person that
‘I am angry that you hit that person.’

e. *kasianem-an-ku ya [qa-lizaq-an ni utai tu
remember-PV-1SG.ERG ABS QA-like-NMZ GEN PN OBL
tazungan ‘nay]
girl that
‘I remember that Utai likes that girl.’

However, the requirement of the formal features does not explain the wh-in-situ pattern of Kavalan as tiana ‘who’, niana ‘what’, and the combination of mayni=ay ‘which=REL’ with a noun all possess phi-features or [D]-features. In addition to the formal requirement of phi-features, there are also semantic and discourse constraints on the absolutive phrase in Kavalan. First of all, according to Liao’s (2002, 2004) study on the transitivity of different Kavalan sentence types in discourse, definiteness plays a primary role in distinguishing between a tu-marked oblique NP in an agent voice sentence and an absolutive NP in a patient voice sentence. While a tu-marked oblique NP is interpreted as an indefinite theme, an absolutive NP denotes a definite theme. The contrast is illustrated by the sentences in (58) and (59) below.¹

¹ The examples have been reglossed to reflect my analysis of the Kavalan clause structure.
Oblique NP as an indefinite theme in Kavalan (Liao 2004: 258–259)

a. s<m>angi tu<baw’a’<AV>make OBL boat
‘(They) built a boat.’

b. m-nanguy=ti t<m>alawma tu<iRuR<AV>swim=PFV OBL river
‘(They) swam to cross a stream.’

c. Ringu s<m>angi tu<namat a kubalan unable <AV>make OBL weapon ABS Kavalan
‘The Kavalan people were not able to make weapons.’

Absolutive NP as a definite theme in Kavalan (Liao 2004: 259–260)

a. qat-qatiw-an-na=t<Av>Rimuy, tung-an-na=t<Av>police.station ABS kill=PFV a<kingchat na ziptun
‘They went into the police station, (and) killed the Japanese policeman.’

b. taktak-an-na ya<taqan na lepaw na<bayblan cut.down=PV-3ERG ABS pillar GEN house GEN old.woman
‘They cut down the pillars of the old woman’s house.’

In addition to definiteness, Huang and Tanangkingsing (2011) have further argued that the discourse distinction between salient/topical and non-salient/non-topical arguments in Kavalan has been grammaticalized as the formal distinction between core and oblique arguments in the morphosyntactic case system. They investigate the different discourse distributions of a tu-marked oblique NP in an agent voice sentence and an absolutive NP in a patient voice sentence. Their findings suggest that an absolutive NP in a patient voice sentence is more topical than a tu-marked oblique NP in an agent voice sentence with regard to their participant tracking behaviors in discourse. An NP shows strong topic persistence when the referent it denotes is mentioned in subsequent clauses. By contrast, if an NP is not the topic of discourse, it is less likely for the referent it denotes to appear again in subsequent clauses. An NP’s
participant tracking behavior refers to this discourse pattern of information flow regarding whether the referent that it denotes will be mentioned again in subsequent clauses.

A tu-marked oblique NP and an absolutive NP in Kavalan differ from each other in their participant tracking behaviors significantly (Huang and Tanangkingsing 2011). Whenever a referent is denoted by the absolutive NP in a patient voice sentence, it is always mentioned again in the subsequent clauses and there are no exceptions to this discourse pattern. In other words, an absolutive NP exhibits strong topic persistence.

Consider the following excerpt of a narrative.

(60)  
Kavalan
tayta-an-na ya paRin nani, see-PV-3ERG ABS tree DM
  yau a usiq a izau e EXIST ABS one LNK this FIL
tangan na paRin a yau, m-diyuq sayza, hole GEN tree LNK that AV-rotten probably
  qatiw-an-na m-zaqis na sunis a yau go-PV-3ERG AV-climb ERG child LNK that
  a paRin a yau nani ABS tree LNK that DM
  ‘The child saw the tree. There was a tree hole. (The tree) was probably rotten. The child went climb up the tree.’ (KavNr-frog_Haciang, NTU Corpus)

The first clause is a patient voice construction and the absolutive subject is paRin ‘tree’. It is mentioned again in subsequent clauses. The second clause of this excerpt is an existential construction and it introduces an entity that is part of the tree, i.e., ‘tree hole’, into the discourse. The third clause denotes the state of this tree. Finally, the last clause also describes what happened to the tree. In other words, the entire excerpt is
concerned with the absolutive subject in the first clause, which exhibits strong topic persistence and functions like a topic.

By contrast, the oblique NP in an agent voice sentence tends to introduce a non-salient referent that will not be talked about again in the rest of the discourse. This discourse property of an oblique NP is illustrated by the following excerpt of a conversation.

(61) Kavalan

paluma=iku tu qawbig,
plant=1SG.ABS OBL yam.leaves

mudu=ita tu babuy masang nani
AV.raise=1IPL.ABS OBL pig past DM
‗I planted yam leaves. We raised pigs in the past.‘ (KavCon-Angry_pilaw_abas, NTU Corpus)

Before this excerpt, the speaker mentioned that she had to go to her vegetable farm in the morning although she and her children were still waiting for her husband. In (61), she digressed a little from the main story line and told the addressee what they used to plant and raise in the past. She provided this information simply because she mentioned her vegetable farm. This was irrelevant to the story that she was telling. After this excerpt, the speaker resumed her story and the oblique NPs introduced in these two clauses were never mentioned again in the subsequent discourse.

To summarize, not only does a Kavalan absolutive phrase carry inherent phi-features, but it also needs to be both definite and topical. We thus propose that a Kavalan absolutive phrase moves to Spec, TP to check the uninterpretable Φ-features on T and then it moves to Spec, TopP to check the [op] (topic) feature on Top. The contrast between Kavalan and Amis in terms of the morphological marking of nominal complement clauses can thus have a principled explanation. In Kavalan, a nominalized
complement clause is a CP headed by the complementizer *tu* and does not contain D features or inherent Φ-features. Therefore, it can never be promoted to the absolutive subject position because it cannot move to Spec, TP to check the uninterpretable Φ-features on T. Its movement to this position would lead the derivation to crash at LF per Full Interpretation. As for Amis, the EPP feature on T requires the D head in its specifier position to have phonetic contents regardless of its Φ-features. Even though an argument clause does not contain inherent Φ-features in Amis, it can still fulfill the EPP requirement of T as long as it is headed by an overt D. Note that a nominalized argument clause in Amis is a DP in that it must be preceded by a case marker instead of a complementizer.\(^5\)

As a topic, a Kavalan absolutive phrase also moves to Spec, TopP. In the derivation of a Kavalan sentence, an interpretable scope feature, [op], is assigned to a [+definite] nominal argument that serves as the topic, i.e., the absolutive argument. However, as shown in Section 4.2.2, Kavalan interrogative phrases also function as indefinites. Moreover, an interrogative phrase inherently encodes a request for new information, i.e., focus. Thus, an interrogative phrase like *tiana* ‘who’ or *niana* ‘what’ is not [+definite] and cannot serve as the topic, so it cannot be assigned the [op] feature. When it moves to the specifier of TopP, the uninterpretable [op] feature on Top cannot be checked since *tiana* ‘who’ or *niana* ‘what’ only carries phi-features or [D]-features.

---

\(^5\) The fact that Kavalan does not allow a CP to be a subject and the fact that Amis requires the subject of a clause to have an overt D seem to constitute counterexamples to the typology of subjects proposed by Davies and Dubinsky (2001). They argue that the clause structure of verb-initial languages makes it impossible for these languages to require subjects to be a DP. However, a more thorough and comprehensive study on the subject properties of Kavalan and Amis is required before we can reach any valid conclusion in this regard.
The derivation for (62a), which is schematically represented in (63), thus fails to obey the interface condition of Full Interpretation.

(62) Kavalan niana ‘what’
    a. *q<m>aRat ya niana tu zapan-su
       <AV>bite ABS what OBL leg-2SG.GEN
       ’What bit es your leg?’
    b. maytis tu niana ya ti-abas
       AV.afraid OBL what ABS NCM-PN
       ’What is Abas afraid of?’
    c. qaRat-an na niana ya zapan-su
       bite-PV ERG what ABS leg-2SG.GEN
       ’What bites your leg?’

(63)

It is because the uninterpretable [op] feature on Top cannot be checked that an interrogative sentence with an absolutive interrogative phrase is ungrammatical.

By contrast, the derivation for a sentence where niana ‘where’ is the oblique or ergative argument, e.g., (62b) and (62c), is convergent because there is no violation of any interface conditions like Full Interpretation. In both sentences, a [+definite] absolutive phrase can be assigned the [op] feature and can thus check the uninterpretable [op] feature of Top when it moves to Spec, TopP. The structure in (64) represents the derivation of (62c).
There is no feature that is not mapped to an interpretation at the interface, so the derivation converges at LF.

The only issue that we have not addressed so far concerns the syntactic distribution of mayni=ay ‘which=REL’ in Kavalan. Chapter 2 has demonstrated that mayni=ay ‘which’ exhibits a different pattern than the other interrogative phrases. Except for mayni=ay ‘which=REL’, an interrogative phrase cannot stay in-situ when it is marked absolutive in the subject position. We attribute this restriction to the inability of an interrogative phrase to move to Spec, TopP for lack of an interpretable [op] feature, which is assigned to a [+definite] DP. However, mayni=ay ‘which=REL’ seems to be a counterexample to this analysis as it can utilize the wh-in-situ strategy regardless of how the NP that it modifies is case-marked. We will argue that the distribution of mayni=ay ‘which=REL’ does not constitute a counterexample, but instead corroborates our claim that the restriction on wh-in-situ in Kavalan results from where an absolutive argument has to move in the structural representation.

The different patterns exhibited by mayni=ay ‘which=REL’ on the one hand and tiana ‘who’ and niana ‘what’ on the other hand suggest that the distinction between
discourse-linked (D-linked) and non-discourse-linked (non-D-linked) wh-phrases proposed by Pesetsky (1987) is valid across languages and must be taken into account. According to Pesetsky’s (1987) proposal, the distinction between D-linked and non-D-linked wh-phrases is contingent on their discourse status. The answer to a question of a D-linked wh-phrase like which is “supposed to be drawn from a set of individuals previously introduced into the discourse, or … part of the ‘common ground’ shared by speaker and hearer” (Pesetsky 2000: 16).

Pesetsky (1987) incorporates both LF movement and operator binding/unselective binding into the explanation for different patterns of wh-in-situ phrases. He shows that there is an asymmetry between D-linked wh-phrases (which X) and non-D-linked wh-phrases (what the hell) based on certain syntactic tests like the Superiority Condition and island constraints. In-situ D-linked wh-phrases behave like variables, whose interrogative force and scope are determined by a Question-operator. They thus do not need to undergo LF movement to Spec, CP. In-situ non-D-linked wh-phrases on the other hand are real quantifiers/operators, which must undergo LF movement to Spec, CP. Their different semantic status, as a variable or as an operator, leads to their different syntactic behaviors in terms of the Superiority Condition, as shown below.

(65) a. Who_i did you persuade e_i to read what?  
   b. ??What_j did you persuade whom to read e_j?

(66) a. Which man_i did you persuade e_i to read which book?  
   b. Which book_j did you persuade which man to read e_j?

According to Pesetsky (1987), the contrast between these two pairs of sentences can be attributed to the different discourse status of who/what and which-NP. Non-D-linked wh-words like who and what are quantifiers or operators and thus must undergo A’-
movement. Superiority Condition is thus expected. By contrast, in-situ D-linked wh-phrases like *which-NP* are variables, whose scope is determined via unselective binding by a Q operator. They do not need to move at LF and are thus not subject to the Superiority Condition. Pesetsky further demonstrates that the same distinction based on discourse linking also applies to wh-in-situ languages like Japanese.

While the syntactic distinction between D-linked wh-phrases and non-D-linked wh-phrases is acknowledged, the discourse motivation for the distinction is debatable. It has been pointed out that non-D-linked wh-phrases can also be used in contexts where D-linked wh-phrases should occur. For instance, suppose I have three cousins and we are talking about them. You can ask me either of the following questions and both of them are appropriate in this context.

(67)  
   a. Which cousin is your favorite?  
   b. Who is your favorite?  

This suggests that *who* can also be D-linked under some circumstances. Thus, there have been studies that attempt to attribute the so-called D-linking phenomenon to formal aspects of grammar like Syntax (Hirose 2003; Shields 2008; Tsai 1997a) or Semantics (Rett 2006; Rullmann and Beck 1998). In what follows, we argue that the distinction between D-linking and non-D-linking in Kavalan is a syntactic phenomenon.

One noticeable difference between a D-linked wh-phrase and a non-D-linked wh-phrase in Kavalan is that the former takes an additional marker =ay and forms a modification structure with its following noun. The relationship of modification is broadly and loosely defined. The marker =ay functions to introduce diverse kinds of modifiers of a noun, including relative clauses, adjectives, numerals, quantifiers, demonstratives, and possessors, as illustrated below.
Demonstratives and possessors can also occur in the post-nominal position, but the occurrence of the marker =ay is forbidden in this position.

The existence of a linker that connects a noun with its modifiers, broadly defined, has been observed in many languages, e.g., Chinese, Thai, and Burmese (den Dikken and Singhapreecha 2004; Simpson 2001, 2002). According to den Dikken and Singhapreecha (2004) and Simpson (2001), a noun phrase where the noun and its modifiers are connected by a linker always involves predication. Moreover, the presence of the linker induces predicate inversion.
On den Dikken and Singhapreecha’s (2004) account, the noun and its modifier in this construction is base-generated as the subject and predicate of a small clause (SC) respectively. The linker heads its own functional projection, FP, and prompts the predicate to move to Spec, FP. The derivation is schematically represented by the structure in (70).

Due to the parallel functions between =ay and linkers connecting a noun and its modifier in other languages, we assume that =ay also heads its own functional projection, FP, and triggers DP-internal Predicate Inversion. This explains why modifiers of nouns must be followed by =ay in the pre-nominal position. Moreover, DP-internal Predicate Inversion derives a restrictive modifier or a quantifying phrase. Restrictive modifiers include both intersective modifiers like color attributes and subsective modifiers like dimension attributes; both types occur in the =ay construction in Kavalan.

Like other modifiers of nouns, mayni ‘which’ is followed by =ay and occurs before the noun. A Kavalan mayni ‘which’ phrase thus has the structural representation in (71).

---

On Simpson’s (2001) account, the linker is inserted in D, not F. Except for this difference, his analysis is similar to den Dikken and Singhapreecha (2004) in that both analyses propose that the modification structure with a linker involves inversion.
It also undergoes DP-internal Predicate Inversion, triggered by the presence of F, or =ay. As an interrogative, mayni ‘which’ introduces a free variable x into the derivation. Moreover, the domain of this free variable is restricted by the subject NP in the small clause. In Kavalan, it is this syntactic configuration of restrictive modification that contributes to the D-linking interpretation of an interrogative phrase. In other words, the so-called D-linking phenomenon results from the syntactic structure of a phrase, not its discourse status, in Kavalan.

(71)

The grammaticality of ‘whose’-questions and ‘how many’-questions in Kavalan further corroborates the analysis of DP-internal Predicate Inversion induced by =ay as the factor for D-linking. As demonstrated in Chapter 2, zanitiana ‘whose’ is not allowed in the absolutive subject position. However, its grammaticality does improve if it occurs in the =ay construction. The grammaticality judgments are shown below.

(72) Kavalan
a. *tayta-an ni imuy ya zanitiana sunis
   see-PV ERG PN ABS whose child
   ‘Whose child does Imuy see?’
While (72a) is outright ungrammatical, (72b), where =ay is inserted after zanitiana ‘whose’, does sound much better to my consultants compared with (72a). By contrast, although tani ‘how many’ seems to be an interrogative modifier of a noun too, it cannot take the modification marker =ay. Note that =ay does occur on numerals that precede a noun, as shown in (68b). The following pseudo-cleft question illustrates that tani cannot take the modification marker =ay.

(73) Kavalan
kin-tani(*=ay) sunis ya p<m>ukun tu wasu
HUM-how.man=REL child ABS <AV>hit OBL dog
‘How many children hit dogs?’

This suggests that the structure of a noun phrase preceded by tani ‘how many’ differs from the modification structure of mayni=ay ‘which=REL’ in (71). It is not derived via DP-internal Predicate Inversion induced by the linker. Therefore, an in-situ tani phrase in the subject position is ungrammatical regardless of the presence of =ay, as illustrated below.

(74) Kavalan
*qaRat-an na wasu ya kin-tani(=ay) sunis
bite-PV ERG dog ABS HUM-how.man=REL child
‘How many children does the dog bite?’

We do not have an explanation for why tani cannot take the modification marker though. Nevertheless, the distributions of in-situ zanitiana ‘whose’ and tani ‘how many’ do support our analysis of D-linking in Kavalan as a syntactic phenomenon.

The different patterns exhibited by tiana ‘who’ and niana ‘what’ on the one hand and mayni=ay ‘which=REL’ on the other can thus be attributed to their different D-linking
status, which results from their respective syntactic structure. Since *tiana* ‘who’ and *niana* ‘what’ are non-D-linked, they are inherently non-topical and thus an interpretable [op] feature cannot be assigned to them during the derivation. As shown above, if they are marked absolutive and moves to Spec, TopP, they lack the matching [op] feature to check the uninterpretable [op] feature on Top. They thus cannot occur in the absolutive argument position, or otherwise the derivation would crash at LF due to Full Interpretation. The interrogative phrase headed by *mayni*=#ay ‘which=REL’, by contrast, is D-linked due to the restrictive modification structure where it occurs (71) and can thus be assigned an interpretable [op] feature during the derivation when it is marked absolutive. When it moves to Spec, TopP, the uninterpretable [D] and [op] features on Top can both be checked. The derivation can thus converge at LF without violating any interface conditions like Full Interpretation.

### 5.4 Conclusion

This chapter has discussed the constraints on the formation of pseudo-cleft questions and the wh-in-situ construction. In both Kavalan and Amis, only when the absolutive subject argument is questioned can a pseudo-cleft structure be utilized. As a pseudo-cleft question contains a headless relative clause as the subject, the issue boils down to why only null operators that stand for the absolutive subject can be extracted to Spec, CP. After reviewing several approaches to this constraint in Austronesian linguistics, we adopt the predicate raising approach as an explanation. As the absolutive subject moves out of TP before the remnant TP moves to a higher functional projection, it is eligible for extraction if necessary. After the remnant TP moves to the specifier of FocP, it becomes a syntactic island out of which nothing can be extracted. Therefore, non-subjects cannot be extracted to Spec, CP.
We have also addressed the issue of the wh-in-situ patterns in Kavalan and Amis. There is no single approach that can accommodate the empirical facts in both Kavalan and Amis. In Amis, all types of interrogative phrases can occur in-situ regardless of their case-marking or grammatical function. The Amis pattern conforms to Law’s (2006) observation that interrogative phrases in Austronesian languages can stay in-situ as long as they can receive the same formal marking as their non-interrogative counterparts. The crucial formal marking requirement in Amis is that the absolutive subject must take the overt absolutive case marker *ku* or the non-common noun marker *ci*. The absolutive case marker *ku* can be attached to interrogative phrases that inquire about non-human entities; the human interrogative phrase *cima* inherently takes the marker *ci*. Interrogative phrases in the subject position in Amis can fulfill this formal requirement and are thus allowed to stay in-situ. We suggest that this requirement on the formal marking of the subject can be explained by Landau’s (2007) analysis of EPP. *T* in Amis has an EPP feature that selects for a phonologically overt *K*, so the subject in Spec, TP must be headed by an overt *K*, or otherwise the derivation would crash at PF.

However, Law’s (2006) analysis cannot be extended to Kavalan, where interrogative phrases cannot stay in-situ in the absolutive subject position, except for *mayni=ay* ‘which=REL’. The distribution of in-situ wh-phrases in Kavalan supports Richards’s (1998) and Sabel’s (2003) analysis, which invokes the semantic/pragmatic status of the subject as an explanation. The absolutive subject in Kavalan is interpreted as definite and exhibits strong topic persistence (Huang and Tanangkingsing 2011; Liao 2002, 2004). It is assigned an interpretable [op] feature and moves to Spec, TopP to check the uninterpretable [op] feature on Top. An interrogative phrase in the absolutive
subject position cannot meet this requirement and thus the derivation of a sentence with an absolutive interrogative phrase crashes at LF. The interrogative phrase headed by $mayni= ay \text{‘which=REL’}$ can stay in-situ in the subject position because of its D-linking status, which results from its syntactic structure of restrictive modification that involves DP-internal Predicate Inversion. The inversion is triggered by the modification marker, or the linker, $= ay$ that heads a functional projection FP.
CHAPTER 6
A SYNTACTIC ANALYSIS OF INTERROGATIVE VERBS

6.1 Introduction

It has been shown in Chapter 3 that not all interrogative words in Kavalan and Amis can be used as verbs. The interrogative words that can be syntactically realized as verbs in the two languages denote ‘what’, ‘how’, ‘where’, and ‘how many/much’, whereas the interrogative words that denote ‘who’, ‘whose’, ‘which’, ‘when’, and ‘why’ cannot serve as verbal predicates as they cannot take voice markers. Section 3.4 further reveals that there is a correlation between the interrogative verb constructions and the voice markers. An interrogative verb functions as an intransitive verb when it takes the agent voice marker. If it takes the patient voice marker, it is used as a transitive verb.

It is also found that an interrogative word can belong to more than one syntactic category. For example, maan ‘what’ in Amis can be a noun or a verb; tanian ‘where’ in Kavalan and icuwa ‘where’ in Amis can be an adverbial expression or a verbal predicate. Moreover, there is a semantic restriction on the verbal use of tanian or icuwa in that it is restricted to questions that inquire about the location of a theme argument in a ditransitive event. The use of tani ‘how many’ in Kavalan and pina ‘how many’ in Amis as a verb observes a similar restriction to verbal tanian ‘where’ and icuwa ‘where’ regarding which argument they can question. Only when the quantity of a theme argument is questioned can they be used as a verbal predicate. When ‘how many’ is used as a verb, the question is associated with a unique interpretation. It implies that the quantity of the theme argument might change. This unique interpretation does not arise if ‘how many’ is used as a non-verbal predicate in a pseudo-cleft question.
To account for the syntactic/semantic properties and restrictions of the interrogative verbs in Kavalan and Amis, this chapter delineates a syntactic analysis that can offer an explanation for the following issues.

(1) Issues to be resolved
a. Why can some interrogative words be used as verbs but others cannot?
b. Why is there a correlation between the interrogative verb constructions and the voice markers?
c. Why is there a correlation between the choice of voice markers and the interpretation of an interrogative root?
d. How can we account for multiple categoriality of an interrogative word and the semantic restrictions on the use of an interrogative verb?
e. How can interrogative verbs that denote ‘where’ and ‘how many’ be verbal predicates and at the same time question an argument of another verb?

The syntactic account presented in this chapter assumes that the syntactic category of a word is derived in Syntax (Borer 2003; Marantz 1997). We will argue for this syntactic approach by showing that the derivation of interrogative verbs is systematic because whether an interrogative word can be used as a verb can be attributed to universal or language-specific principles or constraints of syntax and the syntactic representations of voice markers and their corresponding interpretations.

This syntactic analysis not only provides a natural explanation for the correlation between the voice markers and the transitivity/interpretation of interrogative verbs but also accounts for the semantic restrictions on the use of interrogative verbs in a straightforward and uniform way. Moreover, assuming that Kavalan and Amis interrogative verbs are derived syntactically, we can make falsifiable predictions on what interrogative words can and cannot be syntactically realized as verbs in the two languages based on syntactic principles and constraints. We will show that the
predictions are borne out and thus there is no need to impose arbitrary stipulations on the lexical entries of interrogative verbs.

We will first clarify the assumptions of our syntactic approach in Section 6.2. The main argumentation of this chapter is presented in Sections 6.3 and 6.5. Section 6.3 discusses the syntactic derivations of interrogative verbs and argues that the derivations obey syntactic principles and constraints. The applicability of our syntactic analysis to other “non-canonical” verbs in Kavalan and Amis is explored in Section 6.4. Based on the analysis formulated in Section 6.3, Section 6.5 explains why certain interrogative words cannot be used as verbs in Kavalan and Amis. Section 6.6 concludes the chapter.

6.2 Assumptions

6.2.1 A-Categorial Roots

We assume that lexical roots are not specified for syntactic categories like N and V, as proposed by Distributed Morphology (Embick and Noyer 2007; Halle and Marantz 1993, 1994; Marantz 1997). The syntactic categories of the roots are determined by functional heads like $v^0$, $n^0$, and $a^0$ in Syntax. When a root occurs in a verbal environment with the $v^0$ functional head, it appears as a verb; if instead the root occurs in a nominal environment, it becomes a noun. For example, betu ‘stone’ in (2) is an a-categorial root. Due to the different syntactic positions it occupies, it is interpreted as a noun in (2a), but functions as a verb in (2b). The root palu ‘beat’ in Amis exhibits the same pattern (3).

(2) Kavalan
   a. tapiRaw-an ni imuy ya betu
      touch-PV ERG PN ABS stone
      ‘The stone hit Imuy.’
b. betu-an-ku ya wasu stone-PV-1SG.ERG ABS dog
   'I threw stones at the dog.'

(3) Amis

a. tata’ak ku palu aku big ABS beat 1SG.GEN
   'I was beaten severely.' (My beating was big.) (Wu 2006: 68)

b. mi-palu ci-sawmah ci-mayaw-an AV-beat NCM-PN NCM-PN-OBL
   'Sawmah is beating Mayaw.' (Wu 2006: 70)

We assume that D, e.g., case markers in Amis, is a noun-creating head, whereas little \( v \) is a verb-creating head in the two languages. In the following two sub-sections, we will elaborate on the assumption that the so-called voice markers are derivational morphemes and phonological realizations of little \( v \).

We extend this assumption to interrogative words. That is, interrogative roots are a- categorial and their syntactic categories are determined by the syntactic environment where they occur. Specifically, if an interrogative root is able to move to \( v \) in Syntax, it will be interpreted as a verb and an interrogative verb is thus derived. We will detail how this basic idea can be implemented to account for the syntactic and semantic properties/constraints of interrogative verbs in Section 6.3.

6.2.2 Austronesian Voice Markers as Verbal Derivation

Following Starosta (2002), we analyze voice markers as derivational morphemes. In view of the inadequacy of the analysis that treats Austronesian voice as inflection, Starosta (2002) argues that voice markers in Austronesian languages are derivational based on evidence from transitivity and nominalization. His primary argument is that voice markers occur in both nouns and verbs, so they must be derivational. Section 5.2.2 has provided some examples that illustrate the dual functions of voice markers in
Austronesian languages. This phenomenon is also true of Kavalan and Amis. The examples in (4) illustrate that the morpheme responsible for theme and location nominalization in Kavalan is identical to the patient voice marker -an.¹ The voice and applicative markers in Amis also occur in de-verbal nouns and each voice corresponds to a distinct type of nominalization. For example, the agent voice marker is involved in agent nominalization (5a), the patient voice marker derives a patient noun (5b), the locative applicative marker derives a location noun (5c), and the instrument applicative marker is involved in instrument nominalization (5d).

(4) Kavalan
   a. qan-an  
      eat-NMZ  
      ‘food’  
   b. kelawkaway-an  
      work-NMZ  
      ‘work; job’  
   c. qaynep-an  
      sleep-NMZ  
      ‘bedroom’  
   d. taqsi-an  
      study-NMZ  
      ‘school’  

(5) Amis
   a. mi-tilid-ay  
      AV-study-FAC  
      ‘student’  
   b. ta-tayal-en  
      IRR-work-PV  
      ‘work to do’  

¹ The reason why the patient voice marker -an in Kavalan can derive both themes and locations is due to its historical development. This voice marker -an was originally a locative voice marker, but it has taken on the role and function of a patient voice marker after the original patient voice marker in Kavalan was lost.
As voice markers can change the syntactic category of a stem, they should be analyzed as derivational morphemes.

The analysis of voice as derivation raises a fundamental question regarding the distinction between nouns and verbs in Kavalan and Amis. If the claim that voice markers can derive both nouns and verbs is correct, how can we distinguish one from the other? That is, since derived nouns and verbs share the same form, how can we determine whether a voice-affixed word is a verb or a noun? An obvious answer is that we have to base our judgment on the syntactic environment where it occurs. For instance, qan-an in (6a) occurs in the sentence-initial predicate position and takes the future tense marker, but its counterpart in (6b) occurs in the subject position and takes the absolutive case marker. Therefore, the former is analyzed as a verb, whereas the latter is considered to be a noun.

\[(6)\]

Kavalan
\[a.\] qan-an-ku=pa ya 'esi na babuy
\[\text{eat-PV-1SG.ERG=FUTABS meat GEN pig}\]
\[\text{‘I will eat pork.’}\]
\[b.\] nengi a qan-an
good ABS eat-NMZ
\[\text{‘The food is good.’}\]

A problem of the analysis that regards voice markers as derivational morphemes for both nouns and verbs is that there are voice-affixed words that are never used as
nouns, e.g., voice-affixed interrogative verbs described in Chapter 2. More importantly, there is evidence that suggests voice markers only derive verbs, but not nouns. Hsieh (2011), Hsieh and Chen (2006), and D. Lin (2010) argue that the examples in (4) and (5), which look like lexical nominalization, involve a more complex syntactic structure and should be analyzed as headless relative clauses. Consider the following examples.

