

VERB COMPLEXES IN THAI

by

Nuttanart Muansuwan

February 1, 2002

Major Professor: Jean-Pierre Koenig Ph.D.

A dissertation submitted to the
Faculty of the Graduate School of
University at Buffalo, The State University of New York
in partial fulfillment of the requirements for the
degree of

Doctor of Philosophy

Department of Linguistics

VERB COMPLEXES IN THAI

Abstract

This dissertation is a comprehensive study of Thai verb complexes which are not semantic arguments of the main predicate of a clause. These non-argument verb complexes are classified into three groups: 1) Directional Serial Verb Constructions, 2) Aspectual Constructions, and 3) Adjoining Constructions. Verb complexes in Directional Serial Verb Constructions encode motion-related situations. Since Thai lacks morphology Thai marks aspect by using distinct aspectual words in either pre-verbal or post-verbal positions. I call the constructions which contain aspect-marking elements, Aspectual Constructions. Adjoining Constructions are composed of verb complexes linked by causal chains and are similar to Resultative Constructions found in English and other languages. However, the result of the causal event in a Thai Adjoining Construction is unique in the sense that it is merely an expectation.

Using Head-Driven Phrase Structure Grammar and Minimal Recursion Semantics as theoretical frameworks, I present analyses of the three types of verb complexes. I illustrate how these three types of verb complexes are syntactically manifested and how their semantic compositions proceed. Traditionally, these three groups of non-argument verb complexes in Thai have been considered instances of serialization. However, I argue that there is no uniformly defined notion of so-called serialization, from either a syntactic or semantic point of view, that can apply to all of the three types of Thai verb complexes. To illustrate this, I show that Directional Serial Verb Constructions include both a recursive VP-over-VP structure, with fixed positions of certain verb classes, or a

complementation structure. Aspectual Constructions include both a head-complement and a head-adjunct structure. Adjoining Constructions are formulated via a type of complementation. This non-uniformity between the syntactic structures and the semantic sub-groupings of the Thai verb complexes indicates that if we want to apply the notion of serialization to these Thai verb complexes, we cannot define it on the basis of either the positions of verb complexes in the construct, the syntactic structures involved, or the semantic domains it expresses.

VERB COMPLEXES IN THAI

by

Nuttanart Muansuwan

February 1, 2002

A dissertation submitted to the
Faculty of the Graduate School of
University at Buffalo, The State University of New York
in partial fulfillment of the requirements for the
degree of

Doctor of Philosophy
Department of Linguistics

Dedication

To my family, for their everlasting love, and to Sidi, for being there for me.

Acknowledgments

I would like to express my gratitude to my advisor, Dr. Jean-Pierre Koenig for having taught me linguistics, how to do linguistic analyses and how to think like a linguist, for the past five years. I would like to thank also Dr. Robert D. Van Valin Jr. and Dr. Matthew Dryer for reading my dissertation and giving me insightful comments, which makes my dissertation better than it would otherwise have been. I am also grateful to Dr. Shoichi Iwasaki, who read my dissertation and provided feedback from another perspective. I would like to thank also all professors at the Linguistics Department at UB, who have taught me various aspects of linguistics.

I am indebted to the Royal Thai Government. My education in the USA would not have been possible without their funding throughout my studies. I am grateful to my family back in Thailand and to Sidi for their love, care and support. Many thanks go to my Thai and international friends whom I know at UB: Waraporn Chaiyawat, Jennifer Cornish, Sung-Chool Im, Atsuko Nishiyama, Hidematsu Miura, Luis Paris, the Polyium Family, Tipa Prangrat, Suda Rangkupan, Sirirat Sinprajakpol, Kiyoko Toratani, and many others. Several of them were my informants. All of them have shared with me various discussions and have given me encouragement. I would like to thank also Bonnie and Carole. They are the people who make me feel warm inside despite the harsh Buffalo winter.

Finally, I would like to express my gratitude to my father, who taught me to do my best in whatever I do, and to my mother, who let me search for my own way of life. I am grateful for their love, which has always been present in my heart and has given me strength in carrying out this dissertation and completing my studies.

Table of Contents

	Page
Dedication.....	ii
Acknowledgments.....	iii
List of Tables.....	ix
List of Figures.....	x
List of Abbreviations.....	xi
Abstract.....	xii
Chapter 1: Introduction.....	1
1.1 Background.....	1
1.2 Data, Scope and Purpose.....	2
1.3 Overview of Thai Syntax.....	5
1.4 Theoretical Framework and Tools.....	7
1.4.1 Head-Driven Phrase Structure Grammar: Introduction.....	7
1.4.1.1 Lexicon.....	13
1.4.1.2 Principles.....	15
1.4.1.3 Schemata.....	17
1.4.2 Minimal Recursion Semantics.....	22
1.4.3 Constituency Tests.....	24
1.5 Organization and Overview of Results.....	32
1.6 Thai Phonemes.....	33

Chapter 2: Directional Serial Verb Constructions.....	35
2.1 Introduction.....	35
2.2 Serial Verb Constructions in Thai.....	36
2.2.1 Definition of Serial Verb Constructions.....	36
2.2.2 Thai Serial Verb Constructions.....	37
2.3 Previous analyses of Directional SVCs.....	39
2.4 Constituent and Argument Structures of Thai Directional Serial Verbs.....	45
2.4.1 Constituent Structure.....	45
2.4.2 Argument Structures of Verbs in Directional SVCs.....	51
2.5 Ordering constraints.....	54
2.6 Analysis of Thai Directional Serial Verb Constructions.....	60
2.6.1 Syntactic Analysis of Thai Directional Serial Verb Constructions.....	60
2.6.2 Semantic Composition in Thai Directional Serial Verb Constructions..	87
2.7 Conclusion.....	95
 Chapter 3: Aspect morphemes in Thai.....	 97
3.1 Introduction.....	97
3.2 Thai Aspect Morphemes.....	98
3.2.1 Semantic Properties.....	102
3.2.1.1 Morphemes from Slot 1.....	102
3.2.1.1.1 Aspect Morphemes.....	102

3.2.1.1.2 Modal Morphemes.....	113
3.2.1.1.3 Possible Combinations of Morphemes from Slot 1.....	113
3.2.1.2 Morphemes from Slot 3.....	115
3.2.1.2.1 Modal Morpheme.....	115
3.2.1.2.2 Aspect Morphemes with Predicative Meaning.....	116
3.2.1.2.3 Aspect Morphemes with Non-predicative Meaning.....	120
3.2.1.2.4 Possible Combinations of Morphemes from Slot 3.....	133
3.2.1.3 Morpheme from Slot 4.....	134
3.2.1.4 Possible Combinations of Aspect Morphemes from Slots 1 and 3 with the Perfect Morpheme.....	135
3.2.2 Positional Properties of Thai Aspect Morphemes.....	136
3.2.3 Combinatorial Properties of Thai Aspect Morphemes.....	139
3.3 Restrictions in Combining Thai Aspect Morphemes.....	142
3.4 Conclusion.....	145
Chapter 4: Parts of Speech and Structures of Thai Aspect Morphemes.....	147
4.1 Introduction.....	147
4.2 Parts of Speech of Thai Aspect Morphemes.....	148
4.3 Structures of Thai Aspectual Constructions.....	164
4.3.1 Syntactic Structure of Thai Aspectual Constructions.....	164
4.3.1.1 Head-Complement Structure.....	166
4.3.1.2 Head-Modifier Structure.....	173
4.3.2 Scope Relations in Thai Aspectual Constructions.....	177

4.3.2.1 Observations and Hypotheses on Scope Relations among Thai Aspect Morphemes.....	178
4.3.2.2 Informal Representations of Scope Relations among Thai Aspect Morphemes.....	184
4.4 Formalization of Thai Aspectual Constructions.....	189
4.4.1 Syntactic Representations.....	190
4.4.2 Scope Relations in Thai Aspectual Constructions.....	202
4.5 Conclusion.....	206
Chapter 5: Adjoining Constructions.....	207
5.1 Introduction.....	207
5.2 Data.....	209
5.2.1 Adjoining Constructions and Conjoined Clauses.....	211
5.2.2 Selectional Restrictions of Thai Adjoining Constructions.....	215
5.2.3 Control in Thai Adjoining Constructions.....	218
5.3 Analysis.....	220
5.3.1 Overview of Previous Analyses of English Resultative Construction..	220
5.3.2 Problems with characterizing Thai Adjoining Construction as a Resultative Construction.....	223
5.3.3 Syntactic analysis of Thai Adjoining Constructions.....	228
5.3.3.1 Constituent Structure.....	228
5.3.3.2 Argument Sharing in Thai Adjoining Constructions.....	230
5.3.4 Semantic Relations in Thai Adjoining Constructions.....	235

5.4 Formal Representations of Thai Adjoining Constructions.....	237
5.4.1 Resulting Verb and Argument Sharing in Thai Adjoining Constructions.....	237
5.4.2 Semantic Representations of Thai Adjoining Constructions.....	244
5.5 Conclusion.....	248
 Chapter 6: Concluding Remarks.....	 249
 References.....	 253

List of Tables

	Page
Table 2.1: Directional verbs and their specific linear order in SVCs.....	43
Table 3.1: Thai aspect morphemes.....	99
Table 4.1: Preliminary classification of Thai aspect morphemes.....	149

List of Figures

	Page
Figure 2.1: A portion of Thai lexical type hierarchy.....	60
Figure 2.2: Type declaration for <i>verb</i> and its subtypes.....	62
Figure 2.3: Basic hierarchy of semantic relations of verbs that occur in Directional SVCs.....	63
Figure 4.1 Preliminary version of parts of speech in Thai.....	155
Figure 4.2 Revised parts of speech in Thai.....	159

List of Abbreviations

AC: Aspectual Construction

acc: accusative

AJC: Adjoining Construction

fin: finite

IMPFV: Imperfective

INC: Inchoative

nom: nominative

PFCT: Perfect

PFTV: Perfective

pl: plural

post-INC: post-inchoative

PROG: Progressive

RC: Resultative Construction

sg: singular

SPFV: Semi-perfective

SVC: Serial Verb Construction

TAM: Thai aspect morpheme

v: verb

Abstract

This dissertation is a comprehensive study of Thai verb complexes which are not semantic arguments of the main predicate of a clause. These non-argument verb complexes are classified into three groups: 1) Directional Serial Verb Constructions, 2) Aspectual Constructions, and 3) Adjoining Constructions. Verb complexes in Directional Serial Verb Constructions encode motion-related situations. Since Thai lacks morphology Thai marks aspect by using distinct aspectual words in either pre-verbal or post-verbal positions. I call the constructions which contain aspect-marking elements, Aspectual Constructions. Adjoining Constructions are composed of verb complexes linked by causal chains and are similar to Resultative Constructions found in English and other languages. However, the result of the causal event in a Thai Adjoining Construction is unique in the sense that it is merely an expectation.

Using Head-Driven Phrase Structure Grammar and Minimal Recursion Semantics as theoretical frameworks, I present analyses of the three types of verb complexes. I illustrate how these three types of verb complexes are syntactically manifested and how their semantic compositions proceed. Traditionally, these three groups of non-argument verb complexes in Thai have been considered instances of serialization. However, I argue that these three classes of verb complexes are neither syntactically nor semantically uniform. In other words, there is no uniformly defined notion of so-called serialization, from either a syntactic or semantic point of view, that can apply to all of the three types of Thai verb complexes. To illustrate this, I show that Directional Serial Verb Constructions include both a recursive VP-over-VP structure, with fixed positions of certain verb classes, or a complementation structure. Aspectual Constructions include both a head-

complement and head-modifier structure. Adjoining Constructions are formulated via a type of complementation. This non-uniformity between the syntactic structures and the semantic sub-groupings of the Thai verb complexes indicates that if we want to apply the notion of serialization to these Thai verb complexes, we cannot define it on the basis of either the positions of verb complexes in the construct, the syntactic structures involved, or the semantic domains it expresses.

Chapter 1

Introduction

1.1 Background

Thai has often been characterized as a serializing language, i.e. a language that has monoclausal constructions which consist of a sequence of concatenated verbs, without any marking of dependency relation. These constructions are called “Serial Verb Constructions” or SVCs in the literature (cf. Bendix, 1972; Boadi, 1968; and Sebba, 1987) and are found in Thai, Chinese and several African languages. This dissertation is concerned with a subset of what have been traditionally considered SVCs in Thai; they all consist of a string of verbs one of which is the head of the base VP¹ and others which are **not** semantic argument(s) of the head of the base VP. To illustrate this, an example of a string of verbs in which the non-initial verb is not the semantic argument of the head of the base VP is given in (1a). Leaving out the second verb in (1a) does not affect the grammaticality of the sentence, as seen in (1b).

- (1) a. Narii kèʔ máj sèd
 Narii carve wood finish
 Narii finished carving wood.

¹ The definition of the base VP here is based on semantic considerations. In the propositional content of the sentence, the base VP carries the central meaning of the event encoded by the sentence (adapted from Miller, 1985: 33).

b. Narii kɛ̀ʔ mǎj

Narii carve wood

Narii carved wood.

The term “semantic argument” is intuitively defined. In example (1a), the verb *sɛ̀d* ‘finish’ is not the semantic argument of the main predicate of carving (*kɛ̀ʔ*) since it is not required by the semantics of the carving event. *Sɛ̀d* ‘finish’ contrasts with *mǎj* ‘wood’ which is a required participant in the carving event; Narii must carve something.

1.2 Data, Scope and Purpose

In this thesis, I investigate three types of constructions which are often considered “Serial Verb Constructions” or SVCs in the Thai literature (Kanchanawan, 1978; Thepkanjana, 1986). Since the term “Serial Verb Constructions” is not unanimously defined,² I use the pre-theoretical term “verb complexes” to refer to the constructions in question. The three groups of verb complexes I study encode non-arguments of the head verb and modify the main situation (conveyed by the base VP) by providing: 1) directional information to the motion-related main situations, 2) aspectual information, or 3) expected result information (similar to that of Resultative Constructions in English). These three groups of verb complexes are illustrated in (2)-(4):

² See a summary of definitions of Serial Verb Construction in Schiller (1990).

(I) Directional Serial Verb Constructions (Directional SVCs)

(2) Piti wîŋ troŋ jɔɔn klàb khâw bâan paj

Piti run go straight reverse return enter house go

Piti ran straight back in the house, away from the speaker.

(II) Aspectual Constructions (ACs)

(3) borisàt níi kamlaŋ cà? sâaŋ tuèk sèd

company this PROG be about to build building finish

This company is in the process of being about to finish constructing a building.

(III) Adjoining Constructions (AJCs)

(4) Piti tii ŋuu taaj

Piti hit snake die

Piti hit the snake dead.

The three verb complexes illustrated in (2)-(4) are also found in other serializing languages and are treated as Serial Verb Constructions by various scholars. They are illustrated below.

(5) Sranan - Motion Serial Verb Construction

Jan waak go a skuul

John walked go to school

John walked thither to school. (Winford, 1990:125)

(6) Yoruba - Serial verb encoding aspect

(Example from Bamgbose, 1974)

ó lò ó tán

he use it finish

He used it up.

(7) Yoruba - Resultative SVC

(Example from Bamgbose, 1974)

Olú ti omo náà subú

Olu push child the fall

Olu pushed the child down.

I have two major goals in analyzing the three classes of verb complexes illustrated in sentences (2)-(4). First, I show that although the surface strings of all of these three verb complexes look the same, there is no uniform notion of serialization that can apply to the three groups of verb complexes. My second goal is to describe the structures of these three classes of verb complexes, which encode non-arguments, and their semantic compositions. I show that the three verb complexes involve different structures and that these structures do not perfectly correlate with the semantic subgroupings of the constructions. That is, there is no single syntactic structure specific to a semantically determined subclass of these verb complexes.

1.3 Overview of Thai syntax

Thai is a language that has a rather rigid SVO word order. The word order is crucial to determine the meaning of strings. In other words, we can tell whether an NP in a sentence is the subject or object from its position, i.e. whether it precedes or follows the verb. In general, complements occur after their heads, as we expect with a SVO language. Modifiers (such as adjectives or adverbs) usually occur after the elements that they modify.

Examples are:

- (8) Head-complement order: verb-object

Priida tii ṇuu

Priida hit snake

Priida hit the snake.

- (9) Head-modifier order: verb-adverb

Priida dən rew

Priida walk fast

Priida walked fast.

- (10) Head-modifier order: noun-adjective

tuèk kàw nán pen khǒɔŋ Priida

building old that copula of Priida

That old building belongs to Priida.

(11) Head-modifier order: noun - relative clause

nakrian thîi khaján dâjrâb khamchom càak khruu
student who diligent receive compliments from teacher

The student(s) who is/are diligent received compliments from the teacher.

Note that Thai is a language in which the order of heads and modifiers is rigid. All modifiers, except certain sentential modifiers such as *muawannîi* ‘yesterday’, follow their heads. The morphology of Thai is simple in the sense that the language has no inflection and no agreement in person, number, etc. There is also no morphological case marking.

In this thesis, I investigate a portion of Thai lexical categories or parts of speech, in particular those of the motion verbs and aspect marking morphemes. This investigation is relevant to my study of Directional Serial Verb Constructions and Aspectual Constructions. I provide below examples of words from distinct parts of speech in Thai. Note that the categories in this list are pre-theoretically used and are borrowed from an English-centered tradition. Also, the list is not intended to be exhaustive, but merely to give a general idea of potential Thai lexical categories.

- i) Noun e.g. *ród* ‘car’
- ii) Pronoun e.g. *thəə* ‘she’
- iii) Verb e.g. *phób* ‘find’
- iv) Adjective e.g. *lèk* ‘small’
- v) Adverb e.g. *jaŋ* ‘still’

- vi) Preposition e.g. *kàb* ‘with’
- vii) Question word e.g. *kraj* ‘who’
- viii) Numeral e.g. *sǒɔŋ* ‘two’
- ix) Classifier e.g. *lam* - classifier for ‘airplane’, ‘boat’, and ‘ship’.
- x) Conjunction e.g. *lɛʔ* ‘and’
- xi) Nominalizer e.g. *kaan* - combines with verbs to create deverbal nouns
- xii) Complementizer e.g. *thîi* ‘that’

Thai researchers generally agree upon the above lexical categorization³ (adapted from Upakitsinlapasarn, 1937). Lexical categories other than nouns, verbs and adjectives in Thai are closed-classes⁴ (Talmy, 1985).

1.4 Theoretical Framework and Tools

1.4.1 Head-Driven Phrase Structure Grammar: Introduction

I use Head-Driven Phrase Structure Grammar (HPSG) as the theoretical framework in this thesis. HPSG is a grammatical theory concerned with the system of linguistic signs that constitute a language and which are, according to Pollard and Sag (1994:15) “structured

³ Note, however, that Thai linguists have recently investigated the traditionally-assumed categories of verbs and adjectives and concluded that, based on syntactic distributions, so-called adjectives in Thai behave virtually the same way as verbs. Therefore, adjectives might actually be a sub-class of verbs (Presithrathsint, 2000). Since this issue is orthogonal to this thesis, I do not take a position on it.

⁴ I assume that adverbs in Thai, which are derived from the class of adjectives by adding the prefix *jàaŋ-* ‘of the type’, constitute a closed-class.

complexes of phonological, syntactic, semantic, discourse, and other phrase-structural information”. Signs can be either words or phrases. To describe these signs, HPSG uses attribute-value matrices (AVMs), diagrammed as follows :

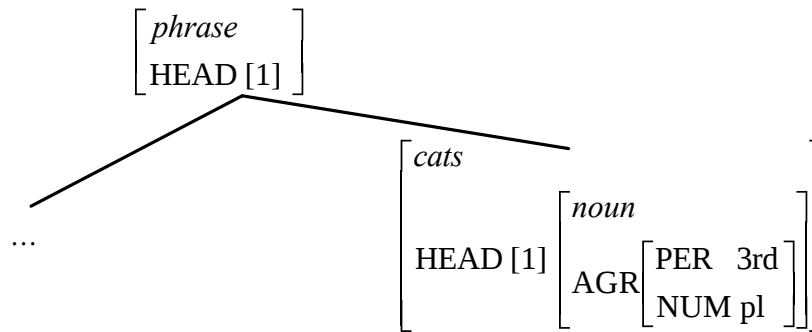
$$\begin{bmatrix} \text{ATTRIBUTE 1} & \text{VALUE 1} \\ \text{ATTRIBUTE 2} & \text{VALUE 2} \\ \dots & \dots \end{bmatrix}$$

An attribute can have an atomic value (a value for which no attribute is appropriate) or it can take another AVM as its complex value. All linguistic signs have at least two attributes: PHON and SYNSEM. The value of PHON is the featured representation of the phonological content of the sign. Since phonology is not the focus of this thesis, the feature PHON will henceforth be left out of all feature structures. According to Pollard and Sag (1994:16) “the information brought together within the SYNSEM attribute forms a natural class in the sense that it is precisely this information that has the potential of being subcategorized for by other signs.” The SYNSEM attribute can be divided into NONLOC(AL) and LOC(AL) information. Nonlocal information is necessary when discussing unbounded dependencies; again, since this information is irrelevant to the issues raised in this thesis, it is left out of all diagrams.

The information contained in linguistic signs, which is relevant to local trees, can be divided into (1) local syntactic properties which are encoded as the value of the CAT(EGORY) attribute, (2) local semantic properties which constitute the value of the CONTENT attribute, and (3) local contextual properties which are the value of the CONTEXT attribute. The attribute or feature CAT, which encodes categorial and subcategorization information, consists of:

(a) the HEAD feature, which gathers the information that is shared between the mother and the head-daughter of a local tree. For example, the agreement features need to be shared between the head noun *cats* and the phrase this noun heads, as illustrated below:

(12)



In (12), the part-of-speech (noun) and agreement features are shared between the head daughter *cats* and the phrase *cats* heads. This is indicated in the diagram through the use of the co-numbered tags [1] preceding the shared structures. Since the sharing of head properties between the head daughter and the mother is common to all headed phrases, the Head Feature Principle is formulated as a general constraint to avoid redundancy in the grammar.

(13) Head-Feature Principle (HFP) (from Sag and Wasow, 1999)

In any headed phrase, the HEAD value of the mother and the HEAD value of the head daughter must be unified.

One crucial idea behind the HFP is to identify the category of the head and that of the phrase it projects, i.e. to disallow a verb to be the head of a PP (prepositional phrase), for example.

(b) the VALENCE features, which contain the subcategorization of words and phrases, i.e. the subject (SUBJ), complements (COMPS), or specifiers (SPR)⁵ for which the word or phrase subcategorizes. The VALENCE features allow lexical entries to specify what they can locally co-occur with by listing the particular kinds of dependents they select. For example, a VP will have the following feature specification

(14)

$$\left[\begin{array}{ll} \textit{phrase} & \\ \text{HEAD} & \textit{verb} \\ \text{COMPS} & \langle \rangle \\ \text{SUBJ} & \langle \text{NP} \rangle \end{array} \right]$$

The AVM in (14) illustrates that the VP has an empty COMPS list, which means that the head verb has already combined with its required complement(s). But the SUBJ list contains an NP, meaning that that this VP still needs to combine with a subject NP.

(c) the ARG-ST (ARGUMENT-STRUCTURE) attribute, which records the potential complements, and subjects of words. The difference between the ARG-ST attribute and the various VALENCE features is that the former puts together all arguments of a head in one list. With VALENCE features, the subject and complement(s) of a head occur in different lists, i.e. SUBJ and COMPS list, respectively. With the ARG-ST list, we can refer to both the subject and complement(s) of a head for the purpose of stating constraints that concern them both such as binding constraints. The AVM in (15) is a simplified representation of the lexical entry for the verb *eats*, and illustrates the relation between the VALENCE features and ARG-ST feature:

⁵ Here, specifiers refer only to determiners. They are not the focus of this thesis and are not discussed any further.

(15)

$$\left[\begin{array}{l} \textit{eats} \\ \text{HEAD } V[\textit{fin}] \\ \text{SUBJ } \langle [3]\text{NP}_{[3\text{sg}]} \rangle \\ \text{COMPS } \langle [4]\text{NP}_{[\text{acc}]} \rangle \\ \text{ARG-S } \langle [3], [4] \rangle \end{array} \right]$$

As illustrated in (15), the ARG-ST list of *eats* is the concatenation of its SUBJ and the COMPS lists. The first element in the ARG-ST list corresponds to the subject of *eats* and the second element in the list corresponds to its complement or object. Words generally obey the following Argument Realization Principle.

(16) Argument Realization Principle (ARP)

A word's value for ARG-ST is $a \text{ r } b$, where a is the word's value for SUBJ and b is its value for COMPS.

The symbol r stands for list concatenation. Intuitively, the ARP ensures that a head specifies all of the arguments that it needs to combine with to form a phrase whose category is determined by this head.

The CONTENT's values encode the semantic information of signs. I adopt Davis's (1996) proposal as to the representation of the value of the CONTENT attribute, namely, that lexical semantic relations are *types*⁶ or sorts rather than values of an attribute. This is because *types* of semantic relations predict the kinds and number of arguments associated with the relations (for examples, the presence of a *kill-rel(ation)* entails the presence of ACTOR and UNDERGOER, and the presence of an *ascend-rel* entails the presence of

⁶ Linguistic *types* are classes of linguistic entities in a language system. Distinct linguistic entities are assigned to the same *type* on the basis of certain properties that they all share (Sag and Wasow 1999).

FIGURE and GROUND). To illustrate this, the simplified CONTENT of the Thai word *khûn* ‘ascend’ which encodes *ascend_rel* is shown in (17).⁷

$$(17) \left[\begin{array}{c} \text{CONTENT} \left[\begin{array}{c} \text{ascend_rel} \\ \text{FIGURE } j \\ \text{GROUND } k \end{array} \right] \end{array} \right]$$

|
khûn ‘ascend’⁸

The AVM in (17) shows that *ascend_rel*, as a motion-related semantic relation, is associated with the features FIGURE, which is the entity that moves, and GROUND (or PATH), which indicates where the motion takes place.

In (18), I illustrate how the subject and object of a verb are linked to the verb’s semantic roles. The lexical entry for the verb *eats* would be as follows (adapted from Davis and Koenig (2000) and Bouma et al. (2001)):

(18)

$$\left[\begin{array}{c} \text{eats} \\ \text{SYNSEM|LOC} \left[\begin{array}{c} \text{CAT} \left[\begin{array}{c} \text{HEAD } V[\textit{fin}] \\ \text{SUBJ } \langle [3][\textit{3sg}] \rangle \\ \text{COMPS } \langle [4][\textit{acc}] \rangle \\ \text{ARG-ST } \langle [3]\text{NP}:[1], [4]\text{NP}:[2] \rangle \end{array} \right] \\ \text{CONTENT} \left[\begin{array}{c} \textit{eat_rel} \\ \text{ACT } [1] \\ \text{UND } [2] \end{array} \right] \end{array} \right] \end{array} \right]$$

⁷ Conventionally, in the AVMs, letters are used for attribute values when identity is not relevant, and co-numbered tags are used to mark identity of values.

⁸ Since I do not include the feature [PHON] in the AVMs, I informally represent the phonological forms of the AVMs with the linear glosses at the bottom of the feature structures.

The tags [1] and [2] after the colons indicate that the semantic contents of the NPs [3] and [4] in ARG-ST list are identical to the values of the ACT(OR) and UND(ERGOER) semantic roles of the semantic content of *eats*, respectively. Note that since the NON-LOC(AL) information is irrelevant to this thesis, from now on I simplify AVM structures and omit the SYNSEM|LOC paths in every AVM representation. For instance, a simplified representation of (18) is shown in (19).

(19)

$$\left[\begin{array}{l} \text{eats} \\ \text{CAT} \left[\begin{array}{l} \text{HEAD} \quad \text{V}[\textit{fin}] \\ \text{SUBJ} \quad \langle [3]_{3\text{sg}} \rangle \\ \text{COMPS} \quad \langle [4]_{acc} \rangle \\ \text{ARG-ST} \quad \langle [3]\text{NP}:[1], [4]\text{NP}:[2] \rangle \end{array} \right] \\ \text{CONTENT} \left[\begin{array}{l} \textit{eat_rel} \\ \text{ACT} [1] \\ \text{UND} [2] \end{array} \right] \end{array} \right]$$

The CONTEXT attribute encodes pragmatic information. Since pragmatics is not the focus of this thesis, the CONTEXT attribute is left out of all the AVMs.

To describe languages, a grammar in HPSG consists of three major components: a lexicon, principles and rules or schemata.

1.4.1.1 Lexicon

In HPSG, a large amount of linguistic information is posited in the lexicon which is allocated to phrase structure rules, levels of representations mediated by transformations, or feature checking in other theories. It would be inefficient to assume that this information is simply listed in the lexicon, as we would miss linguistic generalizations. Therefore, in

HPSG, the lexicon's internal organization is designed to encode regularities and reduce redundancy. This is achieved by organizing linguistic types in the lexicon in a *type hierarchy*.

A type hierarchy reduces the redundancy in two ways. First, it determines appropriate features and constraints on linguistic types, namely, it ensures that a given feature structure contains only those features that are declared appropriate for one of its types. That is, instead of listing that the feature COUNT(ABLE) is relevant for nouns but irrelevant for verbs in every noun entry, we simply declare that the feature COUNT is not appropriate for the entire class of verbs, for instance. Second, type hierarchies reduce redundancy via **inheritance**. That is, subtypes inherit features and constraints from their supertypes. For example, the feature COUNT(ABLE) which is appropriate for the supertype noun is also appropriate for all subtypes of nouns. This is the traditional form of inheritance, called monotonic inheritance, namely, constraints on the supertype affect all instances of its subtypes without exception. Nevertheless, natural languages usually have exceptions. An intuitive alternative to monotonic inheritance, i.e. DEFAULT INHERITANCE, allows contradictory information associated with a subtype to take precedence over constraints that would otherwise be inherited from its supertype (Lascarides et al, 1996; Sag and Wasow, 1999: 172).

Lexical rules are a mechanism for further reducing redundancy and stipulations in the lexicon (apart from the hierarchical lexicon). Lexical rules derive lexical entries from lexical entries and consist of two components: input and output. The input is the left-hand side of the rule and the output is the right-hand side of the rule. To illustrate this, (20) is the result of applying the passive lexical rule to *eats*.

(20)

$$\begin{array}{c} \left[\begin{array}{l} \textit{eats} \\ \text{HEAD } V[\textit{fin}] \\ \text{SUBJ } \langle [3]\text{NP}_{[3\text{sg}]} \rangle \\ \text{COMPS } \langle [4]\text{NP}_{[\text{acc}]} \rangle \\ \text{ARG-S } \langle [3], [4] \rangle \end{array} \right] \end{array} \rightarrow \begin{array}{c} \left[\begin{array}{l} \textit{eaten} \\ \text{HEAD } V[\textit{pass}] \\ \text{SUBJ } \langle [4] \rangle \\ \text{ARG-ST } \left\langle [4], \left(\text{PP}[\textit{by}] \right. \right. \\ \left. \left. \left[\text{P-OBJ } [3] \right] \right) \right\rangle \end{array} \right] \end{array}$$

The above figure illustrates that for the lexical entry *eats*, there is a corresponding passive form *eaten*, whose value of the SUBJ list is [4]. In the ARG-ST list of *eaten*, the first element corresponds to the object or complement of the input *eats* (i.e. the NP tagged with [4]), and the active form's subject can be optionally expressed by the *by*-phrase, whose complement is the NP tagged with [3], which corresponds to the subject of the entry *eats*.

1.4.1.2 Principles⁹

A major principle in HPSG mentioned briefly above is the Argument Realization Principle (ARP). In this section, I revisit the ARP and discuss its role in HPSG grammars. The ARP states that “a word's value for ARG-ST is $a \text{ r } b$, where a is the word's value for SUBJ and b is its value for COMPS”. Intuitively, the ARP ensures that the elements in the ARG-ST list (i.e. the elements that a head subcategorizes for) get realized as the subject or complement depending on the position of the elements in the ARG-ST list. To illustrate this, consider the following entry of the verb *eats*.

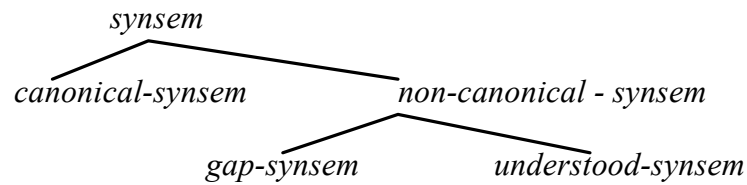
⁹ One important principle, namely the Head Feature Principle, has already been discussed above.

(21)

$$\left[\begin{array}{c} \text{eats} \\ \text{CAT} \left[\begin{array}{cc} \text{HEAD} & \text{V}[\text{fin}] \\ \text{SUBJ} & \langle [3]_{[\text{sg}]} \rangle \\ \text{COMPS} & \langle [4]_{[\text{acc}]} \rangle \\ \text{ARG-ST} & \langle [3]\text{NP}, [4]\text{NP} \rangle \end{array} \right] \end{array} \right]$$

In (21), the first NP in the ARG-ST list is realized as the subject of *eats*, as indicated by the token-identity of the first NP in the ARG-ST list with the value of SUBJ ([3]). The second NP in the ARG-ST list gets realized as the object of *eats*, as shown by the token-identity of the second NP in the ARG-ST list with the member of the COMPS list ([4]). Furthermore, I assume, following Miller and Sag (1997) and Bouma et al. (2001), that ARP realizes every element in the ARG-ST list except those which are *non-canonical synsem*. *Non-canonical synsem* objects correspond to elements which are subcategorized for by a head, but which will **not** be realized locally. The basic assumption is that linguistic objects belong to the following *synsem*¹⁰ type hierarchy.

(22) Synsem type hierarchy



Synsem objects can be further classified into two subtypes: *canonical-synsem* and *non-canonical - synsem*. Every normal linguistic object belongs to the type *canonical-synsem*. *Non-canonical synsem* includes *gap-synsem* and *understood-synsem*. *Gap-synsem*

¹⁰ The *synsem* type is the syntactic and semantic information of a linguistic sign.

elements in HPSG play a role similar to that of traces in a movement theory (cf. Bouma et al., 2001). *Understood-synsems* correspond to linguistic objects which can be left out from a clause, but which are recoverable from the context. For example, an entry of *listen* in the following sentence has a complement of *understood-synsem* type:

(23) Talk to your kids. They will listen.

The realization of the elements in the ARG-ST list of the entry of *listen* in (23) is shown in (24).

(24)

$$\left[\begin{array}{l} \textit{listen} \\ \text{CAT} \left[\begin{array}{ll} \text{HEAD} & \text{V}[\textit{fin}] \\ \text{SUBJ} & \langle [3]_{[3\text{plu}]} \rangle \\ \text{COMPS} & \langle \rangle \\ \text{ARG-ST} & \langle [3]\text{NP}, [4]\text{PP}_{[\textit{understood-synsem}]} \rangle \end{array} \right] \end{array} \right]$$

In the entry of *listen* in (24), the second element in its ARG-ST list which is an *understood-synsem* object does not get realized as the PP object of *listen* (i.e. *to you*), as indicated by the null value of COMPS. On the other hand, the first element in the ARG-ST list ([3]), a *canonical-synsem* element, gets realized as the subject of *listen*, i.e. *they*.

1.4.1.3 Schemata

The last component of an HPSG grammar consists of schemata that combine linguistic elements. I only describe below the schemata relevant to this thesis. These include: 1) the Head-Complement Schema, 2) the Head-Subject Schema, and 3) the Head-Adjunct Schema. The three schemata are governed by the Valence Principle.

(25) Valence Principle (Sag and Wasow, 1999)

Unless the **rule** says otherwise, the mother's SUBJ and COMPS values are identical to those of the head daughter.

The Valence Principle ensures that the values of the VALENCE features are satisfied and canceled off at the right levels. To illustrate this, consider, first, the Head-Complement Schema.

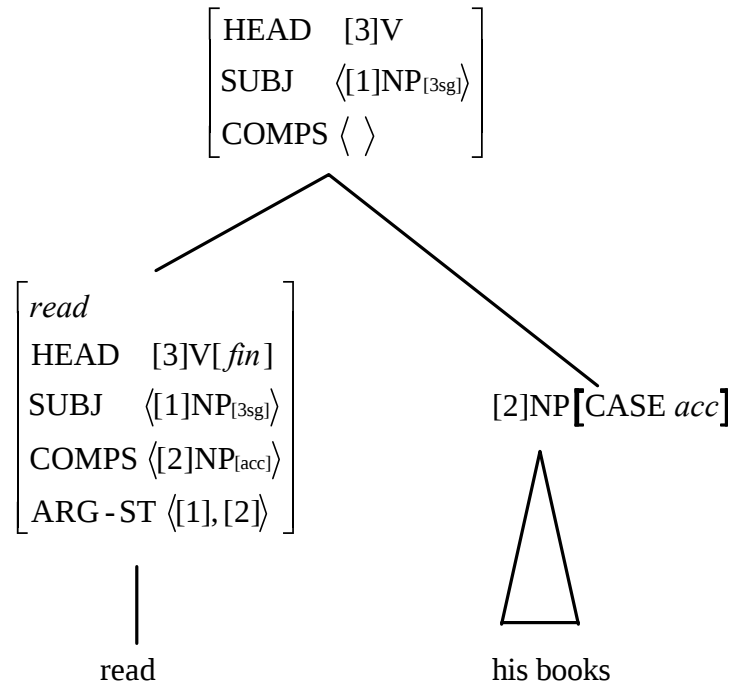
(26) Head-Complement Schema

$$\left[\begin{array}{c} \textit{phrase} \\ \text{COMPS } \langle \rangle \end{array} \right] \rightarrow H \left[\begin{array}{c} \textit{word} \\ \text{COMPS } \langle [2], \dots [n] \rangle \end{array} \right] [2] \dots [n]$$

The Head-Complement Schema combines a head with its complement(s) to create a phrase. The above schema states that when a head word co-occurs with the element(s) in its COMPS list,¹¹ its mother, which is a phrase, will contain an empty COMPS list. Intuitively, the schema states that if a verb, for instance, co-occurs with its subcategorized NPs or PPs, these elements will be canceled off the phrase that this verb heads. The application of this schema is illustrated in the following figure, which shows a simplified representation of the VP for the sentence *John read his books*.

¹¹ Technically, only the values of the complement daughters' SYNSEM attributes correspond to members of the head's COMPS list.

(27)



The head verb *read* combines with its complement *his books* to form a verb phrase. According to the Valence Principle, the SUBJ value is preserved in the mother node of the VP in (23), but the value of the mother's COMPS is null since its head daughter *read* already combined with *his books* so the value of COMPS (i.e. the NP tagged with [2]) is canceled off as specified in the Head-Complement Schema.

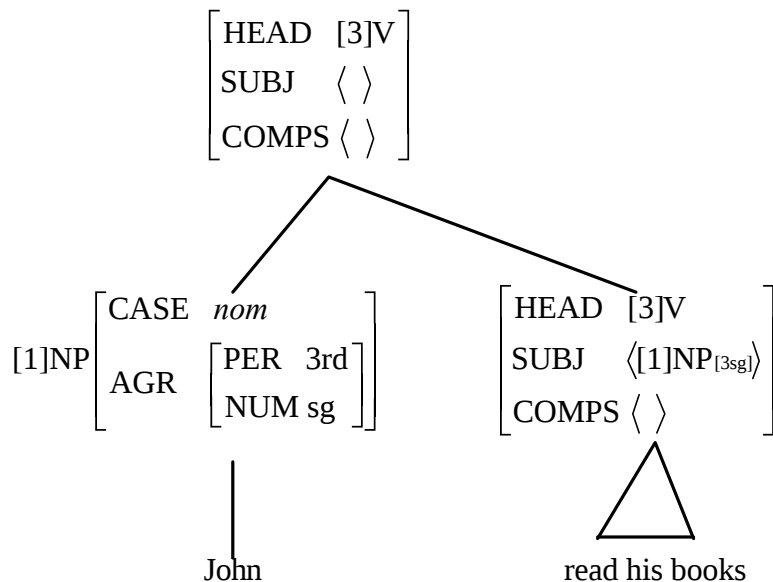
Next, I discuss the Head-Subject Schema.

(28) Head-Subject Schema

$$\left[\begin{array}{l} \textit{phrase} \\ \text{SUBJ } \langle \rangle \end{array} \right] \rightarrow [1] \quad \text{H} \left[\begin{array}{l} \textit{phrase} \\ \text{SUBJ } [1] \end{array} \right]$$

The above schema combines a headed phrase with its subject to create a sentence. This schema is applied in (25) to create the sentence *John read his books*.

(29)



In (25), the VP *read his books* whose SUBJ value is the NP tagged with [1] combines with *John*, yielding a phrase which contains empty SUBJ and COMPS lists, i.e. a phrase whose SUBJ and COMPS values are satisfied, that is, a sentence.

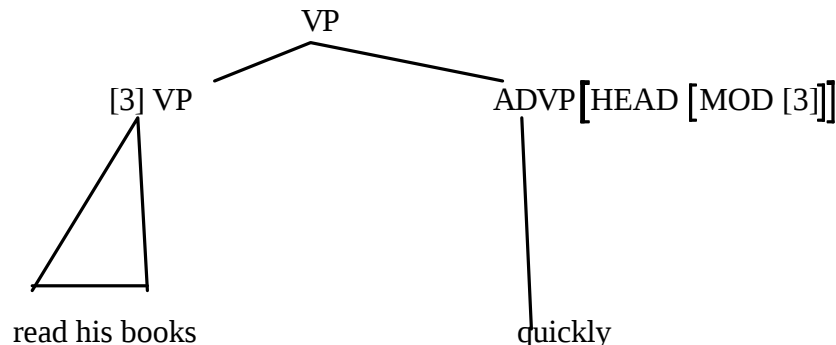
The last schema discussed here is the Head-Adjunct Schema.

(30) Head-Adjunct Schema

$$[\textit{phrase}] \rightarrow [3]\text{H}[\textit{phrase}] \left[\begin{array}{l} \textit{phrase} \\ \text{HEAD } [\text{MOD } [3]] \end{array} \right]$$

The MOD(IFY) feature in the Head-Adjunct Schema allows the adjunct or modifier to select the category of its modified element since, in (30), the tag [3] refers to the feature structure of a linguistic sign which is the modified element. To illustrate this, I present below the simplified representation of the VP of the sentence *John read his books quickly*, in which the adverb *quickly* modifies the VP *read his books*.

(31)



Under the assumption that adverbs are lexically specified as [MOD VP],¹² namely, adverbs modify verb phrases, the Head-Adjunct Schema licenses the VP *read his books quickly* in (31), and this VP can combine with the subject *John*, as shown in (29), to build the sentence *John read his books quickly*. Notice that the MOD feature of a modifier intuitively works in the same way as the SUBJ and COMPS features of a head, in the sense that the MOD feature allows the modifier to select its modified element, as the SUBJ and COMPS features allow a head to select their subjects and complements.

A final note in this section is that although I use HPSG as the theoretical framework of this thesis mainly for representational purposes, the basic assumptions and mechanisms in HPSG allow for a straightforward model of the selectional restrictions in Thai verb complexes. Namely, via SUBJ, COMPS, and/or MOD features, we can straightforwardly state the selectional restrictions that a syntactic element in the verb complex imposes on other elements, regardless of whether the former is the syntactic head or modifier. The

¹² To prevent a phrase from being a grammatical sentence, in which elements in the ARG-ST list of the phrase's head are all realized, but the phrase's MOD value is **not** null (i.e. the phrase still needs to modify something), I assume that root clauses in Thai are [MOD < >]. In other words, I assume that the value of MOD for Thai root clauses must be null. The motivation for this assumption is discussed in more detail in Chapter 4.

importance of this particular aspect of HPSG will become clearer in my analysis of Thai Aspectual Constructions carried out in Chapter 4.

1.4.2 Minimal Recursion Semantics

Minimal Recursion Semantics (MRS) is the semantic framework that I use in this dissertation. MRS semantics was developed to provide meaning representations which do not force scope ambiguities to be resolved (Copestake et al., 1999). MRS is also useful to keep track of how much meaning remains to be encoded or decoded in generating sentences (Bouma et al., 1998).

The machinery of MRS is complex in the sense that MRS has several features designed to model scope relations among elements in a clause. MRS specifications that I use in this thesis are rather simple. To provide basic understanding of MRS specifications, I only describe MRS features relevant to this thesis.

(32) Simplified MRS representation of *John makes pizza*

$$\left[\begin{array}{l} \text{INDEX} \quad [4] \\ \text{KEY} \quad [6] \\ \text{LZT} \left\langle \begin{array}{l} [5] \left[\begin{array}{l} \text{John_rel} \\ \text{HNDL } p \\ \text{INST } [1] \end{array} \right], [6] \left[\begin{array}{l} \text{make_rel} \\ \text{HNDL } q \\ \text{EVENT } [4]_{e3}, [7] \left[\begin{array}{l} \text{pizza_rel} \\ \text{HNDL } r \\ \text{INST } [2] \end{array} \right] \end{array} \right] \end{array} \right. \end{array} \right]$$

MRS is a representation of the meaning of expressions as a set of Elementary Predications (EPs), whose members can be viewed as typically related via logical conjunction. An EP contains a semantic relation and argument(s) associated with that relation. In the MRS representation of the meaning of *John makes pizza* in (32), three

semantic relations or EPs corresponding to *John*, *makes*, and *pizza* appear in a list (LZT). The current assumption in MRS is that each lexical item has a single distinguished main EP, which is referred to as the KEY EP. A phrase's KEY is equivalent to the semantic head of that phrase. The KEY of the sentence *John makes pizza* in (32) is tagged with [6] and is identified with the KEY EP of the verb *makes*.

An annotation added to an element in a phrase to specify its referent is an INDEX. In (32), the value of the INDEX of *John makes pizza* is identified with the EVENT value of the verb *makes* which heads this phrase. Intuitively, this means that the reference of the utterance "John makes pizza" is the event of making denoted by the verb *makes*. The LZT in (32) contains two other EPs which describe *John* and *pizza*. To refer to individual EPs, the feature HNDL is introduced. The value of the HNDL attribute named *p*, for example, identifies the predication associated with the NP *John* which is the subject of *John makes pizza*. The NPs *John* and *pizza* have the feature INST which indicates the instance of a nominal object.

The semantic head of a phrase is represented by the attributes KEY and INDEX in MRS structures. I assume that in a head-complement phrase, the phrase's syntactic head becomes the semantic head of the phrase, meaning that the phrase's KEY and INDEX values are identical to those of the syntactic head. For example, the KEY and INDEX of the phrase *near John* are identified with those of the head preposition *near*. However, in a head-modifier structure, the semantic head of the phrase is the modifier. Namely, the KEY and INDEX of the phrase *red car*, for instance, are identified with those of the adjective

red, which is the modifier. These assumptions¹³ capture the intuition on which expression in a phrase carries the most important information and are in line with the notion of semantic head in Pollard and Sag (1994). These assumptions on the semantic head are the basis of my semantic analyses of Aspectual Constructions and Adjoining Constructions carried out in Chapter 4 and 5.

I summarize in (33) the MRS features and the types of their values, which will be used to model the semantic compositions of various types of Thai verb complexes.

(33)

$$\left[\begin{array}{ll} mrs - struc \\ INDEX & index \\ KEY & [HNDL \textit{handle}] \\ LZT & list (of relation(s)) \end{array} \right]$$

1.4.3 Constituency Tests

One of the goals of this thesis is to determine the syntactic structures of the three groups of verb complexes mentioned in 1.2. I use a few constituency tests to determine the constituent structure of linguistic elements in a string. These tests include 1) the co-ordination test, where it is clear that the strings in question cannot be analyzed as instances of right-node raising (see details below), 2) the anaphoric *do so* test, and 3) the placement of adverbs. It is important to realize that some of these tests are not perfect indicators of constituency of linguistic elements in a string, as I discuss below.

¹³ Role and Reference Grammar (Van Valin and LaPolla, 1997) also makes similar assumptions regarding the semantic head of a phrase.

Constituency tests have long been used to determine the syntactic structure of a string of linguistic elements. However, not all constituency tests give reliable results. For example, right-node raising is problematic for the coordination test. Consider the following example (adapted from Trask, 1993:243)

(34) Lisa prepared, and Sean served, the cucumber sandwiches.

The construction in (34) consists of an apparent coordination of two sentences in which each sentence lacks its rightmost constituent, and a single further constituent, in this case *the cucumber sandwiches*, which appears on the right is interpreted as filling both gaps. In other words, right-node raising involves a missing element which is extraposed, and is not an ordinary instance of coordination.

Although Thai has no parallels of the English right-node raising example in (34), right-node raising does exist in Thai, as (35) shows:

(35) Priida hâj năŋsǔu lɛ́? hâj-juuum klôn kɛ̀ɛ dèkdèk

Priida give book and lend camera to children

Priida gave the book(s) and lent the camera to the children.

In (35), the constituent *kɛ̀ɛ dèkdèk* ‘to children’ appear at the right edge of the sentence and fills both gaps of the verb phrases headed by *hâj* ‘give’ and *hâj-juuum* ‘lend’.

Sentences such as (34)-(35), thus, cannot be interpreted as evidence for a particular constituent structure. As a result, in applying the co-ordination test in my analysis of Thai verb complexes, I make sure that the strings in question are not instances of right-node raising.

I also use the anaphoric VP *tham jàaŋ-diawkan* ‘do the same’ to test the constituent structures of some of the Thai verb complexes. I consider *tham jàaŋ-diawkan* ‘do the same’ the parallel of the English anaphoric VP *do so*,¹⁴ which has traditionally been considered an anaphoric VP that is syntactically, but not pragmatically, controlled¹⁵ (in the sense of Hankamer and Sag (1976)). Examples of sentences with pragmatically controlled anaphor and syntactically controlled anaphor in Thai are given in (36).

(36) (In the context where a child is throwing books from the table to the floor)

(a) Father: *jàa tham jàaŋ-diawkan

don’t do type-same = the same

(*Don’t do the same.)

