Event structure and serial verbs in Hmong

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Abstract

This thesis investigates the grammar of the verb phrase in White Hmong (Hmong-Mien, Laos/Thailand). It focuses on two main issues: the structure of so-called "serial verb constructions" (SVCs) and the multifunctionality of verbal predicates.

I argue that SVCs generally follow the syntactic and semantic contours of well-known constructions already familiar from non-serializing languages, including direct/lexical causatives, directed motion constructions, culminating Accomplishments, and resultatives. The primary distinction between SVCs and their non-SVC counterparts, in this view, is that serializing languages "re-use" verbal predicates to lexicalize a variety of heads often associated with "functional" lexical items. However, as the lexical semantic content of a verb is only accessible in the environment of an appropriate categorizing heads, this places hard limits on the expressive power of genuine serial verb constructions cross-linguistically: their syntactic and semantic complexity must be no more than can be derived within the first VoiceP constituent of the verbal extended projection.

Here I focus on three main constructions. First, I compare the Hmong direct causative, a productive serial verb construction, with the indirect causative, a light verb construction. I argue that the semantic content of lexical verbs necessarily leads to a direct causal interpretation (Bittner 1999, Kratzer 2005), and that this content is accessible only when the verb is categorized within the well-attested "domain of special meanings" or "first phase" (i.e. VoiceP; Marantz 1997, Arad 2003, Ramchand 2008, Harley 2014, a.o.).

Second, I examine the class of "path predicates", which are used to express directed motion in Hmong. Prior literature takes these to be verbs that form complex serial verb constructions (Clark 1979, Jarkey 2015). Based on two co-occurrence restrictions consistent with decompositional accounts of the prepositional domain (Pantcheva 2011), I argue that Hmong path predicates are instead prepositions, which in certain cases they give rise to "deprepositional" verbs.

Finally, I investigate (non-)culmination in two classes of Hmong predicates, Accomplishment verbs and Goal prepositions. Neither entails by default that their goal is reached, but in both domains, culmination entailments can be derived by parallel strategies involving secondary predication. This strategy has long been attested in the verbal domain (Parsons 1990, Pustejovsky 1991, Levin & Rappaport Hovav 1998, Higginbotham 2001, Ramchand 2008, a.o.), but is not

heretofore described in the prepositional domain.

Taken together, these investigations probe from various angles the properties and distribution of multifunctional predicates, the semantics of causation, the nature of syntactic categories, and the structure of the verbal and prepositional domains.

Résumé

Cette thèse est une étude de la grammaire du syntagme verbal en Hmong blanc (Hmong-Mien, Laos/Thaïlande). Elle se concentre sur deux questions principales : la structure des « constructions verbales sérielles » (CVS) et la multifonctionnalité des prédicats verbaux.

Je propose que les CVS suivent généralement les contours syntaxiques et sémantiques de constructions reconnues et familières dans les langues dépourvues de sérialisation verbale, y compris les causatifs directs/lexicaux, les constructions directionnelles, les accomplissements culminants et les prédicats résultatifs secondaires. Dans cette optique, la distinction fondamentale entre les CVS et leurs homologues non-CVS est que les langues sérialisantes « réutilisent » les prédicats verbaux pour lexicaliser une variété de têtes souvent associées à des éléments lexicaux « fonctionnels ». Cependant, puisque le contenu sémantique lexical d'un verbe n'est accessible que dans l'environnement d'une tête catégorisante appropriée, des limites strictes sont imposées au pouvoir expressif des véritables constructions verbales sérielles au niveau interlinguistique : leur complexité syntaxique et sémantique ne doit pas dépasser celle qui peut être déduite du premier constituant VoiceP de la projection verbale étendue.

Je me concentre sur trois constructions principales. Tout d'abord, je compare le causatif direct hmong, une construction verbale sérielle productive, avec le causatif indirect, qui utilise un verbe léger. Je soutiens que le contenu sémantique des verbes lexicaux mène nécessairement à une interprétation causale directe (Bittner 1999, Kratzer 2005), et que ce contenu n'est accessible que lorsque le verbe est catégorisé dans le « domain of special meanings » ou « first phase » bien attesté (c'est-à-dire VoiceP ; Marantz 1997, Arad 2003, Ramchand 2008, Harley 2014, etc.).

Ensuite, j'examine la classe des « path predicates » qui sont utilisés pour exprimer un mouvement directionnel en hmong. La littérature antérieure considère ces « path predicates » comme étant des verbes qui forment des constructions verbales sérielles complexes (Clark 1979, Jarkey 2015). M'appuyant sur deux restrictions de cooccurrence conformes aux théories de décomposition du domaine prépositionnel (Pantcheva 2011), je postule que les « path predicates » hmong sont plutôt des prépositions qui dans certains cas donnent lieu à des verbes « déprépositionnels ».

Enfin, j'étudie la (non-)culmination dans deux classes de prédicats hmong, les verbes d'accomplissement et les prépositions de but. Aucun des deux n'implique par défaut que leur but est

atteint, mais dans les deux domaines, les implications de culmination peuvent être dérivées par des stratégies parallèles impliquant une prédication secondaire. Cette stratégie a été attestée depuis longtemps dans le domaine verbal (Parsons 1990, Pustejovsky 1991, Levin & Rappaport Hovav 1998, Higginbotham 2001, Ramchand 2008, etc.), mais n'a jamais été décrite dans le domaine prépositionnel jusqu'à présent.

Ensemble, ces recherches examinent les propriétés et la distribution des prédicats multifonctionnels, la sémantique de la causalité, la nature des catégories syntaxiques et la structure des domaines verbaux et prépositionnels d'une nouvelle perspective.

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List of Abbreviations

1	first person		LOC	locative
2	second person		NEG	negative
3	third person		PASS	passive
CLF	classifier		PFV	perfective
COMP	complementizer		PL	plural
CONJ	conjunction		PRF	perfect
COP	copula		PST	past
DP	discourse particle		Q	question particle
DU	dual		RDUP	reduplicant
INTNS	intensifier		REAL	realis
INTR	intransitive		SG	singular
IPFV	imperfective		TOP	topic
IRR	irrealis		TR	transitive

1 Introduction

This thesis investigates the syntactic and semantic structure of event descriptions. It focuses on White Hmong, a variety of Hmong (Western Hmongic, Hmong-Mien) traditionally spoken in Laos and Thailand. It addresses two primary issues: the structural underpinnings of so-called "serial verb constructions" and the multifunctionality of predicates. These questions are particularly salient in Hmong, given that serial verb constructions generally serve functions that are already well-known in the literature on event structure, including (1) causativization, (2) directed motion, and (3) culminaton.

(1) *Direct causative:*
nws **ntaus** tus dev **quaj**
3sg hit   clf dog cry
'He hit the dog (making it) whine.'

(2) *Directed motion:*
kuv **khiav mus** tajlaj
1sg run   go   market
'I ran to the market.'

(3) *Culmination-entailing "attainment" construction:*
lawv **ua   tau** lub tsev   lawm
1pl   build get clf house perf
'They built the house. (#But they didn't finish building it.)'

However, Hmong has a variety of other complex predication constructions (sometimes described as serial verb constructions, sometimes not) which contrast with these constructions in productivity, meaning, and distribution. In many of these cases, the same predicates appear to be employed not as lexical verbs, but as functional elements, as in (4), or as another category, as in (5–6). Despite this, the broad outlines of their semantic contributions are often quite similar; for example, (3) and (6) both employ secondary predication as a strategy for expressing culmination/boundedness of an otherwise non-culminating/unbounded predicate.

(4) *Indirect causative:*

nws **ua**   tus dev **quaj**
3SG make CLF dog cry
'He made the dog whine.'

(5) *Complex path of motion:*

cov   Hmoob (khiav) [**hla**   dej   Na.Koom **dim** hauv Nplog-teb **mus** Thai-teb]
CLF.PL Hmong run   across water Mekong from inside Laos   to   Thailand
'The Hmong fled [across the Mekong River from Laos to Thailand].'

(6) *"Attainment" construction (boundedness-entailing):*

kuv khiav **mus txog** tom tajlaj
1SG run   to   up.to DEM market
'I ran to that market. (#But I didn't get there.)'

Broadly speaking, this thesis seeks to answer the following questions: Can grammatical structures found in non-serializing langauges also account for the behavior of serial verb constructions? Where in the syntax can verbs appear, and where can they not? How are verbs distinguished from predicates of other lexical or functional categories, and how might these lexical categories overlap? What are the properties of individual predicates, and what are the properties of the heads they lexicalize? How similar are extended projections across categories?

In answer to these questions, I will argue that serial verb constructions like Hmong effectively "re-use" verbal roots to spell out a variety of functional heads. The expressive power of genuine serial verb constructions is tightly constrained by the syntactic environments in which roots have access to their verbal lexical-semantic content. Some putative serial verb constructions may not be formed from verbs at all; rather, they may instead be formed from categorially-flexible roots fulfilling other functions.

The remainder of this chapter describes methodology for data collection (Section 1.1), the theoretical foundation for this work (Section 1.2), and a brief overview of the notion of "serial verb construction" (Section 1.3), before offering a more detailed summary of the dissertation as a whole (Section 1.4).

1.1 Methodology

All uncited examples provided in this thesis were obtained over several years of elicitation with diaspora speakers of White Hmong located in North Ameria, primarily in Canada. Principle language consultants for this project were Ka Lee-Paine and Sy Moua, to whom I am endlessly

grateful. Additional judgments were provided by Thèrése Moua-Jasperson, Neng Vang, and Bee Vang-Moua as part of the University of Minnesota's Community-Engaged Hmong Linguistics Research and Reading Group. Though they are not included in the text of this thesis, a number of judgments on the related Green Mong variety were provided by Monique Vang; these were useful in shaping my thinking and in informing subsequent elicitation.

Data was primarily collected through contextualized elicitation, in keeping with standard practices for linguistic fieldwork (Payne 1997, Matthewson 2004, Bowern 2008, Bochnak & Matthewson 2015, Schütze 2016, Bochnak & Matthewson 2020, a.o.). During elicitation sessions, consultants were asked to perform three primary tasks. In a *translation task*, the consultant is asked to translates a sentence from the contact language (in this case, English) into the target language (in this case, Hmong). In a *grammaticality judgment task*, the linguist constructs a sentence in the target language, and the consultant judges whether that sentence is well-formed. In an *acceptability judgment task*, the consultant judges whether a well-formed sentence is appropriate to an established context. These three tasks complement one another, allowing the linguist to determine not only whether a particular sentence is well-formed, but also under what conditions it may be used. By careful manipulation of the sentences themselves and of the established context, one can also establish the distribution and meaning of individual lexical items.

In general, consultants were provided with contexts to support all three tasks. These contexts were provided in the contact language, English. Occasionally, these spoken contexts were supplemented with images or diagrams.

In the translation task, sentences provided spontaneously by the consultant in the object language can be assumed to be well-formed. In the grammaticality judgment task and the acceptability judgment task, both positive and negative judgments were taken into consideration. In all three tasks, consultants were routinely asked to repeat sentences produced/provided in the contact language, Hmong. This ensured that both they and I had heard and understood the sentence correctly, and confirmed that they had not accommodated an ungrammatical or infelicitous sentence.

In some cases, speakers' comments were also recorded. These cannot be taken as definitive evidence, but occasionally suggest a particular view of the data. Such comments are provided in this thesis only sparingly, and should be understood to be inherently subjective.

1.2 Theoretical background

1.2.1 Event structure

The theoretical foundation of this thesis is a set of assumptions that are jointly referred to as "event structure".[1] These include the notions (i) that "events" are individuals which can be predicated (Davidson 1967), (ii) that verbs can be divided into several aspectual classes (Vendler 1957), and (iii) that lexical items are not atomic, but can be decomposed into more fundamental pieces (Hale & Keyser 1993; see also Lakoff 1965, McCawley 1968). A number of notable works have since brought these assumptions together. Verkuyl (1972) and Dowty (1979) derive the differing properties of verbal aspectual classes compositionally. Higginbotham (1983, 1985) develops a compositional event-based semantics. Parsons (1990) brings together all three assumptions to present an event-based, decompositional account of situational aspect classes—an approach which has also been pursued in a number of influential subsequent works (Borer 2005, Ramchand 2008, Travis 2010).

Along the way, other notable observations and theoretical proposals have been incorporated into theories of event structure. Particular theoretical proposals, for example Larson's (1988) multiple VP shells or Kratzer's (1996) external argument-introducing Voice, have been widely adopted in subsequent work. Krifka (1989) defines event-structural correspondences between predicate and argument in terms of mereological structure, an idea which has also become quite influential (see e.g. Zwarts 2005, Ramchand 2008). Concepts like MANNER and RESULT (e.g. Rappaport Hovav & Levin 2010) and typological generalizations like "verb-framed" and "satellite-framed" languages Talmy (1985) have also become influential in current research. The basic assumptions of event structure—and the various new developments thereon—have now been extended to a wide range of empirical phenomena, including transitivity classes and alternations (e.g. Levin & Rappaport Hovav 1995, Alexiadou et al. 2015), voice and valency alternations (e.g. Pylkkänen 2008), causatives (e.g. Harley 1995, 2008, Pylkkänen 2000), and many others.

This thesis approaches the empirical phenomena referred to as "serial verb constructions" with these base assumptions in mind. This work has antecedents in the work of Stewart (2001), Cole (2016), Hopperdietzel (2020), and others. I do not attempt to give an exhaustive description and analysis of serial verb constructions cross-linguistically, or even to discuss all serial verb constructions attested in the Hmong language. Instead, I undertake a focused investigation of the properties of three constructions, deeply informed by relevant areas of linguistic theory: causativization, directed motion, and culmination. More on these specific issues follows, but for

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[1]This characterization is based on Truswell 2019b; see that work for more on the history of these developments.

now, I will highlight two important points that will be relevant in the work to come.

First, event-structural analyses of various phenomena often (explicitly or implicitly) ascribe a special status to a particular region of the verbal extended projection: the region bounded by the external argument-introducing head Voice. This may be referred to as the "event domain", the "first phase" (following Ramchand 2008), or the "domain of special meanings" (Marantz 1997, Harley 2014). As we will see in Chapter 3, this also appears to coincide with the domain in which serial verb constructions may appear.

Second, it is notoriously difficult to precisely identify *how many events* are present in any given real-world scenario. Speakers have considerable flexibility; the same facts might be presented linguistically as several discrete linguistic events, or as several parts of one overarching event (see e.g. Bohnemeyer et al. 2007).[2] Because of this, the precise notion of "event" (and the mereological terms "macro-event" and "sub-event") can seem somewhat hazy. But in spite of these difficulties, linguistic *representations* of events behave in relatively granular and constrained ways (Truswell 2019a). The "counting problem" thus has more to do with the cognitive and conceptual process by which some set of circumstances are packaged into a representation, and less to do with the resulting properties of that representation.

1.2.2 Decomposition of the prepositional phrase

A roughly parallel set of assumptions have been adopted in many studies of the prepositional domain: (i) that prepositions refer to or predicate entities called "paths" and "places" (Jackendoff 1983, 1990), (ii) that prepositions can be grouped into aspectual classes (Piñón 1993, Kracht 2002, Zwarts 2005, 2008, Pantcheva 2011), and (iii) that the syntactic and semantic contributions of prepositions can likewise be decomposed across more fundamental pieces (Jackendoff 1996, Kayne 2004, Svenonius 2010, Pantcheva 2011).

The prepositional phrase is first divided into two broad domains: Place (or P_{loc}, Configuration, Orientation, Localizer) encodes static locative relations, while Path (or P_{dir}, Direction, Mode, Modalizer) encodes dynamic directed motion (see also Bennett 1975, Jackendoff 1983, Van Riemsdijk 1990, Van Riemsdijk & Huybregts 2001, Kracht 2002, Creissels 2006, Zwarts 2008). Both can be further decomposed, capturing more fine-grained distinctions between prepositions and resulting, in some accounts, in a distinct full-fledged clausal structure for each of the two domains (Koopman 2000, 2010, den Dikken 2010, Radkevich 2010, Svenonius 2010, Pantcheva 2011).

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[2]This problem is nicely illustrated by Truswell (2019b, p. 1): "There are four pieces of paper which jointly constitute a manuscript. One thing, or four? Certainly not five, but why not? This is precisely the same problem that we encounter with counting events: when a drummer counts 'One, two, three, four': did one event take place, or four? Certainly not five, but why not?"

A complication in this area is the categorial status of prepositions themselves—a topic on which there remains little consensus (see Cinque 2010). Though traditionally often considered a lexical category (Jackendoff 1977, Déchaine 1993b, Hale & Keyser 1993, 1997), other work claims them to be a functional category (Croft 1991, Grimshaw 1991, Baker 2003), or at minimum claims that while complex prepositions (e.g. *behind*, *inside*, *in front of*) are lexical, simplex prepositions (e.g. *in*, *at*, *to*) are functional (Rizzi 1985, Zwarts 1997, 2005). I do not address this question writ large; however, Chapter 4 of this thesis analyzes a class of predicates found in Hmong as systematically flexible between verbal and prepositional uses. This suggests that in at least some languages, prepositions behave like a lexical category for the purposes of lexicalization/morphology insertion.

Also important is the relationship between the verb and its prepositional complement. Zwarts (2005, et seq) and Ramchand (2008) follow a mereological approach inspired by Krifka's (1989) treatment of verbs and their *nominal* complements, in which the part-whole structure of the path denoted by the PP and the event described by the verb form a homomorphism. I will adopt a similar approach in this thesis.

1.2.3 Lexical insertion targeting spans

In this thesis, I assume that lexical insertion targets *spans*—that is, contiguous sequences of heads in head–complement relations with one another (Svenonius 2016, see also Brody 2000a,b, Ramchand 2008, Adger et al. 2009, Svenonius et al. 2009, Bye & Svenonius 2012, Svenonius 2012, 2016, Adger 2013.) Spanning fulfills the same theoretical role as head movement, in that it allows for a single morpheme to lexicalize more than a single head.

The explanatory power of spanning and head movement is in many cases quite similar.[3] Under the Head Movement Constraint of Travis (1984), head movement is strictly local, occurring only over contiguous head–complement sequences—that is, it holds only between heads that together constitute a span (Brody 2000a,b, Svenonius 2016). However, in addition to fulfilling the function of head movement, spanning also obviates the need for syntactic lowering (e.g., English T-to-V lowering as in Bobaljik 1995). This is because the exponent of the span may linearize in a position corresponding to any of the heads it spells out. For example, the exponent of a V–v–T span linearizes in T in French, but linearizes in v in English (Brody 2000b, Svenonius 2016). Linearization position is indicated by the position of the linearization feature @ in (7) below.

(7) a. French: V–v–T@

 b. English: V–v@–T

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[3]Though see Svenonius (2016) for a discussion of the differences between the two approaches.

This means that the English verb will precede any material in the specifier of or adjoined to V, while the French verb will precede any material in the specifier of or adjoined to either V or v.

For the present investigation of Hmong, the choice of spanning is mainly for concreteness. Many of the same facts could likely be captured under alternative theories with few to no ill consequences. The most important benefit to the spanning-based approach adopted here is that it provides a natural way for a single morpheme to contribute lexical-semantic content to more than one syntactic head at a time (Ramchand 2008). Following Ramchand (2008, pp. 57–62), multiple heads within a span can provide a "gap" to be filled in by the lexical-semantic content of the same single predicate. In a structure like (8), for example, the verb *push* contributes its lexical-encyclopedic content both to *init* (describing the action of the agent DP_1) as well as to *proc* (describing the process undergone by the object DP_2).[4] This gives rise to a semantics like that in (9), boldface mine for emphasis, in which (i) there are two asserted subevents, e_1 and e_2, and (ii) a speaker's (possibly prelinguistic) concept of *pushing* is separately employed to describe each of the two sub-events.

(8)   *init*P   (Ramchand 2008)

```
                  initP
                 /    \
            DP₁       
                    init   procP
                    push    /   \
                        DP₂
                            proc    XP
                           <push>
```
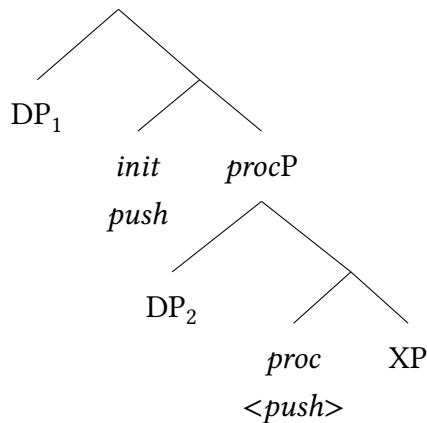
(9) $[\![init\text{P}]\!] = \lambda e \exists e_1, e_2[[\text{Path}(Y_c, e_2) \wedge \boldsymbol{push}(\mathbf{e_2}) \wedge \text{Process}(e_2) \wedge \text{Subject}(\text{DP}_1, e_2)] \wedge \boldsymbol{push}(\mathbf{e_1}) \wedge$
      $\text{State}(e_1) \wedge e = e_1 \rightarrow e_2 \wedge \text{Subject}(\text{DP}_2, e_1)]$ (Ramchand 2008, p. 62)

Hmong is a highly isolating language, and so for the most part, the structures given in this thesis will involve trivial spans comprising only a single head. No special attention will be given to those cases. In Chapter 4, however, we will see examples in which precisely this sort of semantic effect must be captured: the class of so-called "path predicates" in Hmong may contribute both verbal and prepositional meanings.

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[4]Example (8) employs Ramchand's *init(iator)* and *proc(ess)* category labels, which roughly correspond to Voice/v_{CAUSE} and v, respectively.

1.3 Serial verb constructions

The term "serial verb construction" (and its variants, including "serial verb", "verb serialization", etc.) refers to a class of phenomena in which two or more verbs combine, with no overt conjunction or other linking morphology, to describe a single event. Such constructions are widespread cross-linguistically; they occur in a diverse group of language families and in widely-separated parts of the world. Several illustrative examples are given in (10).

(10)   a. Yoruba   (Lord 1974)

Fẹ́mi **tì**   Akin **ṣubú**
Femi push Akin fall
'Femi pushed Akin down.'

       b. Mandarin   (Li & Thompson 1989, p. 595)

wō **mǎi** piào [**jìn qu**]
I   buy ticket enter go
(i) 'I bought a ticket and went in.'
(ii) 'I bought a ticket to go in.'

       c. Paamese (Oceanic, Austronesian)   (Crowley 1987, p. 48)

kaik **komuasinau   nauva**   netan
(kaiko ko-muasi-nau   nau-vaa   netano)
2SG   2SG-REAL-hit-1SG 1SG-REAL-go down
'You hit me down.'

       d. Dâw (Makú, Northwest Amazonia)   (Aikhenvald 2006b, p. 2)

yõ:h   **bə:-hãm-yɔw**
medicine spill-go-happen.straight.away
'The medicine spilt straight away.'

This dissertation focuses on several constructions found in Hmong which have been described as serial verb constructions in prior literature. This section provides a brief overview of the concept, including its history, issues in its definition, and its application to Hmong, along with a brief working definition of the term "serial verb construction" as it will be used in this study.

1.3.1 History

The earliest descriptions of serial verb constructions come from studies of West African languages. Aikhenvald (2018) traces examples of such constructions as far back as the mid-nineteenth century (Riis 1854, Zimmermann 1858, Christaller 1875, Westermann 1907, 1930, Balmer & Grant 1929,

Welmers 1946). The term "serial verb" itself originates from Balmer & Grant's (1929) grammar of Fante Akan, with a variant used by Welmers (1946). Following its use by Stewart (1963) and Stahlke (1970), the latter of whom coined the specific variant "serial verb construction", the term began to gain more widespread acceptance. This coincided with a boom in studies of serial verb constructions particularly in African languages (Williamson 1963, Stahlke 1970, Awobuluyi 1973, Lord 1973, 1975, Welmers 1973, Bamgboṣe 1974, Schachter 1974, George 1975a,b), but also in other parts of the world. (Many alternative terms also appear in the early literature; I will not discuss these here.) Serial verb constructions have since been widely attested in related creoles (Voorhoeve 1957, Williams 1971, Jansen et al. 1978, Sebba 1987), as well as Austronesian languages (Guy 1974, Foley & Olson 1985, Senft 1986, Crowley 1987), languages of East and Southeast Asia (Matisoff 1969, 1973, Li & Thompson 1973, 1989, Bisang 1992), languages of the Americas (Aikhenvald 1999, Aikhenvald & Dixon 2006), languages of Australia (Dixon 1972, 1977), and others.[5] There are far, far too many works on this topic to list them exhaustively; works cited here are simply intended to be representative of early developments in the description and analysis of verb serialization in particular language families and/or areal groupings. For a more thorough overview of the history and development of the serial verb construction as a topic of inquiry, I invite the reader to refer to Aikhenvald 2018, §1.3.

1.3.2 Serialization in Hmong

Several authors have discussed serial verb constructions in Hmong specifically. The most thorough description comes from Jarkey (1991, 2010, 2015), the only author to describe in significant detail the heterogeneity of serial verb constructions in Hmong.[6] There are also several earlier works which provide relatively cursory description, though they do attest to the existence of such constructions in Hmong (Owensby 1986, Clark 1992, Harriehausen-Muhlbauer 1992) and some draw comparison between Hmong and other languages of the area (Bisang 1991, 1992). Serial verb constructions are also attested in grammatical sketches of Hmong (Mottin 1978, pp. 92–103; Mortensen 2019, pp. 631–635).

Following Jarkey (2015), Hmong has four main types of serial verb construction. These differ from one another in interpretation, in word order, in the number of participating verbs, and in the classes these verbs are drawn from. Examples of these four main types, with Jarkey's labels, are given in (11) below. The "Cause-Effect" SVC describes direct causation, the "Cotemporal Motion"

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[5]The earliest attestation of (elements of) serial verb constructions in Austronesian are likely to be descriptions of "verbal prepositions", including those from Codrington (1885), Dempwolff (1939), Pawley (1973), Sohn & Bender (1973), Elbert (1974), Johnston (1978), and Fox (1979); all cited in Durie 1988.

[6]Jarkey 2015 updates and supersedes both Jarkey 1991, 2010.

SVC describes directed motion, the "Attainment" SVC describes the successful attainment of a result, and the "Disposal" SVC describes a series of actions done to an object.

(11) Classes of SVCs in Hmong (following Jarkey 2015)

    a. *"Cause-Effect" SVC*

       nws **txoob** lub tais **tawg**
       3SG smash CLF bowl break
       'He smashed the bowl and it broke.'

    b. *"Cotemporal Motion" SVC*

       kuv **khiav mus** tajlaj
       1SG run   to   market
       'I ran to the market.'

    c. *"Attainment" SVC*

       kuv **nrhiav**   **pom** lub pov
       1SG search.for see   CLF ball
       'I found the ball.'

    d. *"Disposal" SVC*

       lawv **hlais** cov txiv **faib   noj**
       3PL   slice CLF fruit divide eat
       'They sliced, divided, and ate the fruits.'

I will not use these particular labels in this dissertation, except occasionally to facilitate comparison with prior work. However, in presenting these labels here, I hope to reinforce an important point: that these constructions have varying properties, functions, and interpretations, and as such, they cannot (and should not) be reduced to a single consistent underlying formalism. This dissertation separately explores specific issues relating to three of these constructions: Chapter 3 explores direct and indirect causation and the "Cause-Effect" SVC in (11a), Chapter 4 explores the verbal/prepositional categorial status of predicates in the "Cotemporal Motion" SVC in (11b), and Chapter 5 explores (non-)culmination in Hmong and the role of the "Attainment" SVC in (11c) therein.

Analysis of the "Disposal" SVC is left for future work, as is analysis of two minor types in Jarkey's categorization, the so-called "Cotemporal Action and Stance" and "Cotemporal Action" types (Jarkey 2015, §3.1.2). In this thesis, I will also mention several additional complex predication constructions that are not considered serial verb constructions by either myself (see Section 6.3 below) or Jarkey (2015, §2.4.2). I pay significant attention to the indirect causative construction in Chapter 3 of this thesis, but other such constructions (including purpose constructions, control

verbs, "created result" constructions, passive-like constructions, and a variety of functional elements historically derived from verbs) will receive only cursory discussion here.

1.3.3 A working definition for serialization

In this work, I assume the working definition of "serial verb construction" given in (12) below. This definition is by no means a point of consensus—it will be revisited and modified in Section 3.4.2, and some general difficulties in defining serialization will be addressed in Section 6.3—but its broad outlines should be relatively uncontroversial. It largely follows Cleary-Kemp's (2015) definition, though it departs from that definition in two ways. First, I present "no overt coordination or linking" as its own independent criterion (rather than as evidence of monoclausality). Second, I omit Cleary-Kemp's (2015) "argument sharing" criterion, which I take to be a frequent (but not strictly necessary) consequence of monoclausality and monoeventivity.

(12)   Working definition of "serial verb construction"

    a. Formed from two or more lexical verbs

    b. No overt coordination or linking

    c. Monoclausal

    d. Monoeventive

The first criterion in (12) echoes Cleary-Kemp's (2015) "main verbhood" requirement, given in (13) below. This definition recognizes the distinction between verbs and superficially similar elements including auxiliaries, light verbs, adverbs, prepositions, and so on (which in many cases may have grammaticalized from verbs). It includes only the former, and excludes the latter.[7] I choose to refer to those verbs that pass this criterion as "lexical verbs" rather than "main verbs" here, to emphasize the contrast between the lexical category "verb" on the one hand, and various other lexical and functional categories on the other hand.

(13)   Definition of "main verbhood" (Cleary-Kemp 2015, p. 100)

    a. Both V1 and V2 can occur as a main verb in a mono-verbal clause

    b. Both V1 and V2 are unrestricted, or restricted to a recognized morpho-syntactic or semantic subclass of verbs

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[7]Other authors have variously phrased this as a requirement that each element of a serial verb construction should be a "non-auxiliary verb" (Jansen et al. 1978, p. 125), "be able to form a sentence on its own" (Bisang 1995, p. 139), "occur on its own as the only predicate in the clause" (Jarkey 2015, pp. 92–93), or be an "independent verb" (Haspelmath 2016, p. 303).

    c. The semantics of the verbs do not change when serialized

    d. The morpho-phonology of the verbs does not change when serialized

Cleary-Kemp takes this one step further. Her second and third criteria serve to exclude not only functional elements that are homophonous with verbs or that may have some verbal properties, but also functional *senses* of polysemous verbs. For example, English *make* can be employed as a main verb, as in (14a), or in combination with another verb, as in (14b), but the two uses clearly involve distinct semantic contributions. In the former case, it describes creation, in the latter, causation. Cleary-Kemp's criterion (c) excludes the English indirect causative in (14b) from the definition of "serial verb construction".[8] Cleary-Kemp's criterion (b) approaches this same concern from a different angle: the less restricted and more productive a putative serial verb construction is, the more likely it is to be genuinely formed from multiple "main verbs" (as opposed to light verbs, auxiliaries, etc.).

(14)   a. I **made** a sand castle.

       b. Then I **made** it fall down.

Presumably, Cleary-Kemp's criterion (c) is not intended to prevent the serial verb construction itself from introducing new components of meaning (for example, the causative meaning associated with the first predicate in the Hmong direct causative; see Chapter 3 of this thesis). This sort of addition can be ascribed to the syntactic structure in which the verb is merged rather than to a change in the meaning of the verb itself. I take this criterion to function primarily as a requirement that the typical meaning of the verb not be significantly weakened, lost, or entirely replaced.[9]

Already, this conflicts with some authors' definitions. For example, Mortensen (2019, p. 635), writing on Green Mong, describes certain functional morphemes derived from verbs as forming serial verb constructions. In some cases, a synchronic relationship between the two senses likely exists (e.g. *moog* 'go', and *moog* 'away (from speaker)'), while in others the relationship between these two elements may be diachronic only (e.g. *yuav* 'IRREALIS' and *yuav* 'want', *lawm* 'COMPLETIVE' and *lawm* 'leave', *tau* 'can, able to' and *tau* 'get').[10] As another example, Aikhenvald

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[8]This same distinction will also be drawn between two senses of Hmong *ua* 'make, cause' and 'make, build, create' in Chapter 3.

[9]Likewise, Cleary-Kemp's criterion (d) is presumably not intended to rule out productive phonological processes conditioned by the local environment, such as assimilation or epenthesis within single-word serial verb constructions of the sort discussed by Aikhenvald (2018, pp. 93–96). Rather, I take this condition to primarily rule out the insertion of additional morphemes.

[10]Compare Mortensen's description of Green Mong *moog* 'go, to, away' with the treatment of its White Hmong cognate *mus* 'go, to, away' given in Chapter 4 of this thesis.

(2018, p. 3) explicitly allows for some amount of variation in the meaning of a serialized verb: "A verb may have a different meaning when used alone and when used in an SVC, but the meanings should be relatable. The verb has to be able to stand alone." But it is somewhat unclear precisely how "relatable" the two senses must be—and from the discussion of so-called "causative serial verb constructions" (Aikhenvald 2018, pp. 48–49), it seems that Aikhenvald's notion of "relatability" allows for far greater differences than Cleary-Kemp's (and my) definition permits.

The second criterion in (12) straightforwardly rules out constructions involving the conjunction of two verbs (or verb phrases).

The third and fourth criteria are potentially somewhat redundant. These follow in the spirit of prior proposals from Bisang (2009) and Haspelmath (2016). Bisang proposes that the core property of the serial verb construction is monoeventivity—that is, a serial verb construction necessarily represents a single event. Although supported experimentally by Cole (2016), this approach has been criticized by both Haspelmath (2016) and Aikhenvald (2018) for relying on a primarily cognitive or semantic notion of event, and thus exposing itself to the well-known problem of counting events. Whether speakers perceive several distinct events or one complex event is influenced by contextual and cognitive factors (Bohnemeyer et al. 2007), can possibly be shaped to some extent by culture (see e.g. Bruce 1988, p. 23, Diller 2006, pp. 174–176, Cleary-Kemp 2015, p. 126, Jarkey 2015, pp. 117–118), and is in many cases simply difficult for the linguist to discern. Haspelmath instead claims that serial verb constructions should be characterized as necessarily *monoclausal*, with monoeventivity arising only as a consequence of this monoclausal syntax. This makes the monoeventivity of serial verb constructions redundant: "As far as I can tell, whenever a clear contrast between a single event and multiple events has been noted, it makes the same distinction as the grammatical criteria, in particular monoclausality and biclausality" (Haspelmath 2016, p. 306).

Before moving on, note that the definition in (12) is intended to pick out the same class of constructions in Hmong as described by Jarkey's (2015, pp. 92–93), who employs the criteria given in (15) below. Jarkey's criteria (a–c) are explicitly covered by my first two. The remaining properties described by Jarkey can all be derived from my third and fourth criteria: a monoclausal, monoeventive structure will naturally resist prosodic breaks (d), share a subject argument and any adjuncts (e, h), be dominated by a single extended projection (f–g), and express a single coherent event (i, j).[11]

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[11]Some criteria in (15) make reference to the notion of "core" from the Role and Reference Grammar framework (Foley & Van Valin 1984, et seq.).

(15)   Defining features of a serial verb construction (Jarkey 2015, pp. 92–93)

    a. A series of two or more concatenated verbs (with or without intervening core arguments).

    b. Each verb can occur on it own as the only predicate in the clause.

    c. No overt form of linkage.

    d. No pause between the juncts.

    e. At least one shared core argument.

    f. Shared core operators (i.e. deontic modality).

    g. Shared clausal operators (e.g. tense, epistemic modality, illocutionary force).

    h. A single set of peripheral adjuncts; the verbs belong to a single clause.

    i. No junct is embedded as an argument of another.

    j. The verbs are joint predicators within a single proposition, and express a single event.

Of course, these various properties remain useful diagnostics in Hmong specifically, but the same underlying structure need not give rise to precisely this set of properties in all languages.

1.4 Structure of the dissertation

The remainder of the dissertation is structured as follows. First, Chapter 2 provides background information on the White Hmong language. This includes historical and demographic information, a summary of the sound system and orthography, and (nearly) exhaustive review of existing literature on Hmong syntax and semantics.

Then, Chapters 3–5 address the main questions outlined above, namely: Where in the syntax can verbs appear? How are verbs distinguished from other predicates of other categories? What are the properties of individual predicates, and what are the properties of the heads they lexicalize? How similar/distinct are extended projections across categories? These three chapters delve into similar empirical domains. Chapters 3–5 each address a major type of serial verb construction described in Hmong; in the classification of Jarkey (2015), these are the so-called "Cause–Effect", "Cotemporal Motion", and "Attainment" constructions, respectively. For ease of comparison, I will occasionally make reference to those terms in this work; however, I will generally use more cross-linguistically applicable terms (e.g. "direct causative") when possible, and in certain cases I suggest differences in classification. In these chapters, I am not merely concerned with description and analysis of these constructions in Hmong. Rather, I provide analyses motivated by typological

and cross-linguistic comparison, and I explore the consequences thereof for relevant areas of linguistic theory.

Chapter 3 explores the connection between two empirical domains, both of which are sensitive to a boundary around the level of VoiceP: causativization (Fodor 1970, Rappaport Hovav & Levin 2001, Pylkkänen 2008, Harley 2008, Schäfer 2009, Nie 2020, among many others) and verb serialization (Aikhenvald 2006b, Bisang 2009, Cleary-Kemp 2015). In Hmong, direct causation must be expressed by a productive serial verb construction, while indirect causation requires a dedicated causative light verb *ua* 'make'. The major empirical question is this: since both constructions are "periphrastic" in the strict sense (i.e., since the cause and effect are described by two distinct words) why should they show a contrast in directness? In particular, why can a serial verb construction not express indirect causation? Syntactic diagnostics attest to robust structural differences between the direct and indirect causative constructions. The direct causative instantiates a single VoiceP constituent, while the indirect causative involves recursion. This proposal is consistent with the well-known notion that indirect causation can be encoded in a higher syntactic position than direct causation (see e.g. Fodor 1970, Rappaport Hovav & Levin 2001, Harley 2008, 2017, among others). To capture this parallelism, I propose a constraint on the distribution of "lexical" uses of verbs: they must merge within the first VoiceP constituent of the verbal extended projection, which has a special status with respect to the derivation of events (the "first phase" of Ramchand 2008), lexical insertion (the "domain of special meanings" of Marantz 1997, 2007), and other phenomena. Following Bittner (1999) and Kratzer (2005), I propose that the directness of a causal relation derives from the lexical-semantic content of the predicate(s) that describe it: "functional" verbs are capable of describing longer and more complex causal chains than "lexical" verbs. This restricts verb serialization to the same domain in which direct causation is derived. This predicts verb serialization to be generally associated with direct (and not indirect) causation cross-linguistically.

Chapter 4 examines a case of paradigmatic categorial flexibility: the class of "path predicates" in Hmong, which appear to have both verbal and prepositional uses (Clark 1979, Jarkey 2015, Johnston forthcoming). These can appear as the main predicate of the clause, as the complement of a manner-of-motion verb or of a transfer verb, or as the head of an adjunct modifying the event. I argue that path predicates are genuinely cross-categorial, lexicalizing a span (Svenonius 2016, a.o.) that crosses the boundary between the verbal and prepositional extended projections (as in Son & Svenonius 2008). Evidence comes from two co-occurrence restrictions which hold across all four environments: first, predicates describing the Source of motion obligatorily co-occur with a Goal predicate, and second, predicates of Route, Source, and Goal subtypes must

co-occur in precisely that order. Both facts are consistent with Pantcheva's (2011) decompositional analysis of the (prepositional) path domain. The behavior of Hmong broadly substantiates existing decompositional approaches to the prepositional phrase, though it offers two important contributions relating to details of the architecture of the Path domain: (i) the position in which Source is encoded, and (ii) the combinatorial properties of Route. To capture the differing semantic contributions of "main verb" uses of path predicates, I appeal to the same constraint argued for in the previous chapter: the predicate only has access to its "verbal" lexical semantics when it appears in the verbal domain, though it may have access to other meanings in other domains—including prepositional meanings in the prepositional domain.

Chapter 5 examines the expression of "culmination" in Hmong, which refers to the notion of an event's being carried through to completion (in the terminology of Parsons 1990). This property is the basis of a well-known typological contrast between "culminating Accomplishment" languages (e.g. English, French, Russian) and "non-culminating Accomplishment" languages (e.g. Mandarin, Hindi, Hmong). A growing body of work claims ascribes this typological contrast to the semantic contribution of perfective aspect (Martin 2019, Nadathur & Filip 2021), with the meanings of Accomplishment predicates consistently containing both total (i.e., complete) and partial (i.e., incomplete) eventualities in both types of languages. In Hmong, a culminating interpretation of an Accomplishment verb can be derived via secondary predication; however, Hmong is notable in that it also allows this structure for Goal-oriented path predicates discussed in Chapter 4—that is, Hmong also employs secondary preposition to derive an interpretation of culmination within the prepositional domain. This offers novel support for the formal syntactic and semantic parallelisms between the verbal and prepositional domains, and it also supports recent claims that Goal prepositions are also underlyingly non-culminating (Martin et al. 2021).

Chapter 6 concludes the dissertation by addressing some of the larger theoretical questions raised by this work. First, it compares "deprepositional" verbs argued for in Chapter 4 with more standard accounts of deadjectival and denominal verbs cross-linguistically. Second, it explores the decompositional structure of the prepositional domain, in light of the Hmong patterns observed in Chapters 4 and 5. Finally, it builds on the discussion in Chapter 3 to suggest a novel theory-internal definition of verb serialization.

1.5 Acknowledgment of previous work

Portions of chapters 3, 4, and 5 have appeared or are forthcoming in the proceedings of the West Coast Conference on Formal Linguistics (WCCFL 41 and 42) and the proceedings of GLOW in Asia

XIV. Preliminary investigations were also presented at the Montreal-Ottawa-Toronto-Hamilton Syntax Workshop (MOTH 2021 and 2022) and at the annual meeting of the Linguistic Society of America (LSA 96), though the conclusions in those works differ in many respects from those presented here.

2 Grammar of White Hmong

This chapter reviews some of the basic grammatical properties of White Hmong. Like many Southeast Asian languages, Hmong is tenseless, tonal, and highly isolating (see e.g. Enfield 2005). The basic word order is SVO, and the primary inflectional category is aspect, although aspect marking in Hmong is generally optional (Mottin 1978, Jarkey 2015). Hmong is a classifier language, it is a non-culminating Accomplishment language, and it employs a number of productive serial verb constructions.

All of these points will be addressed in slightly more detail below. Of necessity, the discussion in this chapter is not comprehensive, but it aims to (i) address the basic properties of Hmong, while (ii) touching on topics that will be relevant in Chapters 3–5.

Readers who are less interested in the finer points of Hmong grammar—or who are already familiar with Hmong grammar—should feel free to skip this chapter. Facts immediately relevant to the discussion in Chapters 3–5 will also be addressed in those chapters.

2.1 Varieties and names

White Hmong is a Hmong-Mien language traditionally spoken in Laos and Thailand. This is simply an English translation of the endonym *Hmoob Dawb* 'White Hmong'. *Hmoob Dawb* is sometimes transliterated in English as "Hmong Daw" or "Hmong Der", but all of these names refer to the same variety.

Typically, White Hmong is considered one of two Laotian Hmong varieties, with the other variety being referred to either as *Moob Ntsuab* 'Green/Blue Mong' or *Moob Leeg* 'Seamed Hmong', and variously translated or transliterated as Green Mong, Blue Mong, Mong Njua, or Mong Leng. The contrasting spellings of "Hmong" and "Mong" reflect a phonological contrast: *Moob* begins with a voiced nasal, while *Hmoob* begins with an unvoiced nasal (see Section 2.3.2 below). The precise number of Hmong varieties spoken in Laos is somewhat unclear, as "Mong Leng" and "Mong Njua" are frequently regarded as two interchangeable names for the same variety. This view is held not only by academics but also by some members of the Hmong community,

particularly in the North American diaspora. However, Ly (2019) argues that Mong Leng and Mong Njua in fact constitute two distinct varieties, with a number of shared phonological patterns and vocabulary items that distinguish both from White Hmong, as well as a smaller number of innovations that distinguish Mong Leng and Mong Njua from one another. As I have not worked directly with speakers of those varieties, I will remain somewhat agnostic as to whether or not Mong Leng and Mong Njua should be considered two distinct varieties or one—though it seems clear from the evidence presented by Ly that they resemble one another more closely than either resembles White Hmong.[1]

This thesis primarily bears on grammatical facts that, so far as have been described, are consistent across White Hmong, Mong Leng, and Mong Njua. Because of this, I will generally use the broader term "Hmong" as a shorthand, using more specific terms only when it is necessary to specifically disambiguate between Hmong varieties. However, it should be understood that although the data presented in this thesis are likely applicable to other Hmong varieties, they have only been elicited from speakers of White Hmong, and thus there may be minor grammatical differences of which I am not presently aware.