(7) Kavalan
   a. datebus ya [ni-Rasa-an (ni buya) tu unglay]
      sweet ABS PFV-buy-NMZ GEN PN OBL pineapple
      ‘The pineapple that Buya/someone bought is sweet.’
   b. yau [ni-qudu-an(-na) tu biyat]
      EXIST PFV-raise-NMZ-3SG.GEN OBL frog
      ‘There is a frog that he/someone raises.’

The subjects in both (7a) and (7b) are complex noun phrases. Both take the -an marker and refer to the theme of the event. Moreover, the de-verbal nouns are prefixed with the perfective marker ni-. These two complex noun phrases can be analyzed as an internally headed relative clause. Note that the agent arguments in the two examples can be dropped, which yields a generic reading. If so, the same analysis can apply to “lexical” nominalization in (4) as the same marker -an is used. For example, qan-an in (4a) can be interpreted as ‘(something) that is eaten’, which is like a headless relative clause. The referent of a headless relative clause always corresponds to the gapped absolutive subject due to the constraint that only subjects can be relativized. This subject-only constraint explains why each voice marker derives a specific type of nouns in (4) and (5). For example, in (5a), the lexical root takes the agent voice marker and the missing absolutive argument is thus an agent. In (5b), which is a patient voice construction, the missing absolutive argument is a patient. The null operators that stand for the missing subjects can move to Spec, CP. (5a) and (5b) thus must denote an
agent and a patient respectively. The seeming nominalization function of voice markers should be analyzed as the result of relativization instead. This suggests that the so-called nominalization in Kavalan and Amis involves a structure that is clause-like. There is no clear-cut distinction between lexical nominalization and syntactic relativization as they can be analyzed in the same way. The following examples show that what looks like nominalized lexical words can take dependents and turn into a relative clause.

(8) Amis

a. ya mi-palu-ay ci-panay-an
   that AV-beat-FAC NCM-PN-OBL
   ‘(the person) that beats Panay’

b. ya ni-paluma-an ti-ya ropas
   that PFV-grow-LA OBL-that peach
   ‘The peaches that (we) grow.’ (farming, NTU corpus)

c. sa-pi-palu ni ofad ci-lekal-an
   IA-PI-beat GEN PN NCM-PN-OBL
   ‘(the stick) that Ofad uses to beat Lekal’

(8a) and (8c) are headless relative clauses and (8b) is an internally-headed relative clause.

As illustrated in (9) below, “nominalized” clauses in Kavalan and Amis can take adverbs and this suggests that they contain verbal structures.

(9) Kavalan

a. ni-qudu-an-na ni buya tu wasu ta-tasaw
   PFV-raise-NMZ-3SG.GEN GEN PN OBL dog RED-year
   ‘the dog that Buya has raised for a year’

b. tayta-an ni utay tu sudad qaya
   see-NMZ GEN PN OBL book also
   ‘the book that Utay also read’

The acceptability of VP-related adverbs, e.g., manner and aspectual adverbs, is a piece of evidence for the verbal projection in nominals (Alexiadou 2001).
These characteristics of “nominalization” with voice markers in Kavalan and Amis indicate that nominalization in the two languages is not a lexical phenomenon, but a syntactic operation, whereby aspectual information can be encoded and complements or adverbal adjuncts are allowed to appear. In other words, the “nominalized” words are still associated with verbal properties, suggesting that the voice markers in Kavalan and Amis never derive nouns.²

As already pointed in Chapter 3 on the discussion of the morphosyntactic properties of Kavalan and Amis verbs, the affixation of the voice markers is specific to verbal predicates, but not non-verbal predicates. The discussion in this section so far has also revealed that even though the voice markers also occur in de-verbal nominals, the nominalized words or clauses still possess verbal properties and contain verbal projections.

Another piece of evidence for the analysis of the voice markers as derivational morphemes of verbs is that they can derive denominal verbs. In (10a) and (11a), betu ‘stone’ and nanum ‘water’ are object-denoting nouns and appear in canonical NP positions, but when they are affixed with a voice marker as in (10b) and (11b), they occur in the predicate position and denote an activity or action associated with the object denoted by their nominal counterparts.

(10) Kavalan

a. tapiRaw-an ni imuy ya betu
   touch-PV ERG PN ABS stone
   ‘The stone hit Imuy.’

² Note that this conclusion does not imply that Kavalan and Amis do not have real lexical nominalization. It simply means that nominalization via voice markers should be analyzed as relativization. There might be lexical nominalizers in the two languages. For example, D. Lin (2010) argues that the circumfix pa-…-an in Kavalan is a lexical nominalizer that derives an agentive noun.
b. betu-an-ku ya wasu stone-PV-1SG.ERG ABS dog
'I threw stones at the dog.'

(11) Amis
a. mi-sni’ tu nanum i takid AV-pour OBL water PREP cup
'(Somebody) pours water into the cup.'

b. mi-nanum=ho kaku AV-water=IMPV 1SG.ABS
'I am still drinking water.'

It has been argued that all the lexical roots in Amis are inherently nominal and verbs must be derived via the affixation of voice markers (Wu 2006). The contrast between (12a) and (12b) further illustrates this analysis of Amis roots.

(12) Amis
a. tata’ak ku palu aku big ABS beat 1SG.GEN
'I was beaten severely.' (My beating was big.) (Wu 2006: 68)

b. mi-palu ci-sawmah ci-mayaw-an AV-beat NCM-PN NCM-PN-OBL
'Sawmah is beating Mayaw.' (Wu 2006: 70)

We thus assume that the voice markers in Kavalan and Amis are derivational morphemes that derive verbs only.

6.2.3 Austronesian Voice Markers as Verb-Creating Heads in Syntax

Another crucial assumption of our analysis concerns the component of grammar where derivation takes place. The standard view is that derivation is implemented in Lexicon and derivational morphemes are opaque in the syntactic component. The syntactic approach to word classes rejects this assumption and proposes that derivational morphology also takes place in Syntax (Harley 2009). In other words, category-determining heads are visible in Syntax; they are theoretical elements in the syntactic component of Grammar. Based on this account, the verb-deriving function of
the voice markers in Kavalan and Amis suggests that they are phonological realizations of the category-defining head *v* in Syntax.

We further propose that the projection of the little *v*, or the verb-defining head, in Kavalan and Amis is merged in the complement position of T(ense) or Asp(ect). This is motivated by the interaction between voice markers and tense/aspect. In Kavalan, the future tense marker =*pa* can be attached to a PV-marked verb, but not an AV-marked verb. To use =*pa* in an agent voice construction, the verb must be in its bare form. This is illustrated below.

(13) Kavalan

a. quni-an-su=pa ya sunis-ku
   do.what-PV-2SG.ERG=FUT ABS child-1SG.GEN
   ‘What are you going to do to my child?’

b. *q<um>uni=pa=isu
   <AV>do.what=FUT=2SG.ABS
   ‘What are you going to do?’

c. quni=pa=isu
   do.what=FUT=2SG.ABS
   ‘What are you going to do?’ (Or ‘Where are you going?’)

Wu (2006) has also shown that each voice marker in Amis is associated with an unmarked TAM reading. The relationship between voice markers and tense/aspect suggests that voice markers are accessible to Syntax and their interaction can be explained by the selectional restriction between T/Asp and vP.³

---

³ On the lexicalist analysis, as the derivational history of a derived word has been obliterated in Syntax, the interaction between voice markers and tense/aspect is explained by the morphosyntactic features acquired by the derived word during the derivational process.
6.3 Syntactic Derivations of Interrogative Verbs

6.3.1 Syntactic Derivations of Interrogative Verbs Based on ‘What’ and ‘How’

Given the assumption that voice markers are verb-defining heads in Syntax, the correlation between the transitivity of interrogative verbs and the voice markers that they take can be attributed to the syntactic nature of \( v \) that the interrogative roots are merged with. The agent voice marker realizes intransitive \( v \), whereas the patient voice marker is inserted when \( v \) is transitive. That is, the transitivity of an interrogative verb is determined by \( v \) directly. An interrogative root always has at most one argument and the transitivity of an interrogative verb is derived via the merge of its root with \( v \) in Syntax.

Consider the following two sets of sentences.

(14) Kavalan
a. \[ q<um>uni=isu \quad tangi \]
   \[ <AV>do.what=2SG.ABS \quad just.now \]
   ‘What were you doing just now?’

b. \[ quni-an-su \quad ya \quad sunis-ku \]
   \[ do.what-PV-2SG.ERG \quad ABS \quad child-1SG.GEN \]
   ‘What did you do to my child?’

(15) Amis
a. \[ mi-maan \quad ci-panay \]
   \[ AV-do.what \quad NCM-PN \]
   ‘What is Panay doing?’

b. \[ ma-maan \quad cingra \]
   \[ AV-what.happen \quad 3SG.ABS \]
   ‘What happened to him?’

c. \[ na \quad maan-en \quad isu \quad ku-ra \quad wacu \]
   \[ PST \quad do.what-PV \quad 2SG.ERG \quad ABS-that \quad dog \]
   ‘What did you do to the dog?’

These sentences reveal that the transitivity of an interrogative root like \( quni \) or \( maan \) is not lexically specified, but is determined by the voice marker that it takes. When affixed with an agent voice marker, it functions as an intransitive verb, i.e., ‘do what’ or ‘what
happen to’ (14a, 15a, 15b); if it takes a patient voice marker instead, it is used as a
transitive verb, i.e., ‘do what to’ (14b, 15c). In terms of their syntactic structure, the
interrogative roots in (14a), (15a), and (15b) are merged with an intransitive \( \nu \), which is
realized phonologically by an agent voice marker. As for (14b) and (15c), what is
merged with the interrogative roots and determines their syntactic category and
transitivity is a transitive \( \nu \), which is later realized phonologically by a patient voice
marker. We will elaborate on the syntactic structures of these voice markers later in this
section after we discuss more semantic distinctions among them.

Verbalizing heads exhibit finer semantic distinctions in addition to transitivity. It has
been suggested that there are several distinct verb-defining heads with different
(combinations of) syntactic/semantic features. One type of \( \nu \) that has been extensively
discussed is the agent-introducing head, \( \nu[AG] \) (Marantz 1997) or Voice (Kratzer 1996).
The verbal structure of unaccusative verbs is headed by another type of \( \nu \), which is
more like a BECOME-operator (Marantz 1997). Harley (2009) characterizes different
types of \( \nu \) in terms of feature clusters like \([\pm\text{dynamic}], [\pm\text{change of state}], \) and \([\pm\text{cause}]\)
as in (16).

(16) The feature specifications of \( \nu \) (Harley 2009):
a. \( \nu_{\text{CAUSE}} : [\pm\text{dynamic}], [\pm\text{change of state}], [\pm\text{cause}] \)
b. \( \nu_{\text{BECOME}} : [\pm\text{dynamic}], [\pm\text{change of state}], [-\text{cause}] \)
c. \( \nu_{\text{DO}} : [\pm\text{dynamic}], [-\text{change of state}], [-\text{cause}] \)
d. \( \nu_{\text{BE}} : [-\text{dynamic}], [-\text{change of state}], [-\text{cause}] \)

The merger of a root with different types of \( \nu \) will thus derive verbs with different
Aktionsart properties. The syntactic analysis just presented can account for the
interpretation of interrogative verbs if different forms of a particular voice marker are
conceived of as phonological realizations of different types of \( \nu \) as well.
One clear case in point concerns the contrast between (15a) and (15b). When Amis *maan* is affixed with *mi-*, it is used as an interrogative activity verb; the affixation of *ma-* to this interrogative root derives an interrogative change-of-state verb. This contrast results from the fact that *mi-* and *ma-* realize two distinct *v* heads: *v*\_DO and *v*\_BECOME respectively. According to Wu’s (2006) investigation of the semantics of voice markers in Amis, the affixation of *mi-* to a root, which can inherently denote either an object or an activity, can derive a plain activity verb with an optional motional/purposive/progressive reading. This is illustrated by the following two sentences.

(17) **Amis**

a. mi-nanum ci-aki tu nanum
   AV-water NCM-PN OBL water
   ‘Aki is going to drink water./Aki is drinking water.’ (Wu 2006: 165)

b. mi-palu ci-sawmah ci-mayaw-an
   AV-beat NCM-PN NCM-PN-OBL
   ‘Sawmah is going to beat Mayaw./Sawmah is beating Mayaw.’ (Wu 2006: 166)

Wu (2006: 167) thus assigns the following logical structure to *mi-* within the framework of Role and Reference Grammar (RRG).

(18) **The Logical Structure of *mi-*:**

\[
(\text{do’}(x, \text{[go’}(x)]) \& \text{INGR be-at’}(z, x)) \text{PURP}) \text{do’}(x, \text{[pred’}(x, y)])
\]

The first part of this logical structure is put into parentheses and captures the optional motional/purposive/progressive reading of *mi-*, whereas the second part is obligatory and represents the plain activity reading of this prefix. As for *ma-*, its combination with a root can derive a verb that is interpreted as a result state.\(^4\) The following two sentences demonstrate this meaning of *ma-*.

\(^4\) Wu (2006) classifies *ma-* verbs into four types, each of which is associated with a distinct logical structure. Only the second type, or *ma*-2, is relevant to our discussion here.
(19) Amis
   a. ma-adah=tu kaku
      AV-recover=PFV 1SG.ABS
      'I have recovered (from illness).'
      (Wu 2006: 183)
   b. ma-ruhem=tu ku pawli
      AV-ripe=PFV ABS banana
      'The babana is ripe (just now).'
      (Wu 2006: 183)

The following logical structure is proposed by Wu (2006: 185) for this prefix. INGR stands for 'ingressive'.

(20) The Logical Structure of ma-
   (INGR/BECOME) (pred' (x,(y))

This logical structure expresses the telic property of a derived ma- verb and its result-state or change-of-state interpretation.

   In our system, mi- can be conceived of as an activity-denoting v, i.e., v_{DO} and ma- can be analyzed as v_{BECOME}, which indicates change of state. The different interpretations of (15a) and (15b), i.e., mi-maan and ma-maan, lie in the feature clusters of v that maan is merged with. The trees in (21) and (22) represent the derivations of (15a) and (15b) respectively. In (21), maan undergoes head movement to v_{DO}, which is the shorthand notation for the feature cluster [+dynamic, -change of state, -cause] and which is realized as the agent voice marker mi-. The resultant mi-maan thus denotes a plain activity with an interrogative sense and the DP in the specifier of vP is interpreted as the agent of the activity. By contrast, the verbalizing head in (22) consists of the features, [+dynamic], [+change of state], and [-cause] and ma- is inserted in this context. The resultant ma-maan is interpreted as a result state and the DP in the Spec, vP thus refers to a theme argument that undergoes the relevant change of state. The meaning ‘what became of him’ or ‘what happened to him’ is thus derived.
Unlike *mi*-maan and *ma*-maan, *maan-en* functions as a transitive interrogative verb ‘do what to’. This interpretation is also due to the specific feature cluster of the *v* headed by the patient voice marker -en. According to Wu (2006), a verb that is derived via the suffixation of -en must have an animate causer/agent and the use of this derived verb emphasizes the intention of the agent. This can be demonstrated by the contrast between the following two sentences. The ergative DP in (23a) is an animate causer/agent, but the ergative DP in (23b) is not.
In other words, the verbalizing head that -en realizes must be [+agentive]. Moreover, the utilization of a verb suffixed with -en always implicates the completion of the action. When -en verbs take the imperfective aspect marker =ho, they can never receive a progressive interpretation. Compare the following two sentences.

(24) Amis
a. ranam-en=ho
   breakfast-PV=IMPFV
   ‘Eat the same thing for the breakfast again!’  (Wu 2006: 176)

b. mi-nanum=ho ci-panay tu sayta
   AV-water=IMPFV NCM-PN OBL soda
   ‘Panay is still drinking soda.’  (Wu 2006: 176)

The verbs in (24a) and (24b) both take the imperfective aspect marker =ho. While the verb in (24a), which is suffixed with -en, receives an iterative reading, the verb in (24b), which takes the agent voice marker mi-, is interpreted as progressive. This suggests that -en is inherently [+telic]. The two important semantic features of -en are captured by the following logical structure that Wu (2006: 176) proposes.

(25) The logical structure of -en:
    DO' (x, [do' (x, [pred' (x, y)])]) ...INGR/BECOME (pred' (y))

In our framework, the verbalizing head that is realized as -en in Amis can be analyzed as νCAUSE, which can introduce an agentive causer and implies an endpoint, change of state, or the completion of an action. To capture the inherent semantics of the
patient voice marker -en and its implications, we propose the verbal structure in (26) for verbs that are derived with this suffix.

(26) The verbal structure of -en

This structure for -en is basically the same as the lexical relational structure assigned to English causative deadjectival verbs by Hale and Keyser (1993). We adopt their conception that the vP/VP-shell structure is associated with an asymmetric semantic relation of implication, where a dynamic event encoded in the higher vP/VP “implicates” an interrelation or a state encoded in the lower vP/VP. The structure in (26) thus aptly reflects the status of -en as a causative operator that necessarily implicates an endpoint of the action or change of state. When this suffix is merged with maan, the interpretation of the resultant verb, maan-en, follows from the structure in (26). Consider the (partial) derivation in (27) for (25c). The higher v headed by -en introduces an agentive causer, isu ‘2SG.ERG’, and implies the existence of an endpoint of the action as indicated by the lower vP whose head introduces a theme argument, kura wacu ‘that dog’, that is affected by the action. The derived verb, maan-en, is thus construed as a transitive interrogative verb with both an agent argument and a theme argument. The interpretation can be paraphrased as ‘X does what such that X causes Y to be in a certain state’.
A question arises as to why the lower $v$ in the vP-shell structure of (26) or (27) is never realized. It should be noted that there are no verbs that can simultaneously take an agent voice marker $mi$- or $ma$- and a patient voice marker like -$en$. The following verbs are ill-formed.

(28) Amis
    a. $^{*}$mi-nanum-en
    b. $^{*}$ma-ruhem-en

However, voice markers can co-occur with an instrumental or locative applicative marker, which is still viewed as a type of voice marker by many Formosan linguists.

(29) Amis
    a. ka-k$<um>a^{e}$-an ni ofad tu $^{'}$epah ku luma aku
       KA-$<AV>$eat-LA ERG PN OBL wine ABS house 1SG.GEN
       ‘Ofad drinks (wine) at my place. (My place is where Ofad drinks (wine).)’
    b. mi-cikay-an ni ofad i pitilidan ku cudad
       AV-run-LA ERG PN PREP school ABS book
       ‘Ofad runs to school to get the book (for the book). (The book is what Ofad runs to school to get).’
c. sa-ka-k<um>a’en ni ofad tu futing ku alapit
   IA-KA-<AV>eat   ERG PN OBL fish ABS chopsticks
   ‘Ofad eats fish with the chopsticks. (The chopsticks are what Ofad uses to
eat fish.)’

The co-occurrence of voice markers with an applicative marker is one of the reasons
why Wu (2006) analyzes the so-called locative and circumstantial voice markers in Amis
linguistics literature as applicative markers. They perform different functions and should
not be classified into the same paradigm. This means that they are governed by
different insertion rules and thus are considered separately when insertion takes place.

By contrast, the co-occurrence restriction of an agent voice marker and a patient voice
marker indicates that they belong to the same set of insertion rules. We propose that
fusion takes place in the vP-shell structure of (26) or (27). Fusion is a grammatical
process that fuses two terminal nodes that are sisters, e.g., two heads after head-to-
head movement, into one single node (Halle and Marantz 1993). As fusion results in
one single terminal node, only one vocabulary item can be inserted into this position. In
(27), v_{BECOME} and v_{CAUSE} undergo fusion and become one single terminal node, which is
a composite of both CAUSE-operator and BECOME-operator. This leads to the
semantic implication of the vP-shell structure, i.e., ‘X does something and causes Y to
become Z’. Due to the semantic components of the patient voice marker -en, i.e.,
[+dynamic], [+change of state], [+cause], it is inserted into this position, but not other
voice markers.

Note that Amis maan can also be used as a noun as in (30), where it occurs in a
case-marked position. As verbal maan is derived in a syntactic context where it can be
merged with a verbalizing head via head-movement, the use of maan as a noun is also
contingent on its syntactic environment. In (30), it is moved to n, the category-defining
head for nouns, so that it can further be case-marked. This derivation is schematically represented in (31).

(30) Amis  
    ma-talaw  ci-lekal  tu  maan  
    AV-afraid  NCM-PN  OBL  what  
    ‘What is Lekal afraid of?’

(31) 

An equally plausible alternative is to attribute the nominal status of *maan* in (30) to the presence of D, or the case marker *ku*. On this alternative analysis, there is no need to posit the noun-deriving head *n* in Amis. Amis *maan* is an exemplar that shows how the lexical category and interpretation of an interrogative root can vary with and be determined by the syntactic context where it occurs.

This syntactic analysis of Amis *maan* can apply to its Kavalan counterpart, *quni* ‘do what’, the transitivity and interpretation of which is also conditioned by the voice marker that it takes. One prominent difference between Kavalan and Amis concerns the semantics of the different forms of the agent voice. While each form of the Amis agent voice morpheme is associated with a distinct logical structure or interpretation, as shown above for *mi*- and *ma*-, the choice of Kavalan agent voice forms seems to be

---

5 Please refer to Section 5.3.3 for the analysis of Amis case markers as D.
conditioned by phonology, i.e., phonologically-conditioned allomorphy, and is subject to lexical variation to a great extent. In other words, Kavalan differs from Amis in that it does not utilize distinct lexical items to realize different types of intransitive \( v \). However, the overt distinction between the intransitive \( v \) and the transitive \( v \) is still preserved in Kavalan. The agent voice construction is an intransitive syntactic structure, whereas the patient voice construction is the canonical transitive structure. The tree in (32) illustrates the derivation for \( q<um>uni \) ‘do what’, an intransitive interrogative verb with an agent argument, which is introduced by \( v_{do} \).

(32) Kavalan \( q<um>uni \) ‘do what’

\[
\begin{array}{c}
\text{vP} \\
\downarrow \\
\text{DP} \\
\downarrow \\
\text{agent} \\
\downarrow \\
\text{v}_{\text{do}} \langle \text{um} \rangle \\
\downarrow \\
\text{vP} \\
\downarrow \\
\text{quni}
\end{array}
\]

The function of the patient voice marker \(-an\) in Kavalan is similar to Amis \(-en\) in that \(-an\) also introduces an agent or causer argument and implies an endpoint, change of state, or the completion of an action. As illustrated in (33), \(-an\) is analogous to the causative marker \( pa- \) in terms of their function to introduce an external argument (33c, 33d). Note that when \( sabiqbiq \) ‘boil’ is used in its agent voice form as in (33a), it can only have an unaccusative interpretation, as demonstrated by the ungrammaticality of (33b), where there is an additional external argument. Compare (33a) with (33d). The patient voice marker in (33d) functions as a causative operator that introduces an extra
agentive causer and the action performed by this agentive causer leads to the change of state of the theme argument assigned by the original agent voice predicate.

(33) Kavalan
   a. sabiqbiq=ti ya zanum 'nay
      boil=PFV ABS water that
      ‘The water has boiled.’
   b. *sabiqbiq=ti=iku tu zanum
      boil=PFV=1SG.ABS OBL water
      ‘I have boiled water.’
   c. pa-sabiqbiq=ti=iku tu zanum
      CAU-boil=PFV=1SG.ABS OBL water
      ‘I boiled water. (I had the water boiled.)’
   d. sabiqbiq-an-ku ya zanum 'nay
      boil-PV-1SG.ERG ABS water that
      ‘I boiled the water.’

The patient voice marker -an should thus be construed as the phonological realization of $v_{\text{CAUSE}}$. Like Amis -en, it also involves a $vP$-shell structure with an implicational causal relation between the higher $vP$ and the lower $vP$ in accordance with Hale and Keyser’s (1993) analysis of deadjectival verbs in English. Its structure is schematically represented in (34).

(34) The structure of Kavalan -an
The merger of *quni* with -*an* leads to the derivation of a transitive interrogative verb that requires an agentive causer and a theme argument that undergoes the action.

It has been found that -*an* can also introduce an additional theme argument (Y.-L. Chang 1997). According to Y.-L. Chang (1997), an intransitive verb is allowed to take an additional argument when it is affixed with the patient voice marker -*an*, but not when it takes the agent voice marker.  

(35) Kavalan

\[\begin{align*}
a. \quad & \text{?maynep=iku tu qaynepan} \\
& \text{AV.Sleep=1SG.ABS OBL bed} \\
& \text{‘I am sleeping in a bed.’} \quad \text{(Y.-L. Chang 1997: 72)}
\end{align*}\]

\[\begin{align*}
b. \quad & \text{qaynep-an-ku ya qaynepan} \\
& \text{sleep-PV-1SG.ERG ABS bed} \\
& \text{‘I slept in the bed.’} \quad \text{(Y.-L. Chang 1997: 72)}
\end{align*}\]

\[\begin{align*}
c. \quad & \text{?t<m>alumbi ta-liab-an na taken ya sunis a yau} \\
& \text{<AV>hide LOC-underside-LOC GEN table ABS child LNK that} \\
& \text{‘That child hides under the table.’}
\end{align*}\]

\[\begin{align*}
d. \quad & \text{?t<m>alumbi ta-liab-an na taken ya sunis a yau} \\
& \text{<AV>hide LOC-underside-LOC GEN table ABS child LNK that} \\
& \text{tu tina-na} \\
& \text{OBL mother-3GEN} \\
& \text{‘That child hides under the table from his mother.’}
\end{align*}\]

\[\begin{align*}
e. \quad & \text{talumbi-an na sunis a yau ta-liab-an na taken} \\
& \text{hide-PV ERG child LNK that LOC-underside-LOC GEN table} \\
& \text{ya tina-na} \\
& \text{ABS mother-3GEN} \\
& \text{‘That child hides under the table from his mother.’}
\end{align*}\]

The contrast between (35a) and (35b) illustrates this function of -*an*. The patient voice marker in (35e) also performs the same function. The addition of an oblique argument that is affected by the event to an agent voice sentence in (35d) is only slightly

\[\begin{align*}
\text{\footnotesize \textit{\textsuperscript{6} The examples from Y.-L. Chang (1997) have been reglossed to reflect my analysis of the Kavalan clause structure.}}
\end{align*}\]
acceptable. Its patient voice counterpart, (35e), is fully grammatical. The absolutive DP in (35e), ‘his mother’, is interpreted as an argument that is affected by the action of the agent. Thus, the argument structure of -an not only includes an agent argument, but also a theme argument that is affected by the action of the agent. This provides further justification for the syntactic structure of -an in (34).

It is noteworthy that ‘what’ and ‘how’ share the same root in both Kavalan and Amis. Moreover, both interrogative words can take the patient voice marker, as illustrated below.

(36) Kavalan
a. (na)quni-an-su ya sunis a yau
   do.what-PV-2SG.ERGABS child LNK that
   ‘What do you do to that child?’

b. (na)quni-an-su m-kala ya sunis a yau
   do.how-PV-2SG.ERG AV-find ABS child LNK that
   ‘How do you find that child?’

(37) Amis
a. na maan-en isu ku-ra wacu
   PST do.what-PV 2SG.ERG ABS-that dog
   ‘What did you do to that dog?’

b. na maan-en ni panay mi-padang kisu
   PST do.how-PV ERG PN AV-help 2SG.ABS
   ‘How did Panay help you?’

The only difference on the surface lies in the additional verb in the ‘how’-question. Nevertheless, ‘do what’ and ‘do how’ are conceptually related as a ‘how’-question can be easily paraphrased as a ‘do.what’-question. For example, ‘How did you find the child?’ can be paraphrased as ‘What did you do to find the child?’. It is thus highly probable that (36a) and (36b) or (37a) and (37b) involve the same verbal derivation with the same category-defining head, \( v_{\text{CAUSE}} \).
First of all, both types of questions require an agent or causer that brings about a certain action or event. Secondly, they both imply an endpoint. In the case of transitive 'do what', this endpoint interpretation is due to the change of state of the theme argument that is affected by the action. As for 'do how', the endpoint interpretation emanates from the completion of an action. The derivation for 'do how', as represented below in (38), is thus analogous to transitive 'do what', except that there is a vP complement to the interrogative root. We will elaborate on the vP complementation structure of the 'do.how'-question in Chapter 7.

(38) The structure of the 'do how'-question

As with transitive 'do what', 'do how' is also derived via head movement of the interrogative root to $\text{v}_{\text{cause}}$, which is realized as the patient voice marker -en or -an, thus their homogeneity. However, 'do how' requires a vP complement and per the implicational causal relation of the vP-shell structure, $\text{v}_{\text{become}}$ indicates that the action/event brought about by the agent/causer induces the completion of another
event. In this sense, \( v \text{BECOME} \) in (38) is slightly different from its counterpart in (27), the structure for transitive ‘do what’, although both signals the existence of an endpoint. We will argue that a ‘do how’-question exhibits the complementation structure of (38) and elucidate how this structure can explain other morphosyntactic properties of a ‘do how’-question in Chapter 7 when we explore the syntactic structure of the Interrogative Verb Sequencing Construction.