(b) Father: jàa tham jàaŋ-nán

don’t do type-that

Don’t do that.

Example (36a) shows that *tham jàaŋ-diawkan* ‘do the same’ is not pragmatically controlled in the sense that it cannot be used where there is no syntactic antecedent, i.e. the antecedent is understood from the context. In such circumstances, the pragmatically controlled anaphor *tham jàaŋ-nán* ‘do that’ must be used, as seen in (36b).

¹⁴ Note that the Thai anaphoric VP *tham jàaŋ-diawkan* ‘do the same’ is more restricted than English *do so* in the kinds of VPs that can be its antecedents. The verb *tham* ‘do’ in Thai is semantically potent and can only be the anaphor of an agentive VP. Thus, *tham* ‘do’ can be the anaphor of the VP *wŋ* ‘run’, but not that of the VP *taaj* ‘die’.

¹⁵ The pragmatically controlled anaphoric VP counterpart of *do so* is “*do it*” or “*do that*”, as discussed in Hankamer and Sag (1976).

The *do so* test is traditionally considered a VP constituency test. It was first introduced by Lakoff and Ross (1966; 1976) as a test for the constituent structure of strings of words in a VP, i.e. to determine which constituents are sisters to the head verb and which constituents occur outside of the saturated verb phrase. The original assumption for the *do so* test is that “*do so* derives its interpretation from a preceding V” (Borsley, 1991). According to Lakoff and Ross (1976), *do so* replaces all of the constituents of a verb phrase and only those. This hypothesis was meant to explain the ungrammaticality of (37b), since *do so* in (37b) does not include all constituents of its antecedent VP, but leaves out the object NP *wine* in the antecedent and replaces it with *beer*.

(37) (Examples adapted from Przepiórkowski, 1999)

- a. John drank wine yesterday and I’ll *do so* today.
- b. *John drank wine yesterday and I’ll *do so* beer today.

Recently, however, Przepiórkowski (1999) has pointed out that the *do so* test is inappropriate as an indicator of constituency. He argues that the antecedents of *do so* are not strictly syntactically determined but, to some extent, pragmatically controlled. Przepiórkowski conducted a corpora search and found cases where *do so* has as antecedents something created out of generalization, enriched antecedents, or missing antecedents. Hence, his corpora search provides evidence that the English anaphoric *do so* is sometimes **not** syntactically parallel to its antecedent. Despite Przepiórkowski’s admonition, I will continue to use the anaphoric VP *tham jàaŋ-diawkan* ‘do the same’ as a constituent test for Thai since its results always corroborate the results of other tests in my analysis of Thai verb complexes.

Another syntactic test that I use in this thesis is the placement of adverbs or adverbial phrases. Rangkupan (1997) applies the adverb placement test to *hâj* ‘give’ complex constructions in Thai to determine their constituent structure and dependency relations. Although her discussion is couched in Role and Reference Grammar terms (Van Valin and LaPolla, 1997), we can recast her analysis in terms of what occurs under the base VP and what occurs outside of the base VP.

In applying the adverb placement test, I hypothesize that adverbs mark the end of a VP in Thai, and can be distinguished from the complements of a head verb. To illustrate this, I first show in (38) that the order of complements in Thai is very rigid.

(38) a. Ukit hâj wěɛn-phéd thîi hǎa jâak mun-khâa nùɲ

Ukit give ring-diamond that seek hard value one

láan baht kèɛ Narii

million baht to Narii

Ukit gave the hard-to-find, one-million-baht valued diamond ring to Narii.

b. * Ukit hâj kèɛ Narii wěɛn-phéd thîi hǎa jâak

Ukit give to Narii ring-diamond that seek hard

mun-khâa nùɲ láan baht

value one million baht

(Intended meaning: Ukit gave, to Narii, the hard-to-find, one-million-baht valued diamond ring.)

Sentences in (38) show that the order among the direct object and indirect object of the verb *hâj* ‘give’ is fixed, despite the heaviness of the direct object headed by *wěɛn-phéd* ‘diamond ring’.

Adverbs or adverbial phrases in Thai occur after the constituents expressing arguments of the head verbs, as the examples in (41) illustrate.

- (39) a. Ukit *hâj* *wěɛn-phéd* *thîi* *hăa* *jâak* *mun-khâa* *nùɲ*
 Ukit give ring-diamond that seek hard value one
 láan baht *kèɛ* *Narii* *jàaɲ-mâj-temcaj*
 million baht to *Narii* unwillingly
 Ukit gave the hard-to-find, one-million-baht valued diamond ring to *Narii*
 unwillingly.
- b. *Ukit *hâj* *wěɛn-phéd* *thîi* *hăa* *jâak* *mun-khâa* *nùɲ*
 Ukit give ring-diamond that seek hard value one
 láan baht *jàaɲ-mâj-temcaj* *kèɛ* *Narii*
 million baht unwillingly to *Narii*
 (Intended meaning: Ukit gave the hard-to-find, one-million-baht valued
 diamond ring unwillingly to *Narii*.)

c. *Ukit hâj wěɛn-phéd thîi hăa jâak mun-khâa nùŋ

Ukit give ring-diamond that seek hard value one

láan baht mu̠awanníi kèɛ Narii

million baht yesterday to Narii

(Intended meaning: Ukit gave the hard-to-find, one-million-baht valued diamond ring yesterday to Narii.)

d. *Ukit hâj wěɛn-phéd thîi hăa jâak mun-khâa nùŋ

Ukit give ring-diamond that seek hard value one

láan baht thîi ŋaan-lían kèɛ Narii

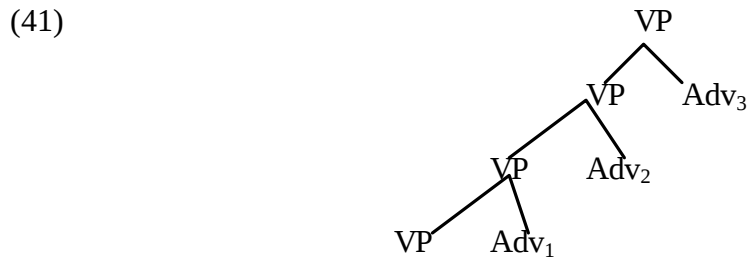
million baht at banquet to Narii

(Intended meaning: Ukit gave the hard-to-find, one-million-baht valued diamond ring at the banquet to Narii.)

None of the three adverbial phrases: *jàan-mâj-temcaj* ‘unwillingly’, *mu̠awanníi* ‘yesterday’, and *thîi ŋaanlían* ‘at the banquet’ can occur between the two complements of the ditransitive verb *hâj*, as shown by the ungrammaticality of sentences (41b-d). But these adverbs, which do not have scope over each other, can be reordered among themselves, as the examples in (40) show.

- (40) a. Ukit hâj wěɛn-phéd thîi hăa jâak mun-khâa nùŋ láan
 Ukit give ring-diamond that seek hard value one million
 baht kèɛ Narii thîi ɲaan-líaŋ jàaŋ-mâj-temcaj
 baht to Narii at banquet unwillingly
- b. Ukit hâj wěɛn-phéd thîi hăa jâak mun-khâa nùŋ láan
 Ukit give ring-diamond that seek hard value one million
 baht kèɛ Narii jàaŋ-mâj-temcaj thîi ɲaan-líaŋ
 baht to Narii unwillingly at banquet
- (40a-b)= Ukit unwillingly gave the hard-to-find, one-million-baht valued diamond ring to Narii at the banquet.

The facts that adverbs in Thai occur after the complements of a head verb and that they can be reordered among themselves without any change in scope indicate that adverbs mark the end of a VP in Thai. This is because if we assume that in Thai adverbs adjoin to VP as represented in (41), we can explain the possible reordering among adverbs in (40a-b).



Any of the three adverbial phrases in (40) can adjoin to the VP in any of the three positions illustrated in (41), thus explaining the reordering possibilities among the three adverbial phrases. I conclude that the placement of adverbs can be used to test where the boundary of a VP is in Thai.

I have discussed in this section the hypotheses underlying the three constituency tests that I use in this thesis. I will assume throughout this thesis that these tests provide fairly good evidence for particular syntactic structures, provided they converge.

1.5 Organization and Overview of Results

This dissertation consists of six chapters. The four main chapters of the dissertation are analyses of three types of Thai verb complexes which encode non-arguments. I investigate Directional Serial Verb Constructions by first looking into previous analyses of Directional SVCs. I then discuss the constituent structure and ordering constraints of Thai Directional SVCs. I find that these SVCs comprise both a recursive structure and a complementation structure. Thai Directional SVCs also contain both free reordering of verb phrases and fixed positions of certain classes of verbs that can occur in the constructions. I provide models of the syntactic structures and the semantic composition in Thai Directional SVCs at the end of Chapter 2.

Some of the serial verbs discussed in Chapter 2 such as *paj* ‘go’ encode aspectual meaning when they combine with certain classes of non-motion verbs. I carry out the investigation of Aspectual Constructions (ACs) in two chapters. I describe the meanings, selectional restrictions, and possible combinations of Thai aspect-marking morphemes in Chapter 3. In chapter 4, I investigate the parts of speech of Thai aspect-marking morphemes and how they syntactically combine in ACs, as well as determine their scope relations. I show that the part-of-speech categories of Thai aspect-marking elements correlate with neither their positions in the clause nor the syntactic rules that combine them with the base

VP. Lastly, I explain why most combinations of aspect-marking elements do not create scope ambiguities, and describe constraints which govern their scope interpretations.

In Chapter 5, I discuss Thai Adjoining Constructions (AJCs), which are similar to Resultative Constructions (RCs) found in many languages including English. But the verbs in a Thai AJC need not stand in a strict causal relation as generally is the case for RCs, and the resulting situation encoded in the AJC might not eventually occur, suggesting that Thai AJCs are not the exact parallel of RCs. Furthermore, which NP in the clause is co-indexed with the unexpressed subject of the resulting verb in a Thai AJC is grammatically underdetermined, and is partly pragmatically controlled.

Chapter 6 concludes the thesis and provides suggestions for future research.

1.6 Thai Phonemes

The following are charts of Thai consonant, vowel and tone phonemes which I use in the transcription of the data in this thesis.

Consonants

		<u>Bilabial</u>	<u>Labio-dental</u>	<u>Alveola</u> <u>r</u>	<u>Palatal</u>	<u>Velar</u>	<u>Glottal</u>
Stops	-voiced unaspirated	b		d			
	-voiceless unaspirated	p		t	c		ʔ
	-voiceless aspirated	ph		th	ch		
Fricatives			f	s			h
Nasals		m		n		ŋ	
Liquids				r, l			
Glides		w			j		

Vowels

	Front Short , Long	Central Short , Long	Back Short , Long
High	i ii	ʊ uʊ	u uu
Mid	e ee	ə əə	o oo
Low	ɛ ɛɛ	a aa	ɔ ɔɔ

Tones

Mid unmarked

Low ˘

Falling ˆ

High ˊ

Rising ˇ

Chapter 2

Directional Serial Verb Constructions

2.1 Introduction

Serial Verb Constructions (SVCs) are interesting cross-linguistically because they consist of two or more verbal heads which are not related to each other through a predicate-argument relation, but which still occur in what is considered a single clause. In this chapter, I discuss Thai Directional SVCs, which contain verbs that encode motion-related situations. An example of Directional SVC is shown in (1):

(1) Malii wîŋ troŋ jǒon khâam saphaan ?òok paj

Malii run go straight reverse cross bridge exit go

Malii ran straight back, crossing the bridge, out away from the speaker.

Sentence (1) consists of six verbs, which share a common subject: *Malii*. Semantically, *Malii* is the figure of the complex motion event encoded by the sequence of verbs in (1). The first verb in (1) denotes a manner of motion and the non-initial verbs encode a directed motion, which includes information about the path, direction, and/or deictic center of the motion event. Each verb in a Directional SVC describes the same, single event from a different perspective.

I argue that Thai Directional serial verb constructs include two kinds of syntactic structures: a recursive co-headed structure and a complementation structure. More specifically, I show that Directional SVCs in Thai are distinct from those found in other languages in terms of (i) the number of verbs that can occur in a SVC, (ii) their constituent

structure, (iii) the argument structures associated with certain verbs in SVCs, and (iv) the presence of ordering constraints among non-sister constituents.

This chapter proceeds as follows. I first explain the definition of SVCs that I adopt and provide examples of different types of SVCs that occur in Thai. Next, I give examples of Directional SVCs in languages other than Thai, as well as describe previous analyses of Directional SVCs in those languages. I show that previous analyses of Directional SVCs cannot account for the syntactic behavior of Thai Directional SVCs, particularly the presence of ordering constraints among non-sister constituents, and that previous analyses of Thai Directional SVCs are also incorrect about their constituent structure and the nature of the ordering constraints. I then present a syntactic analysis of Thai Directional SVCs. Finally, I model the semantic composition of verb complexes in Thai Directional SVCs.

2.2 Serial Verb Constructions in Thai

2.2.1 Definition of Serial Verb Constructions

I adopt Sebba's (1987) definition of Serial Verb Constructions in (2) as a criterion to identify SVCs in Thai.

- (2) In a sequence of the form V1(initial verb), V2(serial verb),
- a. both V1 and V2 must be lexical verbs, i.e. must be capable of appearing as the only verb in a simple sentence.
 - b. If it is possible to conceive of V1 and V2 as denoting separate actions at all, then both V1 and V2 must have the same tense and aspect. Thus, for example, V1 may not be interpreted as 'past' if V2 is interpreted as 'future'.

c. There must not be an ascertainable clause boundary between V1 and V2, i.e. they must be within the same clause.

d. No conjunction should separate the verbs in sequence.

2.2.2 Thai Serial Verb Constructions

In a previous analysis of Thai SVCs, Thepkanjana (1986) categorizes Thai SVCs according to their functions into four types as follows:

(I) Serial verbs complement the initial verb and indicate the cause or result of the event described by the initial verb. For example:

(3) Dara tham kêw tɛk

 Dara do/make glass break

 Dara broke the glass.

(II) Serial verbs modify the initial verb and indicate the direction of motion or aspect of the initial verb. For example:

(4) Directed motion

 Dara dɛn ʔòk

 Dara walk exit

 Dara walked out (of some place).

(5) Aspectual

Dara khíd ?òok

Dara think exit

Dara thought and reached a conclusion.

(III) Serial verbs act as grammatical markers. For example:

(6) Dara tham kaanbâan hăj Wira

Dara do homework give Wira

Dara did the homework for Wira.

(IV) Serial verbs express purposive or simultaneous actions. For example:

(7) Simultaneous actions

Wira hîw năṅsuũ wîṅ

Wira carry book run

Wira carried the book, running.

(8) Purposive

Dara maa khuj kàb chăn

Dara come talk with I

Dara came to talk with me.

The Directional SVCs studied in this chapter correspond to part of category (II) in Thepkanjana's analysis. As we notice from examples (4) and (5), the same verb ?òok 'exit' can have either a directional meaning, when it is literally interpreted, or an aspectual meaning when it is interpreted metaphorically. The choices between these meanings

depend on the semantics of the initial verbs that the serial verb combines with, namely, if the initial verb describes a motion-related event, the directional serial verb has its literal meaning. But if the initial verb does not describe a motion-related event, the directional serial verb is metaphorically interpreted and encodes an aspectual meaning. I assume that the relationship between the two uses is simply formal; they share neither syntactic nor semantic properties. I concentrate exclusively on the construction illustrated in (4) in this chapter and analyze the constructions illustrated in (5) in the next two chapters.

2.3 Previous Analyses of Directional SVCs

In previous generative literature, analyses of SVCs which are related to motion events in other languages assume that the sequence of verbs in these SVCs (i) have a head-complement relationship to each other (cf. Sebba, 1987; Winford, 1990), or (ii) belong to a multi-headed structure (Baker, 1989). In two studies of Directional SVCs in Sranan in the framework of Generalized Phrase Structure Grammar, Sebba (1987) and Winford (1990) suggest Immediate Dominance (ID) rules for the VP structure in which the initial verb (which denotes a manner of motion) subcategorizes for the serial verb (which indicates a directed motion). Some examples are:

- (9) Jan waak go a skuul
 John walked go to school
 John walked thither to school. (Winford, 1990:125)
- (10) dowwatra ben e dropu fadon na den wiwiri
 dew-water PAST ASP drop fall LOC the-PL. leaf
 Dew was dripping on the leaves' (Sebba, 1987:44).

Examples (9)- (10) are accounted for by Sebba's ID rules (11)- (12) and Winford's ID rules (13)- (14).

Sebba's ID rules

(11) IVP → V[3] IVP [MOD,DIR]

V[3] → waka (walk), ron (run), ...

(12) IVP [MOD,DIR] → V[2] PP

V [2] → go (go), kon (come), ...

Winford's ID rules

(13) VP → H[31] VP[DIR]

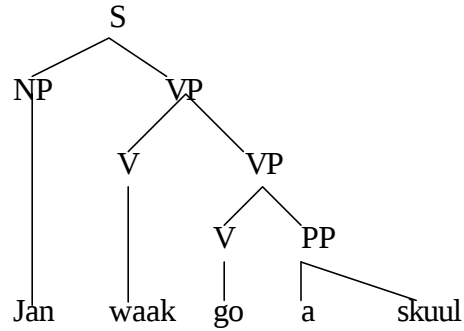
H[31] → waak, ron...

(14) VP[DIR] → H[30] XP[LOC]

H[30] → go, kon, ...

The main difference between Sebba's and Winford's rules is that Winford assumes that the occurrences of intransitive verbs such as *go* 'go', *kon* 'come' as main verbs and as serial verbs are related to each other (1990:124). However, both Sebba's and Winford's rules are similar in that the serial verb phrase (*go a skuul* 'go to school' in (9)) is subcategorized for by the initial verb (*waak* 'walk' in (9)). These rules can generate a VP which consists of a head verb and a serial VP complement. For example, the syntactic structure of (9), according to Winford (1990), can be represented by the tree in (15).

(15)



The structure in (15) also applies to (10) as well because in their analyses, Sebba and Winford place the serial verbs *go* ‘go’, *kon* ‘come’, and *fadon* ‘fall’, in the same category of intransitive serial verbs.

In contrast to Sebba (1987) and Winford (1990), who suggest that verbs in Directional SVCs stand in a complementation relation, Baker (1989) suggests a double-headed verbal phrase structure where both heads theta-mark one NP argument for SVCs in Yoruba and Sranan, and where one head is embedded in another (as illustrated in (17)). Baker’s analysis is illustrated in (16) and (17), which is the structure of (16):¹

(16) Yoruba (example from Carstens, 1988)

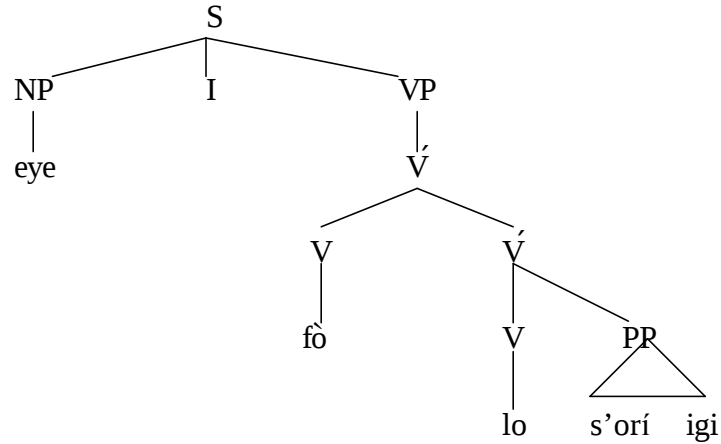
eye fò lo s’órí igi

bird fly go to-top tree

The bird flew to the top of the tree.

¹ Note that here I only concentrate on the syntactic structure and leave out the details of theta-role assignment.

(17)



Baker claims that the structure in (17) allows both verbs *fô* ‘fly’ and *lo* ‘go’ to theta-mark the subject *eye* ‘bird’. Namely, while *fô* ‘fly’ is in a position where it can theta-mark *eye* ‘bird’ directly, the double-headed structure allows *lo* ‘go’ to indirectly theta-mark the subject *eye* ‘bird’.

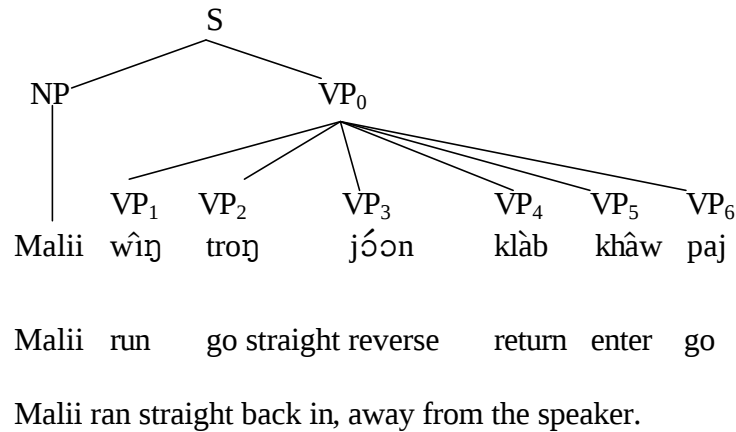
As I show in the next section, the analyses of SVCs by Sebba (1987), Baker (1989), and Winford (1990) cannot apply to Thai Directional SVCs because the latter can include more than two verbs in a row and instantiate more than one syntactic structure.

Finally, Thepkanjana (1986) suggests that Thai Directional SVCs have a flat, iterative VP structure of the form $VP \rightarrow VP VP^*$ (illustrated by the syntactic tree in ((18))), and argues that when several verbs occur in this construction, they must conform to the constraint on linear order shown in Table 2.1:

Table 2.1 : Directional verbs and their specific linear order in SVCs (Thepkanjana (1986))

1 Manner-of-motion verbs (or verbs that entail motion)	2 Geometric shape of the path	3 Direction with respect to the previous path	4 Direction with respect to the outside world		5 Direction with respect to speech act participant (deictic verbs)
			4a Direction with respect to an object located in the outside world	4b Direction resulting from interaction between the path and the outside world	
Examples: wîŋ - run dəŋ - walk ʔaw - take	Examples: won - circle troŋ - go straight	Examples: jɔ̌ɔŋ - reverse thɔ̌ɔj - retreat	Examples: ləəj - pass khâam - cross klàb - return	khâw - enter ʔòɔk - exit khûn - ascend loŋ - descend	paj - go maa - come

(18)



According to Thepkanjana, the following verb types (V1) can be modified by directional verbs (i.e. verbs from slots 2-5):

- a. locomotion verbs - Examples : *dəŋ* ‘walk’, *wîŋ* ‘run’, *lǎj* ‘flow’, *khàb* ‘drive’, *bin* ‘fly’, *paaj* ‘paddle’, *wâaj* ‘swim’, *kràʔdòod* ‘jump’.

- b. travel verbs - Examples : *dənthaaŋ* ‘travel’, *thôɔŋthîaw* ‘wander for fun’, *rôɔnrêe* ‘roam’ or ‘wander without purpose’
- c. ‘take’ verbs - Examples : *ɭaw* ‘take’, *tchũay* ‘grab’, *yêɛŋ* ‘take forcibly’
- d. communication verbs, transactional verbs and the verb meaning ‘change’² (combining only with the serial verb *paj* ‘go’ or *maa* ‘come’) - Examples : *phian* ‘change’, *toorasàp* ‘telephone’, *khǎaj* ‘sell’
- e. destruction, disappearance verbs and certain stative verbs (combining only with the serial verb *paj* ‘go’) - Examples : *taaj* ‘die’, *hǎaj* ‘disappear’

The list of Thepkanjana’s possible initial verb (V1), excluding (d) and (e), suggests that serial verbs can be transitive or intransitive but must be related to or compatible with a motion event.

According to Thepkanjana (1986:138), the linear order among directional verbs can be conceived of as a cline. The left end represents semantic elements most internal or inherent to the path of motion and the right end represents those elements most external to it. For instance, the geometric shape of a path is one of the path’s inherent characteristics and verbs that describe it occur in slot 2. By contrast, verbs which encode characteristics of the path from the speech participants’ viewpoint, the least inherent property of paths, occur in slot 5; that is, in the position furthestmost from the initial verb.

In contrast to Thepkanjana, I argue below for a different constituent structure of Thai Directional SVCs, that more than one phrase structural schema is involved in these

² It should be noted that when verbs (d) and (e) combine with the mentioned serial verbs, the resulting meaning is not spatial. I claim that in combinations like this, the serial verb *paj* ‘go’ or *maa* ‘come’ is

constructions, and that verbs which form a Directional SVC do not necessarily occur in the order shown in Table 2.1.

2.4 Constituent and Argument Structures of Thai Directional Serial Verbs

In this section, I investigate the constituent structure of Thai Directional SVCs and argument structures of verbs that occur in the SVCs.

2.4.1 Constituent Structure

I determine the constituent structure of Thai Directional SVCs on the basis of the adverb placement and anaphoric VP tests.

Adverb placement test

The adverb placement test supports two claims. First, it shows that serial verbs in Directional SVCs syntactically differ from complements of the initial verbs. Second, the test shows that there can be a VP break after any verb in the sequence of verbs in a SVC construct except before the last verb, when that verb is a deictic one.

Adverbs in Thai normally occur VP-finally. I assume that an adverb marks the boundary of a VP (see chapter 1). In other words, an adverb indicates that what comes before it is a VP. The placement of an adverb can, thus, be used to test where the VP break is in an SVC construct. The occurrence of adverbs in (19)-(21) shows that the serial verbs differ from complements in Thai, i.e. they are not sisters to the initial verb.

metaphorically interpreted and, instead of encoding a directional meaning, encodes aspectual meaning. The study of verbal elements which are used to encode aspect is presented in the next two chapters.

(19) Head-complement

a. Piti kin khâaw jàaŋʔðɔnrɛɛŋ

Piti eat rice feebly

Piti ate rice feebly.

b. *Piti kin jàaŋʔðɔnrɛɛŋ khâaw

Piti eat feebly rice

(Intended meaning : He ate rice feebly)

(20) Equi verb: phajajaam ‘try’

a. Piti phajajaam khěŋ mɔtɔsaj jàaŋʔðɔnrɛɛŋ

Piti try push motorcycle feebly

Piti tried to push the motorcycle feebly.

b. *Piti phajajaam jàaŋʔðɔnrɛɛŋ khěŋ mɔtɔsaj

Piti try feebly push motorcycle

(21) Directional SVCs

a. Piti dɛn ʔðɔk jàaŋʔðɔnrɛɛŋ

Piti walk exit feebly

Piti walked out feebly

b. Piti dɛn jàaŋʔðɔnrɛɛŋ ʔðɔk

Piti walk feebly exit

Piti walked out feebly.

Example (19) shows that an adverb cannot be inserted between the head verb and its nominal complement. Example (20) shows that an adverb cannot intervene between the equi verb *phajajaam* ‘try’ and its VP complement. In contrast, an adverb can occur between the initial verb and the serial verb in a Directional SVC, as shown in (21). Examples (19)-(21) show that serial verbs in a Directional SVC differ from the complements of the head verb or the initial verb.

In addition, the adverb placement test applied in (22)-(25) shows that the structure of a Directional SVC is recursive, namely, there can be a VP break after any verb in an SVC. However, there cannot be a VP break after the next-to-last verb when the last verb is a deictic verb. Notice that in the following examples, I use the adverbial phrase *dûajfñitháawbaw* ‘with light footsteps’ which semantically modifies the verb *dən* ‘walk’ (i.e. the first verb in (22)-(25)) to ensure that the adverb does not simply modify its immediately preceding verb.³

(22) Malii dən₍₁₎ ʔòɔk_(4b) won₍₂₎ klàb_(4a) jɔɔn₍₃₎ paj₍₅₎ *dûajfñitháawbaw*

Malii walk exit circle return reverse go with light footsteps

Malii walked out, circling, back, away from the speaker, with light footsteps.

³ The adverb *dûajfñitháawbaw* ‘with light footsteps’ can semantically modify only manner-of-motion verbs such as *dən* ‘walk’, as illustrated by the following examples:

- i. Malii dən *dûajfñitháawbaw*
 Malii walk with light footsteps
 Malii walked with light footsteps.
- ii. #Malii won *dûajfñitháawbaw*
 Malii circle with light footsteps
 (Intended meaning: Malii circled with light footsteps.)

When the adverb *dûajfñitháawbaw* ‘with light footsteps’ modifies the VP which is not headed by a manner-of-motion verb, such as *won* ‘circle’ in (ii), the sentence is implausible.

(23) Malii dən₍₁₎ ʔòɔk_(4b) won₍₂₎ dūajfīitháawbaw klàb_(4a) jóɔn₍₃₎ paj₍₅₎

Malii walk exit circle with light footsteps return reverse go

Malii walked out, circling, with light footsteps, back away from the speaker.

(24) Malii dən₍₁₎ ʔòɔk_(4b) dūajfīitháawbaw won₍₂₎ klàb_(4a) jóɔn₍₃₎ paj₍₅₎

Malii walk exit with light footsteps circle return reverse go

Malii walked out, with light footsteps, circling back away from the speaker

(25) *Malii dən₍₁₎ ʔòɔk_(4b) won₍₂₎ klàb_(4a) jóɔn₍₃₎ dūajfīitháawbaw paj₍₅₎

Malii walk exit circle return reverse with light footsteps go

(Intended meaning: Malii walked out, circling, back, with light footsteps, away from the speaker)

Since adverbs mark the boundary of a VP, if the structure of Directional SVCs is iterative (i.e. VP --> VP VP* or VP --> V V*), we cannot explain reordering possibilities of the adverb in (22)-(24). But if we assume that adverbs adjoin to a VP and that a Directional SVC has a recursive structure VP --> VP VP, we can account for multiple possible positions of the adverb in (22)-(24).

Note that I illustrate only some possible positions for the adverb *dūajfīitháawbaw* ‘with light footsteps’ in sentences (22)-(24). Other positions of the adverb are possible, except the one in (25). The fact that (25), in which the adverb occurs between the next-to-last verb and the last, deictic verb, is ungrammatical shows that there cannot be a VP break between these two verbs. Otherwise, the adverb placement test shows that there can be a VP break after any verb in a Directional SVC sequence.

The second test, the anaphoric VP *tham jàaŋdiawkan* ‘do so’ or ‘do the same’, can be used to test the constituent structure of a complex VP, under the assumption that the antecedent of ‘do so’ or ‘do the same’ has to be a VP constituent. This test yields a similar result to that of the adverb placement test, as illustrated below:

- (26) Malii wîŋ₍₁₎ jóɔŋ₍₃₎ klàb_(4a) ʔòɔk_(4b) won₍₂₎ paj₍₅₎ lɛʔ Piti kôʔ

Malii run reverse return exit circle go and Piti then

tham jàaŋdiawkan troŋ₍₂₎ maa₍₅₎

do the same go straight come

Malii ran back out away, circling, and Piti did the same straight towards the speaker.

(antecedent = the first four verbs in sequence - run + reverse + return + exit)

- (27) Malii wîŋ₍₁₎ jóɔŋ₍₃₎ klàb_(4a) ʔòɔk_(4b) won₍₂₎ paj₍₅₎ lɛʔ Piti kôʔ

Malii run reverse return exit circle go and Piti then

tham jàaŋdiawkan loŋ_(4b) troŋ₍₂₎ maa₍₅₎

do the same descend go straight come

Malii ran back out away, circling, and Piti did the same down straight towards the speaker.

(antecedent = the first three verbs in sequence – run + reverse + return)

(28) *Malii wîŋ₍₁₎ jɔɔŋ₍₃₎ klàb_(4a) ʔòɔk_(4b) won₍₂₎ paj₍₅₎ lɛʔ Piti kɔʔ

Malii run reverse return exit circle go and Piti then

tham jàaŋdiawkan maa₍₅₎

do the same come

(Intended meaning: Malii ran back out away, circling, and Piti did the same towards the speaker.

Intended antecedent = the first five verbs in sequence – run + reverse + return + exit + circle)

Sentences (26) through (28), and other possible sentences with different numbers of verbs as the antecedent that are not listed here, show that *tham jàaŋdiawkan* ‘do the same’ can pick up as its antecedent an initial VP or an initial VP plus any following sequence of serial verbs in an SVC construct so long as the deictic verb does not differ between the antecedent VP and the anaphoric VP, as is the case for the ungrammatical sentence in (28). This means that the deictic verb cannot be separated from its preceding verb, and, unlike other verbs in the construct, does not form an independent VP at the exclusion of its preceding verb. The anaphoric VP test also suggests that verbs in a Directional SVC form a recursive VP-over-VP structure except when a verb in the SVC is followed by a deictic verb.

To summarize, the adverb placement test shows that serial verbs are different from complements of the initial verb. Moreover, the adverb placement and the do so tests show that there can be a VP break after any verb in a Directional SVC, except after the next-to-last verb, if the last verb is a deictic one. In other words, there is no VP break between the

deictic verb and its preceding verb as an adverb cannot be inserted between them and the anaphoric VP *do the same* and its antecedent cannot differ only in the deictic verb.

2.4.2 Argument Structures of Verbs in Directional SVCs

In this section, I describe the argument structure or subcategorization properties of verbs that occur in Thai Directional SVCs. Verbs which do not encode manner-of-motion in Directional SVCs allow optional arguments,⁴ as illustrated in (29).

(29) Piti dən khâam (sàphaan) klàb (càak talàad) paj (roonrian)

Piti walk cross (bridge) return (from market) go (school)

Piti walked, crossing (the bridge), back (from the market), away (to school).

In (29), the NP *sàphaan* ‘bridge’, the PP *càak talàad* ‘from the market’ and the NP *roonrian* ‘school’ are optional complements of the serial verbs *khâam* ‘cross’, *klàb* ‘return’ and *paj* ‘go’ respectively. The omission of complements is a property of directional verbs *as serial verbs* only, i.e. directional verbs cannot leave out their complements when they function as the only verb in a clause. This is illustrated by the ungrammaticality of the following sentences:

(30) *Piti khâam

Piti cross

(31) *Piti khâw

Piti enter

⁴ I will modify this hypothesis later.

(32) *Piti paj

Piti go

Based on the optional complement property of serial verbs, we can distinguish Directional SVCs as in (29) from sentences such as (33), which contains several VPs conjoined by /lɛʔ/ ‘and’, and is ungrammatical since the verbs do not co-occur with their required complements.

(33) *Piti dɔn lɛʔ khâam lɛʔ klàb lɛʔ paj

Piti walk and cross and return and go

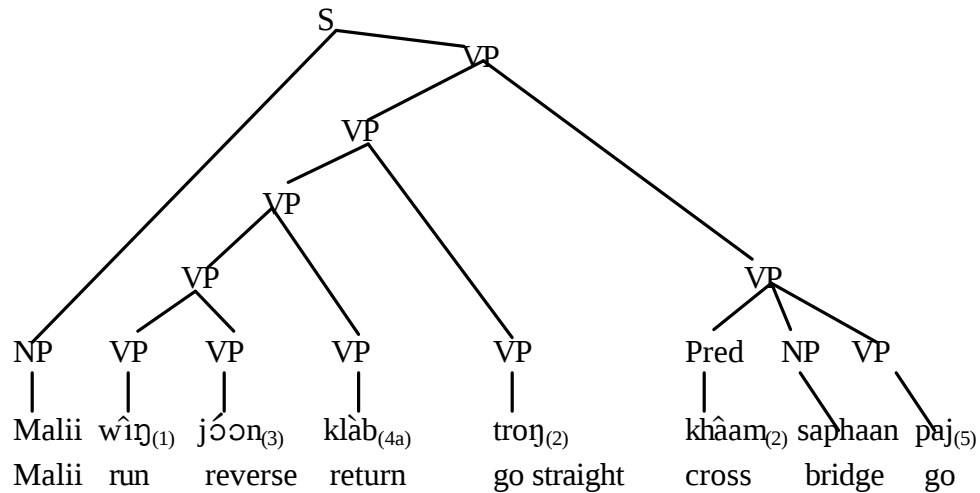
We have learned the constituent structure of Directional SVCs from the adverb placement and anaphoric VP tests and the argument structures of verbs that occur in the SVCs. From these tests, I conclude that the structure of the Thai Directional SVC in (34) is as shown in (35):

(34) Malii wîŋ₍₁₎ jɔɔŋ₍₃₎ klàb_(4a) tron₍₂₎ khâam_(4a) saphaan paj₍₅₎

Malii run reverse return go straight cross bridge go

Malii ran back straight, crossing the bridge, away from the speaker.

(35)



Namely, Thai Directional SVCs comprise either a recursive⁵ VP-over-VP structure or an extended complementation structure for the deictic verb and its preceding verb. Previous analyses of directional SVCs discussed in 2.3 are not sufficient to account for Thai Directional SVCs. Complementation approaches (Sebba, 1987 and Winford 1990) cannot explain the optional nature of the complements of directional serial verbs. The multi-head analysis of Directional SVCs by Baker (1989), in which one V is embedded in another (one V is subcategorized for by another V), cannot apply to Thai Directional SVCs because it predicts a type of argument sharing that does not occur in Thai Directional SVCs. This is because Baker's multi-head analysis predicts that whatever argument occurs in the daughter V' will be shared by the mother V' as well, which is not borne out in Thai. For example, the argument *saphaan* 'bridge' in *khâam saphaan* 'cross the bridge' in (34) is not shared by any other verb in the SVC sequence. It is also not clear how to apply Baker's multi-head structure to the recursive structure of Thai Directional SVCs.

Finally, contrary to the hypothesis of Thepkanjana (1986), the recursive structure I assume in (35) predicts the possible reordering of verbs from slots 1-4b in Table 1.1. This is because the VP --> VP VP rule which generates the recursive VP-over-VP structure of Directional SVCs simply states that a VP in a Directional SVC has two other instances of VPs as its daughters. Without additional Linear Precedence (LP) statements, this rule does not determine the positions in the SVC in which verbs occur, hence the possibility of free-ordering among verbs from slots 1-4b. The reordering is indeed possible with one

⁵ Note that the recursive structure does not produce only the structure in (35), but generates spurious ambiguities or different ways of combining the VPs in a construct, without corresponding semantic differences. I discuss this issue in more detail in footnote 19.

exception, which concerns the position of the manner-of-motion verbs (i.e. verbs from slot 1 in Table 1). I discuss the ordering constraints in detail in the next section.

In this section, I proposed that a sequence of Thai Directional SVC such as the one in (34) is formed through the use of two phrase structural schemata: a recursive VP --> VP VP rule and a head-complement rule. Thai Directional SVCs thus involve two kinds of serializations: *symmetric* and *asymmetric* serializations, in the sense of Andrews and Manning (1999). All verbs in a symmetric serialization structure have equal status, meaning that the occurrence of one verb is not determined by another. Symmetric serialization is exemplified in Thai by the sequence of non-deictic verbs in Directional SVCs. Verbs in asymmetric SVCs do not have equal status (one verb is the complement of the other); the VP containing a deictic verb in Thai SVCs is an instance of asymmetric serialization.

2.5 Ordering Constraints

In this section, I describe the ordering constraints on Thai Directional SVCs and explain why previous approaches to Directional SVCs cannot account for the Thai data. As I mentioned, the VP-over-VP structure of Thai Directional SVCs suggests the possibility of reordering VPs, since they do not stand in a head-complement relationship with respect to one another.⁶ Reordering the VPs is indeed possible, as (36)⁷ shows. This contrasts with

⁶ The order of head vs. complements in Thai is strict, as I described in Chapter 1.

⁷ Examples in (36) also show that a Thai Directional SVC construct does not necessarily contain a manner-of-motion verb. More examples are:

(i)	(3)	(4a)	(2)	(4b)	(5)
Piti	jóon	khâam	sàphaan tron	khâw bâan	paj
Piti	reverse	cross	bridge	go straight	enter house go
Piti went back, crossing the bridge, straight into the house, away from the speaker.					

the specific linear order shown in Table 2.1.⁸

(36)	a.	(3)	(4a)	(2)	(4b)	(5)
		Piti	jóon	khâam saphaan	tron	?òok paj
		Piti	reverse	cross bridge	go straight	exit go
	b.	(2)	(4b)	(3)	(4a)	(5)
		Piti	tron	?òok	jóon khâam saphaan	paj
		Piti	go straight	exit	reverse cross bridge	go
	c.	(4b)	(2)	(4a)	(3)	(5)
		Piti	?òok tron	khâam saphaan	jóon	paj
		Piti	exit go straight	cross bridge	reverse	go

(36a-c) = Piti went back straight, crossing the bridge, out away from the speaker.

This reordering possibility is an argument against the flat structure that Thepkanjana (1986) proposes. This is because, generally, Thai is a strict word-order language, which means that the language generally imposes ordering constraints on sisters in a local tree. The flat structure, in which all verbs in sequence are sisters, would not explain why sentences in (36) escape these strict ordering constraints.

The examples in (36) are only some of the possible reordering of verbs from slots 2-4b in Table 2.1. Any reordering of verbs in a Directional SVC construct is possible with two exceptions. These involve the positions of manner-of-motion and deictic verbs. The

(ii)

	(4a)	(4b)	(5)
Piti	klàb	lon	paj
Piti	return	descend	go

Piti went back down, away from the speaker.

first constraint concerns manner-of-motion verbs, which, if present, must occur first in the sequence, as illustrated in (37) - (38).

- (37) (1) (4b) (5)
 a. Piti dən khuôn paj
 Piti walk ascend go
 Piti walked up, away from the speaker.

- (4b) (1) (5)
 b. *Piti khuôn dən paj
 Piti ascend walk go

- (38) (1) (3) (5)
 a. Piti wîŋ jóɔn maa
 Piti run reverse come
 Piti ran back, toward the speaker.

- (3) (1) (5)
 b. *Piti jóɔn wîŋ maa
 Piti reverse run come

Sentences (37) and (38) show that manner-of-motion verbs (or verbs from slot 1 in Table 2.1) must occur first in the SVC sequence. If they do not occur initially, the sentence is ungrammatical, as (37b) and (38b) show.

⁸ According to Thepkanjana, if verbs in Directional SVCs do not follow the order mentioned in Table 2.1, they denote separate motion events, and not a single complex motion event, an assumption that I do not agree with. Verbs in the SVCs in (36) can be reordered and still describe a single complex motion event.

The second ordering constraint concerns deictic verbs, which, when present, must occur last in the SVC sequence.

(39) Piti wîŋ₍₁₎ khâam_(4a) sàʔphaan paj₍₅₎

Piti run cross bridge go

Piti ran across the bridge, away from the speaker.

(40) Piti paj₍₅₎ wîŋ₍₁₎ khâam_(4a) sàʔphaan

Piti go run cross bridge

Piti went to run across the bridge.

(41) Piti wîŋ₍₁₎ loŋ_(4b) bandaj maa₍₅₎

Piti run descend stairs come

Piti ran down the stairs, toward the speaker.

(42) Piti wîŋ₍₁₎ maa₍₅₎ loŋ_(4b) bandaj

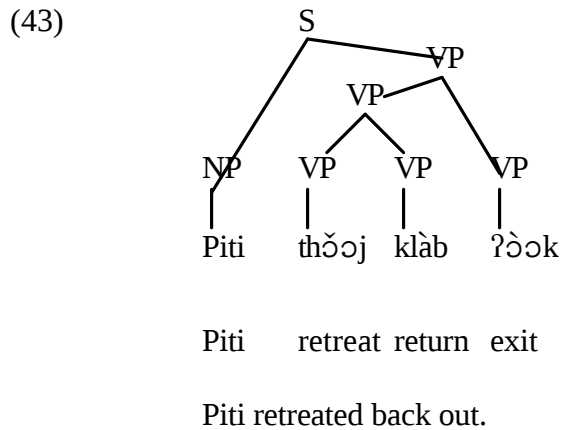
Piti run come descend stairs

Piti ran to come down the stairs.

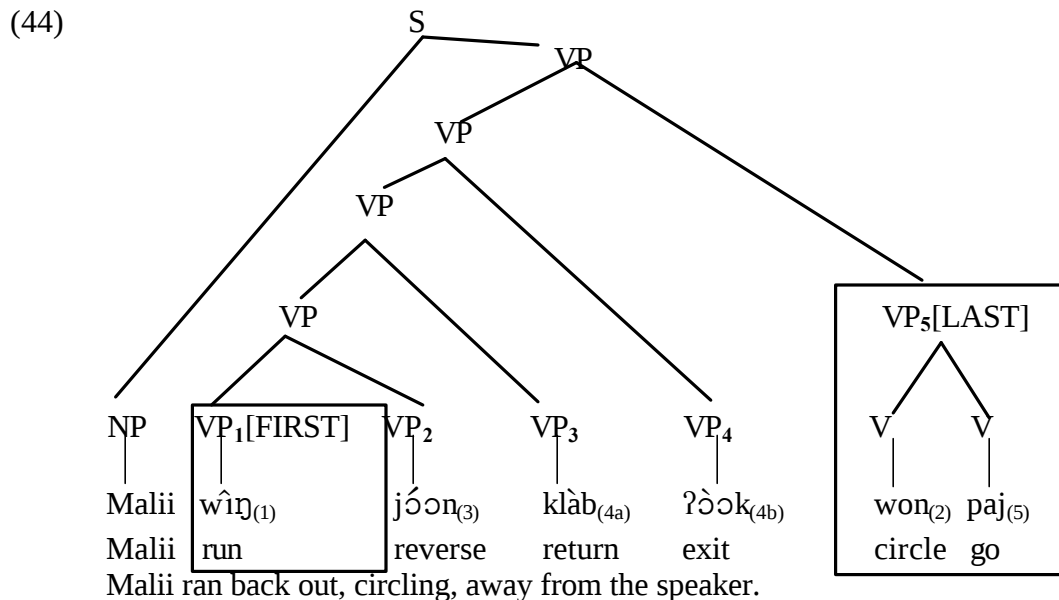
Example (39) and (41) contrasts with (40) and (42) in meaning. When the deictic verbs (*paj* ‘go’ and *maa* ‘come’) do not occur last in the SVC sequence and precede any other verb, the deictic verbs encode a purposive meaning, as shown in (40) and (42). The crucial difference is that while (39) and (41) encode a single event, (40) and (42) denote a sequence of two separate events, the second of which is not entailed to occur.

We have seen that ordering constraints in Thai Directional SVCs involve manner-of-motion and deictic verbs. Nonetheless, as I hypothesize, when a Directional SVC construct contains neither manner-of-motion nor deictic verbs, a single schema of the form

VP --> VP VP applies and yields the right results of “free” ordering among VPs, as shown below.



The three verbs in (43), *thǒɔj* ‘retreat’, *klàb* ‘return’, and *ʔǒɔk* ‘exit’ can be freely reordered as predicted by the recursive VP-over-VP structure. The two ordering constraints bear on an SVC construct only when the construct contains a manner-of-motion and/or a deictic verb, as illustrated in (44):



In (44), the two VPs surrounded by boxes are the fixed positions in the Directional SVC construct. Crucially, it is not possible to impose a Linear Precedence (LP) statement on the

recursive VP-over-VP structure to ensure the right ordering in (44), namely, to specify that the VP containing the manner-of-motion verb *wâŋ* ‘run’ must occur first in the sequence and that the VP consisting of *won paj* ‘circle go’ must occur last. The VP --> VP VP schema permits a VP in a Directional SVC to have two other instances of VPs as its daughters, but it cannot specify the relative order of VP₁ and VP₃ in (44), or VP₁ and VP₅, and so forth, since these VP pairs are **not** sisters.

Previous analyses of Directional SVCs discussed earlier are not sufficient to account for the ordering constraints on Thai Directional SVCs either. Subcategorization approaches of Sebba (1987) and Winford (1990) cannot formulate phrase structure rules that specify fixed positions of both manner-of-motion verbs and of the constituents containing deictic verbs since these constituents are not sisters in a local tree. The theta-role assignment approach of Baker (1989) also cannot explain the ordering constraints in Thai Directional SVCs because it incorrectly predicts a strict ordering of verbs in directional SVCs, since Thai is otherwise a rigid word order language.

To account for the fixed positions of particular classes of verbs in Directional SVCs, I present a syntactic analysis of Thai Directional SVCs in HPSG in the next section. Based on the assumption that words are informationally rich, lexical specifications allow us to associate constraints bearing on the positions in the SVCs with verbs in Directional SVCs. These lexical specifications, together with the new co-headed schema that I propose, can account for both the constituent structure and ordering constraints of Thai Directional SVCs.

2.6 Analysis of Thai Directional Serial Verb Constructions

2.6.1 Syntactic Analysis of Thai Directional Serial Verb Constructions

To model the structure and ordering constraints of Thai Directional SVCs, my analysis makes use of: 1) rich featural specifications on heads to organize classes of verbs according to their argument structures and ordering possibilities, 2) a new Head - Co-head schema, and 3) a **default** interpretation of the Head Feature Principle (cf. Sag, 2000), in which default head properties can be overridden by more specific information.

I model Thai Directional SVCs by proposing a few lexical specifications, two lexical rules and three syntactic rules or schemata. I start by presenting the relevant portion of the Thai lexical type hierarchy I assume in Figure 2.1:⁹

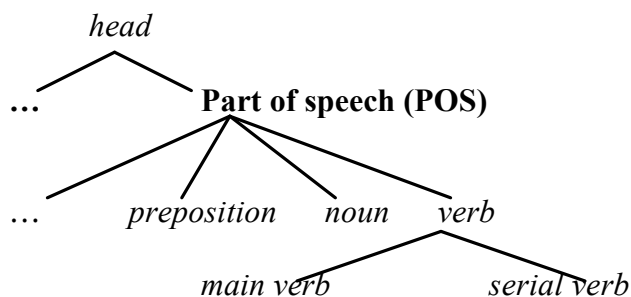


Figure 2.1: A portion of Thai lexical type hierarchy

Figure 2.1 shows that there are two types of *verbs* in Thai: *main verb* and *serial verb*. A crucial property of the supertype *verb*, which is inherited by its two subtypes is that a *verb* can occur as the only verb of a clause. *Main verb* refers to the union of verbs which do not occur in SVCs and verbs which must appear in the initial position of a Directional SVC sequence. In other words, *main verbs* are verbs which occur where heads are expected to occur in a head-initial language. In Directional SVCs, *main verbs* include manner-of-

⁹ I will revise this figure in Chapter 4.

motion and caused-motion¹⁰ verbs. Caused-motion verbs include verbs of type *c* (‘take’ verbs) in Thepkanjana’s (1986) classification and verbs such as *khwâaŋ* ‘throw’. *Main verbs* that occur in an SVC differ from *serial verbs* in another way. The first ones cannot leave out their required complements in the SVCs, as illustrated in (45).