2.2 Grammars, dictionaries, and other resources

At present, there are no comprehensive, book-length grammars of Hmong available. On White Hmong specifically, the two most comprehensive grammatical sketches available are Mottin's (1978) French-language *Éléments de grammaire hmong blanc* (which is also the most widely-cited Hmong grammar) and Chapter 1 of Jarkey's (2015) book on White Hmong serial verb constructions. Work on Mong Leng/Mong Njua includes short grammatical descriptions by Lyman (1979), Harriehausen (1990, in German), and Mortensen (2019). A number of dictionaries have also been compiled. Three important early dictionaries translate between White Hmong–

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[1]Complicating this picture is the widely-observed fact that endonyms used by Hmong-speaking communities in Southeast Asia do not always sharply differentiate along linguistic lines (Yang 1998, Tapp 2002, Culas 2009, Lee & Tapp 2010, Jarkey 2015). Some endonyms do not correspond to a distinct variety of the Hmong language; for example, the Striped (Armband) Hmong (*Hmoob Quas Npab* or *Hmoob Txaij Npab*) of Laos and Thailand speak White Hmong (Jarkey 2015, p. 7). Other endonyms are sometimes used for cultural rather than linguistic reasons; for example, there exist self-identified White Hmong communities in Myanmar and in China whose speech clearly shows the phonological hallmarks of Green Mong (Yang 1998, Tapp 2002). A somewhat similar situation holds for speakers of various Hmong-Mien languages in China, which are often referred to with a variety of exonyms not used (or used only inconsistently) as endonyms. For example, in Sposato's (2021, p. 18) grammar of Xong (Western Hunan), he notes that "[m]ost of the author's own Xong-speaking consultants have reacted with nothing but puzzlement when presented with terms like "Red/Black/Flowery Miao", and the few who were familiar with them have given conflicting responses." Diamond (1995) claims that this profusion of colorful but inconsistently-applied labels may have arisen from the popular "Miao albums" of late imperial China.

French (Bertrais 1979), White Hmong–English (Heimbach 1979), and Mong Leng–English (Lyman 1974). Other available dictionaries include Yang 1980, Xiong et al. 1983, Pan 1993, Xiong 2005 and Xiong 2011. Historical and genealogical overviews of the Hmong-Mien languages include works by Ratliff (1994, 2010) and Strecker (1987).

A number of studies have been published on the syntax, semantics, morphology, phonology, and phonetics of Hmong. This chapter discusses many such sources, though not all. For those interested in a more thorough overview of the available literature on Hmong-Mien languages, see the annotated biliographies compiled by Niederer (1998) and Mortensen (2014).

2.3 Phonology and Orthography

2.3.1 The Romanized Popular Alphabet (RPA)

The Romanized Popular Alphabet (RPA) was developed in Laos between 1951 and 1953, by a group of missionaries and Hmong advisors (Smalley et al. 1990). It was developed for use by speakers of White Hmong and Mong Leng/Mong Njua varieties, and is today used widely in Laos and in the Hmong diaspora.

The most notable features of the RPA are (i) the use of syllable-final characters to represent tone (e.g. *pom* 'see', *pov* 'throw'), (ii) the use of doubled vowels to represent nasalization (e.g. *ntoo* 'tree', *hneev* 'crossbow', etc.), (iii) the use of multiple syllable-initial characters to represent a single complex onset (e.g. **ntsh***ai* 'to fear', **hny***av* 'heavy'). These apparently-complex RPA spellings are, in fact, regularly and transparently related to the underlying phonology. The details of the system will be given in Sections 2.3.2–2.3.4 below.

However, there are a few areas in which spellings may be less transparent and more idiosyncratic. The first is tone sandhi, which may or may not be reflected orthographically, depending on the preference of the writer. For example, the combination of *ob* 'two' and *tus xibfwb* 'teachers' may be rendered as *ob **tug** xibfwb* by some writers (with the tone sandhi made explicit) and as *ob **tus** xibfwb* by others (with the obligatory tone sandhi left implicit).

The second is in the case of proper names. In diaspora communities, Hmong proper names are often rendered in a way that is more consistent with the orthographic conventions of the contact language (i.e., English or French). For example, "Shoua" may be used for RPA *Sua*, "Tong" for RPA *Tooj*, "Zer" for RPA *Ntxawm*, and so on. In this work, I render names in Hmong examples using the RPA spellings, while rendering names in glosses and translations using a typical Anglicized spelling.

The third is the use of variant spellings inspired by English orthographic conventions (for

example, *nts → j, nk → g*), which sometimes occurs in casual written exchanges such as text messaging (Bee Vang-Moua, p.c.). None of the data presented in this thesis is taken from such sources, so this will not be observed here.

2.3.2 Consonants

Hmong has a relatively large inventory of consonant phonemes (57 in White Hmong, 54 in Green Mong). The bulk of these consonants are simple stops, laterally released stops, and affricates, nearly all of which contrast both in aspiration and in prenasalization. This leads to a large number of four-way contrasts between unaspirated, aspirated, prenasalized, and prenasalized+aspirated forms (Smalley 1976). Notably, White Hmong also has a series of voiceless nasals (these are absent in Green Mong; see e.g. Mortensen 2019).

For the most part, the Hmong RPA represents simple consonants in a way that straight-fowardly resembles the IPA. This includes the stops *p, t, c, k, q*, the fricatives *f, v, h*, and the sonorants *m, n, l*. The more significant departures include: the use of *s/z* and *x* for post-alveolar and dental fricatives respectively, *r* for a retroflex affricate, and *y* for a palatal approximant/fricative.

The RPA represents complex consonants with a small inventory of "modifier" characters, which inform the pronunciation of the "core" consonant. An *n* preceding a consonant indicates prenasalization, an *h* following a (stop) consonant indicates aspiration, and an *l* following a consonant indicates lateral release. An *h* preceding a nasal or fricative indicates voicelessness, and a *y* following another consonant indicates a palatal place of articulation. Also note that the combination of *t* with a fricative (*s* or *x*) indicates an affricate at the corresponding place of articulation.

The full range of Hmong consonants are given in Section 2.3.2.[2] For each consonant, this table represents its orthographic form in the Hmong RPA, along with its pronunciation in the IPA. Though the glottal stop is not represented orthographically, it occurs in the vast majority of orthographically vowel-initial syllables in Hmong, with the only exceptions being a small set of approximately six illocutionary particles (Jarkey 2015).

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[2]This includes the marginal phoneme /ŋ/, represented by orthographic *g*, which occurs only in onomatopoeia (Jarkey 2015) and in the loanword *gus* 'goose' (Heimbach 1979).

Figure 2.1: Hmong consonants and their orthographic representations
(adapted from Jarkey 2015)

		Labial	Dental	Alveolar	Post-Alveolar	Retroflex	Palatal	Velar	Uvular	Glottal
Stops	Unaspirated	p /p/	t /t̪/	d /d/			c /c/	k /k/	q /q/	/ʔ/
	Aspirated	ph /pʰ/	th /t̪ʰ/	dh /dʰ/			ch /cʰ/	kh /kʰ/	qh /qʰ/~/qχʰ/	
	Prenasalized	np /mb/	nt /nd̪/				nc /ɲɟ/	nk /ŋg/	nq /ɴɢ/	
	Prenasalized aspirated	nph /mpʰ/	nth /nt̪ʰ/				nch /ɲcʰ/	nkh /ŋkʰ/	nqh /ɴqʰ/	
Affricates & lateral release	Unaspirated	pl /pl/	tx /t͡s̪/	dl /dl/	ts /t͡ʃ/	r /t͡ʈ/				
	Aspirated	plh /pɬ/	txh /t͡s̪ʰ/	dlh /tɬ/	tsh /t͡ʃʰ/	rh /t͡ʈʰ/				
	Prenasalized	npl /mbl/	ntx /nd͡z̪/	ndl /ndl/	nts /nd͡ʒ/	nr /nd͡ʈ/				
	Prenasalized aspirated	nplh /mpɬ/	ntxh /nt͡s̪ʰ/	ndlh /ntɬ/	ntsh /nt͡ʃʰ/	nrh /nt͡ʈʰ/				
Fricatives	Voiceless	f /f/	x /s̪/		s /ʃ/		xy /ɕ/			h /h/
	Voiced	v /v/			z /ʒ/					
Nasals	Voiceless	hm /m̥/	hn /n̥/				hny /ɲ̊/			
	Voiced	m /m/	n /n/				ny /ɲ/	(g) /ŋ/		
Nasals with lateral release	Voiceless	hml /m̥ɬ/								
	Voiced	ml /ml/								
Approximants & laterals	Voiceless		hl /ɬ/							
	Voiced		l /l/				y /j/~/ɟ/			

☐ Consonants in both varieties
▨ Consonants in White Hmong only
▩ Consonants in Mong Leng/Mong Njua only

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Figure 2.2: Hmong vowels and their orthographic representations (Jarkey 2015)

i /i/		w /ɨ/		u /u/	
	e /e/		o /ɔ/		
	ee /ɛ̃ŋ/		oo /ɔ̃ŋ/		
		a /ɐ/	aa /ɐ̃ŋ/		

Opening dipthongs:	ia /ɪɐ/	ua /ʊɐ/		
Closing dipthongs:	ai /ɐɪ/	aw /ɐə/	au /ɐʊ/	

☐	Vowels in both varieties
▨	Vowels in Mong Leng/Mong Njua only

2.3.3 Vowels

Hmong has six simple vowels, as well as two or three nasal vowels (two in White Hmong, three in Green Mong) and five dipthongs. These are illustrated in Figure 2.2. The RPA orthography represents simple vowels and dipthongs in a relatively straightforward way, with the possible exception of the use of *w* for /ɨ/.

Nasal vowels are perhaps less straightforward: vowel nasalization is indicated by doubling of the vowel. Vowel nasalization is also accompanied by a syllable-final nasal—the only instance of a coda consonant in the Hmong language. However, because this apparent coda consonant obligatorily occurs following one of the small set of nasalized vowels, it is treated as a reflex of vowel nasalization (Jarkey 2015).

2.3.4 Tones

There are seven phonemic tones in Hmong. Since there are no coda consonants in Hmong,[3] these are represented orthographically with consonant symbols in coda position. (That is, the orthographic contrast between *pom* 'see', *pov* 'throw', and *pob* 'ball' reflects a tonal contrast.)

Five of these tones are realized with modal voicing; these include three level tones character-ized primarily by variation in pitch (*b*, unmarked, and *s*), a falling tone (*j*), and a rising tone (*v*).

---

[3]The one exception to this generalization is the syllable-final nasal discussed in Section 2.3.3 above, which is treated orthographically as part of the vowel system.

Figure 2.3: Hmong tones and their orthographic representations (Jarkey 2015)

Symbol	Pitch contour	IPA	Description
b	55	˥	high level, modal, short
j	53	˥˧	high falling, modal
g	42	˦˨	high/mid falling, breathy
v	24	˨˦	mid rising, modal
∅	33	˧	mid level, modal
s	22	˨	low level, modal
m	21	˨˩	low falling, creaky, short
d	213	˨˩˧	low falling-rising, modal, long

The two remaining tones are characterized primarily by voicing quality, with one corresponding to breathy voice (*g*) and one corresponding to creaky voice (*m*). The RPA also includes an eighth orthographic tone (*d*), which is a variant of the *m*-tone that appears in certain phrase-final and clause-final positions.

The orthographic representations of these tones are given in Figure 2.3, along with their pitch contours and a brief description of their properties (following Jarkey 2015).

The phonologically-unmarked tone in Hmong is the low level *s*-tone. This is the default choice in nonce words used to illustrate pronunciation of consonants and vowels, as well as in many borrowed words, particularly those from non-tonal languages like English (Jarkey 2015).[4] In multi-syllabic words, this can result in a rather striking number of successive *s*-tone syllables, as in (1).[5]

(1) ciam   teb   Asmesliskas thiab Kasnasdas(Internet)
     boundary country America   and   Canada
     'the border of America and Canada'

There are two productive processes in Hmong which result in tone change. The first is tone sandhi. Tone sandhi in Hmong is driven by a combination of several phonological and syntactic factors (Ratliff 1987, 1992a). It occurs only following *b*-tone and *m*-tone words, and it has the effect of neutralizing four tones (the *j*-, *s*-, and *m*- tones change to the *g*-tone, which does not itself change) and shifting two others. This is schematized in Section 2.3.4. However, this behavior only in syntactic environments which are sufficiently local. In (2a–b), for example, *dej* 'water' triggers tone sandhi in *sov* 'be(come).warm' when *sov* acts as a modifier, but does not trigger tone sandhi

---

[4]Riddle (1989) observes that a number of (relatively) recent loanwords from Chinese instead receive the *m*-tone.
[5]Example (1) was found at `https://www.youtube.com/watch?v=YZSzHRxdCMQ`.

Figure 2.4: Tone sandhi in White Hmong

Underlying tone		Following *b*- and *j*-tones
j	→	*g*
m	→	*g*
s	→	*g*
∅	→	*s*
v	→	∅
b		*b*
g		*g*

in *sov* when *sov* acts as a predicate. Furthermore, this system is not fully regular; a number of phonetically- or phonologically-driven exceptions exist. For a detailed discusion of tone and tone sandhi in Hmong, see Ratliff 1992a.

(2) a. dej   sov   (Ratliff 1992a)
        water be(come).warm

        'The water is warm.'

    b. dej   so
        water be(come).warm

        'The warm water.'

The second is a relatively restricted alternation between the *m*- and *d*-tones (Ratliff 1992a). This has its roots in a small class of "Place prepositions" or "Spatial Deictics".[6] These elements generally have an *m*-tone in their citation form, but are realized with a *d*-tone when they occur in phrase-final position. For example, when *nram* 'down there' precedes a noun phrase, as in (3a), it appears with an *m*-tone, but when it appears as a demonstrative pronoun or an attributive modifier, it appears with a *d*-tone as in (3b).

(3) a. tus tub mus txog **nram**   hav-dej   (Jarkey 2015)
        CLF boy go   up.to down.there valley-water

        'The boy got to the river valley down there.'

    b. tus tub mus txog **nrad**
        CLF boy go   up.to down.there

        'The boy got down there.'

---

[6]The syntactic properties of these elements will be discussed in Section 2.8.1 below.

More recently, several additional words have been attracted into this alternation (including *qaum/qaud* 'back, top part', *sim/sid* 'time', *npaum/npaud* 'measure', and *nkawm* 'pair, couple'/*nkawd* '3DU'), and this alternation has also broadened to include certain vocative expressions, such as *niam* 'mother'/*niad* 'mother!' (Ratliff 1992a).

2.4 Syllable and word structure

Hmong syllables are generally CV in shape, though depending on the treatment of dipthongs and nasalized vowels, as discussed in Section 2.3.3 above, syllables may be as complex as CVV or CVN.

Like other languages of Southeast Asia, Hmong is a highly isolating language with a large proportion of monosyllabic words. Because of this, syllables and words generally coincide in form, though there do exist a reasonable number of polysyllabic words in Hmong. These include polysyllabic loanwords, compounds, and reduplicated forms.

Polysyllabic loanwords (consisting of a single morpheme) have been drawn from English (e.g. *doslas* 'dollar', *pev xij* 'soda', from 'Pepsi'), Lao (e.g. *tajlaj* 'market'), Chinese languages (e.g. *xibfwb* 'teacher', *phoojywg* 'friend') and others. Some are relatively recent borrowings, while others are well-established in the language.

Compounding is a highly productive process in Hmong (Ratliff 1992b). Many compounds are transparently compositional, for example: *ciab-mu* (wax-bee) 'beeswax', *qab-pag* (bottom-lake) 'lake bottom', *dab-npuas* (trough-pig) 'pig trough'. Others have been lexicalized as single words and developed idiomatic interpretations, for example: *kawm-ntawv* (study-writing) 'school', *xov-tooj* (wire-copper) 'telephone', *niam-txij* (mother-father) 'parents', or *paj-ntaub* (flower-cloth) 'embroidery'.[7]

Reduplication in Hmong is prefixal. This can be seen in two ways. First, the reduplicant may be pronounced simply as a CV onset+nucleus; the tone and rhyme may optionally be omitted. That is, *khiav~khiav* in (4a) may be pronounced either as /kʰiaɹ.kʰiaɹ/ or as /kʰi.kʰiaɹ/; *ceev~ceev* in (4b) may be pronouced either as /cẽŋɹ.cẽŋɹ/ or /cɛ.cẽŋɹ/. Second, when a multi-syllabic word is reduplicated, as in (4c), only the first syllable is copied.

(4)   a.   [lub tshev kuv yuav] **ceev~ceev**
           CLF car   1SG buy   RDUP~fast
           'The car that I bought is really fast.'

---

[7]Ratliff (2010, p. 201) claims that in some apparent compound words, the initial element has grammaticalized into a "nominal prefix", a pattern found in many Hmong-Mien languages.

b. nws **khiav~khiav**
3SG RDUP~run
'He really ran.'
i. 'He ran really fast'
ii. 'He ran for a very long time'.

c. ces   Yaj Yim Leej **kub~kub-siab**   ntawv   los,   Yaj Yim Leej ho
CONJ Ya Yee Leng RDUP~be.hot-liver writing CONJ Ya Yee Leng actually
mob~mob-siab   Yaj Yim Leej tus poj.niam] thiab lau   (Jarkey 2015, p. 29)
RDUP~be.sick-liver Ya Yee Leng CLF woman   also   INTNS
'Ya Yee Leng was totally dedicated to study, but his heart really ached for his wife too.'

The semantic contribution of reduplication depends on the reduplicated element. Depending on the predicate in question, it may convey intensification of some property, a large quantity, increased duration (for durative predicates/adverbs), or iteration (for semelfactives). Achievement verbs in Hmong cannot be reduplicated (Jarkey 2015). Reduplication is discussed in more detail in Section 4.2.1, in which I show that Hmong Path predicates likewise cannot be reduplicated.

The spelling of multisyllabic words varies somewhat. In some cases, they are represented as a single orthographic word, which faithfully represents the word structure. In other cases, the syllables are separated from one another by spaces, to make it obvious which orthographic consonants are onsets (i.e., genuine consonants) and which are codas (i.e., tone letters).

2.5 Clause structure

The default word order in Hmong is subject–verb–object. The primary inflectional category in Hmong is aspect, though aspect marking is generally optional in the language. Negation, usually signaled by *tsis*, precedes the verb.[8]

There are two primary aspect markers in Hmong, both of which are generally optional. The first is the imperfective marker *tabtom* 'IPFV', shown in (5).[9]

(5)   nws tab.tom mob   thaum nws kwv.tij tuaj   xyuas nws   (Jarkey 2015)
3SG IPFV   be(come).sick time   3SG cousin come check 3SG
'He was sick when his cousins came to check on him.'

---

[8]In certain cases, such as negative imperatives, the negative irrealis marker *txhob* is used instead of or in addition to *tsis*.

[9]Imperfective aspect may also be signaled by one of several aspectual adverbs, including *tseem* 'still', *pheej* 'continually', sij 'repeatedly', and *yeej* 'originally', and possibly also by reduplication of a durative main verb (Li 1991, White 2014, Jarkey 2015).

The second is the Perfect marker *lawv*. This conveys (i) that the event is completed, and (ii) that it continues to be relevant. Sentences containing *lawm* are often understood to describe past events, as in (6), but this is not required, as (7) shows.

(6) nws mus lawm   (Mottin 1978, p. 85)
    3SG go PRF
    'He has gone.'

(7) luag muab coj   mus txog tsev lawm, ces thiaj.li tso   neeg   tuaj tshab
    other take take.along go   arrive home PRF   CONJ so   send person come CLF
    xo   rau niam-txiv   (Jarkey 2015, p. 69)
    message for parents
    'When they have taken (her) to their home, then they will send someone to bring the news to (her) parents.'

There may exist a third viewpoint aspect marker in Hmong: a preverbal morpheme *tau* is variously described as a marker of perfective aspect, a modal verb meaning 'get to, manage to', or a grammatical marker of "achievement" (Li 1991, White 2014, Jarkey 2015). Because in some environments it appears to have multiple senses or interpretations, for example (8), it is not fully clear whether these represent a single lexical item or multiple homophonous lexical items.

(8) kuv tau khu   lub tsheb   (Green Mong; Li 1991, p. 32)
    1SG TAU repair CLF car
    i. 'I fixed the car.'
    ii. 'I got to fix the car.'

Hmong does not have any dedicated tense markers, though the irrealis marker *yuav* was frequently described as a future tense marker in early work on Hmong (Bertrais-Charrier 1964, Mottin 1978, Heimbach 1979, Jaisser 1984, Fuller 1985). Though it commonly signals future time reference, as in (9a), *yuav* is also used for a variety of other non-actual propositions, as shown in (9b), and is therefore better described as an irrealis marker (Li 1991, Jarkey 2015).[10]

(9) a. nwg yuav tau   noj nqaj   (Green Mong; Li 1991)
       3SG IRR get.to eat meat
       'She will get to eat meat.

---

[10]This use of *yuav* appears to derive from the verb *yuav*, meaning 'obtain, buy' or 'want' (Clark 1982, Li 1991).

b. peb hais tias "nws de   tau ib   lub taub"   yuav tsis meej npaum li qhov "nws
   1PL say that 3SG   pick get one CLF pumpkin IRR   NEG clear equal   as thing 3SG
   de   tau ib   lub taub   dag"   (Jarkey 2015, p. 60)
   pick get one CLF pumpkin yellow

'If we say "he picked a pumpkin" it would not be as clear as "he picked a yellow
pumpkin".'

Although Hmong does not represent tense overtly, it does encode a finiteness distinction in
embedded clauses (Johnston & Soh 2024). This is signaled by the choice of complementizer that
introduces them, with *(hais) tias* used for finite complements and *kom* or *(hais) tias kom* used for
nonfinite complements (cf Jarkey 2006), and reflected in the (un)availability of tense/aspect/mood
markers like *yuav* 'IRR' and preverbal *tau* 'manage to, PFV' within the embedded clause. These
appear in finite clauses like (10a), but not in nonfinite clauses like (10b–c).

(10) a. Vwj hais [tias   Maiv tau/yuav ua   mov].
         Vue say   COMP Mai PFV/IRR   make food.
         'Vue said that Mai cooked/will cook.'

      b. Vwj hais [tias.kom Maiv (*tau/*yuav) ua   mov].
         Vue say   COMP   Mai   PFV/IRR   make food.
         'Vue told Mai to cook.'

      c. Vwj hais [kom   Maiv (*tau/*yuav) ua   mov].
         Vue say   COMP Mai   PFV/IRR   make food.
         'Vue told Mai to cook.'

Other modal elements may appear before negation, between negation and the verb, or
following the verb, depending on the element in question (see Mottin 1978, White 2014, Jarkey
2015).

2.6 Nouns and the noun phrase

2.6.1 Basic structure of the noun phrase

In Hmong, the basic order of elements in the noun phrase is as follows: possessor, quantifier
(including numeral quantifiers), classifier, noun, attributive adjective, demonstrative (Ratliff 1991).
This is illustrated by (11).

(11) kuv ob   tug miv dub   ntawd   (Ratliff 1991, p. 695)
      1SG two CLF cat black there
      'My two black cats there'

Ratliff proposes that this ordering derives from a hierarchical structure like that sketched in (12). The precise structural relationships are left somewhat vague, though Ratliff notably provides evidence that quantifiers (Q) and classifiers (Clf) form a constituent to the exclusion of the noun itself.[11]

(12)   NP   (Ratliff 1991, p. 695)

```
                    NP
                   /  \
                  /    Dem
                 /    /  \
              Poss   /    \
                    /      \
                   QP       NP
                  /\        /\
                 /  \      /  \
                Q   Clf   N   Adj
```
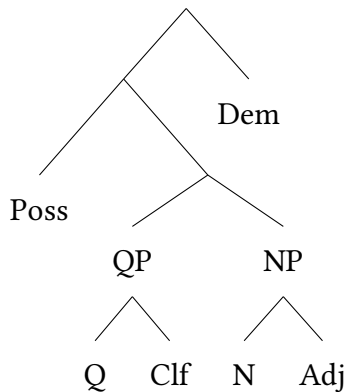
This sketch takes into consideration several facts. First, a numeral may condition tone sandhi on the classifier: in (11), for example, *ob + tus* is realized as *ob tug*. The classifier, however, never conditions tone sandhi on the following noun. Second, the inclusion of a possessor or demonstrative makes the classifier obligatory. Third, classifier pronominalization appears to target a single constituent which includes the numeral quantifier, classifier, head noun, and any attributive modifiers, but not possessives or demonstratives, as in (13).

(13) **tus no** yog **kuv tus**   (Ratliff 1991)
   CLF this COP 1SG CLF
   'This one is mine.'

Ratliff also identified two complications to this basic order. The first is the behavior of non-numeric quantifiers, including *coob* 'many (animate)', *ntau* 'much/many (inanimate)', and *tsawg* 'little/few' . These can be "floated" to a position following a non-classified noun, as in (14b) below, and unlike numeral quantifiers these do not co-occur with possessives.

(14) a. muaj [**tsawg** lub tsev [yug npua]]   (Mottin 1978, p. 52)
     have few CLF house raise pig
     'There are few families who raise pigs.'

   b. muaj [nqaij **tsawg~tsawg**] li
     have meat RDUP~little INTNS
     'There's very little meat.'

---

[11]The implementation of this structure under a more modern view of DP-internal syntax is left for future authors.

The second complication is that certain attributive modifiers, including *niag* 'great', *nyuag* 'little', and *qub* 'old/former', can appear in pre-nominal position. They may surface between the classifier and the noun, or they may replace the classifier even in environments where the classifier is otherwise obligatory (such as following a numeral quantifier) (Ratliff 1991, Jarkey 2015).

(15) a. peb   tug **nyuag** hluas.nkauj   (Jarkey 2015)
          three CLF little   young.woman
          'three little girls'

     b. ib   **nyuag** suab
          one little   sound
          'a little sound'

2.6.2 Classifiers, class nouns, and measures

Hmong has a large number of words that have been described as classifiers: Mottin (1978) includes a list of 53 such items. However, subsequent work has shown that not all of these words have the same function. Rather, they are a mix of true classifiers, measure words, and class nouns (Bisang 1993).

Bisang describes the usage of eleven common Hmong classifiers on the basis of two primary features, animacy and shape. This classification is given in Figure 2.5. Two classifiers are associated with features in both domains: *tus* is used for people and animals, as well as for one-dimensional objects; *lub* is used for inanimate and three-dimensional objects.

More qualitative factors also play a role in classifier choice to some extent. This is necessary for Bisang, at least in differentiating *tus* and *txoj*, both of which are associated with saliently one-dimensional objects. In general, *txoj* is preferred for longer and more flexible objects (Jaisser 1987,

Figure 2.5: Eleven Hmong classifiers (Bisang 1993)

leej	[+human]	*tus*	[+animate]
lub	[-animate]		
txoj	[one-dimensional]	*tus*	[one-dimensional]
daim	[two-dimensional]	*lub*	[three dimensional]
rab	[tools, instruments, things with handles]		
txhais	[one of a pair of objects that occur together]		
thooj, qhov, zaj, tsab occur with only a few particular nouns			

Bisang 1993, Sakuragi & Fuller 2013). Experimental evidence also supports this view: Sakuragi & Fuller (2013) find that classifier choice is more variable than expected. They hypothesize that a third criterion, the (perceived) function of the physical object, is also at play.

Because *lub* occurs with a large number of nouns, including many words recently introduced to the Hmong language, it might plausibly be considered the default classifier in the language. (see Bisang 1993, p. 31). However, Sakuragi & Fuller (2013, p. 360) observe that young Hmong speakers in the United States may prefer *qhov* as a default classifier.

Bisang also includes extensive lists of those elements he considers to function as quantifiers and class nouns. These include certain items commonly considered to be quantifiers, such as *phau* 'bound object', *lo* 'mouthful', and *pob* 'lump, knot'. This follows Ratliff's (1991) similar treatment of apparent "double classifiers" observed in Hmong, such as in (16) below, which are instead treated as the combination of a classifier plus a class noun or measure word.

(16) a. **cov   phau   ntawv**   (Ratliff 1991)
         CLF.PL bound.object writing
         'the books'

      b. **cov   phab** ntawv
         CLF.PL side   writing
         'the pages'

      c. **cov   lo   lus**
         CLF.PL mouthful speech
         'the words'

      d. **cov   zaj   lus**
         CLF.PL sayings speech
         'the sentences'

Of particular note is the classifier *cov*, which is usually glossed as a plural classifier (as in the examples in (16) above). However, it may be better described as having a collective meaning rather than a simple plural meaning, given that it usually appears with groups of unspecified number and not with numeral quantifiers, as (17a–c) illustrate.

(17) a. tus xib.fwb
         CLF teacher
         'The teacher'

      b. cov   xib.fwb
         CLF.PL teacher
         'The teachers'

   c. peb   tug xib.fwb
      three CLF teacher
      'The three teachers'

2.6.3 Pronominals

The Hmong pronominal system distinguishes singular, dual, and plural forms across all three persons, along with singular and plural impersonal pronouns.[12] These pronouns, shown in Figure 2.6, do not vary in form based on case, animacy, or any other similar properties. There is likewise no dedicated possessive form; a possessor (whether a DP or a pronoun) simply appears at the left edge of the possessee as in (18).

(18)   Tub ntaus [Tub/kuv tus kwv]
       Tou hit   [Tou/1SG CLF younger.brother]
       'Tou hit his/my brother.'

     Hmong also allows *pro*-drop, when the referent of *pro* is clear from context. To date, there has been no detailed investigation of the precise conditions under which this occurs in Hmong.

2.7 Verbs and the verb phrase

2.7.1 Transitivity classes

In Hmong, transitive and intransitive verbs represent two distinct classes with little to no crossover. There are no productive causative or anticausative alternations in Hmong; instead, the language has a large number of near-synonymous transitive–intransitive pairs. Some common examples include *dua* 'tear_{TR}' and *ntuag* 'tear_{INTR}', *tua* 'kill' and *tuag* 'die', or *hlawv* 'burn_{TR}' and *kub* 'burn_{INTR}'.

Figure 2.6: White Hmong pronouns

	Singular	Dual	Plural
1	*kuv*	*wb*	*peb*
2	*koj*	*neb*	*nej*
3	*nws*	*nkawd*	*lawv*
Impersonal	*yus*		*luag*

---

[12]Mottin (1978, p. 44) also describes two variant forms of the impersonal plural not shown here: *lawv tej* (derived from *lawv* '3PL') and *luag tej*.

No prior work on Hmong addresses the unaccusative/unergative distinction. I discuss this in some detail in Section 3.1.1.2, where I make two main claims: (i) that there is no clear class of dedicated unergatives in Hmong, though some verbs may have both unaccusative and unergative uses, and (ii) that the most likely candidate for an unaccusativity diagnostic is the ability to appear in the second position of the direct causative construction, as does *tawg* 'break' in (19)

(19)   nws **tsoo**   lub tais   **tawg**
        3SG smash CLF bowl break
        'He smashed the bowl (and it) broke.'

Hmong has a small class of ditransitive verbs, including *pub* 'give', *muag* 'sell', and *xa* 'send'. These may appear with either a theme or a recipient argument, as shown in (20–21), but they cannot introduce both simultaneously as in (22).

(20)   kuv pub mov
        1SG give food
        'I gave (someone) food.'

(21)   kuv pub tus mos.ab
        1SG give CLF baby
        'I gave the baby (something).'

(22)   *kuv pub tus mos.ab mov
        1SG give CLF baby   food
        Intended: 'I gave the baby food.'

However, they can appear with both arguments simultaneously if one is introduced by another element within the clause, such as the preposition *rau* 'to', in (23).

(23)   kuv pub mov rau tus mos.ab
        1SG give food to   CLF baby
        'I gave food to the baby.'

2.7.2 Situational aspect classes

Stative verbs are used for predicational, attributive, and in some cases, adverbial functions in Hmong. Examples of these three uses are provided in (24–26) respectively.

(24)   [lub tsheb kuv yuav] **ceev~ceev**
         CLF car   1SG buy   RDUP~fast
        The car that I bought is fast.

(25) kuv ob   tug miv **dub** ntawd   (Ratliff 1991, p. 695)
      1SG two CLF cat black there

      'My two black cats there'

(26) koj tus me-nyuam hlob **zoo-zoo**   (Heimbach 1979)
      2SG CLF child   grow RDUP-be.good

      'Your child is growing well.'

Stative verbs also display a highly productive stative–inchoative alternation, as in (27a–b). This is not marked with a dedicated exponent, but an inchoative reading can be disambiguated towards using the perfect marker *lawm* as in (27b).

(27) a. koj loj~loj!
          2SG RDUP~be(come).big

          'You're big!'

      b. koj loj~loj   lawm!
          2SG RDUP~be(come).big PRF

          'You've gotten big!'

Because of this, it can be difficult to distinguish inchoative uses of stative verbs from true Achievements. One possible test is reduplication: as seen in (27a–b) above, stative verbs are commonly reduplicated regardless of their particular reading or syntactic environment. Genuine Achievements, as in (28), resist reduplication (Jarkey 2015).

(28) *lub tais   tawg~tawg
       CLF bowl RDUP~break

       Intended: 'The bowl really broke.'

Accomplishment verbs are of particular interest in Hmong grammar, due to the fact that they are "non-culminating" (Martin 2019). In general, Accomplishment verbs are defined cross-linguistically as being oriented towards a particular goal. In Hmong, as in many typologically-similar languages (and unlike, for example, English), perfective Accomplishment predicates do not entail that the action they describe was carried through to its successful completion. That is, although example (29) conveys that the action described by *ua* 'build' has finished, it does not convey that the house was completed.[13]

(29) lawv **ua** lub tsev lawm (tabsis tsis ua   tau).
      3PL build CLF house PRF   but   NEG build get.

      'They built the house (but didn't finish building it).'

---

[13]In this respect, Hmong resembles Hindi, Tamil, Mandarin, Korean, Japanese, Thai, Burmese, Tagalog, Malagasy, and a variety of other languages from around the world (Martin 2019).

Because of this, the precise distinction between Accomplishment and Activity predicates in Hmong is a subject of some debate. I discuss this further in Chapter 5, in which the non-culminating behavior of Hmong Accomplishment verbs will be a major focus.

2.7.3 Serial verb constructions

This thesis investigates the properties of several serial verb constructions found in Hmong. These have been described in great detail by Jarkey (2015), who categorizes them into four major types, given in (30a–d).[14]

(30)   a. *"Cause-Effect" SVC*

        nws **txoob** lub tais   **tawg**
        3SG smash CLF bowl break
        'He smashed the bowl and it broke.'

    b. *"Cotemporal Motion" SVC*

        kuv **khiav mus** tajlaj
        1SG run   to   market
        'I ran to the market.'

    c. *"Attainment" SVC*

        kuv **nrhiav**   **pom** lub pov
        1SG search.for see   CLF ball
        'I found the ball.'

    d. *"Disposal" SVC*

        lawv **hlais** cov txiv **faib**   **noj**
        3PL   slice   CLF fruit divide eat
        'They sliced, divided, and ate the fruits.'

In this thesis, I take a more fine-grained view. Rather than treating these as distinct, fixed constructions, I instead describe them in terms of (i) the properties of individual predicates, and (ii) the syntactic positions those predicates occupy, and (iii) the methods by which they combine with one another. However, for comparative purposes, I will occasionally make reference to these constructions using Jarkey's terminology.

2.7.4 Nominal, adjectival, and prepositional predications

Nominal predications in Hmong require an overt copula *yog*.

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[14]Here, I present a "Cotemporal Motion" SVC as emblematic of Jarkey's broader class of "Cotemporal" SVCs.

(31) [tus leej   yuav lub tsheb] yog Ntshuab
       CLF person buy   CLF car   COP Choua
      'The person who bought the car is Choua.'

(32) plas yog noog   (Jarkey 2015, p. 45)
      owl COP bird
      'Owls are birds.'

Adjective-like predications are expressed by the class of stative verbs (see Section 2.7.2 above). Prepositional predications will be discussed briefly in Section 2.8 below, and in more significant detail in Chapter 4.

2.8 Prepositions and spatial language

2.8.1 Place prepositions

Locative relations are expressed in Hmong by a class of words which I refer to as Place prepositions. This term follows both Mottin's (1978, p. 70) characterization of these elements as "place prepositions",[15] as well as the use of the term Place by Jackendoff (1983) for static locative relations. In previous literature, these have been called various names, including: "location words" (Jaisser 1995), "Spatial Deictics" (Ratliff 1990, Jarkey 2015), "relative location nouns" or "relator nouns" (Clark 1989), "denominal prepositions" (Ratliff 1992a, pp. 104–112), or simply "prepositions" (Fuller 1985, p. 39).

A full list of Place prepositions is given in Figure 2.7.[16] All members of this class combine with nouns, and all convey some salient spatial information, but their syntactic distribution and semantic contributions are somewhat heterogeneous. Some convey simple deixis (e.g. *ntawm* 'here/there (nearby)'), others situate the noun relative to some contextually-salient landmark (e.g. *nraum* 'outside, in back of'), while still others pick out a particular part of the noun they combine with (e.g. *saum* 'on, above, on top of').

Place prepositions do not express any information about the role of the noun they combine with. For example, the preposition *ntawm* in (33) is equally compatible with various sorts of locative and directed motion readings, depending on the context in which it appears.

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[15]In the original French, *prepositions de lieu*.

[16]Ratliff (1992b) also includes *thaum* 'time, when', *zaum* 'time', and the possibly-archaic form *txhaim* 'outside' in this class; Jaisser (1995) and Jarkey (2015) do not.

Figure 2.7: White Hmong Place prepositions (Jaisser 1995)

pem	'uphill (from), above, on the uphill side, up'
nram	'downhill (from), down below, down, towards the valley', 'ago'
ntawm	'here/there (nearby)'
tom	'(over) there, at a certain distance'
tim	'opposite (from), on the other side, across from, facing'
saum	'on, above, on top of', 'from now'
nraum	'outside, in back of, on the reverse/other side of, behind'
hauv	'in, inside, within'
qaum	'top part or top side of, upper side of, back of'
nruab	'in the middle/midst/center of', 'during'

(33) a. *Place:*   (Jarkey 2015)

nws khiav [**ntawm** khw]
3SG run   nearby market

'He ran (about) nearby at the market.'

b. *Goal:*

nws mus [**ntawm** khw]
3SG go   nearby market

'He went nearby to market.'

c. *Source:*

nws tuaj   [**ntawm** [lub zos]]   tuaj
3SG come nearby CLF village come

'He came from nearby at the village.'

In some cases, for example (34a–b), more than one of these words (and potentially many) can co-occur.[17]

(34) a. zaum **pem hauv** ntej   (Jarkey 2015)
          sit   up   in   front

'Sit up in front.'

b. **puag pem nruab** **nrab** rooj   (Bee Vang-Moua, p.c.)
     far   up   in.the.middle.of middle.part mountain

'Way up in the middle of the mountain.'

---

[17]Although further work is needed to determine precisely which Place prepositions (or modifiers) can co-occur with one another, their ordering appears largely consistent with decompositional models of the prepositional Place domain (see den Dikken 2010, Svenonius 2010).

Figure 2.8: White Hmong path predicates (Jarkey 2015, Johnston forthcoming)

Route	Source	Goal	Transition
hla 'cross, pass'	*tawm* 'leave'	*mus* 'go'	*txog* 'arrive'
raws 'follow, pursue'	*thim* 'withdraw'	*tuaj* 'come'	*txij* 'reach, extend'
nyab 'rise'	*sawv* 'get up'	*los* 'come (home)'	*cuag* 'reach, catch up to'
nce 'ascend'	*dim* 'get away'		*nto* 'reach (a high place)'
nqis/nqes 'descend'	*poob* 'fall'		*rau* 'put in, insert'
ncig 'go around'	*lawm* 'leave'		
taug 'follow (a path)'			
lawv 'follow'			

2.8.2 Path predicates

Directed motion is expressed in Hmong by a class of words I refer to as Path predicates, following Jackendoff's (1983) use of the term "Path" for directed motion. These predicates appear in a variety of environments: as the main verb of the clause as in (35), as the complement of a manner-of-motion verb as in (36), as the complement of a transfer verbs as in (37), and in spatial/temporal adjuncts as in (38). Because of this distribution—in particular, because of the contrast between (35) and (38)—these predicates have been described as verbs with an additional prepositional function (Clark 1979, Jarkey 2015).

(35) kuv **mus** tajlaj   *Main verb*
      1SG go   market
      'I went to the market.'

(36) kuv khiav [**mus** tajlaj]   *Complement of a manner-of-motion verb*
      1SG run   to   market
      'I ran to the market.'

(37) kuv txib   Sua   [**mus** tajlaj]   *Complement of a transfer verb*
      1SG dispatch Shoua to   market
      'I sent Shoua to the market.'

(38) peb nyob tom [**mus** thaum peb tshaib   plab]   *Adjunct*
      1PL stay here to   time 1PL be(come).hungry stomach
      'We'll stay here until we're hungry.'

I argue for a different view of these predicates in Chapter 4 of this thesis. I will claim that Path predicates are systematically cross-categorial: they act as prepositions in all contexts, and in

some cases take on an additional function as the main verb of the clause. Chapter 4 also offers a fuller description of the properties of these predicates.

2.9 Further Resources

Although the discussion in this chapter touches on a number of basic points relevant to the discussion that follows, it barely scratches the surface. For more comprehensive review of Hmong grammar (and of specific topics therein), readers are invited to refer to Mottin 1978, Jaisser 1984, Fuller 1985, Jarkey 2015, or Mortensen 2019.

3 Causation and serialization

In both descriptive and formal approaches to verb serialization, it is often claimed that serial verb constructions describe a single event (e.g. Bisang 2009, see also Stewart 2001, Cleary-Kemp 2015, Jarkey 2015, Haspelmath 2016s). This view, which I adopt in the working definition of verb serialization given in Chapter 1, simply treats serial verb constructions as (internally complex) syntactic representations of events—with the added complication that the component parts of these complex representations are individual verbs with their own verbal lexical-semantic content. This view of serialization has clear structural implications. The first VoiceP constituent of the verbal extended projection is sometimes taken to have a special status with respect to various phenomena, including the derivation of events (the "first phase" of Ramchand 2008) and lexical insertion (the "domain of special meanings" of Marantz 1997, 2007).[1]

This chapter focuses on the intersection of verb serialization with another empirical domain also sensitive to a boundary around the level of VoiceP: causativization (Fodor 1970, Rappaport Hovav & Levin 2001, Pylkkänen 2008, Harley 2008, Schäfer 2009, Nie 2020, among many others).

In Hmong, these two domains are inherently connected. Direct causation in Hmong is expressed by a productive serial verb construction, as in (1). This contrasts with indirect causation, which is expressed using a dedicated causative verb *ua* 'make', as in (2).

(1) nws **ntaus** tus dev **quaj**   *Direct causative*
     3SG hit   CLF dog cry   *(SVC causative)*

     'He hit the dog (making it) whine.'

(2) nws **ua**   tus dev **quaj**   *Indirect causative*
     3SG make CLF dog cry   (ua-*causative*)

     'He made the dog whine.'

Both Hmong causative constructions are "periphrastic" in the strict sense: the cause and effect are described by two distinct words. Despite this, they show a clear division between

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[1]More properly, Voice itself bounds the "domain of special meanings", to the exclusion of Spec,VoiceP (Marantz 1997, 2007).

their functions: causation expressed with two lexical verbs is necessarily direct, while causation expressed with a functional verb need not be.

In this chapter, I will argue that this is not a coincidence. I present a number of syntactic diagnostics showing the direct causative to instantiate a single VoiceP constituent, as in (3), while indirect causation has a more recursive syntax, as in (4). This proposal is consistent with the well-known notion that indirect causation can be encoded in a higher syntactic position than direct causation (see e.g. Fodor 1970, Rappaport Hovav & Levin 2001, Harley 2008, 2017, a.o.).