### 6.3.2 Syntactic Derivations of Interrogative Verbs Based on ‘Where’

The syntactic approach delineated above for the derivation of ‘do what’ and ‘do how’ can also provide a natural explanation for the grammatical properties and syntactic distributions of *tian* and *cuwa* ‘where’. As discussed in Chapter 3, the use of Kavalan *tian* and Amis *cuwa* as a verb is restricted to questions about the location of the theme argument in a ditransitive event. Questions about the location where an event takes place cannot utilize *tian* or *cuwa* as a verb. Relevant examples are repeated below.

(39) Kavalan
a. \( \text{tanian-an-su ya kelisiw-su} \)
\( \text{where(verb)-PV-2SG.ERG ABS money-2SG.GEN} \)
‘Where do you put your money?’

b. \( *\text{tanian-an-su q<m>an tu/ya babuy} \)
\( \text{where(verb)-PV-2SG.ERG <AV>eat OBL/ABS pig} \)
‘Where do you eat pork?’

(40) Amis
a. \( \text{icuwa-en isu ku payci} \)
\( \text{where(verb)-PV 2SG.ERG ABS money} \)
‘Where do you put the money?’

b. \( *\text{icuwa-en isu mi-saosi ku cudad} \)
\( \text{where(verb)-PV 2SG.ERG AV-read ABS book} \)
‘Where do you read the book?’
We argue below that their grammatical properties and restrictions can be derived with reference to the syntactic environment of the interrogatives themselves. Specifically, like other interrogative verbs that we have discussed, *tanian* and *icuwa* serve as verbs when they are selected by a category-defining verbal head, the little *v*.

The adverbial, in-situ properties of the adjunct use of *tanian* and *icuwa* as in (41) and (42) follow from its adjunct status. Not being selected by little *v*, *tanian* and *icuwa* cannot be a verb in these constructions and therefore lack verbal properties. Rather, adjunct *tanian* and *icuwa* takes scope over the entire verb phrase.

(41) Kavalan
   a. tanuz-an na tuliq tanian ya wasu
      chase-PV ERG bee where ABS dog
      ‘Where do the bees chase the dog?’
   b. tanian tanuz-an na tuliq ya wasu
      where chase-PV ERG bee ABS dog
      ‘Where do the bees chase the dog?’

(42) Amis
   a. k<um>a’en kisu tu ’may icuwa
      <AV>eat 2SG.ABS OBL rice where
      ‘Where do you eat?’
   b. icuwa k<um>a’en kisu tu ’may
      where <AV>eat 2SG.ABS OBL rice
      ‘Where do you eat?’

In (41), the question is intended to inquire about the location where the bees chase the dog. Likewise, in (42), the question concerns the location where the addressee eats.

Since the scope of *tanian* and *icuwa* in (41) and (42) ranges over an event, it is not unreasonable to assume that they are adjoined to *vP* or TP. The different adjunction positions lead to the word order differences between (41a) and (41b) or between (42a)
and (42b). As shown in the tree in (43) for (41a), *tanian* can be adjoined to *vP*.\(^7\)

(Subsequent movements, including the movement of the absolutive DP to Spec, TP and Spec, TopP and the remnant movement of TP to Spec, FocP, are not represented, as they are irrelevant to the present discussion.)

(43)  Adjunction of *tanian* to *vP*

The root *tanuz* 'chase' moves to *v* and then the derived verb *tanuz-an* 'chase-PV' moves to *T*, deriving the word order where *tanian* follows the verb and the ergative DP. If *tanian* is adjoined to TP, as shown in (44), it will occur in the sentence-initial position before the verb. The absolutive DP needs to move to Spec, TP and Spec, TopP for feature-checking and then the remnant TP moves to Spec, FocP. These subsequent movements do not affect the word order fact in the end.

\(^7\) We assume with Ernst (2002) that adjuncts can be attached to an intermediate projection instead of a maximal projection.
Whether *tanian* is adjoined to *v*’ or *T*’, there is no way for it to take the voice marker in *v*, which has been merged with the lexical verb. Even if we allow *tanian* to be adjoined to the projection of the root phrase before the root moves to *v*, it is still forbidden from moving to *v* because it is inside an adjoined phrase. Head movement out of a specifier or an adjunct is never attested. In the Government and Binding framework, this is due to the Head Movement Constraint (Travis 1984) or the Empty Category Principle (Chomsky 1981).

(45)  Head Movement Constraint (HMC)
\[ X^0 \text{ may only move into } Y^0 \text{ that properly governs it.} \]

(46)  Empty Category Principle (ECP)
\[ \text{An empty category must be properly governed.} \]
Baker (1988) assumes that the HMC can be derived from the ECP and head movement of X to Y, as represented in (47) below, results in a head-adjunction structure, where the adjunction node does not count as the first branching node for c-command. Under the framework of GB, Baker (1988) proposes that if XP in (47) below is selected by Y, it does not count as a barrier for government from Y. This way, the trace of X in (47) can be antecedent-governed.

(47)

Suppose *tanian* is adjoined to the root phrase instead of vP or IP, as represented by the structure in (48).

(48)
As an adjunct, its movement to v would violate the ECP because the phrase that it projects is not selected by vP and will act as a barrier for government. The illicit movement will lead to a structure where tanian cannot antecedent-govern its trace.

The notion of government has been abandoned by the Minimalist Program. However, the empirical fact that a head in a specifier or an adjoined phrase cannot move out of this position still holds. Other theoretical principles or conditions compatible with Minimalist ideas must be sought to explain this syntactic phenomenon. According to Matushansky (2006), the Transparence Condition as formulated in (49) is a potential principle that can generate the same effects as the Head Movement Constraint.

(49) Transparence Condition (Matushansky 2006: 78)
A head ceases to be accessible once another head starts to project.

The Transparence Condition functions to ensure that only heads that are still projecting at some point of syntactic derivations are accessible to syntactic operations. When a head X₀ enters the derivation and merges with its complement phrase YP, it is necessary to assess both X₀ and Y₀ in order to determine which head projects. At this point, both heads are likely to project and thus both are still accessible to syntactic operations like movement or Re-merge. Once the selection of X₀ for Y₀ is established, Y₀ is able to move to X₀ at this point of the derivation. This translates into the well-known generalization of the locality of head movement: A head Z₀ can move to the head W₀ of the phrase WP that takes ZP as the complement, but cannot skip it. The Transparence Condition rules out the configuration where the head in a specifier or an adjoined phrase moves to a c-commanding head that does not select for it. Take (48) as an example. When v merges with √P, XP, which has been adjoined to √P, is no longer projecting. Therefore, X₀ is not accessible to syntactic operations and is not allowed to
move to v. The ban on head movement out of an adjoined phrase can be explained by the Transparence Condition without invoking the notion of government.

Regardless of what theoretical mechanism is adopted, if *tanian* in (48) moves to v, this will result in an illicit syntactic configuration. Therefore, when *tanian* is used to question the location where an event takes place, it cannot take a voice marker and be used as a verb. The observation that adjunct *tanian* cannot be used as a verb finds a natural explanation in our syntactic analysis. The analysis that we propose assumes that interrogative verbs are derived in Syntax and thus their derivations must conform to established syntactic principles and constraints like the HMC, the ECP, or the Transparence Condition.

By contrast, the verbal derivation for *tanian* or *icuwa* in a question that inquires about the location of a theme argument as in (39a) and (40a) does not incur any violation of syntactic principles and constraints. Take (39a) as an example. The derivation begins with the merger of √TANIAN ‘where’ with *kelisiw-su* ‘money-2SG.GEN’. This is because the DP *kelisiw-su* is the theme argument of √TANIAN ‘where’. The interrogative root then moves to v*BECOME* and v*CAUSE* in a successive-cyclic fashion. The derivation can be schematically represented in (50). The movement of √TANIAN to v*BECOME* and v*CAUSE* obeys the Transparence Condition as each step conforms to the legitimate configuration of head movement shown in (47). The higher v is the causative operator CAUSE which entails an agent thematic role and defines transitive verbs. This head is spelled out as the patient voice marker -an in Kavalan. Together with the inherent locational and interrogative semantics of *tanian*, the result is a transitive construction in which the location of the theme is in question.

271
(50) (Partial) derivation for (39a)$^8$

Specifically, the $\nu$P-shell structure with $\nu_{\text{CAUSE}}$ and $\nu_{\text{BECOME}}$ involves an implicational relation where the action performed by the agent introduced by $\nu_{\text{CAUSE}}$ must imply an endpoint. In the case of (50), the endpoint interpretation arises from the change of state of the theme argument, i.e., its ending up being somewhere. The meaning of (50) can thus be paraphrased as ‘X (the agent) does something and this causes Y (the theme) to be where?’. Without a secondary lexical verb, the details of the action are left under-specified, leading to a meaning of something like ‘X put Y where?’.

---

$^8$ There is a slight difference between (50) and (34). In (34), the theme is base-generated in the specifier of $\nu_{\text{BECOME}}$, but the theme in (50) moves to this position. In (50), the theme DP is base-generated in the complement position of the root phrase because it is an argument of tanian ‘where’. The structure in (50) also assumes that it moves to Spec, $\nu_{\text{BECOME}}$. Whether this movement is necessary is subject to debate; its motivation is not clear and requires further investigation. Nevertheless, the structure of $\nu_{\text{BECOME}}$ above a root phrase is reminiscent of the VP External Object Hypothesis as formulated in Basilico (1998). An examination of the scope (non-)ambiguities might elucidate the base position and (non-)movement of the theme DP in a structure like (34) and (50).
When a secondary lexical verb is present, it serves to further specify the action of the transitive event. As pointed out in Chapter 3, the secondary lexical verb following *tanian* or *icuwa* must be able to take a location argument. Some relevant examples are repeated below.

(51) Kavalan
   a. tanian-an ni abas m-Rupu ya adam ‘nay
      where(verb)-PV ERG PN AV-shut ABS bird that
      ‘Where does Abas shut the bird?’
   b. tanian-an ni imuy s<m>ubulin ya sunis-na
      where(verb)-PV ERG PN <AV>leave ABS child-3SG.GEN
      ‘Where does Imuy leave her child?’

(52) Amis
   a. icuwa-en isu pasiket ku wacu
      where(verb)-PV 2SG.ERG tie ABS dog
      ‘Where do you tie the dog?’
   b. icuwa-en isu mi-na’ang ku riku’
      where(verb)-PV 2SG.ERG AV-pack ABS clothes
      ‘Where do you pack the clothes?’

This restriction on the secondary lexical verb can be ascribed to the structure in (50) and the ditransitive interpretation associated with it. The most natural interpretation of ‘X causes Y to be where’, the meaning of (50), corresponds to a ditransitive event and is thus compatible with verbs that take a location argument. In Chapter 7, we will provide a structural analysis for sentences with verbal *tanian* and a secondary lexical verb and discuss where the lexical verb is merged in the structure proposed here.

Whether there is a lexical verb following *tanian* or *icuwa* in a verbal ‘where’-question, the basic semantic structure of the construction is the same. The interrogative word *tanian* or *icuwa* inherently denotes ‘where’, while the verbal features follow from its merger with the transitive v. Our syntactic account can provide a straightforward
explanation for the fact that when tanian or icuwa is used as a verb with both an agent argument and a theme argument, it always takes the patient voice marker -an or -en, but not the agent voice marker, as illustrated below.

(53) Kavalan
*tanian=isu tu kelisìw-su
AV.where=2SG.ABS OBL money-2SG.GEN
‘Where do you put your money?’

(54) Amis
*icuwa kisu tu paysu
AV.where 2SG.ABS OBL money
‘Where do you put money?’

This is because only \(v_{\text{CAUSE}}\), which is phonologically realized as the patient voice marker -an or -en, can introduce an agent argument or causer and simultaneously take the projection of \(v_{\text{BECOME}}\) as its complement to denote a change of state caused by some action. The interrogative words tanian and icuwa do not inherently mean ‘put where’. In other words, due to the vP-shell structure of the patient voice marker, the ergative argument of tanian-an or icuwa-en must be interpreted as the agent argument that causes the absolutive argument to be somewhere. This interpretation is compatible with questions about the location of the theme argument in a ditransitive event, but not with questions that concern the location where an event takes place. The semantic restriction on the verbal use of tanian thus finds a natural explanation.

6.3.3 Syntactic Derivations of Interrogative Verbs Based on ‘How Many’

In addition to ‘do what’, ‘do how’ and ‘where’, it has been shown in Chapter 3 that the interrogative words that denote ‘how many/much’ in Kavalan and Amis can also show up as interrogative verbs. Relevant examples are repeated in (55) and (56). At first sight, the use of ‘how many/much’ as a verb in the patient voice construction does not conform to the analysis of -an or -en as \(v_{\text{CAUSE}}\) with \(v_{\text{BECOME}}\) as its complement and
thus should constitute a counterexample to our syntactic approach to the derivation of interrogative verbs. A closer examination of the semantics of verbal *tani* or *pina* reveals otherwise.

(55) Kavalan
   a. u-tani-an-su ya kelisiw
      NHUM-how.many(verb)-PV-2SG.ERG ABS money
      ‘How much money do you want/take?’
   b. kin-tani-an-su=pa p<mod>-ukun ya sunis
      HUM-how.many(verb)-PV-2SG.ERG=FUT <AV>beat ABS child
      ‘How many children will you beat.’

(56) Amis
   a. pina-en ni ofad ku paysu
      how.many(verb)-PV ERG PN ABS money
      ‘How much money does Ofad want/take?’
   b. pa-pina-en isu mi-lawup ku wawa
      HUM-how.many(verb)-PV 2SG.ERG AV-chase ABS child
      ‘How many children will you chase?’

A question where *tani* or *pina* is employed as a verb and takes the patient voice marker, e.g., (55) and (56), always implies that the quantity of the affected theme argument will or might change from the perspective of the speaker. For example, the utterance of (56a) is appropriate in a scenario where the speaker expected Ofad to take less money, but the contextual evidence s/he had suggested that he might want more money. The utterance of (56b) also has a similar connotation. Suppose that the addressee of this question had chased three children yesterday and he told the speaker that he intended to chase five children today. In this situation, the speaker could utter (56b) to show his suspicion that the addressee might chase even more children. A more appropriate translation of (56b) might be ‘HOW MANY MORE children will you chase?’.
This type of implication is absent in a pseudo-cleft question with *tani* or *pina* as a nonverbal predicate, as illustrated in (57) and (58).

(57) Kavalan
   u-tani    ya   ni-ala-su     tu   kelisiw
   NHUM-how.many ABS PFV-take-2SG.GEN OBL money
   ‘How much money did you take?’ (Lit. The money that you took is how much?)

(58) Amis
   pina   ku   mi-ala-an    ni   utay a   paysu
   how.many ABS AV-take-LA ERG PN LNK money
   ‘How much money did Utay take?’ (Lit. The money that Utay took is how much?)

Compared with (57) and (58), the questions in (55) and (56), where ‘how many’ is suffixed with the patient voice marker, emphasize the intention of the agent and simultaneously imply a change of state, specifically the change of the quantity of the theme argument that might be affected.

The semantics of PV-marked *tani* or *pina* is thus compatible with the syntactic structure assigned to the patient voice marker, or v\_CAUSE. Our syntactic analysis correctly predicts that these two interrogative words can show up as a verb and the interpretation of the derived interrogative verb should conform to the semantics of the vP-shell structure with v\_CAUSE and its accompanying v\_BECOME. The tree in (59) demonstrates the derivation of *pina-en* in (56a).

The syntactic structure in (59) reflects three important features of verbal *pina* (or *tani*). First of all, the fact that a question with PV-marked *pina* emphasizes the intention of the agent can be ascribed to the agent-introducing function of v\_CAUSE. This is also the reason why verbal *pina* must occur in the patient voice construction, but not the agent voice construction, as illustrated by the ungrammaticality of the sentences in (60) and (61). The verbal meaning of *pina* or *tani* is syntactically derived via the merger with the
patient voice marker and the vP-shell structure associated with it. As \( v_{\text{CAUSE}} \), the patient voice marker can introduce an agent argument or causer and simultaneously take the projection of \( v_{\text{BECOME}} \) as its complement to denote a change of state caused by some action. The agent voice construction lacks this causative structure.

(59)  (Partial) derivation for (55a)

(60)  Kavalan
\[ *u-tani=isu \quad tu \quad kelisiw \]
\[ \text{CLF-how.many}=2\text{SG.ABS OBL money} \]
‘How much money do you want/take?’

(61)  Amis
\[ *pina \quad ci-ofad \quad tu \quad paysu \]
\[ \text{how.many NCM-PN OBL money} \]
‘How much money does Ofad want/take?’

The second fact that requires an explanation is that a question with \( pina-en \) must inquire about the quantity of the theme argument, but not the agent argument. This observation is due to the semantics of the lower vP, where \( pina \) is predicated of the
theme argument. The agent argument is introduced by \( v_{\text{CAUSE}} \) and does not belong to the argument structure of \( pina \). Moreover, there is agreement between \( pina \) and the theme argument in terms of humanness. When the theme argument is human, \( pina \) takes an agreement prefix \( pa- \), which is derived via Ca-reduplication. (The agreement prefixes on Kavalan \( tani \) are \( u- \) for non-humans and \( kin- \) for humans.) The syntactic configuration in (59), where \( pina \) and the noun phrase in question exhibit a head-complement relationship in the root phrase, allows this type of agreement to occur. The agent noun phrase, which is assigned by \( v_{\text{CAUSE}} \), is never part of the argument structure of \( pina \). Thus, when \( pina \) is used as a verb and takes the patient voice marker, it is not the quantity of the agent noun phrase that is in question and it cannot agree with \( pina \) in terms of humanness.

Finally, the \( vP \)-shell structure with \( v_{\text{CAUSE}} \) and \( v_{\text{BECOME}} \) implicates that there is a causal relation between the two respective events in the upper \( vP \) and the lower \( vP \) and further implies a change of state. This implicational relation contributes to the unique interpretation associated with \( pina-en \): The quantity of the affected theme argument will or might change from the perspective of the speaker.

The syntactic mechanisms that are responsible for the derivation of verbal \( tani \) or \( pina \) are not peculiar to this interrogative word, but are shared by the other interrogative verbs. There is no need to resort to lexical stipulation. The grammatical and semantic features of interrogative verbs are the concomitant consequences of the syntactic structure they occur in.

6.4 Extension to Non-Interrogative Words

There are at least two advantages of the syntactic account proposed in the preceding sections for Kavalan and Amis interrogative verbs. First of all, our syntactic
account can be extended to non-interrogative words that share similar morphosyntactic and semantic properties with interrogative verbs. In other words, it can capture the overall grammatical system of Kavalan and Amis. Secondly, since the derivation of interrogative verbs is constrained by established syntactic principles and operations, either universal or language-specific, our syntactic account can make predictions about what interrogative words can and cannot be used as a verb. We will show that the predictions are borne out. This section deals with the first advantage and Section 6.5 will elaborate on the second advantage.

6.4.1 Location Verbs

The syntactic analysis proposed in the preceding sections can generalize to non-interrogative cases such as locative deictics, which are also realized as verbs in Kavalan and Amis. In (62) and (63), the locative deictics occur at the sentence-initial position with the patient voice marker -an or -en, suggesting that they are used as verbal predicates.

(62)  Kavalan⁹
    a.  tazian-an-ku     (pizi) ya kelisiw-ku
        here(verb)-PV-1SG.ERG     put ABS money-1SG.GEN
        ‘I put my money here.’
    b.  tayan-an-ku     (pizi) ya kelisiw-ku
        there(verb)-PV-1SG.ERG     put ABS money-1SG.GEN
        ‘I put my money there.’
    c.  tawian-an-ku     (pizi) ya kelisiw-ku
        there(verb)-PV-1SG.ERG     put ABS money-1SG.GEN
        ‘I put my money there.’

⁹ According to Jiang (2006), both tazian and tayan are proximal demonstratives of place, whereas tawian is a distal demonstrative of place. Tazian refers to a place closer to the speaker and tayan refers to a place closer to the addressee.
Like their interrogative counterparts, *tanian* and *icuwa*, the locative deictics in (62) and (63) are able to serve as the only verb in a sentence without any lexical verb. Moreover, when used as a verb, they must denote the location of the theme argument in a ditransitive event. When they refer to the location where an event takes place, they are not allowed to take the patient voice marker, as illustrated below.

(64) Kavalan

* tazian-an-ku  m-Rasa  tu/ya  sudad
  here-1SG.ERG  AV-buy  OBL/ABS  book
  ‘I buy a/the book here.’

(65) Amis

* itiraw-en  ni  utay  l<um>adiw
  there-ERG  PN  <AV> sing
  ‘Utay sings there.’

The locative deictics exhibit the same grammatical properties and observe the same semantic restrictions as *tanian* and *icuwa*.

The syntactic analysis that we have elaborated on for the derivation of interrogative verbs can be invoked to explain the syntactic distributions of the locative deictics. The verbal locative deictics are also derived syntactically by merging with v\_CAUSE. The tree in (66) represents the derivation of verbal *tazian* ‘here’ used in (62a). (The final parts of the derivation like v-to-T movement are not relevant and thus are not included.) As shown in (66), *tazian* does not inherently assign an agent argument; instead, the agent argument is introduced by v\_CAUSE. The lower vP represents a stative
event, ‘my money is here’, whereas the higher vP indicates a dynamic event, ‘I do something’. With the implicational causal relation between v\textsubscript{CAUSE} and v\textsubscript{BECOME}, the entire structure receives a causal interpretation like ‘I do something and this causes my money to be here’, i.e., ‘I put my money here’.

(66) (Partial) derivation for verbal \textit{tazian} ‘here’

As for (64) and (65), their ungrammaticality is due to the same reasons why adjunct \textit{tanian} or \textit{icuwa} cannot be employed as a verb. In (64), the semantic scope of \textit{tazian} ranges over the entire event. It is adjoined to vP or IP, where it is structurally higher than the little v. If it is adjoined to the root phrase, it still cannot move to v because if it does, its trace cannot be properly governed and the movement will violate the ECP on the GB account, or because the movement does not obey the
Transparency Condition formulated by Matushansky (2006) within the Minimalist Program. Finally, as the intended meaning of the sentence concerns the location where an event takes place, it is not compatible with the structure represented in (66). This structure entails a ditransitive event and verbal *tazian* refers to the location of the theme argument. The syntactic analysis that we have proposed for the derivation of interrogative verbs is thus not limited to interrogative verbs only, but can be extended to other non-interrogative "non-canonical" verbs.

It is noteworthy that the syntactic structure for the derivation of verbal *tanian* in (50) or verbal *tazian* in (66) is similar to the structure assigned to the English ditransitive verb *put* by Larson (1988) and the lexical relational structure assigned to the English denominal location verb *shelve* by Hale and Keyser (1993). The tree in (67) represents Larson’s (1988) analysis of the ditransitive verb, *put.*

(67) The verbal structure of *put* (Larson 1988)
The structure for the derivation of denominal location verbs like *shelve* is shown in (68). Hale and Keyser (1993) argue that a denominal location verb like *shelve* as in *shelve the book* is derived after it successive-cyclically moves from N to the highest V. The derivation involves three instances of incorporation: N to P, N-P to the lower V, and N-P-V to the higher V. Each instance of incorporation or head movement observes the Transparence Condition. Therefore, the derivation of a denominal location verb like *shelve* is legitimate.

(68) The verbal structure of the denominal location verb *shelve* (Hale and Keyser 1993)

This derivation is similar to the derivation of verbal *tanian* ‘where’ or *tazian* ‘here’, both of which are concerned with location. The higher V in (68) corresponds to $v_{\text{CAUSE}}$ in our system and the lower V in (68) is parallel to $v_{\text{BECOME}}$. The derivational structures for *shelve* (68) and *tanian* (50) both represent a ditransitive event involving an agent that does something and causes the theme argument to be somewhere. From this
perspective, Kavalan and Amis are not radically different from English as they do share parallel structures and syntactic operations for the derivation of location verbs.

Despite the similarities, there are still substantive differences between the structure of (67)/(68) in English and the structure that we propose for Kavalan and Amis location verbs. First of all, they differ in where the theme argument is base-generated. In Kavalan and Amis, it is base-generated in the root phrase. We assume that the location interrogative word and the location deictics function like a location predicate of a theme in the root phrase to explain certain properties of this group of words. The theme argument in the English structure is base-generated in the VP domain, not in the projection of the locative expression, i.e., PP. The second prominent difference concerns whether v\textsubscript{CAUSE} has an overt phonological realization. It is realized as the patient voice marker in Kavalan and Amis, whereas it is covert in English.

The final difference lies in the presence or absence of a prepositional phrase in the syntactic representation. On Hale and Keyser's (1993) account, the projection of P is obligatory even though there is no overt P. The reason is probably that an NP must be the complement of P to be interpreted as a location, or N must move to P to acquire the denotation of a location before moving to V. By contrast, the structure of Kavalan and Amis location verbs does not contain a PP. While English possesses a rich inventory of prepositions, the inventory of prepositions in Formosan languages is extremely impoverished and some of them might lack this class of words completely. There is only one lexical item in Amis that might qualify as a preposition, $i$, which can mark a variety of locative or temporal relationships. As for Kavalan, it does not seem to have any prepositions. Locative notions are grammatically signaled by the locative case on nouns.
or expressed through the composite of directional/orientational nouns and the locative case. See the following examples for illustration.\(^{10}\)

(69) Kavalan

a. \( \text{ta-paw-an} \) ni \( \text{bu ya} \) ya ti-imuy tangi
   LOC-house-LOC GEN PN ABS NCM-PN now
   'Imuy is at Buya’s place now.'

b. \( \text{yau} \) ta-liab-an na \( \text{takan} \) ya sunis a \( \text{yau} \)
   EXIST LOC-underside-LOC GEN table ABS child LNK that
   'That child is under the table.'

c. \( \text{ta-RasuR-an} \) na \( \text{le paw} \)
   LOC-inside-LOC GEN house
   'inside the house'

As shown by the contrast between (67) and (68), the presence of an overt P head blocks the movement of N to V because of the Head Movement Constraint. Due to the impoverishment of prepositions and the absence of P in the structure of Kavalan and Amis location verbs, there is no intervening head that blocks movement from the root position to the V domain. The inventory of prepositions might be a parameter that can contribute to the cross-linguistic differences in the formation of location verbs. Our syntactic approach is thus a promising way to conduct further research on the typology of location verb derivations.

6.4.2 Manner Verbs

Given that \((na)\text{quni} ‘do what/how’ in Kavalan and \(\text{maan} ‘do what/how’ in Amis can undergo head-movement to v to derive interrogative verbs, it should not be surprising that their non-interrogative counterparts, e.g., manner deictics and manner adverbial

\(^{10}\) Interested readers can refer to Jiang (2006) for a detailed investigation of the spatial expressions in Kavalan.
expressions, are also syntactically realized as verbs. The following examples are for illustration.

(70) Kavalan
a. nayau-an-ku
   that.way(verb)-PV-1SG.ERG
   'I do (it) in that way.'

b. nayau-an-na ya sunis-na
   that.way(verb)-PV-3ERG ABS child-3SG.GEN
   'He treats his child in that way.'

c. nayau-an-na s<anu
   that.way(verb)-PV-3ERG <AV>say
   'He says in that way.'

d. paqanas-an-ku t<ayta ya sudad
   slow(verb)-PV-1SG.ERG <AV>see ABS book
   'I read the book slowly.' (Y.-L. Chang 2006: 46)

(71) Amis
a. ha’en-en ku kamay
   this.way(verb)-PV ABS hand
   '(You,) make your hand like this.'

b. ma-ha’en ku pi-tilid aku
   AV-this.way(verb) ABS PI-study 1SG.GEN
   'I study this way.' (My studying is like this.)

Our syntactic analysis can capture the syntactic similarities between manner interrogatives and manner deictics/adverbials in a straightforward way. Their verbal usage is derived because they can be merged with the verb-defining head via licit head movement. A detailed and comprehensive discussion of how manner deictics and adverbial verbs are derived syntactically within a category-less framework like DM is beyond the scope of the present study and requires further in-depth investigation. It

---

11 See Y.-L. Chang (2006, 2010) and E. Liu (2003) for a discussion on the syntax of adverbial expressions in Kavalan and Amis respectively. Neither of them assumes a category-less framework like DM.
also remains to be seen whether their derivations are subject to any syntactic or
semantic constraints.

However, the two sets of data in (70) and (71), together with the other interrogative
sentences discussed so far, suffice to show that there is no absolute underlying
distinction between adverbs and verbs in Kavalan and Amis. The notion of adverbs as a
distinct syntactic category is also fuzzy in other languages, e.g., Dyirbal, where adverbs
modifying verbs show the same inflection as verbs (Dixon 1972). In general, the overlap
between adverbial and verbal expressions, both interrogative and non-interrogative,
provides evidence for our syntactic approach, in which roots are not identified with
particular lexical categories. The categories of words are defined with respect to the
syntactic environments where they occur.