(45) a. Priida ʔaw sũaphâa ʔòɔk (càak bâan) paj

Priida take cloth exit (from house) go

Priida took the cloth out (from the house) away.

b. *Priida ʔaw ʔòɔk (càak bâan) paj

Priida take exit from house go

(Intended meaning: Priida took (something) out (from the house) away.

In (45), the complement of ʔaw ‘take’, namely *sũaphâa* ‘cloth’, cannot be left out, as shown by the ungrammaticality of (45b), while the occurrence of the complement of directional serial verbs such as ʔòɔk ‘exit’ is optional. Note, however, that ʔòɔk ‘exit’ cannot leave out its complement outside of SVCs, i.e. when it occurs as the only verb in a clause, as shown below.

(46) *Priida ʔòɔk

Priida exit

Thus, *serial verbs* refer to verbs that can occur in a non-initial position in a Directional SVC sequence, and which can leave unexpressed some of their arguments (cf. 2.3.2).

¹⁰ See Choi and Bowerman (1991) and Kim (1997) for the use of the term “caused-motion”.

Differences in argument structures and ordering possibilities among verbs that can occur in Directional SVCs are captured by specifications of the attributes FIRST and DEFECTIVE, as illustrated in Figure 2.2.

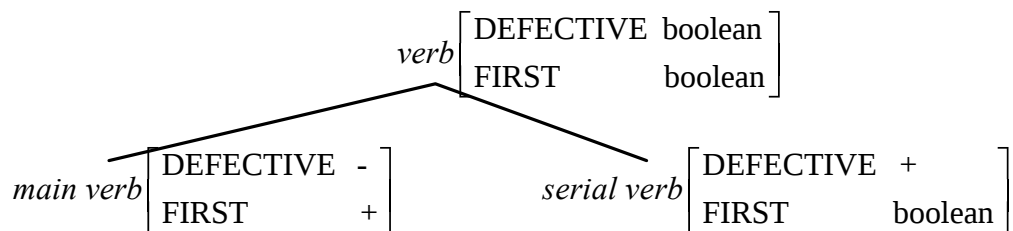


Figure 2.2: Type declarations for *verb* and its subtypes

Verbs that can occur in a Thai Directional SVC specify differently the values of the features DEFECTIVE and FIRST, as shown in Figure 2.2. The values of the DEFECTIVE feature specify the realization possibilities of verbs' argument structures. Namely, verbs which are [DEFECTIVE +] can occur without their otherwise required complements, while verbs specified as [DEFECTIVE -] must occur with their required complements. The values of the feature FIRST determines the positions of the verbs in Directional SVCs, which I discuss in more detail below.

I have now classified the syntactic categories of verbs that occur in Thai Directional SVCs. The combinations and ordering constraints of verbs in the SVCs are also partly determined by the meanings of verbs in SVCs. Verbs in Directional SVCs encode semantic relations which are subtypes of motion semantic relations. The basic hierarchy of semantic relations of verbs that occur in Directional SVCs is presented in Figure 2.3.

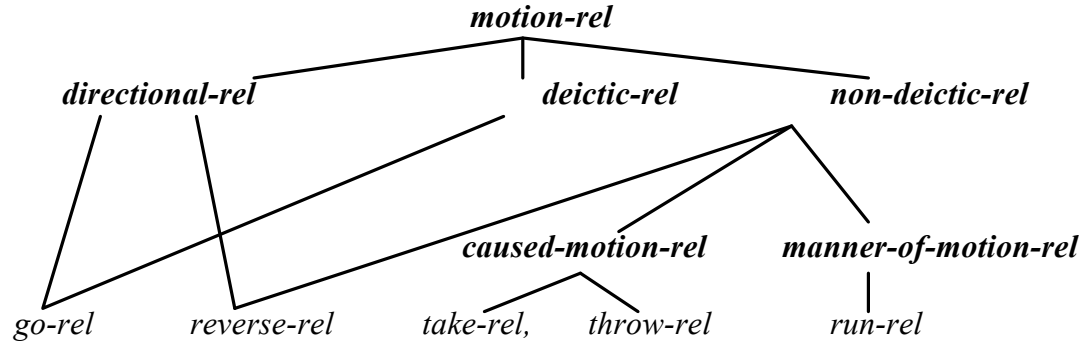


Figure 2.3: Basic hierarchy of semantic relations of verbs that occur in Directional SVCs

Figure 2.2 presents a brief hierarchy of meanings (i.e. semantic relations) of verbs that occur in Thai Directional SVCs. All verbs that occur in Thai Directional SVCs are classified as verbs which encode *motion-rel* (motion-related verbs). *Motion-rel* has three subtypes: *directional-rel*, *deictic-rel*, and *non-deictic-rel*. These subtypes are cross-classified. Namely, one subtype can be a subtype of two supertypes. For example, *go-rel*, the semantic relation coded by *paj* ‘go’ in Thai, is a subtype of both *directional-rel* and *deictic-rel* because it carries directional information of a motion event as well as deictic information, with the speaker as the deictic center. The cross-classification of *directional-rel* and *deictic-rel* contains *go-rel* (denoted by *paj* ‘go’) and *come-rel* (denoted by *maa* ‘come’). I henceforth call *pai* ‘go’ and *maa* ‘come’ “deictic verbs” for convenience. *Non-deictic-rel* is further classified into *manner-of-motion-rel* and *caused-motion-rel*. Examples of subtypes of motions relations are shown at the bottom of Figure 2.2. For instance, *take-rel* is a subtype of *caused-motion-rel*.

In Directional SVCs, verbs that encode *manner-of-motion-rel* and *caused-motion-rel* are *main* verbs. Verbs that encode other semantic relations are *serial verbs* due to their

special argument (i.e. complement) structures. In lexically-specified terms, verbs that occur in Directional SVCs are classified as in (47).

(47) a. Manner-of-motion and caused-motion verbs are lexically marked as

$\left[\begin{array}{cc} \text{DEFECTIVE} & - \\ \text{FIRST} & + \end{array} \right]$. The specification [DEFECTIVE -] will ensure that these

verbs occur with their required complements. The feature-value [FIRST +] ensures that the VP occurs first in the SVC sequence.

b. Non-deictic directional verbs (verbs which encode relations other than *deictic-rel*, *manner-of-motion-rel* and *caused-motion-rel*) are lexically marked as

$\left[\begin{array}{cc} \text{DEFECTIVE} & + \\ \text{FIRST} & \text{boolean} \end{array} \right]$. The specification [DEFECTIVE +] allows these verbs

to occur without their required complements **in the SVC**. Non-deictic directional verbs are underspecified for the feature [FIRST] since they can occur initially or in a non-initial position in Directional SVCs.

c. Verbs that take a deictic verb¹¹ as complement¹² are lexically marked as [FIRST -].

This specification will ensure that a VP headed by a verb from this class must occur last in the sequence of VPs in Directional SVCs.

Parts of the lexical specifications in (47) result from the application of the following two lexical rules.¹³ I delay examples which show derivations which involve these lexical rules until after I discuss the relevant syntactic schemata. The first lexical rule is needed to

¹¹ I assume that deictic verbs (i.e. *paj* ‘go’ and *maa* ‘come’) are also *serial verbs* because their otherwise required complements can be left out, although deictic verbs are distinct from other serial verbs in other aspects, as I discuss in more detail below.

¹² As the two constituency tests showed, a deictic verb is sister to (i.e. is a complement of) its preceding verb. I shortly present the lexical rule that creates the class of verbs which take deictic verbs as complements.

ensure that *serial verbs* can leave out their otherwise required complements (cf. example (29)).

Lexical Rule (LR) 1

$$\left[\begin{array}{ll} \text{HEAD} & \textit{serial verb} \\ \text{SUBJ} & \langle [1] \rangle \\ \text{COMPS} & [2] \\ \text{ARG-ST} & \langle [1] \rangle \oplus [2] \textit{list} \langle \textit{canonical-synsem} \rangle \end{array} \right] \rightarrow \left[\begin{array}{ll} \text{HEAD} & \left[\begin{array}{l} \textit{serial verb} \\ \text{DEFECTIVE} \quad + \end{array} \right] \\ \text{COMPS} & \textit{list} \\ \text{ARG-ST} & \langle [1] \rangle \oplus \textit{list} \langle \textit{synsem} \rangle \end{array} \right]$$

The type *canonical-synsem* is relevant to the feature DEFECTIVE and is introduced in LR1 to indicate the typical relation between the ARG-ST and COMPS lists. Recall that the ARG-ST list of a head verb is typically the concatenation of SUBJ and COMPS lists. This means that, typically, the first element in the ARG-ST list of the verb is realized as the subject (illustrated by the co-indexing of [1] in the ARG-ST and SUBJ lists in LR1) and the other elements in the ARG-ST list are realized as complements (the co-indexing of [2] in the ARG-ST and COMPS lists). Lexical Rule 1 states that for every *serial verb* which subcategorizes for normal complements, indicated by the second sublist in the ARG-ST list which is a *canonical-synsem* list, there is a corresponding entry which has a special argument structure (i.e. is [DEFECTIVE+]) and subcategorizes for complements of the type *synsem*. This is indicated by the specification of the second sublist on the ARG-ST list in the output, namely a *synsem* list, which leaves open whether it is a list of *canonical-synsem* or *non-canonical-synsem* objects. Intuitively, the output of LR1 is an entry of serial verb whose complements can be normally realized (i.e. as *canonical-synsem* complements), or can be left out and recoverable from the context (i.e. as *understood-*

¹³ Instead of lexical rules, we can achieve the same results through the on-line combination of lexeme classes as advocated in Koenig (1999).

synsem complements). Elements of the type *understood-synsem* refer to the complements of serial verbs in Thai Directional SVCs which can be left out but which are recoverable from the context.

The next lexical rule derives the entry of a motion verb which precedes a deictic serial verb and takes the deictic verb as its complement. The function of Lexical Rule 2 is to add to a non-deictic motion verb a valence requirement corresponding to the deictic serial verb and to ensure that the constituent headed by this motion verb occurs last in the SVC sequence.

Lexical Rule (LR)2

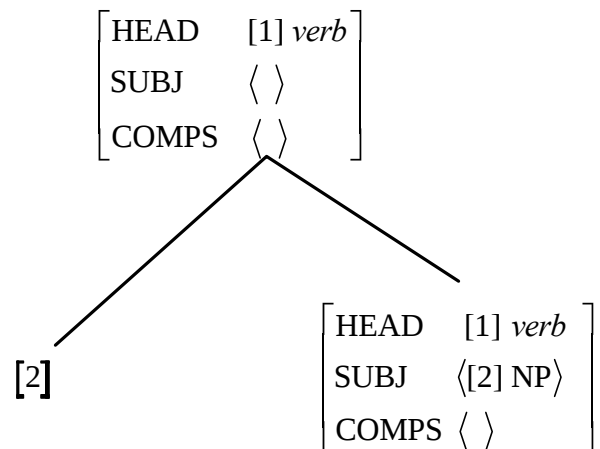
$$\left[\begin{array}{l} \text{HEAD} \quad [1] \text{ verb} \\ \text{ARG - S} [2] \\ \text{CONTENT} [\textit{non-deictic_rel}] \end{array} \right] \rightarrow \left[\begin{array}{l} \text{HEAD} \quad [1] \left[\begin{array}{l} \text{FIRST} \quad - \\ \text{DEFECTIVE} \quad - \end{array} \right] \\ \text{ARG - S} [2] \oplus \left\langle \left[\begin{array}{l} \text{HEAD} \quad \textit{serial verb} \\ \text{CONTENT} [\textit{deictic_rel}] \end{array} \right] \right\rangle \end{array} \right]$$

Lexical Rule 2 indicates that for every *non-deictic-verb* (i.e. verb that encodes a motion-related *non-deictic-rel*), there is a derived entry in which the ARG-ST is extended by having an added argument corresponding to a deictic verb. With its extended argument structure, the derived verb can then syntactically combine with the deictic verb via the Head-Complement schema. Furthermore, the output of LR 2 is also specified as [FIRST -] to ensure that this derived verb, which contains a deictic verb as an added element in its

ARG-ST list, occurs last in the SVC. The function of [DEFECTIVE-] is to insure that a verb phrase formed by combining the output of LR2 with a deictic verb can enter the Head-Subject Schema, and, therefore, function as the verb phrase of a clause, as I discuss shortly.

Apart from the above lexical rules, I propose that the following three *schemata* are needed to form a complex Thai Directional SVC. Schemata in HPSG serve as templates for permissible local phrase structure trees or configurations of immediate constituents (Pollard and Sag, 1994). Among the three schemata proposed, one schema is unique to Thai; i.e. the Head - Co-head Schema. These schemata and lexical rules together account for the constituency of VPs in Thai Directional SVCs and the fixed positions of the manner-of-motion verbs and motion verbs containing deictic verbs.

Schema 1¹⁴ - Head-Subject Schema (cf. Pollard and Sag, 1994)



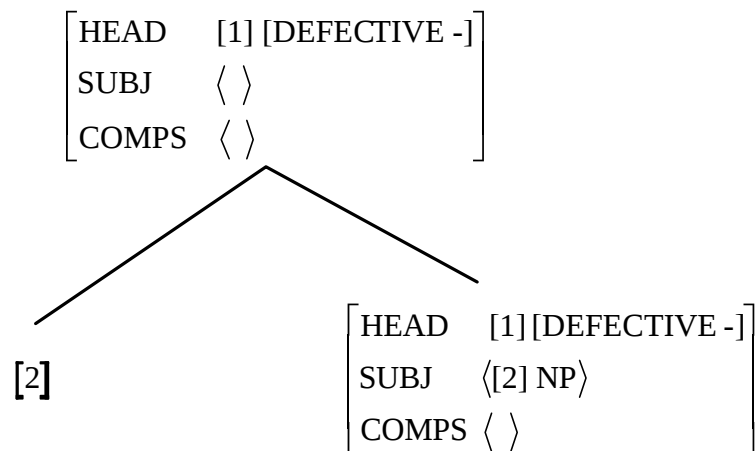
This schema is used to combine a VP with the subject NP to form a sentence. Recall that the Valence Principle states that unless the rule says otherwise, the mother's SUBJ and COMPS values are identical to those of the head daughter. The Head-Subject schema says that once the VP combines with a subject NP, the value of SUBJ of that VP is "canceled

¹⁴ Notice that I only provide simplified figures to illustrate the three schemata, mentioning only the relevant feature structure descriptions.

off” at the mother level. In Schema 1, from the bottom up, the VP’s SUBJ list consists of a single SYNSEM object, tagged [2]. This VP combines with the constituent [2] which is token identical to the *synsem* of the sole member of the VP’s SUBJ list, meaning that the constituent [2] satisfies the SUBJ description of the VP. The top feature structure’s SUBJ list is empty, as required by the Valence Principle. This means that the VP has been combined with the subject NP to form a sentence.

The Head-Subject Schema which I propose for Thai is a specialization this general Head-Subject Schema, as shown below.

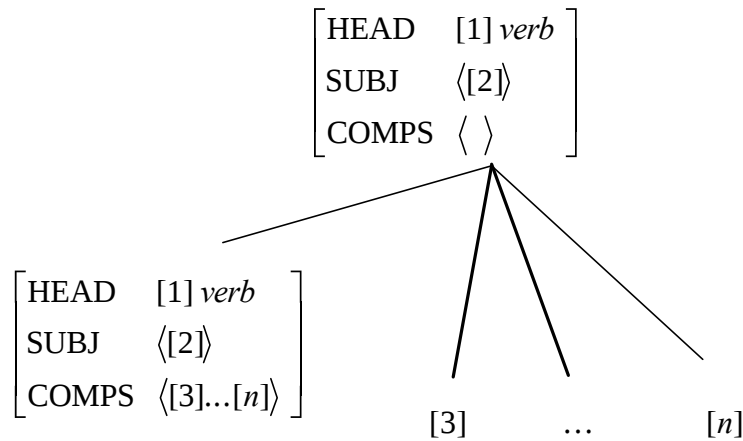
(48) **Head-Subject Schema for Thai**



The Head-Subject Schema for Thai basically specifies that a subject of a clause needs to combine with a verb phrase whose head is a [DEFECTIVE-] *verb*. A verb can be [DEFECTIVE -] either by type specification (i.e. *main verbs* are type-declared to be [DEFECTIVE -], see figure 2.3), or as a result of constraints imposed by lexical rules (cf. LR2) or schemata such as the Head-Subject Schema, and the Head - Co-head Schema below.

Schema 2 conforms to Pollard and Sag’s Head-Complement Schema. Apart from its general use to combine all verbs with their complements, this schema is also needed to combine the deictic serial verb with its preceding verb since, as mentioned in 2.3, the deictic serial verb forms an immediate constituent with its preceding verb, i.e. it *syntactically* complements that verb.

Schema 2: Head-Complement Schema (cf. Pollard and Sag, 1994)

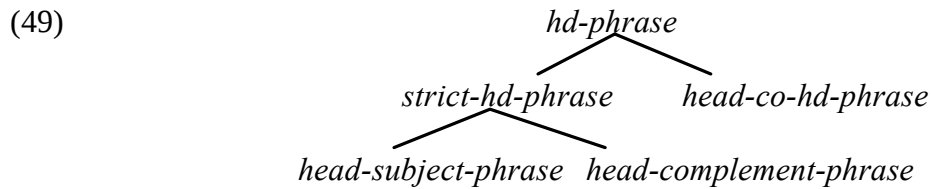


In Schema 2, elements tagged [3]...[n] in the COMPS list of the head verb are token-identical to the *synsems* of the constituents [3]...[n] that this verb combines with. The elements in the COMPS list are then canceled off from the phrase’s mother; this is indicated by the *null* value of the COMPS list of the mother.

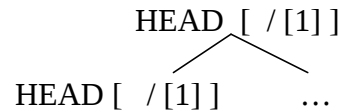
Schema 3, the Head - Co-head Schema,¹⁵ is unique to the Thai Directional SVC. This schema is defined as a schema that forms a *head-co-headed phrase*. A *head-co-headed phrase* is a subtype of *headed-phrase*. I assume, as Sag (2000) does, that the Head Feature Principle (HFP) is a **default** principle. The HFP states that in any headed phrase,

¹⁵ The name “head - co-head schema” might suggest that it is the schema for combining two **lexical** head verbs (which corresponds to “nuclear juncture”, a particular type of relation among complex units in a

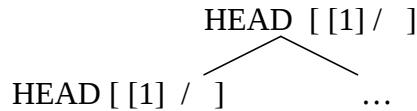
the HEAD value of the mother and the HEAD value of the head daughter must be unified. Assuming that the HFP is a default means that more specific information can take precedence over what is specified by the HFP, as I discuss in more detail below. A hierarchy of *headed-phrase* and its subtypes, as well as schemata which form these types are illustrated in (49) and (50). (Note that I assume, following Sag (1997), that schemata are types, which can form a hierarchy and be associated with certain constraints.)



(50) *a. Schema for headed-phrase:*



*b. Schema for strict-headed-phrase:*¹⁶

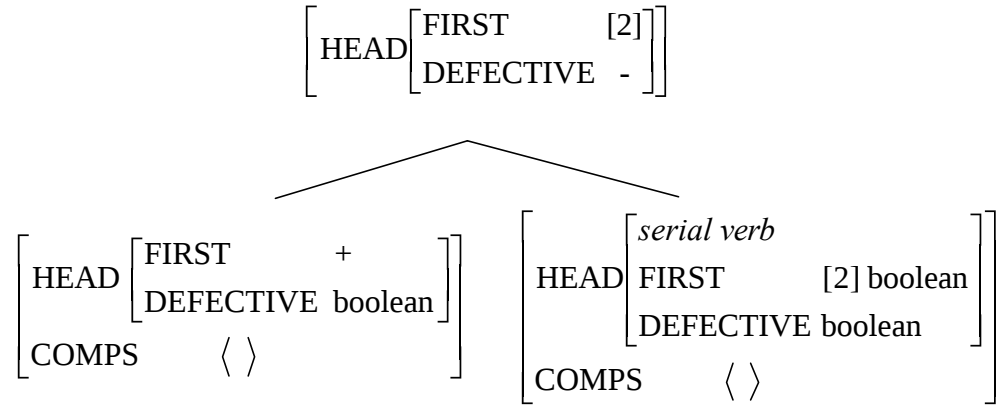


verb phrase, in Role and Reference Grammar (Van Valin and LaPolla, 1997)), which is **not** the case. The schema combines two motion-related verb **phrases** and can apply recursively.

¹⁶ The Head-Subject and Head-Complement Schemata are subtypes of *strict-headed phrases*. To be explicit, I present the schema for *strict-headed-phrase*, but, in fact, the current HPSG assumption is that strictness will be an automatic result of lack of conflicting information.

c. *Schema for head-co-headed-phrase (Head - Co-head Schema)*¹⁷ - preliminary

version:



A small portion of the hierarchy of *headed-phrase* is shown in (49). There are two subtypes of *headed-phrase*: *strict-headed-phrase* and *head-co-headed-phrase*. *Head-subject-phrase* and *head-complement-phrase* are subtypes of *strict-headed-phrase*. Schemata that define *headed-phrase*, *strict-headed-phrase*, and *head-co-headed-phrase* are illustrated in (50). Schema (50a) states that the head properties of the mother, tagged by [1], are by default identical to the head properties of the head daughter. The fact that the identification is only by **default** is indicated by the position of [1] **after** the slash. The assumption that head properties are identified by default means that the head properties of the phrase are typically identical to that of the single head daughter, but that they can be overridden by more specific information from the subtypes of *headed-phrase*. (50a)

¹⁷ As pointed out to me by Emily Bender (p.c.), one drawback of this schema is that it leads to spurious structural ambiguities. This is because the schema allows multiple groupings of VPs in an SVC, as illustrated by the following example.

- i. Piti wîŋ won ʔòok
 Piti run circle exit
 Piti ran, circling, out.

contrasts with (50b) in that the head properties tagged with [1] in (50b) are **strictly** required to be identical to that of the single head daughter, as indicated by the position of [1] **before** the slash. The strict head properties are identified between the head daughter and the mother in a **monotonic inheritance** manner and cannot be overridden.

Contrary to the schema for *strict-headed phrases*, the Head - Co-head Schema specifies which head properties are inherited from which head daughters. The mother in the Head - Co-head Schema shares the value of [FIRST] with that of the second daughter, and is specified as [DEFECTIVE -]. The schema states that the left daughter, which I call the **head** daughter, must be a VP¹⁸ whose [FIRST] and [DEFECTIVE] values must be able

to unify with $\left[\begin{array}{cc} \text{FIRST} & + \\ \text{DEFECTIVE} & \text{boolean} \end{array} \right]$, and that the daughter on the right, or the **co-head**

daughter, must be a *serial verb phrase* that can unify with $\left[\begin{array}{cc} \text{FIRST} & \text{boolean} \\ \text{DEFECTIVE} & \text{boolean} \end{array} \right]$. I

assume that other head properties not specified in the schema are shared between the mother and the **head** daughter, the daughter on the left hand side. The Head - Co-head schema restricts the VPs that can enter the schema to ensure the appropriate positions and argument structures of VP in the SVC. I illustrate how these specifications only generate grammatical Directional SVCs through a few examples.

(51) Wira khwâaŋ ħĩn ʔòok paj

Wira throw rock exit go

Wira threw the rock out away.

The SVC in example (i) can have either the constituent structure $[[\text{run circle}]_{\text{VP}} \text{exit}]_{\text{VP}}$ or $[[\text{run}]_{\text{VP}} [\text{circle exit}]_{\text{VP}}]_{\text{VP}}$. Nevertheless, this structural ambiguity has no semantic effect since all VPs in a Directional SVC describe the same, single event, as I discuss in 2.6.2.

¹⁸ This is specified in the Head - Co-head Schema by the empty COMPS list.

Two lexical rules apply to the serial verb ʔòɔk ‘exit’, as shown in (52)-(53).

(52) **Lexical Rule 1 applied to ʔòɔk ‘exit’ in sentence (51)**

$$\left[\begin{array}{l} \text{HEAD } \textit{serial verb} \\ \text{SUBJ } \langle [1] \rangle \\ \text{COMPS } \langle [2] \textit{ PP} \rangle \\ \text{ARG-ST } \langle [1] \rangle \oplus [2] \textit{list (canonical - synsem)} \\ \text{CONTENT } [\textit{exit_rel}] \end{array} \right] \rightarrow \left[\begin{array}{l} \text{HEAD } \left[\begin{array}{l} \textit{serial verb} \\ \text{DEFECTIVE } + \end{array} \right] \\ \text{COMPS } \textit{list} \\ \text{ARG-ST } \langle [1] \rangle \oplus \langle \textit{non - canonical - synsem} \rangle \end{array} \right]$$

Lexical Rule 1 derives an entry of ʔòɔk ‘exit’ which can occur without its otherwise required complement. The input of the derivation in (52) shows that the basic entry of the serial verb ʔòɔk ‘exit’ subcategorizes for a *canonical-synsem*, i.e. PP complement that will get realized (ʔòɔk *càak roonyrian* ‘exit from the school’, for example). However, the output from applying LR1 shows that there is a corresponding entry of ʔòɔk ‘exit’ specified as subcategorizing for a *non-canonical-synsem*,¹⁹ which therefore needs not syntactically realized.

¹⁹ Recall that the Argument Realization Principle requires that every element in the ARG-ST gets realized, except those which are *non-canonical synsem*.

(53) **Lexical Rule 2 applied to ʔḏḵ ‘exit’ in sentence (51)**

$$\begin{array}{c} \left[\begin{array}{ll} \text{HEAD} & [1] \text{ serial verb} \\ \text{ARG - S} & [2] \\ \text{CONTENT} & [\text{exit_rel}] \end{array} \right] \end{array} \rightarrow \begin{array}{c} \left[\begin{array}{ll} \text{HEAD} & [1] \left[\begin{array}{ll} \text{FIRST} & - \\ \text{DEFECTIVE} & - \end{array} \right] \\ \text{ARG - S} & [2] \oplus \left\langle \left[\begin{array}{ll} \text{HEAD} & \text{serial verb} \\ \text{CONTENT} & [\text{deictic_rel}] \end{array} \right] \right\rangle \end{array} \right] \end{array}$$

Lexical Rule 2’s function is to add to the argument structure of a non-deictic-verb a valence requirement for a deictic verb, and to ensure that the constituent headed by that verb occurs last in the SVC, via the [FIRST -] specification.²⁰ In (53), LR2 derives the entry of ʔḏḵ ‘exit’ in which a valence appropriate for a deictic verb is added to the ARG-ST, tagged [2], from the input entry,²¹ and this derived entry is also specified as [FIRST -] to assure that it heads the constituent which will occur last in the SVC sequence.

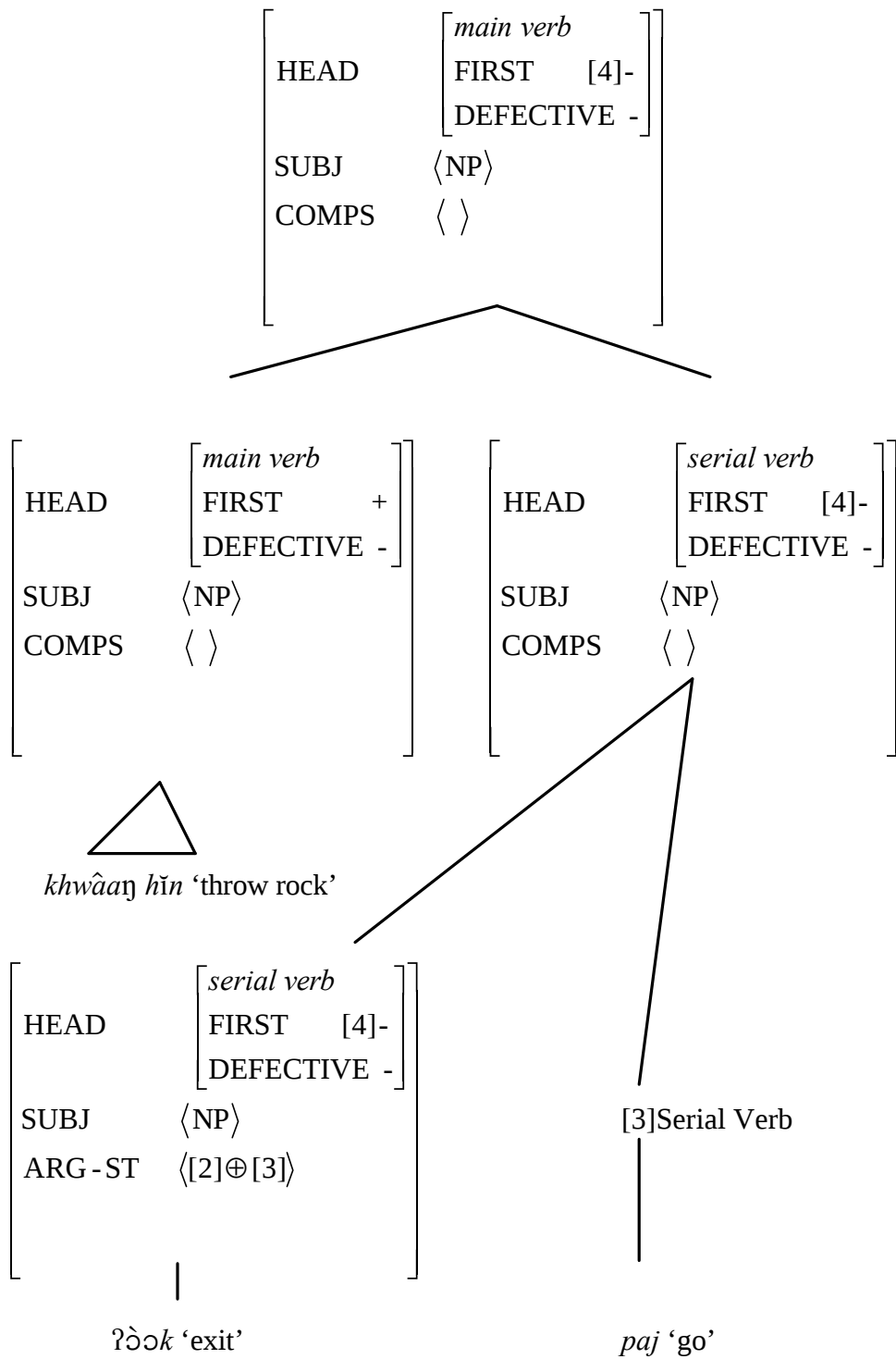
The feature-structures in (54)²² illustrate how the Head-Complement and the Head - Co-head schemata proceed in generating the Directional SVC in (51).

²⁰ I discuss the function of [DEFECTIVE -] in the output of the rule shortly.

²¹ Notice that there is no rule ordering between LR1 and LR2. Namely, the ARG-ST in the input of LR2 can be either the ARG-ST associated with the basic entry of a serial verb, or the ARG-ST derived from LR1. This is because the functions of the two lexical rules differ in the sense that LR1 changes the *synsem* type of the complements of serial verbs while LR2 adds the valency appropriate for serial verbs to include a deictic verb.

²² These representations are simplified AVMs that contain only relevant syntactic information. Since I do not include the feature [PHON] in the AVMs, I informally represent the phonological forms of the AVMs with the glosses at the bottom of the feature structures.

(54)



The constituent ʔòɔk paj ‘exit go’ is formed by the Head-Complement Schema. This schema combines ʔòɔk ‘exit’ with paj ‘go’ because the augmented valence of ʔòɔk ‘exit’ requires it to take a deictic verb as complement (cf. (47c) and Lexical Rule 2). The augmented-valence variant of the verb ʔòɔk ‘exit’ is lexically marked as

$\left[\begin{array}{ll} \text{FIRST} & - \\ \text{DEFECTIVE} & - \end{array} \right]$. The overall VP ʔòɔk ‘exit’ heads is therefore marked as

$\left[\begin{array}{ll} \text{FIRST} & - \\ \text{DEFECTIVE} & - \end{array} \right]$ in accordance with the constraints on the *strict-headed-phrase*²³ that

the head properties are strictly shared between the mother and the head daughter. The specification [FIRST -] ensures that this VP occur last in this SVC. The verb khwâaŋ hĩn ‘throw rock’ then combines with ʔòɔk paj ‘exit go’ by the Head - Co-head Schema to form the complex VP $\text{khwâaŋ hĩn ʔòɔk paj}$ ‘throw the rock out, away from the speaker’. The VP headed by the caused-motion verb khwâaŋ ‘throw’ is [FIRST +] according to (47a) and the Head Feature Principle, and this ensures its initial position in the SVC sequence. The VP khwâaŋ hĩn ‘throw rock’ is also marked as [DEFECTIVE -] (cf. (47a)), which is a property derived from the fact that khwâaŋ is a *main verb*, meaning that it must occur with its required complements.

Consider another example, (55), whose structure is shown in (56).

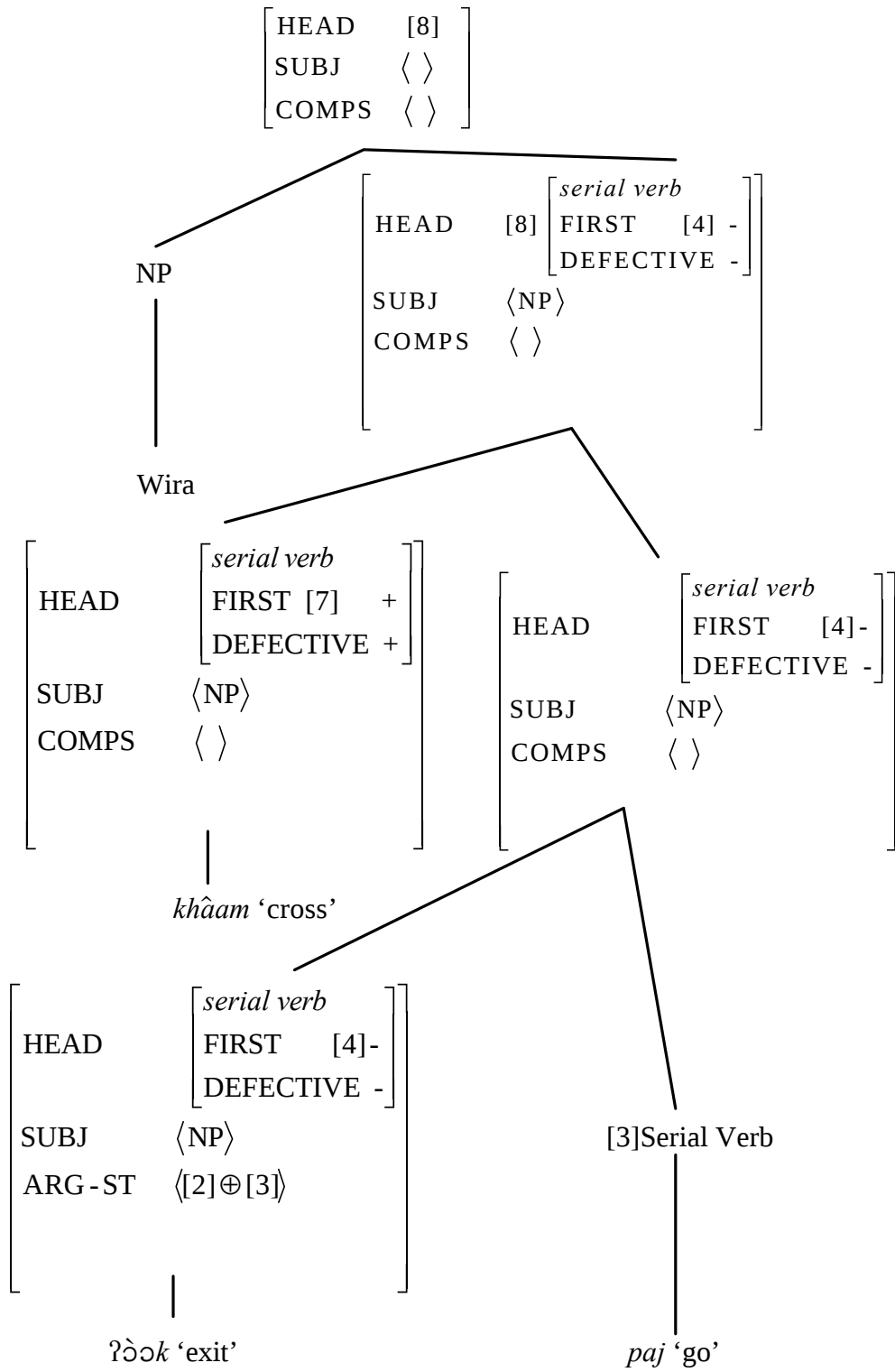
²³ A head-complement phrase is a subtype of *strict-headed-phrase*.

(55) Wira khâam ʔòok paj

Wira cross exit go

Wira crossed (something) out, away from the speaker

(56)



The portion of the derivation in (56) which is different from (54) begins when *ʔòɔk paj* ‘exit go’ combines with *khâam* ‘cross’. *Khâam* ‘cross’ is an entry derived through the application of LR1 and is [DEFECTIVE +], meaning that it can occur without its complement in an SVC. In sentence (55), *khâam* ‘cross’ does occur without its otherwise required NP complement, illustrated by its empty COMPS list in (56). *Khâam* ‘cross’ is lexically underspecified with respect to the feature [FIRST] (cf. (47b)), but the instantiation of the [FIRST]’s value of *khâam* in this particular sentence is [FIRST +], as required of the first daughter of the Head - Co-head Schema. When *khâam* ‘cross’ combines with *ʔòɔk paj* ‘exit go’, the constituent *khâamʔòɔk paj* is [DEFECTIVE -] although the head daughter *khâam* is [DEFECTIVE +]. The [DEFECTIVE -] attribute-value pair is specified by the Head - Co-head Schema, and it captures the idea that although the *serial verb* daughters have special valence structures (i.e. optional complements), they form an SVC which is as valid a VP as the one headed by a *main verb* (as in sentence (51)). The [DEFECTIVE -] specification from the Head - Co-head Schema is therefore used to override the [+] values of this feature from the head daughter. Finally, in (56), the whole SVC *khâam ʔòɔk paj* ‘cross (something) out, away’, which is [DEFECTIVE -] combines with the subject NP *Wira* through the Thai Head-Subject Schema(cf. (48))

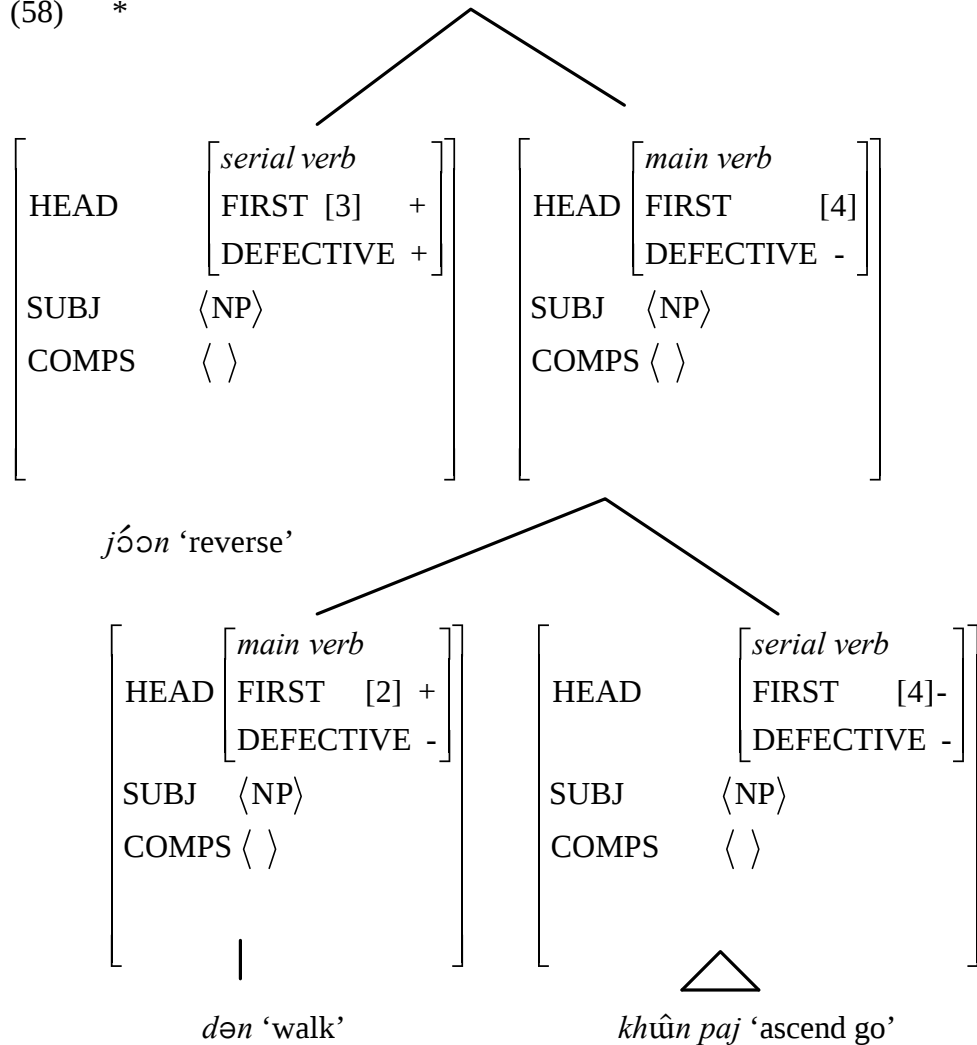
Sentence (57) is not possible because it is not licensed by the Head - Co-head Schema. The verb phrase *dən khuîn paj* ‘walk up away’ cannot enter the Head - Co-head

Schema as the **co-head** daughter since this VP is not headed by a *serial verb*. This is illustrated in (58).

(57) *Piti jón dən khûn paj

Piti reverse walk ascend go

(58) *



The derivation in (58) is impossible as the phrase *dən khûn paj* ‘walk up away’ is of category *main verb* phrase, and, therefore, cannot enter the Head - Co-head Schema as the **co-head** daughter. Note that the problem is not with the **head** daughter, which in this case

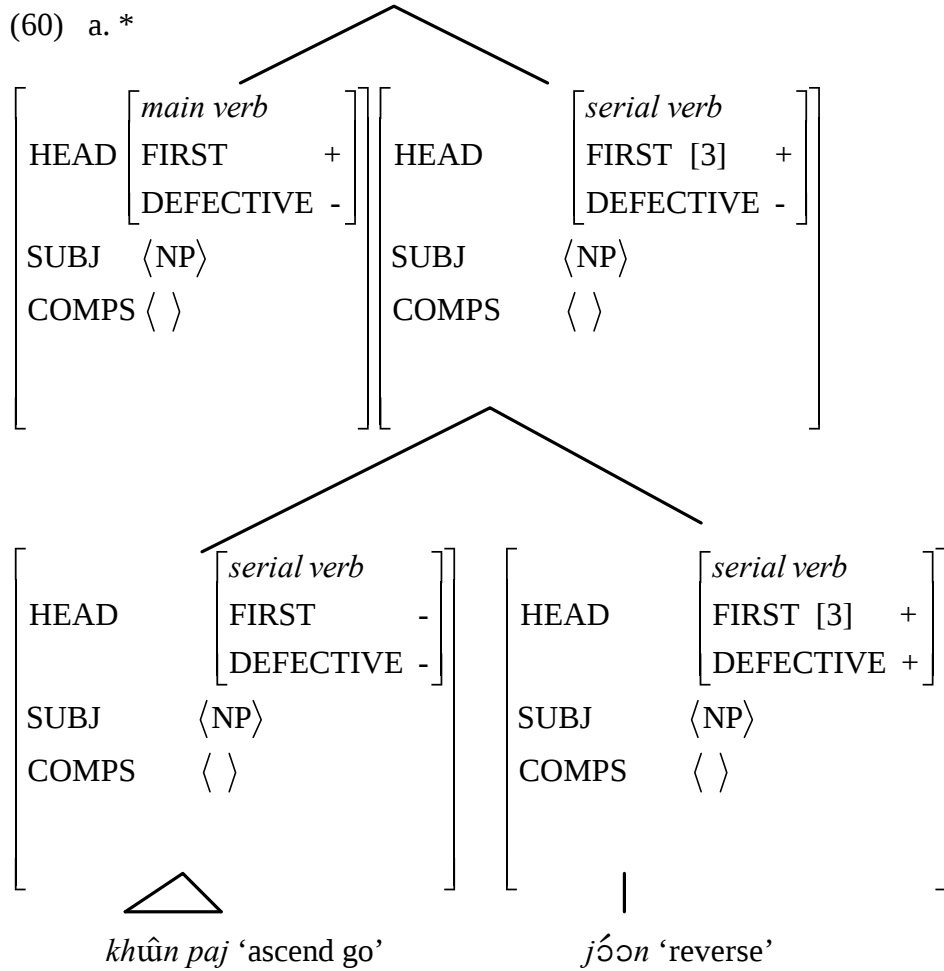
is *jóon* ‘reverse’ - a *serial verb phrase*, since there is no constraint on whether a *main* or *serial* VP can be the head daughter. The only constraint regarding the **head** daughter is that it must share its category (*main* or *serial*) with its mother in the Head - Co-head Schema, as required by the Head Feature Principle.

Next, I illustrate in (60) why sentence (59), in which the VP containing a deictic verb does not occur last in the SVC, is ungrammatical.

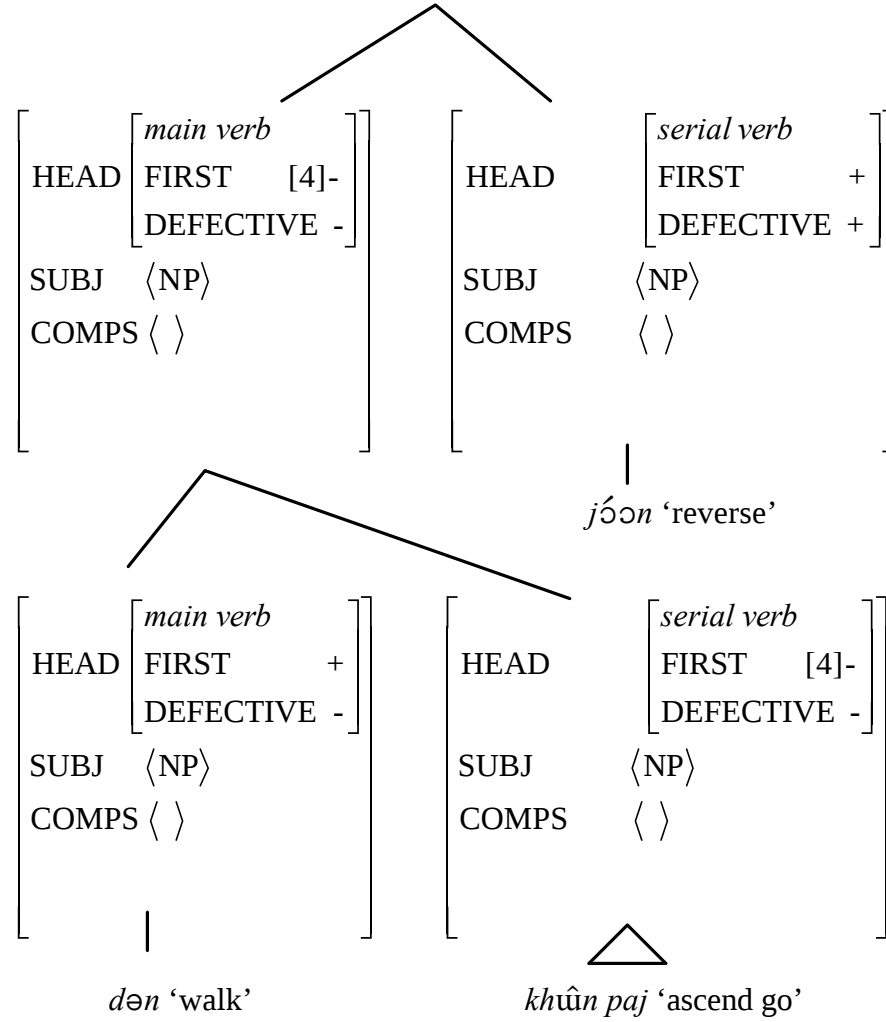
(59) *Piti dən khûn paj jóon

Piti walk ascend go reverse

(60) a. *



b.*



No matter whether we assume a left or right branching structure for (59), the combinations of VPs in (59) violate the constraints on the Head - Co-head Schema. In the left-branching structure in (60a), *khûn paj* 'ascend go' which is [FIRST -] cannot enter the Head - Co-head Schema as the **head** daughter, which is required to be [FIRST+]. In the right-branching structure in (60b), *den khûn paj* 'walk up away' identifies the value of its [FIRST] feature with that of *khûn paj*, and, therefore, is [FIRST-]. As a result, *den khûn*

paj cannot enter the Head - Co-head Schema as the **head** daughter, and (59) is correctly ruled out.

Note that we want to prevent the Head - Co-head Schema from applying to sentences such as (61), which contain two verbs and one of them is a deictic verb. This is because if we assume that (61) is licensed by the Head - Co-head Schema, *paj* ‘go’ is then a co-head and an independent VP, and could be separated from *ʔðɔk* ‘exit’ by an adverb, which is not true, as we saw in 2.4.1, repeated below.

(61) Piti ʔðɔk paj

Piti exit go

Piti went out away.