(3)   VoiceP   *Direct causative*
                                                                (SVC causative)

The tree in (3) (Direct causative, SVC causative):
- VoiceP
  - DP [*nws* / he]
  - Voice
  - vP
    - v_{CAUSE} [*ntaus* / hit]
    - vP
      - DP [*tus dev* / the dog]
      - v [*quaj* / cry]

(4)   VoiceP   *Indirect causative*
                                                                 (ua-*causative*)

The tree in (4) (Indirect causative, ua-causative):
- VoiceP
  - DP [*nws* / he]
  - Voice
  - vP
    - v_{CAUSE} [*ua* / make]
    - VoiceP
      - DP [*tus dev* / the dog]
      - Voice
      - vP
        - v [*quaj* / cry]
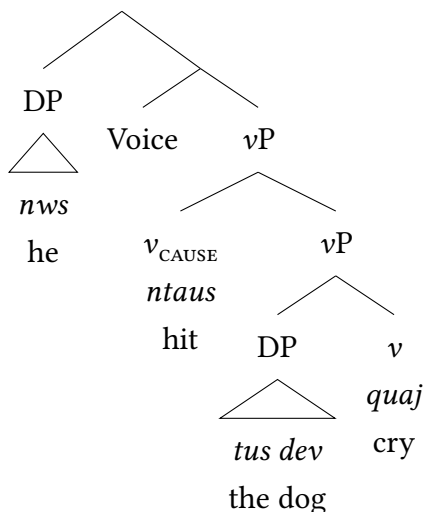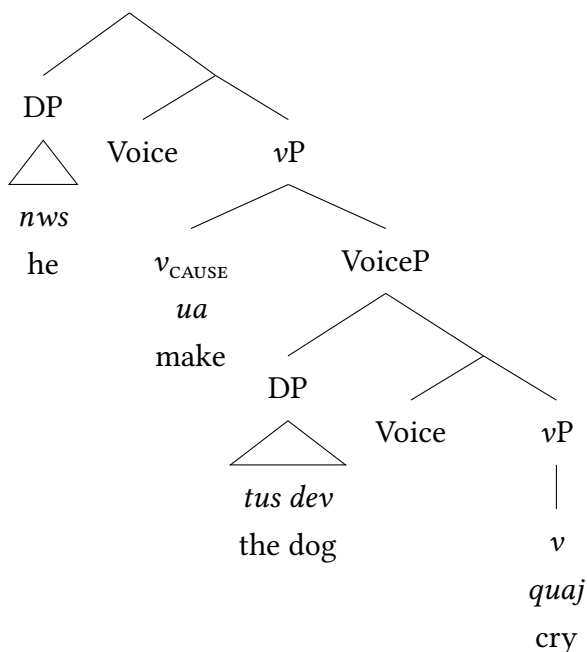
This gives rise to two parallel contrasts: direct causatives are monoeventive and convey more lexical-semantic content, while indirect causatives are bieventive and convey more functional meanings. To capture this parallelism, I first propose a constraint on the distribution of "lexical" uses of verbs, which obligatorily appear within the first phase (even in serializing languages). Then, following Kratzer (2005), I propose a semantics that relates the directness of a causal relation to the lexical-semantic content of the predicate(s) that describe it: "functional" verbs are capable of describing longer and more complex causal chains than "lexical" verbs. This approach also captures limits on the expressive power of Hmong direct causatives, as well as other serial verb constructions cross-linguistically.

This chapter proceeds as follows. Section 3.1 summarizes the existing literature on both Hmong causative constructions, which Section 3.2 then augments with additional diagnostics aimed to more precisely establish their contrasting properties. Section 3.3 sketches out basic syntactic and semantic structures for the two constructions, before exploring the effect that the lexical semantics of the participating verbs has on both the syntax and semantics. Finally, Section 3.4 discusses questions about the differences between serializing and non-serializing languages, and about the formal analysis of serialization in general.

3.1 Basic properties of Hmong causatives

This section serves two purposes: to review existing literature on both Hmong causative constructions seen above, and to establish the basic syntactic properties of the individual predicates involved. This sets the stage for the more detailed comparison of the two constructions' event-structural properties which follows.

Section 3.1.1 discusses the direct causative, which combines a transitive verb describing a cause with an unaccusative verb describing an effect. A co-occurence restriction is also noted: in general, the "effect" verb may be an Activity, Achievement, or State, but when the "cause" is a creation verb, the "effect' can only be a State.

Section 3.1.2 discusses the indirect causative, which is in a sense the less restrictive of the two constructions. The causative verb *ua* 'make' is used to describe the cause, and its complement, which describes the effect, may contain essentially any simple verb as well as a variety of complex predicates.

3.1.1 Direct causatives through serialization

The direct causative is the better-described of the two Hmong causative constructions. Jarkey (2015) labels it as the "Cause-Effect" serial verb construction and provides a description of its properties. Other sources from the Hmong literature either omit this construction entirely (Mottin 1978, Bisang 1991, Clark 1992), or provide examples without differentiating them from other types of serial verb construction (Riddle 1989, 1990a,b).

At its most basic, the Hmong direct causative is a construction in which V_1 describes a cause and V_2 describes its effect. (In this thesis, I use the labels V_1 and V_2 in a strictly descriptive sense. "V" loosely refers to the category "verb" and the numbered subscript refers only to the linear order of the verbs involved. These labels do not correspond to any particular syntactic heads or positions.) Jarkey characterizes the Hmong direct causative is a serial verb construction combining a transitive V_1 with a V_2 that describes some kind of change: "change of state, change of location, or […] change of action" Jarkey 2015, p. 129. These possibilities are illustrated in (5a–c). The subject obligatorily precedes V_1, while the object obligatorily intervenes between V_1 and V_2.

(5)   a.   nws **ntaus** tus dev **quaj**
         3SG hit   CLF dog cry
         'He hit the dog (making it) whine.'

     b.   nws **tsoo**   lub tais   **tawg**
         3SG smash CLF bowl break
         'He smashed the bowl (and it) broke.'

     c.   nws **tua** nws **tuag**
         3SG kill 3SG be(come).dead
         'He kill him dead.'

The present investigation confirms Jarkey's findings, as well as delving deeper into the properties of the two verbs. I examine the properties of V_1 and V_2 separately, in Sections 3.1.1.1 and 3.1.1.2, respectively.

3.1.1.1 Properties of V_1

Of the two verbs that form the direct causative serial verb construction, V_1 appears to be the less restricted overall. It must be a transitive verb—that is, it must be a verb that takes both subject and object arguments in a simple monoverbal clause. Examples (6a–c) show this for the three verbs in (5a–c) above.

(6)   a. nws **ntaus** tus dev
         3SG hit   CLF dog
         'He hit the dog.'

     b. nws **tsoo**   lub tais
         3SG smash CLF bowl
         'He smashed the bowl.'

     c. nws **tua** nws
         3SG kill 3SG
         'He killed him.'

Although V_1 is often an affective transitive verb, it may also be a creation verb. This class includes verbs like *ua* 'build, create', as seen in (14b), as well as *xaws* 'sew', *khawb* 'dig (a hole)', *cub* 'steam (food)', and others. Such examples differ from those in (5) in one respect: as we will see below, creation verbs in V_1 position only combine with a stative V_2, and not with intransitives of other types (Jarkey 2015, p. 131–134).

(7)   lawv **ua**   lub tsev   **loj~loj**
      3PL   build CLF house RDUP~be(come).big
      'They built the house really big.'

In other respects, however, such examples are similar to those in (5) above. They are likewise transitive in monoverbal clauses, as (8) shows, and in the various diagnostics to be presented in Section 3.2, examples with affective and creation verbs as V_1 pattern as a single class.

(8)   lawv **ua**   lub tsev   lawm
      3PL   build CLF house PERF
      'They built the house.'

V_1 may not be intransitive, even in a context which otherwise seems to support a causative meaning. Both unaccusatives and unergatives—to the extent that unergatives can be shown to exist in Hmong—are disallowed.[2] In the context in (9), for example, the use of the intransitive *khiav* 'run' in (9a) is ungrammatical, while the transitive *rau* 'wear on the feet' in (9b) is acceptable. Likewise, (10), involving the intranstive *quaj* 'cry, whine' is also ungrammatical.

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[2]I raise this point primarily for cross-linguistic comparison. In certain languages, similar constructions do allow unergatives in V_1 position (see e.g. Stewart 2001 on Edo SVCs, Levin & Rappaport Hovav 1995 on English resultatives). As we will see in Section 3.1.1.2 below, both *quaj* 'cry, whine' and *khiav* 'run, get away' are among the more plausible candidates for unergative verbs in Hmong.

(9) Context: I've gone jogging so much that my running shoes are completely beat up.

    a. *kuv **khiav** kuv xaiv.khau **phem**
       1sg run   1sg shoe   be(come).ugly
       Intended: 'I ran my shoes busted.'

    b. kuv **rau**   kuv xaiv.khau **phem**
       1sg wear.on.feet 1sg shoe   be(come).ugly
       'I wore my shoes busted.'

(10) *tus mos.as **quaj** kuv **sawv**
      clf baby   cry 1sg wake.up
      Intended: 'The baby cried me awake.'

3.1.1.2 Properties of V_2

Turning to V_2, we can begin with the observation that V_2 must be intransitive—again making reference to the behavior of these verbs in monoverbal contexts. This is shown for the range of V_2 verbs in (5a–c) by (11a–c) respectively.

(11) a. tus dev **quaj**
      clf dog cry
      'The dog whined.'

    b. lub tais **tawg**
      clf bowl break
      'The bowl broke.'

    c. nws **tuag**
      3sg be(come).dead
      'He died.'/'He is dead.'

V_2 can be drawn from one of three situational aspect classes: Activities (e.g. *quaj* 'cry, whine'), Achievements (e.g. *tawg* 'break'), and States (e.g. *tuag* 'be(come) dead'). Stative verbs in this position receive an inchoative meaning, a fact which is unsurprising given the high productivity of the zero-marked stative–inchoative alternation in Hmong. (This alternation is reflected in the gloss for the ambiguous (11c) above, as well as in various other examples throughout this thesis, particularly in Section 2.7.2.) Despite this, true stative verbs can be distinguished from dedicated Achievement verbs in several ways. Most obvious among these is the entailment of a change-of-state in (11b) and the lack thereof in (11c). Other diagnostics include the ability to appear in DP-internal attributive position (intervening between the noun and the demonstrative)

as in (12), and modification by the adverb *heev* 'very, very much', as in (13).[3] Both of these are impossible for (simplex) Achievements.

(12) kuv tsis nyiam [lub tais   phem/*tawg   tom]
      1SG NEG like   CLF bowl be(come).ugly/break DEM
      'I don't like [that ugly/broken bowl].'

(13) a. *lub tais   tawg heev
         CLF bowl break very
         Intended: 'The bowl broke very badly.'

      b. lub tsev   loj heev
         CLF house big very
         'The house is very big.'

When V_1 is an affective transitive verb, V_2 can be drawn from any of these three classes. When V_1 is a creation verb, however, V_2 must be stative—in that case, neither Activities nor (simplex) Achievements are possible, as (14a–b) respectively show.

(14) a. *lawv **ua**   lub tswb **quaj**
         3PL   build CLF alarm cry
         Intended: 'They built the alarm (in such a way that it constantly) made a whining noise.'

      b. *nws **xaws** daim ntaub **ntuag**
         3SG sew   CLF   cloth tear
         Intended: 'She sewed the cloth (in such a way that it was already) torn.'

Given the range of meanings that V_2 expresses in the majority of the examples seen thus far, I claim here that V_2 in the Hmong direct causative must be unaccusative. There are several reasons to suspect this might be the case. For one, a similar restriction is observed in comparable SVCs in other languages, including Lao (Cole 2016) and Edo (Stewart 2001), examples of which are given in (15–16).

(15) Candii3 **liit4** sùa5 **liap4**   (Lao; Cole 2016)
      Jandee iron shirt be.smooth
      'Jandee ironed the shirt smooth.'

(16) Òzó **sùá** ágá **dé**   (Edo; Stewart 2001)
      Ozo push chair fall
      'Ozo pushed the chair down.'

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[3]Hopperdietzel (2022) employs a similar test using Mandarin *hen* 'very', which likewise does not co-occur with Achievements.

For another, V$_2$ in the Hmong direct causative is often either (i) an intransitive stative verb or (ii) an intransitive change-of-state Achievement. Verbs of the latter class are strictly intransitive in Hmong; they do not transitivize (except, of course, through the direct causative construction itself). As shown in (17), an intransitive change-of-state verb like *ntuag* 'tear' cannot be used as a base from which to derive a transitive verb; instead, a transitive near-synonym like *dua* 'tear' must be substituted.

(17)   a.   daim ntawv **ntuag**
              CLF   writing tear$_{INTR}$
              'The paper tore.'

        b.   *kuv **ntuag**   daim ntawv
              1SG tear$_{INTR}$ CLF   writing
              Intended: 'I tore the paper.'

        c.   kuv **dua**   daim ntawv
              1SG tear$_{TRANS}$ CLF   writing
              'I tore the paper.'

In short, both of these cases appear to be relatively uncontroversial examples of unaccusative verbs.

The most significant complication to this claim is the appearance of certain Activity verbs in V$_2$ position. In the examples above, the verb *quaj* 'whine, cry' stands out as plausibly agentive. Put another way, its meaning is one that might plausibly be expressed by an unergative verb in another language. This may be true for Hmong as well; however, the question we should be asking is not whether *quaj* can be unergative, but whether it *must*. If such verbs can function as unergatives in certain cases and as unaccusatives in others, then so long as they have unaccusative syntax within the direct causative construction, they present no issue.

In fact, *quaj* 'cry, whine' belongs to a small class of verbs in Hmong whose meanings appear to be ambiguous between two distinct senses: the first being more agentive, cognitive, or controlled (that is, more typical of an unergative verb), and the second being less agentive, more physical, or more involuntary (that is, more typical of an unaccusative verb). These distinct senses are shown in (18) for *quaj* 'cry, whine', as well as two other such verbs, *pw* 'sleep, lie down' and *khiav* 'run'.[4]

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[4]Note that, in the case of *quaj*, the core aspect of *whining* that it expresses seems to be the sound. For example, *quaj* can naturally describe the sound an alarm bell makes as it rings, as in (i).

(i)   lub tswb quaj
       CLF bell   cry/whine
       'The alarm made a whining noise.'

(18)   a.   Tub quaj
              Tou cry/whine
              'Tou cried.'/'Tou made a whining noise.'

        b.   cov   me.nyuam pw
              CLF.PL child   sleep/lie.down
              'The children slept.'/'The children laid down.'

        c.   kuv khiav
              1SG run
              'I ran/jogged.'/'I fled.'

While more work is needed, what is important for present purposes is that this semantic contrast appears to correlate with the syntactic environment in which these predicates appear. When *quaj* 'cry, whine' and other, similar verbs appear in V_2 position of the indirect causative, they appear to be restricted to a less agentive, more patient-like meaning. For example, in this environment, *pw* does not vary freely between its 'sleep' and 'lie down' senses. Only the 'lie down' sense is available, as (19a) shows. The 'sleep' sense is unavailable in this syntactic environment, even in a context like (19b), which might plausibly support such a meaning.[5]

(19)   a.   CONTEXT: The children like to play a silly game. They sit on the ground, I push them
              down, they sit back up, and I push them down again.

              kuv **thawb** cov   me.nyuam **pw**
              1SG push   CLF.PL child   lie.down
              'I pushed the children down (into a reclining position).'

        b.   CONTEXT: The children resist going to bed, but when they are put to bed they fall
              asleep immediately.

              #kuv **thawb** cov   me.nyuam **pw**
              1SG   push   CLF.PL child   sleep
              Intended: 'I pushed the children (so that they) slept.'

I assume here that verbs of this "flexible" class, among them *quaj* 'cry, whine', *pw* 'sleep, lie down', and *khiav* 'run, flee' are structurally ambiguous: they may appear in either unergative or unaccusative structures. Under this assumption, the alternation shown in (19) arises from the "effect" position of the direct causative being necessarily associated with unaccusative syntax. Hence, only an unaccusative interpretation is available.

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[5]In this resepect, these flexible verbs behave like the "Fluid S" verbs discussed by Dixon (1994), which are ambiguous between more agentive and more patient-like meanings—though in Hmong it is the context or the syntactic environment, rather than inflectional morphology, that disambiguates between the two senses.

To confirm that this assumption is correct, we could conversely demonstrate that dedicated unergative verbs (by which, I mean unergative verbs not included in the flexible class shown above) are prohibited from appearing in this position. Given several independent facts about Hmong, it is difficult to definitively identify a class of dedicated unergatives with which to test this assumption. The first possibility we might look for is a class of denominal verbs, which tend to be unergative cross-linguistically (see e.g. Hale & Keyser 1993). In Hmong, however, there are few to no attested simplex denominal verbs[6]; rather, denominal verbs are overtly morphologically complex, combining a noun with a transitive light verb. This verbal element is most commonly *ua* 'do' or *hais* 'say', as in *ua si* 'play' (literally 'do play') or *hais lus* 'speak' (literally 'say speech').[7] Example (20) shows that these complex denominal verbs do not participate in the direct causative construction, just as expected of simplex unergatives—but this is not necessarily informative. The ungrammaticality of examples like (20) may instead be due to the transitivity of the light verb, or perhaps to some other complication arising from the greater syntactic complexity. Such complex denominal verbs do not appear in V_2 of the direct causative, as (20) shows. This may support the present claim that V_2 in the direct causative must be unaccusative—though only to the extent that these complex "unergatives" can be analyzed as structurally similar to simplex unergatives in other languages.

(20) *nws **thawb** kuv **ua lamvooj**
      3SG push   1SG do dance
      Intended: 'She pushed me (so that I) danced.'

A second possibility is a class of verbs of speech or communication, including *hu* 'call', *cem* 'scold', and *dag* 'lie', which in certain cases, like (21), might be assumed to be unergative. However, these uses may be somewhat degraded; an overt internal argument is generally preferred. This suggests that *cem* 'scold' and other similar verbs may be more properly analyzed as underlyingly transitive even in cases like (21). Example (22) supports this view; even when lacking an overt object, such verbs cannot appear as V_2 of the direct causative.

(21) ?kuv niam   **cem** heev
      1SG mother scold very.much
      'My mother scolds a lot.'

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[6]The only counterexample to this generalization of which I am presently aware is *mob* 'pain/sickness, be(come) hurt/sick'; however, the verb *mob* participates in the stative/inchoative alternation, suggesting it functions as an unaccusative.

[7]A non-exhaustive list of similar examples from Heimbach's (1979) *White Hmong–English Dictionary* includes: *ua npau.suav* 'to dream', *hais nkaus* 'to sing', *ua luam.dej* 'to swim', *ua hauj.lwm* 'to work', *ua pa* 'to breathe', *ua ntsos* 'to hiccup', *ua qaj* 'to snore', *ua qais* 'to belch', *ua rog* 'to war', and *ua zog* 'to move'.

(22)   CONTEXT: Mai and Tou's children were misbehaving, but Tou was reluctant to discipline
       them. Mai, in frustration, hit Tou on the shoulder, and Tou immediately began to scold the
       children.

       *Maiv **ntaus** Tub **cem**
       Mai   hit   Tou scold
       'Mai hit Tou (so that he) scolded.'

A third possibility is a class of "path predicates", for example *mus* 'go, to', which Jarkey (2015)
claims to appear in V_2 position within the direct causative (forming a caused motion construction).
Examples of this purported use include (23). However, I will argue for a different treatment of
such examples: in Chapter 4, I claim that Hmong path predicates in fact function as prepositions
in such cases.

(23)   nws **xa**   ib   tsab ntawv   **mus** rau nws niam   (Jarkey 2015)
       3SG send one CLF writing go   to 3SG mother
       'She sent a letter to her mother.'

In short, I claim here that V_2 position in the Hmong direct causative construction is restricted
to unaccusative verbs only. Although there are no known classes of dedicated unergative verbs in
Hmong with which to test this claim,[8] it appears to be well-motivated given the types of verbs
that appear in this position and their possible meanings. This is also consistent cross-linguistic
restrictions on the structure of similar serial verb constructions. In fact, if the present claim is
ultimately correct, this represents what is to my knowledge the first language-specific diagnostic
for unaccusativity in Hmong.

3.1.1.3 Interim summary: the direct causative

The Hmong direct causative is a productive serial verb construction, which combines a cause-
denoting V_1 with an effect-denoting V_2. V_1 may be either an affective transitive verb or a creation
verb. V_2 must be unaccusative, and may in the general case be an Achievement, an Activity, or a
State (though only states appear when V_1 is a creation verb).

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[8]Two members of my defense committee, Martina Martinović and Peter Svenonius, independently raise the
question of *why* Hmong might lack a class of unergative verbs. Although further work is needed, I hypothesize
that this reflects a fact about the Hmong lexicon: no lexical items are associated with both nominal and verbal
categorial features. (This might reflect the relationship between nominal and verbal features themselves, or simply
the way in which they have been apportioned to various lexical items.) Deriving one of these categories from the
other thus requires an additional element bearing the feature(s) of the new category (a light verb, nominalizer, etc.),
though zero-derivation *within* a category remains available for at least some cases (including the "flexible" class of
unaccusative–unergative verbs discussed above).

3.1.2 Indirect causatives with *ua* 'make'

In contrast to the direct causative, Hmong indirect causatives have received relatively little attention—a gap that the present discussion aims to fill. The first description of the Hmong indirect causative, formed with the causative verb *ua*, comes from Mottin (1978, p. 97), who provides examples but little discussion. Jaisser (1984) provides examples of multiple embedding patterns involving *ua*. Bisang (1991) includes *ua* in a list of several verbs with meanings broadly related to causation, but does not discuss its properties in detail.[9] Finally, Jarkey (2006, 2015) briefly compares *ua* 'make' with a variety of other complement-taking verbs.

The indirect causative, seen in (24–25), is commonly formed from two verbs, with the first being the causative verb *ua* 'make' and the second describing an effect. This gives rise to a subject–V_1–object–V_2 word order similar to that observed with the direct causative.

(24) kuv **ua**　 nws **ntshai** dab
　　　1SG make 3SG fear　　 spirit
　　　'I made him fear ghosts.'

(25) kuv **ua**　 Tub **quaj**
　　　1SG make Tou cry/whine
　　　'I made Tou cry.'/'I made Tou whine.'

The meanings of these examples intuitively resemble the meaning of the English *make*-causative with which they are glossed.[10] And like the English *make*-causative, there are few restrictions on the content of the causative verb's complement. This complement may contain a transitive verb or an intransitive verb, as shown in (24–25) respectively, and these are not restricted on the basis of situational aspect class. Also, those "flexible" intransitives like *quaj* 'cry' can convey either their more agentive or their more patient-like meanings, as shown in (25).

Of course, there may be more subtle restrictions on the expressive power of the indirect causative. It would be unsurprising, for example, to find that certain types of eventualities either resist causativization, or are preferentially expressed using the direct causative form. In fact, Jarkey (2015, p. 247) claims a restriction more or less of this sort: that the Hmong indirect causative "never involves the causer acting directly on the causee". For at least the speakers I have worked with, this claim is too strong—although the indirect causative does not *require* the causer to act directly on the causee (e.g., (24) might be true and felicitous in a context in which the causee

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[9]Other verbs mentioned by Bisang (1991, pp. 526–527) are two non-implicative permissive verbs *tso* 'release, permit' and *cia* 'allow, permit (polite)', as well as the control verb *kom* 'order, tell'. Though interesting in their own right, none of these form causative constructions in the strict sense relevant to the present discussion.

[10]This intuitive characterization will be substantiated by syntactic diagnostics in Section 3.2 below.

overhears the causer telling a scary story), neither does it rule out that possibility. Examples like (26), which in context does involve direct action of the causer on the causee, are also felicitous.

(26)   CONTEXT: My little brother Tou is very shy. When our grandparents came to visit, Tou was sitting silently and not talking. So I elbowed Tou, which prompted him to speak to them.

        kuv **ua**   Tub **hais** lus
        1SG make Tou say   speech
        'I made Tou speak.'

Although somewhat too strong, Jarkey's claim may correctly reflect a preference for the direct causative in those cases in which there is competition between the two causative constructions.[11]

As a final note, I will reiterate that the indirect causative is not considered a serial verb construction in this thesis. Authors with alternative criteria for verb serialization might do so—but this would obscure an important distinction: Hmong *ua* in examples (24–25) does not comment on the nature of the causing event any more than English *make* does in the indirect causative. That is, just as English *make* comes with lexical and functional senses, meaning 'cause' in certain cases and 'build' or 'create' in others, so too does Hmong *ua*—and it is only the lexical sense of *ua* 'build, create' that is consistent with the working definition of serial verb construction established in section 1.3.

3.2 The syntax of direct and indirect causation in Hmong

With an understanding of the basic properties of the Hmong direct and indirect causative constructions—and specifically, of the predicates that form them—I will proceed to a more focused comparison of their event- and argument-structural properties, which will continue for the remainder of section 3.2. I present diagnostics aimed at better understanding the contrasting syntactic structures that underlie these two constructions, particularly the complexity of their event structure (Section 3.2.1) and the agent or non-agent status of the causee (Section 3.2.2). In both cases, the indirect causative shows the greater degree of complexity. However, the two constructions do behave similarly with respect to the availability of (un)intentional and (non)implicative interpretations (Section 3.2.3). Taken together, these properties support the structure I will argue for in Section 3.3.

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[11]Martin (2018) proposes that the contrast in directness between English lexical and periphrastic causatives similarly arises from competition.

3.2.1 Mono- vs. bi-eventivity

As already discussed, monoeventivity, or "single-eventhood", is frequently cited as a definitional property of verb serialization. Likewise, in the literature on causatives, it has long been observed that direct and indirect causatives differ in their event structure (Fodor 1970 and much subsequent work). We will see that, in the case of Hmong causatives, both relevant domains lead us to the same prediction: it is monoeventivity that allows us to attach the label "serial verb construction" to Hmong direct causatives, and it is monoeventivity that leads them to denote direct (rather than indirect) causation. The indirect causative, on the other hand, is bieventive, and thus (i) can denote indirect causation, and (ii) should not be considered a serial verb construction.

In this section, I will present two diagnostics. As a primary heuristic, I will consider the temporal interpretation of both causative constructions, including both intuitive judgments and the number of temporal operators that these constructions license. In addition to this, I will use the attachment positions available for certain adverbs (both manner adverbs and *rov qab* 'again') to probe the syntactic representations of these two constructions.

First, let us consider the intuitive interpretation of the direct causative. This must be understood to describe a situation in which the cause and effect are directly connected, as in (27a). That is, the *hitting* must have led directly to the *whining*.[12]

(27) a. CONTEXT: My brother hit the dog, and as a result, the dog immediately began to whine.

      nws **ntaus** tus dev **quaj**
      3SG hit   CLF dog cry

      'He hit the dog (and it) whined.'

    b. CONTEXT: My brother hit a metal pot, which made a loud noise that scared the dog, and as a result, the dog immediately began to whine.

      #nws **ntaus** tus dev **quaj**
      3SG hit   CLF dog cry

      Intended: 'He hit (something) and caused the dog to whine.'

The indirect causative, on the other hand, does not require the same close connection between cause and effect. In the same context in which (27b) above is infelicitous, the indirect causative in

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[12]It is not clear at present how far the temporal connection between cause and effect can be stretched. In English lexical causatives, for example, it has been observed that the cause and effect need not be directly temporally dependent in all cases (Rappaport Hovav & Levin 2001, Neeleman & Van de Koot 2012, Martin 2018, a.o.), though even when these sub-events can be temporally separated, they cannot necessarily host distinct temporal modifiers (Martin 2018). Perhaps what's crucial is for the two events to be conceived of as a whole—an observation that potentially relates to the variable degree of granularity with which causal chains represent real-world happenings (see Section 3.3.3). Of course, this means that the temporal properties of direct causatives may depend to some extent on extralinguistic factors.

(28a) below is perfectly well-formed. The indirect causative can also be used when the cause and effect are separated by a relatively large stretch of time, as demonstrated by (28b), in which the cause is situated in time by *nag-hmo* 'yesterday evening' and the effect by *hnub-no* 'today'.

(28)   a.   CONTEXT: My brother hit a metal pot, which made a loud noise that scared the dog, and as a result, the dog immediately began to whine.

nws **ua**   tus dev **quaj**
3SG make CLF dog cry
'He made the dog whine.'

b.   [haus cawv   ntau~ntau   nag-hmo]   **ua**   nws **mob**   taub.hau
[drink alcohol RDUP~much yesterday-evening] make 3SG be(come).sick head
hnub-no
day-this
'Drinking lots of alcohol last night made his head ache today.'

This tells us that, at least for the purpose of hosting temporal operators, the direct causative construction seems to describe a single, temporally-coherent event, while the indirect causative can describe multiple, temporally-dissociable events. In general, we might expect bieventive constructions to be encoded by a more highly articulated syntactic structure than found in monoeventive constructions. Following Stewart's (2001) work on similar serial verb constructions in Edo, I test this here by considering the number of possible attachment sites for certain adverbs, including both *rov qab* 'again' and manner adverbs like *nrov* 'loudly' or *ceev* 'quickly'.

Direct causatives have only one attachment site for such adverbs. As shown in (29), *rov.qab* 'again' may apply to the entire complex event, indicating that the entire cause–effect complex event is repeated.

(29)   CONTEXT: Yesterday, I hit Tou, which made him start crying. Today, I again hit Tou, which again made him start crying.

kuv rov.qab **ntaus** Tub **quaj**
1SG again   hit   Tou cry
'[I hit Tou and he cried] again.'

Presupposition: There is a prior event in which I hit Tou and made him cry.

In (30), however, there is no possible attachment site such that *rov qab* 'again' applies only to the effect. When the adverb appears in pre-V$_1$ position, it obligatorily takes wide scope (just as in (29) above) and cannot be felicitously understood as modifying the action of V$_2$ only. Assuming the semantic scope of *rov.qab* 'again' corresponds rigidly to its syntactic scope, the most likely

position from which to derive the intended interpretation is in some position intervening between V_1 and V_2—but the adverb is simply ungrammatical in both pre-object and pre-V_2 positions.

(30)   CONTEXT: Yesterday, I said something mean to Tou, which made him start crying. Today, I hit Tou, which made him start crying again.

kuv (#rov.qab) **ntaus** (*rov.qab) Tub (*rov.qab) **quaj**
1SG again hit again Tou again cry
Intended: 'I hit Tou and [[he cried] again].'

Intended presupposition: There is a prior event in which Tou cried.

The same pattern can be seen with manner adverbs, such as *ceev* 'quickly' or *sib zog* 'forcefully, hard'. They must take scope over the entire causative construction, as in (31a), and not over the effect alone, as in (31b).[13]

(31)   a.   kuv sib.zog/ceev~ceev **ntaus** Tub **quaj**
         1SG forcefully/RDUP~quickly hit Tou cry
         'I quickly/forcefully hit Tou and he cried.'

   b.   kuv **ntaus** Tub (*sib.zog/ceev~ceev) **quaj** (*sib.zog/ceev~ceev)
         1SG hit Tou (forcefully/RDUP~quickly) cry (forcefully/RDUP~quickly)
         Intended: 'I hit Tou and he cried (hard/quickly).'

This contrasts with the pattern observed for indirect causatives, which clearly allow adverbial modification in two distinct syntactic positions. Both *rov.qab* 'again', as in (32a–b), and manner adverbs, as in (33a–b), may take scope either over the entire causative construction, or over the effect alone.

(32)   a.   kuv rov.qab **ua** Tub hais lus
         1SG again make Tou say speech
         'I made Tou speak again.'
         Presupposition: There is a prior event in which I made him speak.

   b.   kuv **ua** Tub rov.qab hais lus
         1SG make Tou again say speech
         'I made Tou speak again.'
         Presupposition: There is a prior event in which he spoke.

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[13]Some manner adverbs, for example *nrov* 'loudly', appear at the right edge of the verb phrase rather than in pre-verbal position. Within the direct causative construction, these likewise have a single possible attachment site which takes scope over both verbs.
   (i)   kuv ntaus Tub quaj nrov~nrov
          1SG hit Tou cry RDUP~loudly
          '[I hit Tou and he cried] loudly.'

(33) a. kuv nrov~nrov **ua**   Tub hais lus
          1SG RDUP~loudly make Tou say speech
          'I loudly made Tou speak.'

      b. kuv **ua**   Tub nrov~nrov   hais lus
          1SG make Tou RDUP~loudly say speech
          'I made Tou speak loudly.'

There is a clear contrast, then, between indirect and direct causatives. Indirect causatives have two different attachment sites for adverbs, corresponding roughly to the causing and caused events, while direct causatives have only one attachment site. This is again consistent with a more highly-articulated syntax in the indirect causative, and a simpler syntax in the direct causative.

3.2.2 Mono- vs. bi-agentivity

Another major point of variation within causative constructions is the number of grammatically-represented agents: specifically, whether the causee be interpreted as an agent within the effect (see e.g. Pylkkänen 2008, Harley 2008, Nie 2020). Under the assumption that an agent must be introduced by Voice (Kratzer 1996, Schäfer 2009, Alexiadou et al. 2015), the presence of an agentive causee requires an embedded VoiceP, which is not present in constructions that disallow agentive causees.

Here, the relevant notion of "agentive" is that which correlates with the licensing of agent-oriented modifiers, like *yuav.kev* 'wrongfully, accidentally' and *txhob.txwm* 'purposely'. And we see that in the indirect causative, as in (34), such modifiers can be controlled either by the causer or by the causee.[14]

(34) a. kuv txhob.txwm/yuam.kev **ua**   [kuv tus kwv]   **ua**   lub tais poob
          1SG purposely/accidentally **make** 1SG CLF younger.brother **make** CLF bowl fall
          'I purposely/accidentally made my brother drop the bowl.'

      b. kuv ua   [kuv tus kwv]   txhob.txwm/yuam.kev **ua** lub tais **poob**
          1SG make 1SG CLF younger.brother purposely/accidentally make CLF bowl fall
          'I made my brother purposely/accidentally drop the bowl.'

In the direct causative, these modifiers can naturally apply to the causer, as shown in (35a). They cannot, however, be applied to the causee, as (35b) shows.

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[14]Note that in Hmong, human beings and animals such as dogs appear equally well-suited to license agent-oriented modifiers, as shown by (i).

(i)   tus dev txhob.txwm/yuam.kev tom nws
      CLF dog purposely/accidentally bite 3SG
      'The dog purposely/accidentally bit him.'

(35) a. kuv txhob.txwm/yuam.kev **ncaws** tus dev **khiav**
1SG purposely/accidentally kick CLF dog run
'I purposely/accidentally kicked the dog and it fled.'

b. *kuv **ncaws** tus dev txhob.txwm/yuam.kev **khiav**
1SG kick CLF dog purposely/accidentally run
Intended: 'I kicked the dog and it purposely/accidentally fled.'

The relevant notion of "agency" in these examples does not require the outcome of the event to be fully determined by the intent of the agent. The complementary distribution of *txhob.txwm* 'purposely' and *yuav.kev* 'wrongfully, accidentally' shows this. Rather, both of these modifiers appear sensitive to the same property of the causee: that it must have some capacity for intent. These adverbs, then, either affirm or deny that the outcome was consistent with the agent's intent.

This view is supported by direct causative examples like (35a). Here, we see that modifiers like *yuam.kev* 'wrongfully, accidentally' and *txhob.txwm* 'purposely' pattern alike: neither can apply to the causee. I take this to mean that the causee is simply not an agent, so the necessary determinations cannot be made and neither adverb can apply. If *txhob.txwm* instead simply meant that the event was under the control of the causee, and *yuam.kev* that it was outside the control of the causee, then we would expect *txhob.txwm* to be ungrammatical in (35a) while *yuam.kev* should vacuously apply.[15]

While the distribution of these adverbs resembles that of the adverbs examined in the preceding section (and therefore offers further support to the observations made therein), it allows us to refine that observation further: the "effect" portion of the indirect causative comprises is not only larger, but is also capable of hosting an agentive causee, while the "effect" portion of the direct causative comprises is smaller and cannot by itself host an agent. As I will claim in Section 3.3, the indirect causative embeds a full VoiceP, while the direct causative embeds only a *v*P.

3.2.3 (Un)intentional and (non)implicative causation

Before analyzing the behavior discussed in Section 3.2.1 and Section 3.2.2, there are two additional points of variation that should be considered: whether the cause is understood to be purposeful, and whether the effect is understood to obtain. I will show that the empirical picture is somewhat

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[15]One consultant observed of the version of (35b) that includes *yuam.kev* 'wrongfully, accidentally' that "it sounds like it's the dog's fault that you kicked it." Although intuitions about *why* a sentence is ungrammatical are not necessarily reliable, it seems that *yuav.kev* 'wrongfully, accidentally' gives an impression of agency even in this ungrammatical example.

different than previously supposed: in fact, neither of these properties distinguish the Hmong direct and indirect causatives from one another.

This discussion is important for two reasons. First, these similarities will motivate the unified semantic treatment I develop in Section 3.3.2. Second, as this somewhat diverges from existing literature on Hmong, it will be useful to establish my reasons for making these claims.

The first question is whether these two constructions convey intentional and/or unintentional causation. Jarkey (2015) claims that there is a contrast between the two Hmong causatives. She demonstrates that the direct causative allows both intentional and unintentional interpretations (Jarkey 2015, p. 134), just as can be observed in example (35a) above, while claiming that "causatives with *ua* always indicate unintentional causation" (Jarkey 2015, p. 247). However, as no ungrammatical examples are provided to substantiate the latter claim, it is somewhat unclear to what extent it might hold. From my own elicitation, I have observed that while the indirect causative certainly can describe unintentional causation, it is also possible to find contexts, like that in (36), in which it can truly and felicitously describe intentional causation.

(36)   CONTEXT: Our relatives were coming to visit, but my little brother Tou is very shy and usually stays silent. Before they arrived, I told Tou that he had to speak with them, or else he'd get in trouble. During their visit, Tou spoke with them.

kuv **ua**   Tub hais lus
1SG make Tou say speech
'I made Tou speak.'

And as we have already seen from the subject-oriented adverb tests in section 3.2.2, repeated here, both causative constructions are capable of describing either intentional or unintentional causation. That is, both the indirect causative in (34a) and the direct causative in (35a) are compatible with either (i) the subject's goal being to make the dog flee, or (ii) the dog fleeing being an unintended consequence.

(34a)   kuv txhob.txwm/yuam.kev **ua**   kuv tus kwv   **ua**   lub tais **poob**
        1SG purposely/accidentally make 1SG CLF younger.brother make CLF bowl fall
        'I purposely/accidentally made my brother drop the bowl.'

(35a)   kuv txhob.txwm/yuam.kev **ncaws** tus dev **khiav**
        1SG purposely/accidentally kick   CLF dog run
        'I purposely/accidentally kicked the dog and it fled.'

The second question pertains to the interpretation of the effect. Does the truth of the entire direct/indirect causative construction entail that the effect occurs? Or might the causation expressed by these constructions be a defeasible implication?

In fact, both the direct and indirect causative entail that the effect obtains: Jarkey (2015, p. 136) observes this for the direct causative, and both Jaisser (1984, p. 105) and Jarkey (2015, p. 247) make similar claims for the indirect causative. These are both illustrated in (37). Neither type of causative can receive a "non-culminating" interpretation (as Accomplishment predicates do in Hmong; see Chapter 5) or the sort of non-implicative interpretation consistent with, for example, an expression of a goal or purpose.

(37)   a. #nws **ua**   tus dev **quaj**   Indirect causative
           3SG make CLF dog cry

           'He made the dog whine (#but it didn't whine).'

       b. #nws **ntaus** tus dev **quaj**   Direct causative
           3SG hit   CLF dog cry

           'He hit the dog and it whined (#but it didn't whine).'

In short, both causative forms entail the *actuality* of the effect.[16] Note, however, that the effect may or may not still obtain at utterance time. When the effect is an Activity, as in (38), all that is required is that some eventuality with the specified property must obtain—that eventuality may be complete, or it may be part of a larger eventuality with the same property that is still ongoing. That is, both (38a) and (38b) are felicitous whether or not the *whining* has ceased prior to utterance time.

(38)   CONTEXT: A moment ago, my brother hit the dog, making it whine. {It is still whining now. / It stopped whining shortly afterwards.}

       a. nws **ua**   tus dev **quaj**   Indirect causative
           3SG make CLF dog cry

           'He made the dog whine.'

       b. nws **ntaus** tus dev **quaj**   Direct causative
           3SG hit   CLF dog cry

           'He hit the dog (and it) whined.'

Hmong is a language with a highly productive stative–inchoative alternation (see Section 2.7.2), and the derived inchoative uses of stative verbs behave similarly: although the change they describe is understood to be punctual, the result state may or may not be part of a larger state that still holds at utterance time. Non-derived Achievements pattern differently—as these

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[16]Alternatively, one could characterize Hmong causatives as entailing the *inception* of the effect, though this is perhaps only a consequence of an actuality entailment plus the counterfactual notion of causation that I discuss in Section 3.3.3—the effect must be actual, and must not have already been occurring prior to the causing event, hence it must have *begun* as a result of the causing event.

predicates (for example *tawg* 'break') are punctual and do not decompose into a state description, the action they describe occurs in its entirety at a single point in time, and therefore cannot continue indefinitely in the same way.

To summarize, neither of these additional possible differences in interpretation appears to meaningfully distinguish between the Hmong direct and indirect causatives. This is more or less as expected under my proposed analysis, which does not predict any particular correlation between these properties and (in)directness. However, these properties are also not particularly informative in diagnosing the structural differences between direct and indirect causation in Hmong. Because of that, I will not explore these interpretations further.

3.2.4 Summary

There is a robust pattern in terms of the event and argument structure of these two constructions: direct causatives appear to be simpler on the whole (both monoeventive and monoagentive), while indirect causatives are more complex (bieventive, biagentive). However, the other semantic properties discussed here do not appear to differentiate the two constructions in any way. The full list of properties surveyed in this section is given in (39).

(39)

	Direct causative	Indirect causative
Mono/bi-eventivity	Monoeventive	Bieventive
Temporally separable?	✗	✓
Intermediate causal steps?	✗	✓
Multiple adverb positions?	✗	✓
Mono/bi-agentivity	Monoagentive	Biagentive
"Effect" can have an agent?	✗	✓
Agent-oriented modification of causee?	✗	✓
Entails actuality of effect?	✓	✓
Intentional interpretation	✓	✓
Unintentional interpretation	✓	✓

Note that both constructions require the effect to obtain within the world of evaluation. Neither is compatible with a reading in which the effect is not actual, as in a context where the 'effect' is understood merely to describe the purpose or intent of the causer. Furthermore, both constructions can be used to describe either a purposeful or an unintentional action of the causer.

3.3 Structure of Hmong causatives

In this section, I develop a syntactic and semantic treatment for causation in White Hmong. In keeping with the behavior seen throughout this section, I will attempt to distinguish the two constructions primarily in terms of their syntactic structure, while keeping a consistent semantics for causation across the two constructions.

I will argue that the Hmong direct causatives, which are monoeventive and monoagentive, represent a single clause in which a causative head v_{CAUSE} merges below the sole instance of Voice—that is, intervening between Voice and v, as in (40). Hmong indirect causatives, which are bieventive and biagentive, represent a structure in which v_{CAUSE} takes a VoiceP complement, and is in turn dominated by a second instance of VoiceP, as in (41).

(40) Direct causative:

$$[_{\text{VoiceP}} \text{ CAUSER } [_{v\text{P}} [_{v_{\text{CAUSE}}} \textbf{V}_\textbf{1}] [_{v\text{P}} \text{ CAUSEE } \textbf{V}_\textbf{2}]]]$$

(41) Indirect causative:

$$[_{\text{VoiceP}} \text{ CAUSER } [_{v\text{P}} [_{v_{\text{CAUSE}}} \textbf{ua}] [_{\text{VoiceP}} \text{ CAUSEE } \qquad\qquad [_{v\text{P}} \qquad \textbf{V}]]]$$

Differences in meaning will arise from the lexical semantics of the predicate that expresses the cause, with the functional verb *ua* 'make' permitting an indirect interpretation, and rich lexical verbs requiring a direct interpretation. I propose that the differing syntactic properties of these two constructions arise from a syntactic constraint on the distribution of predicates with rich lexical-semantic content: functional verbs may appear in higher positions within the verbal extended projection, while rich lexical verbs are forced to merge in a lower position.

3.3.1 Syntax of Hmong causatives

As seen in Section 3.2, the major distinctions between direct causatives and indirect causatives come down to (i) whether the cause and effect provide distinct attachment sites for certain adverbials, (ii) whether the causee can be understood as an agent, and (iii) the intuitive interpretation of (in)directness. (These findings were summarized in (39) above.) This section focuses on the first two; the last of these, directness, I will set aside until Section 3.3.3.

In prior literature, both the distribution of adverbs and the agency of the causee have been used to diagnose the syntactic structure of causatives (see e.g. Harley 2008, Key 2013, Harley 2017, Nie 2020). Likewise, the distribution of adverbs has been used as a diagnostic for the underlying grammatical structure of serial verb constructions (Stewart 2001). In Hmong, these two diagnostics

are in broad agreement: both attest to the presence of a more highly articulated structure for the indirect causative than found in the direct causative.

I assume that the external argument is introduced in the specifier of Voice (following Kratzer 1996), while causation is encoded by a distinct v_{CAUSE} head (Pylkkänen 2008, Harley 2017).[17] Under this view, Hmong indirect causatives require multiple VoiceP layers to host their multiple agents. Once Voice head takes scope above v_{CAUSE} and hosts the causer in its specifier, the other takes scope below v_{CAUSE} and hosts the causee. Hmong direct causatives, on the other hand, require only a single VoiceP layer, to introduce the causer.

The distribution of agent-oriented adverbs like *txhob txw* 'purposely', manner adverbs like *ceev* 'quickly' or *sib zog* 'forcefully, hard', and *rov qab* 'again' leads us to the same conclusion: there must be additional syntactic structure present in the indirect causative beyond that found in the direct causative.[18] Under the assumptions that agent-oriented adverbs adjoin to VoiceP and that manner adverbs adjoin to vP, this tells us that the direct causative comprises a single VoiceP consituent, while the indirect causative merges an additional vP and VoiceP on top of that.