6.5 Interrogative Words That Cannot Be Verbs

The syntactic analysis we have been arguing for can also predict what
interrogative words can and cannot be used as verbs in Kavalan and Amis based on the
semantics of the voice markers, or verb-defining heads, and established syntactic
principles and constraints. Why certain interrogative words in Kavalan and Amis cannot
take voice markers and be used as verbs finds a natural explanation in our syntactic
framework. Our analysis predicts that if an interrogative word must be adjoined to
another phrase, it cannot be utilized as a verb as its movement from an adjoined
position to $v$ would violate the ECP or the Transparence Condition. Also, if the merger of
an interrogative word with $v$ results in a structure that cannot receive a well-formed
interpretation, that interrogative word should not occur in that verbal environment on the
intended interpretation. We have argued that these two considerations rule out the use
of adjunct *tanian* or *icuwa* as a verb. In Section 6.5.1, we show that ‘whose’ and ‘which’
cannot be syntactically realized as a verb in Kavalan and Amis for the same reasons. Section 6.5.2 discusses why 'who' in the two languages cannot be used as a verb either.

6.5.1 ‘Which’ and ‘Whose’

Before we explain why ‘which’ and ‘whose’ in Kavalan and Amis cannot be syntactically realized as a verb, we need to consider where the two interrogative words are base-generated. While it has become a common assumption that English determiner the, demonstratives this/that/these/those, and genitive marker ‘s, occupy the head of DP per Abney’s (1987) DP hypothesis to account for their complementary distribution, whether the same analysis can apply to other languages is controversial because some languages allow a determiner to co-occur with a demonstrative (Bernstein 1997). The following examples are for illustration.

(72) English
   a. the child
   b. this child
   c. *the this child/**this the child

(73) Spanish
   el hombre este
   the man this
   ‘this man’ (Bernstein 1997)

(74) Javanese
   ika n anak
   this the child
   ‘this child’ (Bernstein 1997)

To account for the non-complementarity of a determiner and a demonstrative in languages like Spanish (73) and Javanese (74), Bernstein (1997) proposes the structure in (75), where D is lexically realized as a determiner but demonstratives are base-generated in Spec, FP.
As for Formosan languages, they do not have overt determiners, but their demonstratives and possessives can co-occur, as shown below (Tang 2006).\textsuperscript{12} This suggests that they do not compete for the same syntactic position.

(76) Paiwan  
\begin{verbatim}
   icu  a  kun  ni  kai
\end{verbatim}  
this  A  skirt  GEN  PN  
‘this skirt of Kai’s’ (Tang 2006: 940)

(77) Kavalan  
\begin{verbatim}
zau=ay  sunis  ni  buya
\end{verbatim}  
this=REL  child  GEN  PN  
‘this child of Buya’s’

Tang (2006) shows that the syntactic distributions of demonstratives and possessives are quite complicated in Formosan languages as they can occur in a post-nominal position or in a pre-nominal position. The following Kavalan and Amis examples illustrate the two patterns. Note that Amis demonstratives are bound morphemes that must co-occur with case markers or common noun markers. More importantly, they can only occur in a pre-nominal position, as suggested by the ungrammaticality of (79a).

\textsuperscript{12} Despite the lack of overt determiners in Formosan languages, the definiteness interpretation of a noun phrase is still encoded indirectly through case marking. Therefore, Tang (2006) still assumes that DP is present in noun phrases in Formosan languages.
(78) Kavalan
   a. sudad zau
       book this
       'this book'
   b. zau=ay sudad
       this=REL book
       'this book'
   c. sudad zaku
       book 1SG.POSS
       'my book'
   d. zaku=ay sudad
       1SG.POSS=REL book
       'my book'

(79) Amis
   a. *c<m>ikay wawa ku-ni
      <AV>run child ABS-this
      'This child is running.'
   b. c<m>iky ku-ni (a) wawa
      <AV>run ABS-this LNK child
      'This child is running.'
   c. wacu nu maku
      dog GEN 1SG.POSS
      'my dog'
   d. (nu) maku a wacu
      GEN 1SG.POSS LNK dog
      'my dog'

It should also be noted that when Kavalan and Amis demonstratives and possessives
occur pre-nominally, an additional marker =ay or a is inserted between them and the
noun, as shown in (78b), (78d), (79b), and (79d). The occurrence of the marker =ay or a
is forbidden when demonstratives and possessives follow nouns (78a, 78c, 79c). The
two markers, =ay in Kavalan and a in Amis, indicate a modification structure in a noun
phrase, occurring between the modifier and the modified noun. The relationship of
modification is broadly and loosely defined. They function to introduce diverse kinds of
tmodifiers of a noun, including relative clauses, adjectives, numerals, quantifiers,
demonstratives, and possessors. This is demonstrated by the following noun phrases
that contain a pre-nominal modifier.

(80) Kavalan
a. [qiRuziq tu kelisiw]=ay sunis 'nay
   steal OBL money=REL child that
   'the child that steals money'

b. masang=ay utuz
   past=REL earthquake
   'the earthquake in the past' (KavCon-earthquake, NTU corpus)

c. Raya=ay wasu
   big=REL dog
   'big dog'

d. u-tulu=ay wasu
   CLF.NHUM-three=REL dog
   'three dogs'

(81) Amis
a. [mi-takaw-ay tu payci] a wawa
   AV-steal-FAC OBL money LNK child
   'the child that steal money'

b. amis a singsi
   Amis LNK teacher
   'an Amis teacher'

c. kuhting-ay a ayam
   black-FAC LNK bird
   'a black bird'

As already discussed in Section 5.3.4, due to the parallel functions between
Kavalan =ay and linkers connecting a noun and its modifier in other languages, we
assume that =ay heads its own functional projection, FP, and triggers DP-internal
predicate inversion. According to den Dikken and Singhapreecha (2004) and Simpson
(2001), a noun phrase where the noun and its modifiers are connected by a linker always involves predication. Moreover, the presence of the linker induces predicate inversion. On den Dikken and Singhapreecha’s (2004) account, the noun and its modifier in this construction is base-generated as the subject and predicate of a small clause (SC) respectively. The linker heads its own functional projection, FP, and prompts the predicate to move to Spec, FP. The derivation is schematically represented by the structure in (82).

(82) DP-internal predicate inversion (den Dikken and Singhapreecha 2004)

Like other modifiers of nouns, *mayni* ‘which’ and *zanitiana* ‘whose’ are followed by =ay and must occur before a noun. This is also true of Amis *icuwaay* ‘which’ and *nima* ‘whose’, which can be followed by a and must precede a noun, as illustrated below.

(83) Kavalan
a.  [mayni=ay sunis] ya tayta-an ni imuy
   whichREL child ABS see-PV ERG PN
   ‘Which child does Imuy see?’ (Lit. The person that Imuy sees is which child?)

b.  [zanitiana=ay kelisiw] ya ala-an=ay ni utay
   whoseREL money ABS take-PV=REL ERG PN
   ‘Whose money does Utay take?’ (Lit. The stuff that Utay takes is whose money?)
We thus assume that these modifier-like interrogative phrases have the structural representation in (85). They must undergo DP-internal predicate inversion, triggered by the presence of F, which is headed by =ay or a.

(85) Structure of ‘which’ and ‘whose’ in Kavalan and Amis

```
   F'   SC
   F
      a
     NP
      subject

   mayni/zanitiana
   icuwaay/nima
```

This explains why ‘which’ and ‘whose’ in Kavalan and Amis must occur in the pre-nominal position.

If the structure in (85) is correct, the reason why the interrogative words that denote ‘which’ and ‘whose’ in Kavalan and Amis cannot be used as a verb can be attributed to their adjunction structure. As adjunct tanian ‘where’ and icuwa ‘where’ are forbidden from moving to v due to violations of the Transparency Condition, mayni ‘which’, zanitiana ‘whose’, icuwaay ‘which’, and nima ‘whose’ are not allowed to move to
ν either. During the course of the derivation, they must move to the specifier of FP headed by =ay or a via DP-internal predicate inversion. Their movement from the specifier position to a c-commanding head would result in the illegitimate configuration in (86), which does not conform to either ECP or the Transparency Condition.

(86) Illegitimate head movement of ‘which’ and ‘whose’

![Diagram of (86)]

Therefore, ‘which’ and ‘whose’ cannot take voice markers in Kavalan and Amis.

It is worth noting that although Kavalan tani ‘how many’ seems to be an interrogative modifier of a noun too, it cannot take the modification marker =ay. Note that =ay does occur on numerals that precede a noun, as shown in (80d). The following pseudo-cleft question illustrates that tani cannot take the modification marker =ay.

(87) Kavalan
    kin-tani(‘=ay) sunis ya p<m>ukun tu wasu
    HUM-how.man=REL child ABS <AV>hit OBL dog
    ‘How many children hit dogs?’

This suggests that the structure of a noun phrase preceded by tani ‘how many’ differs from the modification structure of ‘which’ and whose’ in (86). It is not derived via DP-
internal predicate inversion induced by a linker. In contrast to ‘whose’ and ‘which’, ‘how many’ does exhibit verbal properties, as discussed in Section 6.3.3.

In addition to the syntactic consideration, verbal ‘which’ and ‘whose’ in Kavalan and Amis are also ruled out on semantic grounds. As discussed above, *tanian/iciwa* ‘where’ must take the patient voice marker to be used as a verb and this is because the patient voice marker, as the lexical realization of $v_{\text{CAUSE}}$, can assign an agent/causer argument and the semantics of the $vP$-shell structure with $v_{\text{CAUSE}}$ followed by $v_{\text{BECOME}}$ is compatible with a question that inquires about the location of the theme argument in a ditransitive event, which is a typical and canonical type of ‘where’-questions. The interrogative words that denote ‘how many’, i.e., *tani* and *pina*, exhibit the same grammatical patterns when they are used as verbs. Due to the semantics of $v_{\text{CAUSE}}$ and $v_{\text{BECOME}}$, a question that is formed with verbal *tani* or *pina* receives a unique interpretation where the speaker suspects that the quantity of the affected theme argument might change.

The generalization is that a question with a PV-marked interrogative verb always implies a change of state of the theme argument with respect to the meaning of the interrogative word. In the case of *tanian/iciwa* ‘where’, the location of the theme argument changes because of some action performed by the agent. As for *tani/pina* ‘how many’, what might change is the quantity of the theme argument that will be affected by the action of the agent. This type of causal relation and change-of-state implicature is absent in a ‘which’-question or ‘whose’-question. Take (83a) as an example, ‘Which child does Imuy see?’'. The intended meaning of this question does not imply that the theme argument will undergo some change with respect to the meaning.
of ‘which’, e.g., from ‘this’ to ‘that’. The same reasoning also applies to a ‘whose’-question like (83b), ‘Whose money does Utay take?’. Its intended meaning does not concern change of possession, e.g., ‘the money became whose’. To summarize, the meaning of a ‘which’-question or a ‘whose’-question is incompatible with the syntactic representation of a PV-marked interrogative verb and its associated semantic interpretation. The reason why a ‘which’-question or a ‘whose’-question is not associated with the semantics of a PV-marked interrogative verb is elusive, but the empirical generalization remains intact.

6.5.2 ‘Who’

Based on our contention that all the interrogative verbs in Kavalan and Amis are derived in Syntax, their derivation must conform to established syntactic principles and constraints. Moreover, the derived verbal structure should be able to be mapped to a well-formed semantic structure. To put it in an informal way, the interpretation of the derived structure for an interrogative verb must be consistent with the available meaning of the question where the interrogative verb occurs. In what follows, we will show that the structure of a voice-marked interrogative does not yield an interpretation that corresponds to the inherent semantics of ‘who’.

Nicolae and Scontras (2010) argue that ‘who’ in Austronesian languages should be analyzed as the interrogative form of a proper noun of the type <e> that denotes individuals based on the following grammatical properties of ‘who’. Like a proper noun, ‘who’ is not able to occur in an existential construction, nor can it be incorporated into a verb. It is used in some languages to question names. It can take a proper noun determiner or a non-common-noun classifier. In what follows, we show that ‘who’ in Kavalan and Amis, i.e., tiana and cima, also behave like a personal proper noun.
The first diagnostic concerns whether ‘who’ can occur in an existential construction. The existential construction in Kavalan is introduced by the existential marker *yau* at the beginning of the sentence. The existential marker in Amis is *ira*, which also occurs in the clause-initial position. The pivot of the existential construction follows the existential marker. This is illustrated in (88a) and (89a).

(88) Kavalan

a. yau Riis (ta-lima-an-su)
   EXIST mosquito LOC-hand-LOC-2SG.GEN
   ‘There is a mosquito (on your hand).’

b. yau=iku tazian ayi tamaisuan
   EXIST=1SG.ABS here aunt 2SG.LOC
   ‘I am here at your place.’ (KavCon-Earthquake_abas_Haciang, NTU corpus)

c. yau ti-imuy matiw sa lazing
   EXIST NCM-PN AV.go to sea
   ‘Imuy has gone to the sea.’

(89) Amis

a. ira ku c’cay a wawa
   EXIST ABS one LNK child
   ‘There is a child.’

b. ira ci-panay i lumaq
   EXIST NCM-PN PREP house
   ‘Panay is at home.’

The same construction is also employed as a locative construction, as shown in (88b) and (89b). Moreover, the existential marker *yau* can also function as an aspect marker for perfective or experiential aspect when there is a verb phrase after the pivot (88c).

When the pivot of the sentence is a pronoun or a personal proper noun, the construction cannot function to introduce a new referent into the discourse. While (88a) and (89a) can serve as the first sentence in a narrative and introduces a new referent
as the background information for further recount, (90a) and (91a) cannot be used in this way and only has a listing function.

(90) Kavalan
a. yau ti-imuy
   EXIST NCM-PN
   ‘There is Imuy.’

b. yau ti-tiana
   EXIST NCM-who
   ‘Who is there?’

c. yau ti-tiana ta-lepaw-an-su
   EXIST NCM-who LOC-house-LOC-2SG.GEN
   ‘Who is at your place?’

d. yau ti-tiana matiw sa lazing
   EXIST NCM-who AV.go to sea
   ‘Who has gone to the sea?’

(91) Amis
a. ira ci-panay
   EXIST NCM-PN
   ‘There is Panay.’

b. ira cima
   EXIST who
   ‘Who is there?’

c. ira cima i lumaq
   EXIST who PREP house
   ‘Who is at home?’

For example, if I am asked who will attend a festival, the utterance of (90a) or (91a) is appropriate as the first of a list of people who I know will attend the festival. An existential sentence with a pronoun or personal proper name as the pivot can also be interpreted as a locative sentence, as already shown in (88b) and (89b), or the existential marker must be interpreted as an aspect marker (88c). The same restriction is observed in an existential construction with ti-tiana ‘who’ and cima ‘who’. (90b) and
(91b) must be interpreted as the interrogative counterpart of (90a) and (91a) in that it only has a listing function, performing an act of asking for the list of people. For example, if I know you are going to Taipei with some friends and I want to know who you are going with, I can ask you the question in (90b) or (91b). Like a personal proper noun, an existential sentence with ‘who’ as the pivot can also denote location (90c, 91c) or an experiential event (90d). Although Kavalan tiana and Amis cima can occur in the existential construction, their range of interpretations is parallel to an existential construction with a personal proper noun, not an indefinite noun. In other words, they behave like personal proper nouns in that the existential construction where they occur cannot receive a typical existential meaning, but must be interpreted in a different way, i.e., listing, location, or experiential aspect.

Secondly, both tiana and cima are used to question one’s name, as shown below.

(92) Kavalan
tiana nangan-su
who name-2SG_GEN
‗What is your name?’ (Lit. Who is your name?)

(93) Amis
cima ku ngangan nu ina isu
who ABS name GEN mother 2SG_GEN
‗What is your mother’s name?’ (Lit. Who is your mother’s name?)

Finally, tiana in Kavalan can take the non-common noun marker ti-, which is also attached to proper names, as already shown in (90a) and (90b). The non-common noun marker ci- in Amis is inherent in the interrogative word for ‘who’, cima.

These morphosyntactic properties of tiana and cima indicate that they should be analyzed as the interrogative form of a personal proper name. This further suggests that they are of the semantic type <e>, denoting individuals. Their inherent semantic type is
incompatible with the semantic type of a verb, which must be a function that can apply to an individual or another function. In other words, the merger of ‘who’ with $v$ would result in a structure whose semantic interpretation is inconsistent with the available meaning of a typical ‘who’-question like ‘Who did you hit?’, where ‘who’ still denotes individuals and the function of the question is to ask the addressee to pick out a particular individual. If ‘who’ is merged with the patient voice marker -an or -en in the two languages, the resultant interrogative verb should also be interpreted as a causative verb like what we have demonstrated for ‘where’ and ‘how many’. Owing to the $vP$-shell structure and interpretation associated with $v_{\text{CAUSE}}$ and $v_{\text{BECOME}}$, its meaning should denote ‘X (agent) does something and this causes Y (theme) to become who’, in which the theme argument undergoes a change of state with respect to the meaning of ‘who’. However, this does not correspond to the available meaning of a typical ‘who’-question like ‘Who did you hit?’, which can be paraphrased as ‘X did something to some person and that person is who?’. No change of state of the theme argument concerning the status or meaning of ‘who’ is involved in a typical ‘who’-question. This suggests that ‘who’ can never show up as a verb in Kavalan and Amis.

Note that ‘who’ in both Kavalan and Amis can still be employed as a non-verbal predicate. In this case, it is selected by a Predicate head, which functions to turn nouns and adjectives into a predicate (Baker 2003). However, it can never be selected by $v$, which is the real category-defining head for verbs and semantically selects for a function, i.e., those words that are semantic predicate inherently. The same reasoning can also account for the fact that ‘what’ in Kavalan and Amis can be used as a verb only
when it questions an action ‘do what’ or a state ‘what happens’, but not when it
questions an object.

However, two issues arise from this analysis that require a more comprehensive
investigation. The first is to determine the semantic type of the other interrogative roots
that can be combined with v. Is the semantic type of an interrogative root crucial or is it
the semantic type of the resultant interrogative word that is the crucial determinant? The
second issue concerns the reason why a ‘who’-question cannot be associated with the
semantics of a PV-marked interrogative verb. We have to leave these two issues for
future research.

6.6 Conclusion

The possibility or impossibility of using an interrogative word in Kavalan and Amis
as a verb is motivated by syntactic and semantic principles/constraints, either universal
or language-specific. There is no need to stipulate the syntactic categories of
interrogative words in the lexicon. Once the assumption that derivational morphology,
e.g., the Kavalan and Amis voice system, must operate in the lexicon is abandoned, the
syntactic behaviors of interrogative verbs find a uniform explanation in Syntax.
Interrogative words are not lexically specified for syntactic categories. Their syntactic
categories and the relevant grammatical patterns follow from the interaction of the
following factors: The inherent semantics of interrogative words, the available
interpretation of the question where they occur, the verbal structures of the voice
markers, and the syntactic principles and constraints that are crosslinguistically valid,
e.g., the Head Movement Constraint or the Transparence Condition.

Finally, the syntactic approach can be extended to non-interrogative words as well
and makes correct predictions about what interrogative words can and cannot be used
as verbs. It is thus able to depict the overall grammatical system of Kavalan and Amis and proves to be a promising way for future typological research. Interrogative verbs are not unconstrained lexical idiosyncrasies. Instead, their derivations are systematically conditioned in Syntax.
7.1 Introduction

The preceding chapter has expounded on the syntactic analysis of interrogative verbs in Kavalan and Amis and showed that the derivation of interrogative verbs is systematic and follows from independently required mechanisms of syntax and semantics. In discussing how interrogative verbs based on ‘how’, ‘where’, and ‘how many’ are derived in Syntax, we briefly alluded to the possibility of using them in a verb sequencing structure where they are followed by a lexical verb. The following two examples are for illustration.

(1) Kavalan
   tanian-an ni abas m-Rupu ya adam 'nay
   where-PV ERG PN AV-shut ABS bird that
   ‘Where does Abas shut the bird?’

(2) Amis
   na maan-en ni panay mi-padang kisu
   PST do.how-PV ERG PN AV-help 2SG.ABS
   ‘How did Panay help you?’

In Chapter 3, these verb sequencing sentences with both an interrogative verb and a lexical verb are termed the Interrogative Verb Sequencing Construction (IVSC) for descriptive purposes. The present chapter will scrutinize these verb sequencing sentences from a syntactic and theoretical perspective and explore their syntactic structure and derivation.

The present chapter will offer a detailed discussion on the grammatical properties of the Kavalan and Amis IVSC as the first step to explore their syntactic structure. The following issues concerning the IVSC will be addressed.

(3) Issues to be discussed
a. What are the grammatical properties of the IVSC?
b. What is the syntactic relationship between the interrogative verb and the lexical verb in the IVSC?
c. What syntactic structures or operations are involved in the derivation of the IVSC?

The issue (3a) will be discussed in Section 7.2. Empirical facts will be presented to show that the interrogative verb and the lexical verb in the IVSC in both Kavalan and Amis do not enjoy equal syntactic status. It will be argued that the two verbs are not coordinated and that the interrogative verb should be analyzed as the main verb of the construction. Having demonstrated that the IVSC contains a subordinate clause headed by the lexical verb, Section 7.3 will investigate what type of subordination characterizes the syntactic relationship between the interrogative verb and the lexical verb (3b). The findings reveal that IVSC sentences do not constitute a homogeneous class in terms of the syntactic relationship between the interrogative verb and the lexical verb. The lexical verb phrase in a ‘how’-IVSC is the complement of the interrogative verb ‘how’, whereas an IVSC headed by ‘where’ or ‘how many’ takes the lexical verb phrase as its adjunct. Section 7.4 explores other structural differences between the two types of IVSC in terms of the syntactic operations that derive the grammatical distributions of the NP arguments (3c). It is found that a ‘how’-IVSC involves NP raising, while a ‘where’- or ‘how many’-IVSC features obligatory control of the theme argument. Section 7.5 is the conclusion.

**7.2 Grammatical Properties of the Interrogative Verb Sequencing Construction**

The interrogative verbs in Kavalan that can occur in the IVSC include *naquni* ‘do how’, *tanian* ‘where’, *pasani* ‘to where’, *tani* ‘how many/much’, and *sikatani* ‘how many times’, as illustrated by the sentences in (4). The Amis interrogative verbs that inquire
about the same concepts, i.e., *maan* 'do how', *icuwa* 'where', *talacuwa* 'to where', *pina* 'how many', and *kinapina* 'how many times' can also occur in the IVSC. Please see the sentences in (5) for illustration. All these examples contain an interrogative verb that occupies the sentence-initial position and is followed by a lexical verb.

(4) Kavalan
a. naquni-an-su m-kala ya sunis a yau
do.how-PV-2SG.ERG AV-find ABS child LNK that
‘How do you find that child?’
b. tanian-an-su pizi ya kelisiw-ta
where(verb)-PV-2SG.ERG AV.put ABS money-1PL. GEN
‘Where do you put our money?’
c. pasani-an-su m-azas ya kelisiw-ta
to.where(verb)-PV-2SG.ERG AV-take ABS money-1PL. GEN
‘Where do you take our money?’
d. kin-tani-an-su=pa p<m>ukun ya sunis
HUM-how.many(verb)-PV-2SG.ERG=FUT <AV>beat ABS child
‘How many (more) children will you beat?’
e. sika-tani-an-su p<m>ukun ya sunis
times-how.many(verb)-PV-2SG.ERG <AV>beat ABS child
‘How many times do you beat the child?’

(5) Amis
a. maan-en ni panay (a) mi-padang ku-ya wawa
do.how-PV ERG PN LNK AV-help ABS-that child
‘How does Panay help that child?’
b. icuwa-en isu (a) mi-simed ku paysu
where(verb)-PV 2SG.ERG LNK AV-hide ABS money
‘Where do you hide the money?’
c. talacuwa-en ni panay (a) mi-kerir ku-ra wawa
to.where(verb)-PV ERG PN LNK AV-take ABS-that child
‘Where does Panay take that child?’
c. pina-en ni ofad (a) mi-ala ku paysu
how.many-PV ERG PN LNK AV-take ABS money
‘How much money does Ofad take?’
Section 7.2.1 will present empirical facts to show that the interrogative verb and the lexical verb in the IVSC are not coordinated. The IVSC exhibits structural and semantic properties of subordination instead of coordination. In section 7.2.2, it will be argued that the interrogative verb, not the lexical verb, must be analyzed as the main verb of the IVSC. Finally, section 7.2.3 briefly discusses the appropriateness of a Serial Verb Construction (SVC) analysis of verb sequencing constructions in Formosan languages, especially the Kavalan and Amis IVSC, and suggests that its indiscriminate application to Formosan languages fails to illuminate both the parallels and the disparities among different verb sequencing constructions of Formosan languages.

7.2.1 Coordination or Subordination

According to Tsai and Chang (2003), the interrogative word aïnenu ‘how’ in Tsou, which is also a Formosan language, is also syntactically realized as a verb. Moreover, this interrogative verb co-occurs with a lexical verb in a coordinate sentence. This is illustrated below.

(6) Tsou

m-i-ta m-ainenu ho m-i-ta eobak-o
AV-REA-3SG AV-how and AV-REA-3SG hit-AV
ta-Mo’o ’e-Pasuya
OBL-Mo’o NOM-Pasuya
‘How did Pasuya hit Mo’o?’ (Tsai and Chang 2003: 237)

As shown in (6), there is a coordinator, ho ‘and’, between the interrogative verb phrase and the lexical verb phrase. In other words, the interrogative verb and the lexical verb in a Tsou IVSC syntactically form a coordinate structure. This syntactic structure does not
reflect the semantic relationship of modification between the method interrogative word and the event that it modifies.

Tsai and Chang (2003), however, argue that there is in fact no syntax-semantics mismatch in sentences like (6) in Tsou if the neo-Davidsonian analysis of manner adverbial expressions is adopted (Parsons 1990). On this approach, a manner adverbial can be analyzed as a predicate of the event that it modifies. For example, ‘Pasuya hit Mo’o violently’ would have the following semantic representation (Tsai and Chang 2003: 224).

(7) The semantic representation of ‘Pasuya hit Mo’o violently’
\[ \exists e \, (hitting(e) \& \text{Agent}(e, \text{Pasuya}) \& \text{Theme}(e, \text{Mo’o}) \& \text{violent}(e)) \]

This semantic representation means that there is some event, this event is hitting, the agent of this event is Pasuya, the theme of this event is Mo’o, and this event is violent. That is, the so-called adverbial modification is semantically represented as a type of semantic conjunction. In a similar vein, the sentence in (6) can be represented syntactically and semantically in the following way (Tsai and Chang 2003: 224, 231).

(8) The syntactic and semantic representations of (6)

a. Syntax:
\[ \text{[ConjP [IP m-i-ta m-ainenu] [Conj' ho [IP m-i-ta eobak-o ta-Mo’o ‘e-Pasuya]]]} \]

b. Semantics:
\[ ?x \, \exists e \, (hitting(e) \& \text{Agent}(e, \text{Pasuya}) \& \text{Theme}(e, \text{Mo’o}) \& \text{Method}(e, x)) \]

In (8b), mainenu ‘how’ is analyzed as a predicate of an event and the method of achieving this event is inquired about, as represented by ?x at the beginning of this
representation. Moreover, this predicate about method is conjoined with other properties of the event in this semantic representation. There is thus no syntax-semantics discrepancy between syntactic conjunction and semantic modification. Instead, the semantic structure of conjunction is mapped directly onto the syntactic structure of conjunction (8a), where an interrogative phrase is coordinated with a verb phrase by the coordinator ho.

Given the empirical facts in Tsou and the neo-Davidsonian analysis of manner adverbial expressions, it is possible that the IVSC in Kavalan and Amis also involves the coordination of an interrogative verb and a lexical verb. However, the empirical facts in the two languages suggest otherwise. The structure of the Kavalan IVSC is distinct from covert coordination where two constituents are coordinated without an overt marker. The presence of an optional linker a in the Amis IVSC also indicates that this construction is not derived via coordination.

In Kavalan, two verbs or verb phrases can be conjoined with the optional coordinator sRi (P. Li 2009), as demonstrated in (9a).

(9) Kavalan
   a. m-RaRiw (sRi) mu-lti-liiq sunis 'nay AV-run and AV-RED-jump child that
      'That child ran and was jumping.' (P. Li 2009: 225)
   b. mu-Rtut (sRi) t<m>ibuq sunis 'nay AV-frightened and <AV>fall child that
      'The child was frightened and fell.'
   c. t<m>ibuq (sRi) mu-Rtut sunis 'nay <AV>fall and AV-frightened child that
      'The child fell and was frightened.'
   d. pukun-an-na (sRi) qaRat-an-na aiku beat-PV-3ERG and bite-PV-3ERG 1SG.ABS
      'He beat and bit me.'
A comparison between (9b) and (9c) shows that the coordinated verbs can undergo permutation. Reversing their word order does not lead to ungrammaticality, nor does this affect the truth conditional meaning of the sentence.

The Kavalan IVSC exhibits neither syntactic properties of a coordinate structure. The optional coordinator, \( sRi \), is not allowed in the Kavalan IVSC.