(62) a. Piti ʔðɔk paj jàaŋrûadrew

Piti exit go quickly

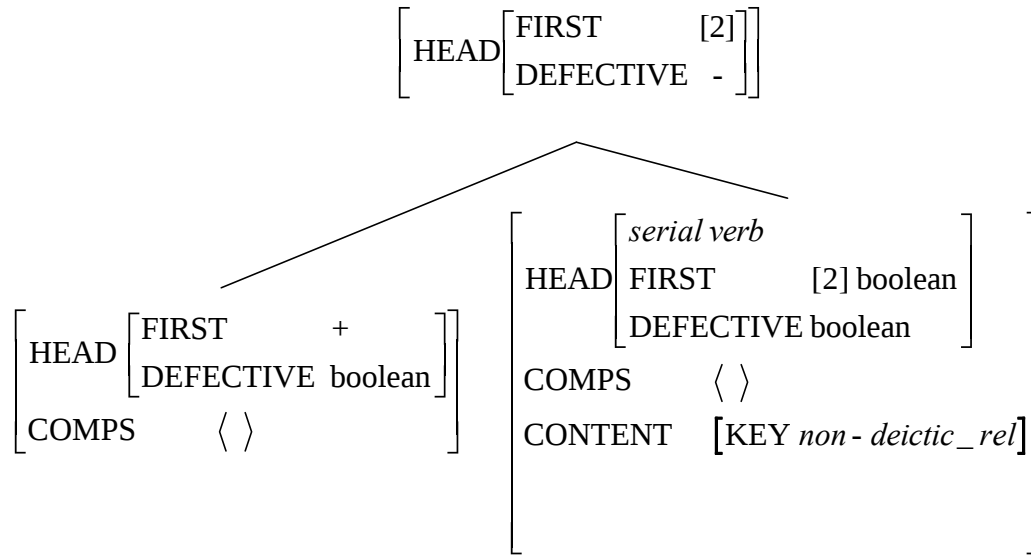
Piti exited away quickly.

b. *Piti ʔðɔk jaanrûadrew paj

Piti exit quickly go

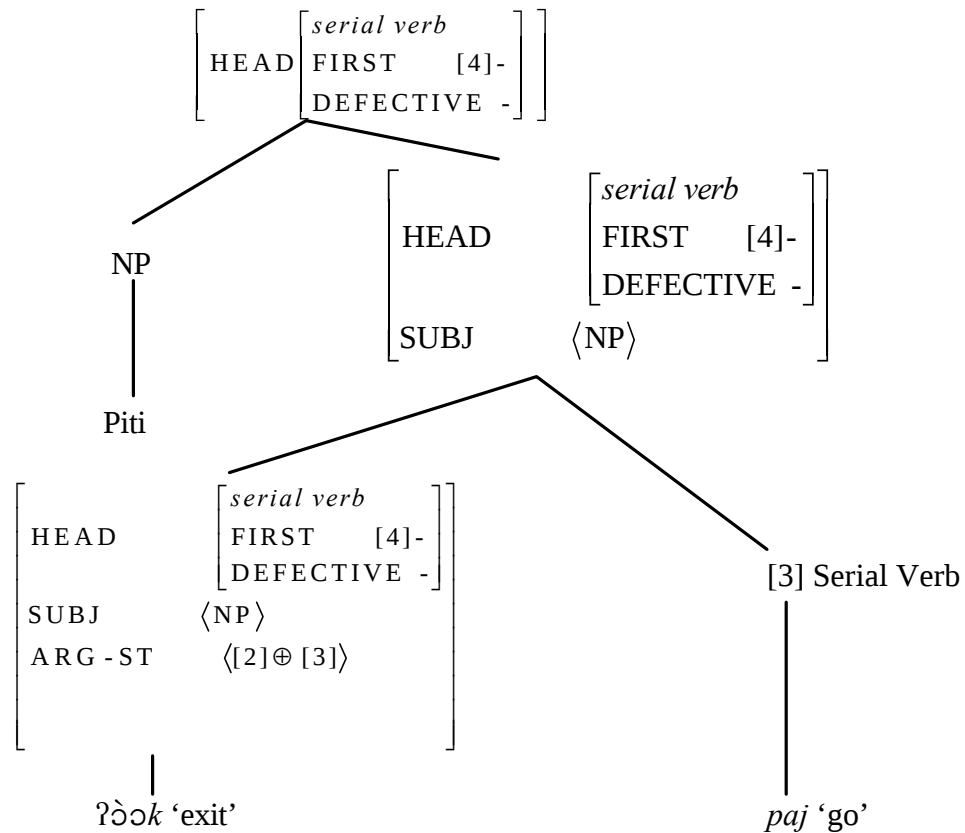
Sentence (62b) shows that an adverb cannot be inserted between the deictic verb and the VP that precedes it. Thus, a deictic verb must combine with its preceding verb via the Head-Complement Schema. As a result, I propose a semantic constraint according to which the semantic relation denoted by the co-head in the Head - Co-head Schema must be a *non-deictic-rel*. This constraint will prevent the schema from applying to sentences such as in (61).

Head - Co-head Schema - revised version:



The revised Head - Co-head Schema states that the KEY of the second daughter is a semantic relation which is a non-deictic relation. This constraint prohibits *paj* ‘go’, which encodes a *deictic-rel*, in (61) from entering the Head - Co-head Schema and combining with ʔòɔk ‘exit’.

(63)



Notice that although a lot of machinery is involved in modeling the occurrence of deictic verbs, all of this machinery is necessary. Let me recapitulate the mechanisms which

ensure the correct position of the phrase containing a deictic verb and its appropriate constituent structure. These mechanisms include 1) Lexical Rule 2 which adds to a non-deictic motion verb a valence requirement corresponding to the deictic verb, 2) the feature [FIRST] and its percolation from the **co-head** daughter in the Head - Co-head Schema, and 3) the *non-deictic-rel* specification in the revised Head - Co-head Schema. Now, there are two major characteristics of verb phrases in a Directional SVC which contain a deictic verb. First, it is a head-complement phrase in which the deictic verb complements its preceding verb. Second, if this head-complement phrase is to enter the Head - Co-head Schema, it must occur last. LR 2 and the Head - Complement Schema account for the first characteristic of the head-complement phrase containing a deictic verb. The feature [FIRST] and its percolation in the Head - Co-head Schema accounts for the second characteristic. Now, as we want to prevent the Head - Co-head Schema (which combines two verb phrases separable from each other by an adverb) from applying to sentences such as (61), which contains a deictic verb, I specified in the revised Head - Co-head Schema that the value of the KEY of the co-head daughter is a *non-deictic-rel*.

In conclusion, in this section, I modeled the syntactic structures and ordering constraints of Thai Directional SVCs by classifying classes of verbs according to their ordering possibilities and argument structures in the SVC. The two features [FIRST] and [DEFECTIVE] are necessary to model the constraints on the fixed positions of serial verbs and their special complement structures respectively. I also employed a **default** interpretation of the Head Feature Principle. With these mechanisms, we can model Thai Directional SVCs through the new Head - Co-head Schema and the usual Head-

²⁴ This is because both ?òɔk ‘exit’ and paj ‘go’, before the application of LR2, are [DEFECTIVE +], if

Complement Schema. The Head - Co-head Schema insures that Thai Directional SVCs have a recursive structure,²⁵ while the Head - Complement Schema ensures deictic VPs are sisters to the non-deictic motion verb that precedes them.

In the next section, I investigate the semantic composition of VPs in Thai Directional SVCs.

2.6.2 Semantic Composition in Thai Directional Serial Verb

Constructions

In this section, I provide a method for representing the semantic composition in Thai Directional SVCs. The VPs in a Thai Directional SVC independently describe one single event from different perspectives. The semantic composition of VPs in a Directional SVC cannot therefore be carried out through *functional application*, which assumes that meanings are composed by *functors* being applied to their *arguments*. Based on the assumption that each VP in a Directional SVC describes the same, single event from a different perspective, I preliminarily use *intersective combination* in Minimal Recursion Semantics (MRS - Copestake et al. 1999) as the method of semantic composition for Thai Directional SVCs, as illustrated in (64)-(65).

they do not co-occur with the non-subject members of their ARG-ST list, but the combination of the two verbs is in fact valid as a VP and can enter the Head - Subject Schema.

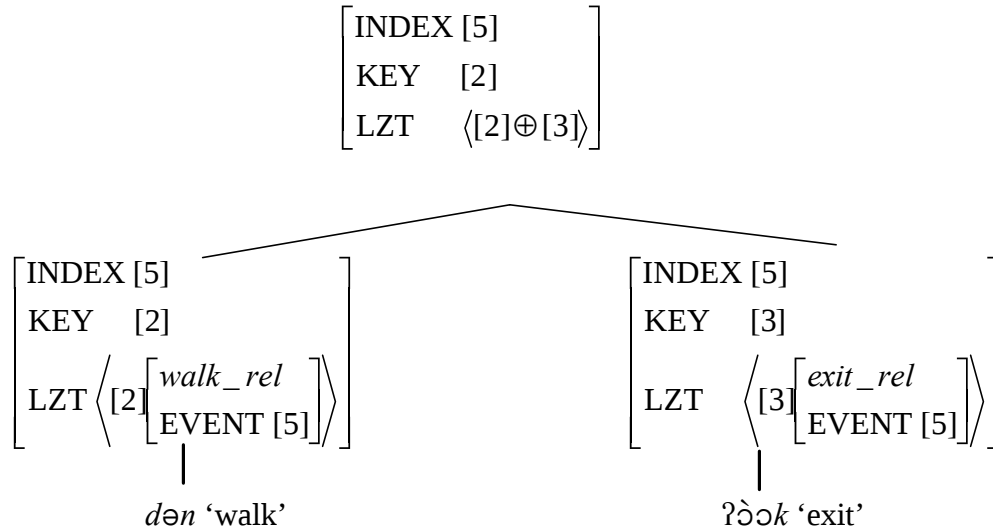
²⁵ One might want not to have a new schema for Thai Directional SVCs and consider reducing the Head - Co-head Schema to some sort of modification. This is an alternative that I explored. However, a feature of Thai Directional SVCs that modification cannot model is the need to inherit the feature [FIRST-] from the non-head daughter (i.e. the deictic verb and its preceding verb) to ensure its last position in the SVC sequence.

(64) Piti dən ?ðɔk

Piti walk exit

Piti walked out.

(65) Preliminary Semantic Representation of the SVC in (64)



In the above semantic representation, *dən* ‘walk’ and *?ðɔk* ‘exit’ each contributes an elementary predication (EP). Each EP in (65) describes the same event, as indicated by the token-identity of the tags for the value of the attribute INDEX. Note that the value of the INDEX is determined by the value of the EVENT attribute associated with the semantic relations of each motion verb. The single EP in each of *dən* ‘walk’ and *?ðɔk* ‘exit’ becomes the verb’s main EP or KEY. The interjective combination of (64) is illustrated by the concatenated list of EPs in the mother node in (65). I assume that the KEY of the SVC in (64) is that of the head daughter, *dən* ‘walk’, following the assumption discussed in Chapter 1.

The assumption that the verbs in a Directional SVC describe the same, single event is, however, only true in a weaker sense of “same” event, as I now show. One way to determine whether two VPs describe the same event is to see whether the events described by the two VPs have the same beginning and end. If we identify events by looking at their beginning and end, we cannot say that all verbs in Directional SVCs describe the same event since some of the motion verbs only describe parts of the event that others describe, as illustrated below:

(66) Narii wîŋ troŋ jɔɔn khâam saphaan ʔòɔk paj

Narii run go straight reverse cross bridge exit go

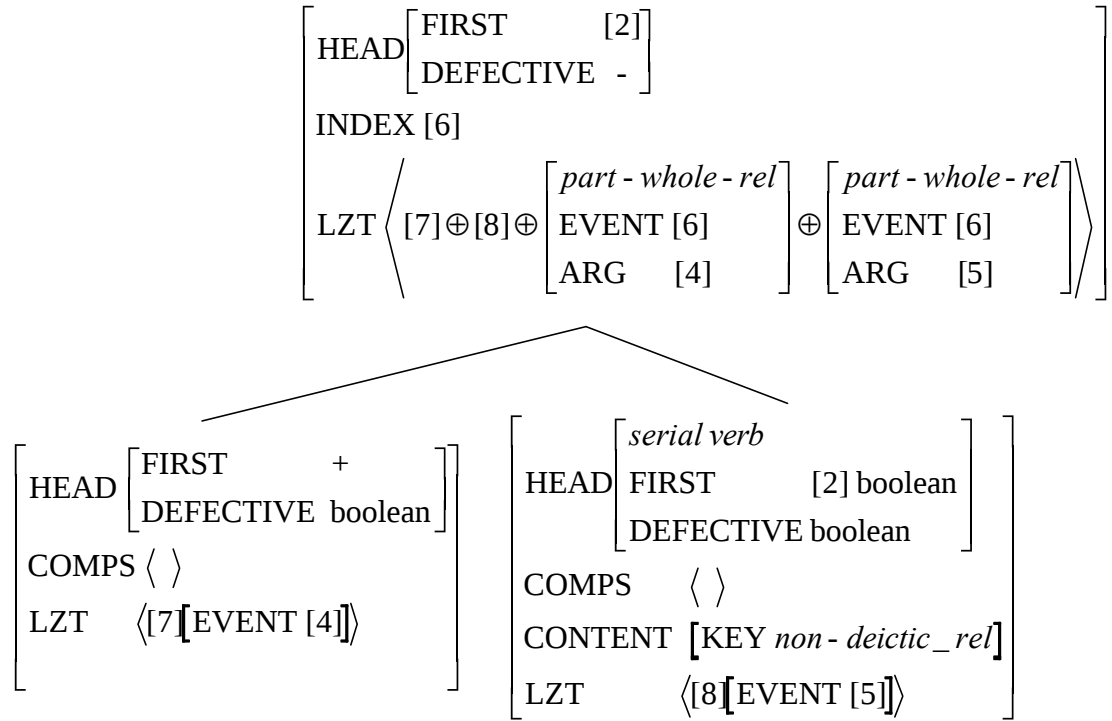
Narii ran straight back, crossing the bridge, out away from the speaker.

In (66), the VP *khâam saphaan* ‘cross bridge’ does not necessarily describe an event which has the same beginning and end as those denoted by the other verbs in the sequence (e.g., *wîŋ* ‘run’ and *troŋ* ‘go straight’). In other words, *khâam saphaan* ‘cross bridge’ describes only a sub-part (i.e. sub-event) of the whole motion event encoded by (66). As a result, the assumption that the VPs in a Directional SVC describe the same, single event which (65) assumes is only true in a weaker sense; namely, each VP talks about the same motion event, even though some of the VPs describe parts of it only.

To model the fact that the verbs in a Directional SVC describe the same event only in a weaker sense, I adopt the idea that constructions contribute meaning. Several recent syntactic frameworks have adopted an alternative view of grammar in which constructions²⁶ have primary ontological status; that form-meaning correspondences exist independently of particular words (see Fillmore et al., 1988; Goldberg, 1995; Kay 1997,

The figure in (68) is the semantic representation of (67). The idea behind the *part-whole-rel(ation)* is that every verb that occurs in the Directional SVC is ultimately a part of the same whole. Intuitively, the EVENT attribute of the *part-whole-rel* refers to the **whole** of this relation and the ARG attribute refer to the **part**. The values of the attributes EVENT and ARG are indices. Basically, (68) shows that the events [4] and [5] denoted by *dən* ‘walk’ and *won* ‘circle’ are parts of the same whole event, represented by [4] and [5] being arguments of a *part-whole* relation. Furthermore, [6] and the event [8] denoted by *ʔðɔk* ‘exit’ are included in another EVENT [9]. Note that, assuming the transitivity of inclusion, the EVENT attribute of the lower mother node in (68) is included in the topmost mother node. Finally, notice that even though the walking event encompasses the whole motion event and the circling and exiting events are probably only parts of the event, this is not a problem since the *part-whole* relation needs not be proper. The semantic composition illustrated in (68) applies to the motion-event encoding VPs in Directional SVCs which are combined via the Head - Co-head Schema. I provide in (69) the Head - Co-head Schema incorporated with the semantic information of *part-whole* relation.

(69)



Basically, the schema in (69) states that the events [4] and [5] encoded by the head and the co-head daughter are parts of the same whole event.

For a motion-event encoding VP which has a deictic verb as a complement, I ensure that the deictic verb encodes the same event as the motion-event encoding VP that precedes it by event identification in the revised Lexical Rule (LR) 2 as follows:

(70) Revised LR 2

$$\begin{array}{c} \left[\begin{array}{l} \text{HEAD} \quad [1] \text{ verb} \\ \text{ARG - S} [2] \\ \text{CONTENT} \left[\begin{array}{l} \text{non - deictic_rel} \\ \text{EVENT} [3] \end{array} \right] \end{array} \right] \end{array} \rightarrow$$

$$\begin{array}{c} \left[\begin{array}{l} \text{HEAD} \quad [1] \left[\begin{array}{l} \text{FIRST} \quad - \\ \text{DEFECTIVE} - \end{array} \right] \\ \\ \text{ARG - S} [2] \oplus \left\langle \begin{array}{l} \left[\begin{array}{l} \text{HEAD} \quad \text{serial verb} \\ \text{CONTENT} \left[\begin{array}{l} \text{deictic_rel} \\ \text{EVENT} [3] \end{array} \right] \end{array} \right] \end{array} \right\rangle \end{array} \right] \end{array}$$

The revised LR 2 semantically specifies that the values of the EVENT attribute of the deictic verb and of the verb that precedes it are identical. For example, (69) ensures that in *Piti ʔɔ̌ɔk paj* ‘Piti exit go’, the verb ʔɔ̌ɔk ‘exit’ and its complement *paj* ‘go’ describe the same event.

The fact that all VPs in a Directional SVC describe the same single event might be taken to imply that the VPs share the same subject. However, this is not necessarily the case as shown in (71)-(73), which are examples of various possible control relations in Directional SVCs. Note that instead of discussing the following examples in terms of subject vs. object control, I discuss them in terms of structure sharing of semantic role values among VPs in Directional SVCs, which I find intuitively clearer.

(71) Wira dən ?ðok

Wira walk exit

Wira walked out.

(72) Wira khwâaŋ ħin ?ðok paj

Wira throw rock exit go

Wira threw the rock out, away.

(73) Wira ?aw klðoŋ kradàad ?ðok paj

Wira take box paper exit go

Wira took the paper box out, away.

The VPs in (71) share the same subject, *Wira*, which is the FIGURE²⁷ of both the *walk_rel* and *exit_rel*. However, in (72), *Wira* is the ACTOR of the verb *khwâaŋ* ‘throw’ but is *not* the FIGURE of *exit_rel* and *go_rel*. Instead, the NP *ħin* ‘rock’ is the FIGURE of *exit_rel* and *go_rel*. Sentence (73) is a case where *Wira* is both the ACTOR of *?aw* ‘take’ and is the FIGURE of *?ðok* ‘exit’ and *paj* ‘go’, and there is also another FIGURE of *exit_rel* and *go_rel*, which is *klðoŋ kradàad* ‘paper box’. From examples (71) through (73), we can see that a caused-motion verb differs from a manner-of-motion verb in that the former encode an embedded causal relation, which, by default, determines that its CAUSEE (*ħin* ‘rock’ in (72) or *klðoŋ kradàad* ‘paper box’ in (73)) will be identified with the FIGURE

²⁷ It should be noted that I make use of features that denote semantic roles here without taking time to present a proper theory of predication and the features or semantic roles that go with them, since it is not the focus of this dissertation. See Davis (2001) for a comprehensive discussion of these issues.

of the motion verbs that combine with it in the SVC. Among caused-motion verbs, the class of ‘take’ verbs is different in the sense that both the CAUSER and the CAUSEE of the verbs become the FIGUREs in the Directional SVCs. For example, in (73) both the CAUSER, *Wira*, and the CAUSEE: *klḁḁḁḁ kradàad* ‘paper box’, are both the FIGUREs in the sense that both move. Semantic information regarding sharing of semantic role values must be encoded in the Head - Co-head Schema, an issue that goes beyond the scope of this thesis and which I do not spell out in detail here.

In conclusion, I presented, in this section, a model of the semantics of Thai Directional SVCs, in particular the fact that VPs in the SVC describe the same, single event. The weaker notion of the “same” motion event, which I showed to be relevant for Directional SVCs, is represented by assuming that Directional SVCs, as constructions, are associated with a *part-whole* constructional meaning.

2.7 Conclusion

Thai Directional SVCs are a new kind of SVC whose structure is not reduceable to previously described SVCs in the generative literature. Thai Directional SVCs are strings of verbs which partake in two structures: a VP-over-VP structure (generated by a new Head - Co-head Schema) and a complementation structure. Verbs that occur in Directional SVCs range from ordinary *main verbs* to *serial verbs*. *Main verbs* occur first in the SVCs, where heads are supposed to occur in Thai. *Serial verbs* are defined based on their special argument structures, and the fact that they can be freely reordered, at least for those which do not contain a deictic verb. The deictic serial verb and its preceding verb appear in the complementation structure and have a fixed order as predicted by the rigid word order of

heads and complements (cf. 1.4.4). The crucial point is that Thai Directional SVCs involve verbs which exhibit a special complement structure and show a dissociation between constituent structure and linear order that cannot be precisely modeled by simple category and subcategorization information typical of previous analyses of Directional SVCs (Sebba, 1987; Winford, 1990; Baker, 1989), or by the use of simple phrase structure rules of the form $A \rightarrow B C$, which can only encode linear relations among sister constituents. Nonetheless, within HPSG, the rich featural specifications of heads, in particular the features [DEFECTIVE] and [FIRST], and the mechanisms available for the percolation of specific head properties through the default Head Feature Principle allow for a straightforward model of Thai Directional SVCs.

Semantically, verbs in a Thai Directional SVCs describe the same, single event from different perspectives. Intersective combination in Minimal Recursion Semantics, as well as the construction-specific *part-whole* semantic relation, can efficiently account for the fact that all verbs in Thai Directional SVCs uniformly describe one single event, regardless of whether the verbs describe the whole motion event or only parts of it.

Chapter 3

Aspect morphemes in Thai

3.1 Introduction

The purpose of this chapter is to describe the properties of syntactic elements that mark aspect¹ in Thai, i.e. what I call “aspect morphemes”. These properties include the meanings, positions in the clause, possible combinations, and semantic compatibility of the aspect morphemes. The study of properties of aspect morphemes in this chapter is the basis for investigating the structures of the occurrences of these aspect morphemes in a clause, which is carried out in the next chapter.

In a Thai verb phrase, there can be aspect morphemes in both pre-VP and post-VP positions. An example of such verb phrases, which I call Aspectual Constructions (ACs), is shown below:

- (1) Wanna kamlan cà? kin khâaw sèd maa
 Wanna PROG be about to eat rice finish PFCT(come)
 Wanna is/was going to have finished eating rice.

In the above example, *kamlan* marks progressive aspect and has the widest scope. *cà?* can be translated as ‘be about to’ (see section 3.2.1.1.1 for a detailed discussion of the meaning of *cà?*). These two morphemes combine with the VP containing *sèd* ‘finish’,

¹ Here, I define aspect in a broad sense. Aspect refers to grammaticalized viewpoints that convey information about temporal properties of situations such as beginning, end, change of state, and duration (Smith 1997:1).

which marks the endpoint of the event of eating rice, and *maa* ‘come’, which encodes perfect aspect. All of these morphemes create a complex aspectual meaning, as the gloss shows.

- (2) Wira *rêəm* *càʔ* *ʔaan* *năŋsũu* *tòɔ*
 Wira start be about to read book continue
 Wira started to continue reading a/the book.

In (2) *rêəm* ‘start’ marks inchoative² aspect (Sookgasem, 1990) and co-occurs with *càʔ*.

Another element that marks aspect in this clause is *tòɔ* ‘continue’, which occurs after the VP *ʔaan nəŋsũu* ‘read a/the book’.

This chapter proceeds as follows. I first list the Thai aspect morphemes (TAMs) that can occur in ACs. These aspect morphemes are provisionally grouped according to their positions in the clause. Next, I summarize the semantics of each morpheme. I then describe the possible positions in the clause of these morphemes. Finally, a description of the combinatorial properties of TAMs and their semantic compatibility is provided.

3.2 Thai Aspect Morphemes

The following table shows all elements that can occur in ACs, in their “default” or “basic”³ linear order.

² “Inchoative” aspect refers to the beginning of a state or activity.

³ Some of these elements can occur in variable positions, without altering the meaning of the clause. What I mean by ‘default’ or ‘basic’ here is that the ordering shown in Table 3.1 has, intuitively, a neutral focus structure, compared to other possible non-default orders.

1	2	3	4
kamləŋ: Progressive - PROG càʔ: ‘be about to’ phêŋ: ‘just start’ (<i>Post-inchoative</i>) rêəŋ: start (<i>Inchoative</i>) khəəj: experience tôŋ: ‘must’	Base VP	<i>dâj</i> : get (<i>permissive, ability</i>) khûn: Semi-perfective - SPFV (lit. ascend) loŋ: SPFV (lit. descend) khâw: Imperfective - IMPFV (lit. enter) ʔòɔk: SPFV (lit. exit) jùu: IMPFV (lit. be located) tòɔ: ‘continue’ sèd: ‘finish’ còb: ‘end’ paj: IMPFV (lit. go) paj: Perfective –PFTV (lit.go) sǎa: PFTV (lit. lose, waste)	maa: Perfect - PFCT (lit. come)

Table 3.1: Thai Aspect Morphemes (TAMs)⁴

There can be more than one morpheme from slots 1 and 3 in a string, provided that their meanings are compatible. This issue will be discussed in 3.2.1.1.3 and 3.2.1.2.4. Below are examples which illustrate the ordering of the various elements of an AC and some combinations of the morphemes.

- (3)
- | | | | | |
|---------------|-------------|-------|------------|------|
| 1 | 1 | 2 | 3 | 4 |
| Priida kamləŋ | càʔ | sâaŋ | bâan khûn | maa |
| Priida PROG | be about to | build | house SPFV | come |
- Priida is going to build a/the house.⁵

⁴Table 3.1 is labeled “Thai Aspect Morphemes (TAMs)” for mere mnemonic reasons. Table 3.1 also contains elements which do not mark aspects, but interact with aspect morphemes, as I will shortly discuss. Also, not all of the elements shown in Table 3.1 will be analyzed in this study. Elements which will not be analyzed are in *italics*.

- (4) 1 2 3
- Priida rêəm jéb phâa sèd
- Priida start sew cloth finish
- Priida started to finish sewing cloth.

- (5) 1 1 2 3
- Priida phêŋ cà? phim còdmăaj tòó
- Priida Post-INC be about to type letter continue
- Priida just started to continue typing the letter.

- (6) 1 2 4
- Priida khəəj kin jaa níi maa
- Priida experience eat medicine this come
- Priida used to take this medicine before.

Note that, in my analysis, I do not include the morpheme *l'Éɛw* ‘already’ which is treated as an aspect morpheme by certain Thai scholars (Sookgasem (1990), for example). I treat *l'Éɛw* as a temporal adverb that means ‘already’, and not as an aspectual morpheme because *l'Éɛw*’s distribution differs from other aspect morphemes. This can be seen from the short answer test, as shown in the following examples

⁵ Due to the lexical semantics and scope interpretations of the aspect morphemes in examples (3)-(6), the translations of these sentences are only approximate and preliminary.

- (7) Question: Piti thûb kĕεw lĕεw rŭŭ
Piti break glass already question marker
Did Piti already break the glass?
- Answer: thûb lĕεw
break already
(He) broke (it) already.⁶

- (8) (the aspect morpheme *śia* marks the perfective aspect)

- Question: Piti thûb kĕεw śia rŭŭ
Piti break glass PERF question marker
Did Piti break the glass?
- Answer: *thûb śia
break PERF
(Intended meaning: (He) broke (it).)

While the temporal adverb *lĕεw* ‘already’ can co-occur with the verb *thûb* ‘break’ in the short answer in (7), the aspect morpheme *śia* - PERF cannot, as shown in (8). I hypothesize that what I categorize as aspect morphemes in Table 3.1 encode aspectual information somewhat **internal** to the base verb. Therefore, mentioning the aspect morpheme in a short answer would make the sentence implausible as it would be redundant and does not add

⁶ Note that nominal phrases can often be left out from Thai sentences, provided they can be inferred from the context.

any new information. On the other hand, the temporal adverb *lɛ̌ɛw* ‘already’ encodes external aspectual information which is a prominent piece of information and mentioning it in a short answer does not make the sentence implausible.

In the following section, I examine the semantic properties of Thai aspect morphemes.

3.2.1 Semantic Properties ⁷

The semantics of each morpheme from Table 3.1 is summarized below. It should be noted that my intention is not to create an exhaustive study of the semantics of Thai aspect morphemes. Therefore, I do not analyze the detailed semantics of individual morphemes but simply provide a summarized description for each morpheme from Table 3.1.

3.2.1.1 Morphemes from Slot 1

The morphemes in this slot can be divided into two groups, according to their meanings: aspect morphemes and modal morphemes.

3.2.1.1.1 Aspect Morphemes

Aspect morphemes from slot 1 in Table 3.1 are *kamlaj* - PROG, *phə̌j* - Post-INC, *càʔ* ‘be about to’, *rə̌əm* – start, and *khə̌j* – experience. I start by discussing the semantics of *kamlaj* - PROG.

⁷ Unless otherwise mentioned, the semantic descriptions of the morphemes in this section are my own.

(9) Malii kamlan kin khâaw

Malii PROG eat rice

Malii is/was eating rice, *or*

Malii is in the process of eating rice.

Kamlan is a morpheme which marks progressive aspect. The progressive aspect indicates that an action or an event is in progress at the interval of time that serves as the reference interval for the utterance. As shown in (7), *kamlan* precedes the base VP in a sentence.

Kamlan cannot occur as the only verb in a clause, as shown in (8):

(10) *kamlan* - PROG - cannot occur as the only verb in a clause

*Wanna kamlan ṇaan (noun)⁸

Wanna PROG work

(Intended meaning: Wanna is working)

In the following examples, I illustrate the selectional restrictions of *kamlan* - PROG. It can co-occur with three Aktionsart classes⁹ of verbs: activity, accomplishment and certain state verbs.

⁸ The word ṇaan is a noun and not a verb because it can be followed by the possessive morpheme and an NP. For example, ṇaan khṣṣṣ Wira ‘Wira’s work’. The ability to occur in the possessive construction is a property unique to nouns in Thai.

⁹ My Aktionsart classes follow those proposed by Vendler (1957) and adopted by Van Valin and LaPolla (1997). This means that I use “achievements” to refer to instantaneous changes of states (or activities) and “accomplishments” to refer to temporally extended changes of state leading to a terminal point.

(11) Activity

Manii kamlan wîŋ

Manii PROG run

Manii is/was running.

(12) Accomplishment

Manii kamlan tɛ̌ɛŋ naŋsuu

Manii PROG write book

Manii is/was writing a/the book.

State

(13) Manii kamlan kròod

Manii PROG angry

Manii is/was angry.

(14) *Manii kamlan pen khruu

Manii PROG be teacher.

(Manii is/was being a teacher.)

In the case of state verbs, the selectional restrictions of *kamlan* are a bit different from the English progressive. While both languages do not allow the combination of progressive aspect with *permanent* states, Thai allows the progressive to combine with certain *temporary* states, as shown in (11). To account for (11), I hypothesize that state verbs belong to a continuum of *degree of permanence*. The Thai progressive is compatible with temporary states because such states can be “in progress” at reference time (cf. the

definition of the progressive aspect above). This can be true for “being angry” but not for “being a teacher” or “being tall”. To support this claim, I provide the following minimal pair which shows that the notion of permanence is a continuum rather than a binary opposition.

(15) Wira kamləŋ rák Wanna

Wira PROG love Wanna

(lit.) Wira is loving Wanna (he loves Wanna for the time being)

(16) #Wira kamləŋ rák châad¹⁰

Wira PROG love nation

(Wira is loving (his) nation.)

Assuming that the love that an individual has for his/her nation may last longer than (i.e. is less temporary than) the love that individuals have for one another, (16) is implausible. From the two sentences in (15)-(16), we can also see that the degree of permanence of certain state verbs cannot be determined from the meaning of the base verbs, but can only be determined in the full sentential context in which such verbs occur.

Generally, *kamləŋ* - PROG is not compatible with achievement verbs,¹¹ as shown in (17):

¹⁰ The symbol # is used to mark sentences which are semantically implausible, as opposed to *, which is used to mark sentences which are syntactically impossible.

¹¹ Except in the case of achievement (or semelfactive, in the sense discussed in Smith (1997:29)) verbs which receive an iterative interpretation. But, then, they are not true achievements. For example:

(i) Thana kamləŋ khó? pratuu
Thana PROG knock door
Thana is/was knocking at the door.

(17) *thian kamlaŋ dàb

candle PROG become extinguished

(The candle was becoming extinguished.)

It should be noted that Sookgasem (1990) argues that sentences such as (18) show that *kamlaŋ* -PROG can combine with **Extended Achievement** verbs.

(18) Extended Achievement

Malii kamlaŋ maa-thuŋ Buffalo

Malii PROG come-reach(=arrive) Buffalo

Malii is/was arriving in Buffalo.

Assuming that *maathuŋ* is a single word which corresponds to English ‘arrive’, and that *maathuŋ* is an achievement verb, Sookgasem proposes that when *kamlaŋ* co-occurs with *maathuŋ*, the interval of the “arriving” eventuality can extend so much that this event becomes an accomplishment instead of an achievement (1990:178). According to Sookgasem, the sentence in (18) can be used to describe an event where *Malii* is on an airplane trying to land at the Buffalo airport. Since achievements code instantaneous changes of state, while accomplishments are “temporally extended changes of state leading to a terminal point” (Van Valin and LaPolla 1997: 42), Extended Achievements as in (18) are basically accomplishments by definition. Indeed, Extended Achievements as in (18) pass the verb classification tests for accomplishment (Dowty, 1979; Van Valin and LaPolla, 1997). Therefore, I maintain that *kamlaŋ* - PROG cannot combine with achievement verbs.

Another aspect morpheme that occurs in the same slot as *kamlan* - PROG is *phên*, which has a ***post-inchoative*** meaning (lit. ‘just start’), as shown in the following example:

(19) Manii phên ?aan nəṣsũu

Manii POST-INC read book

Manii has just begun to read a/the book.

Post-inchoative aspect refers to the interval right after the beginning of a state or activity. I included *phên* - POST-INC in Table 3.1 for completeness only. Syntactically, *phên* does not behave differently from *kamlan*, and, unlike *kamlan*, it does not have semantic restrictions. Thus, I do not discuss this morpheme any further.

The morpheme *cà?* is often translated as ‘will’ in the Thai linguistic literature (see Sookgasem, 1990 among others), as shown in (20):

(20) Piti cà? khǎn nəṣsũu

Piti will write book

Piti will write a/the book.

However, as we can see from the following sentence, *cà?* is not an absolute future tense morpheme.

(21) Piti cà? rian còb parinyatrii naj pii 1973 tèε

Piti will study finish bachelor degr. in year 1973 but

baŋʔəən taaj sʔa kòon

accidentally die lose before

Piti would have finished his bachelor degree in 1973 but he accidentally died.

In (21), *cà?* can be viewed as a relative tense morpheme. Kanchanawan (1978) treats *cà?* as a non-absolute future morpheme, which means that it indicates potentiality, assertion, determination, or volition, depending on the contexts in which it occurs, and the future meaning is merely implicated. According to Savetamalaya (1988), *cà?* means ‘intend to’.

However, Savetamalaya’s claim is not correct because sentences such as (22) are possible.

(22) tonmáj cà? lóm pró? lom rεεŋ

tree will fall because wind strong

The tree will fall down because of the strong wind.

In (22), *cà?* cannot mean ‘intend to’ because its subject is not agentive. The morpheme *cà?* has also been analyzed as a non-assertive modal or irrealis morpheme (Rangkupan, 2001). Here, I treat *cà?* as an aspect morpheme that means ‘be about to’¹² as it encodes the preliminary stage of an eventuality. This meaning of *cà?* will become obvious when *cà?*

¹² Notice that I do not assume that the immediate future implication which is associated with the phrase ‘be about to’ in English is part of the meaning of *cà?*. *Cà?*’s translation as ‘be about to’ is meant to refer to the preliminary stage of an eventuality only.

combines with certain aspect morphemes and is explained in more detail in 3.3. *Cà?* also contains a meaning that makes it similar to a modal morpheme; namely, *cà?* means that something has the potential for happening or being true in particular circumstances. Due to this modal-like meaning component, sometimes ‘might’ is the appropriate translation of *cà?* instead of ‘be about to’, as I shortly illustrate in example (27).

To confirm that *cà?* encodes neither absolute nor relative future tense, consider the following example.

- (23) Priida phêŋ cà? phim còdmăaj tồo
 Priida Post-INC be about to type letter continue
 Priida just started to continue typing a/the letter.

The function of *cà?* in (25) is related neither to relative nor to absolute future tense. The gloss of (23) “Priida just started to continue typing the letter” might not reflect the denotation of *cà?*, which basically suggests that although *Priida* might not have actually typed any of the letter yet, he was about to.

Finally, note that *cà?* can combine with verbs from all Aktionsart classes.

- (24) Activity
 Piti cà? wîŋ
 Piti be about to run
 Piti was about to run

(25) Accomplishment

Piti cà? sâaŋ bâan

Piti be about to build house

Piti was about to build a/the house.

(26) Achievement

cà? kəd ráʔbəd thii tuək kàw

be about to happen explosion at building old

There was about to be an explosion/explosions at the old building.

(27) State (both temporary and permanent states)

Piti cà? kròod mũa dâajjin khàaw ráaj

Piti be about to be angry when hear news bad

Piti **might** be angry when he hears the bad news.

(28) Piti cà? pen khruu

Piti be about to be teacher

Piti will be a teacher.

The other two aspect morphemes that occur in slot 1 are *rêəm* – ‘start’ and *khəəj* –

‘experience’, which are exemplified below:

(29) *rêəm* – ‘start’

Manii rêəm jéb phâa

Manii start sew cloth

Manii started sewing the cloth.

(30) *khəəj* – ‘experience’

Priida *khəəj* piin khăw

Priida experience climb mountain

Priida experienced climbing mountain.

Rəəm ‘start’ corresponds to a super-lexical morpheme in the sense discussed in Smith (1997). Super-lexical morphemes are used to select a narrow view of a situation or to focus on parts of situations (Smith, 1997:48). In this case, *rəəm* ‘start’ focuses on the beginning part of the situation. As for *khəəj*, whose literal meaning is ‘experience’, it has traditionally been considered a past tense morpheme (Kanchanawan, 1978, among others).¹³ More recently, the assumption that *khəəj* marks the past tense has been rejected possibly because the past time interpretation that *khəəj* has is merely inferred. Sookgasem (1990) treats *khəəj* as an aspect marking element which means ‘experience’, and, although the aspectual-related meaning of *khəəj* is minimal, I include *khəəj* in Table 3.1 for referential purposes.

It should be noted that *rəəm* ‘start’ and *khəəj* ‘experience’ can also occur as the only verb in a clause. But, then, their direct object complement must be an event-denoting NP. Examples are:

¹³ Another morpheme, *dəj* - lit. ‘get’, when occurring pre-verbally, has also been considered a past tense morpheme. Again, I argue that the past tense interpretation of *dəj* ‘get’ is merely implicated. In *Piti dəj kin khăaw* ‘Piti got a chance to eat rice’, the meaning that *dəj* contributes is ‘get a chance to’, and *dəj*’s aspectual-related meaning is very minimal.

(31) a. Wara rêəm ɲaan(noun) māj

Wara start work new

Wara started a new job.

b. *Wara rêəm saləd

Wara start salad

(Intended meaning: Wara started her salad.)

(32) a. Wara khəəj ɲaan(noun) nək

Wara experience work hard

Wara experienced hard work.

b. *Wara khəəj ʔaakàad rón

Wara experience climate hot

(Intended meaning: Wara experienced a warm climate.)

That *rêəm* ‘start’ and *khəəj* – ‘experience’ as base verbs subcategorize for nouns that denote actions, and not simply any nouns, is shown by the ungrammaticality of sentences (31b)-(32b).

3.2.1.1.2 Modal Morphemes

The modal morpheme from slot 1 in Table 3.1 is *tôn* ‘must’.¹⁴ Even though *tôn* is not aspect morpheme, I include it in Table 3.1 to illustrate its interactions with Thai aspect morphemes.

The modal morpheme *tôn* is similar to ‘must’ in English. Namely, like ‘must’, *tôn* is ambiguous or vague between a deontic (obligation) and an epistemic (probability) meaning, as shown in (31).

(33) Priida *tôn* *sák* *phâa*

Priida must wash cloth

Priida must wash the cloth./ Priida must be washing the cloth.

Tôn can combine with verbs from all Aktionsart classes.

3.2.1.1.3 Possible Combinations of Morphemes from Slot 1

There can be more than one morpheme from slot 1 in a string, provided that the meanings of the morphemes that co-occur are compatible. The morpheme that occurs at the left most position (i.e. right after the subject) has the widest scope. Some examples of possible and implausible combinations are:

¹⁴ Note that *tôn* ‘must’ is not the only pre-verbal modal morpheme in Thai; it is simply picked as the representative of Thai pre-verbal modal morphemes, which include *khuan* ‘should’, *ʔaad* ‘might’, and *nâa* ‘probably’, for example.

(34) Priida kamləŋ rəəm phim còdmǎaj

Priida PROG start type letter

Priida is starting to type a letter.

(35) #Priida kamləŋ khəəj piin khǎw

Priida PROG experience climb mountain

(Intended meaning: Priida is experiencing climbing mountains.¹⁵)

(36) Manii kamləŋ cà? ʔaan nəŋsǔw

Manii PROG be about to read book

Manii is going to read a/the book.¹⁶

(37) Manii cà? kamləŋ ʔaan nəŋsǔw prŭŋníi jen

Manii be about to PROG read book tomorrow evening

Manii might be reading a/the book tomorrow evening.¹⁷

(38) Wira tŏŋ kamləŋ hǔŋ khâaw

Wira must PROG cook rice

Wira must be cooking rice.

¹⁵ Sentence (35) is semantically implausible because *khəəj* ‘experience’ implicates that the event encoded by the VP *khəəj piin khǎw* ended, which is a meaning incompatible with the progressive marker *kamləŋ*.

¹⁶ Sentence (36) literally means something like “Manii is in the process of being about to read a/the book”, which is analogous to the meaning of “Manii is going to read a/the book”. Hereafter, I use the short translation “be going to” for the combination of *kamləŋ* - PROG and *cà?* - ‘be about to’.

¹⁷ This is another example where *cà?* is more appropriately translated as ‘might’. Since the meanings of individual aspect morphemes are not the focus of this thesis, I do not go further into investigating the detailed meaning of *cà?* and whether or not its aspectual (‘be about to’) and modal (‘might’) uses correspond to two different meanings.

(39) Wira kamlan tɔŋ hũŋ khâaw

Wira PROG must cook rice

Wira is having to cook rice.

(40) Wara cà? tɔŋ jéb phâa

Wara be about to must sew cloth

Wara might have to sew cloth.

(41) Wara tɔŋ cà? jéb phâa

Wara must be about to sew cloth

Wara must be about to sew cloth.

3.2.1.2 Morphemes from Slot 3

Morphemes from slot 3 can be provisionally divided into three groups: the modal morpheme *dâj* ‘get’, aspect morphemes with predicative meaning, and aspect morphemes with non-predicative meaning. I start by briefly describing the meaning of the modal morpheme *dâj*.

3.2.1.2.1 Modal Morpheme

Like *tɔŋ* ‘must’, *dâj* ‘get’ does not carry an aspectual meaning but encodes modality. The meanings that *dâj* ‘get’ encodes are similar to the root and deontic meanings of English *can*, as illustrated in the following example:

(42) Piti tēnram dâj

Piti dance get

Piti was able to dance/ Piti was allowed to dance.

Out of context, the morpheme *dâj* is ambiguous between a root meaning ('be able to') and a deontic reading. *Dâj* is included in Table 3.1 for mere completeness and I do not describe its detailed semantics here.

3.2.1.2.2 Aspect Morphemes with Predicative Meaning

Three morphemes from slot 3 are aspect morphemes with predicative meaning or **super-lexical** morphemes. Aspect morphemes with predicative meaning refer to morphemes whose interpretations are approximately the same regardless of whether they occur as the base verb of a clause or not. These morphemes are *tòɔ* 'continue', *sèd* 'finish', and *còb* 'end'. According to Smith (1997:48), super-lexical morphemes are used to select a narrow view of a situation or to focus on parts of situations. As mentioned earlier, all three morphemes, *tòɔ* 'continue', *sèd* 'finish' and *còb* 'end', can occur as the base verb in a clause.

- *tòɔ* - 'continue' is used in the ACs to encode a continuative meaning. It can combine with verbs from the activity and accomplishment classes.¹⁸ Examples of *tòɔ* 'continue' are shown in (43) - (45).

¹⁸ When co-occurring with achievement verbs, *tòɔ* 'continue', like *kamlan* - PROG, **coerces** the achievement verbs into an iterative interpretation. Coercion takes place when there is a conflict between

(43) *tòɔ* - ‘continue’ as base verb:

a. *kammakaan tòɔ weelaa kaan-khèɛŋkhǎn*

referee extend/continue time NOM-compete

The referee extended the time of the competition.

b. *mêɛ tòɔ dâaj*

mother extend thread

The mother extended the thread.

c. **Piti tòɔ ŋaan khoɔŋ khǎw*

Piti continue work of he

(Intended meaning: Piti continued his work).

(44) *tòɔ* - ‘continue’ occurs in AC

Malii kin khâaw tòɔ

Malii eat rice continue

Malii continued eating rice.

(45) *tòɔ* - ‘continue’ cannot combine with stative verbs

**Malii chûa rūaŋ phǐi tòɔ*

Malii believe issue ghost continue

(Intended meaning: Malii continued believing in ghosts.)

the aspectual character of the eventuality description and the aspectual constraints of some other element in the sentence (De Swart 1998:360).

The subcategorization of *tòɔ* ‘continue’ as a base verb, exemplified in (43), is different from that of the other two super-lexical morphemes. Namely, *tòɔ* subcategorizes for an NP denoting an object which possesses length along a dimension. The length of the object can be temporal (43a) or spatial (43b). But *tòɔ*, as shown in (43c), is not compatible with event-denoting NPs, which *sèd* ‘finish’ and *còb* ‘end’ subcategorize for when they occur as base verbs. This distinction is important because, although from a semantic point of view, *tòɔ* ‘continue’, *sèd* ‘finish’, and *còb* ‘end’ are all classified as super-lexical morphemes, *tòɔ* differs from the other two super-lexical morphemes in its selectional restrictions and will eventually be syntactically categorized differently from the other two super-lexical morphemes.

- *sèd* – ‘finish’ marks the endpoint (the completion) of an event. Unlike in English, when *sèd* ‘finish’ occurs as the base verb in a clause, it only subcategorizes for an event-denoting NP (see (46a-b)). In ACs, *sèd* ‘finish’ combines with accomplishment verbs or verbs that are coerced to have an accomplishment meaning (see (47)-(49)).

(46) *sèd* - ‘finish’ as base verb:

a. chawnaa	sèd	ɲaan(noun)	naj	naa
farmer	finish	work	in	field
The farmer(s) finished their work in the field.				

b. *Wijada sèd náam-sôm

Wijada finish water-orange

(Intended meaning: Wijada finished the orange juice.)

(47) *sèd* - ‘finish’ in an AC with an accomplishment verb.

Manii kin khâaw sèd

Manii eat rice finish

Manii finished eating rice.

(48) *sèd* - ‘finish’ in an ACC with an activity verb coerced to have an accomplishment meaning.

Manii wîŋ sèd

Manii run finish

Manii finished running. (The running event is bounded in time or distance).

(49) *sèd* - ‘finish’ cannot combine with stative verbs:

*Manii chûa rûaŋ phĩi sèd

Manii believe issue ghost finish

(Intended meaning: Manii stopped believing in ghosts.)

- *còb* – ‘end’ has a similar meaning to *sèd* ‘finish’. It also has the same selectional restrictions as *sèd* ‘finish’.

(50) *còb* - 'end' as base verb

Wira *còb* pharákìd

Wira end duty

Wira ended his duty.

(51) *còb* - 'end' in an AC

a. Manii ʔàan nǎŋsǔũu *còb*

Manii read book end

Manii ended/finished reading book.

b. Manii wîŋ cob

Manii run end

Manii ended/finished running.

(52) *còb* - 'end' cannot combine with stative verbs:

*Manii chuâa rûaŋ pǎi *còb*

Manii believe issue ghost end

(Intended meaning: Manii ended her belief in ghosts.)

3.2.1.2.3 *Aspect Morphemes with Non-predicative Meaning*

The aspect morphemes from slot 3 which do not have a predicative meaning include three semi-perfective morphemes, two perfective morphemes and two imperfective morphemes.

Semi-perfective morphemes

Thai has three **semi-perfective** morphemes (see details below): *khûn* lit. ‘ascend’, *loŋ* ‘descend’, and *ʔòɔk* ‘exit’. As we can see from the glosses of examples (53a), (54a) and (55a), these morphemes are derived from directional verbs (cf. Chapter 2).

(53) a. Directional meaning

Wanna dən khûn

Wanna walk ascend

Wann walked up.

b. Aspectual meaning

Wira tɛ̃ɛŋ klɔɔn khûn

Wira compose poem SPFV(ascend)

Wira composed a/the poem.

(54) a. Directional meaning

Piti dən loŋ

Piti walk descend

Piti walked down.

b. Aspectual meaning

thahǎan taaj loŋ

soldier die SPFV(descend)

A/The soldier(s) died.

(55) a. Directional meaning

Wira dən ʔòɔk

Wira walk exit

Wira walked out.

b. Aspectual meaning

Wira tɛɛŋ klɔɔn ʔòɔk

Wira compose poem SPFV(exit)

Wira composed a/the poem.

The serial verbs in (53a), (54a) and (55a) and their counterparts in (53b), (54b) and (55b) can be analyzed as diachronically and metaphorically related, an issue that goes beyond the scope of this thesis and which I do not pursue.