Taken together, these behaviors indicate that the indirect causative involves a more highly articulated syntax than the direct causative. Specifically, the indirect causative embeds a VoiceP–vP complex describing the effect under the VoiceP–vP complex describing the cause, as in (42).

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[17]The choice to represent this causative head as v_{CAUSE}, rather than Caus, is intended to capture its verbalizing function: in Hmong, the "causative morpheme" is a verbal root, which presumably must have its verbal categorial features valued (cf. Key 2013, Harley 2017 on distinguishing between v_{CAUSE} and Caus in Turkish).

[18]Though in the case of *rov qab* 'again', the restriction to a single attachment site within the direct causative is somewhat surprising. We might, by analogy with English *again*, predict *rov qab* to show both "repetitive" and "restitutive" readings (see Von Stechow 1996, a.o.). However, only a restitutive reading is observed. At present, I cannot offer a full analysis of Hmong *rov qab* 'again'—however, to the extent that its surprising inflexibility is due to its syntactic distribution, the data is consistent with the behavior of other adverbs discussed here.

(42) kuv **ua**   Tub **hais** lus
      1SG make Tou say   speech
      'I made Tou speak.'

```
                    VoiceP
                   /      \
                  /        \
               DP           \
               /\        Voice    vP
              /__\              /    \
             kuv            v_CAUSE    VoiceP
              I              ua        /    \
                            make     DP      \
                                     /\    Voice   vP
                                    /__\         /    \
                                   Tub          v      DP
                                   Tou          hais    /\
                                                say    /__\
                                                       lus
                                                      word
```
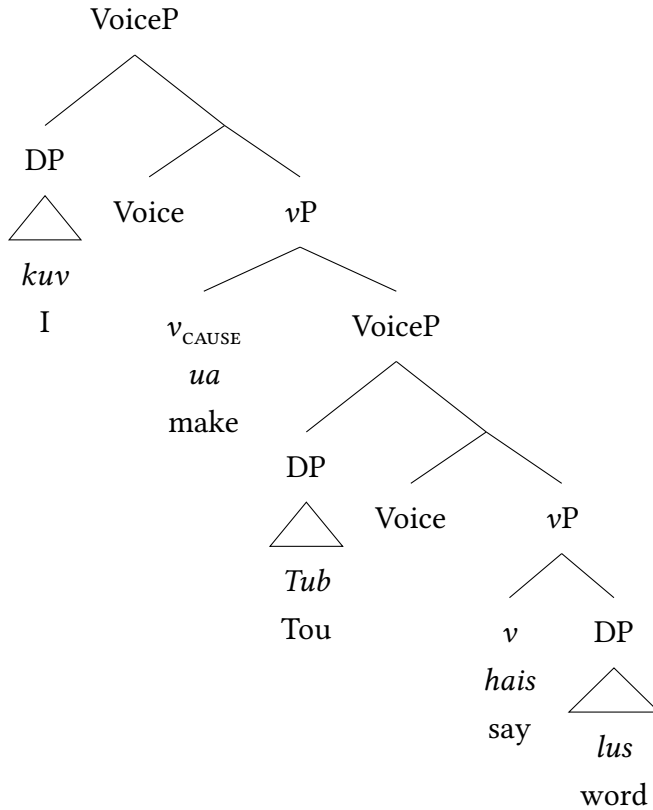
This structure accounts for the distribution of agents, agent-oriented adverbs, and manner adverbs. It also faithfully represents the intuition that, as with the English causative verb *make*, the Hmong causative verb *ua* does not directly predicate the object. Rather, what is *made* (i.e., caused) is the type of event described by the embedded constituent (here VoiceP). I take this VoiceP to be uniformly present—example (43) shows that adverbial modification is present even with an unaccusative embedded predicate and a non-agentive causee–though I assume that agentive and non-agentive causees require different "flavors" of Voice (as in e.g. Alexiadou et al. 2015).

(43) CONTEXT: The shirt was previously ripped, but not by me.

      kuv ua   [lub tsho ntuag rov.qab]
      1SG make CLF shirt rip_INTR again
      'I made the shirt rip again.'

By the same diagnostics, direct causatives can be shown to lack these additional VoiceP and vP layers. Recall, however, that the direct causative constructions examined in Section 3.1.1 do

not all share a uniform syntactic structure. In the general case, V_2 must be unaccusative but may be drawn from various situational aspect classes (specifically, it may be an Activity, Achievement, or State). When V_1 is a creation verb, however, V_2 can only be a state.

I take this contrast to derive straightforwardly from the syntactic structure of Achievements, Activities, and States. In the spirit of Ramchand (2008), I represent the structure of unaccusative predicates of these three classes as in (44).

(44) a. Activity: [vP [UNDERGOER] [v]]
      b. Achievement: [vP [UNDERGOER] [[v] [ResP [RESULTEE] [Res]]]]
      c. State: [ResP [RESULTEE] [Res]]

As previously discussed in Section 2.7.2, stative verbs in Hmong generally also serve as inchoatives. This stative–inchoative alternation is not morphologically marked, but one reading or the other may be preferred based on context. Consider the stative predicate *loj* 'be(come).big'. In the unmarked case, as in (45a), a simple stative reading is preferred; when it co-occurs with the perfect marker *lawm*, as in (45b), an inchoative reading is preferred.

(45) a. koj loj~loj!
          2SG RDUP~be(come).big
          'You're big!'

      b. koj loj~loj   lawm!
          2SG RDUP~be(come).big PRF
          'You've gotten big!'

For present purposes, it is not crucial to understand the precise pragmatic conditions under which one interpretation or the other surfaces. What is most important is (i) that this alternation does exist, and (ii) that it is highly productive. So far as I am presently aware, all stative predicates in Hmong have corresponding inchoative forms. Because of this high degree of productivity, I assume the stative–inchoative alternation in Hmong to result not from lexical ambiguity, but from a productive syntactic process. Following Hale & Keyser (1993, 2002) and Ramchand (2008), among others, I take the inchoative use in (45a) to be derived syntactically, by the addition of vP layer to the simple stative predicate in (45b). That is, while (45a) has the underlying structure shown in (44c), (45b) has that in (44b).

With these assumptions, we can more clearly describe the type of variation observed in the direct causative. In the general case, V_2 can be an Activity, an Achievement, or a State. If we take that state to appear in its inchoative use, a generalization that emerges: V_1 must take a vP complement. All of (44a–c) are therefore well-formed candidates. This structure is illustrated in

(46). Here an Achievement predicate *tawg* 'break' serves as V$_2$, though Activities and (derived) inchoatives receive similar structures (modulo the contents of *v*P).

(46)   nws **tsoo**   lub tais   **tawg**
       3SG smash CLF bowl break
       'He smashed the bowl and it broke.'
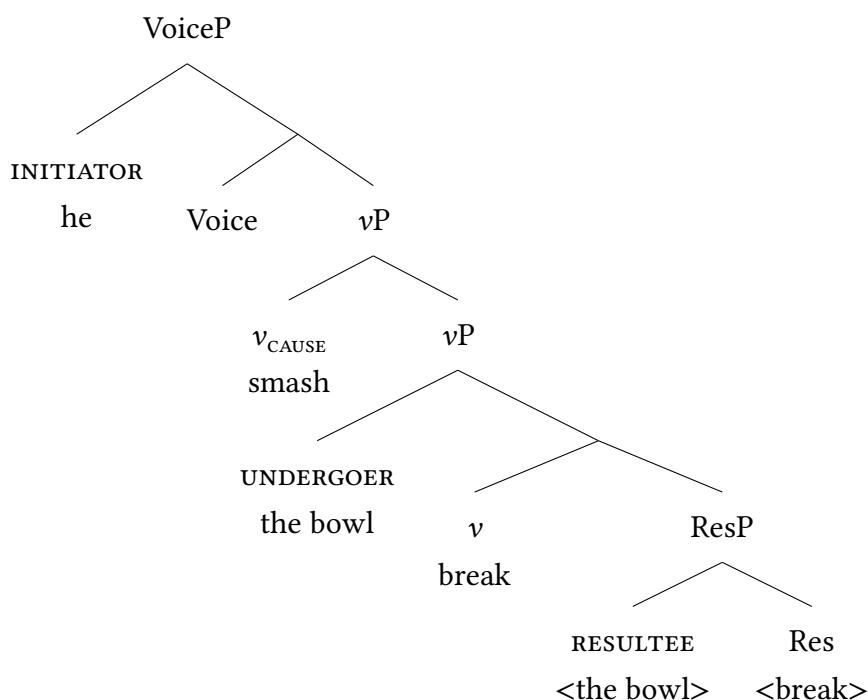
This structure will only be well-formed if V$_2$, which merges in *v*, is unaccusative. Under the assumption that unergatives and transitives require additional functional structure on top of that found in unaccusatives, they simply do not fit the selectional requirements of v_{CAUSE}.[19]

When V$_1$ is a creation verb, however, it cannot take an Activity or Accomplishment as V$_2$. It must take a state. I represent this behavior by situating the creation verb itself in *v*. This means that the only candidates for V$_2$ in this case are those verbs which can form a well-formed ResP complement to *v*: that is, states.

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[19]This structure resembles the underlying structure proposed by Hopperdietzel (2022) for Mandarin resultative verb compounds—though in Mandarin, unlike in Hmong, V$_2$ is incorporated into V$_1$.

(47) lawv **ua** lub tsev **loj~loj**
　　 3PL build CLF house RDUP~be(come).big
　　 'They built the house really big.'

```
                        VoiceP
                       /      \
              INITIATOR         \
                they     Voice    vP
                              /      \
                        v_CAUSE       vP
                         build      /    \
                              UNDERGOER    \
                               <they>   v     ResP
                                     <build>   /    \
                                         RESULTEE   Res
                                         the house  big
```
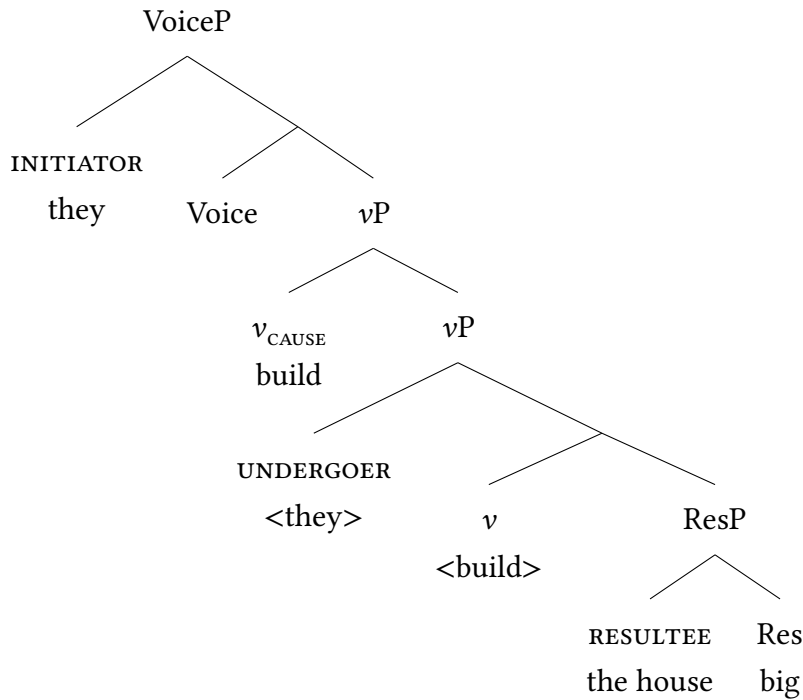
An alternative to this proposal might involve the the object directly combining with both V_1 and V_2 in the syntax—that is, it might involve genuine argument sharing. While potentially desirable, it is not clear whether this can be achieved in a way consistent with both the Hmong data and assumptions about the basic structure of the verb phrase. We can begin by positing the movement of the causee from Spec,vP to a higher thematic position within some projection of V_1—but to what projection precisely?

One possibility is to simply insert another projection, as schematized in (48), such that this new projection is headed by V_1 and hosts the causee in its specifier. The causee is also the undergoer of V_2, however, so it must move to this new position.

(48) [$_{\text{VoiceP}}$ he [$_{v_{\text{CAUSE}}\text{P}}$ smash$_j$ [$_{v\text{P}}$ the bowl$_i$ [t_j [$_{v\text{P}}$ t_i break]]]]

An alternative, given a tree like that in (46), is to move the causee to Spec,v_{CAUSE}P. This avoids positing a new projection, though this requires us to assume (i) that Spec,v_{CAUSE}P can assign an internal argument role, and (ii) that V_1 must also spell out a higher head, possibly Voice, to derive the correct word order. The resulting structure is given in (49).

(49) [$_{\text{VoiceP}}$ he smash$_j$ [$_{v_{\text{CAUSE}}\text{P}}$ the bowl$_i$ [t_j [$_{v\text{P}}$ t_i break]]]]

Both of these hypothetical structures add a thematic position to the verbal projection, but there is no variant of the Hmong direct causative construction such that the argument affected by the action of V_1 and the undergoer of V_2 are distinct. That is, there must in either case be some requirement that this new thematic position can only be filled by movement and never by external merge. While either (48) or (49) could be made to deliver the correct output, it is not clear at present whether the necessary stipulations are warranted.

The Voice–v_{CAUSE}–v structure in (46) presents a roughly similar syntactic complexity to that supposed for agentive transitives and (non-serializing) lexical causatives. For example, (50) schematizes Ramchand's (2008) characterization of English lexical causatives which, modulo category labels, is very close to the current proposal for Hmong direct causatives. If we take *init(iation)* as analogous to v_{CAUSE} (in that it is the locus of lexical causativization) and *proc(ess)* to be v (as it forms the core of the dynamic event), the basic syntax is similar—the null cause morpheme that Ramchand assumes for English is simply spelled out with a lexical verb in Hmong.

(50)   English lexical causatives: (Ramchand 2008, p. 86)

$[_{\text{init}\text{P}}$ [Karena] $[[_{\text{init}} \varnothing_{\text{CAUSE}}]$ $[_{\text{proc}\text{P}}$ [the butter] $[_{\text{proc}}$ melt $]]]]$

This is a major benefit of the current approach. The Hmong direct causative has been called a serial verb construction, but as noted above, the term "serial verb construction" is a surface-level description. It refers to a heterogeneous group of constructions cross-linguistically, and does not necessarily correspond to any particular theoretical structure or set of structures (Stewart 2001, Veenstra & Muysken 2017, a.o.). As such, we should be careful to avoid presupposing greater complexity or exoticism simply because this particular label has been applied. Considering that the Hmong direct causative occurs both frequently and productively, and that it expresses the relatively fundamental notion of direct causation, we might (all other things being equal) expect this construction to realize a relatively basic underlying structure. The present approach captures that intuition, treating it on par with causative constructions cross-linguistically.

The most significant complication that Hmong presents is that the "causative morpheme" that spells out v_{CAUSE} is itself a verb. This is not so surprising in the indirect causative: *ua* 'make' is a functional causative verb with many analogous cross-linguistically (including English *make*, French *faire*, and many others). In the direct causative, however, this is more unusual: both cause and effect are expressed by verbs, which contribute their full lexical-semantic meaning to the resulting complex event description. Given that verbs in Hmong already appear to have a somewhat wider distribution than verbs in non-serializing languages, and that verbs are fully capable of realizing v_{CAUSE} in at least some environments, we must consider why verbs are unable to spell out v_{CAUSE} in the *indirect* causative as well. It would seem relatively simple to take the

same verbal roots that appear as V_1 of the direct causative and shift them to a slightly higher position of the same category—yet this is not attested.

So, what prevents Hmong speakers from replacing the causative verb *ua* 'make' with a more contentful verb? This question cannot be answered simply by appealing to the semantics of direct and indirect causation, as the lexical verb versus light verb distinction correlates with genuine syntactic differences.

Although the distribution of morphological roots with verbal lexical-semantic content is more flexible in Hmong than, for example, in English, such roots nonetheless appear in a relatively constrained syntactic distribution. I propose that the distribution of such roots (and thus also of genuine serial verb constructions) is bound by the principle stated in (51).

(51)   First-phase lexical insertion principle:

Verbal roots with "rich" lexical-semantic content cannot be initially merged outside the first phase (the first VoiceP constituent of the verbal extended projection).

The definition of "rich" lexical-semantic content must, for present purposes, identify a class of roots whose meanings make reference to specific, possibly extra-linguistic concepts (including *tsoo* 'smash', *thawb* 'push', *tua* 'kill', etc.). For example, evaluating whether a predicate like *tsoo* 'smash' is true, when applied to some event *e*, requires (i) some sort of qualitative evaluation of the facts concerning *e*, with respect to (ii) some prior knowledge of what sorts of event counts as events of *smashing*. Light verbs, aspectual verbs, auxiliaries, and the like are excluded from this definition (even if they have some syntactic properties of verbs), as the meanings they convey are purely compositional. For example, if a light verb or auxiliary expressing tense or aspect applies to an event *e*, one does not need to qualitatively evaluate whether this use of that light verb/auxiliary fits with some conceptual prototype; rather, one can simply apply a clearly defined function to *e*, which will be true or false based on the properties of *e*. I place indirect causatives in this second class. The truth of the indirect causative use of Hmong *ua* 'make' can be determined compositionally, without comparing it to any particular concept.

This principle effectively sets aside a special role for the region of the verbal projection delimited by the external argument—a region which has also been referred to as the "domain of special meaning" (see Marantz 1997, 2007, Arad 2003, Harley 2008). However, rather than the derivation of irregular semantic meanings (as well as irregular phonological forms), the behavior that must be constrained in Hmong is the insertion of roots themselves.

The phrasing in (51) does not rule out the converse—that is, functional items merged within the first phase—as this would be at odds with the availability of innumerable light verbs, affixes, particles, and other functional elements cross-linguistically that can appear within VoiceP.

Note that this constraint also does not rule out head movement (or spanning) across VoiceP (e.g. V–to–T raising), nor does this prevent multiclausal structures from hosting multiple verbs across multiple verbal projections. I hypothesize that this constraint is active cross-linguistically, though in some languages it may not be apparent. For example, rich lexical verbs in languages like English appear subject to even stricter constraints, generally appearing only once per clause, as head of the verbal projection. The effects of this constraint should be most visible in other serializing languages—and as we will see in Section 3.4.2, this prediction appears to be borne out.

This constraint not only explains the differing syntactic properties of Hmong indirect causatives and direct causatives, but correctly predicts another difference between the two causative constructions: recursion. The indirect causative construction may recur, as shown in (52), while the direct causative construction cannot, as shown in (53).[20]

(52) kuv [[$_{v_{\text{CAUSE}}}$ **ua**] [$_{\text{VoiceP}}$ kuv tus kwv   **ua**   lub tais **poob**]]
      1SG   make   1SG CLF younger.brother make CLF bowl fall
      'I made my brother make the bowl fall.' ($\approx$ 'I made my brother drop the bowl.')

(53) *kuv [[$_{v_{\text{CAUSE}}}$ **thawb**] [$_{\text{VoiceP}}$ kuv tus muam **thawb** kuv tus kwv   **poob**]]
      1SG   push   1SG CLF sister push   1SG CLF brother fall
      Intended: 'I pushed my sister, making her push my brother down.'

The contrast between (52) and (53) arises straightforwardly from the proposed constraint. In both cases, the embedded constituent is a VoiceP consisting of a well-formed causative construction. This VoiceP can then be selected for by v_{CAUSE}, giving rise to well-formed structures like (52)—so long as the v_{CAUSE} head is spelled out by a "functional" verb like *ua* 'make'. The ungrammaticality seen in (53) arises only when this v_{CAUSE} head is spelled out by a root with "rich" lexical-semantic content. That is, (53) is ungrammatical because a lexical root has merged too high within the verbal extended projection.

Note that this constraint also explains the distribution of the two senses of the verb *ua* discussed in Section 3.1.2. The lexical version of *ua*, meaning 'build, create', can only appear within the lowest VoiceP constituent of the verbal extended projection—and can therefore describe a causing event within the direct causative construction, but not within the indirect causative construction. On the other hand, the functional sense of *ua* 'make' is not bound by this restriction, as we have already seen.

I suggest that this principle relates to a similar locality constraint proposed by Arad (2003)—that is, this principle might arise from the distribution of categorizing heads in the syntax. Arad (2003)

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[20]In principle, (53) might instead be treated as recursion of v_{CAUSE}, with no intervening VoiceP. I take the intervening Voice to be necessary in order to introduce the argument *kuv tus muam* 'my sister', ruling out such a structure (though the "flavor" of this Voice head may differ across agentive and non-agentive cases, as in Alexiadou et al. 2015).

shows that although roots in Hebrew may be associated with a wide variety of distinct inter-pretations across contexts, upon categorization their meaning becomes fixed and cannot be substantially changed by subsequent word-formation processes (for example, nominalization). To capture this, Arad proposes the constraint in (54).

(54)   Locality constraint on the interpretation of roots:

Roots are assigned an interpretation in the environment of the first category-assigning head with which they are merged. Once this interpretation is assigned, it is carried along throughout the derivation.   (Arad 2003, p. 747)

Put another way: in Hebrew, the processes of categorization (in some way) associates a particular meaning with a syntactic terminal. A root categorized by *v*, for example, gives rise to a particular interpretation consistent with its use as a verb (which may be its only interpretation, or may be one of several possibilities). The same root categorized by *n* will give rise to a different (though possibly related) interpretation. Effectively, the various meanings of roots can be locked behind synactic categories, and only emerge once the root is merged in the correct environment.

To extend this idea to Hmong, consider the following thought experiment: what happens if such a root is *not* categorized? That is, a root might combine with a head that lacks a categorizing function—in which case, the root is not categorized by *v*, so the resulting word will not receive its typical verbal interpretation, nor is it categorized by *n* or *a*, so it will not receive a typical nominal or adjectival interpretations either. That is, the functional use of the root will lack any of the typical qualitative meaning associated with its lexical use(s). In the specific example that I am most concerned with here, the Hmong root $\sqrt{ua}$ can combine with the categorizing head *v*, and in so doing gives rise to the lexical verb *ua* 'build, create'. And the functional (causative) use of *ua* 'make', though similar in some abstract way, certainly lacks the conceptual meaning of literally building or creating something.[21]

This does not necessarily mean that causative verbs like *ua* 'make' or English *make* are devoid of all lexical-semantic content—rather, they are devoid of a specific kind of content. There might be certain aspects of lexical-semantic meaning that are not associated with a particular category. For example, English *make* is argued to display a greater degree of lexical-semantic content than causative *have* (Ritter & Rosen 1993, Bjorkman & Cowper 2013), something that would be impossible if *make* entirely lacks lexical-semantic content. Though given the functional character of causative *make* it is not clear whether such contrasts in meaning *must* arise from the

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[21]Though if this line of thinking is correct, we must revisit the claim made in Section 3.3.1 that an identical v_{CAUSE} head is responsible for causation both within the first phase and without. Instead, the causative head that selects for VoiceP must lack a categorizing function.

lexical-semantic content of *make* itself, or whether they might arise from factors external to the root, such as the structures in which these elements appear, or competition with other similar functional elements.

In summary: I have argued that the Hmong direct and indirect causative constructions differ syntactically in the position of the causative head v_{CAUSE}, which merges within the first phase in the direct causative, and outside it in the indirect causative. The distribution of verbs with rich lexical-semantic content is restricted by a global principle, which prohibits them from merging outside the first phase, and therefore they cannot spell out v_{CAUSE} in its higher position (that is, in the indirect causative construction).

3.3.2 The semantics of direct and indirect causation

In this section, I outline a semantics consistent with the structures developed above. The goals for this analysis are as follows: (i) to describe distinct cause and effect (sub-)events, which can be ascribed distinct properties, (ii) to link these (sub-)events via a causal relation, (iii) to allow for variation in the directness of causation. Although I am primarily concerned with Hmong here, it is my hope that this analysis can also account for variation in the directness of causation cross-linguistically.

I begin with the (syntactically) simpler of the two constructions: that is, the direct causative. In building a syntactic representation of this construction, I have assumed that v_{CAUSE} does two things. First, it encodes a causal meaning, which I model as a CAUSE predicate within the denotation of v_{CAUSE}. For the moment, an intuitive understanding of the meaning of CAUSE will suffice, though I will address this in more detail in Section 3.3.3.

Second, v_{CAUSE} incorporates the semantic content of the (verbal) roots that lexicalizes it. I assume that such roots simply contribute properties of events, as in (55), and for concreteness, I assume that their lexical-encyclopedic content is associated with a given head via a syncategorematic rule (similarly to Ramchand 2008). For concreteness, this rule might be schematized as in (56): when a subeventive head like v_{CAUSE} combines with a root α, a property of events supplied by α is conjoined to the semantic content of the head v_{CAUSE} itself. Effectively, the denotation for v_{CAUSE} leaves a blank space to be "filled in" by the root.[22] (The property given by P in (56) is supplied by the complement of v_{CAUSE}).

(55) $⟦\,ntaus\,⟧ = \lambda e.hit(e)$

---

[22]Nothing hinges on this implementation; a variety of other methods for vocabulary insertion could be used to capture the same facts. Nor is this templatic approach specific to v_{CAUSE}; rather, it can be generalized, as in Ramchand 2008, to many (and possibly all) other heads.

(56) $\left[\!\left[\begin{smallmatrix} v_{\text{CAUSE}} \\ \alpha \end{smallmatrix}\right]\!\right] = \lambda P_{\langle v,t\rangle}\lambda e.\,[\![\alpha]\!]_{\langle v,t\rangle}\,(e) \wedge \exists e'[P_{\langle v,t\rangle}(e') \wedge \text{CAUSE}(e)(e')]$

In the present example, α is the root *ntaus* 'hit'. This derives the function from properties of events to properties of events that is given in (57).

(57) $\left[\!\left[\begin{smallmatrix} v_{\text{CAUSE}} \\ ntaus \end{smallmatrix}\right]\!\right] = \lambda P_{\langle v,t\rangle}\lambda e.\,hit(e) \wedge \exists e'[P(e') \wedge \text{CAUSE}(e)(e')]$

This new function takes as its argument a property of events P, supplied by the *v*P complement of v_{CAUSE}. For the present example, this property is given in (58a), which describes an event of *Tou crying*. This yields the property of events in (58b), which characterizes the set of *hitting* events that cause some event of *Tou crying*.[23]

(58)   a. $[\![v\text{P}]\!] = \lambda e.\,cry(e) \wedge \text{UNDERGOER}(e)(\text{Tou})$

      b. $[\![(57)]\!]([\![v\text{P}]\!]) = \lambda e.\,hit(e) \wedge \exists e'[cry(e') \wedge \text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$

The meaning in (58b) then combines with external argument-introducing Voice, the result of which combines with the external argument, in this case *kuv* '1SG'.[24] The resulting denotation for VoiceP is given in (59b), with the entire derivation schematized in (60).

(59)   a. $[\![\text{Voice}]\!] = \lambda P_{\langle v,t\rangle}\lambda x \lambda e.\,P(e) \wedge \text{INITIATOR}(x,e)$

      b. $[\![\text{Voice}]\!]([\![(58b)]\!])([\![1\text{SG}]\!]) = \lambda e.\,hit(e) \wedge \text{INITIATOR}(1\text{SG},e) \wedge \exists e'[cry(e') \wedge$

                   $\text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$

(60)   kuv ntaus Tub quaj
       1SG   hit   Tou cry
       'I hit Tou (making him) cry.'

$$[\![\text{VoiceP}]\!] = [\![(59b)]\!]$$

```
            [[ VoiceP ]] = [[ (59b) ]]
               /        \
        [[ 1SG ]]        \
                    /           \
             [[ Voice ]]    [[ (58b) ]]
                            /          \
                   [[ v_CAUSE ]]    [[ vP ]]
                   [[  ntaus  ]]       /\
                                  Tou cry
```

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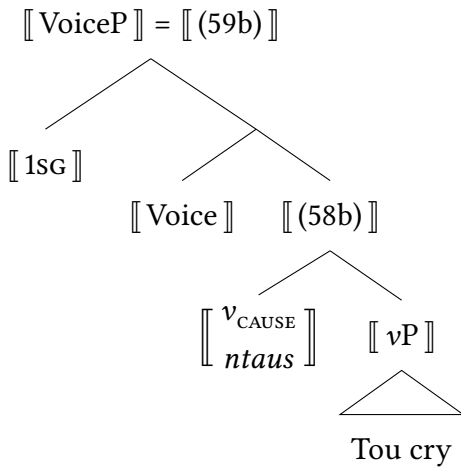
[23]I assume the same sort of syncategorematic rule is responsible for associating the lexical-encyclopedic content of *quaj* with *v*P in (58a).

[24]Following Rappaport Hovav & Levin (2000) and Ramchand (2008), among others, I assign the external argument a generic INITIATOR role.

Ultimately, this VoiceP constituent denotes a property that holds of complex events in which *hitting* events (performed by the speaker) cause events of *crying* (undergone by *Tou*). Of course, this glosses over the precise meaning of CAUSE, but before I return to that point, I will address the basic semantics of the indirect causative.

For the Hmong indirect causative, I propose a similar structure. As before, the primary causal relationship is encoded by v_{CAUSE}, using the same denotation in (56). In the indirect causative, however, this approach raises a puzzling question. If v_{CAUSE} combines with the causative verb *ua* 'make' in the same way as it does with rich lexical verbs like *ntaus* 'hit', then *ua* 'make' must represent a property of events. But which property? It is unnecessary (and indeed, undesirable) to incorporate a redundant notion of causation within the meaning of *ua* 'make', when the observed causal meaning has already been attributed to v_{CAUSE} itself. Instead, I will argue that *ua* 'make' a property of events that is rather underspecified and does not correspond to a particular type of action. As it is difficult to precisely characterize this meaning without a more concrete notion of the causal relation in which it participates, I will for the moment simply use MAKE as a placeholder for this underspecified property (which I will more formally characterize in Section 3.3.3).

So, the denotation for v_{CAUSE} given in (56) combines with our placeholder meaning for *ua* 'make' to yield the function in (61). To be certain, the only causal meaning in this denotation comes from the CAUSE predicate in the denotation of v_{CAUSE}. (The placeholder property MAKE, as already mentioned, should not be taken to encode a redundant causal meaning.)

(61) $\left[\!\!\left[\begin{matrix} v_{\text{CAUSE}} \\ ua \end{matrix} \right]\!\!\right] = \lambda P_{\langle v,t \rangle} \lambda e. \text{MAKE}(e) \wedge \exists e'[P(e') \wedge \text{CAUSE}(e)(e')]$

Just as before, this function must now combine with a property of events. In the case of the indirect causative, this property of events corresponds to a VoiceP constituent (rather than a *v*P).[25] This property combines with (61) to yield the complex property of events in (62b), which characterizes the set of *making* events that cause events of *Tou's crying*.

(62) a. $[\![\text{VoiceP}]\!] = \lambda e.cry(e) \wedge \text{INITIATOR}(e)(\text{Tou}) \wedge \text{UNDERGOER}(e)(\text{Tou})$

   b. $[\![(61)]\!]([\![(62a)]\!]) = \lambda e.\text{MAKE}(e) \wedge \exists e'[cry(e') \wedge \text{INITIATOR}(e')(\text{Tou}) \wedge$
      $\text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$

As before, this complex property of events combines with a Voice head (using the same denotation as in (59a) above), which introduces the external (causer) argument. This results in the complex property of events in (63) (with the the full derivation schematized in (64) below).

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[25]In (62a), I assume that Tou is both INITIATOR and UNDERGOER of the *crying*. This represents the unergative use of *quaj* 'cry'. It would also be well-formed, with the unaccusative use of *quaj*, for Tou to receive an UNDERGOER role only.

(63) $\llbracket \text{Voice} \rrbracket(\llbracket (62b) \rrbracket)(\llbracket \text{I} \rrbracket) = \lambda e.\text{MAKE}(e) \wedge \text{INITIATOR}(e, \text{I}) \wedge \exists e'[cry(e') \wedge \text{INITIATOR}(e')(\text{Tou})$

$\wedge \text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$

(64) kuv ua   Tub quaj
     1SG make Tou cry
     'I made Tou cry.'
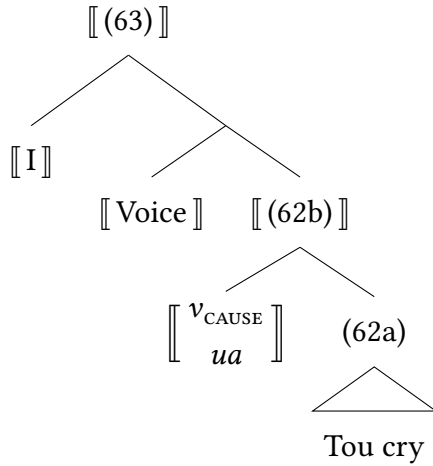
This treatment roughly captures the behavior of direct and indirect causatives in Hmong. However, there is an important issue that I have not thus far addressed: the logical forms of the direct and indirect causative constructions (repeated here as (65a–b)) are highly similar. Both involve two properties of events, which are related by the same CAUSE predicate to derive a single, internally-complex property of events. Aside from the possibility of assigning an external thematic role to the causee argument, which comes about when Voice intervenes between v_{CAUSE} and v (as in (42) above), the only notable distinction between the two is in the property that describes the "cause" portion of the complex event. The direct causative, as in (65a), may incorporate the properties denoted by any number of rich lexical verbs, for example *ntaus* 'hit', while the indirect causative, as in (65b), must include the more vague property described by the causative verb *ua* 'make'.

(65)   a. Direct causative:

       $\lambda e.hit(e) \wedge \text{INITIATOR}(e, \text{I}) \wedge \exists e'[cry(e') \wedge \text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$

   b. Indirect causative:

       $\lambda e.\text{MAKE}(e) \wedge \text{INITIATOR}(e, \text{I}) \wedge \exists e'[cry(e') \wedge \text{INITIATOR}(e')(\text{Tou}) \wedge$

       $\text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$

How can such similar logical forms derive the clearly different interpretations of direct and indirect causation? As we will see in the following section, the answer to this question can be

found in a careful examination of the meanings of CAUSE and MAKE. In doing so, I closely follow the analysis of Kratzer (2005), in which the meaning of CAUSE interacts with the lexical semantics of the predicate that describes the causing event, deriving direct causation when it co-occurs with a more restrictive properties of events, like that described by *hit* in (65a), and indirect causation with less restrictive properties of events, like our relatively vague placeholder property MAKE in (65b)

3.3.3 The meanings of CAUSE and MAKE

The basic treatment of causation I employ follows Lewis (1973), as implemented in Kratzer's (2005) analysis of resultative constructions. In this approach, the relevant causal relation is one based on counterfactual dependence. Broadly speaking, for an event e_1 to cause an event e_2, it must be the case that (i) both e_1 and e_2 occurred, and (ii) if e_1 had not occurred, then e_2 would not have occurred either.[26]

This relation can be used to model causal chains. A "causal chain", in this context, refers to a convex subset of the universe of events, which is linearly ordered by the counterfactual causation relation. All elements in a causal chain are connected by this causation relation, and as the causal chain is convex, no relevant intermediate causes can be omitted. (More formally, this means for two elements e_1 and e_2 in a causal chain, any element e_3 such that e_1 causes e_3 and e_3 causes e_2 must also be an element of the causal chain.) A simple illustration of a causal chain might consist of exactly two elements, as in (66a), although causal chains can also comprise an arbitrarily large number of elements, as in (66b).

(66)   a. $e_1 \rightarrow e_2$

      b. $e_1 \rightarrow \ldots \rightarrow e_n$

Importantly, directness of causation is not a property of the causal chain itself, as longer chains *allow* for the possibility of indirect causation without *requiring* it.[27] Instead, the directness

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[26]Strictly speaking, Lewis (1973) defines the relation 'e_2 is caused by e_1' as the transitive closure of the counterfactual dependence relation. The relation 'e_1 causes e_2' is that relation's inverse (Kratzer 2005, p. 197).

[27]This is because linguistic representations of events do not necessarily map onto concepts in equally detailed ways. For example, an event described by a predicate like English *build*, or the rich lexical sense of Hmong *ua* 'build, create', might be conceived of either as a single action of *building*, or as a series of discrete actions (e.g. laying the foundation, framing the walls, putting up siding, and so on) each of which could potentially be described by a more restrictive predicate. Likewise, a single, punctual event of *hitting* might be broken down into a series of neurological impulses and muscle movements (e.g. clenching one's fist, drawing back one's arm, swinging one's arm forward, etc.) on the part of the agent, and possibly also the immediate effects of this action on the patient (e.g. being physically impacted, rupturing of blood vessels, feeling pain, etc.). Despite this, however, we do not see verbs like *ntaus* 'hit', or indeed any verbs with rich lexical-semantic content, form indirect causatives. Because of this

of causation depends on the meanings of the predicates that describe the causal chain (Kratzer 2005; following Rothstein 2001). For example, those events which we can describe as events of *hitting* are in certain ways quite heterogeneous. They can occur in different scenarios, involve different participants, include many variations on the precise muscle movements, and lead to various effects or outcomes.

Nonetheless, *hitting* events are unified by a number of factors, two of which are of primary importance here. First, they involve a particular conceptual action type, in which the subject causes a forceful impact against the object. (Prototypically, this involves the action of the arms, and involves an impact by some part of the agent's body or some instrument in their use.) There is likely not a strict, formal definition of that can be given for a concept like *hitting*; rather, the extension of Hmong *ntaus* 'hit' or English *hit* makes some reference to a (possibly pre-linguistic) concept informed by world-knowledge. Second, there are limits on what real-world happenings can be included within a single event of *hitting*: a *hitting* event can be one in which a *hitting* and some result (e.g. *crying*) have partial temporal overlap, but a *hitting* event generally cannot be one in which there is a *hitting*, followed by some intermediate cause, followed by an indirect result. I take these two things to be related: the denotation of verbs like *hit* are tightly-fitted to the temporal extent of the concepts they describe.

In the context of Hmong causatives, it is clear that a predicate like *ntaus* 'hit' can be used to describe one part of a larger causal chain. This causal chain may also have one of a variety of possible endpoints (or "culmination parts"; Kratzer (2005) following Rothstein 2001), which correspond to possible results of the *hitting* (possibly including the patient's feeling pain, bruising, breaking, etc.) and which can be described by a distinct predicate (for example *quaj* 'cry, whine'). A causal chain of this sort must include only causal steps that can be construed as part of the extension of either *hit* or *cry*—meaning that, in a simple case like (67a), we might have only two events, one described by each predicate. However, the mismatch between conceptual events and linguistically-represented events might lead us to consider another sort of causal chain, for example (67a), in which (at least at a conceptual level) we take a much finer-grained view of the causal chain.

(67)   a. e_1 $\rightarrow$ e_2
       $\underbrace{}$ $\underbrace{}$
       $\llbracket\,\text{hit}\,\rrbracket$ $\llbracket\,\text{cry}\,\rrbracket$

       b. $\underbrace{e_1 \rightarrow \,\ldots\, \rightarrow e_n}_{\llbracket\,\text{hit}\,\rrbracket}$ $\rightarrow$ $\underbrace{e_{n+1}}_{\llbracket\,\text{cry}\,\rrbracket}$

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problem of granularity, it is difficult to claim that the length of the causal chain has a strict effect on the directness or indirectness of causation.

This is not to say that a predicate like *hit* can, in and of itself, describe an indirect causal relation. Rather, a predicate like *hit* might be conceived of as conveying a long causal chain containing many tiny, discrete steps between the agent's first muscle movements and the ultimate impact against the patient. Although (67b) might at a glance appear "indirect", in the sense that it contains more than one causal relation, it remains direct so long as all individual steps can be subsumed under the extension of a single *hitting* event and a single *crying* event. The meanings of the predicates themselves will ensures that all of these small steps fit within a particular temporal extent. This means that regardless of the level of granularity we assume for the causal chain, both examples schematized in (67) can be well-formed direct causatives.

What is ruled out are cases like (68), in which there exists some additional causal steps which does not fall under the denotation of either *hit* or *cry*.

(68) $e_1 \rightarrow \ldots \rightarrow e_n$

$\underbrace{}\ \ \ \ \ \ \ \ \underbrace{}$

$[\![\,\text{hit}\,]\!]$ $[\![\,\text{cry}\,]\!]$

I argue that indirect causatives behave in just the same way as direct causatives, with the differences in interpretation between the two causative constructions arising from the lexical-semantic meanings of the predicates involved. As discussed in the preceding section, *ua* 'make' (like English *make*) is quite flexible in terms of the cause it describes: intuitively, *ua* 'make' does not correspond to any particular conceptual action type, and its extension includes atomic events, as well as sequences of multiple events organized in causal chains.

Since the denotation of Hmong *ua* 'make' does not convey the same sort of conceptual meaning as, for example, an event of *hitting* or of *pushing*, it can effectively be "stretched" over arbitrarily long causal chains, which do not receive the same sort of temporal consistency enforced by the content of a predicate like *hit*. This is precisely what is necessary in order for *ua* 'make' to describe indirect causation: it must be free to describe potentially long sequences of causes, as schematized in (69).

(69) $\underbrace{e_1 \rightarrow \ldots} \rightarrow \underbrace{e_n}$

$[\![\,\textit{make}\,]\!]$ $[\![\,\textit{cry}\,]\!]$

The meaning I propose for *ua* 'make' is given in (70). Although it contributes a property of events, that property is not tied to a particular concept; rather, it characterizes the set of events that (i) are actions, and (ii) can be mapped to (possibly complex, possibly singleton) causal chains.

(70) $[\![\,\textit{make}\,]\!] = \lambda e.\text{ACTION}(e) \wedge \text{COMPLEX-CAUSAL-EVENT}(e)$

(where COMPLEX-CAUSAL-EVENT$(e) = 1$ iff e can be mapped to a causal chain)

We can now replace the placeholder property indicated by MAKE in (65b) with this denotation, giving the indirect causative a logical form as in (71).

(71) $\lambda e.$ACTION(e) $\wedge$ COMPLEX-CAUSAL-EVENT(e) $\wedge$ INITIATOR(e, I) $\wedge$ $\exists e'[cry(e')$ $\wedge$ INITIATOR(e')(Tou) $\wedge$ UNDERGOER(e')(Tou) $\wedge$ CAUSE$(e)(e')]$

The CAUSE predicate is identical to that found in the direct causative construction, and in this case also derives a direct causal relationship between cause and effect—that is, between *making* and *crying* subevents in this example. I argue that perceived temporal gaps arise because the extension of *make* includes potentially quite long causal chains, and many of these chains involve intermediate causal steps that can themselves have duration. Put another way: there is never a temporal gap between a cause and its immediate effect; rather, observed temporal gaps result when the initial cause and final effect are separated by one or more intermediate causal steps. (Strictly speaking, however, such "intermediate" steps in fact all fall within the denotation of *make* under this account.)

Under present assumptions, there is no way to introduce an external argument of the *making* event alone. Rather, v_{CAUSE} must combine both with *ua* 'make' and with its complement before any external argument can be introduced—thus any initiator introduced above *ua* 'make' must be an initiator not of a simple *making* alone, but of the entire causative construction. Of course, the external argument need not be understood as being involved in every step of the causal chain; at minimum, they must be involved in only the first "link".[28]

A similar pattern can be observed with temporal modifiers. There is no attachment site such that a temporal modifier can apply to only the cause, excluding the effect, so any modifiers that take scope over the cause must apply to the entire causative construction. Examples like (72) are judged infelicitous because, as in English, the temporal modifier *nag-hmo* 'last night' is understood to situate in time the entire complex event within which both cause and effect occurred—which for the latter contradicts the background context.

(72)   CONTEXT: Last night, I set my alarm clock for 6:00am. At 6:00am this morning, it went off.

#kuv nag-hmo   **ua**   lub moos **quaj**
1SG   yesterday-evening make CLF clock cry
'Last night, I made my alarm clock ring.'

However, temporal modifiers are free to take scope within a DP external argument that describes a cause, as in (28b), repeated here as (73). In this position, they can apply to the cause alone, and do not contradict temporal modifiers taking scope over the effect alone.

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[28]This is consistent with the notion of INITIATOR employed by Ramchand (2008), where an INITIATOR of a causally-linked complex event is in fact the argument of only the first sub-event.

(73) [haus cawv   ntau~ntau   nag.hmo] **ua**   nws **mob**   taub.hau hnub.no
      [drink alcohol RDUP~much last.night] make 3SG be(come).sick head   today
      'Drinking lots of alcohol last night made his head ache today.'

To summarize: the major advantages of the present account are that it does not require our CAUSE predicate to distinguish between direct and indirect causation, nor does it require that the syntax or semantics encode any particular structural representation of (in)directness. Rather, direct and indirect interpretations derive from the lexical semantics of the predicates that spell out the causative construction, which constrain the events that can participate in the relevant causal chain. Predicates with relatively rich lexical-semantic content, like *ntaus* 'hit', place relatively strong constraints on causal chains, forcing the cause and effect to be temporally connected. Functional predicates, like *ua* 'make', on the other hand, do not place such constraints, allowing for greater temporal separation between the initial cause and ultimate effect of the causal chain. In this view, a *making* event is not equivalent to a causative; rather, a *making* event is only a particular type of cause.