(10) Kavalan

a. *naquni-an-su \( sRi \) m-kala ya sunis a yau
do/how-PV-2SG.ERG and AV-find ABS child LNK that
‘How do you find that child?’

b. *tian-an-su \( sRi \) m-nubi ya kelisiw-ta
where-PV-2SG.ERG and AV-hide ABS money-1PL.GEN
‘Where do you hide our money?’

The insertion of the coordinator, \( sRi \), between the two verbs in the IVSC sentences in (10) renders them ungrammatical. Secondly, the interrogative verb and the lexical verb cannot undergo permutation. The interrogative verb occurs in the sentence-initial position and must precede the lexical verb. A sentence where the lexical verb precedes the interrogative verb is ungrammatical, e.g., (11).

(11) Kavalan

a. *m-kala naquni-an-su ya sunis a yau
AV-find do/how-PV-2SG.ERG ABS child LNK that
‘How do you find that child?’

b. *pizi tanian-an-su ya kelisiw-ta
AV.put where(verb)-PV-2SG.ERG ABS money-1PL.GEN
‘Where do you put our money?’

c. *p<\text{m}>ukun kin-tani-an-su ya sunis
<AV>beat HUM-how.many(verb)-PV-2SG.ERG ABS child
‘How many children do you beat?’

Unlike VP-coordination, the coordinating conjunction, \( sRi \), cannot intervene between the interrogative verb and the lexical verb in the IVSC and the linear order of the two verbs
cannot be reversed either. The two grammatical properties suggest that the Kavalan IVSC is not derived via coordination.

There is another difference between an IVSC and a coordinate structure. As shown in (9d), the second verb in a coordinate structure can take the patient voice marker. However, the lexical verb in an IVSC cannot be affixed with the patient voice marker. This will be illustrated and elaborated on in the following sub-section.

The coordination analysis is also incompatible with the grammatical properties of the Amis IVSC. One obvious difference between the Kavalan IVSC and the Amis IVSC is that an optional linker, a, can intervene between the interrogative verb and the lexical verb in the Amis IVSC, but not in Kavalan. Nevertheless, this optional linker in Amis does not mark VP-coordination. One of the functions of the linker, a, is to conjoin two noun phrases, as illustrated in (12).

(12) Amis
a. ma-hemek ci-ofad a ci-panay
   AV-happy NCM-PN LNK NCM-PN
   ‘Ofad and Panay are happy.’

b. ma-talaw kaku tu takula’a tu oner
   AV-afraid 1SG.ABS OBL frog LNK OBL snake
   ‘I am afraid of frogs and snakes.’

It can conjoin two nominal subjects (12a) or two nominal objects (12b). By contrast, it cannot appear in a VP or IP coordinate structure.

(13) Amis
a. mi-nanum (*a) k<um>a’en kaku
   AV-water LNK <AV>eat 1SG.ABS
   ‘I am drinking (water) and eating.’

b. mi-nanum ci-panay (*a) k<um>a’en ci-lekal
   AV-water NCM-PN LNK <AV>eat NCM-PN
   ‘Panay is drinking (water) and Lekal is eating.’
The two sentences in (13) where two VPs or IPs are conjoined become ungrammatical when the linker is present.

When a intervenes between two verb phrases, it functions to introduce a non-finite subordinate clause or a complement clause with future/irrealis tense specifications (Y. Chen 2008; E. Liu 2003). In (14a), a introduces a complement clause where the verb is marked irrealis through Ca-reduplication. It cannot introduce a complement clause with a past tense or perfective marker, as suggested by the ungrammaticality of (14b). Finally, control complements, whose TAM information is not specified, can be introduced by the linker a, as illustrated in (14c).

\[(14) \text{ Amis}\]
\begin{enumerate}
\item a. ma-fana’ kaku (a) [ta-tayal ci-panay]
   AV-know 1SG.ABS LNK IRR-work NCM-PN
   ‘I know that Panay will work.’
\item b. ma-fana’ ci-ofad (*a) [na mi-faca-ay=tu kaku
   AV-know NCM-PN LNK PST AV-wash=FAC=PFV 1SG.ABS
   tu rikor]
   OBL clothes
   ‘Ofad knows I have done the laundry.’
\item c. mi-lalang kaku ci-panay-an (a) [mi-palu ci-ofad-an]
   AV-dissuade 1SG.ABS NCM-PN-OBL LNK AV-hit NCM-PN-OBL
   ‘I dissuade Panay from hitting Ofad.’
\end{enumerate}

Therefore, the fact that a can intervene between the interrogative verb and the lexical verb in the Amis IVSC shows that their syntactic relationship is not coordination, but some form of subordination.\(^1\)

Moreover, like its Kavalan counterpart, the interrogative verb in the Amis IVSC must precede the lexical verb. If their linear order is reversed, the sentence becomes

---

\(^1\) E. Liu (2003) and Tsai (2007) argue that the functional diversity of the Amis linker a is a result of conjunctive reduction, a grammaticalization process shared by many Formosan languages through which a conjunction marker is grammaticalized as a modifier marker or a non-finite complementizer.
The strict linear order between the two verbs is illustrated below with an *icuwa*-IVSC.

(15) Amis
a. *icuwa-en isu (a) mi-simed ku paysu
   where(verb)-PV 2SG.ERG LNK AV-hide ABS money
   ‘Where do you hide the money?’

b. *mi-simed isu (a) icuwa-en ku paysu
   AV-hide 2SG.ERG LNK where(verb)-PV ABS money
   ‘Where do you hide the money?’

This is in stark contrast to VP-coordination, where the change in the linear order does not influence grammaticality.

The linear order pattern in the IVSC is reminiscent of other syntactic constructions involving subordination in both Kavalan and Amis. In a verb sequencing sentence with a main verb and a subordinate verb, the linear order of the two verbs is fixed in that the main verb must precede the secondary verb. For example, in a *try*-type control sentence like (16a) and (17a), the main verb, *paska* ‘try’ and *tanam* ‘try’, must precede its verbal complement, *qapaR* ‘catch’ and *adup* ‘hunt’. A reversal of their linear order results in ungrammaticality (16b, 17b). There is thus a parallelism between the IVSC and a verb sequencing structure that takes a subordinate verb in terms of word order. The strict linear order between the interrogative verb and the lexical verb in the IVSC suggests that this particular construction might feature subordination with the interrogative verb as the main verb. Section 7.2.2 below will provide more empirical evidence to corroborate this analysis.

(16) Kavalan
a. paska-an-ku k<~m>apaR ya saku
   try-PV-1SG.ERG <AV>catch ABS cat
   ‘I try to catch the cat.’
b. *k<rn>apaR paska-an-ku ya saku
   <AV>catch try-PV-1SG.ERG ABS cat
   ‘I try to catch the cat.’

(17) Amis
a. mi-tanam kaku mi-adup tu fafuy nu lutuk
   AV-try 1SG.ABS AV-hunt OBL pig GEN mountain
   ‘I try to hunt boars.’

b. *mi-adup kaku mi-tanam tu fafuy nu lutuk
   AV-hunt 1SG.ABS AV-try OBL pig GEN mountain
   ‘I try to hunt boars.’

7.2.2 The Interrogative Verb as the Main Verb of the IVSC

The preceding section has argued against the analysis of the IVSC as a coordinate structure and suggested that subordination might be the structural relationship between the interrogative verb and the lexical verb. This section will present empirical facts that support this subordination analysis. The evidence concerns the tense and aspect interpretation of the lexical verb, the case-marking pattern of the nominal arguments, and the grammatical restriction on the voice form of the lexical verb.

First of all, the tense and aspect interpretation of the lexical verb in the IVSC is dependent on the interrogative verb. The interrogative verb and the lexical verb must be interpreted with the same tense value. In (18a), both the interrogative verb and the lexical verb must receive a past tense interpretation. This is confirmed by the ungrammaticality or infelicity of (18b), in which the interrogative verb receives a past tense interpretation but a future tense interpretation is imposed on the lexical verb.

(18) Kavalan
a. nasiRab naquni-an-su=ti m-kala
   yesterday do.how-PV-2SG.ERG=PFV AV-find
   ya sunis a yau
   ABS child LNK that
   ‘How did you find that child yesterday?’
Moreover, tense, aspect, and mood (TAM) markers, if any, must be attached to the interrogative verb. The lexical verb cannot host its own TAM markers. Please see the following sentences for illustration.

\((19)\) Kavalan

\(b.\) *naqi
\(\text{n}-\text{an-su}=\text{ti}\) \(m-\text{kala}=\text{ti}\) \(y\)a \(\text{sunis}\) a \(\text{yau}\) temawaR
ABS child LNK that tomorrow
‘*Yesterday, how did you find that child tomorrow?’

The ungrammaticality of \((19a)\) suggests that the interrogative verb and the lexical verb in the IVSC cannot host separate aspect markers. The ungrammaticality of \((19b)\), in contrast to \((18a)\), further indicates that the lexical verb is not allowed to take TAM markers. The same phenomenon is also observed in Amis. The contrast between \((20a)\) and \((20b)\) suggests that the past tense marker must immediately precede the interrogative verb and that it cannot occur immediately before the lexical verb. The epistemic modal predicate, \textit{latek}, exhibits the same distribution, as shown in \((20c)\) and \((20d)\). The distributions of the TAM markers in the Kavalan and Amis IVSC indicate that the lexical verb is structurally subordinate to the interrogative verb and that the lexical verb must be non-finite. In structural terms, the subordinate clause in the IVSC headed by the lexical verb either lacks any projections associated with tense, aspect, and mood or contains a non-finite T or I.
(20) Amis
   a. na  icuwa-en  isu  (a)  mi-simed
       PST  where(verb)-PV  2SG.ERG  LNK  AV-hide
       ku  paysu  ABS  money
       ‘Where did you hide the money?’
   b. *icuwa-en  isu  (a)  na  ni  mi-simed
       where(verb)-PV  2SG.ERG  LNK  PST  AV-hide
       ku  paysu  ABS  money
       ‘Where did you hide the money?’
   c. latek  icuwa-en  ni  ofad  (a)  mi-simed
       maybe  where(verb)-PV  ERG  PN  LNK  AV-hide
       ku  paysu  ABS  money
       ‘Where might Ofad hide the money?’
   d. *icuwa-en  ni  ofad  (a)  latek  mi-simed
       where(verb)-PV  ERG  PN  LNK  maybe  AV-hide
       ku  paysu  ABS  money
       ‘Where might Ofad hide the money?’

The case-marking pattern of the nominal arguments in the IVSC further corroborates the subordination analysis. In a sentence with a control main verb and its verbal complement like (21a) and (22a), it is the voice marker on the main verb that determines the case of the nominal arguments.

(21) Kavalan
   a. paska-an-ku  k<>{m}apaR  ya  saku
       try-PV-1SG.ERG  <AV>catch  ABS  cat
       ‘I try to catch the cat.’
   b. *paska-an  k<>{m}apaR  aiku  tu  saku
       try-PV  <AV>catch  1SG.ABS  OBL  cat
       ‘I try to catch a cat.’

(22) Amis
   a. tanam-en  aku  mi-adup  ku  fafuy  nu  lutuk
       try-PV  1SG.ERG  AV-hunt  ABS  pig  GEN  mountain
       ‘I try to hunt boars.’
In both (21a) and (22a), the agent argument receives ergative case, while the theme argument takes the absolutive case marker. This conforms to the case-marking pattern of a patient voice sentence. When the agent argument is marked absolutive and the theme argument is marked oblique as in (21b) and (22b), the sentence becomes ungrammatical. Note that the theme arguments in (21a) and (22a), i.e., *saku* ‘the cat’ and *fafuy nu lutuk* ‘boar’, belong to the argument structure of the subordinate verbs, i.e., *kapaR* ‘catch’ and *adup* ‘hunt’, which take the agent voice marker. However, they still receive absolutive case in conformity with the case-marking pattern of a patient voice construction. This indicates that the agent voice marker on the subordinate verb is not able to determine how the nominal arguments are case-marked.

As for the IVSC, the case-marking pattern is contingent on the voice marker on the interrogative verb. Consider the following sentences.

(23) Kavalan
   a. tanian-an-su m-nubi ya kelisiw-ta
     where(verb)-PV 2SG.ERG AV-hide ABS money-1PL.GEN
     ‘Where do you hide our money?’

   b. *tanian-an m-nubi aisu tu kelisiw-ta
     where(verb)-PV AV-hide 2SG.ABS OBL money-1PL.GEN
     ‘Where do you hide our money?’

(24) Amis
   a. maan-en isu (a) mi-padang ku-ya wawa
     do.how-PV 2SG.ERG LNK AV-help ABS-that child
     ‘How does Panay help that child?’

   b. *maan-en (a) mi-padang kisu tu wawa
     do.how-PV LNK AV-help 2SG.ABS OBL child
     ‘How does Panay help children?’
(23a) and (24a) exhibit the case-marking pattern of a patient voice sentence in that the agent argument receives ergative case and the theme argument takes the absolutive case marker. If \textit{nubi} ‘hide’ in (23) and \textit{padang} ‘help’ in (24), which take the agent voice marker, were the main verb, the agent should receive absolutive case and the theme oblique case in accordance with the case-marking pattern of an agent voice construction. This case-marking pattern results in ungrammaticality, as demonstrated by (23b) and (24b). The ungrammaticality of (23b) and (24b) results from the mis-alignment between the theta-roles of the NPs and their case. The agent voice marker on the lexical verb in the IVSC does not determine how case is assigned to NPs, even though the NPs are the arguments of the lexical verb. The parallelism between a control sentence and the IVSC regarding their case-marking pattern thus lends further support to the analysis of the interrogative verb as the main verb.

The final piece of evidence for the subordination analysis of the IVSC concerns the restriction on what voice marker the lexical verb is allowed to take.

(25) Kavalan
a. *naquni-an-su \textit{pakala-an} ya sunis a yau
d.o.how-PV-2SG.ERG find-PV ABS child LNK that
‘How do you find that child?’

b. *tanian-an-su \textit{nubi-an} ya kelisiw-ta
where(verb)-PV-2SG.ERG hide-PV ABS money-1PL.GEN
‘Where do you hide our money?’

c. *u-tani-an-su \textit{ala-an} ya kelisiw
NHUM-how.many(verb)-PV-2SG.ERG take-PV ABS money
‘How much money do you take?’

(26) Amis
a. *maan-en ni panay (a) \textit{padang-en} ku-ya wawa
do.how-PV ERG PN LNK help-PV ABS-that child
‘How does Panay help that child?’
b. *icuwa-en isu (a) simed-en ku paysu
   where(verb)-PV 2SG.ERG LNK hide-PV ABS money
   ‘Where do you hide the money?’

c. *pina-en ni ofad (a) takaw-en ku paysu
   how.many(verb)-PV ERG PN LNK steal-PV ABS money
   ‘How much money does Ofad steal?’

The lexical verb in the IVSC can only take the agent voice marker, but not the patient
voice marker, as illustrated by the ungrammatical sentences in (25) and (26) where the
lexical verbs are suffixed with the patient voice marker. Note that in a coordinate
structure, the second verb can take the patient voice marker, as already illustrated in
(9d). The only difference between (25) and (26) on the one hand and the grammatical
IVSC sentences on the other hand lies in the voice marker on the lexical verb. There is
an AV-restriction on the lexical verb of the IVSC. Note that the lexical verbs in (25) and
(26) can be suffixed with the patient voice marker when they are used as the only verb
in a sentence, as illustrated in (27) and (28).

(27) Kavalan
   a. pakala-an-su=ti ya sunis a yau
      find-PV-2SG.ERG=PFV ABS child LNK that
      ‘You have found that child.’
   b. ala-an-su=ti ya kelisiw
      take-PV-2SG.ERG=PFV ABS money
      ‘You took the money.’

(28) Amis
   a. padang-en=tu ni panay ku-ya wawa
      help-PV=PFV ERG PN ABS-that child
      ‘Panay helped that child.’
   b. takaw-en=tu ni ofad ku paysu
      steal-PV=PFV ERG PN ABS money
      ‘Ofad stole the money.’
The AV-restriction on the lexical verb of the IVSC thus indicates that the lexical verb in such sentences is defective and does not act like a full-fledged main verb.

This pattern is reminiscent of other verb sequencing constructions in Kavalan, Amis, and other Formosan languages, the V2 of which is restricted to the agent voice (Y.-L. Chang 2006, 2010; Y. Chen 2008; L. Huang 1997; E. Liu 2003; Wu 2000, 2006). The contrast between (a) and (b) in the following three pairs of sentences indicates that the secondary verb in a verb sequencing construction, e.g., a control sentence, can only be affixed with the agent voice marker and is not allowed to take the patient voice marker.

(29) Kavalan
   a. siangatu=pa=iku \text{\textless}m\textgreater enun
      begin=FUT=1SG.ABS \text{\textless}AV\textgreater weave
      \textit{‘I will start to weave.’}
   b. *siangatu=pa=iku tenun-an
      begin=FUT=1SG.ABS weave-PV
      \textit{‘I will start to weave.’}

(30) Kavalan
   a. paska-an-ku g\textless m\textgreater apaR ya saku
      try-PV=1SG.ERG \text{\textless AV\textgreater}catch ABS cat
      \textit{‘I try to catch the cat.’}
   b. *paska-an-ku gapaR-an ya saku
      try-PV=1SG.ERG catch-PV ABS cat
      \textit{‘I try to catch the cat.’}

(31) Amis
   a. ma-tanam=tu ni ofad (a) mi-padang ku wawa
      PV-try=PFV ERG PN LNK AV-help ABS child
      \textit{‘Ofad tries to help the child.’}
   b. *ma-tanam=tu ni ofad (a) padang-en ku wawa
      PV-try=PFV ERG PN LNK help-PV ABS child
      \textit{‘Ofad tries to help the child.’}
The second verbs in these sentences occur in a subordinate clause and cannot take the patient voice marker, as suggested by the ungrammaticality of (29b), (30b), and (31b). The AV-restriction is an indication of a non-finite reduced subordinate clause. The fact that the lexical verb in the IVSC also obeys the AV-restriction thus constitutes a strong piece of evidence for the subordination analysis of the lexical verb.

To summarize, the following grammatical properties of the IVSC all point to the conclusion that the interrogative verb in this construction should be analyzed as the main verb, whereas the lexical verb is non-finite and structurally subordinate to the interrogative verb.

(32) Grammatical properties of the IVSC
a. The optional coordinator, sRi, is not allowed to intervene between the interrogative verb and the lexical verb in the Kavalan IVSC. There is an optional linker, a, which introduces an irrealis subordinate clause, between the interrogative verb and the lexical verb in the Amis IVSC.

b. The word order of the interrogative verb and the lexical verb cannot be reversed. The interrogative verb must precede the lexical verb.

c. The TAM interpretation of the lexical verb is dependent on the interrogative verb. TAM markers, if any, must be attached to the interrogative verb.

d. The case-marking pattern of the nominal arguments is determined by the voice marker on the interrogative verb.

e. The lexical verb observes the AV-restriction.

These empirical facts of the IVSC are incompatible with the coordination analysis, but can be easily explained by the subordination analysis.

The grammatical properties listed in (32), especially (32d) and (32e), further reveal that the agent voice marker on the lexical verb is distinct in nature from the agent voice marker affixed to verbs in a simple clause or a matrix clause. As already discussed in Chapter 6, each form of the Amis agent voice marker in a simple clause or a matrix
clause is associated with its unique theta-features or semantic features, e.g., BECOME and CAUSE, and is able to control the alignment between case and arguments. The agent voice marker on the lexical verb in the IVSC is devoid of such features and thus should not be identified with the agent voice marker in a simple or matrix clause. Instead, it should be construed as the default marker for \( v \) that does not possess any theta-features or semantic features and occurs in a non-finite clause that lacks projections of tense, aspect, and mood. On the assumption that voice markers are the phonological realizations of \( v \), as discussed in Chapter 6, the AV-restriction can be ascribed to this elsewhere insertion rule that regulates the relationship between the verb-defining head, or the little \( v \), and voice markers.

The properties listed in (32c) and (32e) suggest that the lexical verb phrase in the IVSC is non-finite and cannot contain any specific TAM morphology. In Kavalan, the lexical verb phrase is not introduced by any overt marker. We thus assume that it only projects up to vP, which is headed by the default agent voice marker in a non-finite clause. Its temporal or aspectual dependence on the matrix clause and the absence of any TAM markers arise from the absence of the T- or Asp-domain in its syntactic representation. As for the Amis IVSC, it is also non-finite, but it can be introduced by the linker \( a \). As already pointed out in the preceding discussion, when \( a \) intervenes between two verb phrases, it functions to introduce a non-finite subordinate clause or a complement clause with irrealis tense specifications (Y. Chen 2008; E. Liu 2003). We assume Y. Chen’s (2008) analysis that the linker \( a \) is a defective Mod-Asp head that introduces a subordinate clause whose TAM information is dependent on the matrix.
clause. In other words, the lexical verb phrase in the Amis IVSC is a Mod-Asp phrase headed by a, which marks a clause as non-finite.

### 7.2.3 Serial Verb Constructions in Formosan Languages

Some Formosan linguists contend that sentences with a sequence of verbs expressing a variety of meanings, e.g., motion, phase, modal, manner, frequency, and instrument, in Formosan languages all fall under the rubric of a Serial Verb Construction (SVC), which can be informally defined as a syntactic construction where two or more verbs are concatenated with no intervening linking element (L. Huang 1997; Wu 1995). This indiscriminate approach, which views all verb sequencing constructions in Formosan languages as an SVC, has been challenged by studies that focus on specific types of verb sequencing constructions, e.g., Y.-L. Chang (2010) on adverbial verb constructions in Kavalan and Y. Chen (2008) on control constructions in Amis.

A cursory observation on the Kavalan sentences in the preceding two sections shows that their syntactic and semantic features overlap the following crosslinguistic properties of an SVC (Baker 1989; Collins 1997; Crowley 2002; Lefebvre 1991; Muysken and Veenstra 2006; Sebba 1987).

(33) Crosslinguistic Properties of SVCs
a. The two verbs in an SVC are not separated by any overt linker, coordinator, or subordinator.

b. The two verbs in an SVC are interpreted with the same tense value.

c. Each individual verb in an SVC can be used alone as a main verb in its own right.

d. The structural relationship between the two verbs or verb phrases in an SVC is subordination instead of coordination.

e. The two verbs in an SVC must share an argument.
Section 7.2.1 has shown that the two verbs in a Kavalan IVSC cannot be conjoined by an overt coordinator. In fact, none of the markers that connect phrases or clauses in Kavalan can intervene between the interrogative verb and the lexical verb in an IVSC. For example, the following sentences are ungrammatical if the interrogative verb and the lexical verb are separated by a linker, coordinator, or complementizer.

(34) Kavalan  
a. naquni-an-su (*a/sRi/tu) m-kala ya sunis 'nay  
do.how-PV-2SG.ERG LNK/and/COMP AV-find ABS child that  
‗How do you find that child?‘

b. tanian-an-su (*a/sRi/tu) m-nubi  
where-PV-2SG.ERG LNK/and/COMP AV-hide  
yā kelisiw-ta  
ABS money-1 IPL.GEN  
‗Where do you hide our money?‘

Section 7.2.1 and section 7.2.2 have also demonstrated that the interrogative verb and the lexical verb in the Kavalan IVSC must be interpreted with the same tense value and that their structural relationship is subordination instead of coordination. These two characteristics of the Kavalan IVSC correspond to the properties of an SVC in (33b) and (33d) respectively. Moreover, in the Kavalan IVSC, not only can the lexical verb function as an independent main verb in a simple sentence, the interrogative verb can also show up alone without the lexical verb. Examples showing interrogative verbs used as an independent main verb with no lexical verb have been presented in Chapter 3 and a syntactic analysis for how they are derived has been proposed in Chapter 6. Some examples that are relevant to the IVSC are repeated below.

(35) Kavalan  
a. naquni-a-kita  
do.how-NAV-1 IPL.ERG  
‗How should we handle (it)?‘
These examples demonstrate that the interrogative verb in the Kavalan IVSC behaves like a lexical verb, which is able to occur as the only verb in a sentence and takes noun phrases as its argument. Therefore, both verbs in the Kavalan IVSC are lexical in nature and meet the requirement in (33c).

Finally, according to (33e), the two verbs in an SVC share at least one argument. Argument sharing can also be observed in the Kavalan IVSC. Consider again the relevant examples, which are repeated below.

(36) Kavalan

a. naquni-an-su m-kala ya sunis a yau
do.how-PV-2SG.ERG AV-find ABS child LNK that
‘How do you find that child?’

b. tanian-an-su pizi ya kelisiw-ta
where(verb)-PV-2SG.ERG AV.put ABS money-1IPL.GEN
‘Where do you put our money?’

c. kin-tani-an-su=pa p<~m>ukun ya sunis
HUM-how.many(verb)-PV-2SG.ERG=FUT <AV>beat ABS child
‘How many (more) children will you beat?’

In (36a), the interrogative verb naquni ‘do how’ has an agent argument, su ‘2SG.ERG’, which is also interpreted as the agent of the embedded lexical verb. The interrogative verbs in (36b) and (36c) share a theme argument with the lexical verbs. The interrogative scope of tanian ‘where’ in (36b) only covers the theme argument, kelisiw-ta ‘our money’, as the intended meaning of the question concerns the location of this theme argument. This theme argument is also interpreted as the theme argument of the
lexical ditransitive verb, *pizi* ‘put’. Likewise, the absolutive noun phrase in (36c), *sunis* ‘child’, is the theme argument of both *tani* ‘how many’ and *pukun* ‘beat’. The shared arguments in (36) are all expressed only once. Repeating the shared arguments in the subordinate lexical clauses in these examples will result in ungrammaticality.

To summarize, the crosslinguistic properties of an SVC listed in (33) are also characteristic of the Kavalan IVSC and thus it seems to qualify as a type of SVC. That is, the IVSC in Kavalan can be construed as a special type of SVC with an interrogative verb as the main verb.

Although Amis and Kavalan IVSCs are characterized by almost the same grammatical and semantic properties, the classification of the Amis IVSC as an SVC is untenable. There is a critical difference between the Amis IVSC and the Kavalan IVSC. While the insertion of a linker, coordinator, or subordinator between the interrogative verb and the lexical verb in the Kavalan IVSC leads to ungrammaticality, the linker, *a*, can optionally intervene between the interrogative verb and the lexical verb in the Amis IVSC, as illustrated in (5). The presence of the optional linker in the Amis IVSC indicates that the Amis IVSC should not be analyzed as an SVC, where no linker, coordinator, or subordinator is allowed.

However, the conclusion that the Amis IVSC and the Kavalan IVSC should be identified as two distinct verb sequencing constructions is suspicious. As summarized in (32), they exhibit the same grammatical and semantic features except for the optional linker in Amis. As will be argued in Section 7.3 and Section 7.4 below, they also involve the same syntactic derivations and operations. In other words, all that distinguishes the Kavalan IVSC and the Amis IVSC is the optional presence of a linker in Amis, which
happens to be a crucial criterion to identify whether a construction is an SVC or not. The
classification based on this single criterion does not reveal any critical difference
between the Kavalan IVSC and the Amis IVSC in terms of structure or meaning.
Regardless of the possibility of a linker, the lexical verb of the IVSC in both languages is
subordinate to the main interrogative verb, is non-finite, and must obey the AV-
restriction.

Teng (2007) also makes a similar comment on SVCs in Puyuma and Paiwan, both
of which are Formosan languages. She adopts the criterion of no linker to identify
SVCs. However, she notes that SVCs in Paiwan exhibit similar structural and functional
properties as SVCs in Puyuma, except that SVCs in Paiwan have a linker a. She thus
does not want to identify Paiwan SVCs as a distinct structure from Puyuma SVCs. The
confusion in the identification of SVCs that results from the presence of a linker casts
doubt on the utility of the term SVC when applied to Formosan languages. Likewise,
SVC is not an ideal term to describe the structure of the Kavalan and Amis IVSC and
thus its indiscriminate application to other verb sequencing structures in Formosan
languages needs a thorough overhaul. However, this is beyond the scope of the present
study as it requires comprehensive and in-depth structural analyses on each type of
verb sequencing constructions.

7.3 The Syntactic Relationship Between the Two Verbs in the IVSC

Having established that the IVSC contains a subordinate lexical verb phrase, we
will further investigate what type of subordination characterizes the syntactic
relationship between the interrogative verb and the lexical verb. Three non-coordinate
structures of verb sequencing will be examined in the context of the IVSC: double-
headed VP structure (Baker 1989), complementation, and adjunction. Complementation
and adjunction are typical and fundamental subordinate structures. Baker’s (1989) double-headed structure is proposed specifically for an SVC structure, but Hiraiwa and Bodomo’s (2008) reformulation of this structure as Parallel Merge within the Minimalist Program makes it possible to extend this analysis to the derivation of a surface subordinate structure. We thus still take this analysis into consideration in addition to complementation and adjunction.

It will be argued that IVSC sentences can be classified into two types with respect to the structural relationship between the interrogative verb and the lexical verb. While an IVSC headed by ‘do how’ involves complementation of the lexical verb to the interrogative verb, the lexical verb in an IVSC headed by ‘where’ or ‘how many’ should be analyzed as an adjunct to the interrogative verb.