Thai semi-perfective morphemes are restricted to co-occur with verbs from the accomplishment class, except *khûn* ‘ascend’, which can also combine with verbs from the achievement class.

- *khûn* - ‘ascend’ is the default semi-perfective (SPFV) morpheme in the sense that it does not require that the VP it combines with carries a particular meaning or presupposition. Some examples of sentences containing *khûn* ‘ascend’ are shown below:

(56) Accomplishment

Piti tɛɛŋ nəŋsũu lêm nuŋ khuŋ

Piti write book CL one SPFV(ascend)

Piti wrote a book.

(57) Achievement

kəəd raʔbəəd khuŋ

happen explosion SPFV(ascend)

There happened an explosion/explosions.

(58) *khuŋ* ‘ascend’ does not co-occur with activity verbs

*Piti wŋŋ khuŋ

Piti run SPFV(ascend)

(Intended meaning: Piti ran.)

(59) *khuŋ* ‘ascend’ does not co-occur with stative verbs

*Piti rúu phaasăa farəŋsèed khuŋ

Piti know language France SPFV(ascend)

Piti knew French.

Semi-perfective aspect is different from perfective aspect in that the former does not entail the completion of seemingly telic event descriptions. To illustrate this, even though *khuŋ* combines with an accomplishment verb in (56) and the object is bounded, the sentence still does not entail that the book was completed, as (60) shows:

- (60) Piti tɛɛŋ nəŋsǔu lɛm nùŋ khuŋ tɛɛ jaŋ māj sɛd
Piti write book CL one SPFV but still NEG finish
Piti wrote a book but he did not finish it yet.

The aspect that *khuŋ* marks is semi-perfective, by which I mean that (56) describes a maximal subpart of an eventuality that would fit the eventuality description of Piti's writing a book.¹⁹ In other words, semi-perfectivity entails that the event of Piti's writing a book is bounded, i.e. it stops or ends, but does not require the event to be completed. That the eventuality described by a sentence containing a semi-perfective morpheme must include a boundary is shown by the ungrammaticality of sentences such as (61).

- (61) #Piti tɛɛŋ nəŋsǔu lɛm níi khuŋ léʔ kamləŋ tɛɛŋ jùu
Piti write book CL this SPFV and PROG write IMPFV
Piti wrote this book and is still writing it.

As pointed out in Koenig and Muansuwan (2000), sentence (61) is implausible because the semi-perfective requires that the activity of writing ends prior to speech time.

- *loŋ* - 'descend' combines with accomplishment verbs which have a **destructive** meaning, i.e. verbs which denote the end results of destruction or collision, for example. *Loŋ* also encodes semi-perfective aspect. Examples that illustrate the aspectual use of *loŋ* 'descend' are given in (62)-(64).

¹⁹ See Koenig and Muansuwan (2000) for a detailed study of the meaning of Thai semi-perfective morphemes.

- (62) khomjaan rúu bân kàw loŋ
 worker demolish house old SPFV(descend)
 The workers demolished the/an old house.

- (63) *loŋ* ‘descend’ cannot combine with activity verbs

*Priida bôn loŋ
 Priida complain SPFV(descend)
 (Intended meaning: Priida complained.)

- (64) *loŋ* ‘descend’ cannot combine with achievement verbs

*kèəd raʔbèəd loŋ
 happen explosion SPFV(descend)
 (Intended meaning: There happened an explosion/explosions.)

- (65) *loŋ* ‘descend’ cannot combine with stative verbs

*Priida pen khon-leew loŋ
 Priida be person-bad SPFV(descend)
 (Intended meaning: Priida was a bad person.)

We can see that the aspect that *loŋ* encodes is not perfective from sentences such as (66), in which the completion of the event is negated in the second clause.

- (66) khomjaan rúu bân kàw loŋ tɛɛ bân māj phaŋ
 worker demolish house old SPFV but house NEG collapse
 The workers demolished the/an old house but the house did not collapse.

- ʔòɔk - ‘exit’ combines with accomplishment verbs. It encodes the same aspectual information as *khûn* but adds a presupposition that the act was difficult to accomplish, as shown in (67).

(67) Piti tɛɛŋ klɔɔn ʔòɔk

Piti write poem SPFV(exit)

Piti was able to compose a/the poem.

Again, the aspect that ʔòɔk ‘exit’ encodes is semi-perfective and not perfective. Evidence for this hypothesis can be seen in the following sentence.

(68) Piti tɛɛŋ klɔɔn ʔòɔk tɛɛ jaŋ mâj sɛd

Piti write poem SPFV but still NEG finish

Piti was able to compose a/the poem but he hasn’t finished it yet.

The following examples show that ʔòɔk ‘exit’ cannot co-occur with activity, achievement, or stative verbs:

(69) Activity

*Piti wîŋ ʔòɔk

Piti run SPFV(exit)

(Intended meaning: Piti was able to run.)

(70) Achievement

*kèəd raʔbèəd ʔòɔk

happen explosion SPFV(exit)

(Intended meaning: There happened an explosion/explosions.)

(71) State

*Piti rúu phaasăa farəŋsèed ʔòok

Piti know language France SPFV(exit)

(Intended meaning: Piti was able to know the French language.)

- Perfective morphemes

There are two perfective morphemes in slot 3 in Table 3.1: *paj* ‘go’ and *sĭa* ‘lose’.

- *paj* - ‘go’ encodes perfective (PFTV) aspect when combined with change of state verbs.

Some examples are shown below:

(Examples (70)-(74) are from Thepkanjana (1987: 171)).

(72) khăw taaj paj

he die PFTV(go)

He died.

(73) kêɛw tɛ̀ɛk paj

glass break PFTV(go)

The glass broke.

(74) namman mòd paj

oil be gone PFTV(go)

The gas is all gone.

As mentioned above, perfective aspect entails the completion of the event described by a telic verb constellation.²⁰ This is shown in (75), which forms a minimal pair with the semi-perfective morpheme *lon* ‘descend’ in (62):

- (75) *khonjaan rúuu bâan kàw paj*
 worker demolish house old PFTV(go)

The workers demolished the/an old house.

The demolition of the old house must be complete since it is impossible to subsequently negate the clause in (75), as shown in (76):

- (76) *#khonjaan rúuu bâan kàw paj tèɛ bâan mâj phaŋ*
 worker demolish house old PFTV(go) but house NEG collapse
 (Intended meaning: The workers demolished the/an old house but the house did not collapse.)

- *šia* - PFTV (lit. ‘lose, waste’) has the same restrictions as *paj* ‘go’. Using *šia* as the perfective morpheme implicates that the change of state leads to a loss of some sort (Thepkanjana, 1987:171). Some examples of *šia* are:

- (77) Accomplishment
 khonjaan thûb tuèk nán šia
 worker destroybuilding that PFTV(lose)
 The workers destroyed that building.

²⁰ A verb and its arguments form a verb constellation (Smith, 1997:17).

(78) Change of state

kéεw tɛ̃εk ʃia

glass break PFTV(lose)

The glass broke.

Like *paj* ‘go’, the aspectual meaning that *ʃia* ‘lose’ carries is perfective because the morpheme entails the completion of the described event, as illustrated below:

(79) #khonjaan thûb tũk nán ʃia tɛ̃ε

workers destroy building that PFTV(lose) but

tũk jaŋ mâj phaŋ

building still NEG collapse

(The workers destroyed that building, but the building didn’t collapse).

- Imperfective morphemes

- *khâw* – IMPFV (lit. ‘enter’) encodes imperfective aspect and its use is restricted to commands, as shown in the following example:

(80) Piti, tham kaanbăan khâw

Piti, do homework IMPFV(enter)

Piti, do homework more and more.

khâw is included in Table 3.1 for completeness only. Since its usage is restricted and it does not interact with other aspect morphemes, I do not discuss it any further.

- *paj* - ‘go’ encodes an imperfective (IMPFV) aspect

When *paj* combines with verbs from the state, activity, or accomplishment classes, and is followed by a durational adverbial phrase, it encodes an imperfective meaning, as shown in (81)-(83):

(81) State

Wira chuâa ruân phii paj pen weelaa sãam pii
Wira believe issue ghost IMPFV(go) be time three year
Wira believed in ghosts for three years.

(82) Activity

Wira wîŋ paj pen weelaa sãam chûamoon
Wira run IMPFV(go) be time three hour
Wira ran for three hours.

(83) Accomplishment

Wira tɛɛŋ klɔɔn paj pen weelaa sãam chûamoon
Wira compose poem IMPFV be time three hour
Wira composed a/the poem/poems for three hours.

A durational adverbial phrase is necessary in a clause containing *paj* ‘go’ in order for *paj* ‘go’ to have an imperfective meaning, except in those cases in which *paj* is used to mark a backgrounding event, i.e. when *paj* is used to mark that an event provides the background of another event. This usage is similar to that of the **Imparfait** in French and is illustrated below.

(84) Piti ʔaan nəŋsũu naj khanà? thii Manii kô? tham

Piti read book in moment that Manii then do

kanbâan paj

homework IMPFV(go)

Piti was/is reading a/the book while Manii was/is doing her homework.

Like *khâw* ‘enter’, *paj* can also be used in imperative sentences and encode imperfective aspect, but with a slightly different meaning. This is illustrated in (85):

(85) Surii, tham kaanbâan paj

Surii do homework IMPFV(go)

Surii, keep doing your homework.

Again, since the usage of *paj* illustrated in (85) is very restricted, I do not discuss this usage any further.

- *jùu* – lit. ‘be located’ is used in ACs to encode imperfective aspect. It can combine with verbs from all Aktionsart classes except verbs from the achievement class.²¹ Examples of *jùu* ‘be located’ are shown below:

²¹ Verbs from the achievement class are coerced to have an iterative interpretation when they combine with *jùu*.

(86) *jùu* - 'be located' as base verb

Wanna *jùu* *bâan*

Wanna be located home

Wanna is at/stays at home.

(87) *jùu* - 'be located' in an AC

Wanna kin *khâaw jùu*

Wanna eat rice IMPFV(be located)

Wanna was/is eating rice.

Sentences such as (87) might lead us to think that *jùu* could be another progressive morpheme. However, since *jùu* can co-occur with all stative verbs, while *kamlan* cannot (see the contrast between (88) and (89)), I treat *jùu* as an imperfective morpheme.

(88) Wijada *chûa* *rûan phîi jùu*

Wijada believe issue ghost IMPFV(be located)

Wijada believes in ghosts.

(89) *Wijada *kamlan* *chûa* *rûan phîi*

Wijada PROG believe issue ghost

(Wijada is believing in ghosts.)

3.2.1.2.4 Possible Combinations of Morphemes from Slot 3

There can be more than one element from slot 3 in a single AC clause. Super-lexical morphemes can co-occur with and precede several aspect morphemes which do not have predicative meaning. The reverse order is not allowed.²² To illustrate this, some examples are given below:

(90) a. Piti khǎan còdmǎaj tòɔ paj

Piti write letter continue IMPFV(go)²³

Piti continued writing a/the letter/letters.

b. *Piti khǎan còdmǎaj paj tòɔ

Piti write letter IMPFV(go) continue

(91) a. Piti kin khâaw sèd paj

Piti eat rice finish PFTV(go)

Piti finished eating rice.

b. *Piti kin khâaw paj sèd

Piti eat rice PFTV(go) finish

(92) a. Piti duu nǎŋ còb paj

Piti watch movie end PFTV(go)

Piti ended/finished watching a movie.

²² I only report an observed fact here since my analysis (carried out in Chapter 4) does not explain the co-occurrence restriction of these predicative and non-predicative aspect morphemes, which is probably semantic in nature.

²³ *Paj* 'go' here marks an imperfective aspect even though there is no durational time adverbial phrase which follows it. This is because the imperfective meaning, and not the perfective meaning, of *paj* 'go' is the one compatible with the continuative meaning encoded by *tòɔ* 'continue'.

b. *Piti duu nəŋ paj còb

Piti watch movie PFTV(go) end

Some combinations are simply not possible, probably due to redundancy. For example,

(93) *Piti duu nəŋ còb khuôn

Piti watch movie end SPFV(ascend)

3.2.1.3 Morpheme from Slot 4

- *maa* lit. ‘come’ encodes perfect (PFCT) aspect. It can combine with any class of verbs.

The perfect morpheme *maa* ‘come’ is ambiguous between three readings, as shown below.

(94) Existential

Piti kin hǒɔjthâak maa kòɔn

Piti eat snail PFCT(come) before

Piti has eaten snails before.

(95) Continuative

Piti tɛ̀ɛŋ klɔɔn maa

Piti compose poem PFCT(come)

Piti has been composing a/the poem.

(96) Resultative

Piti tham khwaam-saʔaad bân maa

Piti do cleanliness house PFCT(come)

Piti has cleaned the house.

3.2.1.4 Possible Combinations of Aspect Morphemes from Slots 1 and 3 with the Perfect Morpheme

Examples (97)-(99) are sentences in which *maa* ‘come’ co-occur with morphemes from slot 1.

(97) Wanna kamlaŋ khĩan raaj-naan maa

Wanna PROG write report PFCT(come)

Wanna has been writing a/the report.

(98) Wanna càʔ khĩan raajŋaan maa

Wanna be about to write report PFCT(come)

Wanna was/is about to have written a/the report.

(99) Wanna kamlaŋ càʔ khĩan raaj-naan maa

Wanna PROG be about to write report PFCT(come)

Wanna is going to have written a/the report.

The following examples are sentences in which *maa* ‘come’ combines with morphemes from slot 3.

(100) Wijada khǎn raajŋaan sèd maa
 Wijada write report finish PFCT(come)
 Wijdada has finished writing a/the report.

(101) Wijada khǎn raajŋaan khuîn maa
 Wijada write report SPFV PFCT(come)
 Wijada has written a/the report.

Sentence (102) is an example in which morphemes from slots 1, 3 and 4 co-occur.

(102) Wijada kamlaŋ cà? khǎn raajŋaan khuîn maa
 Wijada PROG be about to write report SPFV PFCT
 Wijada is going to have written a/the report.

Due to the various possible scopes of the TAMs, each of the sentences (97)-(102) has potentially more than one meaning. However, the selected translation of each sentence seems the most typical meaning to the author. I discuss the different possible meanings of these combinations in more detail in 4.3.2.

I have described, in this section, the meanings of Thai aspect morphemes (TAMs). In the next section, I investigate the positions in the clauses in which these morphemes can occur.

3.2.2 Positional Properties of Thai Aspect Morphemes

As we have seen from the four slots in Table 3.1, TAMs can be classified into two groups: pre-VP and post-VP morphemes. The pre-VP morphemes are the morphemes from slot 1 in Table 3.1. The post-VP morphemes include the morphemes from slots 3 and 4. This

grouping is somewhat misleading because in certain ACs, in which a morpheme from slot 3 occurs,²⁴ morphemes from slots 1 can also occur after the base VP,²⁵ as illustrated below:

- (103) a. *I* *I* *Base VP* 3
- Wilaj kamlan cà? jéb phâa sèd
- Wilaj PROG be about to sew cloth finish
- b. *Base VP* *I* *I* 3
- Wilaj jéb phâa kamlan cà? sèd
- Wilaj sew cloth PROG be about to finish
- c. *I* *Base VP* *I* 3
- Wilaj kamlan jéb phâa cà? sèd
- Wilaj PROG sew cloth be about to finish
- d. *I* *Base VP* *I* 3
- #Wilaj cà? jéb phâa kamlan sèd
- Wilaj be about to sew cloth PROG finish

(103a-c) = Wilaj is going to finish sewing cloth.

Note that sentence (103d) does not yield the meaning “Wilaj is going to finish sewing cloth” and is not possible due to semantic reason, as I shortly discuss in detail.

²⁴ The perfect morpheme from slot 4, *maa* ‘come’, does not behave the same way as morphemes from slot 3.

²⁵ This fact was first observed by Sookgasem (1990). It is possible that sentences in (103) differ in focus structure, but the difference is not semantic in nature.

- (104) a. *I I Base VP*
 Wilaj kamlan cà? jéb phâa
 Wilaj PROG be about to sew cloth
 Wilaj is going to sew the cloth.
- b. *I I Base VP*
 Wilaj cà? kamlan jéb phâa
 Wilaj be about to PROG sew cloth
 Wilaj was about to be sewing the cloth.
- c. *Base VP I I*
 *Wilaj jéb phâa kamlan cà?
 Wilaj sew cloth PROG be about to
 (Intended meaning: Wilaj is going to sew the cloth.)
- d. *I Base VP I*
 *Wilaj kamlan jéb phâa cà?
 Wilaj PROG sew cloth be about to
 (Intended meaning: Wilaj is going to sew the cloth.)

In (103a-c), *kamlan* and *cà?* (as representative morphemes from slot 1) can occur before, after, or on the opposite sides of the base VP (with *kamlan* preceding *cà?*; the reverse order is not allowed, as (103d) shows), when *sèd* ‘finish’ also occurs in the clause. This is

not possible when no morpheme from slot 3 is present, as the ungrammaticality of sentences (104c-d) shows.

The data I just presented support two claims. First, they support the claim that morphemes from slot 1 need to be followed by a VP. This hypothesis explains why sentences (104b-c) are not grammatical since there are no VP that follow *kamləŋ* and/or *càʔ* in the two sentences. Second, certain morphemes from slot 3 (*sèd* ‘finish’, among others) can form a constituent behaviorally similar to a VP, and can immediately follow morphemes from slot 1, as the base VP can. In the next section, I explore which morphemes from slot 3 in Table 3.1 behave as *sèd* ‘finish’ does.

3.2.3 Combinatorial Properties of Thai Aspect Morphemes

The last section shows that morphemes from slot 1 in Table 3.1 can occur in two different positions when morphemes from slot 3 are present. Nevertheless, not all morphemes from slot 3 allow morphemes from slot 1 to occur in postverbal position. The morphemes from slot 3 that allow a post-VP occurrence of slot 1 morphemes are: *sèd* ‘finish’, *còb* ‘end’, and ʔòɔk SPFV (exit); other morphemes from slot 3 disallow it. Examples of sentences with *còb* ‘end’ and ʔòɔk SPFV (exit) are shown below:

(105)	<i>1</i>	<i>1</i>	<i>Base VP</i>	<i>3</i>
Wanna	kamləŋ	càʔ	duu nəŋ	còb
Wanna	PROG	be about to	watch movie	end

(106) *Base VP* *1* *1* *3*

Wanna duu nəŋ kamlaŋ cà? còb

Wanna watch movie PROG be about to end

(107) *1* *Base VP* *1* *3*

Wanna kamlaŋ duu nəŋ cà? còb

Wanna PROG watch movie be about to end

(105) - (107) = Wanna is going to end/finish watching a/the movie.

(108) *1* *1* *Base VP* *3*

Wanna kamlaŋ cà? tèeŋ klɔɔn ?òɔk

Wanna PROG be about to compose poem SPFV(exit)

(109) *Base VP* *1* *1* *3*

Wanna tèeŋ klɔɔn kamlaŋ cà? ?òɔk

Wanna compose poem PROG be about to SPFV(exit)

(110) *1* *Base VP* *1* *3*

Wanna kamlaŋ tèeŋ klɔɔn cà? ?òɔk

Wanna PROG compose poem be about to SPFV(exit)

(108) – (110) = Wanna is going to be able to compose a poem.

Other morphemes from slot 3, e.g. *khuîn* SPFV(ascend), do not allow morphemes from slot

1 in postverbal positions, as shown in examples (112) - (113).

- (111) *I* *I* *Base VP* 3
- Piti kamlaŋ cà? tɛ̃ɛŋ kloɔn khuîn
- Piti PROG be about to compose poem SPFV(ascend)
- Piti is going to compose a/the poem.
- (112) *Base VP* *I* *I* 3
- *Piti tɛ̃ɛŋ kloɔn kamlaŋ cà? khuîn
- Piti compose poem PROG be about to SPFV(ascend)
- (113) *I* *Base VP* *I* 3
- *Piti kamlaŋ tɛ̃ɛŋ kloɔn cà? khuîn
- Piti PROG compose poem be about to SPFV(ascend)

What is interesting is that these differences in syntactic combinatorial properties do not perfectly correlate with possible semantic groupings of the morphemes in Table 3.1. For example, not all of the super-lexical morphemes behave the same way, as might have been expected, if semantic class was the sole factor determining the possibility for slot 1 morpheme to occur after the base VP. Namely, while *sèd* ‘finish’ and *còb* ‘end’ allow morphemes from slot 1 to co-occur with them in post-VP position, *tòɔ* ‘continue’ does not allow it. This is illustrated in (114)-(116):

- (114) *I* *I* *Base VP* 3
- Wira kamlaŋ cà? khĩan nãŋsũu tòɔ
- Wira PROG be about to write book continue
- Wira is going continue writing a/the book.

- (115) *Base VP* *I* *I* 3
- *Wira khǎn nǎŋsǔu kamləŋ cà? tòɔ
- Wira write book PROG be about to continue
- (Intended meaning: Wira is going continue writing a/the book.)
- (116) *I* *Base VP* *I* 3
- *Wira kamləŋ khǎn nǎŋsǔu cà? tòɔ
- Wira PROG write book be about to continue
- (Intended meaning: Wira is going continue writing a/the book.)

Also, the semi-perfective morphemes ʔòɔk ‘exit’ and khuôn. ‘ascend’, as representatives of non-predicative morphemes from slot 3, do not behave uniformly in this respect either, as illustrated in (108)-(113).

I have now described the three basic classes of properties of Thai aspect morphemes: semantic, positional, and combinatorial properties. It should be noted that the combinatorial properties of TAMs do not seem to entirely follow from their semantics. In other words, the distribution of TAMs is not predictable from their semantics. Hence, the classification of TAMs into subgroups or the determination of the parts of speech of TAMs cannot be based merely on their semantics, but must be based on their distributional properties. This classification is carried out in the next chapter.

3.3 Restrictions in combining Thai aspect morphemes

The purpose of this final section is to specify co-occurrence restrictions between certain aspect morphemes. I focus on the restrictions which pertain to the progressive morpheme

kamlan - PROG and certain morphemes from slot 3 in Table 3.1. This is because *kamlan* behaves differently from other aspect morphemes from slot 1 when it combines with morphemes from slot 3.

The progressive morpheme *kamlan* can co-occur with *sèd* ‘finish’ and *còb* ‘end’ from slot 3 **only** when *cà?* ‘be about to’ is present,²⁶ as illustrated by the ungrammaticality of sentences (118b)-(119b).

- (117) a. Priida *kamlan* *tèεη* *klɔɔn khuîn*
Priida PROG compose poem SPFV(ascend)
Priida is composing a/the poem (to the maximality of the event).
- b. Priida *kamlan* *cà?* *tèεη* *klɔɔn khuîn*
Priida PROG be about to compose poem SPFV(ascend)
Priida is going to compose a/the poem (to the maximality of the event).
- (118) a. Priida *kamlan* *cà?* *tèεη* *klɔɔn sèd*
Priida PROG be about to compose poem finish
Priida is going to finish composing a/the poem.
- b. *Priida *kamlan* *tèεη* *klɔɔn sèd*
Priida PROG compose poem finish

²⁶Notice that this restriction on Thai progressive morpheme is different from that of English, as “Peter is finishing composing a poem” is a possible sentence in English but not in Thai.

(119) a. Priida kamlan cà? ?àan nǎŋsũu còb

Priida PROG be about to read book end

Priida is going end reading a/the book.

b. *Priida kamlan ?àan nǎŋsũu còb

Priida PROG read book end

I hypothesize that *cà?* - ‘be about to’ allows *kamlan* to co-occur with *sèd* ‘finish’ and *còb* ‘end’ as a result of a needed aspectual shift from a punctual bounded event to an expanded bounded event. This shift is induced by *cà?*. My hypothesis is that *kamlan* - PROG requires the event descriptions it combines with to have *duration*, i.e. *kamlan* is not compatible with *punctual bounded events* or achievements. *Sèd* ‘finish’ and *còb* ‘end’ encode derived achievements, i.e. they focus on an instantaneous final endpoint (cf. Smith, 1997:32). Hence, these two morphemes turn durative event descriptions into *punctual bounded events* and do not make the duration associated with the basic event descriptions of the VPs they modify available for *kamlan* - PROG. The function of *cà?* in (118)-(119) is to make the preliminary stages (associated with many achievement verbs) of the events *tèɛŋ klɔɔn sèd* ‘finish composing a poem’ and *?àan nǎŋsũu còb* ‘end/finish reading a book’ available to meet *kamlan*’s requirement. This hypothesis explains why (103d), in which *kamlan* directly precede *sèd* ‘finish’, is not possible as it is semantically anomalous.

It should be noted that *ʔòɔk* SPFV(exit), which shares the same **syntactic** distribution as *sèd* ‘finish’ and *còb* ‘end’ in that it allows a post-VP occurrence of morphemes from slot 1, does not share *sèd* and *còb*’s **semantic** incompatibility with *kamlan*. Namely, *ʔòɔk* can co-occur with *kamlan* with or without *càʔ* being present, as shown in (120)-(121).

- (120) Priida kamlan tɛ̀ɛŋ klɔɔn ʔòɔk
 Priida PROG compose poem SPFV(exit)
 Priida is being able to compose a/the poem.
- (121) Priida kamlan càʔ tɛ̀ɛŋ klɔɔn ʔòɔk
 Priida PROG be about to compose poem SPFV(exit)
 Priida is going to (be able to) compose a/the poem.

3.4 Conclusion

Since Thai lacks morphology, it marks aspect by using distinct words. In this chapter, I have described the semantic, positional and combinatorial properties of Thai aspect morphemes. We have seen that Thai has aspect morphemes in both pre-VP and post-VP positions, with some morphemes being able to occur in either position in some circumstances without altering the meaning of the clause. Similarly to the free ordering of certain VPs in Directional SVCs, the ordering flexibility of Thai aspect morphemes is interesting since Thai is generally a language with a rigid word-order. To account for the ordering of Thai aspect morphemes as well as their combinations, a detailed investigation

of the part-of-speech, and of the syntactic and semantic structures of Aspectual Constructions is needed. This analysis is presented in the next chapter.

Chapter 4

Parts of Speech and Structures of Thai Aspect

Morphemes

4.1 Introduction

In the last chapter, I have investigated the properties of individual aspect morphemes in Thai and their possible combinations. This chapter investigates the parts of speech of Thai aspect morphemes (TAMs) or event description modifiers¹, and the syntactic and semantic structures (in terms of their relative scope) of their occurrences in Aspectual Constructions (ACs). Parts of speech of TAMs do not correlate with their pre-verbal or post-verbal positions. TAMs partake in universal syntactic structures of modification and complementation. Semantically, although multiple occurrences of TAMs in an Aspectual Construction are possible and this can potentially leads to scope ambiguities, few ambiguities ever arise in Thai ACs because possible ACs are constrained by the selectional restrictions and syntactic status as heads or modifiers of TAMs they contain.

The chapter proceeds as follows. First, I provide an analysis of the parts of speech of Thai aspect morphemes. Next, I examine the syntactic structures of ACs. Then, I discuss the possible scope relations among aspect morphemes in ACs. Finally, a formal representation of the syntactic structures in which TAMs enter and their relative scope is provided.

4.2 Parts of speech of Thai Aspect morphemes

It is not uncontroversial to determine the parts of speech of certain classes of words in Thai. This holds for Thai aspect morphemes. Thai researchers have associated these aspect morphemes with more familiar categories such as “auxiliaries” or “serial verbs” in previous analyses (Kanchanawan, 1978; Savetamalaya, 1988; Sookgasem, 1990). Kanchanawan (1978) classifies Thai aspect morphemes into subclasses of verbs: pre-serial verbs, auxiliaries, and post-serial verbs, according to their subcategorization requirements and positional properties. Savetamalaya (1988) and Sookgasem (1990) treat Thai aspect markers as auxiliaries associated with different featural specifications. Nevertheless, in previous studies of Thai aspect-marking system, the definition of the terms “auxiliaries” and “serial verbs” and the criteria used to decide which parts of speech Thai aspect morphemes belong to are not clearly stated.

Since Thai has almost no morphology, morphological properties of words cannot be used to determine parts of speech. As a result, parts of speech or lexical categories of TAMs are determined in this thesis exclusively from their distributional properties, namely, from the range of environments in which they can occur, under the assumption that part-of-speech specifications are needed when distributional distinctions among classes of words cannot be reduced to their semantics or valence properties.

To categorize Thai aspect morphemes, we can provisionally partition them into two groups: the group of TAMs that can occur before the base VP and the group that can occur *only* occur after the base VP. The first group consists of the morphemes from slot 1 in

¹ Event description modifiers are modifiers that map an event description input to another event description. Aspect morphemes have generally been considered event description modifiers. For example, the progressive aspect maps a basic event description to a state (cf. De Swart, 1998).

Table 3.1, and the second group is composed of the morphemes from slot 3 and 4. Mnemonically, I call the first group **pre-VP TAMs**. A further distinction needs to be made among the elements in the second group, however. As we have already seen in 3.2.3, three morphemes from slot 3, *sèd* ‘finish’, *còb* ‘end’ and *ʔòɔk* ‘exit’ must be distinguished from other morphemes in this slot, since only these three morphemes allow the occurrence of morphemes from slot 1 after the base VP. I mnemonically call *sèd* ‘finish’, *còb* ‘end’ and *ʔòɔk* ‘exit’ **predicate-like TAMs** since they behave like predicative VPs in the sense that they can immediately follow pre-VP TAMs (cf. 3.2.2), and I call the rest of the morphemes from slot 3 and the perfect marker from slot 4 **post-VP TAMs**. This provisional classification is shown in the following table:

Pre-VP TAMs =	<i>kamlan</i> - PROG, <i>càʔ</i> ‘be about to’, <i>phêŋ</i> - POST-INC ‘just start’, <i>rêəm</i> ‘start’, <i>khəəj</i> ‘experience’, <i>tôn</i> ‘must’
Post-VP TAMs =	<i>đaj</i> ‘get’, <i>khûn</i> - SPFV(ascend), <i>lon</i> - SPFV(descend), <i>khâw</i> - IMPFV (enter), <i>ʔòɔk</i> - SPFV(exit), <i>jùu</i> IMPFV(be located), <i>tòɔ</i> ‘continue’, <i>paj</i> - IMPFV(go), <i>paj</i> - PFTV(go), <i>śia</i> PFTV(waste, lose), <i>maa</i> - PFCT(come)
Predicate-like TAMs =	<i>sèd</i> ‘finish’, <i>còb</i> ‘end’ and <i>ʔòɔk</i> ‘exit’

Table 4.1: Preliminary classification of Thai aspect morphemes

It should be noted that the terms pre-VP, post-VP, and predicate-like TAMs do not ultimately refer to the actual TAMs’ parts of speech. I use these terms to refer to the grouping in Table 4.1 only.

Major parts of speech in Thai are *nouns* and *verbs*. I start investigating the parts of speech of TAMs by determining whether TAMs share some properties with one of these two major parts of speech. Nouns in Thai possess two major properties: 1) nouns need a

copula in order to occur after the subject of a clause, and 2) only nouns can participate in the possessive structure. These properties are illustrated below:

(1) Copula

a. Priida pen khruu(noun)

Priida copula teacher

Priida is a teacher.

b. *Priida khruu

Priida teacher

(2) Possessive structure of nouns

ŋaan(noun) khǒɔŋ Wira khuu láan caan

work of Wira copula wash dish

Wira's work is to watch the dishes.

Pre-VP TAMs do not share these properties with nouns, as illustrated below:

(3) a. Wijada kamlaŋ kròod

Wijada PROG be angry

Wijada is being angry.

b. *Wijada pen kamlaŋ kròod

Wijada copula PROG be angry

(4) a. Wijada tɔŋ rɛəm tham ŋaan(noun)

Wijada must start do work

Wijada must start working

- b. **rêəm* khǒɔŋ ɲaan pen sìŋ thîi Wijada tɔŋ tham
 start of work copula thing that Wijada must do

(Intended meaning: The start of the work is what Wijada must do)

Sentence (3a) becomes ungrammatical when a copula is inserted between the subject of the clause and the pre-VP TAM *kamlan* - PROG. In addition, pre-VP TAMs, exemplified by *rêəm* ‘start’ in (4), cannot have the complement structure of nouns. In fact, pre-VP TAMs are similar to raising verbs, i.e. verbs that take a VP complement and do not assign a semantic role to their subject. An example of a raising verb is *kèəd* ‘happen’, and sentences containing *kèəd* are shown in (5) and (6). I provide examples of a pre-VP TAM, *phêŋ* ‘just start’, in (7) to show that pre-VP TAMs have the same distribution as raising verbs in Thai.

- (5) rot kèəd sǎa
 car happen break down
 The car happened to break down.

- (6) a. Piti kèəd tham ɲaan sèd
 Piti happen do work finish
 b. Piti tham ɲaan kèəd sèd
 Piti do work happen finish
 (6a-b) Piti happened to finish working.

- (7) a. Piti phêŋ tham ŋaan sèd
 Piti just start do work finish
- b. Piti tham ŋaan phêŋ sèd
 Piti do work just start finish

(7a-b) Piti just started to finish working.

The examples in (6)-(7) show that raising verbs such as *kèəd* ‘happen’, like pre-VP TAMs, are able to occur in the position after the base VP when predicate-like TAMs such as *sèd* ‘finish’ are present. Therefore, we can tentatively conclude that pre-VP TAMs belong to the same class as raising verbs in Thai.

Post-VP TAMs can be distinguished from nouns because they do not co-occur with a copula, and do not occur in the possessive structure, as illustrated below.

- (8) *khuîn* -SPFV(ascend) as base verb

- a. Manii khuîn bandaj
 Manii ascend stair
 Manii ascended the stairs.
- b. *Manii pen khuîn bandaj
 Manii copula ascend stair

- (9) *Manii tɛ̀ɛŋ klɔɔn pen khuîn
 Manii compose poem copula SPFV (ascend)
 (Intended meaning: Manii composed a/the poem.)

- (10) *Manii tɛɛŋ klɔɔn pen maa
 Manii compose poem copula PFCT (come)
 (Intended meaning: Manii has composed a/the poem.)

- (11) a. Manii tɔŋ tham ŋaan tɔɔ
 Manii must do work continue
 Manii must continue working.
- b. *tɔɔ khɔɔŋ ŋaan pen sɪŋ tɰi Manii tɔŋ tham
 continue of work copula thing that Manii must do
 (Intended meaning: The continuation of work is what Manii must do.)

Examples (7)-(10) show that post-VP TAMs cannot co-occur with a copula in an AC. In addition, post-VP TAMs cannot participate in the possessive construction, as illustrated by the ungrammaticality of (11b).

Predicate-like TAMs can also be distinguished from *nouns*, as shown below:

- (12) sɛd ‘finish’ as base verb
- a. Priida sɛd ŋaan
 Priida finish work
 Priida finish his work.
- b. *Priida pen sɛd ŋaan
 Priida copula finish work

(13) *sèd* ‘finish’ in ACs

- a. Priida tham ɲaan sèd

 Priida do work finish

 Priida finished working.
- b. *Priidatham ɲaan pen sèd

 Priida do work copula finish

The contrast between (13a) and (13b) show that predicate-like TAMs cannot co-occur with a copula in an Aspectual Construction. Furthermore, predicate-like TAMs do not occur in the possessive construction, as shown below:

- (14) a. Wara tɔŋ còb pharáʔkìd

 Wara must end duty

 Wara must end her duty.
- b. *còb khǎɔŋ pharáʔkìd pen sɛŋ thîi Wara tɔŋ tham

 end of duty copula thing that Wara must do

 (Intended meaning: The end of her duty is the thing that Wara must do.)

As shown in (14b), the predicate-like TAM *còb* ‘end’ cannot have NP complements preceded by *khǎɔŋ* ‘of’, meaning that it cannot occur in the possessive construction.

We have seen that pre-VP, post-VP, and predicate-like TAMs all are different from nouns. Moreover, pre-VP TAMs behave similarly to raising verbs, which, I assume, are a subclass of Thai *verbs*. Predicate-like TAMs are also like *verbs* in the sense that they can immediately follow pre-VP TAMs, like ordinary VPs do. Therefore, I conclude that pre-

VP and predicate-like TAMs share certain properties with Thai *verbs*, while post-VP TAMs do not have such properties (for example, post-VP TAMs cannot immediately follow pre-VP TAMs. See 3.2.3). As a result, I preliminarily propose that parts of speech in Thai can be classified as in figure 4.1.

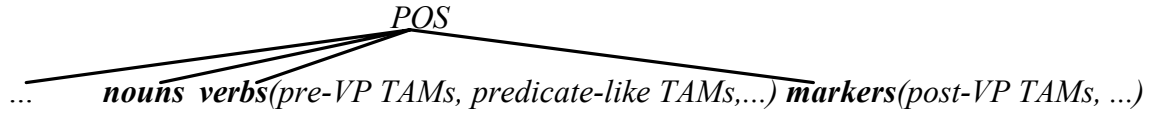


Figure 4.1: Preliminary version of parts of speech in Thai

A further distinction needs to be made among pre-VP TAMs, however, since elements that have been classified as pre-VP TAMs behave differently with respect to negation.

Thai has three words encoding negation: *mâj*, *mâj-dâj*, and *mâj-châj*². The three negations are different in the foci they allow, and in their selectional restrictions. *Mâj* - NEG1 allows a narrow focus or argument focus. *Mâj* is followed by a VP in a clause, as illustrated in (15).

(15) Dara mâj kin khâaw (tɛɛ kin pizza)

Dara NEG1 eat rice but eat pizza

Dara did not eat rice (but ate pizza).

² I assume that negations in Thai are a subclass of raising verbs since they do not assign a semantic role to their subject and their grammatical subject is the same as that of their complement. The exact category of Thai negation words is, however, not relevant to my analysis of TAMs.

The pre-VP TAMs *rêəm* ‘start’, *khəəj* ‘experience’ and *tôŋ* ‘must’ can be preceded by *mâj*, but *mâj* cannot precede *kamlan* - PROG, *cà?* - be about to, or *phêŋ* ‘just start’. These restrictions are illustrated in (16)-(21).

(16) Dara *mâj* *rêəm* *tham* *ŋaan*

Dara NEG1 start do work

Dara did not start working.

(17) Dara *mâj* *khəəj* *tham* *ŋaan*

Dara NEG1 experience do work

Dara did not experience working.

(18) Dara *mâj* *tôŋ* *tham* *ŋaan*

Dara NEG1 must do work

Dara did not have to work.

(19) *Wijada *mâj* *kamlan* *tham* *ŋaan*

Wijada NEG1 PROG do work

(20) *Wijada *mâj* *cà?* *tham* *ŋaan*

Wijada NEG1 be about to do work

(21) *Wijada *mâj* *phêŋ* *tham* *ŋaan*

Wijada NEG1 just start do work

It should be noted that *mâj* - NEG1 can also precede predicate-like TAMs, as illustrated below:

(22) Wilaj kin khâaw mâj sèd

Wilaj eat rice NEG1 finish

Wilaj did not finish eating rice.

(23) Wilaj duu năŋ mâj còb

Wilaj watch movie NEG1 end

Wilaj did not finish/end watching a/the movie.

(24) Wilaj tèεŋ kloon mâj ?òok

Wilaj compose poem NEG1 exit

Wilaj was not able to compose a/the poem.

In order for a negation operator to have narrow focus over a VP headed by *kamlan*

- PROG, *cà?* - be about to or *phêŋ* ‘just start’, that VP must be preceded by another

negation word, *mâj-dâj* - NEG2, as illustrated below:

(25) Wijada mâj-dâj kamlan kin khâaw tèε kamlan

Wijada NEG2 PROG eat rice but PROG

kin pizza

eat pizza

Wijada is/was not eating rice but is/was eating pizza.

(26) Wijada māj-dâj cà? kin khâaw tɛɛ cà? kin

Wijada NEG2 be about to eat rice but be about to eat

pizza

pizza

Wijada was not about to eat rice but was about to eat pizza.

(27) Wijada māj-dâj phêŋ kin khâaw tɛɛ phêŋ

Wijada NEG2 POST-INC eat rice but just start

kin pizza

eat pizza

Wijada has not just started eating rice but has just started eating pizza.

In addition, *māj-dâj* can precede predicate-like TAMs and ordinary verbs such as

kin ‘eat’, as illustrated below.

(28) Priida tham kaan-bâan māj-dâj sèd

Priida do homework NEG2 finish

Priida did not finish doing his homework.

(29) Priida māj-dâj kin pizza

Priida NEG2 eat pizza

Priida did not eat pizza.

Note that the third negation word *mâj-châj* - NEG3, which only allows verb focus,

can precede all pre-VP and predicate-like TAMs. Finally, none of the three negation words

can precede post-VP TAMs, as exemplified in (30).

(30) *Dara tèεη klɔɔn māj/māj-dāj/māj-chāj khu̯n

Dara compose poem NEG1/NEG2/NEG3 ascend

This last fact confirms the distinction I made in figure 4.1 between verb-like (pre-VP and predicate-like TAMs) and non-verb (i.e., markers or post-VP) TAMs.

The selectional restrictions on Thai negation markers show that a distinction needs to be made among pre-VP TAMs. Pre-VP TAMs that can follow *māj* - NEG1 are classified as *full-verbs*, while those that cannot are classified as *partial-verbs*. The revised classification of Thai parts-of-speech is shown in figure 4.2. Note that in figure 4.2, I also incorporate the distinction between *main* and *serial verb* discussed in Chapter 2.

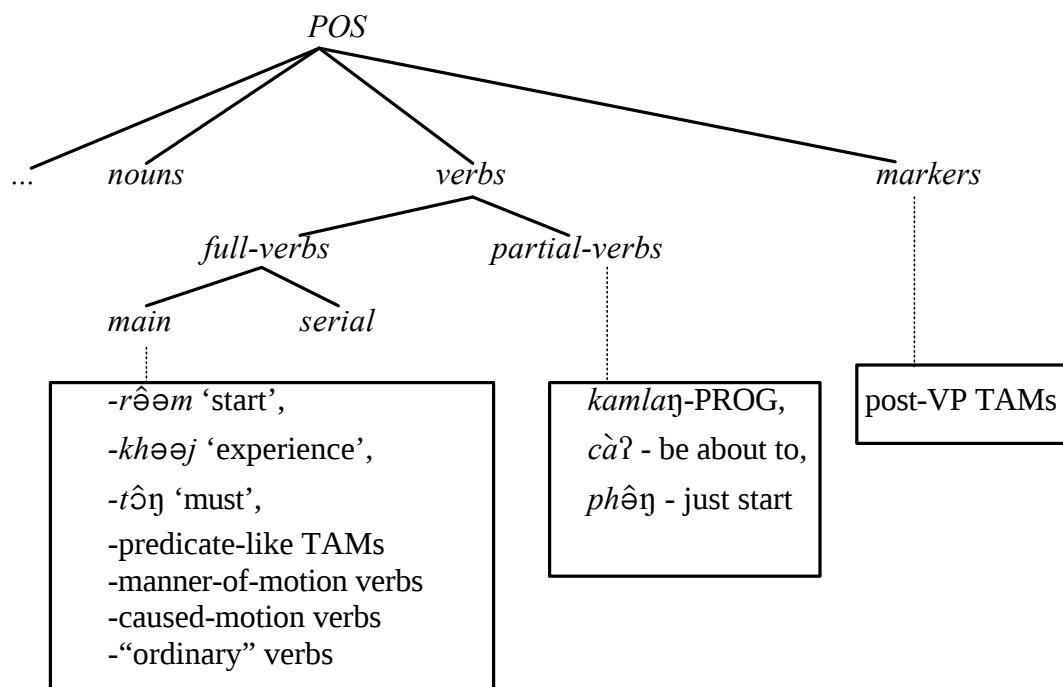


Figure 4.2: Revised parts of speech in Thai

According to figure 4.2, Thai aspect morphemes are subtypes of either *verbs* or *markers*.

TAMs which are verbs are further classified as either *full-verbs* or *partial-verbs*.

Predicate-like TAMs and three pre-VP TAMs, *rêəṃ* - start, *khêəj* ‘experience’ and *tôṇ* ‘must’, are *full-verbs*. *Kamləṇ* - PROG, *càʔ* - be about to, and *phêṇ* - POST-INC are *partial-verbs*. Post-VP TAMs are *markers*. This classification allows us to straightforwardly state the selectional restrictions of Thai negation markers: *mâj* - NEG1 subcategorizes for *full-verb* phrases only, while *mâj-dâj* - NEG2 and *mâj-châj* - NEG3 subcategorize for *verb* phrases. All negation markers can precede *full-verbs*. None of the negation markers subcategorizes for *markers* or post-VP TAMs. Notice that the elements surrounded by boxes in figure 4.2 are **not** further subtypes of parts of speech, but are merely examples of elements that belong to the parts of speech to which the boxes are linked.

The division into *main* and *serial* among *full-verbs* is relevant to the occurrence of Directional Serial Verb Constructions (Directional SVCs) discussed in Chapter 2. Ordinary verbs in Thai are specified as *main full-verbs*. *Serial full-verbs* are verbs that do not have to occur initially in a SVC sequence, and have a special valence structure in the SVCs. *Main full-verbs*, such as manner-of-motion and caused-motion verbs, if appearing in the SVCs, have to occur first in the SVC sequence, and they do not have a special valence structures.

Finally, *verbs* (including both *full* and *partial-verbs*) are, intuitively, elements that can occur in the **ordinary verb position (OVP)**, i.e. the position immediately after the subject of a clause, with a meaning comparable to when they do not occur in this position. To illustrate why elements such as *tòṇ* ‘continue’ are not classified as verbs according to this property, consider the following examples of *kin* ‘eat’ (an *ordinary main full-verb*),

càʔ ‘be about to’, *sèd* ‘finish’, *còb* ‘end’, *ʔòɔk* ‘exit’ and *tòɔ* ‘continue’, when they occur in the OVP and when they do not. The examples in (31)-(36) show that *kin* ‘eat’, *càʔ* ‘be about to’, *sèd* ‘finish’, *còb* ‘end’, and *ʔòɔk* ‘exit’ can occur in the OVP, and have comparable meanings as when they do not occur in this position. In contrast, *tòɔ* ‘continue’ has incomparable meanings when occurring in the OVP and when appearing after the base VP.

(31) a. Malii kin ʔaahǎan

Malii eat food

Malii ate food.

b. Malii tham ʔaahǎan kin

Malii do food eat

Malii made some food to eat.

(32) a. Malii càʔ tham ɲaan sèd³

Malii be about to do work finish

Malii was about to finish working.

³ *Càʔ* ‘be about to’ needs a predicate-like TAM such as *sèd* ‘finish’ to be present in order for *càʔ* to be able to occur in the non-OVP position. The presence of *sèd* ‘finish’ does not affect the claim I make that *càʔ* has the same meaning whether it occurs in the OVP position or not.

b. Malii tham ɲaan càʔ sèd

Malii do work be about to finish

Malii was about to finish working.

(33) a. Malii sèd ɲaan(noun)

Malii finish work

Malii finished her work.

b. Malii tham ɲaan sèd

Malii do work finish

Malii finished working.

(34) a. Manii còb nâathîi

Manii end duty

Manii ended her duty.

b. Manii tham nâathîi còb

Manii do duty end

Manii ended doing her duty.

(35) a. Wira ʔòɔk càak ɲaan

Wira exit from work

Wira quit his work/job.

b. *Wira ʔɔɔk càak burîi

Wira exit from cigarette

(Intended meaning: Wira quit cigarettes.)

c. Wira tham ɲaan ʔòɔk

Wira do work exit (SPFV)

Wira was able to and did work.

(36) a. Piti tòɔ dâaj

Piti continue/extend thread

Piti extended the thread.

b. *Piti tòɔ ɲaan

Piti continue work

(Intended meaning: Piti continued his work.)

c. Piti tham ɲaan tòɔ

Piti do wok continue

Piti continued working.

The meanings of *càʔ* ‘be about to’, *sèd* ‘finish’, *còb* ‘end’, and ʔòɔk ‘exit’, when occurring in the OVP and in the post-verbal position are comparable. The morpheme ʔòɔk ‘exit’ is a bit different from *sèd* ‘finish’ and *còb* ‘end’ in that ʔòɔk in the OVP needs a PP to follow it (cf. (35a)), but otherwise the semantic restriction it imposes on the elements it selects is the same as that of *sèd* ‘finish’ and *còb* ‘end’. Namely, the three predicate-like TAMs select an **event-denoting** phrase. This explains why (35b) is not possible. On the other hand, such a semantic restriction does not hold for *tòɔ* ‘continue’. The meanings of *tòɔ*

‘continue’ in (36a) and (36c) are not comparable⁴. Namely, when *tòɔ* occurs in the OVP, it only subcategorizes for an NP denoting an object which possesses length along a dimension, as illustrated in (36a-b). However, when *tòɔ* ‘continue’ occurs postverbally, it is not restricted in the same way. This difference confirms the difference in part-of-speech classification diagrammed in figures 4.1 and 4.2; namely that *sèd* ‘finish’, *còb* ‘end’ and *ʔòɔk* ‘exit’ are *verbs* while the post-VP TAM *tòɔ* ‘continue’ is a *marker*.

In conclusion, Thai aspect morphemes are sorted into three different parts of speech: *full-verb*, *partial-verb* and *marker*. *Full-verb* and *partial-verb* are subclasses of *verb*, which is an independently attested major part of speech in Thai, while *markers* are a distinct category. Note that This part-of-speech classification of TAMs does not correlate with their positions in the clause or their meanings. TAMs are categorized as to their potential to be subcategorized for by other linguistic elements, in this case negation markers and other TAMs.