This approach relies on a key assumption about the relationship between causative constructions and the causal chains they describe: it assumes that the predicates involved in the causative construction must spell out the entire causal chain. Just as pointed out by Kratzer (2005), this assumption is consistent with Bittner's Generalization, which observes that "syntactically concealed" causatives (which include lexical causatives, resultatives, and causative SVCs like those found in Miskitu (Bittner 1999) and in Hmong) cannot express indirect causation.

(74) Bittner's Generalization (Bittner 1999, p. 2):

      If a causal relation is syntactically concealed (only its arguments are overtly expressed), then it is semantically direct (no intermediate causes).

Bittner takes this to be a defining property of so-called "concealed causatives", but I argue that this is in fact only one aspect of a more general phenomenon. I claim that regardless of directness, causatives ultimately share the same behavior: a causative construction must describe the relevant causal chain in its entirety. Because of this, there is always a direct link between the cause and effect; any "intermediate steps" must in fact fall within the denotation of predicate that describes the cause.

With this in mind, I offer the alternative generalization in (75), which takes concealed causatives and other direct causatives to represent causation in its general case. Indirect interpretations arise only for a subset of causatives: those which have relatively underspecified meanings, and thus do not place significant restrictions on the events to which they apply. Across the board, causative constructions must spell out the entire causal chain to which they correspond.

(75)   A causal chain can contain only events which fall within the denotation(s) of the predicate(s) that express it.

3.3.4 Predictions: More complex event structures

My analysis of the syntax and semantics of Hmong causatives has thus far been concerned only with the more prototypical realizations of the direct and indirect causative constructions. However, this approach also makes certain predictions about the ways in which v_{CAUSE} participates in more complex structures. Here I will look at two examples: causative recursion, and the embedding of other types of SVCs.

First, given that v_{CAUSE} can appear in multiple positions within the clause, it should be possible for Hmong causatives to recur. However, since direct causal meanings are restricted to the lowest VoiceP constituent in the verbal projection, it should not be possible to recursively for a direct causative to recursively embed another causative. For indirect causatives, however, no such restriction is expected.

These predictions are borne out by the previously-discussed examples (52–53), repeated here. An indirect causative may embed another causative, as in (52), but a direct causative may not embed another causative, as in (53).

(52)   kuv **ua**   [kuv tus kwv   **ua**   [lub tais **poob**]]
       1SG make 1SG   CLF younger.brother make CLF bowl fall
       'I made my brother drop the bowl.'

(53)   *kuv **thawb** [kuv tus muam **thawb** [kuv tus kwv   **poob**]]
       1SG push   1SG CLF sister push   1SG   CLF brother fall
       Intended: 'I pushed my sister (causing her to) push my brother (so that he) fell.'

Note that indirect causatives may also embed direct causatives, as shown in (76).

(76)   kuv **ua**   [kuv tus kwv   **thawb** [tus dev **mus**]]
       1SG make 1SG   CLF younger.brother push   CLF dog go
       'I made my little brother push the dog away.'

Second, consider the general selectional properties of v_{CAUSE}. In the indirect causative, it can select for a VoiceP complement, with all the internal complexity that might entail. It may come as no surprise that this prediction is borne out, as attested by examples like (76) above. In the direct causative, it selects for a vP complement, but nothing in the present proposal requires this vP complement to contain only a single verb. That is, the present proposal predicts that vP

constituents of arbitrary complexity should be able to be embedded as the "effect" portion of the direct causative.

This prediction is also borne out. Despite the impossibility of double-causative forms like (53), the Hmong direct causative may embed other types of complex event description. One possibility is certain examples of the so-called "attainment" construction (Jarkey 2015, see also Chapter 5 of this work), a construction used to derive culminating Accomplishment predicates and certain intransitive resultative-like meanings. Two examples of this construction are given in (77).

(77) a. kuv **nrhiav** **pom** lub pob
          1SG search/find see CLF ball
          'I (successfully) found the ball.'

      b. lub tais **poob tawg**
          CLF bowl fall break
          'The bowl fell and broke.'

Several properties distinguish the attainment construction from the direct causative. First, the attainment construction may be intransitive—that is, it take only a single subject argument, as in (77b). Second, the object is interpreted not as a participant within the event, but as a path or goal argument of an Accomplishment or a motion verb. This is reflected in a difference in word order: the direct causative has obligatory S–V–O–V word order, while the Attainment SVC obligatorily has S–V–V–(O) word order. Third, V_1 in the attainment construction may be transitive or unaccusative (and possibly unergative as well). In Chapter 5, I will analyze this construction as a case of "result augmentation", that is, as the addition of a ResP complement to v (following Ramchand 2008, Folli & Harley 2020, Acedo-Matellán & Kwapiszewski 2024). For the moment, however, the precise internal composition of this construction are not consequential: what matters is its distribution.

Despite the fact that the direct causative cannot embed another direct causative, it can embed certain examples of the attainment construction—those that, like (78), have an unaccusative V_1.

(78) kuv **pov** [lub tais **poob tawg**]   Direct causative +
      1SG throw [CLF bowl fall break]   "attainment" construction
      'I threw the bowl (so that it) fell and broke.'

The analysis I have put forward here predicts just this sort of complexity: the direct causative construction should be to embed vP constituents of varying complexity, while being unable to embed larger constituents.

3.4 Discussion

I have argued in this chapter that the Hmong direct and indirect causatives are constructed in a similar way: by the insertion of a v_{CAUSE} head. This v_{CAUSE} head can merge either within or outside the "first phase", that is, the first VoiceP constituent of the verbal extended projection. This gives rise to the more highly articulated indirect causative and the less highly articulated direct causative constructions.

These two possible locations for v_{CAUSE} are further distinguished by the type of verb that can spell them out. In the direct causative, v_{CAUSE} may be realized by one of an open class of agentive transitive verbs, while in the indirect causative, v_{CAUSE} may only be realized by the causal verb *ua* 'make'. This is a manifestation of what I take to be a global constraint cross-linguistically: that verbal roots with rich lexical-semantic meaning must initially merge within the first phase, and while functional verbs may be introduced in higher positions.

The observed semantic distinctions between the two constructions arise as a consequence of the richness of the lexical content of the root. Roots with richer conceptual content, and therefore more restrictive denotations, can only describe direct causation, while roots with functional meanings but no rich conceptual content are compatible with indirect causation.

While the scope of the present discussion is somewhat limited, focusing on a pair of constructions in a single language, the present approach can be extended to account for a broader range of phenomena. First, it may offer an explanation for a cross-linguistic generalization in the typology of serialization: that while serial verb constructions can express a variety of complex events, they are generally restricted to meanings that can be encoded within the event domain (Aikhenvald & Dixon 2006, Veenstra & Muysken 2017, Aikhenvald 2018, among others). Second, it provides a proof-of-concept for analyzing a variety of other SVCs as reflexes not of v_{CAUSE} but of other functional categories. These two points will be addressed in the following sections.

3.4.1 Causative serial verb constructions cross-linguistically

Due to the terminological confusion surrounding the label "serial verb construction" (SVC), it can be difficult to be certain as to what kinds of serial verb constructions are, in fact, attested cross-linguistically. We must take care to be explicit about exactly what the properties of the constructions under investigation are, and to what constructions in other languages they might be meaningfully compared. Case in point: the Hmong indirect causative obligatorily contains the same causative verb, *ua* 'make', as its first element. This "slot" is not open to a variety of "main verbs", and thus it is not counted as an SVC under the criteria used by either Jarkey (2015) or

Cleary-Kemp (2015).

The present analysis predicts that serializing languages should employ two families of constructions broadly resembling those found in Hmong. The first group, which includes the Hmong direct causative, are genuine serial verb constructions in this work. These convey more highly-specified lexical-encyclopedic content, and should only be able to express direct causation. The second group, which includes the Hmong indirect causative, convey less highly-specified lexical-encyclopedic content, and should allow for indirect causation.[29]

Of course, the present approach does not rule out functional morphemes that express direct causation (nor should it seek to do so). It does, however, rule out the use of lexical verbs as exponents for tense, aspect, mood, indirect causation, and other "grammatical" notions encoded higher in the clause. Serial verb constructions expressing these notions are not clearly attested in typological studies (Aikhenvald & Dixon 2006, Veenstra & Muysken 2017, Aikhenvald 2018), and this approach offers an explanation as to why.

3.4.2 Formalizing serialization

As already mentioned, the term "serial verb construction" is one that has been used in slightly different ways by different authors. There have been various attempts to offer a more formal definition, which have often focused on argument sharing as a primary criterion. Emblematic of this approach is the "Argument Sharing Hypothesis" of Collins (1997) (see also Déchaine 1986, Foley & Olson 1985, Baker 1989), which offers the definition of serialization in (79).

(79)   Argument Sharing Hypothesis (Collins 1997):

In a serial verb construction, V_1 and V_2 must share an internal argument.

Analyses operating under a variety of theoretical assumptions have often aimed for this same general goal: to encode argument-sharing in the syntax. In doing so, they have often employed more complex syntactic structures/behaviors, including multiple-headed VPs (Baker 1989, Stewart 2001), widespread use of empty categories (Hale 1991), object control (Collins 1997), or multidominance (Hiraiwa & Bodomo 2008).

In more recent work, however, this hypothesis has for the most part been put aside. At least one author, Aboh (2009), has explicitly argued against the Argument Sharing Hypothesis for

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[29]Recall, however, that some authors take a less restrictive definition of "serial verb construction", which might include the Hmong indirect causative, as well as other constructions formed with aspectual verbs, light verbs, or other "functional" elements (see Section 1.3.3).

the Kwa languages.[30] Recent attempts to provide definitional criteria for the class of serial verb constructions do not require argument sharing, instead treating it as prototypical but ultimately unnecessary (Aikhenvald 2006b, 2018), as one of multiple possible realizations (Cleary-Kemp 2015), or as property that may (but need not) arise from a more fundamental syntactic/semantic criterion (Bisang 2009, Haspelmath 2016). The typological landscape has also broadened somewhat: though relatively uncommon, certain constructions with *no* shared arguments have also been described as SVCs (Aikhenvald 2006b, p. 18–21).

The analysis offered in this chapter does not seek to precisely encode all apparent prediate–argument relationships in the syntax. This is for two main reasons. First, one might expect *a priori* that in languages like Hmong (in which serialization is a relatively common and productive strategy), it instantiates a relatively simple underlying syntax. This is not necessarily a feature of the various internal argument-sharing analyses mentioned above, which often have proposed relatively complex underlying structures. As pointed out by Aboh, these approaches often espouse a view of SVCs that "makes them exceptional even in languages where they occur" (Aboh 2009, p. 2).

Second, it is not clear that all apparent predicate-argument relationships *need* be encoded in the syntax. In more isolating languages, like Hmong, it can be difficult to diagnose predicate-argument relationships syntactically; instead, one must often rely on naive semantic judgments. This leaves open the possibility that some apparent predicate-argument relationships may not be syntactically encoded at all, but instead arise as semantic inferences.

In a Neo-Davidsonian semantics, DP arguments compose with properties of events via thematic relations. How, in this sort of system, should argument-sharing be implemented? One possibility is that a shared argument must receive *multiple* thematic roles, each one relating it to a distinct subevent-denoting head. For example, a shared UNDERGOER argument must receive an UNDERGOER role from V_1 and another UNDERGOER role from V_2. While it is certainly possible to develop a theory of serialization that functions in this way, it increases the complexity of the necessary syntactic and semantic structures without adding significant explanatory power in the case at hand, Hmong. Instead, I hypothesize that it is sufficient for each argument to be linked to *some part of* the complex event.

Similar assumptions have been made, explicitly or tacitly, for both simplex and complex predicates in non-serializing languages, including transitive verbs, lexical causatives, resultatives, and others. For example, the sub-events of *smashing* and *breaking* in (80a) are linked to one

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[30] Aboh (2009) argues that in the Kwa languages, V_1 of the SVC is in fact a functional verb that spells out Asp°, the typical locus of auxiliary verbs in Kwa, and therefore (i) lacks an internal θ-role, and (ii) does not assign case to its apparent object.

another in precisely the same way as the sub-event of *pushing* performed by the external argument and the sub-event of *pushing* undergone by the internal argument are linked in (80b).

(80) a. $[_{v_{\text{CAUSE}}\text{P}} [_{v_{\text{CAUSE}}} \text{ smash }][_{v\text{P}} \text{ the bowl break }]]$ (from (5b))

b. $[_{init\text{P}} \text{ John } [_{init} \text{ push }] [_{proc\text{P}} \text{ the cart } <\text{push}>]]$ (Ramchand 2008)

c. The butler wiped [the table clean].   (Kratzer 2005)

This is not a problem with serialization specifically, but a more general problem for theories of argument and event structure. I do not have a decisive answer at present, but I hypothesize that, as the various parts of the event are quite closely connected in the semantics, the causal links between these parts of the event facilitate certain "clearly present inferences" (Kratzer 2005, p. 188) that can give rise to the intuitive impression of argument sharing without requiring a specifier–head configuration in the syntax. For example, a sentence like that in (80c) need not involve a predicate-argument relationship between *wiped* and *the table*; rather, Kratzer takes it that a speaker can infer, given the meanings of *wipe* and *clean*, that "…if a wiping activity was identical to a completed action of causing the table to be clean, then what was wiped was bound to be the table" (Kratzer 2005, p. 198).

The present analysis proposes that the Hmong direct causative is formed by merging one verbal root in *v*, and an additional verbal root in another head the same event domain (in this case, v_{CAUSE}). But there is nothing about v_{CAUSE} that uniquely enables this behavior; presumably, other functional heads might be equally good candidates for hosting verbal roots, giving rise to a variety of serial verb constructions with corresponding differences in syntactic and semantic properties. Over the next two chapters, I will argue for two specific examples: Chapters 4 and 5 claim that verbal roots can also lexicalize Path and Res complements of *v*, respectively.[31] Broadening the scope of the data to include a wider range of constructions across other languages, we might also predict SVCs in which verbal roots spell out Voice, Appl, or possibly other heads within the first phase.

With that in mind, I offer a new definition of "serial verb construction", given in (81). This removes two criteria from the working definition given in Section 1.3, monoclausality and mono-eventivity, and replaces them with a single (theory-internal) criterion: that all component verbs must co-occur within a single event domain (or "first phase").

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[31]However, since the directed motion cases to be discussed in Chapter 4 involve prepositional uses of categorially-flexible roots, it is not clear whether they should properly be described as "serial verb constructions", or with another label.

(81) Definition of "serial verb construction"

    a. Formed from two or more lexical verbs

    b. No overt coordination or linking

    c. Co-occur within a single "event domain"

       → Monoclausal

       → Monoeventive

Of course, the properties of specific constructions are expected to vary in predictable ways, broadly corresponding to the heads in which the verbal roots are merged. This establishes a formal link between SVCs and complex predicates in non-serializing languages, as they may instantiate similar underlying structures. Some previous analyses have pursued this approach, notably Larson (1991), who compares SVCs with English resultatives. (See also Carstens 2002 and Cleary-Kemp 2015.) This is also consistent with a more recent trend in the descriptive literature on SVCs, in which monoeventivity and/or monoclausality are increasingly treated as a primary factor, if not *the* primary factor, in diagnosing verb serialization (Bisang 2009, Cleary-Kemp 2015, Haspelmath 2016). Strictly speaking, the proposal in (81) represents a strengthening of proposals by Bisang (2009) and Haspelmath (2016). The multiple verbal roots are not merely conceived of as a single event (as in Bisang 2009); they acquire this meaning via a relatively constrained set of possible syntactic processes. Likewise, they are not merely merged within a single clause (as in Haspelmath 2016), but within a specific region of that single clause. That is, the formal criterion in (81c)—that the component verbs co-occur within a single event domain—entails both of the criteria it replaces.

Importantly, this definition also predicts limits on the expressive power of SVCs cross-linguistically. As the distribution of verbal roots is restricted by the constraint given in (51) above, productive SVCs should only express those meanings that can be encoded within the first phase of the verbal projection. Meanings related to viewpoint aspect, tense, mood, or other functional categories outside the first phrase should not be expressible via verb serialization. This prediction is borne out in Hmong (see Jarkey 2015), and appears to be borne out cross-linguistically as well (e.g. Aikhenvald 2006b, 2018), though more detailed investigation of individual languages is needed to confirm this.

4 Path in Hmong

In Hmong, directed motion is described by what I refer to as "path predicates". This term describes a class of predicates of somewhat indeterminate categorial status, which are used to express directed motion. Importantly, path predicates may combine with one another to form more complex path descriptions—a behavior which has led them to be described as serial verb constructions (the "Cotemporal Motion SVC", in the terminology of Jarkey 2015). These putative serial verb constructions exhibit distinctive restrictions on the co-occurrence of their component predicates. In this chapter, I take a similar decompositional approach to complex path descriptions in Hmong—though rather than situating path predicates in the verbal domain, I argue that they appear in particular heads within the decompositional prepositional domain (following Pantcheva 2011).

Path predicates in Hmong appear to have both verbal and prepositional uses. They appear in four main environments: (i) as the main predicate of the clause, (ii) in the complement of a manner-of-motion verb, (iii) in the complement of a transfer verb, and (iv) as the head of an outer locative adjunct. These four uses are illustrated using the predicate *mus* 'go, to' in (1–4), respectively.[1]

(1) kuv **mus** tajlaj   *Main verb*
    1SG go   market
    'I went to the market.'

(2) kuv khiav [**mus** tajlaj]   *Complement of a manner-of-motion verb*
    1SG run   to   market
    'I ran to the market.'

(3) kuv txib   Sua   [**mus** tajlaj]   *Complement of a transfer verb*
    1SG dispatch Shoua to   market
    'I sent Shoua to the market.'

---

[1]Note that the glosses used for path predicates vary somewhat depending on the syntactic environment in which they appear. For example, *mus* is glossed as 'go' in (1), as 'to' in (2–4), and as 'away' in (6a) below. These are intended only as an approximation of the meaning and function that a path predicate takes on within a particular syntactic environment.

(4) peb nyob tom [**mus** thaum peb tshaib   plab]   *Adjunct*
     1PL stay here to   time 1PL be(come).hungry stomach
     'We'll stay here until we're hungry.'

In the Hmong literature, these have been described first and foremost as verbs, which may appear singly as in (1) or in serial verb constructions as in (2–3). Only in environment (4) are path predicates taken to function as prepositions (Clark 1979, Jarkey 2015). (Under that sort of treatment, *mus* might be glossed and translated as 'go' across (1–3), and as 'to' only in (4).)

Here, I will argue for a different characterization: I claim that path predicates are associated with a consistent underlying prepositional syntax across all four environments in (1–4). The "main verb" use shown in (1) I represent as genuinely cross-categorial—in this case, the path predicate lexicalizes a span (Svenonius 2016, a.o.) that crosses the boundary between the verbal and prepositional extended projections (as in Son & Svenonius 2008).

Primary evidence for this approach comes from two co-occurrence restrictions, both of which hold across all four environments. First, path predicates describing the Source of motion cannot occur alone; they are obligatorily accompanied by an additional Goal predicate. Second, path predicates of Route, Source, and Goal subtypes must co-occur in precisely that order. These facts cannot be easily captured if path predicates are assumed to function only as verbs in (1–3). Instead, I argue that these co-occurrence restrictions result from path predicates spelling out particular heads in Pantcheva's (2011) decompositional analysis of the (prepositional) path domain.

This chapter is organized as follows. In Section 4.1, I review the basic properties and distribution of Hmong path predicates and their treatment in prior literature. Section 4.2 discusses a variety of possible diagnostics for verbal or prepositional status, many of which are ultimately uninformative in the case of Hmong. In Section 4.3, I propose two novel diagnostics for preposition-hood following Pantcheva (2011), both of which can be observed in internally-complex path descriptions in Hmong. I then present an analysis in Section 4.4 which captures these structural effects: path predicates in Hmong are genuinely cross-categorial, lexicalizing a span (Svenonius 2016, a.o.) that may include both verbal and prepositional heads. Accordingly, they display mixed verbal and prepositional properties. Section 4.5 discusses implications of this proposal for the functional structure of the prepositional domain cross-linguistically, as well as remaining issues.

4.1 Path predicates in Hmong

As already mentioned, Hmong path predicates appear in four main environments, shown in (1–4) above. However, path predicates themselves are a heterogeneous group, comprising several

sub-classes which differ from one another in paradigmatic ways. It is not a simple matter to precisely define the number and properties of these classes, but for present purposes I adopt a simple four-way classification based on usage. Throughout this chapter, I will refer to four types: Goal, Source, Route, and Transition predicates. As we will see below, these labels mnemonically correspond to the geometry of the paths they describe.

Path predicates of all four types have similar distribution with respect to the four environments outlined above. With the exception of one gap (see discussion of Route predicates below), all four types can appear in all four environments. Although it will be important to keep these four classes in mind, the more important facts are not the properties of individual classes *per se*, but the relatively constrained ways in which predicates of these classes form larger, complex path descriptions, as we will see in Section 4.3 below.

4.1.1 Classes of path predicates

The first two types of path predicates examined here, Goal and Source, describe motion oriented with respect to a particular endpoint. Goal predicates describe Goal paths—that is, paths oriented towards a specified location—while Source predicates describe Source paths—that is, paths oriented away from a specified location.

(5) *Goal predicates:*

a. kuv niam   rov **los**   tsev
    1sg mother back come home
    'My mother came back home.'

b. tus noog ya **mus** saum tsob ntoo
    clf bird fly to   top clf tree
    'The bird flew to the top of the tree.'

c. kuv thaum   wb **mus** taljaj
    1sg transport 1du to   market
    'I drove us to the market.'

d. kuv yuav nyob qhov.no [**mus** txog thaum kuv yuav tau kuv ib   tsev]   tso
    1sg irr dwell here   to   up.to time 1sg irr get 1sg one house first
    'I will live here until I get my own house.'   (Jarkey 2015)

(6) *Source predicates:*

a. kuv **tawm** tsev   mus
    1sg leave home away
    'I left home.'

b. Tub khiav **thim** hauv lub tsev   los
    Tou run   from inside CLF house hither

    'Tou ran out of the house.' ≈ 'Tou came running out of the house.'

c. Sua   thauj   kuv **tawm** kawm.ntawv los tsev
    Shoua transport 1SG from   school   to   home

    'Shoua drove me home from school.'

d. [**txij** li thaum xyoo 1960 los],   me-nyuam Hmoob thiaj tau   kawm ntawv
     from as time   year   hence, child   Hmong so   manage.to learn   writing
    coob txog li 60–70 paws.xees   (Jarkey 2015, p. 211)
    many reach as   percent

    'Since about 1960, as many as 60–70% of Hmong children have consequently learned to read and write.'

There is an important complication in the characterization of these two classes: although Goal and Source *uses* can be clearly distinguished, Hmong does not have any inherent Goal or Source predicates. Rather, Hmong has a single class of predicates which fulfill both functions. For example, *mus* 'go, to' acts as a Goal predicate in (5b) and as a Source predicate in (6a). (This flexibility will be discussed at length in Section 4.3.1.) I will continue to refer to path predicates of "Source" and "Goal" types, but it should be noted that this refers to usage.

Jarkey (2015, pp. 109–111) takes a similar approach in distinguishing Goal and Source predicates, though she does so on the basis of *prototypical* usage. This correlates with the expression of deixis: the three deictic members of this unified class *mus* 'go, to', *los* 'come (home), to', and *tuaj* 'come, to' tend to appear more frequently as Goal predicates, while the non-deictic members (all others) tend to appear more frequently as Source predicates.[2] The three deictic predicates *mus* 'go, to', *los* 'come (home), to', and *tuaj* 'come, to' also uniquely (for Hmong) allow an intransitive, particle-like usage. Although ancillary to the main point of this chapter, I will extend the analysis developed in Section 4.4 to include these cases.

Although certain uses are more prevalent for certain predicates, I will continue to characterize predicates as either Source or Goal predicates as a convenient shorthand for their usage within a particular context.

Route predicates, as in (7), describe motion that is not oriented with respect to an endpoint—rather, the Ground of a Route predicate either describes the entire range the path traverses, or it describes a landmark somewhere along that path, depending on the predicate and on the context.

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[2]The contrast in deictic orientation between *los* 'come (home), to' and *tuaj* 'come, to' is similar to that described by Taguchi (2019) for the Lan Hmyo (Hmong-Mien) venitive verbs *luB* 'come (home)' and *ðaA* 'come': *los/luB* describes motion towards a contextually salient "home", while *tuaj/ðaA* describes motion towards some other (non-home) location.

(7)   *Route predicates:*

    a. kuv **ncig**   lub pas.dej
        1SG go.around CLF pond
        'I went around the pond.'

    b. kuv khiav **hla**   tus choj
        1SG run   across CLF bridge
        'I ran across the bridge.'

    c. tus niam   nqa   tus mos.as **ncig**   lub tsev
        CLF mother carry CLF baby   around CLF house
        'The mother carried the baby around the house.'

The first three environments are all possible, as (7a–c) show, though Hmong Route predicates do not have a clearly-attested adjunct usage. This is not so surprising, as locative uses of Route predicates are somewhat restricted cross-linguistically; see Svenonius (2010, pp. 147–150) on so-called "G-location" and "extended location" uses of Route predicates.[3] Route predicates also have several other unique properties which are not immediately relevant to the present discussion. I set these properties aside until Section 4.5.3.

Transition predicates are necessarily telic. They describe motion oriented with respect to a particular endpoint of the path. This endpoint is most frequently a Goal[4] , but unlike the Goal predicates discussed above, these entail that the endpoint of the path is reached; that is, they entail that the path is bounded (in the sense of Zwarts 2005).

(8)   *Transition predicates:*

    a. kuv **txog** tom tajlaj
        1SG arrive DEM market
        'I got to that market.'

---

    [3]Some potential Hmong examples do exist, but these are not clear-cut. For example, the apparent locative use of *hla* 'cross, across' in (i) might plausibly derive from a metaphorical use of directed motion, while the locative use of *ncig* 'go.around, around' in (ii) requires an obligatory posture verb *zaum* 'sit', suggesting a distinct underlying syntax.
    (i) tus choj   **hla**   Grand River
        CLF bridge cross Grand River
        'The bridge crosses the Grand River.' ≈ 'The bridge is across the Grand River.'
    (ii) *(zaum) **ncig**   hluav.taws ces, peb hais dab.neeg
         sit   around fire   TOP 3PL tell story
         'Sitting around the fire, we told stories.'
    [4]In at least some cases, Transition predicates introduce a Source of motion instead. (Compare the Source usage of *txij* 'reach, up to' in (6d) above with that in (8b) here.) At present, I cannot say for certain how broadly this pattern holds.

b. tus qav dhia **txij**   kuv xwb.pwg!   (Jarkey 2015, p. 212)
    CLF frog jump up.to 1SG shoulder

    'The frog jumped up to (≈as high as) my shoulder.'

c. kuv raug coj   mus **rau** tom ib   tus   phooj.ywg tsev   (Fuller 1985, p. 157)
    1SG PASS bring to   into there one friend house

    'I was brought to a friend's house.'

d. peb nyob tom [**txog** (thaum) peb tshaib   plab]
    1PL stay here up.to (time)   1PL be(come).hungry stomach

    'We'll stay here until we're hungry.'

In general, the precise properties of Transition predicates will not be relevant to the discussion in this chapter—though the more highly grammaticalized preposition *rau* 'to, for', which will be discussed in detail in Section 4.2.2 below, functions in motion events as a Transition predicate. I mention them primarily for completeness, and because they will play a central role in Chapter 5 due to their usage in the so-called "attainment" construction.

Known members of these four classes of path predicates are listed in (9). As Hmong path predicates are typically treated first and foremost as verbs (Clark 1979, Jarkey 2015), I have listed them here accompanied only with their more traditional (i.e., verbal) glosses, and not their corresponding prepositional glosses. The makeup of the first three classes follows Jarkey (2015, p. 111), though the names of these classes have been modified for consistency.[5] The makeup of the Transition class will be discussed further in Chapter 5.

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[5]This table omits Jarkey's (2015, p. 110) singleton "Return" class, comprising only *rov*, which Jarkey treats as a verb meaning 'return'. My consultants do not accept *rov* as the main predicate of the clause, and Jarkey does not provide any examples of this use. Because of this, I treat *rov* instead as an adverb meaning 'back'. Tellingly, *rov* 'back' is historically related to the adverb *rov.qab* 'again', and the two adverbs share an overlapping (but not identical) distribution. This is consistent with the synchronic and diachronic links between *back*-type and *again*-type adverbs observed cross-linguistically (see e.g. Beck & Gergel 2015, Zwarts 2019).

(9) Path predicates in White Hmong (verbal glosses only)

Route	Source–Goal (non-deictic)	Source–Goal (deictic)	Transition
hla 'cross, pass'	*tawm* 'leave'	*mus* 'go'	*txog* 'arrive'
raws 'follow after'	*thim* 'withdraw'	*tuaj* 'come'	*txij* 'reach, extend'
nyab 'rise'	*sawv* 'get up'	*los* 'come (home)'	*cuag* 'reach, catch up to'
nce 'ascend'	*dim* 'get away'		*nto* 'reach (a high place)'
nqis/nqes 'descend'	*poob* 'fall'		*rau* 'put in, insert'
ncig 'go around'	*lawm* 'leave'		
taug 'follow along'			
lawv 'follow behind'			

4.1.2 Treatment in prior literature

In prior literature on Hmong, path predicates have been treated first and foremost as verbs. Simple sentences like (1) are clearly formed with a verbal predicate, with more complex examples like (2–3) assumed to be serial verb constructions. Examples like (4), in contrast, are treated as genuine prepositions in some or all cases (Clark 1979, Jarkey 2015). Clark (1979, p. 8) claims that path predicates in such cases are prepositions, which have "a corresponding verb which is homophonous and broadly synonymous and from which the preposition is derived." Jarkey (2015, ch. 4) presents three diagnostics which are claimed to support this view. These are listed in (10).

(10) Diagnostics for prepositional status (Jarkey 2015)

    a. More peripheral position in the clause

    b. Does not semantically predicate the subject

    c. Sentence-initial occurrence as topic

There is a major issue with these diagnostics, however: they do not account for the structural differences between prepositional adjuncts and prepositional complements. Given the simple schematic structures in (11), it is easy to see how adjunct and complement PPs might pattern differently according to these diagnostics. Adjunct PPs will naturally appear in a more peripheral position than complement PPs (at the right edge of the verb phrase, rather than immediately following the verb). Adjunct PPs also naturally function as event modifiers, while complement PPs may (semantically) predicate the subject.

(11)   a. Adjunct PPs: $[_{vP}\ v\ ...\ ][_{PP}\ P\ ...\ ]$

        b. Complement PPs: $[_{vP}\ [\ v\ ][_{PP}\ P\ ...\ ]]$

These first two diagnostics do not distinguish prepositions from verbs; instead, they draw a line with adjunct PPs on one side, and both verbs and complement PPs on the other.

The third diagnostic in (10), topicalization, is similar—though to see how, we must consider this diagnostic in slightly more detail. As Jarkey points out, single verbs (or verb–complement pairs) do not topicalize out of serial verb constructions in Hmong. This behavior extends to path predicates that express directed motion, as shown in (12a). The availability of topicalization in (12b) is taken as evidence of a categorial difference: that *txog* functions as a verb in (12a) and as a preposition in (12b).

(12)   a. *[**txog** sab pas-dej tid]   mas, tus qav dhia   (Jarkey 2015, p. 225)

           up.to side pond   beyond TOP CLF frog jump

          Intended: 'To the other side of the pond, the frog jumped.'

        b. [los **txog** xyoo 1960], cov   neeg   Hmoob thiaj tau pib   kawm los   mus

           to up.to year 1960   CLF.PL person Hmong then TAU begin study CONJ go

          'By 1960, the Hmong people had started to learn (to write) and went on (learning).'

                                                   (Jarkey 2015, p. 226)

It is not clear, though, why topicalization should be sensitive only to category. An equally apt characterization of the behavior in (12a–b) is that in Hmong, topicalization is disallowed for complements of *v* and other first-phase heads. Effectively, this bans topicalization for both serial verbs and complement PPs, without making reference to their category.

This configurational restriction accounts for at least two cases that are troubling for Jarkey's category-based view. The first are examples like (13), in which an apparently prepositional use of the predicate *txog* (here meaning 'about') fails to topicalize. This is puzzling if topicalization is sensitive to category only, but this behavior is expected (assuming the constituent *txog dab neeg Hmoob* 'about Hmong' originates as complement to the verb of speech *hais* 'speak') if topicalization is primarily sensitive to syntactic configuration.

(13) *txog dab.neeg Hmoob mas, nws hais   (Jarkey 2015, p. 225)

      about story   Hmong TOP 3SG speak

      Intended: 'About Hmong, he spoke.'

The second are examples like those in (14). A sentence like (14a) is in principle ambiguous between a benefactive reading and a simple locative/possessive reading—though in this case, there is a high degree of truth conditional overlap between the two. When the constituent *rau Sua*

is topicalized, as in (14b), the ambiguity is removed or at least reduced—the benefactive reading is preferred. This is expected if (14a) is structurally ambiguous between an adjunct and complement position for the constituent *rau Sua*; only one of those structures can give rise to the topicalized example (14b).

(14)   a.   wb muab ib   daig tiab **rau** Sua
            1DU give   one CLF dress RAU Shoua
            'We gave a dress for Shoua.'
            'We gave a dress to Shoua.'

       b.   **rau** Sua   mas, wb muab ib   daig tiab
            RAU Shoua TOP 1DU give   one CLF   dress
            'For Shoua, we give a dress.'
            ?'To Shoua, we gave a dress.'

            Consultant's note: "It sounds like you're announcing who the gift is for."

Despite this evidence in favor of the configurational analysis of topicalization in Hmong, there are still cases which are difficult to capture. For example, the preposition *rau* 'to, for' can apparently topicalize from complement position in some (but not all) cases, as the contrast in (15a–b) shows.

(15)   a.   **rau** hauv tajlaj   mas, nws mus
            into inside market TOP, 3SG go
            'Into the market she went.'

       b.   ***rau** hauv tajlaj   mas, kuv txib   Sua   mus
            into inside market TOP, 1SG dispatch Shoua go
            'Into the market I sent Shoua.'

The availability of topicalization in (15a) is problematic for my approach; the unavailability of topicalization in (15b) is problematic under Jarkey's. Given this complication, I will assume here (i) that topicalization in Hmong is generally available for adjunct PPs and generally unavailable for complement PPs, and (ii) that this restriction may not be entirely grammatical, but may also involve some pragmatic factors (contributing to the otherwise puzzling contrast between (15a) and (15b), for example). This means that topicalization (to the extent that it is a reliable diagnostic) is on par with the other two criteria proposed by Jarkey: it diagnoses a structural configuration, not a syntactic category.

In short, Jarkey's tests are not categorial diagnostics, but diagnostics for adjunct status. This is likely intentional: Jarkey begins from the basic assumption that path predicates in examples

like (2), reprinted here, are verbs taking part in serial verb constructions. The diagnostics that Jarkey proposes, then, are designed to find contrasts between (2) and the clear adjunct cases like (4) above.

(2)   kuv khiav [**mus** tajlaj]
      1SG run   to   market
      'I ran to the market.'

None of the diagnostics discussed in this section prove that path predicates in environments (2) and (3) are verbs—but neither do any of these diagnostics prove that they are prepositions. Both possibilities remain open. What Jarkey's diagnostics do tell us is that there is a robust structural contrast between the position in which path predicates merge in environments (1–3) on the one hand, and environment (4) on the other.

The following sections provide more clarity on this question. Section 4.2 examines several possible diagnostics for categorial status, all of which are ultimately inconclusive in Hmong—though these do identify certain properties that must be accounted for. Section 4.3 then proposes two novel diagnostics, which I argue support an analysis of path predicates as underlyingly prepositional not only in cases like (4), but in all environments in (1–4).

4.2 Inconclusive diagnostics for categorial status

In this section, I review five possible diagnostics for the prepositional or verbal status of a given predicate. These include morphosyntactic properties, syntactic distribution, relationship with the external argument (Baker 2003), semantic contribution (following Zwarts 2005, 2008, a.o.), and broad typological properties of the language (Talmy 1985, et seq.). However, all of these diagnostics are language specific to at least some extent—so what's crucial for the present discussion is not their cross-linguistic utility, but the extent to which they are informative when it comes to Hmong. While the properties discussed in this section are suggestive, insofar as they generally support the view that path predicates have a mix of verbal and prepositional properties, I show that none of these diagnostics are fully conclusive in the case of Hmong. To settle this issue, I will propose two novel diagnostics in Section 4.3 below.

4.2.1 Morphosyntactic properties of verbs and prepositions

Hmong is a highly isolating language, in which verbs are not marked with any distinctive inflectional or derivational morphology. Morphemes marking aspect, negation, and modality do

exist, but these consistently appear to the left of the verb phrase and do not attach to individual predicates (see Mottin 1978, Jarkey 2015).

The most plausible morphological test in Hmong is reduplication, which appears on verbs (including stative verbs fulfilling adjectival functions) and adverbs. Reduplication usually expresses a high degree of some property, as in (16a–b), a long duration, as in (16b), or—when used with semelfactives—iterativity (Jarkey 2015, pp. 28–29). In some cases, the resulting meaning may be ambiguous; for example, *nws khiav-khiav* 'he really ran' might mean either that the subject ran with a very high degree of speed, or than he ran for an extended length of time.

(16) a. …koj rhaub ib   yiag dej   **kub~kub, npau~npau**   (Jarkey 2015, p. 29)
           2SG heat   one pot   water RDUP~hot, RDUP~boiling

          'Heat a pot of water **really hot**, **absolutely boiling**.'

     b. nws khiav~khiav
         3SG RDUP~run

         'He **really ran.**'

         ≈ 'He ran really fast' or 'He ran for a very long time'.

Reduplication is not generally possible for Hmong path predicates, as the examples in (17) show. Neither a "high degree" reading or a "long duration" reading are possible in any of these cases.

(17) a. *nws **mus~mus** tajlaj
          3SG RDUP~go   market
          Intended: 'He **really went** to the market.'

     b. *lawv **hla~hla**   dej
         3PL   RDUP~cross water
         Intended: 'They **really crossed** the river.'

     c. *cov   me.nyuam (khiav) **ncig~ncig**   tsob ntoo
         CLF.PL child   run   RDUP~(go).around CLF tree
         Intended: 'The children ran/went **around and around** the tree.'

The unavailability of reduplication for Hmong path predicates is striking, and might at first glance suggest a difference in categorial status. For instance, in some languages, reduplication available only for lexical categories, and not functional ones (e.g. Daakaka, see Von Prince 2015, Hopperdietzel 2021). The situation in Hmong is unfortunately not so clear-cut. First, one example of a grammatical reduplicated path predicate is found in Jarkey 2015: *taug~taug* in (18) below.

(18) **taug~taug**   dej   nqis   hav   mus   (Jarkey 2015, p. 109)
RDUP~follow.along water descend valley away
'...follwed the river down the valley away.'

However, even if can be written off as a simple dialectal or idiolectal difference, it is far from clear what to make of (17a–c). Certain lexical verbs in Hmong cannot be reduplicated: as illustrated in (19), simple Achievements never admit reduplication (see also Jarkey 2015, p. 29), though derived Achievements do. On the other hand, certain apparently-functional lexical items *can* be reduplicated, which as shown in (20) include quantifiers like *ntau* 'many, much' or adverbs like *heev* 'very, very much'.[6] Example (21) illustrates one particularly striking case: the lexical sense of *ua* 'build, create' cannot be reduplicated, while the functional sense *ua* 'make, cause' can.

(19)   a. *lub tais **tawg~tawg**
CLF bowl RDUP~break
Intended: 'The bowl **really broke**.'

   b. koj **loj~loj**   lawm!
2SG RDUP~be(come).big PRF
'You got **really big!**'

(20)   a. koj rau~rau-siab   mus [txiav taws   **ntau~ntau**]...   (Jarkey 2015, p. 29)
2SG RDUP~put.in-liver go   [chop firewood RDUP~much]
'Do your very best to go chop **lots and lots** of firewood...'

   b. zoo **heev~heev** li   (Heimbach 1979, p. 52)
good RDUP~very DP
'(It's) **very very** good.'

(21)   a. *lawv **ua~ua**   lub tsev
3PL   RDUP~build CLF house
Intended: 'They **really built** the house.'

   b. kuv **ua~ua**   nws quaj
1SG RDUP~make 3SG cry
'I **really made** him cry.'

In short: while Hmong path predicates are incompatible with reduplication, the (un)availability of reduplication in Hmong does not fall neatly along category lines. It will require further study to understand what combination of syntactic and semantic factors constrains the availability of reduplication in Hmong.

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[6]Ratliff (1991, p. 700) observes that non-numeral quantifiers like *ntau* 'many, much' or *coob* 'many (animate)' can be reduplicated when used as attributive modifiers following a noun, just as shown in (20a). This might indicate that reduplication is targeting an adjective rather than a true quantifier in these cases.

4.2.2 Syntactic distribution of verbs and prepositions

Another simple diagnostic for categorial status is the distribution of path predicates, as compared to elements that unambiguously function as prepositions. Aside from the path predicates under investigation in this chapter, Hmong has one other robust class of lexical items that might be considered prepositions: a group of approximately 10 "place prepositions" briefly discussed in Section 2.8.1 (see also Mottin 1978, Fuller 1985, Jaisser 1995, Ratliff 1990, 1992a, Jarkey 2015). These include elements like *ntawm* 'nearby', *hauv* 'inside', and *saum* 'on, above', shown in (22), which contribute to the description of a location by expressing deixis, restricting it to an axial part, or providing other elements of meaning associated with the prepositional Place domain (see e.g. Svenonius 2010). Examples of these predicates are shown in (22).

(22)   a.   nws mus **ntawm** tajlaj
           3SG go   nearby market
           'He went nearby to market.'

       b.   Tub khiav thim **hauv** lub tsev   los
           Tou run   from inside CLF house hither
           'Tou ran out from inside the house.'

       c.   kuv nyiam pw **saum** txaj nyeem ntawv
           1SG like   lie on   bed read   writing
           'I like lying in bed reading.'

Because they are associated with Place rather than Path, the distribution of this class of prepositions is essentially uncorrelated with that of the path predicates currently under discussion, and we must look for other candidates.

Hmong also has a small handful of outliers: words which might plausibly be considered prepositions, but which do not neatly fall into the two major paradigms. These include *nyob* 'stay, dwell, at', *nrog* 'accompany, with', and *rau* 'to, for'. However, both *nyob* 'stay, dwell, at' and *nrog* 'accompany, with' are used only to express static locative relations and never directed motion, and so their distribution has little connection to that of Hmong path predicates. This leaves *rau* 'to, for' as the most plausible point of comparison.

The lexical item *rau* 'to, for' is the best candidate for a dedicated preposition in Hmong. It appears to be further along a grammaticalization pathway from verb to preposition than path predicates like *mus* 'go, to', and it has a wider variety of prepositional functions. It can serve to introduce recipients as in (23a), benefactees as in (23b), topics of thought/conversation as in (23c), and (in at least certain cases) patients, as in (23d).

(23) a. thov   pub mentsis txhuv **rau** kuv   (Heimbach 1979)
          request give little.bit rice   to   1SG

          'Please give **(to)** me a little rice.'

      b. kuv thov   koj tuaj   ua **rau** kuv   (Clark 1979)
          1SG request 2SG come do for 1SG
          'I ask you to come do it **for** me.'

      c. kuv nyuab.siab **rau**   kuv tus pojniam rau.qhov tias   nws mob   (Clark 1979)
          1SG worry   about 1SG CLF wife   because COMP 3SG sick

          'I worry **about** my wife because she's sick.'

      d. kuv qw   **rau** kuv tus kwv
          1SG shout at   1SG CLF younger.brother

          'I shouted **at** my younger brother.'

Despite this, *rau* 'to, for' clearly belongs to the same paradigm as path predicates in at least one sense—it historically derives from a verb *rau*, meaning 'put in, insert'. However, the synchronic status of verbal *rau* is somewhat unclear. Clark (1979) claims that *rau* 'put in, insert' is gradually falling out of productive use in the language. Jarkey (2015), on the other hand, claims that *rau* 'put in, insert' remains a productive verb in the language.[7] It is unclear whether these different characterizations might arise from dialectal or idiolectal variation, or whether some other factor is at play.[8] Both characterizations agree, however, that verbal *rau* is preserved in a narrower sense as *rau* 'wear (shoes, gloves, hats)', in idiomatic expressions like *rau-siab* 'try your hardest' (lit. 'put one's liver into it'), and in at least one other compound, *rau-qhov* 'for the reason' (lit. 'put in the place') (Clark 1979, Jarkey 2015).

If *rau* 'to, for' appears in complementary distribution with other Hmong path predicates, it might be a clue that those predicates are also prepositional. At a glance, this seems plausible: in both directed motion cases like (24) and adjunct cases like (25), *rau* can take the place of *mus* 'go, to', *txog* 'arrive, up to', and other path predicates.