### 7.3.1 Double-Headed VP Structure

Based on SVCs in Yoruba and Sranan, Baker (1989) argues that the VP in an SVC is projected from two verbal heads, which share an object. This double-headed VP can be schematically represented by the structure in (37).

(37) Double-headed VP (Baker 1989)

\[ \text{VP} \]
\[ V_1 \quad \text{OBJ} \quad V_2' \]
\[ \quad V_2 \]

The VP structure in an SVC is thus different from other phrasal projections, which only allow one head. According to Baker (1989), the first verb in (37) can directly Θ-mark the object NP, while the second verb indirectly assigns a Θ-role to the same NP. These two types of Θ-marking can be characterized as (38).
(38) \( \alpha \) may \( \Theta \)-mark \( \beta \) only if
a. \( \alpha \) and \( \beta \) are structural sisters, or
b. a projection of \( \alpha \) is a structural sister of \( \beta \). (Baker 1989: 520)

To prevent the structure in (37) from violating \( \Theta \)-Criterion, Baker (1989) assumes that an argument can be assigned more than one \( \Theta \)-role as long as it receives all the \( \Theta \)-roles in the same structural position. This version of \( \Theta \)-Criterion is satisfied in (37) because the object NP receives its \( \Theta \)-roles from \( V_1 \) and \( V_2 \) simultaneously in the same VP.

Hiraiwa and Bodomo (2008) contend that under Minimalism conception, Baker's double-headed analysis of SVC can be conceived of as a kind of Parallel Merge in the sense of Citko (2005). According to Citko (2005), Parallel Merge has properties of both External Merge and Internal Merge in that when an element \( \alpha \) is merged with a distinct element \( \beta \) via External Merge, an existing subpart \( \gamma \) of \( \alpha \) is also merged with \( \beta \) via Internal Merge, as shown in (39).

(39) Parallel Merge (Citko 2005)

\[
\begin{array}{c}
\alpha \\
\beta \\
\gamma
\end{array}
\]

Hiraiwa and Bodomo (2008) argue that the VP in an SVC is derived via Parallel Merge of the two verbs and their shared argument. On this account, an SVC is assigned the structural representation in (40). This structure exhibits Parallel Merge in that the NP object of \( V_1 \) is merged with \( V_2 \) via Internal Merge while \( V_1 \) and \( V_2 \) are merged via External Merge at the same time. The analysis of object sharing as symmetric sharing...
in (40) provides a straightforward account for the empirical observations about SVCs in Dàgáárè in (41).

(40) Parallel Merge of SVC (Hiraiwa and Bodomo 2008)

(41) SVCs in Dàgáárè

In Dàgáárè, not only V₁ and the object can form a syntactic constituent excluding V₂, but also V₂ and the object can form a syntactic constituent excluding V₁. (Hiraiwa and Bodomo 2008: 819)

However, given Kayne’s (1994) Linear Correspondence Axiom (LCA), the structure in (39) or (40) is not linearizable. Hiraiwa and Bodomo (2008) thus propose the following additional condition on Parallel Merge.

(42) Parallel Merge and Linearization

Parallel Merge (or Ternary Branching) is allowed in narrow syntax as long as the structure is made linearizable before Spell-Out. (Hiraiwa and Bodomo 2008: 823)

As far as (40) is concerned, the shared object NP and one of the two verbs must move before Spell-Out to break the symmetry of this structure and make it linearizable. Therefore, the object NP undergoes object shift to the specifier of AspP₁+₂ and one of the two verbs need to move to v. These movement operations transform (40) to an antisymmetric structure like (43) and result in a seeming subordinate structure on the surface.
It should be noted that the double-headed VP structure and Parallel Merge are proposed to account for object-sharing SVCs only. They do not apply to subject-sharing SVCs. It is thus impossible for the two structures to characterize an IVSC that is headed by ‘do how’, which shares an agent argument with the lexical verb. Nonetheless, it is still possible that an IVSC headed by ‘where’ or ‘how many’ might be derived via Parallel Merge as the two verbs in this type of IVSC share the theme argument and the subordinate structure might result from the need for linearization. The following discussion is thus pertinent to ‘where’- or ‘how many’-IVSC only.

However, there is an empirical problem of Parallel Merge when it applies to the Kavalan and Amis IVSC. The symmetric structure of the two verb phrases in (40) predicts that $V_1$ and $V_2$ are equidistant from $\nu$ and that either $V_1$ or $V_2$ can move to $\nu$ so as to break the symmetry for linearization. This prediction is not borne out in Kavalan

---

2 For Baker (1989), object-sharing is one of the defining properties of an SVC.
and Amis due to the fixed word order between the interrogative verb and the lexical verb. In addition to the word order fact, the symmetric structure is also unable to accommodate other empirical facts of the IVSC. Given the symmetric structure, either the interrogative verb or the lexical verb in the IVSC should be able to move out of the phrase formed by Parallel Merge for linearization purposes. This entails that either verb can move to the inflectional domain to host tense or aspect markers. Moreover, either verb can surface as the main verb of the sentence and determines the case-marking pattern of the nominal arguments. This further implies that there should be no constraint on what voice markers the lexical verb is allowed to take. All of these predictions contradict the empirical facts of the IVSC.

Hiraiwa and Bodomo (2008) notice a similar problem of their analysis for SVCs in Dàgáárè concerning the word order of the two verbs. As shown by the contrast between (44a) and (44b), the linear order of the two verbs in a Dàgáárè SVC is fixed.

\[(44)\] Dàgáárè
\[\text{a. } \text{ò dà sè lá nénè òò} \]
\[\begin{array}{llll}
3SG & PST & roast & FOC \\
\end{array}
\text{meat eat}
\]
\[\begin{array}{llll}
\text{'He roasted meat (and) ate it.'}
\end{array}
\]
\[\text{b. *ò dà òò lá nénè sè} \]
\[\begin{array}{llll}
3SG & PST & eat & FOC \\
\end{array}
\text{meat roast}
\]
\[\begin{array}{llll}
\text{'He ate meat (and) roasted it.'}
\end{array}
\]

In order to rule out ungrammatical sentences like (44b) where \(V_2\) moves to \(v\) and thus precedes \(V_1\), Hiraiwa and Bodomo (2008) adopt the Temporal Iconicity Condition in (45) proposed by Y. Li (1993). They assume that the Temporal Iconicity Condition operates at LF and that the verbal constituent denoting a temporally preceding subevent must asymmetrically c-command the other verbal constituent. In narrow syntax, owing to the parallel structure of the two verb phrases, either verb can move to \(v\) without violating
Minimality. The Temporal Iconicity Condition will rule out sentences like (44b) at LF. To derive (44b), $V_2$ ‘eat’, instead of $V_1$ ‘roast’, has to move to $v$. This is allowed in narrow syntax. However, when the final structure is sent to LF, $V_2$ ‘eat’, which denotes a subevent that temporally follows the subevent denoted by $V_1$ ‘roast’, asymmetrically c-commands $V_1$ ‘roast’. This incurs a violation of the Temporal Iconicity Condition and hence the derivation for (44b) crashes at LF.

(45) Temporal Iconicity Condition

Let A and B be two subevents (activities, states, changes of states, etc.) and let A’ and B’ be two verbal constituents denoting A and B, respectively; then the temporal relation between A and B must be directly reflected in the surface linear order of A’ and B’ unless A’ is an argument of B’ or vice versa. (Y. Li 1993: 499)

Although the Temporal Iconicity Condition can successfully block the derivation of ungrammatical SVCs in Dàgáárè, it makes a wrong prediction about the linear order of the interrogative verb and the lexical verb in the IVSC. Consider the following two sentences from Kavalan.

(46) Kavalan

a. tanian-an-su pizi ya kelisiw-ta
   where(verb)-PV-2SG.ERG AV.put ABS money-1IPL.GEN
   ‘Where do you put our money?’

b. kin-tani-an-su ukun ya sunis
   HUM-how.many(verb)-PV-2SG.ERG <AV>beat ABS child
   ‘How many children do you beat?’

Supposing these two sentences are derived via Parallel Merge, they should exhibit the parallel verbal structure in (47) before verb movement and object movement. (For expository purposes, $\sqrt{\;}$ is replaced by V in the tree.) Since both verbs enjoy parallel syntactic status, either of them is allowed to move to $v$ without leading to any violations of Minimality. The Temporal Iconicity Condition will determine which derivation converges or crashes at LF.
In Chapter 6, we have shown that when *tani* or *tani* is used as a verb, its syntactic structure and the corresponding semantic interpretation involve two operators: CAUSE and BECOME. In other words, the event denoted by an IVSC can be decomposed into two subevents. The first subevent denotes an action performed by an agent and this leads to the second subevent regarding the change of state of a theme. For example, in (46a), the first subevent is the action denoted by ‘put’ and the second subevent concerns the location of the theme, which is the result of the first subevent. In other words, (46a) can be paraphrased as ‘you put the money and cause it to be where?’.

The Temporal Iconicity Condition predicts that only the derivation where the lexical verb moves to ν can converge at LF because the subevent denoted by the lexical verb temporally precedes the subevent denoted by the interrogative verb. The ungrammaticality of the following sentences shows that this prediction is wrong.

(48) Kavalan
a. *pizi tani-an-su ya kelisiw-ta
   AV.put where(verb)-PV-2SG.ERG ABS money-1PL.GEN
   ‘Where do you put our money?’

b. *p<m>ukun kin-tani-an-su ya sunis
   <AV>beat HUM-how.many(verb)-PV-2SG.ERG ABS child
   ‘How many children do you beat?’
Instead, it is the interrogative verb that must occur in the sentence-initial position and precede the lexical verb.

In conclusion, the analysis of Parallel Merge fails to account for the linear order asymmetry between the interrogative verb and the lexical verb in the IVSC. The Temporal Iconicity Condition is unable to rescue the analysis as it predicts the opposite linear order.

7.3.2 Complementation or Adjunction

The discussion so far has revealed that the IVSC structure is not derived via coordination or Parallel Merge of an interrogative verb and a lexical verb. Having excluded the possibilities of coordination and Parallel Merge, we investigate whether the IVSC involves complementation or adjunction in this sub-section. Our findings suggest that an IVSC headed by ‘do how’ is derived via complementation of a lexical verb phrase to the interrogative verb, whereas the syntactic relationship between ‘where’ or ‘how many/much’ and its following lexical verb is adjunction.

Despite its importance in syntactic theories concerning structural representations, the distinction between a complement and an adjunct has been a thorny issue in linguistics. One of the reasons is that there are no absolutely reliable diagnostic criteria for the distinction. There are many cases where an adjunct has the same surface morphosyntactic form as a complement. For example, depending on the matrix verb, an infinitive, e.g., to impress Sally, might be analyzed as an adjunct as in Mark did this to impress Sally or as a complement as in Mark wanted to impress Sally. This means that the surface morphosyntactic form of a constituent does not necessarily constitute a reliable piece of evidence for its complement or adjunct status. Likewise, although the lexical verbs in IVSCs headed by different interrogative verbs all have to observe the
AV-restriction, this constraint does not entail that they all enjoy the same syntactic status. We need other independent criteria to help us determine whether the lexical verb in the IVSC is a complement or an adjunct.

The following two lists summarize the properties of complements and adjuncts respectively on the basis of Bierwisch’s (2003) and Dowty’s (2003) discussion. The properties mainly consist in the syntactic and semantic relationship between a head and its complement/adjunct. They will serve as the diagnostics for the distinction between complementation and adjunction in the following discussion.

(49) Properties of a complement Y in relation to its head X:
   a. A head X without its complement Y is not well-formed or X is different from [XY] in terms of category or meaning.
   b. Without Y, the meaning of X is incomplete or incoherent or Y can still be inferred from the linguistic or situational context.
   c. Semantically, Y saturates an argument position of X. In other words, X discharges an argument position to Y.

(50) Properties of an adjunct Y in relation to its head X:
   a. A head X without its adjunct Y is well-formed and X is the same as [XY] in terms of category or meaning.
   b. Y merely restricts the meaning or denotation of X.
   c. Semantically, Y discharges an argument position to X or a projection of X without determining the morphosyntactic properties of [XY].

(49a), (49b), (50a), and (50b) basically capture our informal intuition about complements and adjuncts. That is, a complement can be obligatory, but an adjunct is always optional. This is motivated by the semantic aspects of a complement and an adjunct in that a complement functions to complete the meaning of its head, whereas an adjunct serves to modify the meaning of its head.
The criteria in (49c) and (50c) deserve separate discussion. (49c) states that a head discharges an argument position to its complement in terms of their semantic functions. Couched in traditional syntactic terms, a head assigns a Θ-role to its complement or the complement receives a Θ-role from the head. This information is formally encoded in the subcategorization frame or Θ-grid of a head. However, within our syntactic framework, there is still no established way to formalize the condition in (50c) regarding the relationship between a head and its adjunct. (50c) is mainly motivated by the semantic analysis of adjuncts. The Neo-Davidsonian analysis of adverbial modifiers advocated by Parsons (1990) treats adverbial modifiers as predicates of underlying events. An adjunct such as an adverbial modifier is viewed as a type of semantic predicate that also has argument positions to discharge. For example, the adverb *slowly* in *John runs slowly* takes the verb phrase as its argument and is thus a semantic function of the type $<<e,t> <e,t>>$. While a head discharges an argument position to its complement, it saturates an argument position of its adjunct in terms of their semantic types. This dual status of a head is schematically represented by the tree diagram in (51) from Bierwisch (2003).

(51) Complementation and adjunction

![Tree diagram](image-url)
The arrows in the tree stand for the discharge of an argument position. The head X in (51) discharges an argument position to YP, its complement; ZP, an adjunct of X, discharges an argument position to its head X or the projection of this head X'. Although both a head and an adjunct can discharge an argument position, an adjunct does not determine the morphosyntactic properties and category of the resultant phrase.

Let us illustrate (49c) and (50c) with the English example, *read the book slowly*. The verb *read* is of the semantic type, <e, <e,t>>. The DP *the book* is a definite noun phrase of the semantic type <e>. For ease of exposition, we ignore the internal semantic structure of the DP. As for the adverb *slowly*, its semantic type is <<e,t>,<e,t>>. (52) is the semantic type structure of the English VP *read the book slowly*.

(52) The semantic type structure of *read the book slowly*

In this semantic type structure, V is an unsaturated function <e,<e,t>>, which maps individuals <e> to another function <e,t>. DP_{<e>} is of the correct semantic type that can saturate an argument position of V_{<e,<e,t>>}. What projects after the merger of V and DP is V. This illustrates the relationship between a head and its complement. V discharges an
argument position to DP and determines the morphosyntactic category of the resultant phrase. The result is $V'_{<e,t>}$ Both $V'$ and AdvP are functions. The semantic type of $V'_{<e,t>}$ is in the domain of AdvP$_{<<e,t>,<e,t>>}$, so it is $V'$ that saturates an argument position of AdvP. However, AdvP does not determine the morphosyntactic category of the resultant phrase. Their relationship is adjunction: The adjunct AdvP discharges an argument position to $V'$ without projecting.

7.3.2.1 ‘How’-IVSC

With the diagnostics listed in (49) and (50), we can now probe into the syntactic relationship between the interrogative verb and the lexical verb in the IVSC. Consider ‘do how’-IVSC first.

(53) Kavalan
naquni-an-su m-kala ya sunis a yau
do.how-PV-2SG.ERG AV-find ABS child LNK that
‘How do you find that child?’

(54) Amis
maan-en ni panay (a) mi-padang ku-ya wawa
do.how-PV ERG PN LNK AV-help ABS-that child
‘How does Panay help that child?’

First of all, the lexical verb in the IVSC headed by ‘do how’ is obligatory. The deletion of the lexical verb would result in a sentence that has a different interpretation.

(55) Kavalan
naquni-an-su ya sunis a yau
do.what-PV-2SG.ERG ABS child LNK that
‘What do you do to that child?’

(56) Amis
maan-en ni panay ku-ya wawa
do.how-PV ERG PN ABS-that child
‘What does Panay do to that child?’

This is illustrated in (55) and (56) above. The sentence in (55) does not contain a lexical verb like $m$-kala ‘AV-find’ and its intended meaning is altered. It does not inquire about
the method of how to do something, but questions what one does to the theme argument.

If both the lexical verb and the theme argument are deleted as in (57), the resultant sentence could have two interpretations.

(57) Kavalan
    naquni-a-kita
    do.how-NAV-1PL.ERG
    ‘How should we deal with (this)? / What should we do?’

It could question what to do and its meaning is more similar to (55) than to (53). It could also be interpreted as a question that inquires about the method of how to do something. In this case, the question must be understood elliptically. There must be some salient discourse information about an action or event that the speaker finds difficult to achieve. A possible scenario is that the speech participants plan to visit a friend in another village but it turns out that the person who can give them a ride is sick. Under this situation, it is appropriate to utter (57) to express the speaker’s qualms about how they can visit their friend. In other words, in order for (57) to be interpreted as a how-question, the addressee of this question must be able to infer from the relevant context the elided lexical VP that naquni requires. The relationship between ‘do how’ and its following lexical verb thus conforms to the first two criteria of complementation in (49a) and (49b). Without the lexical verb, the meaning of naquni or maan as ‘do how’ is incomplete or incoherent, or the lexical verb can be inferred from the context.

The diagnostic of argument saturation also indicates that a naquni-IVSC or maan-IVSC involves a complementation structure. Along the lines of the Neo-Davidsonian analysis proposed by Parsons (1990), naquni or maan should be semantically analyzed as a predicate that selects for an action. It discharges an argument position to a verb
phrase. Although both an adjunct and a head can discharge an argument position, an adjunct can never determine the morphosyntactic properties of the resultant phrase. As argued in the preceding discussion, *naquni* or *maan* functions as the main verb in an IVSC and the voice marker on it determines the case-marking pattern of the nominal arguments. This suggests that the argument saturation property that holds between *naquni* and its following lexical verb must emanate from the head-complement configuration instead of the adjunct-head configuration. The interrogative verb *naquni* is a head and it discharges an argument position to its verbal complement and determines the morphosyntactic properties of the resultant phrase. In what follows, we will illustrate this idea with (53).

A (simplified) semantic type structure for the 'do how'-IVSC in (53) is represented in (58). For ease and clarity of exposition, we omit vP and \( vP \) and assign the label V to the interrogative verb and the lexical verb on the assumption that this simplification will not alter the semantic derivation. The semantic representation of an interrogative shown in (58) is an informal notation; we put a question mark (?) before a semantic type to informally mark it as an interrogative. As shown in this structure, \( VP_1 \), the semantic type of which is \(<e,t>\), belongs to the domain of \( V_2 \), the semantic type of which is \( ?<e,t>,<e,t> \). \( VP_1 \) can thus saturate an argument position of \( V_2 \). Moreover, the morphosyntactic properties of the resultant phrase are determined by \( V_2 \). In other words, the resultant phrase is a projection of \( V_2 \). This configuration of argument saturation is characteristic of complementation, where the head discharges an argument position to its complement and also determines the morphosyntactic properties of the derived phrase.
The semantic interpretation of (58) is given below. In (59), ‘c’ stands for the referent of ‘that child’ and ‘d’ stands for the referent of ‘you’.

In conclusion, the three properties of complementation listed in (49) are all observed in a ‘do how’-IVSC. The lexical verb phrase in a ‘do how’-IVSC should be analyzed as a complement to *naquni* or *maan*. The syntactic behavior of the lexical verb phrase lends further support to this complementation analysis. The lexical verb phrase can be syntactically realized as the absolutive argument in Amis, as illustrated in (60).
In this sentence, the lexical verb does not take any voice markers, but appears in the form of a nominal root. When a verb in Amis appears in its nominal root form, it always co-occurs with the verb classification prefix, *pi*- or *ka*-. The entire lexical verb phrase is syntactically treated as a core DP argument that can take a case marker, e.g., the absolutive case marker, *ku*. Note the parallelism between (60) and a patient voice sentence regarding the case-marking of the core arguments. When a verb takes the patient voice marker, the agent argument receives ergative case and the theme argument receives absolutive case. The fact that the lexical verb phrase in its nominal root form can take the absolutive case marker in (60) indicates that it is conceived of as one of the core arguments of the main verb, *maan*.

The clausal complement of other complement-taking verbs can also be syntactically realized as a DP argument in Amis (Lin and Wu 2008). This is demonstrated by the two sentences in (61). (61a) shows that the verb *tengil* ‘hear’ can take a clausal complement. In (61b), the verb in the complement clause occurs in its root form and the complement clause is syntactically treated as a DP that can take the absolutive case marker, *ku*, in a patient voice sentence. The syntactic behavior of the lexical verb phrase in a *maan*-IVSC as in (60) thus corroborates our analysis that the lexical verb phrase is an argument of *maan*.

(60) Amis

\[
\begin{align*}
&\text{maan-en ni panay [ku pi-padang tu-ya wawa]} \\
&\text{do.how-PV ERG PN ABS PI-help OBL-that child} \\
&\text{‘How does Panay help that child?’ (How is helping that child done by Panay?)}
\end{align*}
\]

(61) Amis

\[
\begin{align*}
&\text{a. ma-tengil aku [ma-keter ci-aki ci-ofad-an]} \\
&\text{PV-hear 1SG.ERG AV-scold NCM-PN NCM-PN-OBL} \\
&\text{‘I hear Aki scold Ofad.’}
\end{align*}
\]
b. ma-tengil aku [ku pi-keter ni aki ci-ofad-an]
   PV-hear 1SG.ERG ABS PI-scold GEN PN NCM-PN-OBL
   ‘I hear Aki scold Ofad.’ (Aki’s scolding Ofad is heard by me.)

7.3.2.2 ‘Where’-IVSC and ‘how many’-IVSC

The analysis of the ‘do how’-IVSC delineated above is not applicable to the IVSC headed by ‘where’ or ‘how many’, which exhibits different syntactic and semantic properties concerning the relationship between the interrogative verb and the lexical verb. The relevant examples are repeated in (62) and (63).

(62) Kavalan
a. tanian-an-su m-nubi ya kelisiw-ta
   where(verb)-PV-2SG.ERG AV-hide ABS money-1IPL.GEN
   ‘Where do you hide our money?’

b. u-tani-an-su m-ala ya kelisiw
   NHUM-how.much(verb)-PV-2SG.ERG AV-take ABS money
   ‘How much (more) money do you take?’

(63) Amis
a. icuwa-en ni ofad (a) mi-simed ku paysu
   where(verb)-PV ERG PN LNK AV-hide ABS money
   ‘Where does Ofad hide the money?’

b. pina-en isu mi-pacuk ku fafuy
   how.many(verb)-PV 2SG.ERG AV-kill ABS pig
   ‘How many pigs will you kill?’

Unlike the lexical verb in the ‘do how’-IVSC, the lexical verb in the ‘where’-IVSC or the ‘how many’-IVSC is optional and its deletion does not alter the interpretation of the interrogative verb. Consider the sentences in (64) and (65) where ‘where’ and ‘how many’ are used alone as a verb without a lexical verb. Chapter 6 has shown that ‘where’ is used as a verb when it undergoes head movement to vCaUSE and that the resultant verbal structure denotes a ditransitive event that can be semantically decomposed as ‘X causes Y to become where’. This interpretation of verbal tanian remains intact regardless of the presence/absence of a lexical verb. Both (62a) and (64a) denote a
ditransitive event and are intended to inquire about the location of the theme argument no matter what action is involved. In other words, without the lexical verb, *tanian* (or *icuwa*) still remains unchanged in terms of its category and logical meaning.

(64) Kavalan
   a. *tanian-an-su ya kelisiw-ta*
      *where*(verb)-PV-2SG.ERG ABS money-1IPL.GEN
      ‘Where do you put our money?’
   b. *u-tani-an-su ya kelisiw*
      *CLF.NHUM-how.much*(verb)-PV-2SG.ERG ABS money
      ‘How much (more) money do you take/want?’

(65) Amis
   a. *icuwa-en ni ofad ku paysu*
      *where*(verb)-PV ERG PN ABS money
      ‘Where does Ofad put the money?’
   b. *pina-en isu ku paysu*
      *how.many*(verb)-PV 2SG.ERG ABS money
      ‘How much money do you want/take?’

This is also true of *tani* ‘how many’ and *pina* ‘how many’. As argued in Chapter 6, the use of ‘how many’ as a verb is derived when it moves to *vBECOME* and *vCAUSE*. The *vp*-shell structure accounts for the interpretation specific to a question where ‘how many’ occurs as a verb. That is, the quantity of the theme argument is expected to change. This specific interpretation arises regardless of whether there is a lexical verb following *tani*. Unlike ‘do how’, the interpretation of ‘how many’ as a verb does not vary with the presence or absence of a lexical verb.

However, as is well known, the optionality criterion for the distinction between complements and adjuncts is rather inconclusive. Complements can be optional too and the omission of a complement does not necessarily alter the meaning of its head, e.g., *eat* vs. *eat pizza*. While obligatoriness is a reliable diagnostic for the distinction between
complements and adjuncts, optionality is not. Therefore, the fact that the lexical verb phrase in the ‘where’-IVSC or the ‘how many’-IVSC is optional does not constitute evidence for an adjunction structure. We need to consider other semantic properties or functions of the lexical verb phrase.

The addition of a lexical verb to (64) or (65) changes the question to a more specific one. In other words, the lexical verb in the ‘where’- or ‘how many’-IVSC functions like a modifier, specifying the action involved in the event. This suggests that the lexical verb might be an adjunct in accordance with the second criterion of adjunction: An adjunct merely restricts the meaning or denotation of its head.

The argument saturation configuration of the ‘where’- and ‘how many’-IVSC offers a more reliable piece of evidence for the analysis of their lexical verb as an adjunct.

(66)
The semantic relationship between a verbal ‘where’ and its following lexical verb suggests that the lexical verb functions as an adjunct to the interrogative main verb. The interrogative verb *tanian* or *icuwa* does not semantically select for an event or action. Instead, it selects for a theme argument. The discussion in Chapter 3 and Chapter 6 has shown that the use of *tanian* or *icuwa* as a verb is restricted to a question that inquires about the location of a theme argument in a ditransitive event. In other words, verbal *tanian* or *icuwa* is allowed only when it questions the location of a theme argument, but it is forbidden when it questions the location where an event takes place. This restriction on the verbal use of *tanian* or *icuwa* suggests that verbal ‘where’ discharges an argument position to a theme DP, not to a verb phrase. The structure that we assign to verbal *tanian* in Chapter 6, repeated in (66), reflects the fact that *tanian* takes a theme DP as its complement. Therefore, the lexical verb in the ‘where’-IVSC cannot be the complement of *tanian* or *icuwa*.

In a sentence like (62a), the ditransitive verb shares the theme argument with *tanian*. Its location argument is syntactically realized as the main verb of the sentence. However, *tanian* cannot be the syntactic complement of this ditransitive verb, or otherwise its movement to v would violate the Head Movement Constraint or the Transparence Condition. On the assumption that the verbal structure of a ditransitive verb contains a VP-shell (Larson 1988), the verb *nubi* ‘hide’ can be assigned the structure in (67) with the theme argument base-generated in the specifier of the lower VP and the location argument in the complement of the lower VP. The problem of this structure is that it predicts that *tanian* can never be syntactically realized as a verb if the head of the lower VP is occupied by a lexical verb. The head movement of *tanian* from
XP to \( v \) has to cross an intervening head, i.e., \( nubi \) ‘hide’ under \( V \), and thus will incur a violation of the Head Movement Constraint. This prediction is wrong as \( tanian \) is still the main verb of an IVSC even if there is a lexical verb.

(67)

We are thus faced with a conundrum. The ditransitive verb in the ‘where’-IVSC requires the verbal ‘where’ to be its location argument to satisfy the Projection Principle, but at the same time, it is impossible for the verbal ‘where’ to be base-generated as the complement of this ditransitive verb, or otherwise ‘where’ cannot undergo head movement to \( v \). This issue can be resolved if we adopt the adjunction analysis of the lexical ditransitive verb. As stated in (50c), an adjunct is able to discharge an argument position to its head although it does not determine the morphosyntactic properties of the phrase. The morphosyntactic evidence for the analysis of \( tanian \) or \( icuwa \) as the main verbal head in an IVSC is robust. The only way it can saturate an argument position of the ditransitive verb is to adjoin the ditransitive verb to the verb phrase headed by \( tanian \) or \( icuwa \). This can be schematically represented as (68).
As an adjunct, the vP headed by *nubi* ‘hide’ in (68) can discharge an argument position to the head *tanian*, thereby satisfying the requirement that it should have a location argument. In what follows, we provide a formal semantic account for the structure in (68) and show that its semantic representation and interpretation are legitimate and can ensure that the argument positions of both verbs are saturated.