4.3 Structures of Thai Aspectual Constructions

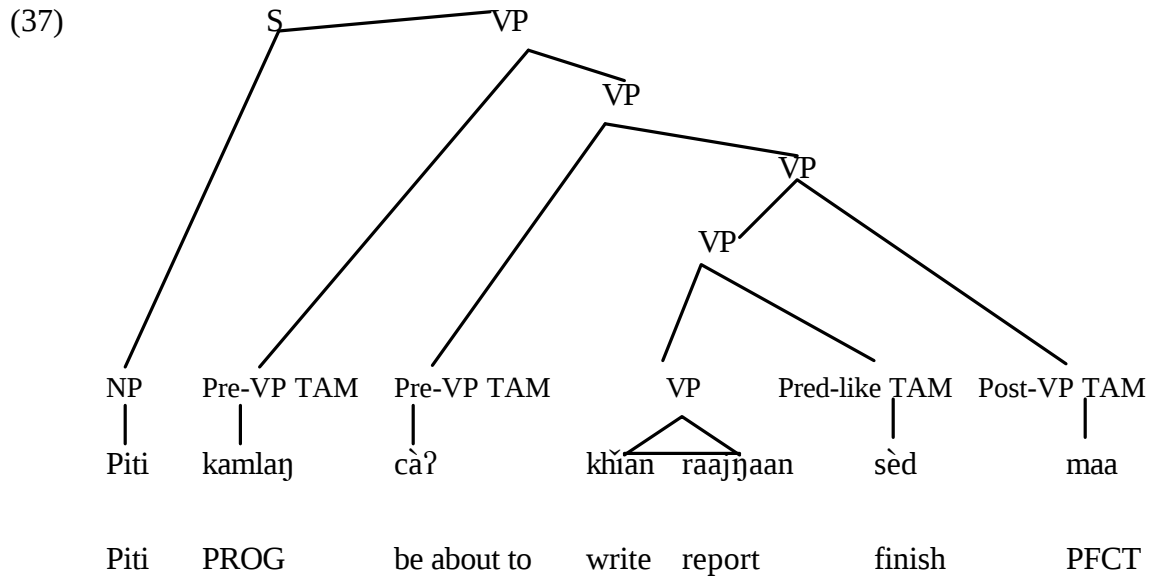
4.3.1 Syntactic Structures of Thai Aspectual Constructions

In this section, I investigate the syntactic structures of Thai Aspectual Constructions. I apply a few constituency tests to determine the syntactic structure of Thai ACs. It should be noted that some of these tests do not constitute strong evidence for the structures I claim.

⁴ See also section 3.2.1.2.2.

Nevertheless, I make the best use out of the tests, bearing in mind that these structures are not the only possible structures that one can posit from the available data.

I hypothesize that Thai aspect morphemes combine with the base VP through either complementation or modification. On one hand, pre-VP TAMs are heads which subcategorize for *verb phrases*; on the other hand, predicate-like and post-VP TAMs combine with the VP headed by a *full-verb* via modification. To illustrate this, an example of an AC with its informal structure is shown below:



Piti is going to have finished writing a/the report.

The correctness of the structure in (37) is partly determined by the possible scope relations among TAMs, which I discuss in 4.3.2. I assume in (37) that *khǎn raajŋaan* combines with *sèd* via the head-modifier structure,⁵ and *khǎn raajŋaan sèd* in turns combines with *maa*, again through modification. *Cà?* combines with *khǎn raajŋaan sèd maa* through the

head-complement schema, and *càʔ khĩan raajŋaan sèd maa* finally becomes the complement of *kamlan* - PROG. Notice that although only *partial-verb* pre-VP TAMs appear in example (37), I assume that all pre-VP TAMs syntactically combine with a VP via the head-complement schema. Complementation and modification are partially identified in (37) by the relative order between the TAMs and the base VP. TAMs which **precede** the base VP combine with the base VP via **complementation**. TAMs which **follow** the base VP combine with the base VP via **modification**.

In the following two sections, I determine the constituent structures of TAMs in ACs based on syntactic tests and observations, and I discuss the two structures which are involved in the tree in (37): head-complement and head-modification structure

4.3.1.1 Head-Complement Structure

I argue that pre-VP TAMs are heads that subcategorize for a complement which is a *verb phrase*, as illustrated in (38)- (45):

- (38) *Wanna kamlan
 Wanna PROG

I assume that what follows a pre-VP TAM is a complement because if only a pre-VP TAM occurs in the VP of a sentence, the sentence becomes ungrammatical, as shown in (38).

⁵ I assume that a head-modifier structure is licensed by the Head-Adjunct Schema (Pollard and Sag, 1994).

- (39) *Wanna kamlaŋ ŋaan
 Wanna PROG work

(Intended meaning: Wanna is working).

In (39), the NP *ŋaan* ‘work’ cannot satisfy the subcategorization requirement of the pre-VP TAM *kamlaŋ* - PROG. Pre-VP TAMs have to co-occur with a VP. We can see from (40)-(41) that pre-VP TAMs subcategorize for an element which is a simplex or complex verb phrase.

- (40) Wanna kamlaŋ khǎn raajŋaan
 Wann PROG write report
 Wanna is writing a/the report.

- (41) Wanna kamlaŋ wîŋ klab
 Wanna PROG run return
 Wanna is running back.

The VP *khǎn raajŋaan* in (40) is a simplex VP, while the Directional SVC *wîŋ klab* in (41) is a complex VP.

Sentence (42) shows that a VP headed by the *partial-verb kamlaŋ* ‘PROG’ can be the complement of a pre-VP TAM. But if there is no *verb* following a pre-VP TAM, particularly, if what follows it is a *marker*, the sentence becomes ungrammatical, as shown in (43)-(45).

(42) Wanna cà? kamləŋ kin khâaw

Wanna be about to PROG eat rice

Wanna was about to be eating rice.

(43) a. Wanna cà? kin khâaw

Wanna be about to eat rice

Wanna was about to eat rice.

b. *Wanna kin khaaw cà?

Wanna eat rice be about to

(44) a. Wanna cà? kin khâaw sèd

Wanna be about to eat rice finish

b. Wanna kin khâaw cà? sèd

Wanna eat rice be about to finish

(44a-b) Wanna was about to finish eating rice.

c. *Wanna kin khâaw sèd cà?

Wanna eat rice finish be about to

(45) a. Wanna cà? tɛ̀ɛŋ kloɔn khuîn

Wanna be about to compose poem ascend(SPFV)

Wanna was about to compose a poem.

b. *Wanna tɛ̀ɛŋ kloɔn cà? khuîn

Wanna compose poem be about to ascend

In (43a), the VP *kin khâaw* ‘eat rice’ is the complement of the pre-VP TAM *cà?* ‘be about to’, and in (44b), *sèd* ‘finish’ is the complement of *cà?*. However, as (45b) shows, *khûn* ‘ascend’ cannot be the complement of *cà?* since *khûn* is a *marker*, not a *verb*.

A constituency test which is potentially applicable to constructs containing pre-VP TAMs is the coordination test. I apply this test in examples (46)-(47).

(46) Wira kamlan rêom rŭu-mâj-kô? kheej tɛɛŋ níjaaj khûn

Wira PROG start or experience write novel ascend(SPFV)

Wira either is starting to write or experienced writing a novel.

(47) Wira rêom cà? rŭu-mâj-kô? kamlan khŋan raajŋaan

Wira start be about to or PROG write report

Wira might start writing or is writing a/the report.

Based on the assumption that only constituents of the same type can be coordinated, the sequence *kamlan rêom*, which is coordinated with the marker *khəj* ‘experience’, seems to form a constituent in (46). Similarly, *rêom*, together with *cà?*, seems to be coordinated with *kamlan* in (47). The coordination test shows that when there are more than one pre-VP TAM in an Aspectual Construction, they seem to form a constituent. However, I hypothesize that sentences (46)-(47) are instances of right node raising. Right-node raising is a construction consisting of an apparent coordination of two sentences in which each sentence lacks its rightmost constituent, and a single further constituent appearing on the right is interpreted as filling both gaps. An example of Thai right-node raising is shown in Chapter 1 and is repeated below.

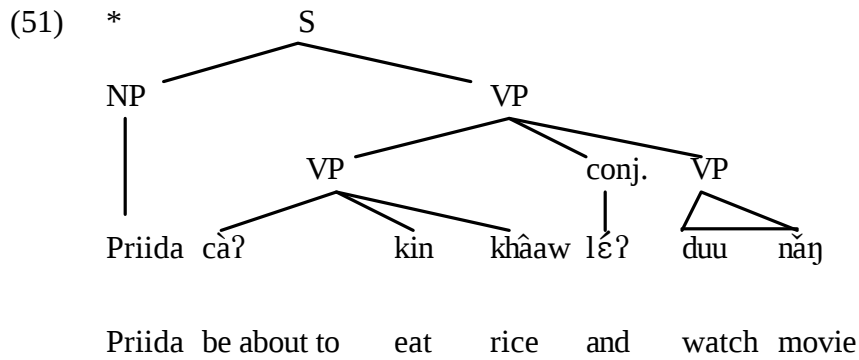
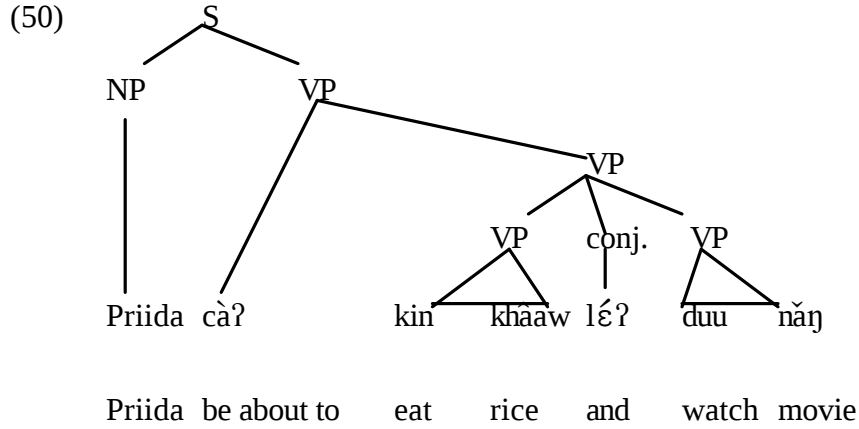
- (48) Priida hâj năŋsǔũu lɛ́ʔ hâj-juuũm klôŋ kɛ̀ɛ dèkdèk
 Priida give book and lend camera to children
 Priida gave the book(s) and lent the camera to the children.

A characteristic of right-node raising which makes it differ from coordination is that in right-node raising, there can be a pause before the conjunction, which is not the case for coordination. In each of (46)-(48), there can be a pause before the conjunction. If (46)-(47) involve right-node raising, the result of the coordination test in (46)-(47) cannot be used to determine the structure of pre-VP TAMs.

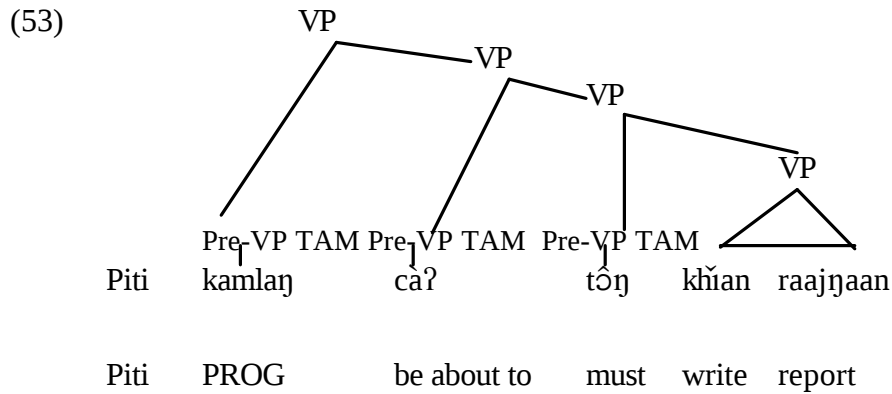
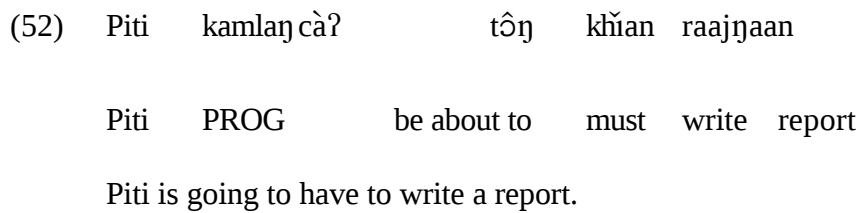
I assume that a pre-VP TAM combines with its VP complement as illustrated in (50), which is the structure of (49).

- (49) Priida càʔ kin khâaw lɛ́ʔ duu năŋ
 Priida be about to eat rice and watch movie
 Priida was about to eat rice and watch a movie.

In (49), the meaning of *càʔ* ‘be about to’ has scope over both VPs *kin khâaw* ‘eat rice’ and *duu năŋ* ‘watch movie’. This means that the structure of (49) is as shown in (50), in which *càʔ* combines with a coordinated VP, and not as shown in (51). Note that the order of pre-VP TAMs and their complements follows the typical head-complement order in Thai.



When there are more than one pre-VP TAM, I assume the layered head-complement structure illustrated in (53), which is the structure of (52).



This is because all pre-VP TAMs take a *VP* as their complement (cf. (38) through (45)). The only structure for (52) which is consistent with this hypothesis is the layered structure in (53). In (53), *tôŋ* ‘must’ takes the base VP *kħian raajŋaan* ‘write report’ as its complement. *Tôŋ kħian raajŋaan*, in turn, is a complement of *cà?*, and, *cà? tôŋ kħian raajŋaan* becomes *kamlan*’s complement.

A final note here is that in my analysis, pre-VP TAMs are **syntactic heads** which take a VP as a complement. However, due to their semantics as event-description **modifiers** mentioned earlier, one might not want to analyze pre-VP TAMs as syntactic heads, but as some sort of syntactic modifiers. From a semantic point of view, as will become clear later, it makes no difference whether pre-VP TAMs are analyzed as syntactic heads or syntactic modifiers because they are always semantic heads in the sense that they have scope over the VP they combine with. Note, however, that if pre-VP TAMs are analyzed as syntactic modifiers, their order with respect to the elements they combine with violate the consistent head-modifier order in Thai. Namely, while other syntactic modifiers follow the elements they modify in Thai (cf. Chapter 1), pre-VP TAMs, as syntactic modifiers, would precede the elements they modify. Furthermore, assuming that Thai negations are modifiers, their selectional restrictions on pre-VP TAMs (for example, *mâj* - NEG1 cannot precede all pre-VP TAMs) are easier to explain if pre-VP TAMs are **not** modifiers. This is because the negations can then select their complements, in this case pre-VP TAMs, in the same way as when they select ordinary verbs.

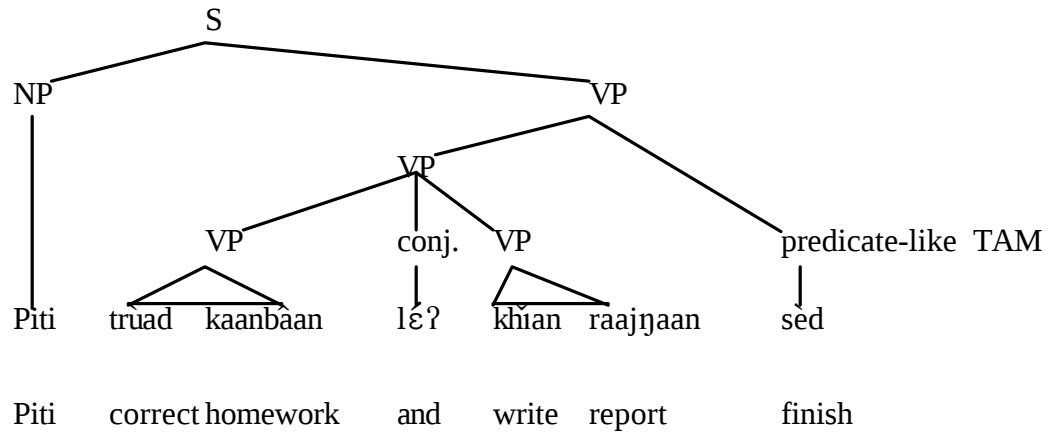
4.3.1.2 Head-Modifier Structure

In this section, I argue that a predicate-like or a post-VP TAM combines with a VP via modification, and that the predicate-like or the post-VP TAM is not part of the same local tree as the base verb (and its complement(s)).

The following example, in which the meaning of the predicate-like TAM *sèd* ‘finish’ has scope over the coordinated VP, shows that *sèd* ‘finish’ is not part of the same local tree as the head verb and its complement of either of the two VPs, but occurs outside of the coordinated VP.

- (54) Piti trùad kaanbâan lɛʔ khĩan raajŋaan sèd
 Piti correct homework and write report finish
 Piti finished correcting the homework and writing the report.

- (55) Structure of (54)



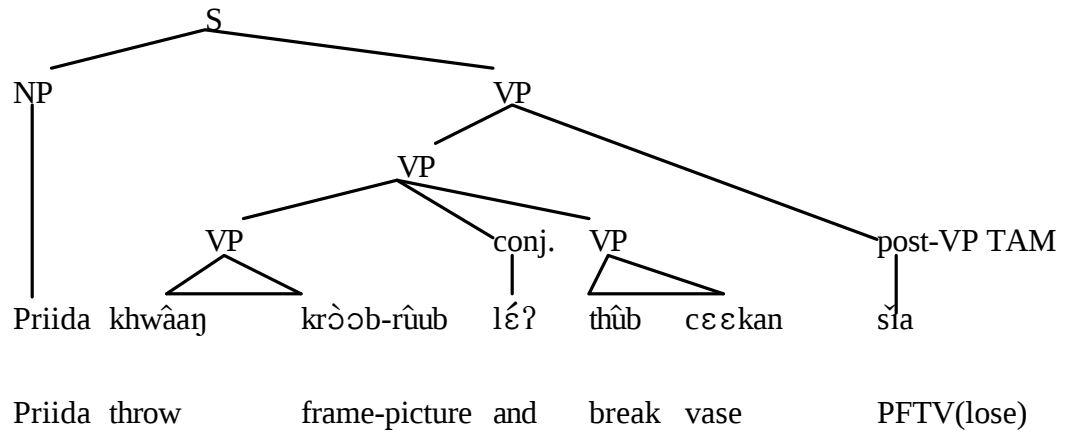
In (54), *Piti* did not finish only writing the report, but he finished correcting the homework as well. That is why I assume that *sèd* ‘finish’ modifies the coordinated VP consisting of both *trùad kaanbâan* ‘correct the homework’ and *khĩan raajŋaan* ‘write a/the report’, i.e.,

the structure in (55). Note that (54) is unlikely to be an instance of right-node raising because, unlike (48), there can be no pause before the conjunction *l'éʔ* ‘and’ in (54).

Post-VP TAMs syntactically behave in the same way as predicate-like TAMs, as illustrated by the following examples.

- (56) *Priida khwâaŋ kròɔb-rûub l'éʔ thûb cɛɛkan šia*
 Priida throw frame-picture and break vase PFTV(lose)
 Priida threw the picture frame and broke the vase.

- (57) Structure of (56)



In (56), the perfective marker *šia* ‘lose’ has scope over both VPs *khwâaŋ kròɔb-rûub* ‘throw picture-frame’ and *thûb cɛɛkan* ‘break vase’, that is, both of these two events occurred in the past and ended. Therefore, I assume that (56) has the structure shown in (57). Sentence (56) is, again, not likely to be an instance of right-node raising because there can be no pause before the conjunction in the sentence.

The second constituency test, the adverb placement test, yields similar results to those of the coordination test. Namely, predicate-like and post-VP TAMs, as modifiers, occur outside of the base VP that they combine with, as illustrated below:

(58) Dara wîŋ sèd jàaŋkràʔjôŋkràʔjèɛŋ

Dara run finish in limping manner

Dara finished running in limping manner.

(59) Dara wîŋ jàaŋkràʔjôŋkràʔjèɛŋ sèd

Dara run in limping manner finish

Dara finished running in limping manner.

(60) Wira tèɛŋ klɔɔn khuîn jàaŋrûadrew

Wira compose poem SPFV(ascend) quickly

Wira composed the poem quickly.

(61) Wira tèɛŋ klɔɔn jàaŋrûadrew khuîn

Wira compose poem quickly SPFV(ascend)

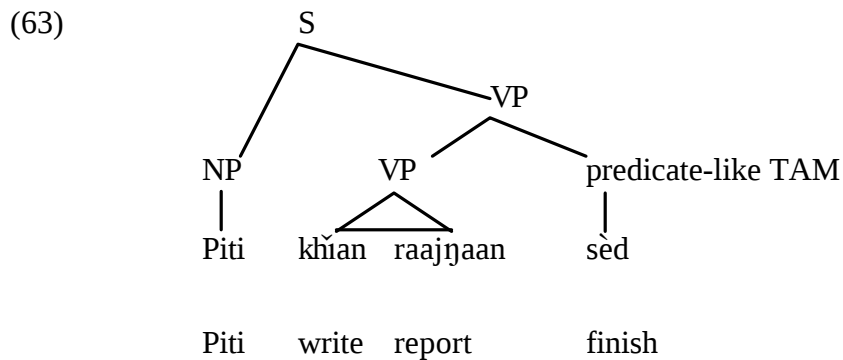
Wira quickly composed the poem.

Adverbs in Thai occur VP-finally and mark the end of a VP. There, *sèd* ‘finish’ and *khuîn* SPFV(ascend) occur outside of the VPs in (59) and (61), whose boundaries are marked by the adverbs *jàaŋkràʔjôŋkràʔjèɛŋ* ‘in limping manner’ and *jàaŋrûadrew* ‘quickly’, respectively. The result of the adverb placement test can also be interpreted in another way. If we assume that adverbs, predicate-like, and post-VP TAMs are all VP modifiers, we predict that adverbs can occur either after the main VP or after the entire clause (cf. Chapter 1). This prediction indeed holds, as illustrated by the reordering possibilities of elements in question in sentences (58)-(61).

Another factor which supports my claim that predicate-like and post-VP TAMs are syntactic modifiers comes from the fact that the occurrence of these TAMs after the base VP follows the order typical of head-modifier structures in Thai, namely that modifiers follows heads.

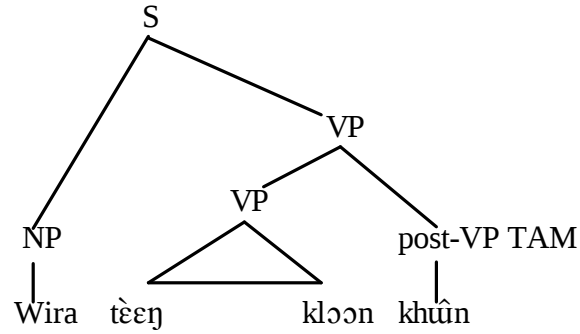
Based on two syntactic tests and their order with respect to the base VP, I conclude that predicate-like and post-VP TAMs are not sisters to the base verb, in the way the base verb's complements are, and combine with the base VP through modification. This is illustrated in (63) and (65) which are the structures of (62) and (64) respectively.

- (62) Piti khǎan raajŋaan sèd
Piti write report finish
Piti finished writing a/the report.



- (64) Wira tèeŋ kloon khuîn
Wira compose poem SPFV(ascend)
Wira has composed a/the poem.

(65)



Wira compose poem SPFV(ascend)

Wira has composed a/the poem.

To summarize, despite the complexity of Thai Aspectual Constructions (ACs), only two major structures are involved in the combination of Thai aspect markers in ACs: an ordinary Head-Complement structure, and a Head-Modifier structure. An issue which remains to be explored is the various possible scope relations among TAMs in ACs, which are intricate and cannot always be obviously determined from the motivated syntactic structures. I discuss them in the following section.

4.3.2 Scope Relations in Thai Aspectual Constructions

Semantically, when there are more than one aspect marker in ACs, the scope of an aspect marker lies within the scope of the other(s). Scope here refers to the portion of a particular sentence which is interpreted as being semantically affected by an operator present in that sentence (in this case, an aspect morpheme). In this section, I discuss which aspect morphemes outscope which and what principles govern these scope relations.

4.3.2.1 Observations and Hypotheses on Scope Relations among Thai Aspect Morphemes

In this section, I describe two observations and present two hypotheses regarding scope relations in ACs.

Observations on scope relations in Thai ACs

O1- Among pre-VP TAMs, the pre-VP TAM which is closer to the subject of the AC clause has the widest scope⁶. For example:

(66) Priida cà? khəəj kradòodrôm

Priida be about to experience parachute

Priida was about to experience parachuting.

(67) Priida khəəj cà? kradòodrôm

Priida experience be about to parachute

Priida experienced being about to parachute.

Each of (66)-(67) has only one fixed meaning, as shown by its translation. The difference in meanings in (66)-(67) results from *cà?* having the widest scope in (66) and *khəəj* having the widest scope in (67). *Cà?* is closer to the subject in (66) and so is *khəəj* in (67), hence my observation stated in O1.

⁶ Note that whether pre-VP TAMs can precede or follow the base VP, their relative scope remains intact.

O2 - The progressive marker *kamlan* - PROG is not compatible with two predicate-like TAMs: *sèd* ‘finish’ and *còb* ‘end’, regardless of their relative scope.

Kamlan cannot co-occur with these two predicate-like TAMs without *cà?* - ‘be about to’ being present, as discussed in 3.3, and illustrated below.

(68) *Wira kamlan ?àan naṅsuuu sèd/cob

Wira PROG read book finish/end

(69) Wira kamlan cà? ?àan năṅsuuu sèd/cob

Wira PROG be about to read book finish/end

Wira is going to finish/end reading a book.

Cà? enables the meaning of the base VP modified by *sèd* ‘finish’ or *còb* ‘end’ to be compatible with *kamlan* - PROG, on the assumption that *kamlan* has scope over predicate-like TAMs. Sentence (68) is still not possible under the interpretation that *sèd* ‘finish’ or *còb* ‘end’ has scope over *kamlan* for a syntactic reason, which I discuss in detail below.

Next, I present two hypotheses concerning scope relations in ACs.

Hypotheses on scope relations in Thai ACs

H1 - Predicate-like and post-VP TAMs (henceforth, aspectual modifiers) only modify *full-verb phrases*.

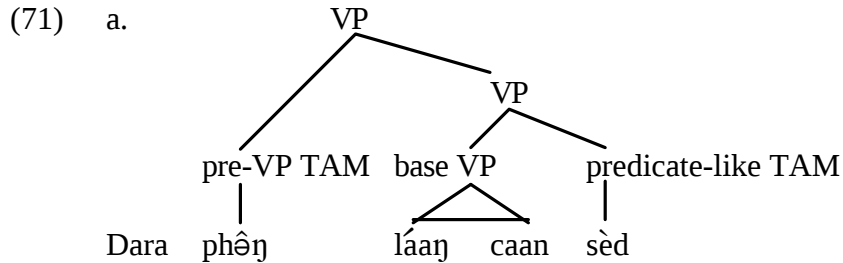
The two syntactic schemata involved in ACs (i.e. Head-Complement and Head-Adjunct Schemata), do not restrict the relative scopes of pre-VP TAMs and aspectual modifiers. To illustrate this, consider example (70).

(70) Dara phêŋ láaŋ caan sèd

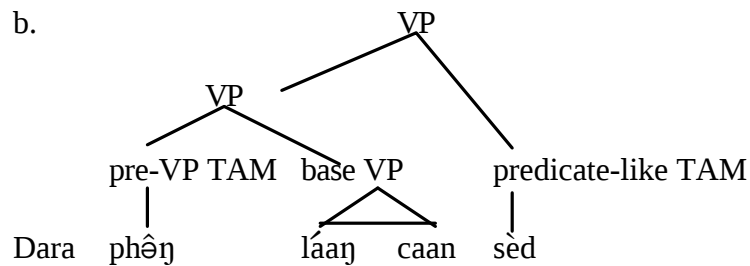
Dara POST-INC(just start) wash dish finish

Dara has just finished washing dishes.

The syntactic schemata I assume are involved in ACs predict that sentence (70) can have either of the following structures:



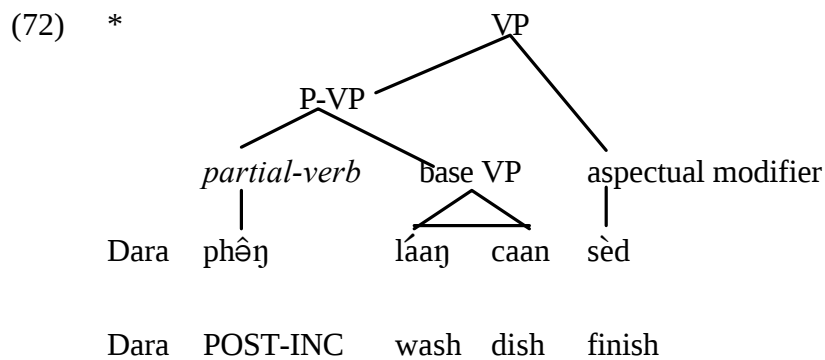
Dara POST-INC wash dish finish



Dara POST-INC wash dish finish

Both structures in (71) are possible since the relevant syntactic schemata simply state that the pre-VP TAM *phêŋ* needs to combine with a complement which is a VP, and that the predicate-like TAM *sèd* needs to modify a VP. Therefore, one possible structure for (70) is the one shown in (71a), in which the predicate-like TAM modifies the base VP and the

resulting VP becomes the complement of *phêŋ*. The other possible structure is shown in (71b), where *phêŋ* takes the base VP as its complement and *sèd* modifies the VP headed by *phêŋ*. If we assume that the two structures (71a) and (71b) are associated with two different meanings, it is hard to explain why (70) is not ambiguous and has only one interpretation, that in which *phêŋ*, which encodes a post-inchoative aspect, has scope over *sèd* ‘finish’. This problem is quite general. Most of the combinations of pre-VP TAMs and aspectual modifiers only yield readings in which pre-VP TAMs have scope over aspectual modifiers and not the other way around. This can be explained by Hypothesis 1 that aspectual modifiers only take *full-verb phrases* as their arguments. Based on this hypothesis, since *kamlan* - PROG, *cà?* ‘be about to’, and *phêŋ* - POST-INC are *partial-verbs*, and they determine the category of the constituents they head, they cannot be within the scope of aspectual modifiers. This hypothesis is illustrated in the tree in (72) revised from (71b).



Legend:

P-VP is a verb phrase headed by a *partial-verb*.

In (72), *phêŋ* - POST-INC, combines with the base VP *láaŋ caan* ‘wash dish’, and yields a P-VP, which the aspectual modifier *sèd* ‘finish’ cannot modify.

To summarize, Hypothesis 1 is needed because our syntactic schemata, without further stipulations, do not tell whether the VP complement of a pre-VP TAM is modified by an aspectual modifier, or whether the VP which an aspectual modifier modifies includes a pre-VP TAM.

Hypothesis 1 predicts that the combinations of pre-VP TAMs which are *full-verbs* (*tôŋ* ‘must’, *rêəm* ‘start’, and *khəəj* ‘experience’) and aspectual modifiers, exemplified in (73), should lead to semantic ambiguities. This prediction indeed holds.

(73) Wira rêəm kèʔ máj sèd

Wira start carve wood finish

- a. Wira started to finish carving wood.
- b. Wira finished starting to carve wood.

The two possible interpretations of (73) result from either *rêəm* ‘start’ having scope over *sèd* ‘finish’ in (73a), or *sèd* having scope over *rêəm* in (73b), although one interpretation of (73), namely (73a), is more salient than the other.

The second hypothesis relevant to scope relations in ACs is the following:

H2 - Aspect morphemes which are syntactic heads have scope over their complements, and aspect morphemes which are syntactic modifiers have scope over their heads (i.e., the elements they modify).

Examples (74)-(75) illustrate this hypothesis, and their informal representations are provided in the next section.

(74) Head-complement structure, the pre-VP TAM *càʔ* is the head

Piti *càʔ* *tèɛŋ* *nǎŋsũũ*

Piti be about to write book

Piti was about to write a/the book.

Càʔ ‘be about to’ is the semantic head in (74) because the VP *tèɛŋ nǎŋsũũ* ‘write book’

it combines with *is* within its scope.

(75) Head-modification structure, the predicate-like TAM *sèd* is the modifier

Piti *tèɛŋ* *nǎŋsũũ* *sèd*

Piti write book finish

Piti finished writing a/the book.

Sèd ‘finish’ is the semantic head in (75) because the VP *tèɛŋ nǎŋsũũ* ‘write book’ it modifies *is* within its scope.

4.3.2.2 Informal Representations of Scope Relations among Thai Aspect morphemes

Having presented the general principles that govern scope relations among TAMs in the last section, I provide, in this section, informal representations⁷ of examples of combinations of TAMs. I start by presenting combinations of aspectual modifiers and VPs.

- (76) a. Piti tɛ̌ɛŋ nəŋsǔu sɛ̀d
Piti write book finish
Piti finished writing a/the book.

- b. [finish [Piti write book]]

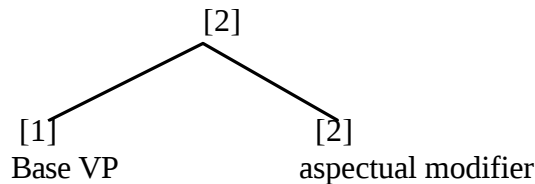
- (77) a. Piti tɛ̌ɛŋ nəŋsǔu khǔn
Piti write book SPFV(ascend)
Piti wrote a/the book.

- b. [MAX [Piti write book]] = Piti wrote a/the book to its maximality⁸ (i.e. the event ended.)

Legend:

MAX denotes the semantic constraint characterizing maximality.

- (78) Informal representation of a head-modifier phrase (i.e. a base VP modified by an aspectual modifier, either a predicate-like or a post-VP TAM)



⁷ In this section, I **informally** mark the relevant meanings and scope relations in ACs by using bracketing and indices. I explain the new terms or abbreviations that arise in the examples along the way.

⁸ See Koenig and Muansuwan (2000) for a definition of maximality associated with semi-perfective markers.

The index of a linguistic element indicates its referent. To illustrate this, in the head-modifier tree in (78), the index [2] of an aspectual modifier appears on the mother node since I assume that an aspectual modifier provides the referent of the verb phrase that contains it. The figure in (78) reads as follows: the aspectual modifier tagged with [2] has scope over [1] which is the base VP. In the example of head-modifier structure in (76), it is the “finishing” (marked by the predicate-like TAM *sèd* ‘finish’) of the event which is talked about. In other words, I assume that the aspectual modifier is the “semantic head”, following Pollard and Sag’s Semantics Principle (1994:56), which basically states that the semantic head of a head-modifier phrase is the modifier daughter⁹.

When there are more than one aspectual modifier in an AC, as exemplified in (79), the modifier which occurs furthest away from the base VP has wider scope¹⁰.

- (79) Piti sák phâa sèd paj
 Piti wash cloth finish PFTV(go)
 Piti finished washing cloth.

In (79), the perfective marker *paj* outscopes *sèd* ‘finish’, which, in turn, outscopes the base VP. This means that the finishing event (of washing cloth) occurred in the past and ended, as required by the meaning restriction of the perfective *paj*¹¹.

Pre-VP TAMs have scope over their VP complements. For example,

⁹ The modifier daughter is what Pollard and Sag (1994) call the adjunct daughter.

¹⁰ This assumption is generally true except for the combination of a semi-perfective and the perfect marker *maa*. I leave this idiosyncrasy of the semi-perfective - perfect combination to future research.

¹¹ For a more thorough study of various combinations of Thai aspect morphemes, see Koenig and Muansuwan (In Preparation).

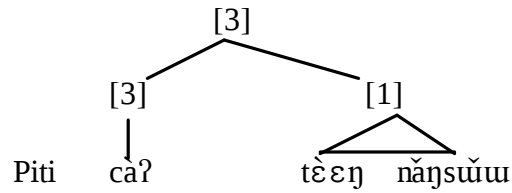
(80) a. Piti cà? tèεη nəŋsũu

Piti be about to write book

Piti was about to write a/the book.

b. [ABOUT TO [Piti write book]]

(81) Informal representation of (80)



Piti be about to write book

According to Hypothesis 1 that aspectual modifiers only modify *full-verb phrases*,

(82) has the scope represented in (83).

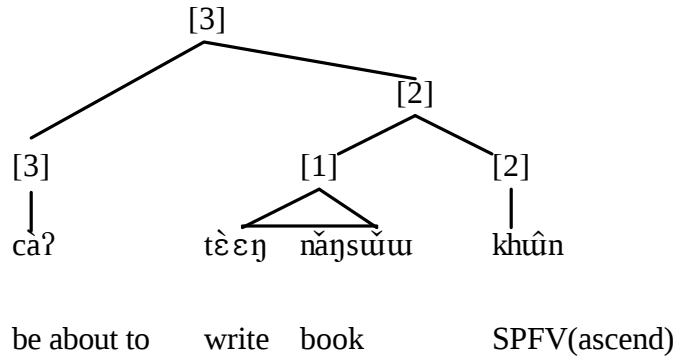
(82) a. Piti cà? tèεη nəŋsũu khuîn

Piti be about to write book SPFV (ascend)

Piti might write a/the book (to its maximality).

b. [ABOUT TO [MAX [Piti write book]]]

(83) Informal representation of the AC in (82)



According to Hypothesis 1, *khûn* - SPFV(ascend) is an aspectual modifier and it can only modify a *full-verb phrase*, not the VP headed by *càʔ*, which is a *partial-verb phrase*. The index [3] appears on the mother node in (83) because *càʔ*'s meaning has the widest scope in (82). The figure in (83) reads “*càʔ* outscopes the VP, which is itself modified by the semi-perfective marker *khûn* ‘ascend’”.

Among pre-VP TAMs, the progressive morpheme *kamlan* behaves differently. As discussed in 3.3, the progressive morpheme by itself is not compatible with two predicate-like TAMs: *sèd* ‘finish’, *còb* ‘end’ since *sèd* and *còb* turn events encoded by the base VPs they modify into achievements, and achievements are incompatible with *kamlan*. But *kamlan* can co-occur with *sèd* ‘finish’ or *còb* ‘end’ when *càʔ* is present, as shown in (84)-(88).

(84) *Piti kamlan tɛɛŋ nəŋsũu səd/còb

Piti PROG write book finish/end

(Intended meaning: #[PROG [finish [Piti write book]]] = Piti is finishing writing a/the book.)

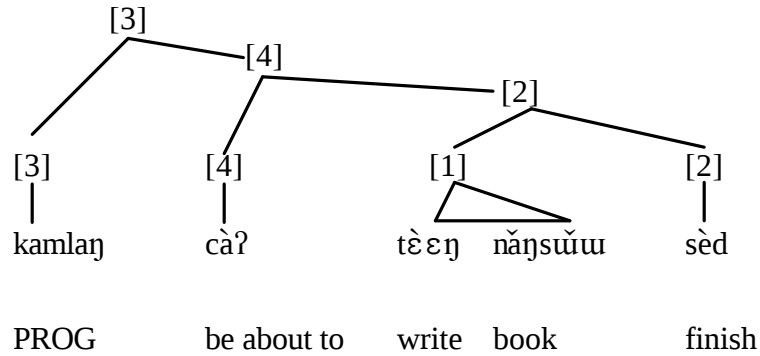
(85) Piti kamlan càʔ tɛɛŋ nəŋsũu səd/còb

Piti PROG be about to write book finish/end

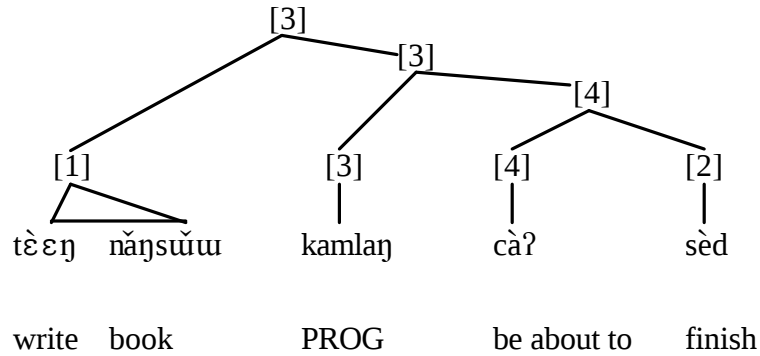
Piti is going to finish writing a/the book.

- (86) Piti kamlaŋ tɛɛŋ nəŋsũu cəʔ sɛd/còb
 Piti PROG write book be about to finish/end
 Piti is going to finish writing a/the book.

(87) Informal representation of (85)



(88) Informal representation of (86)



In (87), *cəʔ*, tagged with [4], must be the semantic head of the constituent *cəʔ tɛɛŋ nəŋsũu sɛd* in order to allow *kamlaŋ* to combine with the base VP modified by *sɛd* ‘finish’, since *kamlaŋ* by itself does not allow this combination. Sentence (86) is an instance in which *kamlaŋ* and *cəʔ* occur after the base VP, but semantically (86) does not differ from (85) and (86) is informally represented in (88). In (88), the base VP *tɛɛŋ nəŋsũu* is in the immediate scope of *sɛd* ‘finish’, although *sɛd* ‘finish’ by itself is the

syntactic complement of *càʔ* and *càʔ sèd* is, in turn, the syntactic complement of *kamləŋ* - PROG. I will discuss more how the composition proceeds in (88) in the next section.

In conclusion, we have seen that scope relations among Thai aspect morphemes are quite complex. Moreover, although syntactic rules for combinations of TAMs predict numerous scopal ambiguities, only few ambiguities actually arise due to the constraint that aspectual modifiers only modify *full-verb phrases*. Other than that, semantic compatibility among aspect morphemes, in particular the progressive and predicate-like TAMs, plays a significant role in determining possible scope relations.

In the next section, I provide a formal model of Thai Aspectual Constructions.

4.4 Formalization of Thai Aspectual Constructions

Regardless of whether aspect morphemes in Thai are heads or modifiers, they select the categories of the expressions they combine with via either the Head-Complement or Head-Adjunct Schema. In HPSG, the part of speech is represented as the value of the HEAD feature, which determines the category of the phrase of which a linguistic element is the head, and, therefore, is crucial for syntactic selection. To illustrate the part-of-speech information in HPSG format, I provide in (90) and (91) simplified entries which indicate the categorial traits of *rə̀əm* ‘start’, a *main-full-verb*, and *kamləŋ* - PROG, a *partial-verb* respectively.

(89) [HEAD *main full - verb*]

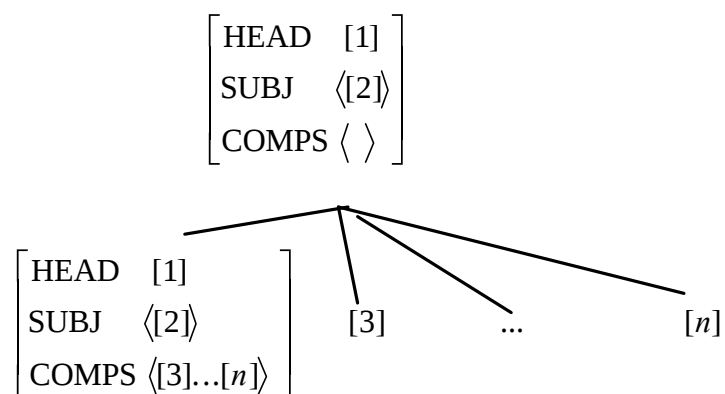
(90) [HEAD *partial - verb*]

4.4.1 Syntactic Representations

In this section, I discuss in detail the syntactic rules or schemata used to combine elements in ACs. I argue that, despite the complexity of Thai Aspectual Constructions, only two major schemata are involved in ACs. The first one is the *Head-Complement* schema (cf. Pollard and Sag, 1994), which is used to combine pre-VP TAMs with their complements. The second one is the *Head-Adjunct* schema (cf. Pollard and Sag, 1994).

Head-Complement schema

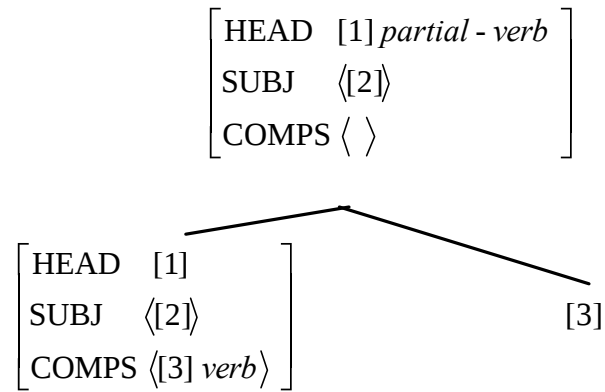
A head combines with the element(s) it subcategorizes for via the *Head-Complement* schema. This schema is illustrated below:



An instance of the *Head-Complement* schema with a *partial-verb* pre-VP TAM as the head, is illustrated¹² below:

¹² For representational purpose, the HPSG's AVM structures are simplified and contain only the relevant information.

(91)



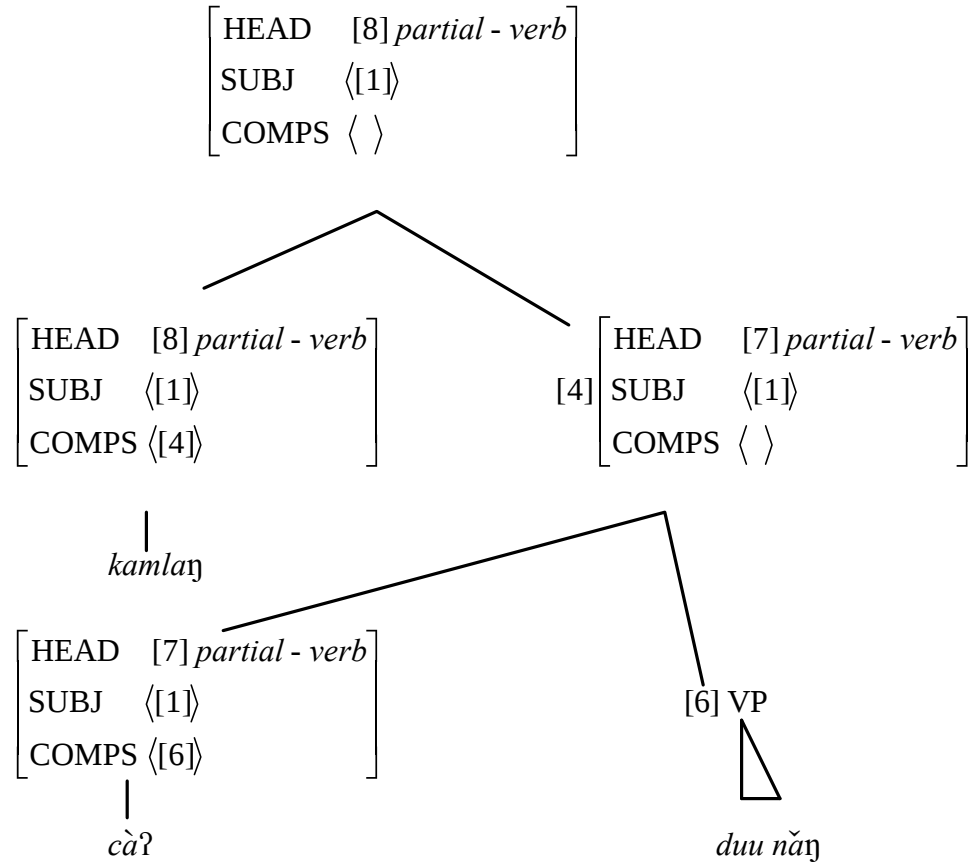
In ACs, the *Head-Complement* schema is needed to combine a pre-VP TAM (either an *full-verb* or a *partial-verb* one) with its complement, which is a phrase headed by a *verb*. Note that I specify that the complement of a pre-VP TAM must be of the type *verb*, and not *full-verb*, to allow the occurrence of more than one pre-VP TAM, as in sentence (92), whose simplified structure is shown in (93).

(92) Dara kamlan cǎ? duu nǎŋ

Dara PROG be about to watch movie

Dara is going to watch a movie.

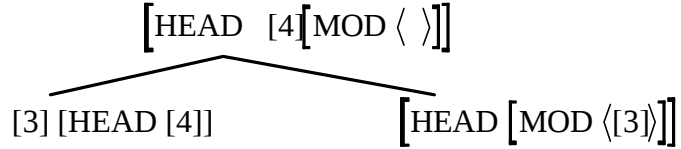
(93)



In (93), *ça?* combines with the base VP *duu năŋ* ‘watch movie’, and the constituent *ça?* *duu năŋ* is headed by the *partial-verb* *ça?*. Therefore *ça?* *duu năŋ* is a *partial-verb* phrase. Since the valence properties of the pre-VP TAM *kamlan* only require that it combine with constituents of the type *verb*, and leave open whether it is a *full-verb* or a *partial-verb*, *kamlan* can combine with *ça?* *duu năŋ*, whose head is a *partial-verb*. Furthermore, by specifying that the complement of a pre-VP TAM must be of the type *verb*, we can correctly rule out markers to occur as complements of pre-VP TAMs.

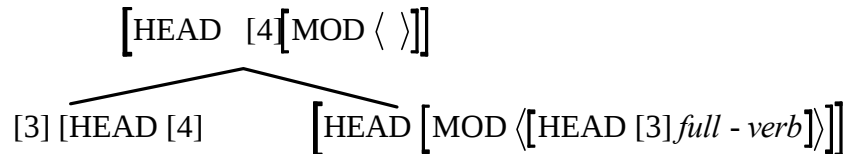
Head-Adjunct schema

A modifier combines with the element it modifies via the *Head-Adjunct* schema, illustrated below:



In the *Head-Adjunct* schema, the MOD(IFIED) feature is used to capture the idea that adjuncts or modifiers are functions that take heads as arguments. The MOD feature allows the modifier to select the syntactic category of the element it modifies (i.e., its head). Through the MOD feature, an adverb can specify that it modifies a VP, for example. Note that I assume that for Thai, a verb phrase which can enter the Head-Subject Schema must be [MOD < >], i.e., the value of its MOD feature of must be an empty list. This is to prevent a verb phrase which contains only aspect-marking elements and has a non-null value of MOD, but lacks the base VP, from combining with the subject via the Head-Subject Schema to form a sentence (see below for more details).

An instance of the *Head-Adjunct* schema in which an aspectual modifier (a predicate-like or a post-VP TAM) occurs is shown below:



As discussed in the last section, Thai aspectual modifiers take heads of type *full-verb* as their arguments; that is, they select *full-verb* phrases as their modified elements. This hypothesis predicts the ambiguity of sentences such as (73), repeated below.