(24) kuv coj   tus dev **rau** hauv lub tsev
      1SG lead CLF dog to   inside CLF house
      'I led the dog into the house.'

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[7]My consultants' judgments do not neatly support either Clark's or Jarkey's characterization: *rau* is sometimes judged to be acceptable as a main verb meaning 'put in, insert', and at other times judged to be unacceptable. A wider range of data drawn from a larger number of speakers will be necessary in order to draw a definitive conclusion.

[8]Note that much of the data presented in Jarkey 2015 was originally collected and presented in Jarkey 1991, so inter-generational variation is likely not a major factor here.

(25) [txij   lub zos   peb nyob **rau** yav.pem.toj] mas, ua   tau teb pob.kws thiab teb
        out.from CLF village 3PL live   up.to mountain   TOP make can field corn   and   field
        yeeb   nkaus xwb   (Fuller 1985, pp. 114–115)
        opium only   only

        'From the village we lived in up to the mountains, (we) could grow corn and opium only.'

However, there are two issues that complicate the generalizations presented here. The first has already been mentioned: it is unclear whether *rau* 'to, for' is a true preposition, or whether it is cross-categorial in a similar way to other path predicates. Second, it should be noted that although *rau* 'to, for' can replace path predicates in certain cases, they are not in complementary distribution with one another. They can also co-occur as in (26).

(26) nws xa   ib   tsab ntawv **(mus) rau** nws niam   (Jarkey 2015, pp. 55, 144)
        3SG send one CLF letter go   to   3SG mother

        'She sent a letter to her mother.'

Example (26) is unsurprising. Unlike *mus* 'go, to', *rau* 'to, for' is obligatorily telic—meaning that it is a Transition predicate rather than a Goal predicate, and the resulting combination of *mus* (Goal) and *rau* (Transition) is simply an example of productive secondary predication (the "attainment" construction to be discussed in Chapter 5). At present, I do not have a satisfactory explanation for these facts.[9] Barring that, the overlap in distribution between *rau* 'to, for' and (other) path predicates cannot be taken as definitive evidence for their prepositional status.

4.2.3 Predication of external argument

Baker (2003) argues that the ability to predicate an argument in specifier position is unique to verbs.[10] That is, a verb needs no special marking or additional structure to combine with an argument. Other categories require some additional syntactic structure in order to facilitate the predication of an argument in specifier position. (Baker argues that nominal and adjectival predication requires a silent Pred head.)

Applied to Hmong path predicates, this diagnostic is suggestive. The path predicate in (1), repeated below, is clearly verbal: it takes the sentential subject as its argument, and there is no plausible evidence of any PredP (or other additional functional structure) which helps to mediate

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[9]I hypothesize that the wider-than-expected distribution of *rau* results from it lexicalizing at least one head in the Place domain. This is consistent with the observation that *rau*, in cases of directed motion, often means something closer to 'into' than 'to' (Jarkey 2015, pp. 215–223).

[10]Jarkey (2015) similarly employs predication of the subject as a diagnostic. However, Jarkey is concerned with *semantic* predication—an interpretation, rather than a syntactic configuration. (See Section 4.1.2.)

this relationship. The path predicate in (4) is clearly prepositional: it must be understood to modify the event as a whole, and does not imply that any motion occurred, let alone that the subject moved.

(1) kuv **mus** tajlaj   *Main verb*
    1SG go   market
    'I went to the market.'

(4) peb nyob tom [**mus** thaum peb tshaib   plab]   *Adjunct*
    1PL stay here to   time 1PL be(come).hungry stomach
    'We'll stay here until we're hungry.'

The status of the path predicates in the environments in (2) and (3), on the other hand, is somewhat indeterminate. Both sentences include a FIGURE which undergoes motion, but in both cases the FIGURE appears to have a closer relationship with another predicate in the sentence—the first-person subject in (2) is also the subject of the manner-of-motion verb *khiav* 'run', while *Sua* 'Shoua' in (3) is also the object of the transfer verb *txib* 'dispatch'.

(2) kuv khiav [**mus** tajlaj]   *Complement of a manner-of-motion verb*
    1SG run   to   market
    'I ran to the market.'

(3) kuv txib   Sua   [**mus** tajlaj]   *Complement of a transfer verb*
    1SG dispatch Shoua to   market
    'I sent Shoua to the market.'

If path predicates like *mus* genuinely serve as prepositions in environments like (2–3), this behavior is consistent with Baker's (2003) claim that non-verbal categories cannot directly take arguments. In both cases, the sentential subject might in fact be introduced as an argument of the manner/transfer predicate, and only indirectly related to the path predicate (through the semantic composition of the complex event as a whole). Effectively, the manner or transfer predicate might fulfill the same function as Baker's Pred head. I view this as the simplest explanation for these facts, particularly in light of the data to follow in Section 4.3.

But this does not, strictly speaking, tell us that the path predicates in (2–4) belong to one category or another. A prepositional treatment is possible, but so is a verbal treatment—following Baker, only verbs take arguments in specifier position, but not all verbs must take such arguments. This means that both options remain open.

4.2.4 Semantic contrasts

Yet another plausible diagnostic for verbal versus prepositional categorial status relates to the semantic content of the predicate in question. To understand how this diagnostic functions, some background is in order.

In the standard Neo-Davidsonian approach, a verb denotes a property of events. This property generally supplies some sort of conceptual or qualitative information about the event in question: for example, that an event corresponds to some (possibly pre-linguistic) prototypical notion, such as *running*, *cooking*, *smoking*, and so on. To make this slightly more concrete: an English verb like *escape*, for example, supplies a property like that in (27), where the italicized *escape* simply makes reference to some (possibly prelinguistic) conceptual notion of which events count as events of *escaping*. (Arguments are subsequently related to this core meaning via thematic relations.)

(27)   ⟦ escape ⟧ = $\lambda e.escape(e)$

Spatial prepositions can similarly be treated as *properties of paths*, with a path defined as an ordered set of positions in space (see Zwarts 2005, 2008 and references therein). Such a path is effectively a dotted line drawn on a map: it comprises a point of origin and a terminal point, with an optional (but potentially arbitrarily large) number of intervening points. The FIGURE of motion travels this path by virtue of moving through these points successively.

Here I follow the notation conventions of Zwarts: the spatial points that make up a path are ordered and indexed by numbers in the real interval [0,1], with $p(n)$ referring to the point at index n on path p. So, $p(0)$ refers to the origin, $p(1)$ refers to the terminus, and so on. With that in mind, a somewhat simplified denotation for a property of paths is given in (28). Assuming a preposition like *from* has already combined with some place-denoting element x, the result is a property of paths such that the origin, $p(0)$, is the location x.

(28)   ⟦ from x ⟧ = $\lambda p.p(0) = x$

This property conveys no information as to *in what manner* the path is traveled. It can be traversed by *walking*, *driving*, *skating*, *hurrying*, and in any number of other ways. This means that there is a fundamental difference in the sorts of meanings that can be expressed by verbs and by spatial prepositions. A verb may contribute qualitative or conceptual meaning, while a spatial preposition may contribute spatial meaning only.[11] This line of thinking naturally leads to a prediction: if Hmong path predicates encode distinct concepts, they must be verbal; if they encode spatial information only, they may be prepositional. Furthermore, if the type of meaning

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[11]Of course, some verbs also do convey primarily spatial information, for example English *enter* or *go.*

they encode varies from construction to construction, that may be evidence that their categorial status varies as well.

For example, the Source predicate *dim* can be translated a variety of ways, including as 'escape', 'get away', 'away from', or simply 'from'. This variation appears to correlate with the syntactic environment in which the predicate occurs. When *dim* appears as the main predicate of the clause, as in (29a) below, it both conveys a spatial meaning like that of English *from* and takes on a conceptual meaning like that of English *escape*. In other environments, as in (29b–c), it appears to take on a primarily spatial meaning like that of English *from*.

(29) a. cov Hmoob **dim** hauv Nplog.teb los   (Jarkey 2015)
      CLF Hmong escape inside Laos   come
      'The Hmong escaped from Laos.'

    b. kuv khiav **dim** tus dev mus
      1SG run   from CLF dog away
      'I ran away from the dog.'

    c. Sua   txib   cov   menyuam **dim** tus dev mus
      Shoua dispatch CLF.PL child   from CLF dog away
      'Shoua sent the children away from the dog.'

    d. [**dim** qhov rooj txog phab.ntsa], cov   neeg   sawv ntsug
       from CLF   door up.to wall   CLF.PL person stand upright
      'From the door to the (back) wall, people were standing.'

These facts appear to be consistent with genuine variation in the syntactic category of the predicate *dim*. My consultants generally produce and accept prepositional translations like 'from' or 'away from' in environments like (29b–d). However, there are also a small number of possible counterexamples, in which *dim* and other path predicates in environments like (29b–d) receive their typical verbal translations. I do not view these as genuine counterexamples, as they may arise in the (necessarily imperfect) process of translation. For example, rather than directly reflecting the meaning of *dim* alone, the translation may also reflect contextual or information-structural factors. Alternatively, a speaker might offer a more highly specified "citation definition" for the predicate in question, even if its meaning is slightly different in context.

In short, this pattern provides tentative support for the idea that Hmong path predicates act as prepositions rather than verbs in examples like (29b–d). However, to make a conclusive generalization about the semantic contributions of path predicates will likely require a larger-scale study of Hmong speakers, which is beyond the scope of the present investigation.

4.2.5 Verb-framed versus satellite-framed

The final diagnostic I will address in this section is not strictly a diagnostic at all, but rather a typological pattern. Hmong shows a number of features consistent with so-called "satellite-framed" languages (Talmy 1985)—those languages in which motion can be encoded by the (usually non-verbal) complement of the main verb, rather than by the verb itself. These features include resultatives, verb–particle constructions, double-object constructions, created result constructions, and productive noun–noun compounding (Snyder 2001, Folli & Harley 2016, 2020). With the possible exception of double-object constructions, all of these features appear to be found in Hmong.[12]

(30)   a.   *Resultatives:*

        nws **tsoo**   lub tais   **tawg**
        3SG   smash CLF bowl break
        'He smashed the bowl and it broke.'

   b.   *Verb–particle constructions:*

        nws **pov**   cov   khob **tseg**
        3SG   throw CLF.PL cup   abandon
        'He threw the cups away.'

   c.   *Created-result constructions:*

        nws **xaws** daim ntaub **ua/rau** (daim) tiab
        3SG   sew   CLF   cloth as/into (CLF)   skirt
        'She sewed the cloth into a skirt.'

   d.   *Noun–noun compounds:*   (Ratliff 1992b)

ciab-mu	dab-npuas	qab-pag	tub-qhe
wax-bee	trough-pig	bottom-lake	boy-servant
'beeswax'	'pig trough'	'lake bottom'	'male servant'

     Taken together, these features suggest that Hmong is a satellite-framed language. This corroborates the assumption that the manner/transfer verb in environments (2–3) is the main predicate of the clause, with the path predicate in examples (2–3) acting as the "satellite"—a role often, but not necessarily, fulfilled by prepositions cross-linguistically. But strictly speaking, this does not make any comment on the categorial status of the "satellite" predicate.

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[12]Double object verbs are attested in Hmong, but license only one overt internal argument at a time, which may be either the THEME or the PATIENT. Both internal arguments surface only when a second licensor is present. (See Section 2.7.1.)

4.2.6 Interim summary

This section reviews several diagnostics for verbal and/or prepositional categorial status which, though plausible to some extent, are ultimately inconclusive in the case of Hmong. These include (i) morphological inflection, (ii) syntactic distribution relative to genuine prepositions, (iii) predication of an external argument, (iv) semantic contrasts, and (v) satellite-framed typological status. In general, all of these five criteria are compatible with the assumption that Hmong path predicates are prepositions—in fact, some provide weak support for that claim. None of these diagnostics, however, provide definitive evidence in and of themselves.

4.3 Two novel diagnostics from decomposition

In this section, I propose two novel diagnostics for preposition-hood, both of which can be observed in internally-complex path-denoting constituents in Hmong. These include (i) Source-marking that obligatorily contains Goal-marking, and (ii) obligatory Route > Source > Goal ordering. Both of these diagnostics are grounded in decompositional analyses of the prepositional phrase cross-linguistically—in particular, the decomposition of PathP argued for by Pantcheva (2011). To see how, I will first offer a brief review of decompositional approaches to the prepositional phrase, before discussing the two proposed diagnostics in more detail.

A line of analysis going back at least to Jackendoff (1983) broadly divides the prepositional domain into two projections: PlaceP, which encodes a static locative relation, and PathP, which dominates PlaceP and encodes dynamic motion (see also Van Riemsdijk 1990, Koopman 2000, 2010, Van Riemsdijk & Huybregts 2001, Kracht 2002, den Dikken 2010, Svenonius 2010, among others). This decomposition is illustrated in (31).[13]

(31)   [PathP [PlaceP [DP]]]

More recent work further decomposes both of these projections. The structure of PlaceP is not relevant to the present discussion (though I invite the reader to refer to den Dikken (2010) and Svenonius (2010), among others). I will focus solely on PathP.

Decompositional analyses of PathP have broadly made two sorts of claims: first, that the directional head Path (which may be referred to by a variety of alternative names, including P_{Dir}, P, or Modalizer) is dominated by one or more functional phrases (Koopman 2000, 2010, den Dikken 2010, Pantcheva 2011), and second, that the role of the directional head Path itself may in fact be

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[13]Here I follow the nomenclature of Jackendoff (1983), which is also used by Svenonius (2010), Pantcheva (2011), and others, though the structure in (31) is originally due to Van Riemsdijk (1990).

divided across and fulfilled by multiple heads (Radkevich 2010, Pantcheva 2011). Taken together, this mirrors the complexity of, for example, the verbal domain, in which several functional layers (CP, TP, AspP, etc.) dominate an "event domain" or "first phase" comprising multiple "verbal" heads (Voice, v, V, etc.). Proposals of the first sort, one illustration of which is given in (32), will be discussed in greater detail in Section 4.5.4.[14] For the present, I focus on proposals of the second sort, as illustrated in (33).

(32)   [CP [DxP [AspP [PathP …]]]]   (den Dikken 2010, p. 192)

(33)   … [RouteP [SourceP [GoalP [PlaceP …]]]]   (Pantcheva 2011)

In Pantcheva's (2011) approach, which I adopt here, the syntactic and semantic properties of a path are spread across three heads: Route, Source, and Goal. Of these, Goal paths (e.g. *to the market*) are the most fundamental, with Source paths (e.g. *from the well*) built on Goal paths and Route paths (e.g. *along the river*) built on Source paths, as reflected in (34a–c).

(34)   a.   *Goal path:* [GoalP [PlaceP …]]   (Pantcheva 2011)

        b.   *Source path:* [SourceP [GoalP [PlaceP …]]]

        c.   *Route path:* [RouteP [SourceP [GoalP [PlaceP …]]]]

Similarly to certain decompositional analyses of the verbal domain (e.g. Ramchand 2008), each of the structures in (34) is a well-formed path description in its own right—though as Goal is required in all three cases, we might treat Goal as the head of the path domain.

In motivating this decomposition, Pantcheva draws on patterns of morphological containment and syncretism across a sample of 81 mostly agglutinating languages (see Pantcheva 2011, pp. 261–264). For example: in eight of these languages, Source paths must also contain an overt Goal morpheme, as shown for Chamalal in (35) below. Importantly, the reverse pattern (a Goal path that requires a Source morpheme) is unattested. This supports the asymmetrical view of Goal and Source marking given in (34b) above: Goal may appear independently, while Source builds on Goal.

(35)   Chamalal (Nakh-Dagestanian; Magomedbekova 1967, cited in Pantcheva 2011, p. 47)

        a.   *Goal path:*   b.   *Source path:*

           mik^{y}i-l-u   mik^{y}i-l-u-r

           road-on-GOAL   road-on-GOAL-SOURCE

           'onto the road'   'off the road'

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[14]Here I relabel den Dikken's (2010) P$_{\text{Dir}}$ as Path for consistency.

This structure (and the morphological and syntactic patterns that it gives rise to) is not restricted only to agglutinating languages. Importantly, even though highly isolating languages like Hmong are unlikely to show similar patterns of morpholigical containment and syncretism, they may show other reflexes of this underlying structure.

In the remainder of this section, I examine two such patterns found in Hmong. First, Source markers obligatorily co-occur with a Goal marker (just as observed in Chamalal, Bulgarian, and other languages). Second, when multiple path predicates co-occur within a single path-denoting constituent, they appear in a grammatical Route > Source > Goal order, which also reflects the structure in (33). Neither pattern can be neatly explained under the assumption that Hmong path predicates are purely verbal. If, however, we take Hmong path predicates to lexicalize Route, Source, and Goal heads in the Path domain—that is, if we take them to be underlyingly prepositional—then both patterns are expected.

4.3.1 Dependence of Source on Goal

A closer look at Hmong Source predicates reveals that they are not inherently associated with a Source-oriented meaning. When a typical Source predicate, for example *tawm* 'leave, from', occurs as the sole path predicate in the clause, it cannot receive a Source interpretation. As shown in (36), it obligatorily receives a Goal interpretation instead.

(36) kuv **tawm** tsev
      1SG leave home
      #'I left (from) home.'
       'I left for home.'

To derive a Source interpretation, the Source predicate must be followed by an overt Goal predicate, as in (37).

(37) kuv **tawm** tsev   **mus** tajlaj
      1SG leave home to   market
       'I left (from) home for the market.'
      #'I left for home and went to the market.'

This behavior is quite general in Hmong. There are no inherently Source-oriented path predicates in Hmong, and all Source and Goal predicates participate in this alternation. (Referring to the predicates themselves, rather than to the interpretations they receive in a given context, we might more properly identify a single class of alternating Source–Goal predicates.) Furthermore,

this alternation appears with Source predicates when they occur in all four environments in (1–4): as the main verb (in (37) above), and as the complement of a manner verb, the complement of a transfer verb, or an outer locative adjunct, as in (38a–c) below.

(38) a. cov   tub.rog khiav **tawm** ntawm lub kwj.ha rov   **los**   tsev
          CLF.PL soldier run   from   nearby CLF valley back to(wards) home
          'The soldiers fled from the ravine (and came) back home.'   (Jarkey 2015, p. 107)

      b. Sua   txib   cov   menyuam **tawm** lub vaj   **mus** rau hauv tsev
          Shoua dispatch CLF.PL child   from   CLF garden to   into inside house
          'Shoua sent the children from the garden into the house.'

      c. [**txij**   lub zos   peb nyob **rau** yav.pem.toj] mas, ua   tau teb pob.kws thiab
            out.from CLF village 3PL live   up.to mountain   TOP make can field corn   and
          teb yeeb   nkaus xwb   (Fuller 1985, pp. 114–115)
          field opium only   only
          'From the village we lived in up to the mountains, (we) could grow corn and opium only.'

Note that it is the Goal predicate itself, rather an explicit PlaceP describing the Goal, which is required. Deictic Source–Goal predicates (of which there are three: *mus* 'go, to', *los* 'come (home), to', and *tuaj* 'come, to') allow an intransitive, particle-like usage, which as (39a–b) show can also satisfy the Goal requirement. These uses refer to motion either towards or away from a deictic center, similar to the archaic English *hither* and *thither* with which they are glossed here.

(39) a. Tub khiav **thim** hauv lub tsev   **los**
          Tou run   from inside CLF house hither
          'Tou ran out from inside the house.'
          ≈ 'Tou came running out of the house.'

      b. nws **tuaj** ntawm lub zos   **tuaj**   (Jarkey 2015, p. 42)
          3SG come nearby CLF village hither
          'He came from nearby at the village.'

This tells us that Source interpretations are the product of a syntactic configuration, and that this configuration involves multiple path-denoting elements. The meaning of the predicates involved are consistent with either a Source or Goal interpretation, depending on the position in which they are merged. This pattern of behavior is quite unusual cross-linguistically. In a survey of Goal and Source marking across 117 languages, Wälchli & Zúñiga (2006) find this pattern only

in Hmong.[15]

If we wish to situate these path predicates entirely within the verbal domain, then we face challenges. First, we must explain why the alternation in (36–37) is only observed for path predicates, and not for other classes of Hmong verbs. For example, verbs of *obtaining* (such as *txeeb* 'snatch' in (40) below) can freely assign a Source interpretation to an inner locative PlaceP.[16] No additional predicate is required.

(40)   tus tub.sab **txeeb** [kuv cov   nyiaj] [ntawm kuv tes]   (Jarkey 2015)
        1SG robber snatch 1SG CLF.PL money DEM   1SG hand
        'The robber snatched my money from my hand.'

Additionally, treating both path predicates in (37) as purely verbal likely requires either (i) the covert coordination of two VPs, or (ii) one VP adjoining to another. In either case, we are forced to conclude that an optional syntactic process (conjunction or adjunction) is fully responsible for determining the role that the "main verb" assigns to its PlaceP complement.

I claim that this behavior is expected if, on the other hand, we take Hmong path predicates to spell out (prepositional) path heads in Pantcheva's (2011) decomposition. This reduces the puzzling alternation in (36–37) to another case of "Source–Goal containment". In fact, since Pantcheva treatment ascribes this relationship to a universal underlying syntax rather than to the morphology proper, we might predict that similar patterns should also emerge in more isolating languages like Hmong.

4.3.2 Ordering within complex predicates

A further prediction of the decompositional model of Path relates to the ordering of the sub-parts of complex predicates. In many decompositional analyses of the verbal domain, complex predicates can be formed from multiple heads within the verb phrase (Ramchand 2008, Travis 2010, a.o.). These heads generally compose with one another in a broadly temporal order, often with explicitly causative semantics. See, for example, the decomposition in (41a) proposed by Ramchand (2008), in which an *init(iation)* state causes a dynamic *proc(ess)* event, which itself causes a *res(ult)* state. In the prepositional domain, it has likewise been proposed that several heads can interact with one another to derive complex predicates—however, in the decomposition in (41b) proposed by Pantcheva (2011), the ordering is expressly *not* temporal. The precedence

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[15]Wälchli & Zúñiga cite Bisang (1992) on Mong Njua (*Moob Ntsuab*, or Blue Mong) a closely-related and mutually-intelligible Laotian Hmong variety.

[16]Though of course there are other syntactic differences between verbs of *obtaining* and path predicates.

of Route over Source and Goal shows this; in a purely temporal or iconic ordering, we instead expect to find Source > Route > Goal ordering in many or all cases.

(41)   a. [*init* [*proc* [*res* [P/A/D […]]]]]   (Ramchand 2008)

      b. [Route [Source [Goal [Place […]]]]]   (Pantcheva 2011)

This sets up a clear prediction. The sub-parts of complex path descriptions must inherit their ordering from the ordering of the heads they spell out. If they display a purely temporal ordering, like that in (41a), they likely merge in the verbal domain. If, on the other hand, they display the idiosyncratic ordering in (41b), they likely merge in the prepositional domain.

No clear difference has thus far been evident. Although the Source–Goal relationship discussed in Section 4.3.1 does not appear to be causal in nature, it certainly shows a similar temporal/iconic ordering to that found in the verbal domain. However, when introducing a Route predicate into the structure, that predicate obligatorily precedes both Source and Goal—that is, the sub-parts of complex path descriptions appear in an obligatory Route > Source > Goal order (Jarkey 2015).

(42)   cov   Hmoob (khiav) [**hla**   dej   Na.Koom **dim** hauv Nplog-teb **mus** Thai-teb]
      CLF.PL Hmong run   across water Mekong from inside Laos   to   Thailand
      'The Hmong fled [across the Mekong River from Laos to Thailand].'

                                                   (adapted from Jarkey 2015, p. 113)

This clearly supports a structure like (41b) over one like (41a). And importantly, this contrasts with the behavior of other complex predicates in Hmong, whose sub-parts clearly show either a causal relationship, as in (43a), or at minimum a temporal ordering, as in (43b) below (Jarkey 2015, Johnston forthcoming). (In both examples in (43), all of the boldfaced predicates appear genuinely verbal, with no evidence of any cross-categorial uses.)

(43)   a. kuv **nrhiav pom** lub pob
         1SG find   see   CLF ball
         'I found the ball.'

      b. lawv **hlais** cov txiv **faib   noj**
         3PL   slice CLF fruit divide eat
         'They sliced, divided, and ate the fruits.'

Despite its clear resemblance to Pantcheva's (2011) decomposition, the ordering observed in (42) flies in the face of a common assumption about prepositional phrases—that they adjoin to *v*P in a recursive and relatively free manner. In English examples like (44), for example, the Source and Goal prepositional phrases can appear in either order.

(44)   a.   Mary drove [from Pipestone] [to Jasper].

       b.   Mary drove [to Jasper] [from Pipestone].

However, I note that similar structural effects emerge in certain cases in English. When Source and Goal phrases co-occur within a single complex PathP—for example, when describing a coherent spatial range as in (45)—a strict Source–Goal ordering is required.[17]

(45)   a.   They're resurfacing the highway [[from Pipestone] [to Jasper]].

       b.   *They're resurfacing the highway [[to Jasper] [from Pipestone]].

That the Source and Goal expressions form a single constituent in the examples in (45) is also supported by the inability to left-dislocate just one of the two component PPs (see Jackendoff 1973). This is possible in the multiple-adjunct structure in (46a), but not in the complex PathP structure in (46b).

(46)   a.   [From Pipestone], Mary drove [to Jasper].

       b.   *[From Pipestone], they're resurfacing the highway [to Jasper].

At present, I have no explanation for precisely *why* a language might lack structures like those in (44)—it is simply a fact that such structures do not occur in Hmong. However, the English examples in (45) support the conclusion that co-occurrence restrictions shown by Hmong path predicates reflect the internal structure of a (complex) PathP constituent.

4.4 Analysis

In this section, I propose an analysis intended to capture the mixed verbal and prepositional properties of Hmong path predicates—and in particular, the distribution of those properties across the four environments illustrated by examples (1–4), repeated here.

(1)   kuv **mus** tajlaj   *Main verb*
      1SG **go**   market
      'I went to the market.'

(2)   kuv khiav [**mus** tajlaj]   *Complement of a manner-of-motion verb*
      1SG run   **to**   market
      'I ran to the market.'

---

[17]Similar internally-complex prepositional phrases were first observed by Jackendoff (1973), though so far as I am aware, no subsequent literature has addressed the ordering of prepositions *wihtin* such complex PPs.

(3) kuv txib   Sua   [**mus** tajlaj]   *Complement of a transfer verb*
     1SG dispatch Shoua **to**   market
     'I sent Shoua to the market.'

(4) peb nyob tom [**mus** thaum peb tshaib   plab]   *Adjunct*
     1PL stay   here **to**   time   1PL be(come).hungry stomach
     'We'll stay here until we're hungry.'

This analysis must address the following points. First, complex predicates across all four environments exhibit similar co-occurrence restrictions: Source–Goal containment and Route > Source > Goal ordering. Second, the adjunct case in (4) is clearly distinguished from the others by Jarkey's (2015) diagnostics: its semantic contribution as an event modifier, its ability to topicalize, and its linear position. Third, the "main verb" case in (1) is also clearly distinguished from the others, by virtue of appearing as the sole predicate in the clause and by virtue of its verb-like semantics.

To capture these phenomena, I propose that all four environments involve a single, internally-complex prepositional constituent. Environments (1–3) situate this prepositional constituent as complement of v, while environment (4) places it in adjunct position. The contrasts between environments (1–3) arise from the properties of the main predicate, with path predicates in (1) being genuinely cross-categorial: they lexicalize a span (Svenonius 2016, e.g.) including both verbal and prepositional material.

That is, Hmong path predicates are consistently prepositional, with one genuinely cross-categorial use in environment (1), in which they function simultaneously as preposition and verb.

I begin by sketching structures for each of the four relevant environments in Section 4.4.1. For simplicity's sake, I limit this section to simplex GoalPs (just as illustrated in (1–4) above). Once these structures have been sketched out, I move on to address the structure of internally-complex PathPs in Section 4.4.2.
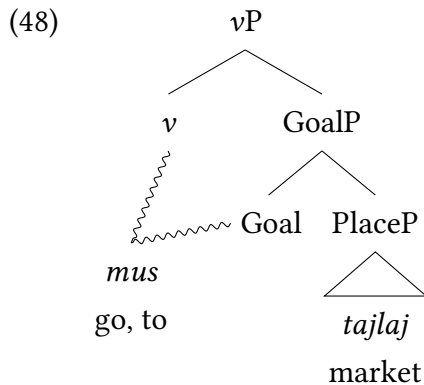
4.4.1 Path phrases in four environments

The three cases involving directed motion in (1–3) are differentiated from the adjunct case in (4) by the position of the prepositional constituent. The former involve a prepositional complement to v, as in (47a). The later involves a prepositional vP adjunct, as in (47b).

(47) a. Directed motion: $[_{vP} [\ v\ ][_{\text{Route/Source/GoalP}} \cdots]]$
      b. Outer locative: $[_{vP} [\ v\ ]][_{\text{Route/Source/GoalP}} \cdots]$

All other things being equal, a given path predicate will contribute the same spatial meaning across environments (1–3). The most salient distinction between these three cases is in the verbal domain: their differences arise from the properties of the predicate that lexicalizes v.

The "main verb" use in (1) is particularly noteworthy in this respect, in that the only plausible reflex of v is the path predicate itself. In this case, I claim that the path predicate lexicalizes a span (see e.g. Svenonius 2016) which includes both v and the head of its complement—which in the case of (48) is Goal.[18]

(48)

```
                    vP
                 ┌──┴───┐
                 v      GoalP
                 ┊    ┌──┴───┐
                 ┊   Goal   PlaceP
               mus           △
              go, to       tajlaj
                           market
```

The semantic composition of this structure is relatively straightforward. A path-denoting constituent, in this case GoalP, can receive a simplified denotation like that in (49a).[19] This combines with the property of events denoted by the predicate that lexicalizes v, which in this case is also *mus* 'go'.[20] This derives the denotation for vP given in (49c) below. Here the semantic type p is used for paths, with $\langle p, t \rangle$ indicating properties of paths.

(49)   a. $[\![\,\text{GoalP}\,]\!] = \lambda p.[p(1) = \text{LOCATION}(\text{market})]$

      b. $[\![\,v\,]\!] = \lambda P_{\langle p,t \rangle} \lambda e.[go(e) \wedge \exists p[P(p) \wedge p = \text{TRACE}(e)]]$

      c. $[\![\,v\text{P}\,]\!] = \lambda e.[go(e) \wedge \exists p[p(1) = \text{LOCATION}(\text{market}) \wedge p = \text{TRACE}(e)]]$

The relationship between v and its path are formalized by TRACE, a thematic function that maps an event to its corresponding path (Zwarts 2005). More specifically, it relates the mereological structure of the event to that of the path in a homomorphism. Here I assume that

---

[18]This span can be larger in certain cases; notably, necessarily-telic Transition predicates such as *txog* 'arrive, up to' may lexicalize multiple heads within the Path domain (see Chapter 5).

[19]This is simplified in two respects. First, this omits the deictic content of *mus* 'go, to', *tuaj* 'come, to', and *los* 'come (home), to'—though see Section 4.5 for discussion of the functional structure of the prepositional domain. Second, this may not rule out unattested cumulative interpretations of paths; see Zwarts 2005, p. 761.

[20]It is not clear in this case whether *mus* 'go' supplies a contentful property of events, as represented in (49) by the term *go(e)*, or whether the resulting event is simply one in which a path was traveled. However, even if the meaning of *mus* 'go' is highly underspecified, this is not the case for other path predicates in Hmong.

TRACE is part of the meaning of (a particular "flavor" of) *v*, though one might instead assume that the homomorphism between event and path arises from a special principle of composition, as does Ramchand (2008). For present purposes, the difference between these two approaches is not crucial.

What is important for the present discussion is that the path predicate in (48) can contribute to the semantics of the resulting event description in two distinct ways. First, the path predicate may convey information about the geometry of the path in Route, Source, or Goal. A particularly clear example of this is the behavior of certain Route predicates, which require that the GROUND of motion must be moving. Compare *raws* 'pursue, follow after, after' and *lawv* 'follow behind, behind' with *taug* 'follow (a path/landmark), along'. Second, the path predicate may contribute a property of events in *v*. A clear example of this are predicates like *dim* 'escape, get away, from' or *raws* 'pursue, follow after, after', which are generally translated with highly specified "verbal" meanings.

This approach neatly delimits the verbal and prepositional functions of path predicates in their "main verb" use in (1). This allows for a relatively simple characterization of the complement uses in (2–3): in these cases, the path predicate lexicalizes only the complement. This means that, as in (50), *v* can be lexicalized by a manner-of-motion verb, here *khiav* 'run', while the path predicate, here *mus*, lexicalizes only the complement.

(50)
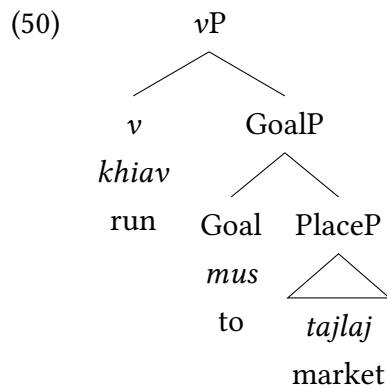
The resulting event is one of *running*, rather than an underspecified event of *going*, but the spatial meaning (supplied by the prepositional complement) is the same as in (48) above, and the composition proceeds similarly.

(51)   a. $[\![\,\text{GoalP}\,]\!] = \lambda p.[p(1) = \text{LOCATION}(\text{market})]$

     b. $[\![\,v\,]\!] = \lambda P_{\langle p,t \rangle} \lambda e.[run(e) \wedge \exists p[P(p) \wedge p = \text{TRACE}(e)]]$

     c. $[\![\,v\text{P}\,]\!] = \lambda e.[run(e) \wedge \exists p[p(1) = \text{LOCATION}(\text{market}) \wedge p = \text{TRACE}(e)]]$

Examples involving transfer verbs, such as in (52), are similar: path predicates are once again prevented from lexicalizing v. In this case, however, there are two complications that should be noted. First, while manner-of-motion verbs are generally intransitive, transfer verbs are by definition transitive. This must be reflected in the structure through distinct selectional requirements, which might arise from the predicates themselves or in combination with different "flavors" of v (e.g. Folli & Harley 2005). Second, transfer verbs (like English *send*) involve a more complex event structure, encoding a causal relation (see Harley 2002, Beavers & Koontz-Garboden 2020, ch. 3 on *send*-type predicates in English). These two facts can be naturally connected assuming a causative syntax like that proposed in the previous chapter: the verbal domain must contain two sub-events, one predicated of the subject and one predicated of the object. In (52), both sub-eventive heads lexicalized by the same verb, in this case *txib* 'dispatch'.

(52)
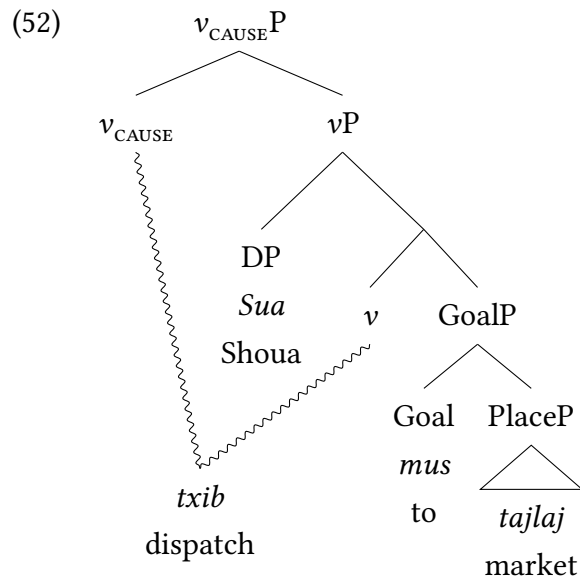
The initial vP constituent in (52) composes similarly to example (50). It is only with the merger of the sub-eventive head v_{CAUSE} (found only with causative verbs like *txib* 'dispatch', and not with manner verbs like *khiav* 'run') that the structure becomes meaningfully different.[21]

(53)   a. $[\![v\text{P}]\!] = \lambda e.[dispatch(e) \wedge \text{UNDERGOER}(e, \text{Shoua}) \wedge \exists p[p(1) = \text{LOCATION}(\text{market}) \wedge p = \text{TRACE}(e)]]$

       b. $[\![v_{\text{CAUSE}}\text{P}]\!] = \lambda e.[dispatch(e) \wedge \exists e'[dispatch(e') \wedge \text{UNDERGOER}(e', \text{Shoua}) \wedge \text{CAUSE}(e)(e') \wedge \exists p[p(1) = \text{LOCATION}(\text{market}) \wedge p = \text{TRACE}(e')]]]$

---

[21]I take causative verbs like *txib* 'dispatch' to contribute lexical-semantic content in two positions: describing the causing action of the agent, and describing the caused action undergone by the theme argument.

This articulated structure has an important consequence. Following the treatment of the direct causative construction given in Chapter 3, it naturally allows for v_{CAUSE} and v to be realized by distinct predicates. This easily captures the further complexity of examples like (54): in this treatment, (54) is syntactically parallel to (53), with the key difference being the predicate(s) that realize the two sub-eventive heads.

(54) nws coj   me-nyuam khiav~khiav tuaj   (Jarkey 2015, p. 112)
      3SG bring child   RDUP~run   hither
      'She brought (her) children (and) ran away.'
      ≈ 'She fled, bringing her children along.'

(55) $\llbracket v_{\text{CAUSE}}\text{P} \rrbracket = \lambda e.[bring(e) \wedge \exists e'[run(e') \wedge \text{UNDERGOER}(e', \text{children}) \wedge \text{CAUSE}(e)(e') \wedge \exists p[p(1) = \text{LOCATION}(\text{DEICTIC CENTER}) \wedge p = \text{TRACE}(e')]]]$

Finally, the outer locative case may be the simplest of the four, as it involves a markedly different structure from the other three. Here, the path predicate merges within an adjunct which modifies the vP.

(56)
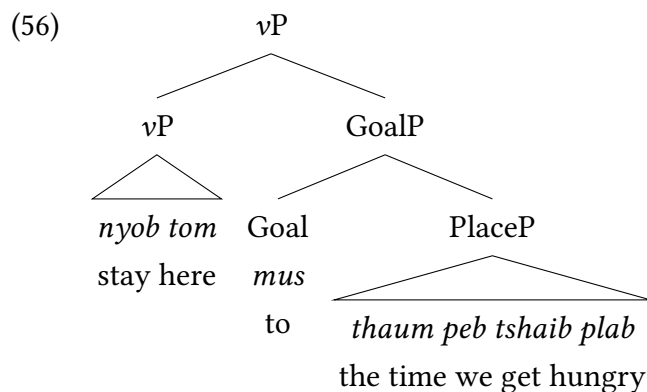
For simplicity's sake, I assume here that (i) the prepositional adjunct is a GoalP, and (ii) locations in time are also represented syntactically as PlacePs. One might instead posit an additional operator or operators (possibly associated with their own distinct syntactic projection) responsible for type-shifting the simple property of paths denoted by *mus thaum peb tshaib plab* 'until we get hungry' into a modifier, or for mediating between spatial and temporal meanings. Alternatively, one might assume a special principle of composition for either of these functions. The precise implementation is immaterial for the present discussion; what is of primary importance is the attachment site of the prepositional constituent (whatever its precise semantics may be).

The four structures given in (48), (50), (52), and (56) represent the basic contrast between environments (1–4). These cases all involve a similar PathP constituent, which for consistency I

represent as a GoalP in all four examples presented here. These four environments contrast with one another in two main ways. First, cases in which the PathP merges as an adjunct, like (4), are clearly set aside from cases in which the PathP merges as complement to *v*, including all of (1–3). Second, the latter three cases can be distinguished from one another by lexicalization patterns: *v* can be lexicalized by the path predicate itself as in (1), by a manner predicate as in (2), or by a transfer predicate as in (3). Note that none of this hinges on the internal composition of that PathP, which will be addressed in the following section.

4.4.2 Internally-complex paths

In Section 4.4.1, I outlined a simple syntactic and semantic characterization of the four main environments in which Hmong path predicates appear. This involves a prepositional constituent in all four cases. In this section, I will argue that the two structural effects presented in Section 4.3 above, Source–Goal containment and Route > Source > Goal > ordering, arise from the internal structure of that prepositional constituent.

I begin by adopting Pantcheva's (2011) decomposition, given in (57) below. I claim that both structural restrictions observed in Hmong arise relatively straightforwardly from this underlying structure.

(57)   RouteP   (Pantcheva 2011)

      Route   SourceP

            Source   GoalP

                  Goal   PlaceP

4.4.2.1 Source–Goal containment

Pantcheva's (2011) decompositional syntax for the path domain, given in (57) above, is primarily motivated by patterns of morphological containment and syncretism. Pantcheva shows that eight languages (out of a sample of 81) show a pattern of Source–Goal containment: that is, the (morphologically complex) Source marker includes the Goal marker. These languages are listed in (58) below. Importantly, no languages display the reverse pattern: a complex Goal marker that incorporates a (simpler) Source marker (Pantcheva 2011, p. 49).
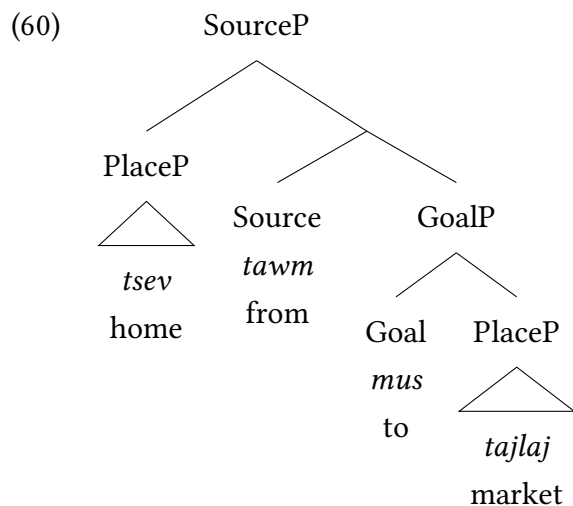
(58)   Containment of Goal within Source (Pantcheva 2011, Table 4.2)

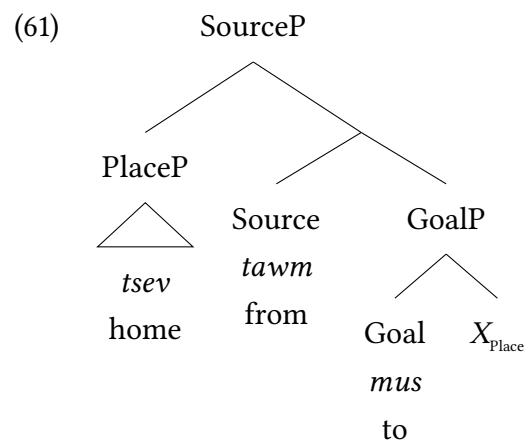| Language	*Location*	*Goal*	*Source*	Reference
Bulgarian	*pri*	*kəm*	*ot-kəm*	Pashov (1999)
Dime	*-se*	*-bow*	*-bow-de*	Mulugeta (2008)
Chamalal	*-i*	*-u*	*-u-r*	Magomedbekova (1967b)
Ingush	*-ğ*	*-ga*	*-ga-ra*	Nichols (1994)
Jingulu	*-mpili*	*-Nka*	*-Nka-mi*	Blake (1977)
Mansi	*-t*	*-n*	*-n-əl*	Keresztes (1998)
Quechua	*-pi*	*-man*	*-man-da*	Jake (1985), Cole (1985)
Uchumataqu	*-tá*	*-ki*	*-ki-stani*	Vellard (1967)

The pattern of Source–Goal containment in Hmong, seen in (59), is not so different from this. The primary difference is that in Hmong, both Source and Goal can introduce their own distinct ground of motion. (Recall that this is not necessary; as mentioned previously, the Goal predicate may be either transitive or intransitive in such cases.)

(59)   a. kuv **tawm** tsev   **mus** tajlaj
            1SG leave home to   market
            'I left (from) home for the market.'

        b. kuv **tawm** tsev   **mus**
            1SG leave home away
            'I left home.'

The basic properties of these Hmong examples can be captured with two basic assumptions: (i) that, as claimed by Pantcheva, SourceP obligatorily contains GoalP, and (ii) that no path predicate in Hmong lexicalizes both Source and Goal simultaneously.

(60)

```
                    SourceP
                   /      \
              PlaceP       \
              /   \      Source    GoalP
            /      \     tawm     /    \
          tsev          from   Goal    PlaceP
          home                 mus     /   \
                               to    tajlaj
                                     market
```

With a further assumption, we can extends this to approach to those cases like (59), in which the Goal predicate does not introduce an overt ground of motion. In this case, I assume that the internal argument position of the Goal predicate is saturated by a variable over places (which I label here as X_{Place} for concreteness). This might be tied in some way to the deictic content associated with predicates like *mus* 'go, to', or it might simply be a free variable whose value is determined from the context (in which case the deictic information associated with *mus* 'go, to' might be encoded elsewhere).