A (simplified) semantic type structure for the ‘where’-IVSC in (62a), repeated below as (69a), is represented in (69b). For ease and clarity of exposition, we omit vP and √P and assign the label V to the interrogative verb and the lexical verb on the assumption that this simplification will not alter the semantic derivation. The semantic representation of an interrogative shown in (69) is an informal notation; we put a question mark (?) before a semantic type to informally mark it as an interrogative. As the projection of the little v is omitted in the following structure, V₁ is in fact a composite form of *tanian* ‘where’ and the patient voice marker. In other words, it has already acquired the verbal meaning of ‘put’ in addition to its original inherent locative meaning. In Section 7.4, we will explain why *ya kelisiw-ta* occurs not only in VP₁ but also in VP₂.
(69) Kavalan
a. tanian-an-su m-nubi ya kelisiw-ta
   where(verb)-PV-2SG.ERG AV-hide ABS money-1IPL.GEN
   ‘Where do you hide our money?’

b. Semantic type structure for (62a = 69a)

The argument saturation configuration of VP$_2$ and the lower V’$_1$ is characteristic of an
adjunction structure. The lower V’$_1$ can saturate an argument position of VP$_2$ because
its semantic type is in the domain of VP$_2$. Note that the question mark ‘?’ simply signals
the interrogative status of a phrase; it does not alter the semantic type of a phrase. The
semantic interpretation of (69b) is given in (70).

(70) Semantic interpretation of (69b)
   DP (our money) m
   V$_1$ (tanian-an) ?λx.λy.y puts x ∧ where (x)
   V’$_1$ ?[λx.λy.y puts x ∧ where (x)](m)
   → ?λy.y puts m ∧ where (m)
   DP (our money) m
   V$_2$ (hide) λz.λe D$_{<e,t>}$.λq.q hides z ∧ f(q)

Note that the semantic type of nubi ‘hide’ in this structure is <e,<<e,t>,<e,t>>>. It has undergone type-
shifting (Partee 1986; van der Does and de Hoop 1998). In theory, nothing prevents this semantic type
from being used in a normal declarative (non-IVSC) sentence. The question is whether regular locations
can be used as a verb too just like tanian ‘where’. Note that the locative deictics in Kavalan can be used
as a verb, as illustrated in Section 6.4.1. A semantic theory is needed to explain the extent of and the
restrictions on type-shifting of location expressions within Kavalan. This is beyond the scope of the
present study.
While the semantic representation of (69b) derives the correct semantic interpretation in (70), a semantic representation where the lexical verb phrase is base-generated as the complement of the interrogative verb is uninterpretable.

(71) The lexical VP as the complement of the interrogative verb (illicit representation)

If the lexical verb phrase occurs in the complement position of the interrogative verb, neither of them can saturate an argument position of the other. The illicit semantic representation is given in (71). In this structure, \( V_1 \) should discharge an argument position to a phrase of type \(<e>\) and \( VP_2 \) requires a phrase of type \(<e,t>\) to saturate its argument position. Neither can achieve argument saturation and thus the structure is uninterpretable.
In conclusion, the lexical verb in the ‘where’-IVSC not only functions like a modifier to verbal ‘where’, but it also discharges an argument position to the phrase headed by the verbal ‘where’ (69b). The adjunction structure can yield a semantically interpretable representation. The requirement that the lexical ditransitive verb have a location argument can be fulfilled in this structure. Other structures will result in a semantic representation that is uninterpretable. All the evidence converges on the conclusion that the lexical verb in the ‘where’-IVSC is an adjunct to verbal ‘where’.

As for the ‘how many’-IVSC, the interrogative verb, *tani* or *pina*, selects for a DP as its argument, not a verb phrase. The ‘how many’-IVSC questions the quantity of the theme argument, not the frequency of an action or event. In other words, *tani* or *pina* discharges an argument position to a DP, not to a verb phrase. The lexical verb in the ‘how many’-IVSC thus should not be analyzed as the complement of *tani* or *pina*. As suggested in Section 6.3.3, the agreement between *tani* or *pina* and the theme DP in terms of the feature [+ human] indicates that the theme DP is an argument of the interrogative verb and that they must occur in a local configuration for agreement to take place. This agreement pattern corroborates our analysis that the complement of *tani* or *pina* is the theme DP, not the lexical verb phrase.

To summarize, Kavalan and Amis IVSC sentences do not form a homogeneous class in terms of the structural relationship between the interrogative verb and the lexical verb. The interrogative verb *naquni* or *maan* ‘do how’ takes a verb phrase as its complement, whereas *tanian* or *icuwa* ‘where’ and *tani* or *pina* ‘how many’ take a theme DP as its complement and a verb phrase as its adjunct. The following section will
present one more piece of evidence for the differentiation between these two types of IVSCs and argue that they are derived via distinct syntactic operations.

7.4 Syntactic Operations in the IVSC

7.4.1 Case-Marking of the Theme DP: Raising or Control

The preceding section has revealed that a ‘do how’-IVSC and a ‘where’-IVSC or a ‘how many’-IVSC are two distinct structures. The former involves complementation, but the latter adjunction. There is another semantic difference between the two types of IVSC. While ‘do how’ shares an agent argument with its verbal complement, verbal ‘where’ and ‘how many’ share a theme argument with their verbal adjunct. In other words, only ‘where’-IVSCs and ‘how many’-IVSCs involve theme-argument sharing. This semantic difference corresponds to the ways how the theme arguments in the two types of IVSC are case-marked. Consider the IVSC sentences in (72) and (73) and pay attention to the case marking of the theme arguments.

(72) Kavalan
   a. naquni-an-su m-kala ya/tu sunis
do.how-PV-2SG.ERG AV-find ABS/OBL child
      ‘How do you find the/a child?’
   b. tanian-an-su m-nubi ya/*tu kelisiw-ta
      where(verb)-PV-2SG.ERG AV-hide ABS/OBL money-1IPLGEN
      ‘Where do you hide our money?’
   c. kin-tani-an-su=pa p<m>ukun
      HUM-how.many(verb)-PV-2SG.ERG=FUT <AV>beat
      ya/*tu sunis ABS/OBL child
      ‘How many (more) children will you beat?’

(73) Amis
   a. maan-en ni panay (a) mi-padang ku/tu wawa
      do.how-PV ERG PN LNK AV-help ABS/OBL child
      ‘How does Panay help the/a child?’
b. icuwa-en ni ofad mi-simed ku/*tu paysu
   where(verb)-PV ERG PN AV-hide ABS/OBL money
   'Where does Ofad hide the money?'

c. pina-en isu mi-pacuk ku/*tu fafuy
   how.many(verb)-PV 2SG.ERG AV-kill ABS/OBL pig
   'How many pigs will you kill?'

In a ‘do how’-IVSC like (72a) and (73a), the theme DP can receive either absolutive case or oblique case. However, the theme DP in a ‘where’-IVSC (72b, 73b) or a ‘how many’-IVSC (72c, 73c) must be case-marked absolutive. If it receives oblique case, the sentence becomes ungrammatical. This empirical observation on the case-marking of the theme arguments suggests that the theme DP in a ‘do how’-IVSC can either stay in the complement clause or move to the matrix clause, whereas the theme DP in a ‘where’-IVSC or a ‘how many’-IVSC must be syntactically realized as an argument in the matrix clause.

7.4.2 DP-Raising in ‘Do How’-IVSC

In (72a) and (73a), when the theme DP is case-marked oblique, it should be analyzed as the object of the embedded verb, which takes the agent voice marker. When it receives absolutive case, it should be syntactically treated as an argument of the matrix verb, which takes the patient voice marker. The simplified bracketed structures in (74) represent the two different syntactic positions that the theme argument in a ‘do how’-IVSC can occupy. Regardless of its syntactic position, the absolutive/oblique DP is interpreted as the theme argument of the lexical verb and it does not belong to the argument structure of ‘do how’. This thematic feature suggests that Kavalan naquni and Amis maan ‘do how’ behave like a raising verb.

(74) ‘Do-how’-IVSC
   a. [matrix do.how-PV [complement AV-LexicalVerb OBL-Theme]]
The raising analysis can resolve the issue of the syntax-semantics mismatch of (74b). Semantically, the theme DP is not an argument of the matrix interrogative verb, naquni or maan, but it receives absolutive case, which is assigned to the theme argument of a PV-marked verb. It is worth noting that the theme argument in other verb sequencing constructions exhibits the same alternation between absolutive case and oblique case.\(^4\)

\(\text{(75) Kavalan}\\
\text{paqanas-an-ku t<a>e}ya/tu sulal slow-PV-1SG.ABS <AV>see ABS/OBL book 'I read the book/books slowly.' } (Y.-L. Chang 2010: 196)\\
\text{(76) Amis}\\
\text{kalamkam-en aku k<u>e}a'en ku/tu hemay fast-PV 1SG.ERG <AV>eat ABS/OBL rice 'I will eat the rice/meal fast.' } (Wu 2006: 288)

In (75) and (76), both of which are an adverbial verb sequencing construction, the absolutive/oblique DP is interpreted as the theme argument of the lexical verb, not the adverbial verb, regardless of its syntactic position.

We assume that the theme DP in a ‘do how’-IVSC can enter the derivation without any Case features or with an absolutive Case feature. In the former situation, it remains in the embedded clause as the complement of the lexical verb and is assigned the default inherent oblique Case in the embedded agent voice clause. This leads to the derivation of (74a). Note that it is not imperative that a patient voice sentence have an absolutive DP, as illustrated below.

\(\text{(77) Kavalan}\\
\text{a. qatiw-an-na=ti s<a>e}law go-PV-3ERG=PFV <AV>hunt 'He went hunting.'\)

\(^4\) The examples in (75) and (76) have been reglossed.
b. kelawkaway-an-na
work-PV-3ERG
‗He works.‘

(78) Amis
a. tireng-en ni panay
stand-PV ERG PN
‗Panay will stand up.‘

b. rakat-en ni panay
walk-PV ERG PN
‗Panay will walk.‘

c. ma-orad anini
AV-rain now
‗It is raining now.‘

When the theme DP in a ‘do how’-IVSC enters the derivation with an absolutive
Case feature, it must move to the matrix clause to check Case. This is because a non-
finite clause cannot license absolutive Case in Kavalan (D. Lin 2010). Only finite T can
check absolutive Case. As shown in Section 7.2.1, the lexical verb in the IVSC is
defective and is not allowed to take any tense or aspect markers. This suggests that the
embedded clause in the IVSC is not TP or is not headed by finite T. We assume that the
subordinate clause in the IVSC is vP in Kavalan and Mod-AspP headed by a in Amis. In
either case, there is no absolutive Case feature in the embedded non-finite clause. The
theme argument thus has to move to the matrix clause to check absolutive Case
against the finite T. The tree in (79) represents the raising of the theme DP out of the
embedded clause. This raising analysis explains why the theme argument, which is
thematically part of the embedded lexical verb, structurally belongs to the matrix
interrogative verb phrase. It is also compatible with the complement analysis of the
lexical VP in the preceding section. Extraction out of a complement is allowed, whereas
extraction out of an adjunct is forbidden due to the Condition on Extraction Domain (C.-T. Huang 1982).

(79) DP-raising in ‘do how’-IVSC

The syntactic representation of a ‘do how’-IVSC in (79) is reminiscent of restructuring. T. Chen (2010) argues that the interrogative word denoting ‘how’ in
Mayrinax Atayal, a Formosan language, is a restructuring predicate, as illustrated below.

(80) Mayrinax Atayal
    hahcwal-un=mi k<um>at ku caj
    how-PV=1SG.GEN <AV>bite NOM taro
    ‘How did I bite the taros?’ (T. Chen 2010: 13)

We adopt Wurmbrand’s (2001: 94) conception that “restructuring is not defined as a single property or feature of certain predicates, but is rather a particular configuration—a monoclausal structure”. A ‘do how’-IVSC exhibits certain properties of a monoclausal structure even though it consists of a main verb and a subordinate verb. First of all, there is no structural Case assigner in the embedded complement clause. The lack of structural Case assigner prompts the object in the complement clause to move to the matrix clause for Case-checking. This syntactic phenomenon is parallel to the long object movement observed in German restructuring clauses.

(81) German
    a. dass der Traktor zu reparieren versucht wurde
       that the tractor-NOM to repair tried was
       ‘that they tried to repair the tractor’ (Wurmbrand 2001: 19)
    b. dass der Traktoren zu reparieren versucht wurden
       that the tractors-NOM to repair tried were
       ‘that they tried to repair the tractors’ (Wurmbrand 2001: 19)

As illustrated in (81), the embedded object does not check Case in the embedded clause. Instead, it checks Case against the matrix T in that it receives nominative case and agrees with the matrix auxiliary. According to Wurmbrand (2001), the long object movement results from the structure of the infinitive, which is a bare VP without the functional heads that can check nominative and accusative Case.
Another property of a ‘do how’-IVSC that is indicative of a monoclausal structure is the lack of T-projection in the embedded complement clause. Section 7.2.1 has shown that the lexical verb in an IVSC cannot host its own tense and aspect marker and must receive the same tense value as the matrix predicate. This indicates that the complement of ‘do how’ does not contain TP and AspP. The subordinate clause in a ‘do how’-IVSC in Kavalan only projects to vP. Due to the presence of the linker a, we assume that the lexical verb phrase in an Amis ‘do how’-IVSC is a Mod-AspP headed by the linker. Nevertheless, this Mod-Asp head is still defective; it signals non-finiteness.

It is worth noting that the nature of the vP in the subordinate clause is distinct from the vP in the matrix clause. The embedded v only functions to mark the verbal category of the root and is not associated with other functions of the typical voice markers in Kavalan and Amis. That is, the v that the lexical verb is merged with only functions as a verb-creating head but lacks detailed verbal semantics such as CAUSE or BECOME. It is not associated with any theta-features. The AV-restriction on the lexical verb in an IVSC arises from the nature of this type of v in embedded non-finite clauses as the agent voice marker is the default morpheme that can be inserted under this particular v, which is neutral in terms of its verbal semantics. Therefore, not only does the complement clause in a ‘do how’-IVSC lack inflectional projections like TP and AspP, its

---

5 One advantage of this analysis of the embedded vP is that it can provide a natural explanation for the persuade-type control construction in Kavalan. In Kavalan, the embedded verb in this control construction must take the causative prefix pa-. As the v, or the agent voice marker, in the non-finite subordinate clause is devoid of any theta-features, an agent PRO cannot be assigned in the subordinate clause and thus the causative prefix pa-, which can change the valency of the embedded verb, is inserted to introduce an additional agent argument in the subordinate clause.

6 One of the reasons for the agent voice marker to be chosen as the default morpheme for v in a reduced non-finite clause is that the citation form of a verb is always given in agent voice.
\(\text{vP}\) is also devoid of detailed verbal semantics like theta-features. A ‘do how’-IVSC is the quintessence of a monoclausal structure with two verbs.

### 7.4.3 Control Structure of ‘Where’-IVSC and ‘How Many’-IVSC

Unlike a ‘do how’-IVSC, the theme argument in a ‘where’-IVSC and a ‘how many’-IVSC is shared by the interrogative verb and the lexical verb, but it can only be syntactically realized as the absolutive argument of the matrix interrogative verb, which is affixed with the patient voice marker. A ‘where’-IVSC and a ‘how many’-IVSC in Kavalan should have the following bracketed structure. The bracketed structure of the corresponding Amis construction is the same.

(82) Kavalan

- a. \([\text{tanian-an-su} \quad [\text{vP m-nubi}] \quad \text{ya kelisiw-ta}]\)
  \(\text{where-PV-2SG.ERG} \quad \text{AV-hide} \quad \text{ABS money-1IPL.GEN}\)
  ‘Where do you hide our money?’

- b. \([\text{u-tani-an-su} \quad [\text{vP m-ala}] \quad \text{ya kelisiw}]\)
  \(\text{NHUM-how.much-PV-2SG.ERG} \quad \text{AV-take} \quad \text{ABS money}\)
  ‘How much (more) money do you take?’

There are three possible structural representations that can account for theme-argument sharing between the interrogative verb and the lexical verb in (82). The first possibility is that the theme argument undergoes movement from the embedded clause to the matrix clause and leaves a trace in the subordinate clause (83a). The second and third possibilities are that there is a pro or a PRO in the subordinate clause that is coreferential with the matrix absolutive theme DP (83b, 83c). These structural possibilities are represented by the following bracketed structures.

(83)

- a. \([\text{where/how.many-PV} \quad [\text{vP AV-LexicalVerb t}] \quad \text{ABS-theme}]\)
- b. \([\text{where/how.many-PV} \quad [\text{vP AV-LexicalVerb pro}] \quad \text{ABS-theme}]\)
- c. \([\text{where/how.many-PV} \quad [\text{vP AV-LexicalVerb PRO}] \quad \text{ABS-theme}]\)
The first potential solution, i.e., NP movement, is similar to the raising analysis of ‘do how’-IVSCs, but it cannot be extended to ‘where’-IVSCs and ‘how many’-IVSCs. The lexical verb phrase in a ‘where’-IVSC and a ‘how many’-IVSC is an adjunct clause, which is a syntactic island. If the theme DPs in (82) were base-generated in the lexical verb phrase and then were extracted out of this phrase, the Condition on Extraction Domain would be violated. The grammaticality of (82) suggests that the theme DPs do not undergo this illicit movement. The structure represented by (83a) is thus ruled out.

On the Government and Binding approach, the Θ-Criterion stipulates that the relationship between Θ-roles and argument DPs must be bi-unique. Therefore, the only way that the matrix interrogative verb and the lexical verb in (82a) or (82b) can share an argument is to resort to either pro or PRO. The postulation that there is a pro in the subordinate clause in a ‘where’-IVSC or a ‘how many’-IVSC presupposes that this type of verb sequencing construction exhibits object drop. This presupposition is untenable. The subordinate clause in a ‘where’-IVSC or a ‘how many’-IVSC cannot contain an overt pronoun that is co-referential with the absolutive argument in the matrix clause. This is illustrated by the following ungrammatical sentences, where an overt object pronoun occurs in the subordinate clause.

(84) Kavalan
a. *[tanian-an-su [vp m-nubi timaizipana] ya sunis]
   where(verb)-PV-2SG.ERG AV-hide 3SG.OBL ABS child
   ‘Where do you hide the child?’

b. *[kin-tani-an-su=pa [vp p<m>ukun ganiau] ya sunis]
   HUM-how.many(verb)-PV-2SG.ERG=FUT <AV>beat 3PL.OBL ABS child
   ‘How many (more) children will you beat?’
The ungrammaticality of (84) and (85) suggests that a true pronominal element cannot occur in the subordinate clause of a ‘where’-IVSC or a ‘how many’-IVSC. The property of theme-argument sharing between the interrogative verb and the lexical verb in this construction cannot be attributed to object drop or the occurrence of a pro in the subordinate clause.

Due to the problems of the NP movement analysis and the pro analysis, the postulation of a PRO is the only way that can account for theme-argument sharing in a ‘where’-IVSC or a ‘how many’-IVSC.

(86) Adjunct Control in ‘where’-IVSC or ‘how many’-IVSC

In the vP headed by the lexical verb, there is a PRO controlled by the absolutive DP. In other words, a ‘where’-IVSC or a ‘how many’-IVSC is characterized by adjunct control,
i.e., control into an adjunct clause. The postulation of a PRO in a ‘where’-IVSC and a ‘how many’-IVSC can account for its semantic property of theme-argument sharing and also the syntactic distribution of the theme argument. The structure in (86) portrays adjunct control in this type of IVSC.

However, the analysis that postulates there is a PRO in the lexical VP of a ‘where’-IVSC or a ‘how many’-IVSC is faced with both theoretical and empirical problems. It does not conform to the Control module that governs the distribution and interpretation of a PRO. Neither is it compatible with the language-specific mechanism that regulates obligatory control in Kavalan.

The first problem concerns the distribution of a PRO. It is only found in the subject position of a non-finite clause, as illustrated by the following English examples.

(87)  a. John$_i$ tried [PRO$_i$ to leave early].
   b. Mark$_i$ persuaded Sally$_j$ [PRO$_{ij}$ to attend the meeting].

GB reduces this distributional constraint to the PRO Theorem, which states that a PRO can only occur in an un gover ned position. An alternative analysis argues that PRO must occur in a position where its null case can be checked (Chomsky and Lasnik 1993). Although the PRO in a ‘where’-IVSC or a ‘how many’-IVSC is in a non-finite clause, i.e., the lexical verb phrase, it does not appear in the subject position of this clause. It is the theme argument of the lexical verb and occupies the complement position of the verb phrase. This distribution contradicts the PRO Theorem.

Secondly, the interpretation of the PRO in a ‘where’-IVSC or a ‘how many’-IVSC does not obey the Minimal Distance Principle (MDP), which requires a PRO to be coindexed with the closest c-commanding DP. The effect of this principle can be observed in (87b), where the PRO must be coindexed with Sally, but not Mark, because
Sally is structurally closer to PRO than Mark. This principle is violated by the PRO in a ‘where’-IVSC or a ‘how many’-IVSC. Its closest c-commanding DP is the ergative agent argument, not the absolutive theme argument. The structure in (88) illustrates the violation of the MDP, using Kavalan *tanian* ‘where’ as an example.

(88)

<table>
<thead>
<tr>
<th>TP</th>
<th>DP</th>
<th>DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS=theme</td>
<td>T</td>
<td>vP</td>
</tr>
<tr>
<td>DP</td>
<td>v'</td>
<td></td>
</tr>
<tr>
<td>ERG=agent</td>
<td>vP</td>
<td>v'</td>
</tr>
<tr>
<td>hide PRO</td>
<td>tanian-an</td>
<td>vP</td>
</tr>
<tr>
<td>tanian ABS=theme</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The lexical verb phrase in a *tanian*-IVSC is adjoined to the matrix verb phrase, as reflected in (88). The PRO in the lexical verb phrase is c-commanded by two DPs: the agent DP in the specifier of the matrix vP and the higher copy of the theme DP in the specifier of TP. The agent DP is structurally closer to the PRO. However, the PRO is not coindexed with this DP, but with the theme DP, which is structurally more distant.

In fact, the two theoretical problems are not unique to the IVSC in Kavalan and Amis. Object control into adjuncts is also possible in English, as illustrated below.

(89)  a. Mary brought John; [to e, talk to the children].
      b. Mary brought John; [to talk to e]

In (89a), the antecedent of the empty category in the purpose clause is the object of the matrix clause, i.e., *John*. Likewise, the object of the matrix clause in (89b) also binds the
empty category in its purpose clause. The control configuration of a ‘where’-IVSC or a ‘how many’-IVSC resembles that of (89b). Both configurations manifest a control relationship between the theme argument in the matrix clause and the theme argument in an adjunct clause.

There are theoretical alternatives that are proposed to account for object control into adjuncts. For example, Jones (1991) argues for a semantic analysis of object control into adjunct purpose clauses like (89). The assumption of his semantic analysis is that object control into adjunct purpose clauses is established by semantic predication, whereby the object antecedent in the matrix clause is semantically linked to the purpose clause predicate. To put it in a less technical way, this predication relationship is signaled by an index $i$ on both the object antecedent and the purpose clause, as illustrated in (90a). His semantic analysis aims to account for the entailment of the semantic representation in (90b), where the function of the purpose clause is applied to John (j).

(90)  
(a) Mary brought John$_i$ [to talk to e$_i$],
(b) brought (m, j, $\lambda x$ [to talk to x])
   $\rightarrow$ brought (m, j, $\lambda x$ [to talk to x](j))

If we extend this analysis to the IVSC in (88), this means that there is a predication relationship between the adjoined lexical verb phrase and the base-generated theme argument in the root phrase. This predication relationship leads to the control relationship between the PRO in the adjoined phrase and the absolutive noun phrase. However, this semantic analysis seems counterintuitive to the semantic representation we have developed for (88) in Section 7.3.2.2. The challenge arises from how to formalize the predication relationship between the lexical vP and the absolutive DP and
at the same time still fulfill the need of the lexical vP for a location argument. We will thus set this semantic analysis aside for the time being and pursue a syntactic analysis in Section 7.4.4 that is more compatible with the semantic representation we have developed.

In addition to the theoretical issues, the control pattern observed in a ‘where’-IVSC or a ‘how many’-IVSC also deviates from the empirical generalizations on how obligatory control operates in Kavalan. The interpretation of control sentences in Kavalan is not determined by the grammatical roles like subject and object. In a try-type control sentence in Kavalan, PRO is always co-referential with the agent of the matrix verb regardless of its grammatical role. This is illustrated below.

(91) Kavalan
a. m-paska=iku [satzay PRO]
   AV-try=1SG.ABS sing
   ‘I try to sing.’

b. paska-an-ku [satzay PRO]
   try-PV-1SG.ERG sing
   ‘I try to sing.’

The antecedent of the PRO in (91a) is case-marked absolutive. In (91b), the verb takes the patient voice marker and the agent argument, which is coindexed with the PRO in the embedded clause, receives ergative case. In both cases, the agent argument in the matrix clause can control the PRO in the embedded clause even though it does not serve the same grammatical function in the two sentences.

According to Chang and Tsai (2001) and Yeh (1997), in most Formosan languages, the verb in the complement clause of a persuade-type control verb has to undergo causativization. Chang and Tsai (2001) argue that this is because control verbs in Formosan languages have to observe a constraint called Actor-Sensitivity, which
stipulates that only an agent can control a PRO. The following examples illustrate two 
\textit{persuade}-type control verbs in Kavalan.

(92) Kavalan
a. \texttt{m-linana=iku\_ tu sunis} [\texttt{pa-lusit PROi}]
   \texttt{AV-persuade=1SG.ABS OBL child CAU-leave}
   ‘I persuade my child to leave.’ \hspace{1cm} (Chang and Tsai 2001: 3)
   (lit. I persuade my child, causing (him/her) to leave.)

    b. \texttt{pawRat-an-na ni buya iaku} [\texttt{pa-qibasi PROi}]
       \texttt{force-PV-3ERG ERG PN 1SG.ABS CAU-wash}
       \texttt{tu qudus} OBL clothes
       ‘Buya forced me to wash clothes.’
       (lit. Buya forced me, causing (me) to wash clothes.)

In both (92a) and (92b), the embedded verb has to be prefixed with the causative 
marker \textit{pa}-. The PRO in the embedded clause does not correspond to the patient in the 
matrix clause, but to the agent, which functions semantically as the causer in the 
embedded clause. The Control mechanism in Kavalan regarding the \textit{persuade}-type 
control is thus distinct from English object control, where the grammatical object can 
control the PRO in the embedded clause. In both \textit{try}-type and \textit{persuade}-type control 
sentences in Kavalan, it is the agent argument that can act as the controller of the PRO. 
In other words, a theme argument is unable to control a PRO.

However, in a \textit{tania\textendash}IVSC and a \textit{tani}-IVSC in Kavalan, the PRO in the lexical verb 
phrase is controlled by the theme argument in the matrix clause, as illustrated in (93). 
The relationship between the PRO and its antecedent in a \textit{tania\textendash}IVSC thus deviates 
from the canonical control pattern in Kavalan.

(93) Kavalan
\texttt{[tania\textendash}an-su \_ [\texttt{\textit{\_y\_m-nubi \textit{\_PROi}}]} \texttt{ya kelisiw-ta\_i}]
\texttt{where-PV-2SG.ERG AV-hide ABS money-1IPL.GEN}
‘Where do you hide our money?’
In view of the theoretical and empirical problems confronting the PRO analysis of a ‘where’-IVSC and a ‘how many’-IVSC, we propose an alternative analysis that can account for adjunct control in this type of IVSC, or theme-argument–sharing between the main verb and the adjoined verb, without invoking the mediation of PRO. This alternative analysis is based on the Movement Theory of Control (Hornstein 1999, 2001, 2003) and sideward movement (Nunes 2001, 2004). The following section will delineate the assumptions of the alternative analysis and argue that adjunct control of a ‘where’-IVSC and a ‘how many’-IVSC is an instance of sideward movement. It will also be argued that this approach can account for the difference between a ‘do how’-IVSC and a ‘where’- or ‘how many’-IVSC regarding the case marking of the theme DP.

Before we proceed with the analysis of adjunct control as sideward movement, it is worthwhile to comment on some unresolved issues of the structure of obligatory control in Kavalan and Amis. First of all, it remains to be seen whether the Actor-Sensitivity Constraint proposed by Chang and Tsai (2001) also holds in more usual adjunct control sentences. Secondly, a separate syntactic study is required to examine whether it is the PRO analysis or the Movement Theory of Control that can better account for the empirical facts of obligatory control in Kavalan and Amis. The research findings of this theoretical syntactic study can shed light on whether a language can utilize both mechanisms of obligatory control and whether both mechanisms should be incorporated into the core components of the syntactic theory we have been using. Van Urk (2010) suggests that both mechanisms are required and they derive different structures of obligatory control. However, the following analysis of adjunct control in IVSC as sideward movement does not imply that both PRO-control and the movement-type
control are core components of the grammar that regulates obligatory control in Kavalan
and Amis. We cannot reach a definite conclusion until the two issues raised above are
resolved.

7.4.4 Adjunct Control in IVSC as Sideward Movement

In recent years, there have been attempts to eliminate the Control module from
Universal Grammar and reduce the control mechanisms to movement operations
(Hornstein 1999, 2001, 2003). This line of research, i.e., the Movement Theory of
Control, is motivated by the elimination of the D-Structure in the Minimalist Program.
Without the D-Structure, the theoretical validity of the Theta-Criterion is cast in doubt
and thus the theoretical motivation for PRO or the entire Control module is untenable. It
is argued that this reductionist analysis can not only achieve theoretical parsimony but
also allow for wider empirical coverage, e.g., backward control and copy control
(Polinsky and Potsdam 2006).