(94) Wira rêəm kèʔ māj sèd

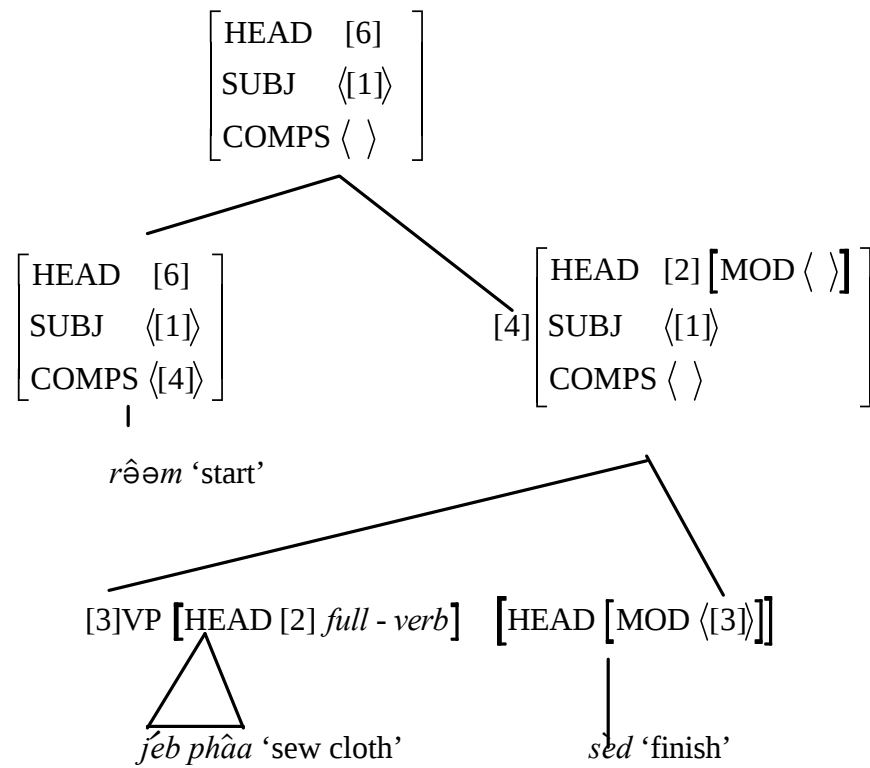
Wira start carve wood finish

a. Wira started to finish carving wood.

b. Wira finished starting to carve wood.

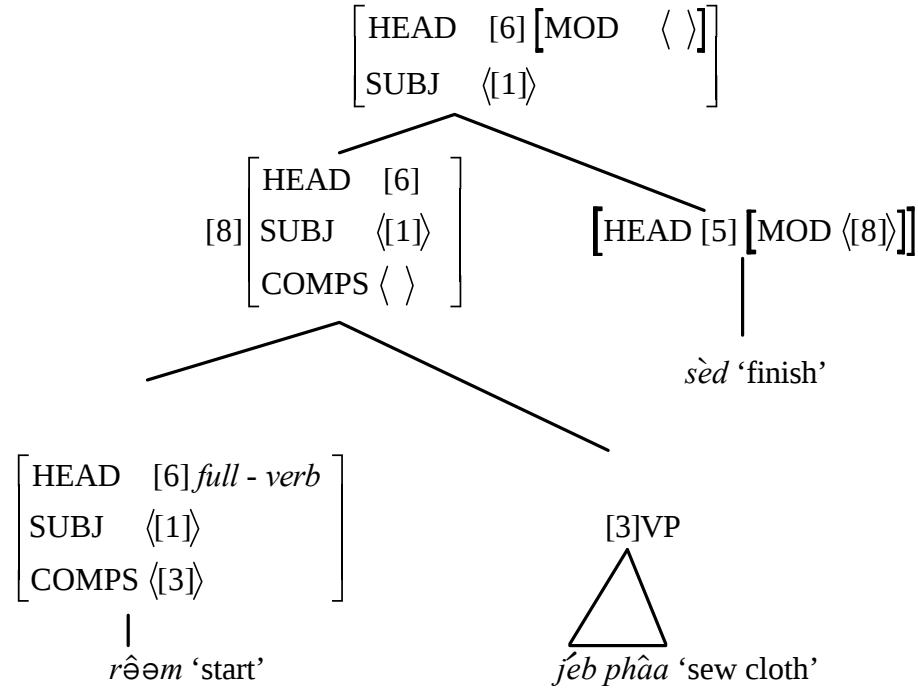
Sentence (94) has two syntactic structures, as illustrated in (95)-(96).

(95) Syntactic structure of the reading (94a)



In (95), *sèd* ‘finish’ modifies the base VP *jéb phâa* ‘sew cloth’. Then¹³, *jéb phâa sèd* becomes the complement of *rêøm* ‘start’, yielding the reading (94a) in which *rêøm* has widest scope.

(96) Syntactic structure of the reading (94b)



On the other hand, in (96), *sèd* modifies the VP tagged [8], which is a *full-verb* phrase since its head, *rêøm* ‘start’, is a *full-verb*. This yields the interpretation (94b), in which *sèd* ‘finish’ has widest scope.

Thai ACs are generated by applying one or more of the Head-Complement and Head-Modifier schemata. Below, I illustrate through a few derivations how the mentioned schemata sanction only the grammatical sentences.

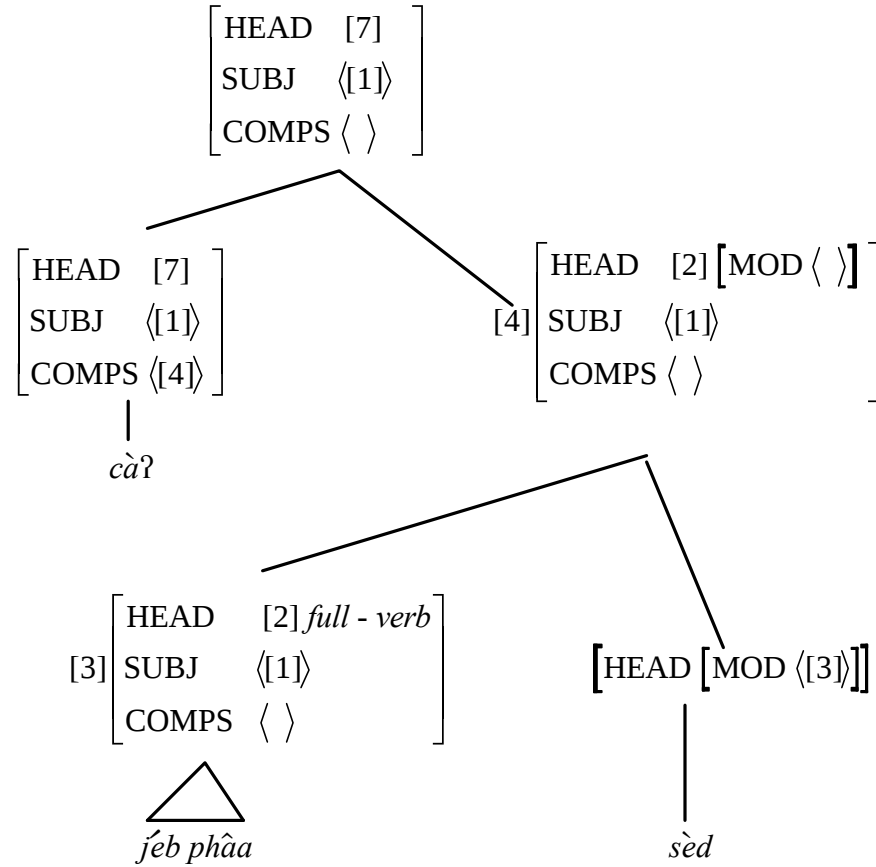
¹³ Note that transitional expressions such as “then” and “next” are used here in a logical sense, and do not

(97) Wilaj cà? jéb phâa sèd

Wilaj be about to sew cloth finish

Wilaj was about to finish sewing cloth.

(98)



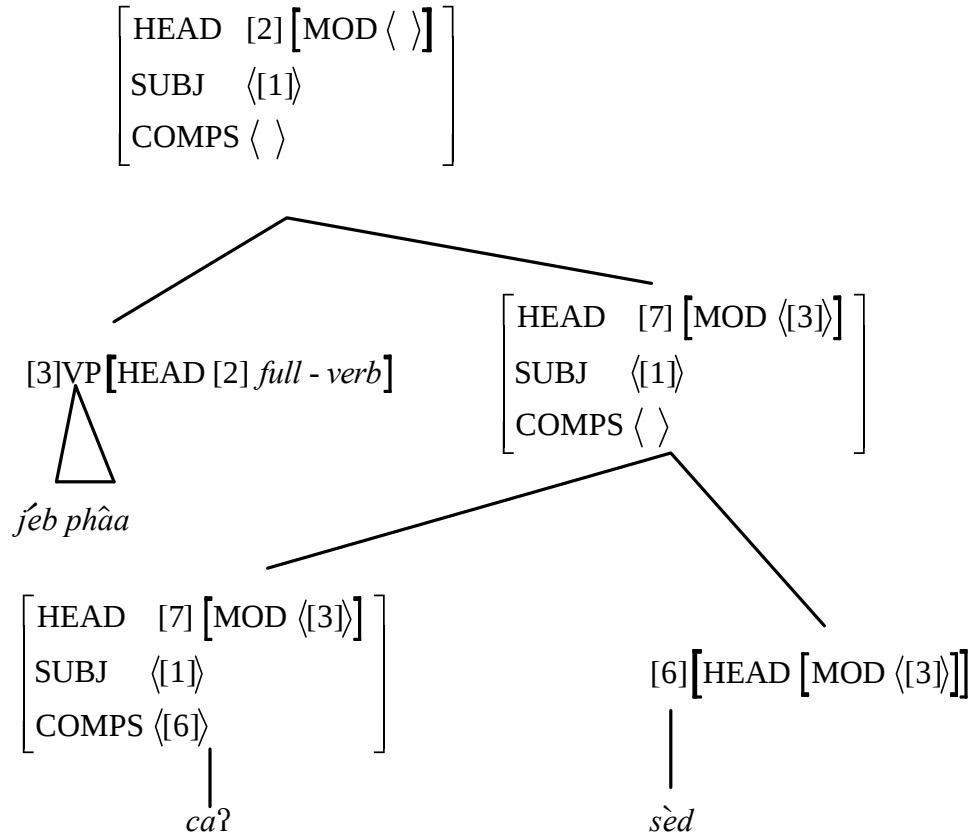
In (98), the base VP *jéb phâa* ‘sew cloth’ combines with the modifier *sèd* ‘finish’ through the *Head-Modifier* schema. The VP *jéb phâa*, tagged [3], which is the head daughter, passes up its HEAD value (i.e. [2]: the *full-verb* category of *jéb* ‘sew’) and its SUBJ and COMPS specifications to the mother node, tagged [4], via the Head Feature and Valence

Principles (cf. Chapter 1). Then, the *partial-verb* TAM *cà?* ‘be about to’ combines with [4]: *jéb phâa sèd* via the *Head-Complement* schema. In other words, the value of the COMPS feature of the head *cà?* ‘be about to’ is satisfied by the phrase *jéb phâa sèd*, tagged [4]. The value of COMPS of the topmost mother node in (98) is, therefore, null according to the Valence Principle, which cancels off the elements in the SUBJ or COMPS lists once such elements are combined with the head.

The derivation of the AC in (99), in which *cà?* occurs after the base VP, is shown in (100).

- (99) Wilaj jéb phâa cà? sèd
 Wilaj sew cloth be about to finish
 Wilaj was about to finish sewing cloth.

(100)



In (96), the *partial-verb* TAM *cà?* combines with *sèd* ‘finish’ via the Head-Complement schema. Since *sèd* ‘finish’ belongs to the part of speech *verb*, it can satisfy the valence requirement of *cà?* ‘be about to’. It should be noted that *cà?* has a non-empty list in its MOD value¹⁴. This is due to a constraint on the lexical class of verbs whose HEAD value is *partial-verb* that they share their MOD value with that of their complements (see below for more details). In this case, *sèd* ‘finish’, which complements *cà?*, is [MOD [3]] and is shared with the head it complements. The motivation for this stipulation comes from the

¹⁴ All headed constituents have a MOD feature, but most often their values are *none*.

fact that although *càʔ sèd* form a constituent, this aspectual phrase is by itself not grammatical and still needs to combine with the base VP. In other words, the phrase *càʔ sèd* cannot enter the Head-Subject Schema since it contains a non-empty MOD list, meaning that *càʔ sèd* still needs to modify something. But, because of the MOD feature of *càʔ sèd*, the constituent *càʔ sèd* is able to combine with the base VP through the Head-Modifier schema.¹⁵

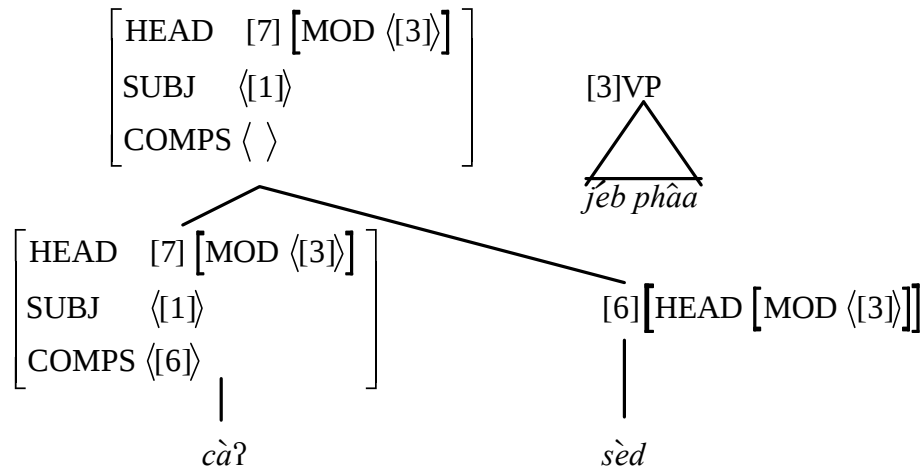
Sentence (101) is ungrammatical because the MOD feature of the constituent *càʔ sèd* does not find its modified element. Since the modified element must occur to the left of (i.e. before) the modifier in Thai, the base VP *jéb phâa* in (101) cannot satisfy the MOD feature of *càʔ sèd* because the base VP occurs to the right of *càʔ sèd*, as shown in (102).

(101) *Wilaj càʔ sèd jéb phâa

Wilaj be about to finish sewing cloth.

¹⁵ For the semantic composition of sentences such as (100) in which “function composition” is needed, see Koenig and Muansuwan (In Preparation).

(102) *



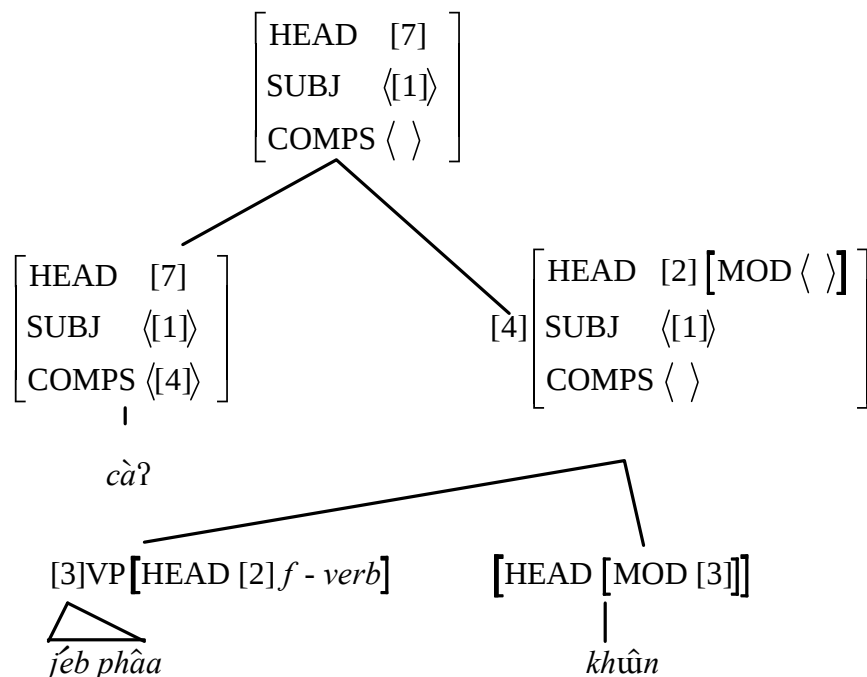
Next, I illustrate ACs containing both pre-VP and post-VP TAMs. The derivation of (103), is similar to (102) except that the aspectual modifier in this case is *khûn* SPFV(ascend), a *marker*.

(103) Wilaj cà? jéb phâa khûn

Wilaj be about to sew cloth SPFV(ascend)

Wilaj is going to sew the cloth.

(104)



Contrary to (103), sentence (105) is ungrammatical because *khûn* cannot satisfy the subcategorization requirement of *cà?*, since it is not a *verb* but a *marker*. Furthermore, the base VP *jéb phâa* which occurs before *cà?* cannot be the complement of *cà?* since complements follow heads in Thai.

(105) *Wilaj jéb phâa kamlan cà? khûn

Wilaj sew cloth PROG be about to SPFV(ascend)

In conclusion, despite the occurrences of aspect morphemes in Thai ACs both before and after the base VP, we only need two universal schemata to model the syntactic structures of Thai ACs, the *Head-Complement* schema and the *Head-Modifier* schema. In the next section, I formalize the scope relations of TAMs in ACs.

4.4.2 Scope relations in Thai Aspectual Constructions

In this section, I provide an account of scope relations among TAMs. To model the fact that an aspect morpheme has within its scope a constituent in an Aspectual Construction, I assume that the former takes as its semantic argument the HN^{DL}¹⁶ of the latter. The semantic head status of an aspect morpheme is represented by identifying the INDEX and KEY of the mother of a phrase with those of the aspect morpheme. To illustrate this, consider example (70), repeated below.

(106) Dara phêŋ láaŋ caan sèd

Dara POST-INC wash dish finish

Dara has just finished washing dishes.

In (106), the post-inchoative meaning of *phêŋ* has widest scope and sentence (106) talks about the moment *right after* *Dara* finished washing the dishes (and not the finishing moment). To formalize this, the simplified semantic representations of *phêŋ* - POST-INC and *sèd* ‘finish’ are shown in (107)-(108).

(107) Simplified semantic representation of *phêŋ* - POST-INC

$$\left[\begin{array}{c} \text{INDEX [2]} \\ \\ \text{KEY} \left[\begin{array}{c} \text{POST-INC}_{rel} \\ \text{HNDL } u \\ \text{EVENT [2]} \\ \text{ARG } p \end{array} \right] \end{array} \right]$$

¹⁶ Recall that the feature HN^{DL} is used to identify individual elementary predications (EPs). See 1.4.2 for the description of HN^{DL}.

(108) Simplified semantic representation of *sèd* ‘finish’

$$\left[\begin{array}{l} \text{INDEX [3]} \\ \text{KEY} \left[\begin{array}{ll} \text{finish_rel} \\ \text{HNDL} & v \\ \text{EVENT} & [3] \\ \text{ARG} & t \end{array} \right] \end{array} \right]$$

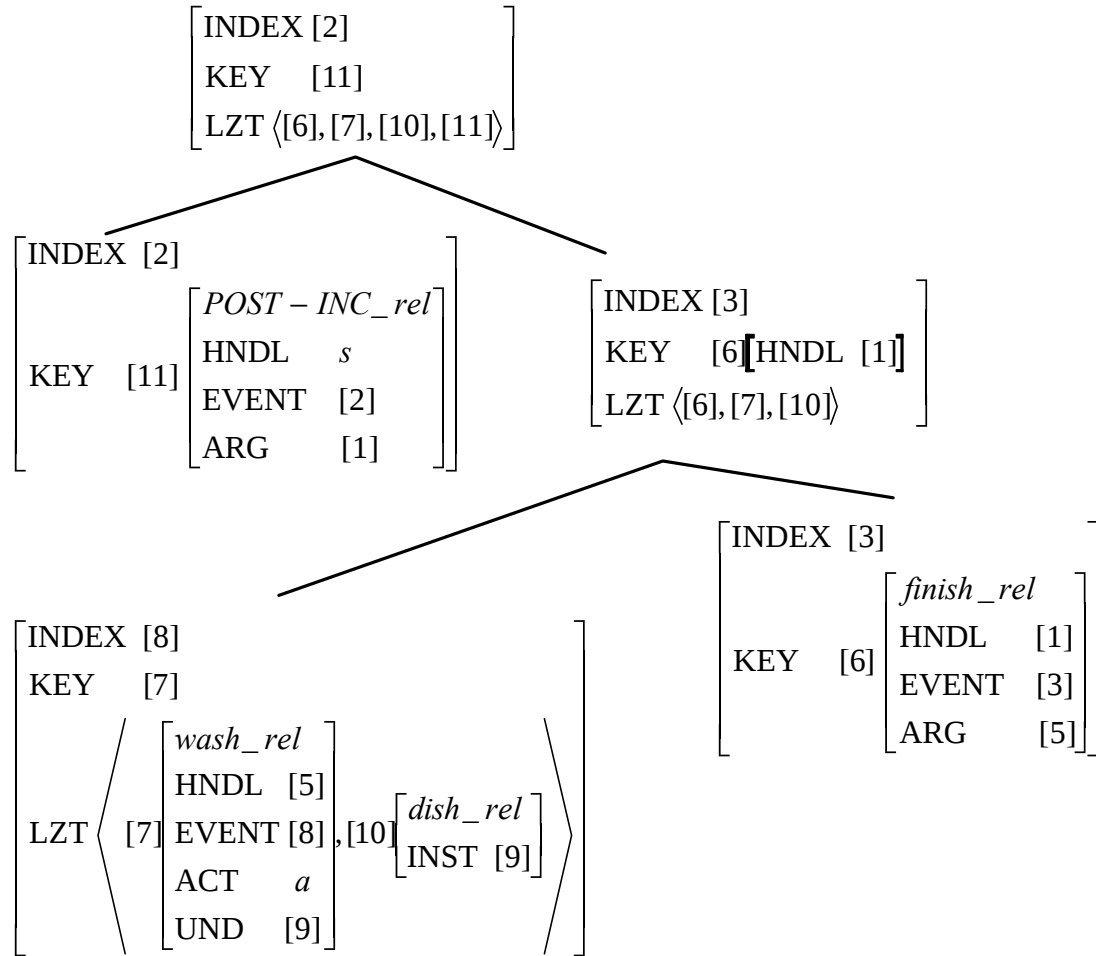
The semantics of lexical entries for *phêŋ* and *sèd* are composed of an INDEX and a KEY.

The KEY attribute of an aspect morpheme comprises an EVENT and an ARG attributes.

The value of EVENT denotes the eventuality that an aspect morpheme introduces. The value of ARG refers to the situational semantic argument of an aspect morpheme.

The semantic representation of the VP in (106) is shown in (109).

(109) Simplified semantic representation of the VP in (106) (presented in its constituent-structure tree)



The value of the LZT attribute contains a concatenated list of all EPs (elementary predications) of a constituent, regardless of whether such constituent is a head-complement or a head-modifier structure. The semantic composition in (109) crucially follows Hypothesis 2 in 4.3.2.1 which states that aspect morphemes which are syntactic heads have scope over their complements, and aspect morphemes which are syntactic modifiers have scope over their heads. In (109), the aspectual modifier *sèd* ‘finish’ outscopes and takes as semantic argument the event of washing dishes, as shown by the fact that the HNDL of the

dishwashing event ([5]) is the ARG(UMENT) of *sèd*. *Sèd* is also the semantic head of the phrase *láaŋ caan sèd* ‘finish washing dishes’, as indicated by the fact that the INDEX [3] and the KEY [6] from *sèd* becomes the INDEX and KEY of the mother node¹⁷. Then, *phêŋ* - POST-INC, which takes a VP as its complement, takes as its semantic argument the HNDL [1] of the phrase *láaŋ caan sèd* ‘finish washing dishes’ itself, identified with that of *sèd* ‘finish’. This combination *phêŋ* + *láaŋ caan sèd* yields the meaning of (106) where *phêŋ* has scope over *sèd* ‘finish’. Finally, the semantic head status of *phêŋ* - POST-INC is illustrated by the fact that its KEY and INDEX values become the values of the corresponding attributes in the topmost mother node of the tree in (109).

To sum up, I employ the attribute HNDL, which is used in Minimal Recursion Semantics (MRS) to identify the predication that a linguistic element encodes, to model scope relations among TAMs in ACs. I assume that an aspect morpheme takes as its semantic argument (i.e. takes as the value of its ARG attribute) the HNDL value of the constituent it has scope over. Under this assumption, we can straightforwardly model scope relations in Thai ACs based on the head or modifier status of aspect morphemes, and the lexical semantics constraint on the combination of the progressive morpheme and *sèd* ‘finish’ or *còb* ‘end’.

¹⁷ See Copestake et al. (2001) for a similar proposal regarding modifiers in head-modifier structures.

4.5 Conclusion

In this chapter, I have shown that Thai aspect morphemes belong to two different major parts of speech in Thai: *verbs* and *markers*. These two parts of speech, however, do not suffice to capture the different properties of TAMs, and two subtypes of verbs, *partial-verbs* and *full-verbs*, are needed. This part-of-speech classification can explain the distribution of TAMs with respect to negations, as well as constraints on scope interpretations in ACs (see the hypothesis that aspectual modifiers only modify *full-verb phrases*). We have also seen that TAMs, as event description modifiers, can be syntactically realized in two ways: either through a head-complement or a head-modifier structure. This syntactic realization does not correlate with the part-of-speech classification of TAMs, but is predictable from their positions, i.e. whether they can precede or must follow a verb phrase. Regardless of whether TAMs are syntactically realized as heads (in the head-complement structure) or as modifiers (in the head-modifier structure), they are always the semantic heads of their local trees in the sense that they outscope the basic event description encoded by the VP they combine with. I argue that despite the potentially large number of scope ambiguities of combinations of TAMs, scope interpretations in most ACs are not ambiguous because of the requirement that predicate-like and post-VP TAMs modify *full-verb phrases* and the lexical semantics of certain TAMs. Finally, I showed that scope relations in ACs can be modeled in MRS through the use of HNDL values to refer to elementary predications that become semantic arguments of aspect morphemes.

Chapter 5

Adjoining Constructions

5.1 Introduction

In this chapter I discuss Adjoining Constructions (AJCs) in Thai, which are somewhat similar to Resultative Constructions (RCs) in English and have traditionally been analyzed as Resultative Serial Verb Constructions (Thepkanjana, 1986), although the range of resulting verbs and control relations that Thai AJCs allow is broader. Thai Adjoining Constructions belong to the class of what I call “Sequential Constructions”. A Sequential Construction consists of a sequence of verbs which share at least one argument and encode eventualities that occur in sequence. Examples of Sequential Constructions are:

- (1) Narii luún hòklóm
 Narii slide fall down
 Narii slid and fell down.
- (2) Narii súuu nǎṅsuuu ʔàan
 Narii bought book read
 Narii bought a book to read.

Thai Adjoining Constructions are a subset of Sequential Constructions. An example of Thai AJCs is shown in (3). I provide an example of the English Resultative Construction in (4) to compare with (3).

(3) Thai Adjoining Construction

Malii kwàad bâan saʔaad

Malii sweep house clean

Malii swept the house clean.

(4) English Resultative Construction

Mary swept the house clean.

Thai AJCs exhibit a wide range of possibilities in what can be a resulting verb.¹ For example, with respect to the same verb *kin* ‘eat’, two resulting verbs and two control relations are possible, as shown in (5)-(6).²

(5) Nikorn kin khâaw ʔm

Nikorn eat rice be full

Nikorn ate rice (until he was) full.

(6) Nikorn kin khâaw mòd

Nikorn eat rice be gone

Nikorn ate rice (until it was) gone.

¹ I write the resulting verb in *italics* and underline the NP of which the resulting verb is predicated.

² This type of pragmatic control relation is also found in Mandarin Chinese. See Ng (1997) for a study of Mandarin *de* sentences (manner and extent) in Role and Reference Grammar. The following examples from Ng (1997:43) are comparable to the Thai sentences (5)-(6).

- i. Ta shao zhū-ròu shao-de hěn lèi
3sg roast pig-meat roast-extent very tired
S/he roasted the pig to the point that s/he was very tired.
- ii. Ta shao zhū-ròu shao-de hěn yìng
3sg roast pig-meat roast-extent very hard
S/he roasted the pig to the point that it was very hard.

In this chapter, I argue that Thai AJCs and English Resultative Constructions differ in the resulting verbs and control relations the two constructions allow. First, the resulting verbs in Thai AJCs merely encode “expected” results. Second, the phrase-structural configuration of AJCs does not determine the control relations they allow.

This chapter proceeds as follows. First, I compare Adjoining Constructions to conjoined clauses in Thai and point out their similarities and differences. Second, I describe constraints on the resulting verbs and control relations in Thai AJCs. Third, I review major analyses of English Resultative Constructions and point out the differences between English RCs and Thai AJCs. By pointing out the possible semantic modification of the resulting verbs by negation or modal markers, I demonstrate that Thai AJCs are indeed not the parallel of English Resultative Constructions. Fourth, I describe the semantic relations which hold between the first or matrix verb and the resulting verb in Thai Adjoining Constructions. Finally, I present a syntactic analysis of Thai Adjoining Constructions and provide their formal representations at the end of the chapter.

5.2 Data

There are two subsets of sequential Constructions in Thai: Ordinary Sequential Constructions and Adjoining Constructions. In both subtypes, the first verb phrase encodes the event that precedes the event coded by the resulting verb. These two subtypes only differ in that whereas there can be **no** interval of time between the temporal traces of the events described by the verbs in AJCs, there can be an interval of time between the events described by the verbs in Ordinary Sequential Constructions. In other words, the temporal trace of the eventuality denoted by the first verb in Adjoining Constructions **necessarily**

abuts or overlaps with the temporal trace of the second verb, while the temporal traces of the first and second verbs in Ordinary Sequential Constructions need not abut or overlap.

This is shown in (7)-(8).

(7) Ordinary Sequential Construction

Prapha hǎa nǎŋsǔu ʔaan

Prapha seek book read

Prapha sought a/the book to read.

(8) Adjoining Construction

Prapha hǎa nǎŋsǔu phób

Prapha seek book find

Prapha sought the book until she found (it).

In (7), the eventualities of seeking and reading a book do not necessarily abut or overlap. *Prapha* could seek a book to read it later, in fact the event of reading a book might not even actually occur. On the other hand, both the events of seeking and finding a book must have occurred for (8) to be felicitous, and the two events abut each other. In the following sections, I discuss the similarities and differences between Thai Adjoining Constructions and conjoined clauses, as well as the selectional restrictions and control relations that characterize Thai AJs.

5.2.1 Adjoining Constructions and Conjoined Clauses ³

In this section, I show that adjoining constructions can be distinguished from conjoined clauses either by the realization of subject anaphors or by pragmatic inference.

In Thai, certain syntactic elements can sometime be left out, provided that they are inferable from the context. The possible absence of conjunction in conjoined clauses makes certain AJCs indistinguishable from conjoined clauses. In the following example, the conjunction /ɛ́? ‘and’ can be left out from the conjoined clauses, as shown in (9b).

- (9) a. mûakhuuunníi Nicha tênram lɛ́? duu naŋ lɛ́? faŋ
 last night Nicha dance and watch movie and listen
 pleŋ con dùkduèn
 music until late
 Last night, Nicha danced and watched the movie and listened to music until
 late.
- b. mûakhuuunníi Nicha tênram duu naŋ faŋ pleŋ
 last night Nicha dance watch movie listen music
 con dùkduèn
 until late
 Last night, Nicha danced, watched the movie, listened to music until late.

One might, then, think that at least some of what I call AJCs are in fact not different from a sequence of conjoined clauses with the conjunction left out. Thai AJCs clearly differ from

³ See Wechsler and Noh (To Appear) for an investigation of *predicative resultatives* and *clausal resultatives* in Korean, in which they too use null anaphors to distinguish between the two kinds of

conjoined clauses when the antecedent of the subject of the resulting verb is the direct object of the matrix verb, as illustrated in the following examples.

- (10) a. Nikorn pàw thian lɛʔ thian/man dab
 Nikorn blow candle and candle/it become extinguished
 Nikorn blew the candle, and the candle/it became extinguished.
- b. *Nikorn pàw thian lɛʔ dàb
 Nikorn blow candle and become extinguished
- (11) a. Nikorn paw thian thian/man dab
 Nikorn blow candle candle/it become extinguished
 Nikorn blew the candle, the candle became extinguished.
- b. Nikorn pàw thian dàb
 Nikorn blow candle become extinguished
 Nikorn blew the candle out.

The sentences in (10) are conjoined clauses. In (10), the grammatical subject of the verb in the second clause is *thian* ‘candle’, which differs from the subject of the first clause, *Nikorn*. In this case, the realization of the subject of the second clause, as a pronoun or an NP, is obligatory, as illustrated by the ungrammaticality of (10b). This contrasts with sentences in (11), in which the realization of the grammatical subject of the second verb is optional, as shown in (11b). It is therefore not possible to analyze (11b) as an instance of unmarked conjunction. And I call the constructions as in (11b) Adjoining Constructions.

However, the same line of argument does not apply when the subjects of the first and second clauses are the same since, in this case, the realization of the subject of the second clause is optional for conjoined clauses as well, as shown in (12).

- (12) Nikorn kin khâaw lɛʔ (Nikorn/khăw) ʔim
 eat rice and (Nikorn/he) be full
 Nikorn ate rice (and) he was full.

- (13) Nikorn kin khâaw ʔim
 eat rice be full
 Nikorn ate rice (until he was) full.

Moreover, as I just discussed, the conjunction *lɛʔ* ‘and’ can be left out from (12). There can therefore be a variant of (12) which is sting-equivalent to (13), which is an AJC. It is, therefore, not obvious how to distinguish between conjoined clauses such as (12) and AJCs such as (13). But what I call AJCs are in fact distinct from ordinary conjoined clauses in their interaction with certain time adverbial phrases, as I now show.

When the time adverbial phrase *naj sǎam naathii*⁴ ‘after/in three minutes’ combines with an Adjoining Construction, no ambiguity occurs.⁵ But ambiguities arise when *naj sǎam naathii* combines with conjoined clauses. This is illustrated below:

⁴ This adverbial phrase means “the eventuality X holds after three minutes”, where X represents the meaning of the verb this adverbial phrase has scope over. *Naj sǎam naathii* is similar to the meaning of adverbial phrases headed by *dans* in French (*naj sǎam naathii* = *dans trois minutes*).

⁵ Note that when *naj sǎam naathii* combines with Ordinary Sequential Constructions, no ambiguities arise. But the scope of *naj sǎam naathii* in Ordinary Sequential Constructions is different from that in AJCs, as illustrated below:

(14) Conjoined clauses

naj sǎam naathii Nikorn kin khâaw lɛ́ʔ (Nikorn/khǎw) ʔim

in three minute Nikorn eat rice and (Nikorn/he) be full

After three minutes, Nikorn ate rice and he was full.

(15) Adjoining Construction

naj sǎam naathii Nikorn kin khâaw ʔim

in three minutes Nikorn eat rice be full

Nikorn ate rice until he was full in three minutes.

Sentence (14) is ambiguous between a reading in which *Nikorn* started eating after three minutes and a reading in which he reached the resulting state of being full after three minutes. However, in (15), no such ambiguity occurs. Sentence (15) only means that *Nikorn* reached the state of being full after three minutes. Note that there is a variant of (14), in which *lɛ́ʔ* is omitted and which is string-equivalent to (15). Nonetheless, I argue that sentences such as (15) are perceived as distinct from this variant of (14). Namely, for a Thai speaker, the sequence of verbs in (15) denotes something which is perceived as one single complex event and not two separate events, and the endpoint of such complex event is at the resulting state. This explains why although there is a variant of (14) which is not grammatically distinguishable from (15), (15) can be distinguished from (14) on pragmatic grounds. In other words, speakers do not access (15) as an instance of reduced conjoined

(i)	<i>naj</i>	<i>sǎam</i>	<i>naathii</i>	Malii	súuu	nǎjsúuu	ʔaan
	in	three	minutes	Malii	buy	book	read
	After three minutes, Malii bought a book to read.						

Sentence (i) only means that after three minutes, the beginning of the sequence of buying a book to read took place.

clauses, but as a single clause. As a result, the ambiguities associated with sentences with conjoined clauses do not arise in AJCs such as (15).

5.2.2 Selectional Restrictions of Thai Adjoining Constructions

In Thai Adjoining Constructions, main verbs or matrix verbs (V1) which occur initially in the sequence of verbs⁶ can be accomplishment, achievement or activity verbs, but not state verbs, as shown below:

(16) Accomplishment

	V1	V2
<u>Prapha</u>	kin	khâaw ?im
Prapha	eat	rice be full
Prapha ate rice until she was full.		

(17) Achievement

	V1	V2
<u>khùad</u>	rabèød	tèεk
bottle	explode	break
The bottle exploded (and became) broken.		

⁶ Although most AJCs contain sequences of two verbs, more than two verbs can occur in AJC sequences. Instances of AJCs which contain more than two verbs can be found in 5.3.3.2.

(18) Activity

V1 V2

chǎn wîŋ nuàj

I run be tired

I ran until I was tired.

(19) State

V1

V2

*Prapha chuâa ruâaŋ pǃi klua

Prapha believe issue ghost be feared

(Intended meaning: Prapa believed in ghost until she was afraid.)

Verbs that can occur in V2 position are usually verbs which denote eventualities that can be interpreted as being the expected result of the eventuality denoted by V1. V2 in adjoining constructions can be state, accomplishment or achievement verbs.

(20) V2= State

Prapha kin khaaw ʔim

Prapha eat rice be full

Prapa ate rice until she was full.

(21) V2= Accomplishment

Phon tii ɲuu *taaj*⁷

Phon hit snake die

Phon hit the snake dead.

(22) V2= Achievement

Nikorn hǎa khǒɔŋ-khwǎn *phób*

Nikorn seek present find

Nikorn sought the present and found (it).

When an activity verb occurs in V2 position in a Sequential Construction, there is no requirement that the temporal traces of the two verbs abut or overlap, and this results in a different kind of meaning, i.e. a purposive meaning, as in (7) and in the following example:

(23) V2= Activity → purposive meaning

Nikorn hǎa ɲaan tham

Nikorn seek work do

Nikorn sought a job to do.

⁷ The verb *taaj* 'die' in Thai is an accomplishment verb since it passes the tests for the class of accomplishment verbs (see Van Valin and LaPolla, 1997).

5.2.3 Control ⁸ in Thai Adjoining Constructions

Adjoining constructions in Thai allow several possible control relations, as shown below:

a) V2 is predicated of the subject of the matrix verb

(24) Traj kin khâaw ?im

Traj eat rice be full

Traj ate rice until he was full.

(25) Traj noon lăb

Traj lie down fall asleep

Traj lied down until he fell asleep.

b) V2 is predicated of the object of the matrix verb

(26) Prapha kin khâaw mōd

Prapha eat rice be gone

Prapa ate the rice up.

(27) Trai tii nuu taaj

Trai hit snake die

Trai hit the snake dead.

c) V2 is predicated of the indirect object of a ditransitive matrix verb

(28) mēε pōon nom lūuk ?im

mother feed milk child be full

The mother fed the milk to the child until the child became full.

⁸ By using the term “control” here, I refer to the phenomenon by which a non-matrix verb phrase with no overt subject is interpreted semantically as having some other NP in the sentence provide a referent for its unexpressed subject, and **not** to the class of control or “equi” verbs.

Although Thai Adjoining Constructions exhibit a wide range of possibilities in terms of both possible V2s and control relations, AJCs cannot be interpreted as having a depictive meaning, as (29) shows.

(29) Traj wîŋ nùaj

Traj run be tired

Traj ran to the point that he was tired.

*Traj ran while he was tired.

To convey the depictive meaning in the translation of (29), Thai uses another construction, illustrated in (30):

(30) Traj wîŋ tɔɔn nùaj

Traj run while be tired

Traj ran while he was tired.

Sentence (29) also shows that, apart from the constraint on temporal traces in AJCs, a causal relation⁹ is obligatorily present in AJCs as well. This causal relation states that the eventuality coded by V2 is an expected result of the eventuality coded by V1 (this issue is discussed in more detail in 5.3.4).

⁹ I argue, however, that it is a “weak” causal relation (see details below).

5.3 Analysis

5.3.1 Overview of Previous Analyses of English Resultative Construction

In this section, I provide a summary of analyses of the English Resultative Construction, to point out the similarities and differences between the Resultative Construction in English and Adjoining Constructions in Thai. English resultative constructions have often been analyzed in terms of unaccusativity,¹⁰ i.e. the resultative phrase (in *italics* in the examples) is assumed to be predicated of a deep object¹¹ (Simpson, 1983; Hoekstra, 1984; Levin and Rappaport Hovav, 1995), as shown in the following examples from English (examples (31)- (34) are from Wechsler (1997b)):

- (31) John hammered the metal *flat*. (transitive matrix verb)
- (32) The water froze *solid*. (unaccusative matrix verb)
- (33) *The dog barked *hoarse*. (*unergative matrix verb)
- (34) Robert ran *clear of the fire*.

Since the resultative phrase has to be predicated of a deep object, it can appear with transitive (31) or unaccusative (32) matrix verbs, but not unergative verbs, as (33) shows. However, because sentences such as (34), in which the resultative phrase is predicated of the subject of the matrix verb, are possible, the unaccusativity hypothesis has more recently been rejected (Van Valin, 1990; Wechsler, 1997b; Rappaport Hovav and Levin, 1999). I will look into the analyses of Van Valin (1990), Wechsler (1997b), and Rappaport Hovav and Levin (1999) and focus on the way each deals with resultative phrases which are predicated of the subject of the matrix verb.

¹⁰ For a semantic, constructional account of the English Resultative Construction, see Goldberg (1995).

In an analysis in Role and Reference Grammar (RRG), Van Valin (1990) claims that the Aktionsart classes of matrix verbs can explain possible control relations in English RCs. Normally, matrix verbs that allow resultative phrases are either accomplishment or achievements, all of which have a **result state** as part of their inherent meaning (Van Valin 1990:255). For example, *Terry wiped the table clean* has the following LS (Logical Structure):

(35) [wipe' (Terry)] CAUSE [BECOME **clean**' (the table)]

In the LS in (35), which is the semantic representation of *Terry wiped the table clean*, the verb *wipe* is complex, and is decomposed into the causing part (CAUSE) and the result part (BECOME **predicate**') in the LS. *Clean* is predicated of *the table*, as represented in the result part of the LS, i.e. following BECOME.

RRG also posits that in certain contexts verbs belong to different Aktionsart classes than that of their basic lexical meanings (Van Valin and LaPolla, 1997). Thus, the contrast between *Robert ran* and *Robert ran clear of the fire* can be viewed as an alternation between an activity and an accomplishment version of **run**. As pointed out in Van Valin and LaPolla (1997:99), if the motion has a definite goal, then the verb behaves like an accomplishment verb, and thus includes an inherent result state.

Wechsler (1997b) proposes that there exist two types of RCs in English:

- a. Control Resultatives: Resultative constructions whose resultative phrase is predicated of a semantic argument of the matrix verb. Examples of Control Resultatives include (31), (32) and (34). The resultative phrase in Control Resultatives is predicated of the object or subject of the matrix verb depending on the semantics of the matrix verb.

¹¹ This principle is also called DOR - Direct Object Restriction by Levin and Rappaport Hovav (1995).

b. ECM (Exceptional Case Marking) Resultative: English also has RCs which contain a resultative phrase whose subject of predication is NOT a semantic argument of the matrix verb. Examples of ECM Resultatives are:

(36) The dog barked itself *hoarse*. ('fake reflexive')

(37) Mary ran the soles *off her shoes*.

ECM Resultatives are not common across languages. For examples, Korean has Control Resultative Constructions but lacks ECM Resultatives (Wechsler and Noh, to appear). According to Wechsler, Control Resultatives are subject to semantic sortal restrictions imposed by the matrix verbs. In other words, what can occur in the resulting verb is restricted, as illustrated by the following examples:

(38) Sally painted the door *red/*beautiful/*noticeable*.

(39) John hammered the metal *flat/*beautiful/*safe*.¹²

Not all imaginable results are allowed to occur as the resulting verb of the matrix verbs in (38) and (39). Hence, Wechsler proposes the **Canonical Result Restriction** to determine possible resulting verbs in English Resultative Constructions.

(40) Canonical Result Restriction: A control resultative must represent a 'canonical' or 'normal' result state of an action of the type denoted by the matrix verb.

Rappaport Hovav and Levin (1999) concur with Wechsler (1997b), among others, that the unaccusative hypothesis does not capture the possible range of data of English RCs. They, thus, propose that Resultative Constructions should be analyzed in terms of event structure and principles governing the mapping from the event structure of RCs to their syntax. They suggest that, normally, the resulting phrase is predicated of the NP which is

¹² It should be noted that Boas (2000) suggests that the sentence "John hammered the metal safe" is plausible if the right context is found.

‘the recipient of the transmitted force’. This assumption can explain resultative sentences such as “John hammer the metal flat” and “Terry wiped the table clean”, in which the metal and the table are the recipients of the transmitted force and are the subjects of the resulting verbs. Nevertheless, Rappaport Hovav and Levin point out that in non-canonical instances, where there is no NP denoting an entity which is the recipient of transmitted force, the resulting phrase is free to be predicated of the subject. This last assumption can explain sentences such as example (34): *Robert ran clear of the fire*.

5.3.2 Problems with Characterizing Thai Adjoining Construction as a Resultative Construction

There are problematic examples for the hypothesis that Thai Adjoining Constructions are the parallel of English Resultative Constructions since resulting verbs in Thai AJCs are less constrained and the control relations in Thai AJCs cannot be determined from the semantics of the matrix verb, as shown in (16) and (26), repeated below.

- (41) Prapha kin khâaw ʔim
 Prapha eat rice be full
 Prapha ate rice until she was full.

- (42) Prapha kin khâaw mòd
 Prapha eat rice be gone
 Prapha ate the rice up.

Examples (41)- (42) show that two results and two controllers of the resulting verb are possible with respect to the single matrix verb *kin* ‘eat’. Wechsler’s assumption of

Canonical Result Restriction could, in principle, explain Thai Adjoining Constructions if we assume that Thai AJCs are less constrained and allow more than one canonical result. For example, in (41) and (42), both the eater being full and the rice being gone are, in some sense, “canonical results” of the event of eating. However, Thai Adjoining Constructions also allow sentences such as:

(43) wua khw`id khwaaj b`ad`c`eb¹³

ox butt buffalo injured

The ox butted the buffalo injured.

A Wechsler style approach cannot explain why English sentences which correspond to (43) are not possible. This is because the injury is a canonical result of a butting event and sentences such as (43) should, in principle, be possible in English RCs. To explain why it is not possible for certain causal chains (cf. Talmy 1996) to be expressed by Resultative Constructions, Boas (2000) suggests that the distribution of English Resultative Constructions is idiosyncratic and conventionalized and cannot be justified on general grounds. He points out that while English generally allows the packaging of a causing and a caused event within a single sentence by combining a verb with a resultative phrase, thereby creating a causal chain, as in (44b)¹⁴, this packaging is not always possible, as shown in (45b).

(Examples (44)-(45) are from Boas, 2000:255)

(44) a. Jack ate his food. As a result of eating the food, the plate become clean.

¹³ This sentence is ambiguous as we cannot know, except from the context, which animal was injured. See a detailed discussion in 5.3.3.2. An analysis of similar ambiguities in Thai SVCs can be found in Foley and Van Valin (1984).

¹⁴ Sentences such as (44b) are not possible in Thai because (44b) is an instance of ECM Resultative (cf. Wechsler, 1997b) which does not exist in Thai.

b. Jack ate his plate *clean*.

(45) a. Brigid loaded the table with food. As a result of her loading the table with food,
the table's leg became bent.

b. *Brigid loaded the table's leg bent.

Hence, Boas claims that English RCs are motivated by the speaker's intention to convey a specific viewpoint on the outcome of an event, and that they are licensed by different meanings and conventionalized usage patterns associated with individual verbs (2000:248). Boas' hypothesis explains why sentences such as (43) are not possible in English, on the assumption that there is no such conventionalized usage pattern associated with the verb "butt" in English.

The above discussion shows that Thai Adjoining Constructions and English Resultative Constructions are subject to different constraints: Thai AJCs are not subject to the conventionalized principles at work in English RCs. Thai AJCs are also crucially different from English RCs since so-called resulting verbs in Thai AJCs can be negated or can complement the modal marker *tôŋ* 'must', as illustrated in (46)-(48).

(46) a. Nikorn kin khâaw *ŋim*

Nikorn eat rice be full

Nikorn ate rice until he was full.

b. Negative version of (46a)

Nikorn kin khâaw mâj *ŋim*

Nikorn eat rice NEG be full

Nikorn ate rice, but he wasn't full.

- c. V2 as the complement of *tôŋ* ‘must’

Nikorn kin khâaw tôŋ ʔim

Nikorn eat rice must be full

Nikorn ate rice and he must have been full.

- (47) a. Nikorn kin khâaw mòd

Nikorn eat rice be gone

Nikorn ate the rice up.

- b. Negative version of (47a)

Nikorn kin khâaw māj mòd

Nikorn eat rice NEG be gone

Nikorn ate the rice, but the rice was not gone.

- c. V2 as the complement of *tôŋ* ‘must’

Nikorn kin khâaw tôŋ mòd

Nikorn eat rice must be gone

Nikorn ate the rice and the rice must have been gone.