(61)

```
                    SourceP
                   /      \
              PlaceP       \
              /   \      Source    GoalP
            /      \     tawm     /    \
          tsev          from   Goal    X_Place
          home                 mus
                               to
```

This structure can appear in any of the environments given in (1–4), leading to the observation that Source–Goal containment is a general phenomenon in Hmong.
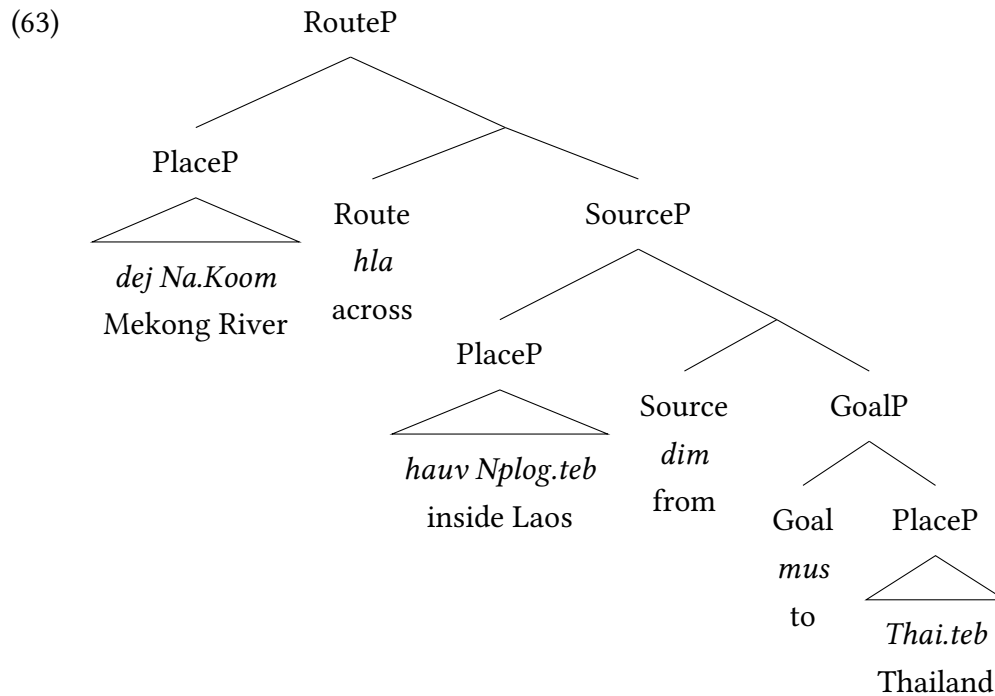
4.4.2.2 Route > Source > Goal ordering

As seen in (57), Pantcheva's decomposition places the Route head above both Source and Goal in the prepositional spine. This aligns with the obligatory Route > Source > Goal order found in

complex path predicates in Hmong, such as in (62) below.

(62) cov   Hmoob (khiav) [**hla**   dej   Na.Koom **dim** hauv Nplog-teb **mus** Thai-teb]
      CLF.PL Hmong run   across water Mekong from inside Laos   to   Thailand
      'The Hmong fled [across the Mekong River from Laos to Thailand].'

                                                              (adapted from Jarkey 2015, p. 113)

The SourceP structure proposed above can be extended with an additional Route head, thereby capturing the ordering of the three predicates.

(63)

```
                         RouteP
                    _____|_____
                   /             \
              PlaceP            _____
              __|__            /      \
             /     \        Route    SourceP
        dej Na.Koom  Route   hla     __|__
        Mekong River hla    across  /     \
                    across      PlaceP    _____
                              __|__      /      \
                             /     \  Source   GoalP
                       hauv Nplog.teb dim      __|__
                       inside Laos    from    /     \
                                          Goal    PlaceP
                                          mus     __|__
                                          to     /     \
                                               Thai.teb
                                               Thailand
```

A structure like that in (63) is close to the upper limit of complexity observed in complex path descriptions in Hmong.[22] This can appear in any of the environments in (1–3) above—though recall that Route predicates are not attested in the adjunct use in (4). This appears to be due to some property of Route predicates themselves, rather than due to the syntactic configuration in (63).

Both this structure and that given in (60) in the preceding section leave open two questions: (i) how to obtain the correct ordering of the Route/Source predicates and their PlaceP arguments, and (ii) why Route predicates do not show similar patterns of morphological containment (i.e., obligatory Route–Source or Route–Source–Goal containment). I address these questions in Section 4.5 below.

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[22]Strictly speaking, this is not the maximum possible complexity; additional RouteP layers can be recursively added. For more on Route predicates, see section 4.5.3 below.

4.4.3 Semantics for Source and Goal

Although the Hmong data generally aligns with Pantcheva's (2011) syntactic account, it cannot be captured by Pantcheva's proposed semantics.

Rather than providing denotations for Route, Source, and Goal heads, Pantcheva represents them schematically as in (64) below.[23] In this approach, Goal merges with Place to create a Goal-oriented path, the most fundamental type. Source merges with a Goal path, reversing its orientation via a "reversal operation" (Pantcheva 2011, p. 69). Route performs a somewhat more complex function, concatenating a Goal path onto a Source path. (These three types of path can be further modified by Pantcheva Bound and Scale heads, deriving additional types of paths.)

(64)   a. Goal path: (Pantcheva 2011, pp. 13–15)

$$- - - - - + + + + +$$
$$0 \qquad\qquad\quad 1$$

b. Source path:

$$+ + + + + - - - - --$$
$$0 \qquad\qquad\quad 1$$

c. Route path:

$$- - - + + \quad \oplus \quad + + - - - \quad = \quad - - - + + + + - --$$
$$0 \qquad 1 \qquad 0 \qquad 1 \qquad 0 \qquad\qquad\qquad 1$$

While apt for path descriptions involving a single GROUND, this approach cannot account for the behavior of path descriptions with multiple GROUNDS, as are observed in Hmong. The reason for this is simple: Pantcheva's Source head combines only with GoalP, and does not combine with a GROUND itself.

Instead, I propose that Goal and Source heads shape the geometry of the path they describe through the assignment of thematic roles.[24] That is, Goal describes a goal-oriented path only by virtue of combining with a GROUND and assigning it the thematic role GOAL, and Source likewise describes a source-oriented path only by virtue of assigning a SOURCE role. The semantic content of these roles is given as in (65) below (using the notation of Zwarts 2005, in which the points on a path are indexed by numbers in the real interval [0,1]). A GROUND x has a GOAL role with respect

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[23]As in Zwarts (2005, 2008), a path is constructed from a simple locative relation, with instances of + and − indicating whether that locative relation does or does not hold for each point on the path.

[24]The idea of GOAL and SOURCE roles has antecedents at least as far back as the work of Fillmore (e.g. Fillmore 1977).

to a path p if and only if the location corresponding to x is the endpoint of p, while a GROUND x has a SOURCE role with respect to a path p if and only if the location corresponding to x is the origin of p.

(65)   a. GOAL(x, p) iff LOCATION$(x) = p(1)$

       b. SOURCE(x, p) iff LOCATION$(x) = p(0)$

I assume that Route likewise assigns a ROUTE role in at least some cases—though it seems plausible that not all route-oriented paths are constructed in the same way.[25] Because the facts surrounding Route predicates are not fully clear at present, I leave the semantic contribution of the ROUTE predicate—and a full account of the compositional semantics of the path domain—for future work.

4.5 Discussion

In this section, I address a few remaining issues. First, Section 4.5.1 argues against two possible alternative analyses involving covert predicates. Then I explore the cross-linguistic implications of this proposal, with Section 4.5.2 discussing previous claims of "fuzziness" in the boundary between verbal and prepositional domains and Section 4.5.3 considering what Hmong can tell us about the decomposition of PathP.

4.5.1 Two alternatives involving covert predicates

In this section, I briefly discuss the benefits and drawbacks of two possible alternative approaches—specifically, alternatives to the spanning analysis proposed for examples like (1). These alternatives avoid treating path predicates as genuinely multifunctional, instead assuming that the path predicate is accompanied by either a covert preposition or a covert motion verb.

The first alternative is that the path predicate lexicalizes v, selecting for a covert preposition in Goal. The primary benefit of this approach is that it avoids the morphosyntactic complexity of spanning (or head movement), while still capturing (via selection) the relationship between *mus* 'go, to' and GoalP.

(66) $[_{vP} [_{v} \text{ go}] [_{\text{GoalP}} [_{\text{Goal}} \varnothing] [_{\text{PlaceP}} \cdots]]]$

---

[25]For example, the *through*-paths discussed by Ramchand (2012) seem to involve a homomorphism between a path and its GROUND; see further discussion of Route in Section 4.5.3 below.

However, this approach falls short in several respects. First, there is no evidence that covert directed motion prepositions exist in Hmong. Second, given that *mus* 'go, to' can express both Goal and Source meanings, we need an independent mechanism to explain why in this context it necessarily selects a covert Goal preposition, and never a covert Source preposition. Third, this does not obviate the need for prepositional path predicates in other contexts, meaning that this effectively posits a homophonous verbal and prepositional version of every path predicate. This increases the complexity of the overall system beyond what, in my view, is necessary. Fourth, an independent mechanism is needed to prevent the covert Goal preposition from being replaced by an overt Goal preposition—such as a homophonous preposition *mus*—or else we wrongly predict the acceptability of examples like (67).

(67) *kuv **mus mus** tajlaj
      1SG go   to   market
      Intended: 'I went to the market.'

The second alternative is that the *verb* might be covert, with the path predicate functioning only as a preposition. This runs into similar issues. First, there is no clear evidence for covert verbal elements in Hmong. Even simple stative predications require an overt verb (or verb-like element), either *nyob* 'stay, be located at, at' or the copula *yog*.[26] Second, this does not capture the fact that Hmong path predicates can contribute verbal meanings (i.e., properties of events that convey qualitative information about conceptual event type) rather than only prepositional meanings (i.e., spatial information about a path of motion). Third, if a covert motion predicate exists in Hmong, it is not clear why that should rule out the presence of overt motion verbs, which again wrongly predicts double path predicate sequences—like those in (67), though not necessarily homophonous ones—to be acceptable.

In short, both of these alternatives face serious challenges.

4.5.2 Hmong in cross-linguistic perspective

One of the more striking claims made in this chapter is that Hmong path predicates can lexicalize a span that crosses the boundary between two distinct grammatical domains: that is, across the boundary between the verbal and prepositional domains. This basic idea has some precedent in the literature. Son & Svenonius (2008) propose a similar analysis of directed motion across three types of languages (typified by Korean, Malayalam, and English), in which motion verbs lexicalize a

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[26]The locative predicate *nyob* 'stay, be located at, at', like the path predicates discussed here, appears to be ambiguous between verbal and prepositional uses. I hypothesize that it can be treated in a similar way, but a full investigation of its properties is left for future research.

span including two, one, or zero prepositional heads respectively. Inagaki's (2002) earlier proposal regarding motion events in Japanese is broadly similar, though Inagaki implements this as head movement from P to V rather than spanning. These previous approaches are schematized in (68), with category labels edited for consistency.[27]

(68)   a.

	v	Dir	Path	Place	DP
Japanese		*hairu* 'enter'		*-ni* 'at'	*heya* 'room'
Korean		*ka* 'go'		*-ey* 'at'	*cip* 'house'

b.

	v	Dir	Path	Place	DP
Malayalam		*naṭann-*	*-ekkə*	*il*	*office*
		'walk'	'to'	LOC	'office'

c.

	v	Dir	Path	Place	DP
English	*dance*	∅	*to*	*behind*	*the curtain*

The current proposal for Hmong places it, in one sense, on par with Korean and Japanese: the path predicate lexicalizes v, Path, and (because spanning relies on head–complement sequences) any functional heads that may intervene between them. It is not clear whether Hmong provides any evidence in favor of a distinct Dir head, as posited by Son & Svenonius (2008), but the lack of language-specific evidence for Dir neither supports nor challenges the analysis developed in this chapter. In another sense, however, Hmong differs from Korean/Japanese: in those languages, the span lexicalized by the path predicate is fixed, while in Hmong, the span is variable.

The same sort of variability observed in Hmong has also been argued for in some recent work on Mandarin (Hu 2022) and on Cantonese (Leung 2023a,b). In these languages, directed motion predicates are likewise claimed to be cross-categorial. In both cases, directed motion predicates are claimed to vary in which heads within the prepositional domain they lexicalize.[28] The directed motion predicate then may incorporate into v. In Mandarin, this movement is obligatory, and it gives rise to several possible structures depending on what material occupies v and/or intervenes between v and the base position of the directional predicate (Hu 2022, p. 75). In Cantonese, as in Hmong, this movement occurs only occurs when v is not spelled out by a manner predicate,

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[27]Son & Svenonius (2008) employ a (Ramchand-ian) Proc head rather than v; Inagaki (2002) employs several subtypes of P corresponding to Dir, Path, and Place heads.

[28]Hu (2022) has certain directed motion predicates originate in Path and others in Place, while Leung (2023b) has directed motion predicates originate in three heads: Path, Dir, and the proposed Return. Neither analysis decomposes Path itself (Pantcheva 2011, following), as does the present analysis of Hmong.
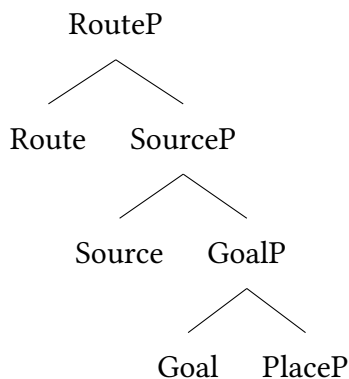
and otherwise the directional predicate remains *in situ* within the prepositional domain (Leung 2023b). uth In the behavior of directed motion predicates themselves, Hmong and Cantonese closely resemble one another in most respects. However, there are two main differences between the patterns observed here and those observed by Leung (2023a,b). First, it is unclear whether Cantonese shows any evidence in favor of the decomposition of Path into Route, Source, and Goal, which is an important point in the present analysis of Hmong. Second, while Hmong allows multiple GROUNDS within a single complex path description, path descriptions in Cantonese, even when complex, are limited to a single GROUND. Although directed motion predicates in the two languages behave quite similarly, these complications mean that more work is needed to reconcile the two analyses with one another.

4.5.3 Decomposition of PathP

The data from Hmong broadly substantiates existing decompositional approaches to the prepositional phrase. Beyond this, however, it offers two important contributions relating to details of the architecture of the Path domain: (i) the position in which Source is encoded, and (ii) the combinatorial properties of Route.

In this thesis, I assume the decomposition of PathP proposed by Pantcheva (2011). A competing proposal comes from Radkevich (2010), which, although broadly similar in its outlines, represents Source and Goal paths not as distinct syntactic heads, but as the result of a single, binary-valued feature on the head M, which corresponds to Path.[29] This type of approach faces challenges in Hmong, since it cannot easily capture the co-occurrence of distinct Source and Goal predicates within a single path-denoting constituent.

(69)   Pantcheva (2011, p. 3)   (70)   Radkevich (2010, p. 98)

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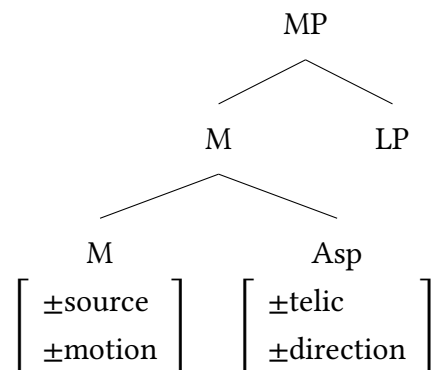
[29]Radkevich follows the terminology of Kracht (2002), in which path relations are encoded by a head M(odalizer), and place relations by a head L(ocalizer).

Pantcheva's approach, on the other hand, is perfectly compatible with Source and Goal morphemes co-occurring. As already mentioned, one of the primary pieces of evidence in favor of this approach is "Source–Goal containment"—that is, Source marking that morphologically incorporate a Goal marker.

The second point relates to the status of Route within this decomposition. As established, Source interpretations are tied to a particular position in the prepositional spine—that is, they are dependent on the presence of a Goal head. Hence, the Source–Goal containment in examples like (71) is mandatory.

(71) kuv **tawm** tsev **mus** tajlaj
      1sg leave home to   market
      'I left (from) home for the market.'

However, though Pantcheva places Route in the same prepositional spine as Source and Goal, Route predicates do not display similar containment of Source or Goal. Route predicates can occur independently as in (72), with only a Goal predicate as in (73), or with both Source and Goal predicates as in (74).

(72) kuv **hla** tus choj
      1sg cross clf bridge
      'I crossed the bridge.'

(73) nws **taug** ib sab ntug dej **tuaj**   (Jarkey 2015, p. 113)
      3sg follow one side edge water hither
      'He's following the river bank (hither).'

(74) cov   Hmoob **hla**   dej   Na.Koom **dim** hauv Nplog-teb **mus** Thai-teb
      clf.pl Hmong across water Mekong from inside Laos   to   Thailand
      'The Hmong crossed the Mekong River from Laos to Thailand.'   (Jarkey 2015, p. 113)

Route predicates also combine in a way not predicted by Pantcheva's decomposition: they may combine recursively with other Route predicates, as in (75).

(75) **taug~taug**   dej **nqis** hav mus   (Jarkey 2015, p. 109)
      rdup~follow.along water descend valley away
      '...follwed the river down the valley away.'

I do not view the more flexible behavior of Hmong Route predicates as a challenge to either of the core proposals of this chapter: that Hmong path predicates are cross-categorial, and that their co-occurrence restrictions reflect the architecture of the prepositional spine. Rather, I believe that this challenges the specific implementation proposed by Pantcheva.

Specifically, the behavior of Hmong Route predicates suggest that Pantcheva's proposed Route head is, in some sense, more independent than either Source or Goal. This is not so surprising when one considers the original body of evidence presented by Pantcheva: while Source–Goal containment is attested in eight of eighty-one languages surveyed (see (58) above), Route–Goal containment is found in only one (Slovak) and Route–Source containment in only two (Akhvakh and Avar) (Pantcheva 2011, pp. 51–53). Certainly Route may obligatorily contain Source or Goal in some languages, but this is a much less common pattern than Source–Goal containment.

I hypothesize that this behavior may be related to an observation from Ramchand (2012, p. 7–8), who claims that at least some Route paths (those describing *through*-type paths rather than *past*-type paths) can directly predicate a Ground, omitting any otherwise-intervening projections.[30] This gets us some of the way to explaining the contrast between Source predicates in (71) and Route predicates in (72–75). However, in Hmong, it seems that Route predicates are even more flexible than Ramchand's observation about English *through* would predict. I cannot offer a full analysis of the flexibility of Hmong Route predicates here; however, I take it that Route in Hmong can combine with PlaceP directly, with GoalP, with SourceP, or in cases like (76), with an additional RouteP.

(76)   tus dev **raws**   kuv **nce** ntaiv rov   mus sau   tsev
       CLF dog follow.after 1SG up   stairs back to   upper.part house
       'The dog followed me up the steps back to the upstairs.'

This flexibility of Route also raises an interesting possibility with regard to the word order of Hmong path predicates and their GROUNDS, as mentioned at the end of Section 4.4.2.2. If Route is genuinely less closely connected to Source than Source is to Goal, it may well be the case that some additional projection(s) merge above Source (and possibly above Route as well). By lexicalizing this hypothetical projection, a Source predicate could then be linearized to the left of the argument in the specifier of SourceP, deriving precisely the observed word order. However, the co-occurence of multiple Route predicates hints that rather than a single additional projection, we need several functional projections, one per Route/Source predicate, to derive the correct word order—a level of complexity for which, at present, there is no supporting evidence. An alternative might be to assume that the ordering of Hmong path predicates and their GROUNDS results from Local Dislocation (Embick & Noyer 2007, Levin 2015) or some similar process of complex head formation,[31] though this assumption may have far-reaching (and potentially undesirable)

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[30]Another example: locative readings of Route predicates can only be derived via an "extended location" use incompatible with both Source and Goal predicates (Svenonius 2010, §3.2).

[31]Thank you to Richard Compton for this suggestion.

consequences for other aspects of Hmong grammar. For the present, I remain somewhat agnostic as to precisely how the correct word order should be derived within complex path descriptions in Hmong.

4.5.4 The extended Path projection

As already alluded to in Section 4.3, decompositional analyses of directed motion PPs have also posited varying amounts of functional structure in addition to the core path-denoting head(s). The examples in (77) schematize several approaches.[32]

(77)   a.   [CP [DxP [AspP [PathP …]]]]   (den Dikken 2010, p. 192)

       b.   [{Bound, Scale}P [PathP …]]   (Pantcheva 2011)

       c.   [DirP [PathP …]]   (Son & Svenonius 2008)

First, note that multiple approaches include some notion of prepositional aspect (Zwarts 2005, den Dikken 2010, Pantcheva 2011, a.o.). At its simplest, this distinguishes between bounded and unbounded paths. Though Pantcheva (2011) does not use the term "aspect", her proposed Bound and Scale operators fulfill this function. They appear in the first functional head above the PathP, in complementary distribution with one another. Bound, seen in (78a), conveys that a path has necessarily reached its endpoint (no further and no less), while Scale, seen in (78b), conveys that a path does not reach its endpoint (it merely proceeds in that direction). At a naive level, the semantic contributions of Bound and Scale resemble those of perfective and imperfective aspect, respectively.[33]

(78)   a.   The boy ran [$_{BoundP}$ up [$_{GoalP}$ to the house]].

       b.   The boy ran [$_{ScaleP}$ -wards [$_{GoalP}$ to the house]].

Second, Son & Svenonius (2008, p. 395) posit a Dir head as something akin to a complementizer in the prepositional domain: a head responsible for embedding a path of motion within a VP. This is argued to explain cross-linguistic variation in the type of verbs which can take a path-denoting complement.

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[32]Labels have been modified for consistency. I use PathP both (i) as an alternative to den Dikken's (2010) P$_{Dir}$P, and (ii) as a generic label encompassing Pantcheva's (2011) RouteP, SourceP, and GoalP.

[33]The morphological realization of English *to-wards* in (78b) is also consistent with Den Dikken's claim that directional prepositions can raise to Asp, though the multi-word status of the structurally-similar *away from the house* shows that this is not mandatory.

However, this structure is not necessarily uniform. The amount of functional structure in the prepositional extended projection can vary, both within a given language (e.g. den Dikken 2010, p. 116) and across languages (e.g. Radkevich 2010, ch. 3).

In the case of Hmong, it is doubtful whether any of these functional projections exist. In Johnston forthcoming, I claim that the path domain in Hmong lacks Pantcheva's (2011) Bound and Scale operators—that is, that the path domain in Hmong lacks Asp. Evidence comes from the behavior of Goal predicates (e.g. *mus* 'go, to'). Although these often imply the attainment of the goal of motion, this implication is defeasible, as (79a) shows. To express a bounded path, a more marked form is required—however, the added morpheme always takes scope below the Goal predicate, rather than above it. As (79b) shows, this morpheme (here the path predicate *txog* 'arrive, up to') obligatorily appears between the Goal predicate and the Ground of motion.

(79)　a.　kuv khiav **mus** tom tajlaj　(tabsis tsis　txog)　　　　　(Johnston forthcoming)
　　　　　1SG run　to　DEM market but　NEG arrive
　　　　　'I ran to that market (but I didn't get there).' ≈ 'I ran towards that market.'

　　　b.　kuv khiav **mus txog** tom tajlaj　(#tabsis tsis　txog)
　　　　　1SG run　to　up.to DEM market　but　NEG arrive
　　　　　'I ran to that market (#but I didn't get there).'

Likewise, there is no clear evidence for the presence of Dir/C in Hmong,and deixis is conveyed in Hmong by the choice of a particular Goal predicate rather than by distinct lexical items like German *her/hin* or archaic English *hither/thither* (see Van Riemsdijk & Huybregts 2001, den Dikken 2010).

The absence of evidence should not be taken as evidence of absence—but in the case of Hmong, this suggests that there is much less functional structure in general than that observed in other languages. I hypothesize that this lack of functional structure plays an important role not only in Hmong, but in other serializing languages. Without this intervening functional structure, lexical items can more easily span the boundary between V and P domains. This may play a key role in enabling the widespread phenomenon of "motion serial verb constructions" cross-linguistically.

5 Culmination entailments in the verbal and prepositional domains

Thus far, we have examined two cases in which the properties of serial verb constructions (or *apparent* serial verb constructions) align with relatively standard assumptions about the decompositional functional structure of the verbal and prepositional domains. These include the direct causative construction (as discussed in Chapter 3) and internally-complex path descriptions (as discussed in Chapter 4). In this chapter, I explore the decomposition of the verbal and prepositional domains in parallel, addressing the so-called "attainment" construction (following Jarkey 2015) which appears in both domains. I present a parallel analysis of the verbal and prepositional variants of the attainment construction, which (i) aligns the behavior of Hmong with decompositional approaches to a well-known typological contrast in the verbal domain, and (ii) attests to a hitherto undescribed typological contrast in the decomposition of the prepositional domain.

Formally, the verbal and prepositional domains are known to encode similar notions of completeness, usually referred to as "culmination" in the V domain (Parsons 1990) and "boundedness" in the P domain (Zwarts 2005).[1] For example, the English perfective example (1a) entails that a house was fully built, and explicitly denying this is understood as contradictory. The imperfective example (1b) lacks such an entailment.

(1)   a. We **built** the house (#but didn't finish building it).
      b. We **were building** the house (but didn't finish building it).

This property is the basis of a well-known typological contrast: perfective Accomplishment verbs in some languages (including English) are culminating; in other languages, such as Hmong, perfective Accomplishments receive a non-culminating interpretation. For example, (2a) asserts that the *building* event has ceased, but does not entail that the *building* event was carried through

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[1]For concision, I will use the term "culmination" in this chapter to conflate the notions of culmination in V and boundedness in P.

to completion—and thus it is not contradictory to explicitly assert that the house remains unfinished.[2] The contrast between "culminating Accomplishment languages" and "non-culminating Accomplishment languages" surfaces only in perfective cases. In imperfective cases like (1b) and (2b), the two types of languages behave similarly.

(2) a. lawv **ua** lub tsev lawm (tabsis tsis ua tau).
        3PL build CLF house PRF but NEG build get.
        'They built the house (but didn't finish building it).'

    b. lawv tabtom **ua** lub tsev (tabsis tsis ua tau).
        3PL IPFV build CLF house but NEG build get.
        'They were building the house (but didn't finish building it).'

A growing body of work ascribes this typological contrast to the semantic contribution of perfective aspect (Filip 1999, Koenig & Muansuwan 2000, Altshuler 2014, 2016, Martin 2019, Martin & Gyarmathy 2019, Nadathur & Filip 2021). Following the terminology of Martin & Gyarmathy (2019), "weak" perfective aspect (found in languages like Mandarin, Hindi, and Hmong) derives an entailment of cessation only, while "strong" perfective aspect (found in languages like English, French, and Russian) derives entailments of both cessation and completion.[3]

In this view, culmination essentially boils down to a mereological property. The lexical meanings of Accomplishment predicates themselves are consistent across languages, and in both types of languages characterize a set containing both total (i.e., complete) and partial (i.e., incomplete) eventualities. That is, Accomplishments are underlyingly non-culminating. Culmination is derived when some operation, such as perfective aspect, restricts or modifies this set of events such that all partial eventualities are excluded, and only total eventualities remain.

This view has two important consequences. First, this means that culmination cannot be reduced to the reflex of any single operator, head, featural valuation, or syntactic structure. Instead, there is a potentially large variety of ways in which culmination might be derived—in principle, any operation that affects the denotation of the property of events might, in one way or another, supply the predicate with the right sort of mereological structure. In Hmong, several strategies can be used to derive a culminating interpretation of an Accomplishment verb; one such possibility is shown in (3), in which the culmination of the Accomplishment *ua* 'build' is entailed by the

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[2]As discussed in Section 2.5, the perfect marker *lawm* in (2a) and the imperfective marker *tabtom* in (2b) are both optional. They are included here to explicitly disambiguate towards perfective/imperfective interpretations. Examples that do not include explicit aspect marking were generally elicited in contexts that make salient a perfective interpretation, as reflected in the English translations used throughout.

[3]Martin & Gyarmathy also distinguish a third type: "standard" perfective aspect, attested in French, which requires completion but not maximality.

addition of a secondary predicate *tau* 'get, attain'. Hmong does not lack the ability to express culmination—it simply requires a different strategy.

(3) lawv **ua** **tau** lub tsev lawm (#tabsis tsis ua tau)
     1PL build get CLF house PERF   but   NEG build get
     'They built the house (#but didn't finish building it).'

Second, if culmination genuinely arises from the mereological structure of the predicate, then culmination is not truly a *verbal* property, but the manifestation in the verbal domain of a deeper, cross-categorial property. And indeed, a rich literature links telicity/culmination in the verbal domain to parallel phenomena in the nominal, prepositional, and other domains.[4]

Hmong makes for an excellent test case to explore both of these consequences. This chapter examines strategies for expressing culmination in Hmong, with a particular focus on the parallelism between the verbal and prepositional domains. I show that in Hmong, Accomplishment verbs and Goal prepositions are not simply formally similar—they also show a distinctive syntactic parallelism. In Hmong, culmination entailments can be derived for both Accomplishment verbs and Goal prepositions using parallel secondary predication constructions. Compare the examples in (4) to those seen in (2–3) above. When the Goal predicate *mus* 'go, to' appears in its unmarked usage, as in (4a), it receives a non-culminating interpretation similar to that of the Accomplishment *ua* 'build' in (2). To derive a culminating interpretation for *mus*, it combines with a secondary predicate has a similar non-culminating interpretation by default, and just as seen for the Accomplishment *ua* 'build' in (3).

(4) a. kuv khiav **mus** tom tajlaj   (tabsis tsis txog)
         1SG run to   DEM market but   NEG arrive
         'I ran to that market (but I didn't get there).'
         ≈ 'I ran towards that market.'

     b. kuv khiav **mus txog** tom tajlaj   (#tabsis tsis txog)
         1SG run to   up.to DEM market but   NEG arrive
         'I ran to that market (#but I didn't get there).'

This chapter begins with a brief review of relevant concepts and literature in Section 5.1. Section 5.2 then explores in more detail the properties of the Hmong secondary predication constructions seen in (3) and (4) above, which I will refer to, following Jarkey (2015), as the "attainment" construction. Section 5.3 develops formally-parallel analyses of the two constructions,

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[4]On the parallels between V and N, see Link (1983), Bach (1986), Krifka (1989, 1998), and Verkuyl (1993); between V and P, see Zwarts (2005, 2008), Tortora (2008), and den Dikken (2010); between several categories, see Ramchand (2008) and Champollion (2015, 2017).

building on recent work by Nadathur & Filip (2021) and Martin et al. (2021), and others. This approach treats the verbal attainment construction as an example of "result augmentation" (in the sense of Ramchand 2008), where a causal relation between an event and a result state leads to a culminating interpretation. The prepositional attainment construction is represented similarly, modulo categorial differences: a concatenation relation (Zwarts 2005) between a path and an endpoint likewise leads to a culminating interpretation. Section 5.4 briefly explores the extension of this approach to other constructions in Hmong, and Section 5.5 concludes by addressing the consequences of this approach for the study of culmination and boundedness cross-linguistically, and offers an important prediction about a possible typological pattern in the prepositional domain.

5.1 Background

Accomplishment predicates are famously subject to the so-called "imperfective paradox" (Dowty 1979, see also Bach 1986). Though not strictly paradoxical, the basic issue is thus: telicity is taken as a defining property of Accomplishment predicates, yet imperfective Accomplishments are naturally understood to be atelic. As Dowty observes, (5a) does not entail (5b).

(5)   a. John was drawing a circle.   (Dowty 1979)

         b. John drew a circle.

Approaches to this puzzle fall into two main groups, which are primarily differentiated by their assumptions regarding the underlying lexical semantics of Accomplishment predicates.

In the first approach, uninflected Accomplishments are taken to include only total (i.e., culminating) eventualities. Non-culminating uses of Accomplishments, as in (5a), depend on an intensional operator (usually equated with progressive/imperfective aspect) which places the culminating eventuality in some modal alternative to the world of evaluation (Dowty 1977, 1979, Asher 1992, Landman 1992, Bonomi 1997, Martin 2019, a.o.). The world of evaluation itself need only contain some part of this culminating eventuality, hence (5a) must involve some *drawing*, but this need not result in a completed circle. The culminating meaning of (5b), in this approach, simply reflects the underlying meaning of the predicate.[5]

In the second approach, uninflected Accomplishments are taken to include both total and partial eventualities. This approach likewise involves modality, but the modal component is inherent to the meanings of telic predicates themselves: an Accomplishment predicate characterizes a

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[5]The major challenge to approaches of this type is in ensuring that the partial eventuality instantiated in the world of evaluation is one that intuitively counts as a part of the culminated eventuality (see Nadathur & Filip 2021).

set including all total (i.e., culminated) events of the relevant type, plus all parts thereof (Filip 1999, Koenig & Muansuwan 2000, Filip & Rothstein 2005, Altshuler 2014, 2016, Nadathur & Filip 2021, a.o.). In this case, the non-culminating meaning of (5a) reflects the underlying meaning of the predicate, though again there must be some modal alternative in which the *drawing* does, in fact, result to a completed circle. The culminating meaning of (5b) results from the semantic contribution of perfective aspect.

I adopt an approach of the second type, which offers a more straightforward treatment of the contrast between culminating Accomplishment languages and non-culminating Accomplishment languages. As already mentioned, the (un)availability of a culminating reading in simple perfective contexts is driven by the strength of a maximality operator within perfective aspect (Martin 2019, Nadathur & Filip 2021).

5.2 Culmination via secondary predication

5.2.1 The "attainment" construction

As already seen, Hmong is non-culminating Accomplishment language of Martin's (2019) "weak perfective" type: perfective Accomplishments convey cessation, but not completion, of the action described. For example, the examples in (6) are felicitous even in a context where the event does not reach its goal (as the continuations makes expressly clear). In (6a), the object of *nrhiav* 'search for, find' is not successfully located, in (6b), the object of *ua* 'build' is not fully completed, and so on.

(6) a. kuv **nrhiav** lub pob (tabsis tsis nrhiav tau).
         1SG find   CLF ball but   NEG find   get
         'I found the ball (but I didn't find it).'

            ≈ 'I searched for the ball.'

     b. lawv **ua**   lub tsev   lawm (tabsis tsis ua   tau).
         3PL   build CLF house PRF   but   NEG build get
         'They built the house (but didn't finish building it).'

     c. kuv **tua**   tus noog (tabsis tsis tua   tau).
         1SG shoot CLF bird   but   NEG shoot get
         'I shot the bird (but I didn't shoot it).'

            ≈ 'I shot at the bird.'

To explicitly convey culmination, a more marked form is required. One common and productive strategy for expressing culmination in Hmong involves secondary predication. As

shown in (7), an Accomplishment predicate may combine with an Achievement predicate to describe a necessarily-culminating complex event. For example, (7a) describes an event in which an action of *finding* resulted in a successful *seeing*, (7b) describes an event in which an action of *building* resulted in a successful *getting*, and (7c) describes an event in which an action of *shooting* resulted in a successful *hitting*.

(7)   a. kuv **nrhiav pom** lub pob (#tabsis tsis nrhiav tau)
         1SG find   see   CLF ball but   NEG find   get
         'I found the ball (#but I didn't find it).'

      b. lawv **ua   tau** lub tsev   lawm (#tabsis tsis ua   tau)
         1PL build get   CLF house PERF   but   NEG build get
         'They built the house (#but didn't finish building it).'

      c. kuv **tua   raug** tus noog (#tabsis tsis tua   tau).
         1SG shoot hit   CLF bird but   NEG shoot get
         'I shot the bird (#but I didn't shoot it).'

These constructions are referred to as "Attainment Serial Verb Constructions" by Jarkey (2015). For convenience, I will borrow this term, and refer to secondary predication structures like those in (7) as the "attainment construction".[6]

Importantly, the attainment construction can also be formed in the prepositional domain. Goal predicates in Hmong, which as argued in Chapter 4 are underlyingly prepositional, do not by themselves entail that the Goal of motion is reached. For example, the Goal predicate *mus* 'go, to' implies (in a neutral context) that the Goal was reached, but this implication is defeasibly: as (8) shows, the use of a Goal predicate like *mus* 'go, to' is felicitous even when arrival at the Goal is explicitly negated.[7] Similar behavior can be observed with other path predicates, including Route predicates like *raws* 'follow after, after' in (8b).

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[6]This terminology may originate with Enfield's (2003) use of the term "attainment" to describe "the realisation in fact of a predication", a notion similar to that of "actuality" (in the sense of Bhatt 1999). My use of the term "attainment construction" should not be taken as implying either (i) that this is the *only* construction in Hmong capable of expressing the attainment of a goal, or (ii) that this construction simply supplies an actuality entailment.

[7]Although the prepositional usage of *mus* 'go, to' in (8) resembles English *towards* in its meaning, the two are not equivalent. While *mus* defeasibly implies that the goal was reached, *towards* carries no such implication. While *mus* is morphologically simplex, *towards* is morphologically complex (decomposting into *to* and *-wards*). And while *mus* is the default, unmarked path predicate in Hmong, this role in English is filled by *to* rather than *towards*. In all respects aside from culmination, Hmong *mus* more closely resembles English *to* than English *towards*, and even in this respect *mus* and *to* may be similar: Martin et al. (2021) provide experimental evidence that the culmination of *to* may also be defeasible in certain contexts. Because of this, I will continue to gloss the prepositional usage of *mus* as 'to' throughout this work.

(8)   a. kuv khiav **mus** tom tajlaj   (tabsis tsis txog)
          1SG run   to   DEM market but   NEG arrive
          'I ran to that market (but I didn't get there).'

      b. kuv **raws**   lawv
          1SG follow.after 3SG
          'I followed them.' (But I didn't catch them.)

To entail that the Goal was reached, a more marked form must again be used. This may involve an attainment construction similar to that observed in the verbal domain, in which the inclusion of a secondary predicate entails that the goal of the main predicate is reached. For example, the addition of *txog* 'arrive, up to' in (9a) leads to the entailment that the goal of motion was reached—unlike in (8a), it is no longer felicitous to deny this.

(9)   a. kuv khiav **mus txog** tom tajlaj   (#tabsis tsis txog)
          1SG run   to   up.to DEM market but   NEG arrive
          'I ran to that market (#but I didn't get there).'

      b. nws **raws**   **cuag** lawv
          3SG follow.after up.to 3PL
          'He caught up to them.'

There are clear conceptual and surface-level parallels between the examples in (6–7) and those in (8–9), but the key difference bears repeating. As argued in Chapter 4, path predicates in Hmong lexicalize a consistent underlying prepositional syntax, even when they also serve as the "main verb" of the clause as in (10a–b). Whether or not an overt manner of motion or transfer verb is present (such *khiav* 'run' in (8–9) above), the prepositional constituent responsible for describing the path of motion (i) consistently merges as complement to *v*, and (ii) has a consistent internal structure.

(10) a. kuv **mus** tom tajlaj
          1SG go   DEM market
          'I went to that market.'

      b. kuv **txog** tom tajlaj
          1SG arrive DEM market
          'I got to that market.'

In the attainment construction, both predicates contribute their typical truth-conditional meaning. That is, this construction conveys that an action described by the Accomplishment predicate in V_1 position (necessarily) reaches an endpoint described by the Achievement predicate

in V_2 position. For example, the events of *finding* in the minimal pair in (11a–b) are understood to conclude in different ways.[8] Similarly, the paths of motion expressed in the minimal pair in (12) are understood to end in different spatial relations; it is felicitous to say that one goes *ti* 'close to' or *ze* 'near' a person, but under ordinary circumstances, it is not felicitous to say that one goes *rau* 'to, into' a person.

(11) a. kuv **nrhiav pom** tus nas
          1SG find   see   CLF mouse
          'I found (≈spotted) the mouse.'

     b. kuv **nrhiav tau** tus nas
          1SG find   get   CLF mouse
          'I found (and caught) the mouse.'

(12) CONTEXT: I saw Tou at a party, so I went over to talk to him.

     a. kuv **mus ti/ze**   ntawm Tub
          1SG go   close.to/near nearby Tou
          'I went close to Tou.' ≈ 'I went up to Tou.'

     b. #kuv **mus rau**   ntawm Tub
          1SG go   (in)to nearby Tou
          Intended: 'I went to Tou.'

In spite of the categorial differences between the Accomplishment/Achievement predicates in (6–7) and the Path predicates in (8–9), both allow a version of this attainment construction. In both domains, the main predicate has a potentially large temporal/spatial extent, and may be oriented towards (but need not reach) a particular endpoint. Likewise, the secondary predicate in both domains represents a minimal temporal/spatial transition. In Section 5.3, I formalize the intuition that the secondary predicate provides the main predicate with its "missing" endpoint.

5.2.2 Word order

As may already be obvious, the two versions of the attainment construction feature a similar V_1–V_2–O word order. This word order is not common among other complex predicates in Hmong. (13) compares both versions of the attainment construction with a variety of other complex predicates: the direct causative (seen in Chapter 3), the caused motion and manner-of-motion constructions (seen in Chapter 4), the "created-result" construction (see Section 5.4 below), and

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[8]The appearance of the verb *tau* 'get, attain' in examples like (7b) and (11b) complicates this picture somewhat. A homophonous particle *tau* also exists, which lacks the lexical-encyclopedic content of its verbal counterpart and serves as a generic marker of result. This lexical item will be addressed briefly in section 5.4.

the so-called "Disposal" construction (Jarkey 2015, p. 170). In general, these constructions appear with V_1–O–V_2 word order. Only the manner-of-motion construction in (13e) shares the attainment construction's V_1–V_2–O word order, but that ordering clearly arises from a distinct underlying structure.

(13) a. *Attainment construction (verbal):*

kuv **nrhiav pom** lub pob
1SG find   see CLF ball
'I found the ball.'

b. *Attainment construction (prepositional):*

kuv (khiav) **mus txog** tom tajlaj
1SG (run)   to   at   DEM market
'I ran/went to that market.'

c. *Direct causative construction:*

nws **tsoo** lub tais **tawg**
3SG smash CLF bowl break
'He smashed the bowl (and it) broke.'

d. *Caused motion construction:*

kuv **txib**   Sua **mus** tajlaj
1SG **dispatch** Shoua **to** market
'I sent Shoua to the market.'

e. *Manner-of-motion construction:*

kuv **khiav mus** tajlaj
1SG run   to   market
'I ran to the market.'

f. *"Created-result" construction:*

nws **xaws** daim ntaub **ua** (daim) tiab
3SG sew   CLF cloth as (CLF) dress
'She sewed the cloth into a dress.'

g. *"Disposal" construction:*   (Jarkey 2015, p. 170)

nws **pov**   nws rab hneev   **tseg**
3SG throw 3SG CLF crossbow leave_TR
'He threw his crossbow away.'

The contrast between (13a–b) and most other complex predicates in Hmong is not accidental. I will argue that the similar word order in (13a–b) arises because they take an internal argument

not in specifier position (as does, for example, the direct causative discussed in Chapter 3) but in complement position.[9] This contrast will be revisited in Section 5.4 below.

5.2.3 Atelic predicates in the attainment construction

Although the discussion thus far has focused on telic predicates (Accomplishment verbs and Goal prepositions), the attainment construction can also be formed with atelic predicates. Jarkey (2015, p. 159) demonstrates that Activity verbs can occur as V_1, co-occurring with a V_2 that describes the achievement of some contextually-salient goal, outcome, or standard. For example, in the context of a jumping competition, the Activity *dhia* 'jump' might combine with the Achievement *yeej* 'win' as in (14a). When attempting to speak in accordance with a particular standard, the Activity *hais* 'speak, say' might combine with the Achievement *raug* 'hit the mark' as in (14b). Activities in the attainment construction are necessarily construed as oriented towards a particular goal.

(14)   a. yog koj **dhia yeeb**   kuv no ces cia   li, …   (Jarkey 2015, p. 159)
            COP 2SG jump overcome 1SG DP then set.aside as

            'If you outjump me (i.e., jump further) then we'll leave it at that…'

       b. kuv puas **hais raug** lo   ntawd?   (Jarkey 2015, p. 159)
            1SG Q   speak hit   CLF that

            'Did I say that right?'

In actual fact, Jarkey makes a much broader claim: that many apparent Accomplishment verbs in Hmong are instead "goal-oriented Activities", meaning that Activity verbs are widespread in the attainment construction (Jarkey 2015, pp. 147–159). Primary evidence for this view is the compatibility of predicates like *nrhiav* 'search for, find' and *tua* 'shoot' with durative temporal adverbials, as shown in (15) and (16), respectively.

(15)   hnub no, kuv nrhiav kuv nti nplhaib [ib   hnub nkaus]   (Jarkey 2015, p. 149)
       day   this 1SG find   1SG CLF ring   one day whole

       'Today, I searched for my ring all day long.'