Under the Movement Theory of Control, the coreference between an argument of
a control predicate and an argument in its complement clause is not mediated by PRO
and the Minimal Distance Principle. Instead, a control predicate is akin to a raising
predicate in that they both involve movement of a DP argument in the embedded clause
to the matrix clause. The crucial difference between them is that the target of movement
in a control sentence is a Θ-position, whereas the moved DP in a raising sentence
targets a Θ'-position. This proposal is based on the following assumptions.

(94) Assumptions of the Movement Theory of Control (Hornstein 2003)
a. Theta roles are features.
b. A DP can have more than one theta features.
c. Movement is due to Enlightened Self Interest. That is, movement of a syntactic object is motivated by the need to check its own feature or to check a feature on the target.

Hornstein (2001) advocates that the Movement Theory of Control can also offer a succinct analysis for adjunct control as in (95).

(95) Mark, saw John [before PRO, leaving].

Although extraction out of adjuncts is generally forbidden, it is permitted in parasitic gap (PG) constructions, e.g., (96).

(96) [[Which paper] did you file [without reading PG] ?]

Nunes (2001, 2004) argues that parasitic gap constructions are derived via sideward movement, which allows movement of an element from a syntactic object to another independent syntactic object. This is represented in (97).

(97) Sideward movement (Nunes 2001)
   a. Copy α′: [K … α′ …] α′
   b. Merge α′ with L, an independent syntactic object: [M α′[L …]]

Following Nunes (2001, 2004), Hornstein (2001) suggests that adjunct control also results from sideward movement. For instance, the derivation of (95) starts with the construction of the adjunct clause, before Mark leaving. Before this clause is adjoined to the main clause, Mark undergoes sideward movement and merges with the matrix VP first so as to check the theta-feature on the main verb. This movement is legitimate as it obeys Enlightened Self Interest.

According to Nunes (2001, 2004), the implementation of sideward movement hinges on the proposal that the movement operation is composed of four independent syntactic operations: Copy, Merge, Form Chain, and Chain Reduction. He defines Form Chain and Chain Reduction as follows.
(98) Form Chain  
Two constituents $\alpha$ and $\beta$ can form the nontrivial chain $CH = (\alpha, \beta)$ iff $\alpha$ and $\beta$ are non-distinct and $\alpha$ c-commands $\beta$.  

(99) Chain Reduction  
delete the minimal number of constituents of a nontrivial chain $CH$ that suffices for $CH$ to be mapped into a linear order in accordance with the LCA.  
(Nunes 2001: 308)

The primary purpose of executing Form Chain and Chain Reduction is to prevent a syntactic object from simultaneously c-commanding an element $X$ and being c-commanded by the same element, e.g., a copy of $X$. The application of Chain Reduction also prohibits a syntactic object from preceding and following itself. With the two syntactic operations, the Linear Correspondence Axiom (100) can be satisfied.

(100) Linear Correspondence Axiom  
Let $X$, $Y$ be nonterminals and $x$, $y$ terminals such that $X$ dominates $x$ and $Y$ dominates $y$. Then if $X$ asymmetrically c-commands $Y$, $x$ precedes $y$.  
(Kayne 1994: 33)

With the Movement Theory of Control and sideward movement, we do not need to invoke PRO to account for the control phenomenon observed in a ‘where’-IVSC or a ‘how many’-IVSC. Moreover, we will not be confronted with the theoretical and empirical problems incurred by the PRO analysis. The following discussion will demonstrate how adjunct control in the construction under consideration is derived from sideward movement of the shared theme DP. We will illustrate the derivation with the following Kavalan sentence. The same analysis applies to Amis.

(101) Kavalan  
tanian-an ni buya m-nubi ya kelisiw-ta  
where(verb)-PV ERG PN AV-hide ABS money-1PL GEN  
‘Where does Buya hide our money?’

The derivation of (101) has the following numeration. For expository purposes, some functional heads are not included in the numeration.
The root nubi 'hide' merges with the DP ya=kelisiw-ta 'our money' so that the DP can check the theta-feature on this verb and acquire the theme theta role. The resultant root phrase then merges with v(m-). This is accompanied by the head movement of nubi 'hide' to v(m-). Note that the v that the lexical verb is merged with only functions as a verb-creating head but lacks detailed verbal semantics such as CAUSE or BECOME. In other words, it is not associated with any theta-features. The AV-restriction on the lexical verb in an IVSC arises from the nature of this type of v in embedded non-finite clauses as the agent voice marker is the default morpheme that can be inserted under this particular v. The derivation so far results in the following syntactic object K.

(103) K = [vP m-nubi [vP nubi ya=kelisiw-ta]]

(104) Tree representation of K

When tanian 'where' enters the derivation, it has a theta-feature that needs to be checked against a DP. The DP in (104) undergoes sideward movement and merges with tanian to check its theta-feature. The DP thus acquires one more theme theta role. This movement is legitimate because it obeys Enlightened Self Interest. A feature of the
target is checked because of this movement. An independent syntactic object $L$ results from the sideward movement.

(105) $L = [\sqrt{P} \text{tanian}_k \text{ya=}\text{kelisiw-ta}]$

(106) Tree representation of $L$

Note that $\text{tanian}$ could have merged with $ni=\text{bu}ya$ from the numeration since Merge is a less costly operation than Move, which consists of Copy and Merge. However, this will lead to an inconvergent derivation. We will return to this issue later.

The derivation proceeds with $v_{\text{CAUSE}}$ (-an) merging with $L$ and with $\text{tanian}$ moving to $v_{\text{CAUSE}}$ (-an). This results in $L'$ below.

(107) $L' = [v \text{tanian}_k\text{-an} [\sqrt{P} \text{tanian}_k \text{ya=}\text{kelisiw-ta}]]$

(108) Tree representation of $L'$

The syntactic object $K$, i.e., the lexical verb phrase, is then adjoined to $L'$, as represented in (109).
The adjunction of K (the lexical verb phrase) to L' (the interrogative verb phrase) is motivated by the need of theta-feature checking on the lexical verb, *nubi* 'hide', which discharges not only a theme argument but also a location argument. As Section 7.3.2.2 has explained, the saturation of an argument position can be achieved via either head-complement or head-adjunct configuration. In the former case, a head discharges an argument position to its complement, whereas in the latter case, an adjunct discharges an argument position to its head without determining the morphosyntactic features of the phrase. Please refer to the semantic type structure in (69b) and its semantic interpretation in (70), which show that L' is of the right semantic type to saturate the argument position of K. When K, the lexical verb phrase, is adjoined to L', which is headed by *tanian*, the locative interrogative verb checks the location theta-feature on the lexical verb, *nubi* 'hide', and saturates one of its argument positions.

The two independent syntactic objects are combined to project v’, which in turn merges with *ni=buya*. This DP checks the theta-feature on *v_{CAUSE} (-an)* and acquires an agent theta-role. The structure at this point of the derivation is shown in (110).
(110) v' merges with \( ni=buya \)

(111) TP
$T_{\text{FIN}}$ then enters the derivation and merges with vP; the theme DP moves from the complement position of *tanian* to the specifier of TP. This movement is triggered by Enlightened Self Interest as the finite T can check the absolutive Case feature on the theme DP. Note that the interrogative verb has to undergo head movement to T. The structure in (111) is thus derived.

(112) TopP

The structure in (111) does not reflect the correct verb-initial word order of the sentence. The absolutive DP has to move to TopP to check the uninterpretable [D] and [op]
features on Top, as shown in (112). Finally, the remnant TP moves to FocP and the verb-initial word order is thus derived. (113) represents the final structure.

(113) FocP

According to the definition of Form Chain in (98), the copy of the DP *ya=kelisiw-ta* ‘our money’ in Spec, TopP can form a nontrivial chain with its lower copy in Spec, TP.

---

7 Please see Chapter 5 for a discussion on the movement of the absolutive DP to TopP to check the uninterpretable [D] and [op] features on Top.
which forms two nontrivial chains with the copy in vP₂ and the copy in √P respectively. In each chain, the copies are the same non-distinct DP and the higher copy ccommands the lower copy. Therefore, the formation of the three chains is appropriate. At PF, Chain Reduction applies for the purpose of linearization. The lower copy of each chain is deleted. The highest copy in Spec, TopP survives because it has most interpretable features and does not have uninterpretable features. Note that there are also non-distinct copies of the theme DP within the TP in Spec, FocP because they move along with the TP to this position. These copies will still be deleted at PF via Chain Reduction because the formation of a chain not only identifies the content of a syntactic object, but also takes into account its local structural configuration (Nunes 2004). There are three chains of the theme DP in total. The copy that is deleted in each chain has the following structural configurations respectively: The complement of tanian ‘where’ in √P, the complement of nubi ‘hide’ in vP₂, and the specifier of TP. After the structure in (113) is sent to PF, Chain Reduction will delete all the instances of the theme DP that occupies any of the above three structural positions. This results in the deletion of all the copies of the theme DP in both copies of the TP, except for the one in Spec, TopP.

Finally, we have to explain why tanian ‘where’ cannot merge with the DP ni=buya ‘ERG=buya’ when it enters the derivation, but must merge with the DP ya=kelisiw-ta ‘ABS=money-1IPL.GEN’, which has to undergo sideward movement from K (103). As Merge is a less costly operation than Move, which comprises other independent operations, the Economy consideration should be able to prevent the DP ya=kelisiw-ta ‘ABS=money-1IPL.GEN’ from undergoing sideward movement and merging with tanian.
However, merging *tanian* with *ni=buya* ‘ERG=buya’ at this stage of the derivation would result in a structure that could not converge at LF. Suppose we allow *tanian* to merge with *ni=buya* ‘ERG=buya’ first. After the lexical verb phrase is adjoined to v’, this vP is no longer an independent syntactic object and it becomes a syntactic island out of which no extraction is allowed. The theme DP in the lexical verb phrase is thus unable to move out of this island to Spec, TP for Case checking. An unchecked Case feature on the theme DP will incur a violation of Full Interpretation and hence the derivation crashes. On the assumption that the computation of Economy should be restricted to convergent derivations from the same numeration, Merge takes precedence over Move only if both can derive a convergent structure. As the merger of *tanian* with *ni=buya* ‘ERG=buya’ does not lead to a convergent structure, it cannot be compared with the sideward movement operation in terms of Economy.

The analysis delineated above can further account for the empirical observation that the theme argument in a ‘where’-IVSC or a ‘how many’-IVSC must be case-marked absolutive. An example is repeated below.

(114) Kavalan
tanian-an-su m-nubi ya/*tu kelisiw-ta
where-PV-2SG.ERG AV-hide ABS/OBL money-1IPL.GEN
‘Where do you hide our money?’

The fact that the theme argument cannot receive oblique case suggests that it is not allowed to stay in the lexical verb phrase, which is headed by an AV-marked verb. In other words, it must move to Spec, TP, which licenses absolutive Case. This syntactic behavior finds a natural explanation in our system, which adopts Form Chain and Chain Reduction for linearization purposes. After the theme DP undergoes sideward
movement and the lexical verb phrase is adjoined to the matrix v’, the structure in (115) is derived.

(115)

If neither of the two copies of the theme DP moves to a higher structural position at the later stages of the derivation, these two copies cannot form a chain. Neither of them c-commands the other. If they do not form a chain, Chain Reduction cannot apply at PF. The failure to apply Chain Reduction will lead to the derivation of a PF structure where the theme DP precedes and follows itself. This PF structure contradicts the Linear Correspondence Axiom and is not linearizable. Therefore, one of the two copies of the theme DP must move to a higher structural position so that each of them can form a chain with the c-commanding higher copy. The lexical verb phrase has been adjoined to v’ and has become a syntactic island. Therefore, it is the copy in the complement position of tanian that moves to a c-commanding position, i.e., Spec, TP, which is in charge of the checking of absolutive Case. As shown in the preceding discussion, these two lower copies are both deleted at PF for linearization. The theme DP in a ‘where’-IVSC thus never receives the default oblique case.

By contrast, the case alternation of the theme DP in a ‘do how’-IVSC can be attributed to the complement structure of the lexical VP. The theme DP in a ‘do how’-IVSC does not belong to the argument structure of the interrogative verb. Instead, it is
merged with the lexical verb as its complement. The lexical verb phrase, in turn, is merged with ‘do how’ as its complement clause. Unless the theme DP has an absolutive Case feature, there is no trigger for its movement out of the complement clause. The interrogative verb ‘do how’, i.e., naquni or maan, does not possess a theme theta-feature that has to be checked by the theme DP, so feature checking does not constitute a motivation for movement. The theme DP does not need to move to salvage a non-linearizable structure either. Therefore, when the theme DP in a ‘do how’-IVSC enters the derivation without any Case feature, it just stays in its base-generated position and receives the default oblique case marker. Only when it possesses an absolutive Case feature does it need to move to Spec, TP to check its Case feature. Both derivations converge. The alternation between absolutive case and oblique case in a ‘do how’-IVSC thus arises.

To summarize, it is not necessary to resort to PRO in order to explain the fact that the interrogative verb and the lexical verb in a ‘where’-IVSC or a ‘how many’-IVSC share a theme argument. This empirical observation follows from the sideward movement of the theme argument from the lexical verb phrase to the complement position of the interrogative verb. The theme argument checks the theme theta-feature on both verbs and acquires two theme theta roles. Moreover, the movement analysis does not invoke PRO and thus is not faced with the theoretical and empirical problems associated with the PRO analysis. All the mechanisms that are responsible for the derivation of a ‘where’-IVSC and a ‘how many’-IVSC are independently required operations like Copy and Merge. It is more parsimonious than the PRO analysis.
However, whether this analysis of the IVSC can be extended to other cases of adjunct control in Kavalan and Amis is a separate issue and we leave this for future research.

7.4.5 Summary

The discussion in this section has revealed that a ‘do how’-IVSC and a ‘where’- or ‘how many’-IVSC involve distinct syntactic operations concerning the surface realization of the theme DP. The interrogative verb in a ‘do how’-IVSC does not have a theme argument, but the theme argument of the lexical verb can undergo DP-raising to the matrix Spec, TP, resulting in syntax-semantics mismatch. An IVSC headed by ‘where’ or ‘how many’ manifests properties of adjunct control, which results from the sideward movement of the theme argument from the lexical verb phrase to the complement position of the interrogative verb.

7.5 Conclusion

This chapter has elaborated on the syntactic structure of the Interrogative Verb Sequencing Construction (IVSC) in Kavalan and Amis. The grammatical properties of this construction suggest that the syntactic relationship between the interrogative verb and the lexical verb is not coordination, but subordination. The interrogative verb serves as the main verb of the construction, whereas the lexical verb occurs in a reduced non-finite clause. First of all, the linear order of the interrogative verb and the lexical verb cannot be reversed. The interrogative verb must precede the lexical verb. Secondly, the case-marking pattern of the nominal arguments is determined by the voice marker on the interrogative verb. Moreover, the lexical verb is structurally defective as it manifests properties of a non-finite verb form. Its tense and aspect interpretation is dependent on the interrogative verb. Tense and aspect markers, if any, must be attached to the
interrogative verb. Finally, the fact that the lexical verb must observe the AV-restriction also shows that it is a defective non-finite verb.

Although subordination is characteristic of IVSCs in general, not all IVSCs exhibit the same structural relationship between the interrogative verb and the lexical verb and not all of them are derived from the same syntactic operation. IVSCs can be classified into two types on the basis of their thematic features and morphosyntactic properties. The first type of IVSC is headed by ‘how’, i.e., naquni in Kavalan and maan in Amis. The lexical verb phrase in a ‘how’-IVSC can saturate an argument position discharged by the interrogative verb on both the semantic level and the syntactic level. It is a complement to the interrogative verb. Moreover, the theme DP is not an argument of the main interrogative verb, but it can undergo movement from the embedded clause to the matrix clause to check absolutive Case feature. The second type of IVSC is headed by ‘where’ or ‘how many’. The lexical verb phrase in this type of IVSC is adjoined to the interrogative verb phrase. The lexical verb and the interrogative verb share a single theme argument, which undergoes sideward movement from the adjoined clause to the matrix clause for theta-feature checking and then moves to Spec, TP for Case checking and linearization. In conclusion, IVSCs encompass at least two different structural configurations. The results are summarized in the following table.

Table 7-1. Two IVSCs in Kavalan and Amis

<table>
<thead>
<tr>
<th>Properties</th>
<th>‘where’/‘how many’-IVSC</th>
<th>‘how’-IVSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of verb sequencing</td>
<td>subordination</td>
<td>subordination</td>
</tr>
<tr>
<td>Argument sharing</td>
<td>Theme</td>
<td>Agent</td>
</tr>
<tr>
<td>The syntactic status of the</td>
<td>Adjunct</td>
<td>Complement</td>
</tr>
<tr>
<td>lexical VP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Derivation</td>
<td>Adjunct Control</td>
<td>Raising</td>
</tr>
<tr>
<td></td>
<td>Sideward Movement</td>
<td>Restructuring</td>
</tr>
</tbody>
</table>

382
CHAPTER 8
CONCLUSION AND IMPLICATIONS

8.1 Summary

This dissertation has elaborated on the properties and constraints of the interrogative constructions in Kavalan and Amis and offered theoretical explanations for the descriptive generalizations. From a descriptive perspective, there are three primary question formation strategies in Kavalan and Amis, i.e., wh-in-situ construction, wh-initial construction, and the use of interrogative words as verbs. Empirical facts have been presented to show that the wh-initial construction exhibits a pseudo-cleft structure. The interrogative phrase in the wh-initial construction does not undergo wh-movement to Spec, CP, and nor does it occupy the focus position of a cleft sentence. Instead, it serves as the non-verbal predicate of the construction, which takes a headless relative clause as the subject.

We have also discussed the constraints on the in-situ question and the wh-initial construction, or the pseudo-cleft question, in relation to the grammatical function or case-marking of an interrogative word or phrase. In both Kavalan and Amis, the wh-initial construction is only available for questions where an absolutive argument is questioned. This constraint results from the predicate-initial derivation of Kavalan and Amis. As the predicate phrase is moved to the specifier of a higher functional projection, FocP, it constitutes a syntactic island out of which nothing can be extracted. The absolutive DP has moved out of the predicate phrase before the raising of the predicate phrase, so it is the only DP that is available for further extraction.

Kavalan and Amis differ in the distribution of their in-situ interrogative phrases. While Amis allows all types of interrogative phrases to stay in-situ regardless of their
grammatical function or case-marking, Kavalan interrogative phrases that receive absolutive case cannot stay in-situ, except for mayni=ay ‘which=REL’. We have presented two analyses that can account for the discrepancies between Kavalan and Amis. The wh-in-situ pattern in Amis corroborates Law’s (2006) account of wh-in-situ in other Austronesian languages, which resorts to the formal marking of subjects as an explanation. This requirement on the formal marking of subjects arises from the EPP feature on T, which is checked by overt D in Amis. By contrast, the Kavalan pattern conforms to Richards’s (1998) and Sabel’s (2003) account, which analyzes subjects in Austronesian languages as topics and attributes the ban on in-situ subject interrogatives to this property. As for mayni=ay ‘which=REL’, it is suggested that it can stay in-situ in the subject position because of its D-linking status, which results from its syntactic structure of restrictive modification that involves DP-internal Predicate Inversion.

Another primary and significant component of this dissertation is concerned with the analysis of interrogative verbs. The use of interrogative words as verbs is typologically rare and has not received due attention from linguists. We have identified the range of meanings that the interrogative verbs in Kavalan and Amis can encode. In addition to ‘do what’, ‘what happen’, and ‘do how’, which are expressed by a morphologically simple verb in most Formosan languages, Kavalan and Amis are unique in utilizing interrogative verbs to inquire about location and quantity. It has also been found that the interrogative verbs in Kavalan and Amis can show up as intransitive, transitive, and ditransitive verbs. Some of them can also occur in the Interrogative Verb Sequencing Construction (IVSC).
Moreover, there are restrictions on the type of location and quantity that can be questioned with interrogative verbs. Only when a question concerns the location of the theme argument in a ditransitive event can Kavalan *tani* and Amis *icuwa* ‘where’ be used as a verb and affixed with the patient voice marker. By contrast, when a question inquires about the location where an event takes place, these two interrogative words do not exhibit any verbal properties. When Kavalan *tani* and Amis *pina/hakuwa* ‘how many/much’ are used as verbs, they can only question the quantity of a theme argument, but not an agent argument, and the question where they occur is always associated with an implication that the quantity might change.

We have argued for a syntactic approach to the derivation of interrogative verbs. The possibility or impossibility of using an interrogative word in Kavalan and Amis as a verb is motivated by syntactic and semantic principles/constraints, either universal or language-specific. There is no need to stipulate the syntactic categories of interrogative words in the lexicon. Once the assumption that derivational morphology, e.g., the Kavalan and Amis voice system, must operate in the lexicon is abandoned, the syntactic behaviors of interrogative verbs find a uniform explanation in Syntax. Interrogative words are not lexically specified for syntactic categories. Their syntactic categories and the relevant grammatical patterns follow from the interaction of the following factors: The inherent semantics of interrogative words, the available interpretation of the question where they occur, the verbal structures of the voice markers, and the syntactic principles and constraints that are crosslinguistically valid, e.g., the ECP or the Transparence Condition. Interrogative verbs are not unconstrained
lexical idiosyncrasies. Instead, their derivations are systematically conditioned in Syntax.

Finally, we have offered a syntactic analysis of the Interrogative Verb Sequencing Construction (IVSC) in Kavalan and Amis. The grammatical properties of this construction suggest that the syntactic relationship between the interrogative verb and the lexical verb is not coordination, but subordination. The interrogative verb serves as the main verb of the construction, whereas the lexical verb occurs in a reduced non-finite clause. Although subordination is characteristic of IVSCs in general, not all IVSCs exhibit the same structural subordinate relationship between the interrogative verb and the lexical verb and not all of them are derived from the same syntactic operation.

IVSCs can be classified into two types on the basis of their thematic features and morphosyntactic properties. The first type of IVSC is headed by ‘how’, i.e., *naquni* in Kavalan and *maan* in Amis. The lexical verb phrase in a ‘how’-IVSC can saturate an argument position discharged by the interrogative verb on both the semantic level and the syntactic level. It is a complement to the interrogative verb. Moreover, the theme DP is not an argument of the main interrogative verb, but it can undergo movement from the embedded clause to the matrix clause to check absolutive Case feature. The second type of IVSC is headed by ‘where’ or ‘how many’. The lexical verb phrase in this type of IVSC is adjoined to the interrogative verb phrase. The lexical verb and the interrogative verb share a single theme argument, which undergoes sideward movement from the adjoined clause to the matrix clause for theta-feature checking and then moves to Spec, TP for Case checking and linearization. In conclusion, IVSCs encompass at least two different structural configurations.
8.2 Implications and Future Research

8.2.1 Predicative Use of Interrogative Phrases

The research findings of this dissertation suggest that the preferred question formation strategy in Kavalan and Amis is the use of interrogative phrases as predicates, either verbal or nonverbal. Both pseudo-cleft questions and verbal interrogatives involve the use of interrogative phrases as predicates. It should be noted that Kavalan and Amis do not utilize wh-movement as a question formation strategy. Even if non-verbal interrogatives occur in the sentence-initial position, it still functions as a predicate in a pseudo-cleft structure, which is in stark contrast to sentence-initial non-predicative wh-phrases in Spec, CP after wh-movement. What typically occurs first in a declarative sentence in Kavalan and Amis is also a predicate, either verbal or non-verbal. In other words, in both declarative and interrogative sentences, Kavalan and Amis prefer that the sentence-initial position be filled by a phrase with some predicative feature. The utilization of pseudo-cleft questions and interrogative verbs is thus correlated with the verb-initial word order of the two languages in terms of the constraint on what can occur sentence-initially in these languages. This partly reflects Oda’s (2005) and Potsdam’s (2009) claim that there is a close relationship between how a verb-initial language derives its word order and the availability of a cleft structure to form questions.

Therefore, one possible determinant of interrogative predicates as the preferred strategy in verb-initial languages like Kavalan and Amis is the structure of the left periphery in these languages. Such an analysis is adopted by Massam (2003) for Niuean. Based on the data from Niuean, a predicate-initial Oceanic language, Massam (2003) suggests that the correlation between cleft as a question formation strategy and
verb-initial languages can be explained by the nature of the left periphery in such languages. She argues that as focused DPs and wh-DPs are predicates in Niuean, the structure of the left periphery of this language differs from the structure proposed by Rizzi (1997) for Italian. What follows is the structure Massam (2003: 101) advances for the left periphery of Niuean.

(1)  Top Force Neg Mod Pred T [Q/Int]

There are no focused DPs in this structure and the Topic position is base-generated outside the ‘left periphery’. The left periphery of Niuean is thus a domain without any D features or elements. This can account for the fact that Niuean can utilize either wh-in-situ strategy or cleft structure to form interrogative constructions but not wh-movement.

The implication of Massam’s (2003) approach for the present study is that the use of interrogative phrases as verbal predicates, i.e., interrogative verbs, and as non-verbal predicates in pseudo-cleft questions might be motivated by the predicative feature in the left periphery of Kavalan and Amis clause structure. The advantage of this approach is that it can unify pseudo-cleft questions and interrogative verbs and might reveal the core structural differences between languages with interrogative verbs and languages without interrogative verbs. Research along this line is thus worth undertaking.

8.2.2 The Syntactic Derivation of “Non-Canonical” Verbs

In Chapter 6, we showed that the syntactic approach to the derivation of interrogative verbs can be extended to non-interrogative words as well, e.g., non-interrogative location verbs and manner verbs. The syntactic structure of location verbs in Kavalan and Amis exhibits nontrivial similarities and differences compared with Hale and Keyser’s (1993) structure of the denominal location verbs in English.
The crucial difference lies in the presence or absence of a prepositional phrase in the syntactic representation. On Hale and Keyser’s (1993) account, the projection of P is obligatory even though there is no overt P. The reason is probably that an NP must be the complement of P to be interpreted as a location, or N must move to P to acquire the denotation of a location before moving to V. By contrast, the structure of Kavalan and Amis location verbs does not contain a PP. While English possesses a rich inventory of prepositions, the inventory of prepositions in Formosan languages is extremely impoverished and some of them might lack this class of words completely. The inventory of prepositions might be a parameter that can contribute to the cross-linguistic differences in the formation of location verbs, as the presence of P can block the head movement of a location noun to the little v due to the Head Movement Constraint. Our syntactic approach is thus a promising way to conduct further research on the typology of location verb derivations.

8.2.3 Control Structure in Kavalan and Amis

One motivation for our analysis of adjunct control in IVSC as sideward movement is it does not fit in the general pattern of how control relationship is achieved in Kavalan and Amis. However, it remains to be seen whether the Actor-Sensitivity Constraint proposed by Chang and Tsai (2001) also holds in more usual adjunct control sentences. Moreover, it is still unclear whether it is the PRO analysis or the Movement Theory of Control that can better account for the empirical facts of obligatory control in Kavalan and Amis. The research findings of this theoretical syntactic study can shed light on whether a language can utilize both mechanisms of obligatory control and whether both mechanisms should be incorporated into the core components of the syntactic theory we have been using. Van Urk (2010) suggests that both mechanisms are required and
they derive different structures of obligatory control. An in-depth syntactic analysis of the different types of obligatory control structure in Kavalan and Amis is necessary to shed light on this issue.

8.2.4 Argument Structure

The analysis on the structure of IVSCs has significant implications to the theory of argument structure and the syntactic representations of heads, complements, and adjuncts. The syntactic structure of a ‘how’-IVSC is a transparent realization of its semantic structure as per Parsons (1990) in that a modifier is a head and a modifiee is a complement both syntactically and semantically in this particular construction. However, none of the current proposals on the structure of ditransitive sentences can account for the syntactic structure of a ‘where’-IVSC, where a location argument is syntactically realized as a verbal head with a ditransitive verb as an adjunct modifier. We thus offered a semantic type derivation for this structure instead. However, a full discussion on how and whether the current theories of argument structure and syntactic headedness can be modified to accommodate the Kavalan and Amis data presented here, especially IVSCs headed by ‘where’, is beyond the scope of the present study, but this research direction is definitely worth pursuing.
LIST OF REFERENCES


Aldridge, Edith. 2006. The heterogeneity of VOS and extraction in Austronesian languages. Ms., Northwestern University, Evanston, IL.


BIOGRAPHICAL SKETCH

Dong-yi Lin was born in Tainan, Taiwan. He earned a B.A. in English at the National Taiwan Normal University in 2003 and received an M.A. in Linguistics at the National Taiwan University in 2006. His M.A. thesis described the language of emotion in Kavalan and received the Best Thesis Award from the Linguistic Society of Taiwan in 2007. In the spring of 2013, he received his Ph.D. in Linguistics from the University of Florida.

His research focuses on both theoretical linguistics, especially morphosyntax and semantics, and descriptive linguistics of endangered languages, especially indigenous Austronesian languages in Taiwan, or Formosan languages. One primary goal of his research agenda is to show that the inquiry into the unique morphosyntactic and semantic features of Formosan languages can advance our understanding of language universals and differences and further contribute to the current linguistic theories.

His specific research interests include the structure and typology of wh-questions in Formosan languages, especially the syntax and semantics of interrogative verbs, and also the structure of obligatory control in these languages.