- (48) a. Nikorn pàw thian dàb

Nikorn blow candle become extinguished

Nikorn blew the candle until it was extinguished.

b. Negative version of (48a)

Nikorn pàw thian māj d̀ab

Nikorn blow candle NEG become extinguished

Nikorn blew the candle, but it wasn't extinguished.

c. V2 as complement of t̂ŋ 'must'

Nikorn pàw thian t̂ŋ d̀ab

Nikorn blow candle must become extinguished

Nikorn blew the candle, and it must have been extinguished.

Once V2 is negated or combines with t̂ŋ 'must', as in (46b-c), (47b-c) and (48b-c), the second verb cannot be said to **result from** or be caused by the first verb.¹⁵ Sentences (46b-c), (47b-c) and (48b-c) mean, rather, that the **expected** results¹⁶ of *Nikorn* being full, the rice being gone, and the candle being extinguished were not reached or should have been reached. Therefore, sentences in (46)-(48) differ from English Resultative Constructions, which involve a strict causal relation between the eventualities described by the matrix verb and the resultative phrase.

¹⁵ Note that I continue to call the verb that encodes the expected result in an AJC the *resulting verb*.

¹⁶ Since the "results" in Thai AJCs are merely expected, one might suspect that the causal relation that I claim to be present in AJCs needs not be specified (because the resulting or "caused" eventuality might not eventually occur) and could be pragmatically inferred. However, if we remove causality from the notion of expected result, we are left with mere expected succession or overlapping of temporal traces. The ontological status of **expected succession** or **expected overlapping** of two eventualities is questionable. Generally, we do not merely expect a situation A to be succeeded by a situation B, but we **do** expect that situation A has a certain result, a situation C, that naturally succeeds A. I therefore suggest that despite the fact that resulting situations in Thai AJCs are merely expected, causality is still part of the meaning of the constructions.

5.3.3 Syntactic Analysis of Thai Adjoining Constructions

In this section, I argue that the resulting verb in an Adjoining Construction behaves the same way as the complement(s) or inherent argument(s) of the matrix verb in that the resulting verb cannot be separated from the matrix verb and its argument(s) by an adverb. Also, in the light of the evidence shown in (46)-(48), I argue that the resulting verb constitutes a VP in an AJC since it can be the complement of *mâj* - NEG or *tôj* ‘must’, which we know are raising verbs (cf. Chapter 4). I then discuss argument sharing and control in Thai AJCs, which previous analyses of argument sharing in other serializing languages cannot account for.

5.3.3.1 Constituent Structure

I apply the adverb placement test to determine the syntactic structures of AJCs. As we saw from Chapters two and four, the usual adverb position in Thai is VP final. As shown by the ungrammaticality of the Adjoining Construction in (50), the adverb *jàaŋ-muum-maam* ‘untidily’, which is the manner adverb modifying the matrix verb *kin* ‘eat’, cannot occur before the resulting verb.

(49) Thana kin khâaw ?im *jàaŋ-muum-maam*

Thana eat rice full untidily

Untidily, Thana ate rice until he was full.

(50) *Thana kin khâaw *jàaŋ-muum-maam* ?im

Thana eat rice untidily full

Sentence (51) shows that adverbs cannot intervene between the verb and the element(s) it subcategorizes for (i.e. inherent arguments).

(51) *Thana kin *jàaŋ-muum-maam* khâaw

Thana eat untidily rice

(Intended meaning: Untidily, Thana ate rice).

Thus, with respect to the adverb placement test, resulting verbs in Thai AJCs behave the same way as complements of the matrix verb. In other words, syntactically, resulting verbs in Thai AJCs can be viewed as added complements¹⁷ although they are not inherent semantic arguments of the matrix verbs.¹⁸ Furthermore, the resulting verbs constitute VPs in AJCs, as seen from their ability to complement the modal marker *tôŋ* ‘must’ and the negation marker *mâj* - NEG.¹⁹ The syntactic structure of the AJC in (52) is therefore as informally represented in the tree in (53).

¹⁷ I follow the general assumption that inherent semantic arguments of a head are syntactically realized as complements and non-inherent semantic arguments are typically syntactically manifested as modifiers or adjuncts, and that “complements” are syntactically different from “modifiers”. When I use the term “added complements”, I refer to non-inherent semantic arguments of a head which syntactically behave in the same way as the complements of that head. Examples of “added complements” in English are shown below.

i. The teacher proved to the class today that the theorem was wrong.

In (i) the VP modifiers *to the class* and *today* intervene between the head verb and its complement. Structurally, this means the two VP modifiers in (i) are sisters to the head verb and its complement in a local tree.

¹⁸ Note that in Thepkanjana’s (1986) analysis, the resulting verbs in Thai AJCs (which she calls “Resultative SVCs”) are complements. However, her analysis differs from mine. She treats the matrix verb in AJCs as an *implicative* verb which takes another verb as its complement. (An implicative verb denotes an event which, if it occurs, entails that another event also occurs.) Thus, she does not treat the resulting verb in AJCs as an added complement, but an argument required by the semantics of the matrix verb.

¹⁹ Sentences which contain both an adverb and a modal or negation marker, such as the following:

(i) ?Thana kin khâaw tôŋ ?im *jàaŋ-muum-maam*
Thana eat rice must full untidily

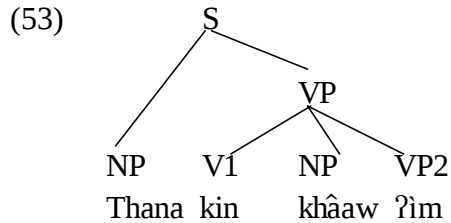
(Intended meaning: Untidily, Thana ate rice until he must have been full.)

which is implausible for pragmatic reason. Normally, to be pragmatically effective, a speaker has one focus in an utterance. However, (i) comprises two foci, i.e. the one conveyed by the adverb *jàaŋ-muum-*

(52) Thana kin khaaw ?im

Thana eat rice full

Thana ate rice until he was full.



Thana eat rice full

Thana ate rice until he was full.

5.3.3.2 Argument Sharing in Thai Adjoining Constructions

The verbs in Thai AJCs share at least one argument. The resulting verb in AJCs is predicated of the argument(s) which is/are shared. For instance, the resulting verb ?im ‘be full’ in (52) is predicated of *Thana*, which is the shared argument of the matrix verb *kin* ‘eat’ and the resulting verb. What is interesting about argument sharing in Thai AJCs is that there is no grammatical constraint as to which argument can be shared among the verbs in the AJCs. Examples (54)-(56) illustrate this point.

(54) m̂ε p̂ɔɔn khaaw l̂uuk ?im

mother feed rice child be full

The mother fed the child with the rice until the child became full.

maam ‘untidily’, and the other coded by the modal marker *t̂ɔŋ*. This makes sentence (i) pragmatically ineffective and implausible.

(55) m̥ɛ pɔɔn khâaw lûuk m̀d

mother feed rice child be gone

The mother fed the child with the rice until the rice was gone.

(56) m̥ɛ pɔɔn khâaw lûuk nùaj

mother feed rice child be tired

The mother fed the child with the rice until the mother was tired.

Examples (54)-(56) show that any of the three arguments of the ditransitive verb *pɔɔn* ‘feed’ can provide a referent to the subject of the resulting verb, depending on the semantics of the resulting verb. Sentences such as (54)-(56) illustrate what I call “subject sharing”. “Object sharing” also exists in Thai AJCs, an example of which is shown in (22) and repeated below.

(57) Nikorn h̃aa khɔ̌ɔŋ-khwǎn phób

Nikorn seek present find

Nikorn sought the present (and) found (it).

Note that in (57), the matrix verb *h̃aa* ‘seek’ shares the referents of both of its subject (*Nikorn*) and object (*khɔ̌ɔŋ-khwǎn* ‘present’) with the resulting verb *phób* ‘find’. Subject and object sharing is found in other serializing languages. Sebba (1987) investigates argument sharing in Sranan SVCs and Baker (1989) investigates argument sharing in several serializing languages. According to Sebba and Baker, SVCs as in (58) are configurationally analyzed as illustrated in (59) and (61).

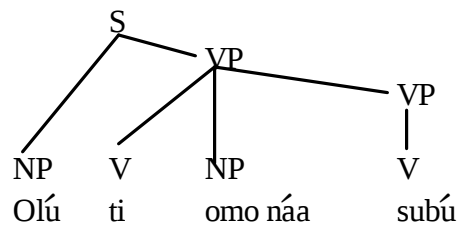
(58) (Example from Bamgboṣe, 1974)

Olú ti omo náà subú

Olu push child the fall

Olu pushed the child down.

(59) Sebba's representation of (58)



Olu push the child fall

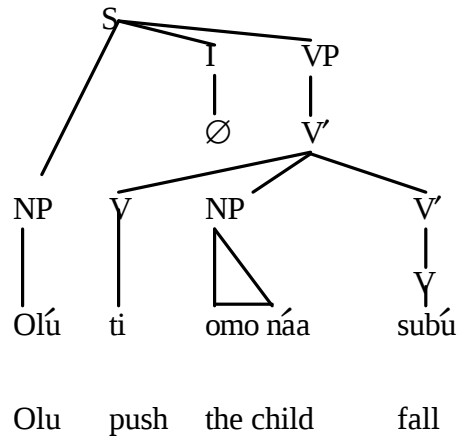
Sebba, whose analysis is carried out in Generalized Phrase Structure Grammar, explains the object sharing in (58) by specifying “rules for subject and object assignment in serial sentences” (1987:129) that follow from lexical restrictions imposed by verbs participating in the SVCs. Two of Sebba's rules for subject and object assignment shown in (60) specify the argument sharing and control relation found in (58).

- (60) i. if a transitive verb has a sister NP, that NP is its object,
- ii. an intransitive verb V_j has as its subject either the subject of V_1 , if each V_n , $1 < n < j$ is intransitive or the object of the closest V_n , $n < j$, which does have a direct object.

According to the first rule, the verb *ti* ‘push’ is sister to *omo náà* ‘the child’, thus, *omo náà* is *ti*'s object. According to the second rule, the object of V_1 *ti* ‘push’ is the subject of the verb *subu* ‘fall’. Thus, it is the child who fell down and not *Olú*.

According to Baker (1989), the presentation of (58) is as shown in (61).

(61) Baker's representation of (58)



Baker argues that *omo náa* ‘the child’ must receive two theta-roles from the two head verbs *ti* ‘push’ and *subú* ‘fall’. Baker makes two assumptions: (i) V2 must be lexically capable of assigning an internal theta-role, and (ii) its theta-role must be assigned to the object of V1 rather than to the subject of V1. With these two stipulations and the assumption that *subú* ‘fall’ is an unaccusative verb which is capable of assigning an internal theta-role to ‘the child’ in its V’ projection, Baker accounts for the control relation in (58); it is the child and not *Olú* who fell down.

Argument sharing in Thai AJCs challenge the analyses of argument sharing by both Sebba (1987) and Baker (1989) because in some AJC sentences, the controller is ambiguous. Consider the following Thai sentence which has two possible interpretations.

(62) wua khw`id khwaaj taaj
 ox butt buffalo die

The ox butted the buffalo dead (i.e. it could be the ox or the buffalo who died).

Notice that example (62) is comparable to (58) in that it contains a transitive matrix verb and an intransitive (unaccusative) resulting verb, but the Thai sentence allows the subject of the resulting verb *taaj* ‘die’ to be controlled by either the subject or the object of the matrix verb.

While Sebba’s analysis can account for one reading (i.e. it is the buffalo who died), it cannot account for the reading in which the ox died. This is because his rules for subject and object assignment predict only one reading, that in which *khwaaj* ‘buffalo’, the object of the verb *khwa`id* ‘butt’, is the subject of the verb *taaj* ‘die’. Baker’s analysis cannot explain (62) either because, in (58), Baker stipulates that the external argument feature percolates from the first verb *ti* ‘push’ rather than from both verbs, and this disallows the reading in which the subject of the verb *ti* ‘push’ is also the subject of the verb *subu* ‘fall’. Thus, Baker’s analysis, if applied to the Thai sentence in (62), predicts that only *khwaaj* ‘buffalo’, the object of the verb *khwa`id* ‘butt’, can control the subject of the verb *taaj* ‘die’. I discuss in section 5.4.1 how the formal model of Thai AJCs I propose predicts the ambiguities found in (62).

To sum up, I have discussed, in this section, argument sharing in Thai AJCs, as well as the ambiguous controller interpretation found in Thai AJCs. The latter poses a problem for previous analyses of argument sharing in serializing languages.

Before proceeding to the formal representations of Thai AJCs, I discuss in the next section what semantic relation must hold between the matrix verb and the resulting verb in Adjoining Constructions.

5.3.4 Semantic Relations in Thai Adjoining Constructions

In this section, my goal is to determine the kind of semantic relations that can hold between the matrix verb and the resulting verb in Thai Adjoining Constructions. Consider the following examples:

(63) Narii kin khâaw ?im

Narii eat rice be full

Narii ate rice until she was full.

(64) Narii kin khâaw mâj ?im

Narii eat rice NEG be full

Narii ate rice but she wasn't full.

(65) Narii tham ɲaan nùaj

Narii do work be tired

Narii worked until she was tired.

(66) Narii tham ɲaan bùa

Narii do work be bored

Narii worked until she was bored.

As mentioned earlier, we cannot say that the relation between the matrix and resulting verb is strictly causal since the resulting verb can encode an event which does not actually occur (i.e. when the verb is negated, as in example (64)). Rather, the resulting verb in a Thai AJC describe the **expected or possible result typically associated with the event conveyed by the matrix verb**. I include the adverb “typically” in my description because it is not any imaginable result that can be coded in the resulting verb. Consider the following examples:

(67) Narii kin khâaw pàad(verb) thóṁ

Narii eat rice ache stomach

Narii ate rice and had a stomach ache.

(#Narii ate rice until she had a stomach ache.)

Having a stomach ache is not a typical result of eating, and (67) is not an AJC but an instance of conjoined clauses, as (67) behaves differently from AJCs with respect to the distribution of adverbs. As we know, a characteristic of AJCs is that no adverbs can occur between the matrix verb (and its argument) and the resulting verb, as (68) shows.²⁰ But the adverb *jàaṁmuummaam* ‘untidily’ can be inserted after the verb *kin khâaw* ‘eat rice’, and before the verb *pàad thóṁ* ‘had a stomach ache’ in (67), as shown in (69):

(68) Adjoining Construction

*Narii kin khâaw jaṁmuummaam ṁim

Narii eat rice untidily be full

(Intended meaning: Narii ate rice untidily until she was full.)

(69) Narii kin khâaw *jàaṁmuummaam* pàad(verb) thóṁ

Narii eat rice untidily ache stomach

Narii ate rice untidily and had a stomach ache.

To summarize, although the range of predicates that can occur as resulting verbs in AJCs is broad, not all imaginable results can occur in AJCs. The resulting verbs in AJCs must denote results typically associated with the events encoded by the matrix verbs.

²⁰ Note that, as discussed in 5.2.1, there is a variant of (68) which is indistinguishable from an unmarked conjoined clause, which would be grammatical. However, as mentioned at the end of that section,

5.4 Formal Representations of Thai Adjoining Constructions

5.4.1 Resulting Verb and Argument Sharing in Thai Adjoining Constructions

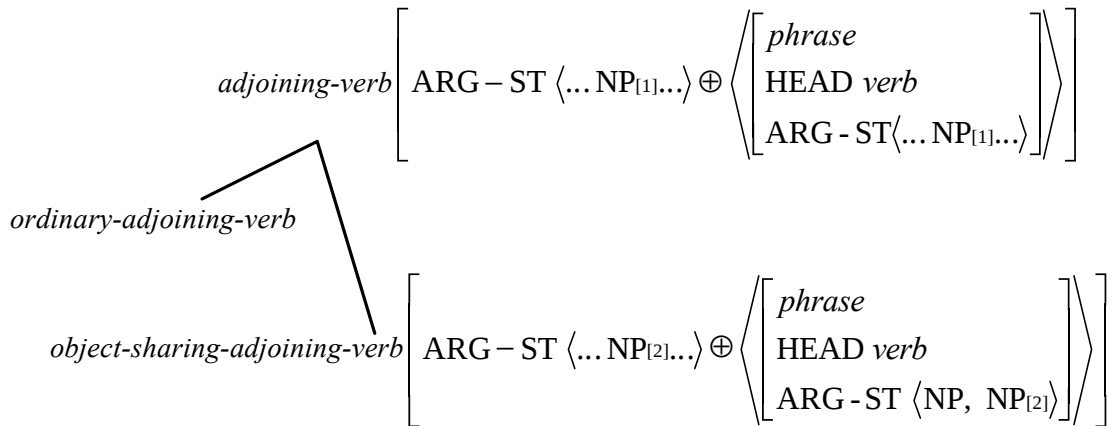
In this section, I provide representations of how the resulting verb complements the matrix verb in an AJC, and how to formalize argument sharing. As we have seen from 5.3.3.1, although the resulting verb phrase in a Thai AJC is not an inherent argument of the matrix verb, it behaves like a syntactic complement in that it cannot be separated from the matrix verb by an adverb. To model that fact, I follow Wechsler (1997a,b) in appending the extended argument (in this case, the resulting verb phrase in AJCs) to the ARG-ST list of the head.²¹ This ensures that the resulting verb phrase is sister to the head verb, as are the inherent arguments of the head verb.

As introduced in Chapter 1, ARG-ST specifies the selected arguments of a lexical head. The ARG-ST list needs to be extended in order to account for non-semantic arguments that behave like complements, such as the resulting verb phrases in Thai AJCs. Before presenting the actual lexical rule whose function is to add an extended argument to the ARG-ST list of the matrix verb in an AJC, I show in (70) the hierarchy of the class of *adjoining verbs*, which are verbs that can occur as the matrix verb in AJCs.

sentences like (68) are more likely to be interpreted as AJCs, namely, that they encode a single complex event, and not a sequence of separate events.

²¹ It should be noted, however, that this is not the only possible account of Thai AJCs. Other approaches which treat non-inherent arguments of the head verb as sisters to the head (such as Role and Reference Grammar (RRG)) can also account for Thai AJCs. In RRG, the logical structure of a resultative phrase introduces an “argument-adjunct” (which encodes the resulting event) to the core or the main predicate (Van Valin and LaPolla, 1997:161-162).

(70) Hierarchy of the class of *adjoining verbs*



There are two subtypes of *adjoining-verbs*, *ordinary-adjoining-verbs* and *object-sharing-adjoining-verbs*. Every *adjoining verb* shares a subject²² with its resulting VP, which is a property inherited by both of its subtypes. In the hierarchy in (70), this is shown by the fact that there is the token-identity of the indices of NPs in the argument structure lists of the matrix verb and the resulting verb (see more details below). An instance of *ordinary-adjoining-verbs* is *kin* ‘eat’. *Object-sharing-adjoining-verbs*, of which *hăa* ‘seek’ is an instance, are *adjoining verbs* that additionally share their object with the resulting verb. This object sharing is shown in (70) by the fact that the index of second NP in the ARG-ST list (which corresponds to the object) of the *object-sharing-adjoining-verb*, is identical to that of an NP in the ARG-ST list of the matrix verb.

I propose that the lexical rule in (71) applies to verbs that can occur as matrix verbs in AJCs and derives entries which have the appropriate argument structure for the

²² Note that this is a shorthand for “sharing the referent of its subject with that of the resulting verb”. In HPSG, this means the indices of NPs which are subjects of the adjoining verb and the resulting verb are identical. Similarly, “object sharing” means that the adjoining verb shares the referent of its object with that of the resulting verb.

resulting VP to complement it. In other words, the lexical rule in (71) maps a *verb* input to an output which is an *adjoining verb*.

(71) Lexical Rule which adds to the ARG-ST list of an input an argument appropriate for the resulting VP

$$\left[\begin{array}{ll} \text{HEAD} & \text{verb} \\ \text{ARG-ST} & [2] \langle \dots \text{NP}_{[1]} \dots \rangle \end{array} \right] \rightarrow \left[\begin{array}{l} \text{adjoining} - \text{verb} \\ \text{ARG-ST} [2] \oplus \left\langle \begin{array}{l} \text{phrase} \\ \left[\begin{array}{ll} \text{HEAD} & \text{verb} \\ \text{ARG-ST} & \langle \dots \text{NP}_{[1]} \dots \rangle \end{array} \right] \end{array} \right\rangle \end{array} \right]$$

The above lexical rule states that for a *verb*, there is a corresponding entry which is an *adjoining verb*.²³ Inputs to (71) have the ARG-ST list which contains at least one NP. Outputs of the rule in (71) have a VP added onto the ARG-ST list of the input and this VP shares an argument with that of the input, indicated by the identity of indices of the two NPs in the two ARG-ST lists. Note that the output of the rule used in an AJC construct will be an instance of either an *ordinary-adjoining-verb* or an *object-sharing-adjoining-verb*.

In (74)-(76), I provide representations for various entries of the matrix verb *kin* ‘eat’, including its basic lexical entry and derived entries for its occurrences in (72) and (73). Note that the derived entries for the occurrences of *kin* in (72) and (73) allow *kin* to combine with its resulting verb via the head-complement structure.

(72) Prapha kin khâaw ?im

Prapha eat rice be full

Prapha ate rice until she was full.

²³ This amounts to saying that every verb can potentially be an *adjoining verb*, which is not an over-generalization if we assume that certain outputs are ruled out pragmatically.

(73) Prapha kin khâaw *mòd*

Prapha eat rice be gone

Prapha ate the rice up.

(74) Basic lexical entry of ***kin*** ‘eat’

$$\left[\begin{array}{ll} \text{HEAD} & [1] \\ \text{SUBJ} & \langle [2]\text{NP} \rangle \\ \text{COMPS} & \langle [3]\text{NP} \rangle \\ \text{ARG-ST} & \langle [2]\text{NP}:[4], [3]\text{NP}:[5] \rangle \\ \text{CONT} & \left[\text{KEY} \left[\begin{array}{l} \text{eat_rel} \\ \text{ACT } [4] \\ \text{UND } [5] \end{array} \right] \right] \end{array} \right]$$

In the ARG-ST of the basic lexical entry of ***kin*** ‘eat’, the verb subcategorizes for two NPs, which are realized as the subject and the complement of the verb. The tags [4] and [5] after the colons in the verb’s ARG-ST list indicate that the semantic contents of the NPs realized as subject and object are identical to the values of the ACT and UND semantic roles of the semantic content of ***kin*** ‘eat’, respectively.

(75) Derived entry for *kin* ‘eat’ when it combines with the resulting verb *ɣim* ‘be full’,²⁴

$$\left[\begin{array}{l} \text{HEAD} \ [1] \\ \text{SUBJ} \ \langle [2]\text{NP} \rangle \\ \text{COMPS} \ \langle [3]\text{NP} \rangle \\ \text{ARG-ST} \ \langle [2]\text{NP}:[4]_{[7]}, [3]\text{NP}:[5] \rangle \oplus \left\langle \left[\begin{array}{l} \text{phrase} \\ \left[\begin{array}{l} \text{HEAD} \ \text{verb} \\ \text{ARG-ST} \ \langle \text{NP}_{[7]} \rangle \end{array} \right] \end{array} \right] \right\rangle \\ \text{CONT} \ \left[\begin{array}{l} \text{KEY} \ [6] \\ \text{LZT} \ \left\langle [6] \left\langle \left[\begin{array}{l} \text{eat_rel} \\ \text{ACT} \ [4] \\ \text{UND} \ [5] \end{array} \right] \right\rangle \right\rangle \end{array} \right] \end{array} \right]$$

In (75), the argument corresponding to the resulting verb phrase *ɣim* ‘be full’ is added onto the ARG-ST list of *kin* ‘eat’. The verb *ɣim* ‘be full’ subcategorizes for a single NP whose index ([7]) is token-identical with that of the first NP in the ARG-ST list of *kin* ‘eat’ which is realized as the subject of *kin* ‘eat’.

The following AVM is the representation of the derived entry for *kin* ‘eat’ (as a result of applying the lexical rule in (71) to the basic entry of *kin*) when it combines with the resulting verb *mòd* ‘be gone’

²⁴ The CONTENT in the AVM in (75) is preliminary and will be revised in the next section.

(76)

$$\left[\begin{array}{l} \text{HEAD [1]} \\ \text{SUBJ } \langle [2]\text{NP} \rangle \\ \text{COMPS } \langle [3]\text{NP} \rangle \\ \\ \text{ARG-ST } \langle [2]\text{NP}:[4], [3]\text{NP}:[5]_{[8]} \rangle \oplus \left\langle \begin{array}{l} \text{phrase} \\ \left[\begin{array}{l} \text{HEAD verb} \\ \text{ARG-ST } \langle \text{NP}_{[8]} \rangle \end{array} \right] \end{array} \right\rangle \\ \\ \text{CONT } \left[\begin{array}{l} \text{KEY [6]} \\ \text{LZT } \left\langle [6] \left\langle \begin{array}{l} \text{eat_rel} \\ \text{ACT [4]} \\ \text{UND [5]} \end{array} \right\rangle \right\rangle \end{array} \right] \end{array} \right]$$

In (76), the argument corresponding to the resulting verb phrase *mòd* ‘be gone’ is added onto the ARG-ST list of *kin* ‘eat’. The resulting verb *mòd* ‘be gone’ subcategorizes for a single NP whose index ([8]) is the identical to that of the second NP in the ARG-ST list of the matrix verb *kin* ‘eat’, which is realized as the object of the verb *kin*.

For the case of object sharing in (57), repeated below, it can be modeled as shown in (78).

(77) Nikorn hăa khố๑ၵ်းkhwă phób

Nikorn seek present find

Nikorn sought the present (and) found (it).

(78) the derived entry of *hǎa* ‘seek’ as an *object-sharing-adjoining-verb*, when it combines with the resulting verb *phób* ‘find’

$$\left[\begin{array}{l} \text{HEAD [2]} \\ \text{SUBJ } \langle [3]\text{NP} \rangle \\ \text{COMPS } \langle [4]\text{NP} \rangle \\ \text{ARG-ST } \langle [3]\text{NP}:[8]_{[10]}, [4]\text{NP}:[9]_{[11]} \rangle \oplus \left\langle \left[\begin{array}{l} \text{phrase} \\ \left[\begin{array}{l} \text{HEAD } \textit{verb} \\ \text{ARG-ST } \langle \text{NP}_{[10]}, \text{NP}_{[11]} \rangle \end{array} \right] \right] \right\rangle \\ \text{CONT } \left[\begin{array}{l} \text{KEY [5]} \\ \text{LZT } \left\langle [5] \left\langle \left[\begin{array}{l} \textit{seek_rel} \\ \text{ACT [8]} \\ \text{UND [9]} \end{array} \right] \right\rangle \right\rangle \end{array} \right] \end{array} \right]$$

Note that the entry of *hǎa* ‘seek’ in (78) is derived from the basic entry of *hǎa* via the lexical rule in (71), when the derived entry is sort-resolved as an *object-sharing-adjoining-verb*. The argument sharing in (77) is illustrated in (78) by the token-identity of the index values of the NP subject and NP object ([10] and [11]) of *phób* ‘find’ with those of *hǎa* ‘seek’.

Note that the description of *adjoining verbs* in (70) can account for cases of ambiguous controllers, which sentence (62), repeated below, illustrates.

(79) wua khwəd khwaaj taaj

ox butt buffalo die

The ox butted the buffalo dead.

Assuming that *khwɨ̀d* ‘butt’ is an *ordinary-adjoining-verb*, *khwɨ̀d* is simply required to have one NP on its ARG-ST list whose index is token-identical to that of the single NP argument of *taaj* ‘die’. The exact determination of whether that NP corresponds to *wua* ‘ox’ or *khwaaj* ‘buffalo’ in (79) is left open as it is a pragmatic matter. What is important here is that the ambiguity found in (79) is predictable from the ARG-ST characteristics of *ordinary-adjoining-verbs*. This is unlike the approaches by Sebba (1987) and Baker (1989), whose interpretations of argument sharing are tied with fixed phrase structural configurations (as discussed in 5.3.3.2) and predict only one reading for sentences such as (79).

To summarize, we can model Thai AJCs by having matrix verbs additionally subcategorize for the resulting verb (see also Wechsler 1997a,b). These matrix verbs can then be classified as *adjoining verbs*, which are furthered subclassified according to whether they only share one or two arguments in their ARG-ST lists. This argument-structure (rather than phrase-structure) analysis of adjoining verbs can model both multiple and ambiguous control relations in Thai AJCs.

5.4.2 Semantic Representations of Thai Adjoining Constructions

In this section, I attempt to model the semantic information that Thai AJCs encode, in particular the fact that the relations among verbs in AJCs are not strictly causal, and that the resulting verb in AJCs conveys an **expected** result. I start by specifying the class of resulting verb. Next, I argue that an AJC encodes two types of semantic information: one is the relation among the participants in a situation (i.e. SITUATIONAL-CORE or SIT-CORE) and the other is a subset of circumstances or time indices against which such

relation is evaluated (i.e. MODAL-BASE²⁵--see background and detailed discussion of the sublexical modal component in Koenig and Davis, 2001). An example of an English verb whose denotation contains both a SIT-CORE and MODAL-BASE information is *deny*. *Deny*'s SIT-CORE is causing someone's possession of something, and its MODAL-BASE is negation. These two components together yield the meaning of *deny*, namely that the transfer of possession did not happen. Note that the SIT-CORE meaning of *deny* is shared with other verbs in the same semantic field including *give*, *promise*, *owe* and *charge*, for example, but these verbs differ in their MODAL-BASE information.

I hypothesize that the notion of MODAL-BASE is relevant to Thai AJCs because the resulting verb in AJCs can be negated or modified by modal markers. I repeat some examples in (46), from 5.3.2, below.

- (80) a. Nikorn kin khâaw ?im
 Nikorn eat rice be full
 Nikorn ate rice until he was full.
- b. Nikorn kin khâaw mâj ?im
 Nikorn eat rice NEG be full
 Nikorn ate rice, but he wasn't full.

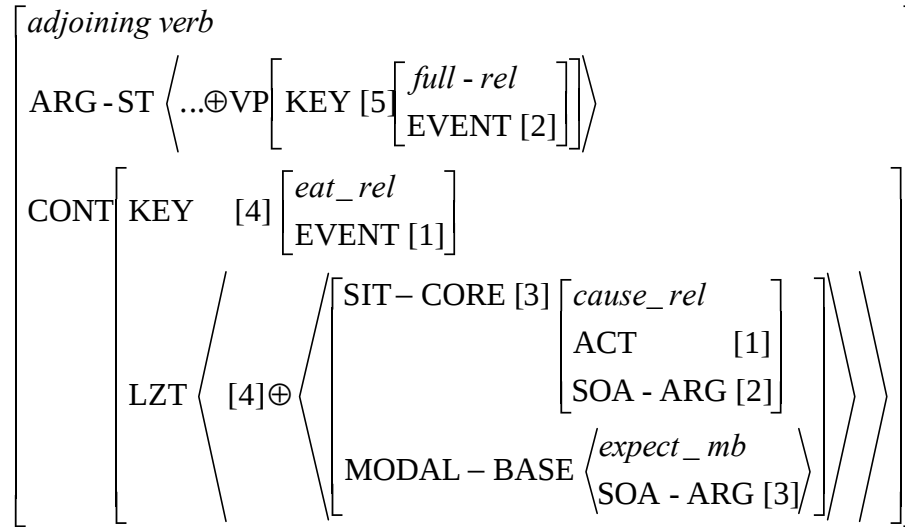
I assume that Thai AJCs contribute a “weak” causal semantic relationship.²⁶ The resulting verb ?im ‘be full’, which marks the expected result in (80), can be negated. This means that

²⁵ See also the notion of modality in Kratzer (1981).

²⁶ Similar to the construction-linked *part-whole* relation in Chapter 1, this weak causal relationship is contributed by Thai Adjoining **Constructions** and not by individual elements which occur in these constructions. But the Thai Adjoining Construction is lexical and not phrase-structural in that it consists of the class of *adjoining verbs*.

the expected result was not reached. To illustrate this, consider the diagrams (81)-(82) which represent the semantics of the VPs in (80a) and (80b) respectively.

(81)



The AVM in (81) illustrates the semantics of the VP *kin khâaw ĩm* ‘eat rice full’ in (80a).

The EVENT [1] is the event of eating, and the EVENT [2] encoded by the VP which is added onto the ARG-ST of *kin* ‘eat’ refers to the event of being full. In (81), there are two Elementary Predications (EPs) in the LZT; the EP of *kin* ‘eat’([4]), the EP of the expected causal relation. The semantic content of the expected causal relation consists of two major components: SIT-CORE and MODAL-BASE. The SIT-CORE basically indicates that EVENT [1], which is the value of the feature ACT and corresponds to the eating event in this example, causes EVENT [2], the state of being full, the value of the SOA-ARG²⁷ (State-of-Affair argument). In other words, the event of eating causes the eventuality of being full. But, crucially, the relation described in SIT-CORE, tagged [3], is merely

5.5 Conclusion

Adjoining Constructions in Thai have traditionally been characterized as Resultative Constructions. However, Thai AJCs differ from Resultative Constructions found in English and other languages in three important aspects. First, control relations in Thai AJCs are neither syntactically nor semantically constrained, but are pragmatically determined. Controllers in Thai AJCs cannot thus be determined through phrase-structural rules or principles as in the analyses of Sebba (1987) and Baker (1989). Second, the resulting situations in Thai AJCs might not eventually occur; the causal relation in Thai AJCs is only an expectation. Finally, the “expected” results indicate that the notion of sublexical modality is relevant to the semantics of Thai AJCs.

Chapter 6

Concluding Remarks

In this thesis, I have discussed three groups of Thai verb complexes which are not semantic arguments. I described their syntactic structures and the ways in which their meanings combine. A major finding of this thesis is that the three classes of verb complexes involve three different structures: head-complement, head-adjunct, and head-co-head structures and that these different syntactic structures do not correlate with the semantic domains that the three types of verb complexes express.

In what follows I summarize the more particular findings of the investigation of the three groups of Thai verb complexes. First, Directional Serial Verb Constructions in Chapter 2 have mainly a recursive structure, but with fixed positions for certain classes of verbs (manner-of-motion, caused-motion, and deictic verbs). To model Directional SVCs, I proposed the new Head - Co-head Schema, which semantically constrains the co-head daughter to denote non-deictic directional motion relations and allows featural specifications on VPs containing deictic verbs (whose position is fixed) to be passed up from the non-head (i.e. the co-head) daughter. Another salient property of Thai Directional SVCs is the exceptional valence structure of the class of *serial verbs*: they can leave out their otherwise required complements when they either occur in the Head - Co-head schema or when they are followed by a deictic verb. In other words, the occurrence of two or more *serial verbs* without their typical complements yields a valid VP, regardless of whether the verbs are combined via the Head - Co-head or Head - Complement schema.

I investigated Thai aspect-marking system in Chapter 3 and 4. Aspect-marking expressions in Thai occur both before and after the base VP. I illustrated that neither their positions, the syntactic rules that combine them with the base VP, nor their part-of-speech correlate with their semantics (as evidenced from the contrast between *rêem* ‘start’ and *sêd* ‘finish’ discussed below). Moreover, *full-verb* post-verbal aspectual morphemes are interesting in the sense that while they themselves are VP modifiers, they can also serve as complements of raising verbs, when such raising verbs occur after the base VP. Semantically, although the combinations of aspect morphemes potentially leads to a large number of scope ambiguities, few ever arise because of the fact that post-verbal aspectual morphemes must modify *full-verb phrases*.

In Chapter 5, I investigated Thai Adjoining Constructions, which are constructions similar to Resultative Constructions found in English and other languages. Like Resultative Constructions, Adjoining Constructions introduce an additional causal relation between the referent of the predicative head and the referent of its resultative phrase complement, but, by contrast to what happens in other languages, the result of the causal event might not eventually occur. Thus, the first property that makes Thai Adjoining Constructions differ from Resultative Construction is that the “result” in the former is merely expected. The second property that distinguishes Thai AJCs from typical Resultative Constructions is the fact that control relations in Thai AJCs are grammatically underdetermined, and can only be fully determined pragmatically.

My analysis of Thai verb complexes, which have traditionally been considered instances of serialization, shows that in fact there is no uniform notion of serialization,¹ neither a syntactic or semantic one. If we want to apply the notion of serialization to these Thai verb complexes, we cannot define it on the basis of either the positions of verb complexes in the construct, the syntactic structures involved, or the semantic domains it expresses. To illustrate this, consider the two aspect-marking elements *râem* ‘start’ and *sèd* ‘finish’ in the Thai Aspectual Constructions. If we treat the Aspectual Constructions as Serial Verb Constructions, these two elements should be uniformly classified as “serial verbs” from a semantic point of view. Nevertheless, *râem* ‘start’ precedes the base VP while *sèd* ‘finish’ occurs after the base VP. They also combine with the base VP via a different syntactic schema, i.e. complementation for *râem* ‘start’, and modification for *sèd* ‘finish’. The only property that *râem* ‘start’ and *sèd* ‘finish’ have in common is that they both belong to the *full-verb* part-of-speech, which is a category that we cannot determine from presuming that Aspectual Constructions are SVCs and that aspect morphemes are serial verbs.

I have shown that Thai verb complexes that semantically encode non-arguments are syntactically expressed in either a head-adjunct, head-complement, or head-co-head structure. Among these three structures, only the head-co-head structure could potentially be redefined as serialization (as opposed to the other two universal structures). Nonetheless, the head - co-head structure does not correspond one-to-one to what it

¹ See Andrews and Manning (1999) for a similar conclusion.

expresses. Namely, the structure is used to realize a subset of motion verbs, but there is still another small subset of motion verbs which are syntactically realized via the ordinary Head-Complement schema (i.e. those pairs which involve a non-deictic and a deictic-directional motion verb). This lack of one-to-one relationship between syntax and semantics is also true in the domain of Thai aspect-marking elements or event description modifiers; they can be either the heads of a head-complement structure or the adjuncts of a head-adjunct structure.

References

- Abeillé, A. and D. Godard. 1997. The Syntax of French Negative Adverbs. In Forget, D. P. Hirschbühler, F. Martineau, and M.-L. Rivero (eds.), *Negation and Polarity*, vol. 155 of *Current Issues in Linguistic Theory*, 1-27. Amsterdam, Benjamins.
- Andrews, A.D. and C.D. Manning. 1999. *Complex Predicates and Information Spreading in LFG*. Stanford: CSLI Publications.
- Baker, M. C. 1989. Object Sharing and Projection in Serial Verb Constructions. In *Linguistic Inquiry*, Vol.20, No.4, 513-553.
- Bamgbose, A. 1974. On Serial Verb and Verbal Status. In *Journal of West African Language IX*, 17-48.
- Bendix, E. H. 1972. *Serial Verbs in the Caribbean and West Africa: Their Semantic Analysis in Papiamentu*. Mimeo: Hunter College of the City University of New York.
- Boadi, L.A. 1968. Notes on the Comparative Construction in Twi. In *Papers from the Fifth Conference on African Linguistics*.
- Boas, H.C. 2000. *Resultative Constructions in English and German*. Doctoral Dissertation. University of North Carolina at Chapel Hill.
- Borsley, R.D. 1991. *Syntactic Theory: A Unified Approach*. London: Edward Arnold.
- Bouma, G., R. Malouf, and I. Sag. Draft of May 1998. *Adjunct Scope*.

- Bouma, G., R. Malouf, and I. Sag. 2001. Satisfying Constraints on Extraction and Adjunction. In *Natural Language and Linguistic Theory* 19, 1-65. Dordrecht: Kluwer Academic.
- Carstens, V. 1988. *Yoruba Serial Verbs*. Paper presented at 2nd Niger-Congo Syntax and Semantics Workshop (April 1988), MIT, Cambridge, Massachusetts.
- Choi, S. and M. Bowerman. 1991. Learning to Express Motion Events in English and Korean: The Influence of Language-Specific Lexicalization Pattern. In *Cognition* 41, 83-121.
- Chomsky, N. 1981. *Lectures on Government and Binding*. Foris: Dordrecht.
- Copestake, A., D. Flickinger, and I. Sag. Draft of September 1999. *Minimal Recursion Semantics: An Introduction*.
- Copestake, A., A. Lascarides, and D. Flickinger. 2001. An Algebra for Semantic Construction in Constraint-based Grammars. In *Proceedings of the 39th ACL meeting*, Toulouse, France.
- Davis, A. 1996. *Lexical Semantics and Linking in the Hierarchical Lexicon*. Doctoral Dissertation, Stanford University, Stanford.
- Davis, A. 2001. *Linking by Types in the Hierarchical Lexicon*. Stanford: CSLI Publications.
- Davis, A. and J.-P. A. Koenig. 2000. Linking as Constraints on Word Classes in a Hierarchical Lexicon. In *Language* 76, 56-91.
- De Swart, H. 1998. Aspect Shift and Coercion. In *Natural Language and Linguistics Theory* 16, 347-385.
- Dowty, D. 1979. *Word Meaning and Montague Grammar*. Dordrecht, Reidel.

- Fillmore, C. J., P. Kay, and M. C. O'Connor. 1988. Regularity and Idiomaticity in Grammatical Constructions: The Case of 'Let Alone'. In *Language* 64, 501-583.
- Foley, W. A. and R.D Van Valin, Jr. 1984. *Functional Syntax and Universal Grammar*. Cambridge: Cambridge University Press.
- Goldberg, A. 1995. *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: The University of Chicago Press.
- Hankamer, J. and I. Sag. 1976. Deep and Surface Anaphora. In *Linguistic Inquiry* Vol. 7, No. 3, 391-426.
- Harris, Z. S. 1946. From Morpheme to Utterance. In *Language* 22, 161-183.
- Herweg, M. 1991. Perfective and Imperfective Aspect and the Theory of Events and States. In *Linguistics* 29, 969-1010.
- Hoekstra, T. 1984. *Transitivity*. Dordrecht: Foris.
- Kanchanawan, N. 1978. *Expression for Time in the Thai Verb and Its Application to Thai-English Machine Translation*. Doctoral Dissertation, University of Texas at Austin.
- Kay, M. 1983. *Unification Grammar* (Technical Report, Xerox Palo Alto Research Center). Palo Alto, CA.
- Kay, P. 1997. *Words and the Grammar of Context*. Stanford: CSLI Publications.
- Kim, Y. J. 1997. Verb Lexicalization Patterns in Korean with Focus on Motion Conflation. In *Japanese/Korean Linguistics VI*, 495-511. Stanford: Stanford Linguistics Association.
- Koenig, J.-P. A. 1999. *Lexical Relations*. Stanford: CSLI Publications.

- Koenig, J.-P. A. and N. Muansuwan. 2000. How to End Without Ever Finishing. In *Journal of Semantics* 17:2, 147-184.
- Koenig, J.-P. A. and N. Muansuwan. In Preparation. *The Syntax of Aspect in Thai*. University at Buffalo, the State University of New York.
- Koenig, J.-P. A. and A. Davis. 2000. *The Key to Lexical Semantics*. Paper presented at the 7th International HPSG Conference, UC Berkeley (22-23 July, 2000).
- Koenig, J.-P. A. and A. Davis. 2001. Sublexical Modality and the Structure of Lexical Semantic Representations. In *Linguistic and Philosophy* 24:1, 71-124.
- Koenig, J.-P. A., G. Mauner, and B. Bienvenue. 2001. *Arguments for Adjuncts*. Manuscript. University at Buffalo, the State University of New York.
- Kratzer, A. 1981. The Notional Category of Modality. In Eikmeyer, H.-J. and H. Rieser (eds.), *Words, Worlds, and Contexts*, 38-74. Berlin: Walter de Gruyter.
- Lakoff, G. and J. R. Ross. 1966. Criterion for Verb Phrase Constituency. *Mathematical Linguistics and Automatic Translation Report NSF-17*. Cambridge, Mass.: Computation Laboratory, Harvard University.
- Lakoff, G. and J. R. Ross. 1976. Why you can't *do so* into the sink. In J. McCawley (ed.), *Notes from the Linguistic Underground*, vol. 7 of *Syntax and Semantics*, 101-111. New York: Academic Press.
- Lascarides, A., E. Briscoe, N. Asher, and A. Copestake. 1996. Order Independent and Persistent Typed Default Unification. In *Linguistics and Philosophy* 19.1, 1-89.
- Levin, B. and M. Rappaport Hovav. 1995. *Unaccusativity: At the Syntax-Lexical Semantics Interface*. Cambridge, MA: MIT Press.

- Malouf, R. 1998. *Mixed Categories in the Hierarchical Lexicon*. Doctoral Dissertation, Stanford University.
- Miller, J. 1985. *Semantics and Syntax: Parallels and Connections*. Cambridge: Cambridge University Press.
- Miller, P. H. 1992. *Clitics and Constituents in Phrase Structure Grammar*. New York: Garland.
- Miller, P. H. and I. Sag. 1997. French Clitic Movement without Clitics or Movement. In *Natural Language and Linguistic Theory* 15, 573-639.
- Muansuwan, N. 1999. *Directional Serial Verb Constructions in Thai*. MA Thesis, University at Buffalo, the State University of New York.
- Muansuwan, N. 2001. Directional Serial Verb Constructions in Thai. In D. Flickinger and A. Kathol (eds.), *Proceedings of the 7th International HPSG Conference*, UC Berkeley (22-23 July, 2000). CSLI Publications. <http://csli-publications.stanford.edu/>
- Ng, E. 1997. *The Syntax and Semantics of Mandarin DE Sentences (Manner and Extent): a Role and Reference Grammar Analysis*. MA Thesis. University at Buffalo, the State University of New York.
- Prassithrathsint, A. 2000. Adjectives as Verbs in Thai. In *Linguistic Typology* 4, 251-271.
- Przepiórkowski, A. 1999. *Case Assignment and the Complement/Adjunct Dichotomy*. Doctoral Dissertation. Universitat Tübingen.
- Pollard, C. and Ivan A. Sag. 1994. *Head-Driven Phrase Structure Grammar*. Chicago: Chicago University Press.

- Rangkupan, S. 1997. *An Investigation of hây Complex Constructions in Thai*. MA Thesis. University at Buffalo, the State University of New York.
- Rangkupan, S. 2001. *Characteristics of Psychological Perspective in Thai Narrative Discourse*. Doctoral Dissertation. . University at Buffalo, the State University of New York.
- Rappaport, H. and B. Levin. Draft of 1999. *A Reevaluation of the Direct Object Restriction on English Resultatives*.
- Reichenbach, H. 1947. *Elements of Symbolic Logic*. London: Macmillan.
- Riehemann, S. 1997. *Idiomatic Constructions in HPSG*. Paper presented at the Cornell HPSG Workshop.
- Riehemann, S. and E. Bender. 1999. Absolute Constructions: On the Distribution of Predicative Idioms. In S. Bird, A. Carnie, J. Haugen and P. Norquest (eds.), *WCCFL 18 Proceedings*, 476-489. Somerville, MA: Cascadilla Press.
- Sag, I. A. 1997. English Relative Clause Constructions. To appear in *Journal of Linguistics*.
- Sag, I. A., and T. Wasow. 1999. *Syntactic Theory : A Formal Introduction*. Stanford : CSLI Publications.
- Savetamalya, S. 1988. A Reanalysis of Auxiliaries in Thai. In *Working Papers in Linguistics, University of Hawaii*.
- Schiller, E. 1990. On the Definition and Distribution of Serial Verb Constructions. In Brian D. Joseph and Arnold M. Zwicky (eds.), *When Verbs Collide : Papers from the 1990 Ohio State Mini-Conference on Serial Verbs*, 34-64. The Ohio State University.

- Sebba, M. 1987. *The Syntax of Serial Verbs*. Amsterdam : John Benjamins.
- Simpson, J. 1983. Resultatives. In Levin, L., M. Rappaport and A. Zaenan (eds.), *Papers in Lexical-Functional Grammar*, 143-158. Bloomington, Indiana: Indiana University Linguistics Club.
- Smith, C. 1997. *The Parameter of Aspect* (Second Edition). Dordrecht: Kluwer Academic.
- Sookgasem, P. 1990. *Morphology, Syntax and Semantics of Auxiliaries in Thai*. Doctoral Dissertation, The University of Arizona.
- Stahlke, H. 1970. Serial Verbs. In *Studies in African Linguistics* 1, 60-99.
- Talmy, L. 1985. Lexicalization Patterns. In Shopen, T. (ed.), *Language Typology and Syntactic Description* Vol. 3: *Grammatical Categories and the Lexicon*, 57-147. Cambridge: Cambridge University Press.
- Talmy, L. 1996. The Windowing of Attention. In Shibatani, M. and S.A. Thompson (eds.), *Grammatical Constructions: Their Form and Meaning*, 235-287. Oxford: Oxford University Press.
- Thepkanjana, K. 1986. *Serial Verb Constructions in Thai*. Doctoral dissertation, University of Michigan.
- Trask, R.L. 1993. *A Dictionary of Grammatical Terms in Linguistics*. New York : Routledge.
- Upakitsinlapasarn, P. 1937. *Lak Phaasaa Thai* (Principles of Thai Language).
- van Noord, G. and G. Bouma. 1994. Adjuncts and the Processing of Lexical Rules. In *Fifteenth International Conference on Computational Linguistics (COLING'94)*, 250-256. Kyoto, Japan.

- Van Valin, R.D. 1990. Semantic Parameters of Split Intransitivity. In *Language* 66: 2, 221-260.
- Van Valin, R.D. and R. Lapolla. 1997. *Syntax: Form, Meaning and Function*. Cambridge: Cambridge University Press.
- Wechsler, S. 1997a. Prepositional Phrases from the Twilight Zone. In *Nordic Journal of Linguistics* 20(2), 127-154.
- Wechsler, S. 1997b. Resultative Predicates and Control. In Blight, R. and M. Moosally (eds.), *Texas Linguistic Forum 38: The Syntax and Semantics of Predication*, 307-321.
- Wechsler, S. and B. Noh. To Appear. On Resultative Predicates and Clauses: Parallels Between Korean and English. In *Language Sciences*.
- Winford, D. 1990. Serial Verb Constructions and Motion Events in Caribbean English Creole. In Brian D. Joseph and Arnold M. Zwicky (eds.), *When Verbs Collide : Papers from the 1990 Ohio State Mini-Conference on Serial Verbs*, 1-13. The Ohio State University.