(16)   nws tua   liab   [ntev li ib teev]   (Jarkey 2015, p. 149)
       3SG shoot monkey long as one hour

       'He shot at monkeys for an hour.'

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[9]I take this structural distinction to correlate with certain interpretive differences: following Ramchand (2008), arguments in complement position (RHEMES, in Ramchand's terms) describe a path or scale along which an event proceeds, while arguments in specifier position are genuine participants in the event.

However, there are two issues with the evidence provided. First: although durative adverbials are typically assumed to be incompatible with perfective Accomplishments, this is not strictly true. A growing body of evidence demonstrates that at least a subset of Accomplishment verbs may combine with durative adverbials given appropriate contextual support (Martin 2019, pp. 4–5; see also Bertinetto & Squartini 1995, Zucchi 1998, Tatevosov 2002, Smollett 2005, Rappaport Hovav 2008, Piñón 2008, Bott 2010, Deo & Piñango 2011, Kennedy 2012, Champollion 2013, Arche 2014, Bott & Hamm 2014). In culminating Accomplishment languages like English, this conveys a defeasible implication of non-culmination. In culminating Accomplishment languages like Hmong, it is not clear whether such an implication is predicted, though as (17) shows, a sentence like (15) can be used whether or not the reported event was successfully completed.[10]

(17)   Example (15) in context:

  a. CONTEXT: I searched for my ring all day, but didn't find it. → ✓

  b. CONTEXT: I searched for my ring all day, and finally found it. → ✓

Second: at least some examples provided by Jarkey permit iterative readings. For example, (16) above is felicitous in a context like that given in (18) below, in which multiple acts of *shooting* occurred. The combination of durative adverbials with this sort of iterative reading is expected, and does not necessarily reflect the underlying aspectual class of the predicate *tua* 'shoot'.

(18)   Example (16) in context:

  CONTEXT: He shot at monkeys several times over the course of an hour. → ✓

Given these confounds with Jarkey's classification, I maintain my original assumption: that verbs like *tua* 'shoot' and *nrhiav* 'search for, find' are genuine Accomplishments. Despite this, examples like (14) are compelling evidence that Activities do participate in the attainment construction. This means that our analysis of the attainment construction cannot be specific to Accomplishment predicates; rather, it must apply similarly to both Accomplishments and Activities. I hypothesize that the first predicate in the (verbal) attainment construction is not characterized by situational aspect class *per se*, but by a property shared among Accomplishments and Activities: durativity.

Support for this hypothesis comes from analogous behavior in the prepositional attainment construction. Just as an Accomplishment may be replaced by an Activity, so too can a (telic)

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[10]For instance, the implication of non-culmination described for English durative-marked Accomplishments might arise from competition with unmarked, culminating Accomplishments. In Hmong, unmarked Accomplishments are not culminating, so similar competition would not derive the same implication.

Goal predicate be replaced by an atelic Route predicate (provided that there is some contextually-salient destination). For example, the Route predicate *nce* 'ascend, up(wards)' may combine in the attainment construction with a predicate describing the attainment of that goal, such as *nto* 'reach (a high place), up to', as shown in (19).

(19)   lawv **nce**   **nto**   lub rooj
       3PL   ascend up.to CLF mountain
       'They climbed to the top of the mountain.'

The predicate *nce* 'ascend, up(wards)' does not require the existence of a particular goal, and neither does it convey (when used in isolation) that a goal was reached. It does, however, require that the path of motion has at least some spatial extent. (Unlike for example *nto* 'reach (a high place), up to', which describes a minimal transition into a locative relation).

This allows us to give a consistent characterization of both versions of the attainment construction: the initial predicate in both cases must have spatio-temporal extent. It is commonly oriented towards a goal (that is, it is an Accomplishment verb or Goal preposition), though it may instead be atelic (that is, an Activity verb or a member of a certain subset of Route prepositions). In the latter case, the felicty of the attainment construction appears to depend on the existence of some contextual goal.

5.2.4 Interim summary

The Hmong attainment construction comprises two predicates linearly adjacent to one another. The object (when present) follows the second predicate. In the verbal version of the construction, these predicates surface as an Accomplishment/Activity and an Achievement, respectively, while in the prepositional version, they surface as a Goal/Route predicate and a Transition predicate. Importantly, these aspectual class restrictions can be understood in a more fundamental way: regardless of their syntactic category, the first predicate necessarily has spatio-temporal extent, while the second predicate necessarily describes a minimal transition. In the following section, I present a mereological analysis of the attainment construction that leverages precisely these properties.

5.3 Analysis

The verbal and prepositional secondary predication constructions presented in Section 5.2 have a high degree of syntactic and semantic similarity. In this section, I propose that these constructions

instantiate parallel structures, modulo (i) the syntactic categories they spell out, and (ii) the semantic type of the individual they predicate. I model the verbal case as a complex event, formed from two causally-linked (sub-)events (following Ramchand 2008), and the prepositional case as a complex path, formed from two concatenated (sub-)paths (following Zwarts 2005).

I propose that the culminating Accomplishment construction in (7) can be represented as in (20). In the spirit of Ramchand (2008), the Accomplishment itself merges in v, with the secondary predicate as head of its complement Res(ult)P. This resembles analyses of resultatives and verb-particle constructions in other languages (see e.g. Ramchand 2008, Folli & Harley 2020, Acedo-Matellán & Kwapiszewski 2024).

(20)
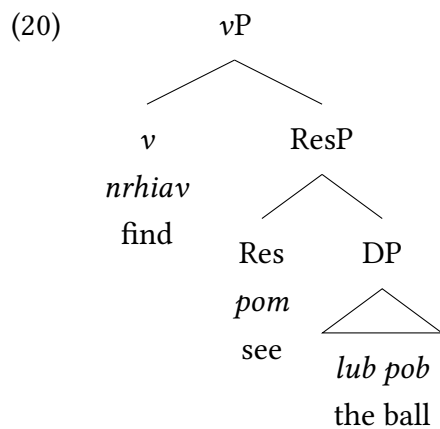
In this treatment, ResP describes a simple property of events of *seeing the ball*, as in (21a), while v (after combining with *nrhiav* 'search for, find') receives the denotation in (21b). This is a slight simplification of Ramchand's (2008, p. 45) denotation for *proc(ess)*.[11] This v then takes ResP as its complement, deriving the complex event description in (21c). This describes a complex event with two parts, a *searching* sub-event and a *seeing* sub-event, such that the first causes the second.

(21)   a. $[\![\,\text{ResP}\,]\!] = \lambda e.see(e, \text{the-ball})$

       b. $[\![\,v\,]\!] = \lambda P_{\langle v,t\rangle}\lambda e.\exists e_1, e_2[e = e_1 \oplus e_2 \wedge \text{CAUSE}(e_1, e_2) \wedge find(e_1) \wedge P(e_2)]$

       c. $[\![\,v\text{P}\,]\!] = \lambda e.\exists e_1, e_2[e = e_1 \oplus e_2 \wedge \text{CAUSE}(e_1, e_2) \wedge find(e_1) \wedge see(e_2, \text{the-ball})]$

Following the discussion of causation in Section 3.3.3, the causal relation between two lexical verbs (in this case *nrhiav* 'find' and *pom* 'see') necessarily gives rise to a direct causal interpretation.

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[11]Here $\langle v, t \rangle$ is the semantic type of properties of events. For consistency with the approach outlined in Chapter 3, I assume that v and Res combine with their corresponding roots by function application, though I omit this step from the derivation in (20–21).

Importantly, this causal relation also supplies a culmination entailment for free. To assert the existence of a complex event e (as described by (21c) above) also asserts the existence of its two parts: that is, both a *finding* e_1 and a *seeing* e_2 must occur. In general, this alone is not sufficient; recall that, as discussed for the Hmong direct causative construction in Section 3.2.3, asserting the *actuality* of the effect does not necessarily also assert its *culmination*. In this case, however, the two are equivalent. This is because the effect in the attainment construction is an Achievement. Following Piñón (1997), Achievements are minimal events—that is, they have no proper parts. For an Achievement to occur at all, it must occur in totality. This means that the entire complex predicate in (21c) is understood to culminate in precisely the endpoint that the Achievement secondary predicate describes.[12]

Turning now to the culminating Goal constructions in (9), repeated below, we must first carefully consider what the meanings of the individual predicates are. In such cases, predicates like *mus* 'go, to', *txog* 'arrive, up to', *raws* 'follow after, after', or *cuag* 'reach, up to' do not offer any description of the manner of motion. Rather, they describe the geometric properties of the path of motion, which might include (i) its deictic orientation, (ii) its orientation with respect to the GROUND of motion, and (iii) limits on its spatial extent. These are not predicates of events, but predicates of paths.

(9) a. kuv khiav **mus txog** tom tajlaj   (#tabsis tsis txog)
        1SG run   to   up.to DEM market   but   NEG arrive
        'I ran to that market (#but I didn't get there).'

     b. nws **raws**   **cuag** lawv
        3SG follow.after up.to 3PL
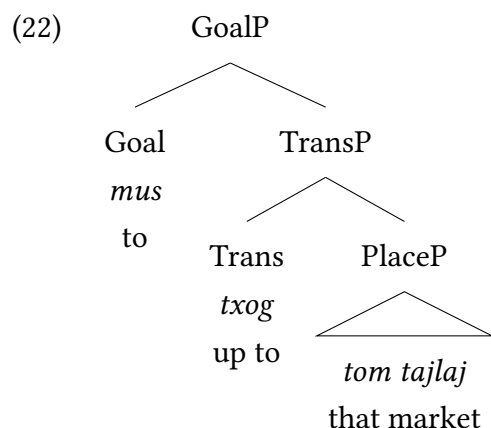   'He caught up to them.'

The meaning of *mus* 'go, to' appears largely consistent with the meaning for English *to* described by Martin et al. (2021): *mus* characterizes a set comprising both total and partial paths to/toward particular locations. Essentially, *mus* can apply to any goal-oriented path.[13] The predicate *txog* 'arrive, at', on the other hand, appears to impose a stricter constraint on the paths it describes: it describes a set of minimal paths into a locative relation. That is, *txog* 'arrive, at' describes a path consisting of two points, an origin point at which the figure is not located at the ground, and a terminal point at which the figure is located at the ground. *Txog* 'arrive, at' is not the only Hmong predicate describing this sort of bounded path; rather it is one member of

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[12]The present proposal is similar to Martin & Gyarmathy's (2019) analysis of "complex verbs" in Mandarin and Hindi, which also relies on the notion that Achievement predicates are atomic, and therefore necessarily culminating.

[13]Though *mus* 'go, to' is often dispreferred for paths towards the deictic center, due to competition with *los* 'come (home), to' and *tuaj* 'come, to'.

a class of approximately half a dozen such predicates, including *nto* 'reach (a high place)', *cuag* 'reach (something moving), catch up to', and others. Effectively, these paths are the prepositional analogue of Achievement verbs: they also describe an atomic, necessarily-total transition. For convenience, I adopt the term "Transition predicates" for this class of path predicates.

We can now begin to see how culmination might also be derived by secondary predication in the prepositional domain. I propose that both *mus* 'go, to' and *txog* 'arrive, at' merge within the Path domain, the higher of the two prepositional domains in the decompositional approach originally due to Jackendoff (1983), and the locus of dynamic directed motion. I disambiguate between the two Path heads in this structure by referring to the higher as Goal and to the lower as Trans (for "Transition").[14] Goal hosts predicates that, like *mus* 'go, to', describe motion along a potentially long path towards a goal, while Trans host predicates that, like *txog* 'arrive, at', describe a punctual transition into a locative relation.

(22)   GoalP

      Goal   TransP
      mus
      to
            Trans   PlaceP
            txog
            up to   *tom tajlaj*
                   that market

A mechanism for joining two paths already exists in the literature on prepositional paths: the concatenation operation over paths outlined by Zwarts (2005). Concatenation, represented here by +, is a partial operation defined only when the second path begins where the first path ends. It joins two paths end-to-end, and is undefined if the two paths in question do not share an endpoint.

With this concatenation operation, the intuitive meaning of the structure in (22) can be formalized. TransP receives the denotation in (23a), where *arrive* is a placeholder for the minimal geometry associated with *txog* 'arrive, at' and other Transition predicates. Goal receives the

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[14]Although the "Transition" head is a novel proposal, not found in Pantcheva's (2011) decomposition, the label is borrowed from Pantcheva's characterization of bounded paths as involving a *transition* out of one spatial domain and into another. I prefer that label, which mnemonically aligns with this head's function in deriving "transitional paths" Pantcheva (2011, p. 14), just as (for example) Goal derives goal-oriented paths and Result derives result states. One might instead refer to this as a telic or bounding head, though if so, one must take care to distinguish this from the higher aspectual head responsible for telicity/boundedness alternations in languages like English.

denotation in (23b),[15] then combines with its complement TransP to yield the complex property of paths in (23c). This property characterizes a set of paths which have both Goal and Transition components, and just as in the verbal domain, this results in a culminating interpretation: all paths in the set characterized by (23c) must contain a Transition path component, and Transition paths necessarily attain the goal of motion.

(23) a. $[\![\, \text{TransP} \,]\!] = \lambda p.arrive(p_2) \wedge p_2(1) = \text{location(that-market)}$

   b. $[\![\, \text{Goal} \,]\!] = \lambda P_{\langle p,t \rangle}.\lambda p.\exists p_1, p_2[p = p_1 + p_2 \wedge to(p_1) \wedge P(p_2)]$

   c. $[\![\, \text{GoalP} \,]\!] = \lambda p.\exists p_1, p_2[p = p_1 + p_2 \wedge to(p_1) \wedge up.to(p_2) \wedge p_2(1) = \text{location(that-market)}]$

Conceptually, the two secondary predication constructions discussed here are the same. By adding a necessarily-culminating transition, whether by causation or concatenation, an otherwise non-culminating predicate gains a culmination entailment. And given the similar meanings proposed for Accomplishment and Goal predicates, this sort of parallelism seems only natural.

5.4 "Result augmentation" constructions

The analysis outlined in the preceding section falls under the umbrella of "result augmentation", a term coined by Ramchand (2008) to refer to a variety of processes that involve the addition of a ResP constituent, including adjectival resultatives, English verb–particle constructions, Slavic lexical prefixes, and Indo-Aryan light verb constructions. Despite sharing a common core function, these cross-linguistic examples show great diversity of form—even with specific languages (for example English).

This leads to a prediction: if what derives culmination entailments in Hmong is the simple combination of two heads within the verbal projection, then we might expect to find a variety of structures which share this common core, but which have superficially distinct properties.

In this section, I show this expectation to be borne out. Several other result augmentation constructions exist in Hmong, which (among other functions) likewise derive entailments of culmination. Here, I briefly review five such constructions, which I divide into two groups: those that differ from the attainment construction in argument structure, and those that lexicalize Res with functional predicates rather than lexical verbs. With minor modifications, all can be captured by the syntactic structure proposed in Section 5.3. I then discuss the apparent lack of similar flexibility in the prepositional domain.

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[15]Note that (23b) represents only the "flavor" of Goal that combines with Trans. To combine with another type of complement (e.g., a PlaceP), a different semantics is needed. For consistency, I again assume that a syncategorematic rule combines Goal and its root—though again, this is not crucial.

5.4.1 Argument-structural variation in result augmentation

This section discusses three types of serial verb construction that, like that attainment construction, derive an entailment of culmination. For each, I briefly describe its properties and sketch a variation on the structure outlined in Section 5.3.

First, the verbal attainment construction also has an intransitive variant, as shown in (24). These arise when both verbs are intransitive, and the single argument is interpreted as the subject of both sub-events. This variant can be represented with a structure like that in (25), which primarily differs from (20) in that there is no DP argument of Res.[16]

(24) lub tais **poob tawg**
      CLF bowl fall   break
      'The bowl fell (and) broke.'

(25)
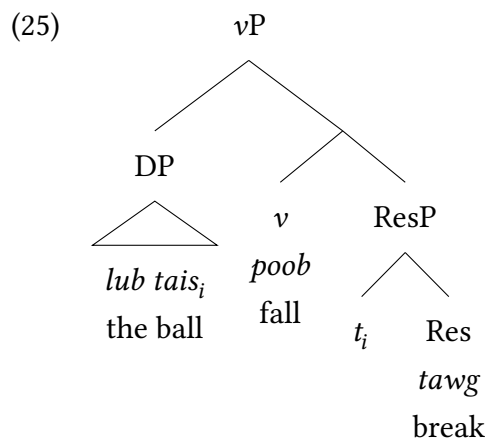
Second, certain examples discussed in respect to the direct causative construction, such as (26) below (reprinted from (47) in Chapter 3), may be more properly considered versions of the attainment construction, in that the key causal relationship is not between v_{CAUSE} and v, but between v and Res, as the structure already proposed in Chapter 3 (reprinted as (27) here) illustrates.

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[16]Following Ramchand (2008, p. 61), one might claim that the complement of Res is filled by a contextual variable in such cases (though I do not represent this variable here).

(26) lawv **ua**　lub tsev　**loj~loj**
　　 3PL　build CLF house RDUP~be(come).big
　　 'They built the house really big.'

(27) 　　　VoiceP
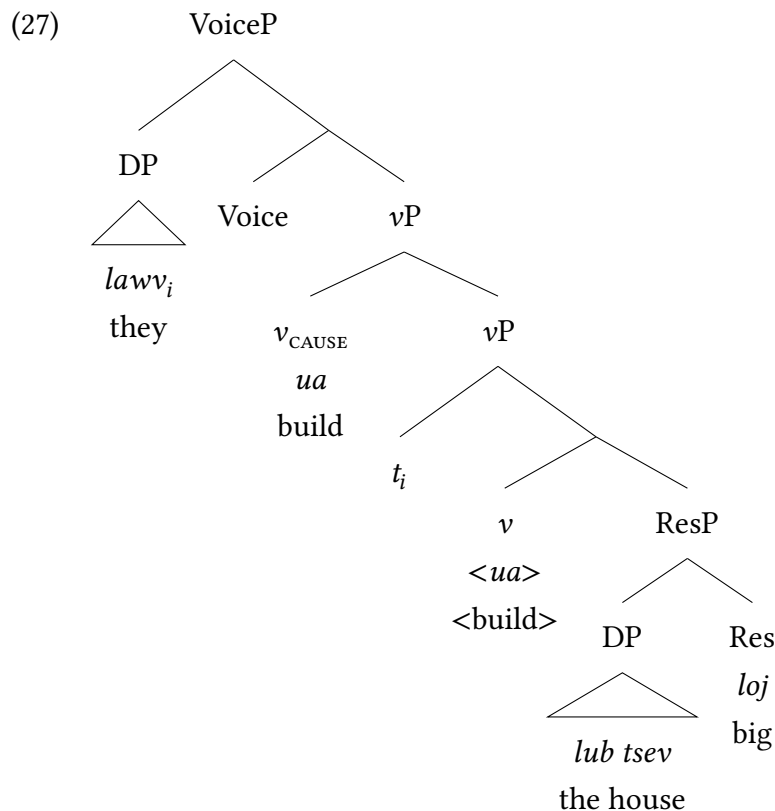
Third, a subset of so-called "Disposal" serial verb constructions Jarkey (2015, pp. 170–181) may also be compatible with this treatment. Disposal constructions from this subset, for example (28), feature a durative V$_1$ and an Achievement V$_2$, precisely as in the attainment construction. The major difference is in the position and interpretation of the object: it surfaces between the two verbs rather than following them, and it intuitively appears to function as a genuine participant within the event. These two changes are correlated with one another in Ramchand's (2008) decompositional model of the first phase, with participants appearing in specifier position and path-denoting "rhemes" in complement position. Making this simple change in the position of the object gives the structure in (28).

(28)   nws **pov**   cov   khob **tseg**
        3SG throw CLF.PL cup   leave
        'They threw the cups away.'

(29)
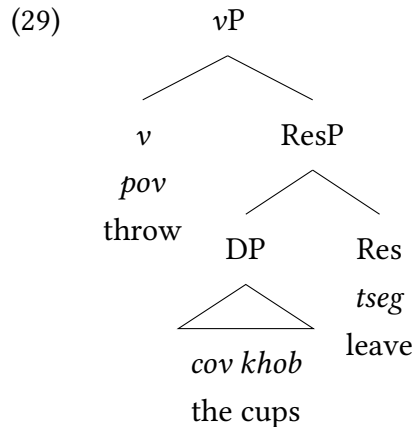
However, please note that the Disposal SVC as characterized by Jarkey is highly heterogeneous, and the structure in (29) can by no means be generalized to all (or even most) of these examples Jarkey provides.

The existence of several variations on the same basic *v*–Res configuration supports the present analysis. Since nothing hinges on the argument structure of the two predicates, we correctly predict that variability in argument structure should be possible.
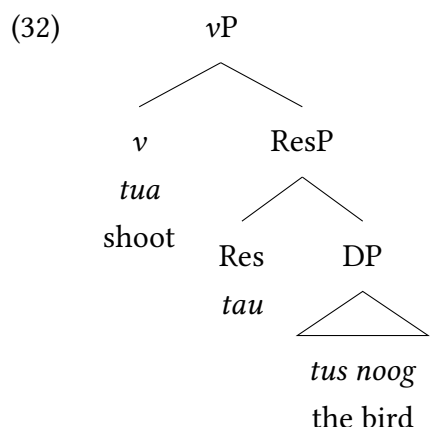
5.4.2 Functional result predicates

Hmong also exhibits two structures which have similar event structure to the attainment construction (and the three related constructions in Section 5.4.1), but which appear to be formed with a functional morpheme rather than a lexical verb in the position of the second predicate.

The first is parallel, word-for-word, with the attainment construction, with the key distinction being the use of the highly polysemous lexical item *tau* in place of the second verb. As shown in (30–31), the addition of *tau* supplies a culminating interpretation to an Accomplishment predicate, without necessarily contributing any particular lexical-semantic restrictions on the result state.

(30)   kuv **tua**   **tau** tus noog
        1SG shoot TAU CLF bird
        'I (successfully) shot the bird.'

(31)   kuv **sau**   **tau** phau.ntawv
        1SG write TAU book
        'I wrote (≈ finished writing) the book.'

(32)

```
                    vP
                   /  \
                  v    ResP
                 tua   / \
                shoot Res   DP
                      tau   /\
                          /    \
                         tus noog
                         the bird
```

However, *tau* also appears as a lexical verb meaning 'get, acquire, attain', which commonly participates in the attainment construction (see for example (7b) above). Because of this, it's not clear whether *tau* in these examples genuinely serves as a functional morpheme, or whether it appears in a semantically bleached version of its verbal sense. If the former, its role is akin to the affixes or prepositional particles that lexicalize Res in other languages (Ramchand 2008). If the latter, these examples can be entirely subsumed under the analysis given in Section 5.3 above.

The second of these is a "created-result construction" (following the terminology of Folli & Harley 2016, 2020) not previously attested in Hmong.[17] Several variants of this construction are found in Hmong, which are similar save for the element that introduces the created result. This may be either the polysemous functional verb *ua* 'make, do, be as', as in (33a–b), or it may be the preposition *rau* 'to, for, into', as in (33b). No syntactic or semantic differences between the two cases are attested.

(33) a. daim ntawv **ntuag ua** ob   daim
         CLF   writing tear   as two piece
         'The paper tore into two pieces.'

      b. nws **xaws** daim ntaub **ua/rau** (daim) tiab
         3SG sew   CLF cloth as/into (CLF) dress
   'She sewed the cloth into a dress.'

Folli & Harley's proposed syntax for the English created-result construction, which I adopt in (34), neatly coincides with the structure of the attainment construction proposed in Section 5.3,

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[17]The name of this construction refers to the third alternant of the *carve/sculpt* alternation described by Levin (1993)—that is, to the construction in (iii).

  (i)   *Product/Creation:* Maria carved a doll.   (Folli & Harley 2020)
  (ii) *Material/Result:* Maria carved the wood.
  (iii) *Created Result:* Maria carved the wood into a doll.

modulo the presence of both specifier and complement (i.e., participant and rheme) arguments within ResP.

(34)
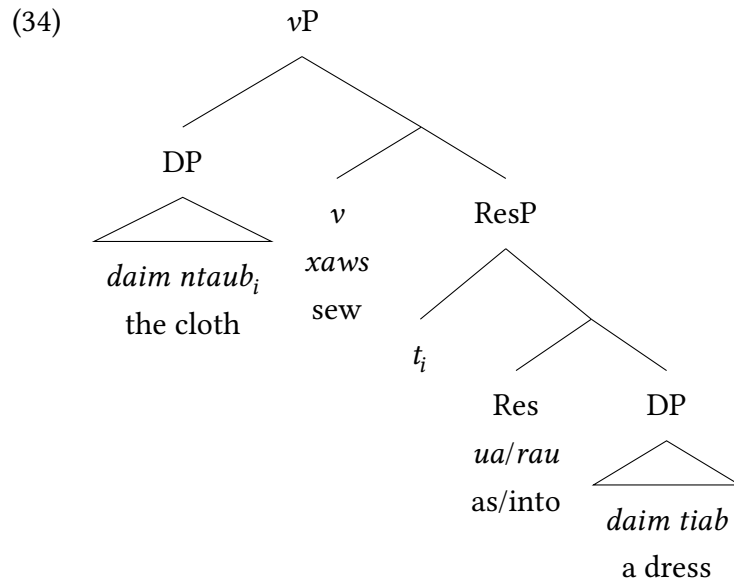
The two constructions presented in this section likewise support the present analysis. Though the result sub-event is often described by a lexical verb in Hmong, nothing in the present approach hinges on the lexical category or lexical-semantic content of the predicate that lexicalizes Res, meaning that the present approach likewise predicts that this sort of variation might be available.

5.4.3 Variation in prepositional "result augmentation"

Although Sections 5.4.1 and 5.4.2 show that there is a considerable amount of flexibility in verbal result augmentation, the prepositional attainment construction does not show the same degree of flexibility. Some possible examples do exist, but these generally have more plausible alternative explanations. For example, in (35), which is taken from a running narrative, *txog* 'arrive, up to' does not introduce an explicit Goal of motion—but this might be treated as simple *pro*-drop. Likewise, while (36) might superficially appear to be an attainment construction with an added argument, it can more plausibly be treated as a complex path description like those discussed in Chapter 4, with *txog* 'arrive, up to' in this case lexicalizing both Trans and Goal, and *hla* 'cross, across' lexicalizing Route—giving the expected Route > Goal ordering.

(35)   ces   plis   dhia   loo   **tuaj txog**   (Jarkey 2015, p. 112)
        CONJ   wildcat   jump   without.hesitation   come   arrive

        '... and then the wildcat came leaping out (of the forest).'

(36) lawv **hla** dej **txog** sab tim
      3PL cross water up.to side there.across
      'They crossed the river to the other side.'

In short: although there are several variants or close cousins of the verbal attainment construction, there are, so far as I am aware, no plausible examples of similar variations of the prepositional attainment construction. I hypothesize that this is due to greater argument-structural heterogeneity among verbs than among prepositions, though I do not have a detailed account of this variation at present.

5.5 Conclusion

This chapter examines the derivation of culmination entailments across the verbal and prepositional domains in Hmong. Both domains employ secondary predication as a strategy for deriving culmination entailments, giving rise to parallel verbal and prepositional "attainment constructions". I claim that this parallelism has its roots in the common mereological structures of Accomplishment and Goal predicates and of Achievement and Transition predicates, and I propose a formally-parallel account of the two constructions.

This parallelism between Hmong Accomplishment and Goal predicates offer novel corroboration for recent converging analyses of (non-)culmination in the verbal and prepositional domains. The behavior of Hmong Accomplishment predicates is not so surprising; the link between secondary predication and telicity in the verbal domain is well known (see e.g. Levin & Rappaport Hovav 1998), and Martin & Gyarmathy (2019) propose an account of culmination in Mandarin "complex verbs" that is quite similar to the present proposal for Hmong. The behavior of Hmong Goal predicates, on the other hand, is a point of considerable typological interest. In formal typologies of paths of motion (see e.g. Zwarts 2008, Pantcheva 2011), it is generally assumed that the default interpretation of a Goal predicate is culminating—an observation that does not appear tenable for Hmong (and following Martin et al. (2021), ultimately may not be tenable for English or German either). Likewise, secondary predication as a means of complex path formation is (to my knowledge) not specifically attested. However, certain English prepositions, such as *into, onto, up to,* and *out from*, have been analyzed as internally complex (see e.g. Ramchand 2008, Pantcheva 2011), and although their syntax and semantics differs from that proposed in section 5.3, these English complex prepositions may have some formal similarities with the prepositional secondary predication structures found in Hmong.

Despite this, the patterns found in Hmong are attested to varying degrees in other languages.

Goal predicates receive non-culminating interpretations in Mandarin (Nakazawa 2009) and the Shantou variety of Southern Min (Zheng 2012). Secondary predication of path predicates is clearly attested in these and at least three other languages: Lao (Enfield 2008, ex. 230, 323), Tariana (Aikhenvald 2006a, ex. 12, 19), and Teribe (Quesada 2011, ex. 3, 21, 34). Notably, all five languages are described as exhibiting a "go+arrive" construction similar to that found in Hmong. However, as all of these languages employ productive verb serialization to some degree, it will require language-specific study to determine whether the locus of this behavior in other languages might also be in the prepositional domain, as I claim for Hmong.

6 Implications and Conclusion

This chapter concludes by discussing the implications of this work in three main areas. In Section 6.1, I situate the categorial flexibility of Hmong path predicates with respect to more standard cases. In Section 6.2, I discuss the implications of Hmong for various decompositional analyses of the prepositional domain cross-linguistically. Finally, Section 6.3 addresses a frequent point of debate in the literature on serial verb constructions: the definition of "serial verb construction" itself.
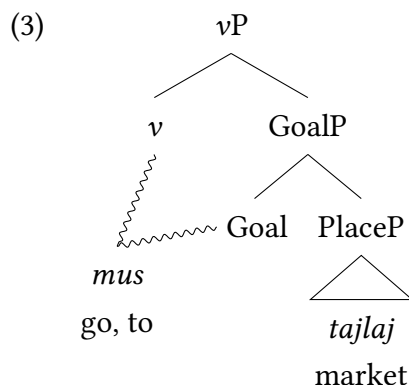
6.1 Lexical categories are not exclusive

In Chapter 4, I put forward an analysis of Hmong path predicates which treats them as cross-categorial. In certain cases, they act only as prepositions, while in others they also lexicalize *v* and function as the main verb of the clause. While at first blush this may sound somewhat unusual, it closely resembles existing treatments of deadjectival and denominal verbs (Baker 1988, Larson 1988, Hale & Keyser 1993, 2002, Harley 2005, Ramchand 2008, Travis 2010, a.o.). In this line of analysis, denominal verbs (e.g. *laugh*, *dance*, *shelve*) originate as a nominal complement of the verb, and deadjectival verbs (e.g. *thin*, *dry*, *tighten*) originate at an adjectival complement to the verb. In both cases, the head of that complement raises to lexicalize the verb, as illustrated in the structures in (1–2) (from Hale & Keyser 1993).[1]

(1)   VP
        /\
      V   NP
    /\ |
   N_i V t_i

(2)   VP
        /\
      V   AP
    /\ |
   A_i V t_i

---
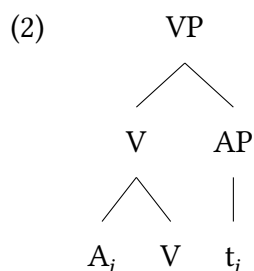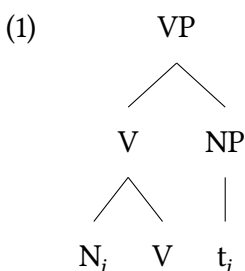
[1]Hale & Keyser (2002) argue that deadjectival verbs are derived by head movement, while denominal verbs are instead derived by *conflation*, but the general point stands.

The proposed structure for "main verb" uses of path predicates, repeated here as (3), is roughly analogous to these simple structures. The verb is lexicalized by a root which also lexicalizes its complement, in this case the Goal predicate *mus* 'go, to'.

(3)
```
              vP
             /  \
            v    GoalP
           /    /    \
          /  Goal   PlaceP
        mus          / \
       go, to      tajlaj
                   market
```

Effectively, we might characterize Hmong path predicates as prepositions which give rise to a corresponding class of "deprepositional" verbs. Viewed in this way, it is not the presence of deprepositional verbs in Hmong that is surprising, but their apparent absence in so many other languages. Why do languages like English lack verbs like *I to-ed the market* or *I in-ned the living room*? It is worth noting here that even in languages lacking deprepositional verbs, for example English or Dutch, prepositions are frequently held to raise into the verbal domain in order to derive verb–particle constructions (Baker 1988, Johnson 1991, Neeleman 1994, Svenonius 1994, Ramchand & Svenonius 2002, Ramchand 2008, a.o.) or for licensing reasons (Koopman 2000, 2010, den Dikken 2010). Such languages are already most of the way to deriving the Hmong-type pattern: if a prepositional element can lexicalize Res or incorporate into *v*, then it is only a small step to say that in certain languages, they might lexicalize *v* as well. The absence of deprepositional verbs in such languages may reflect a fact about the lexicon (i.e., there are no predicates with both prepositional and verbal categorial features) rather than reflecting the permissible set of movement operations in a language.

6.2 The structure of directional PPs

As already discussed in Section 4.5.4, a number of decompositional accounts of the (prepositional) Path domain have been proposed (Koopman 2000, 2010, den Dikken 2010, Radkevich 2010, Pantcheva 2011, a.o.). The evidence provided for the prepositional status of Hmong path predicates in Chapter 4 relies heavily on the presence of certain syntactic effects consistent with these decompositional treatments—specifically that of Pantcheva (2011). In that respect, the Hmong data is relatively consistent with prior decompositional treatments.

However, the analysis of Hmong developed in this thesis differs from expectations in two ways, which have implications for the structure of the Path domain both in Hmong and cross-linguistically. These are (i) spanning across the V and P domains, as argued for in Chapter 4, and (ii) the existence of TransP (for "Transition"), as assumed for in Chapter 5.

6.2.1 "Missing" functional structure

den Dikken (2010) argues that path prepositions are dominated by a relatively rich functional structure, including AspP, DxP, and CP layers, as schematized in (4a). Other approaches argue for pieces of this same functional structure; Pantcheva (2011) includes two aspectual heads in complementary distribution, while Son & Svenonius (2008) argue for a head referred to as "Dir", which fulfills the complementizer-like function of mediating the embedding of paths of motion under directed motion verbs.[2]

(4) a. [CP [DxP [AspP [PathP ...]]]]   (den Dikken 2010, p. 192)

     b. [{Bound, Scale}P [PathP ...]]   (Pantcheva 2011)

     c. [DirP [PathP ...]]   (Son & Svenonius 2008)

In Hmong, there is no clear evidence in favor of the existence of any of these projections. The primary role of prepositional Asp is to contribute either a bounded or an unbounded interpretation to the PathP it combines with (den Dikken 2010, Pantcheva 2011).[3] But as already seen in Chapter 5, Hmong does not encode changes in (un)boundedness in this way. Instead, bounded interpretations are derived via secondary predication, in the so-called "attainment" construction (and so far as I am presently aware, there is no means of deriving an unbounded path from an underlyingly bounded path in Hmong). This suggests—but does not require—that Hmong lacks a prepositional Asp head capable of encoding this distinction, hence its reliance on an alternate strategy.

There is likewise no clear evidence in support of a C/Dir head in the Path domain. Son & Svenonius (2008) posit the existence of Dir to account for languages like Malayalam, in which a class of dedicated directed motion verbs (*naṭann-* 'walk' and *ooṭ-* 'run' in (5a)) co-occur with an explicit Path preposition (*-ekkə* 'to' in (5a)). This contrasts with languages like English, in which a wide variety of verbs which do not themselves entail directed motion may combine with a Path preposition. The analysis is relatively simple: they posit a Dir head which intervenes between *v* and Path; in English, Dir may be spelled out with a null morpheme, while Malayalam requires Dir

---

[2]Bošković (2004) also argues for the presence of at least two PP-internal functional projections, an outer CP-like phrase and an inner "AgrpP".

[3]A secondary role is to host a shifted preposition (Koopman 2000, 2010, den Dikken 2010).

to be spelled out by a suitable verb. (This head cannot be Path itself, since a separate exponent for Path exists in both languages.)

(5) a. Mary office-il-ekkə naṭann-u/ooṭ-i   (Malayalam; Son & Svenonius 2008)
         Mary office-LOC-to walk-PST/run-PST
         'Mary walked/ran to the office.'

     b. John danced into the kitchen.

(6) a.   *v*   Dir   Path   Place   DP

         Malayalam   *naṭann-* *-ekkə*   *il*   *office*
                     'walk'   'to'   LOC   'office'

     b.   *v*   Dir   Path   Place   DP

         English   *dance*   ∅   *to*   *behind*   *the curtain*

In this respect, Hmong appears to pattern like English: a variety of predicates can be used to express the manner in which motion is undertaken. These may explicitly describe a method of locomotion, as in (7a), or they may not explicitly be associated with motion at all, as in (7b).[4] However, even those predicates associated with directed motion, like *khiav* 'run', can be used on their own, without an overt path predicate. In this context, as in (7c), they describe only a particular type of action, with no implication of directed motion.

(7) a. kuv **khiav** mus tom   tajlaj
         1SG run   to   over.there market
         'I ran to the market over there.'

     b. hnub peb   nas.tsuag **fawb** hnyuj.hnyo mus txog   (Jarkey 2015, p. 115)
         day three rat   search steadily   go arrive
         'On the third day, a rat went rummaging steadily about all the way there.'

     c. kuv **khiav** tom   tajlaj
         1SG run   over.there market
         'I ran around at the market over there.'

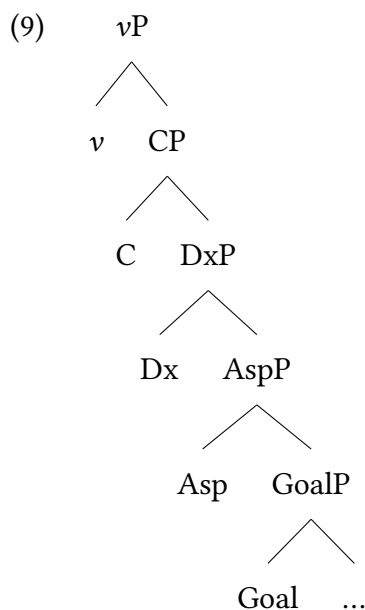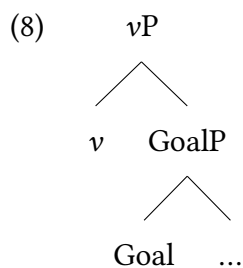This behavior of Hmong is certainly compatible with the availability of a null directional morpheme, as Son & Svenonius claim for English. However, this is equally compatible with the absence of a Dir head entirely.

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[4]Heimbach (1979, p. 44) includes the following definition for *fawb*: "to search for something amid a mass of other things, e.g. amid trash or leaves on the ground or in a stack of grain, etc."

Finally, although Hmong does express deixis in the Path domain, this is done by the choice of the Goal predicate itself (*mus* 'go, to', *los* 'come (home), to' or *tuaj* 'come, to'). There is no evidence of any independent morphemes encoding deixis in the Path domain.

In short: there is no clear evidence in Hmong in favor of the existence of any of the three functional heads proposed by den Dikken, and on the basis of available strategies for boundedness, we have reason to believe that Asp is absent. This is not entirely surprising; den Dikken (2010, p. 116) explicitly allows for language-internal variability in the amount of functional structure in the complement of the verb. However, the observed facts in Hmong are less likely to result from language-internal variation, and more likely to result from a blanket absence of these three functional phrases.

This apparent lack of functional structure may relate to the contrast between Hmong and English/Dutch remarked upon in Section 6.1 above. I hypothesize that in Hmong, a lack of functional structure within the path domain enables the observed cross-categorial behavior of path predicates. Consider the two structures in (8–9). The first follows the assumption that no functional heads intervene between *v* and path heads such as Goal. The second includes the full functional structure proposed by den Dikken (2010).

(8) *v*P
- *v*
- GoalP
  - Goal
  - …

(9) *v*P
- *v*
- CP
  - C
  - DxP
    - Dx
    - AspP
      - Asp
      - GoalP
        - Goal
        - …

All other things being equal, it should be less "costly" for a lexical item to spell out a structure like that in (8) than that in (9). Strictly speaking, spanning of a constituent of either size still results in the insertion of a single lexical item. But that lexical item must be specified with a wider range of categorial features to lexicalize (9), and this allows more room for idiosyncratic behavior across a large class of lexical items like the class of path predicates in Hmong. With the

exception of the behavior of *rau* 'to, into, for', Hmong path predicates are highly regular in their verbal–prepositional categorial flexibility.[5]

This same reasoning may extend to other languages with directed motion "serial verb constructions". Without this intervening functional structure, lexical items can more easily span the boundary between V and P domains, blurring the lines between the two categories. If this is correct, then this approach makes a clear prediction about the distribution of similar "verbal–prepositions" cross-linguistically: these should be unavailable (or restricted) in languages which show clear evidence of functional structure high in the Path domain.

6.2.2 The Transition phrase and the Path domain

The more notable feature of Pantcheva's (2011) decomposition is that it decomposes the syntactic and semantic function of the Path head itself across multiple distinct heads: Route, Source, and Goal. These are ordered hierarchically as in (10). In Chapter 4, this ordering is argued to derive two observed co-occurrence restrictions observed in Hmong path predicates: Source–Goal containment and Route>Source>Goal ordering.
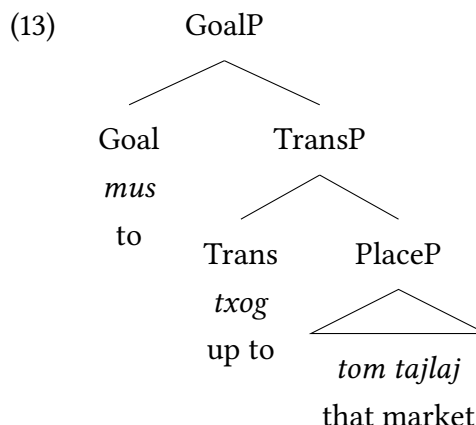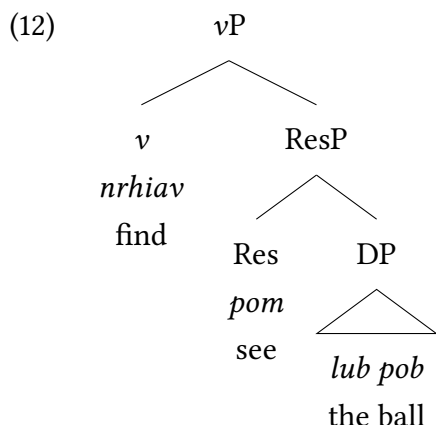
(10)   … [RouteP [SourceP [GoalP [PlaceP …]]]]   (Pantcheva 2011)

As we have seen in the preceding section, the functional structure of the prepositional domain is by and large comparable to that of the verbal or nominal extended projections. Given that, it is tempting to look for parallels between Pantcheva tripartite decomposition and the architecture of the event domain (or first phase). Taking Ramchand's (2008) decomposition as a point of comparison, it is not fully clear how the two domains align. Considering the parallels between (10) and (11), there do not appear to be strong conceptual parallels between Route and *init*, nor between Source and *proc*. Goal may be appear parallel to *res* when considering obligatorily telic prepositions, but in Hmong even this parallel breaks down, as Goal prepositions are non-culminating (i.e., unbounded) by default.

(11)   … [*init*P [*proc*P [*res*P …]]]   (Ramchand 2008)

However, the discussion in Chapter 5 offers a much different view of the path–event parallelism. There, I argue explicitly that Goal corresponds not to *res*, but *proc* (i.e., *v*). The analogue of *res* is instead the newly-coined "Transition phrase" or TransP, which I claim hosts the class of Transition predicates in Hmong.
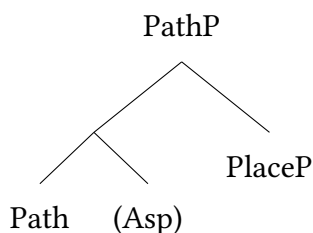
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[5]The same is broadly true under a head-movement account, in which case the path predicate would be forced to raise cyclically through several intervening heads before reaching *v*.

(12)   *v*P

            v   ResP
          nrhiav
           find   Res   DP
                     pom
                     see   *lub pob*
                              the ball

(13)   GoalP

          Goal   TransP
          mus
           to   Trans   PlaceP
                   txog
                   up to   *tom tajlaj*
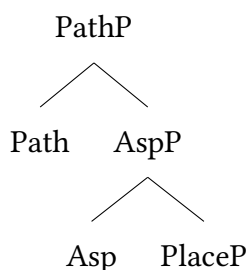   that market

So far as I am presently aware, secondary predication is not attested in prior studies of the path domain. Though, given the large-scale functional parallels between the prepositional domain and the clause, there is no *a priori* reason to rule it out. There is also little discussion of aspectual operations *below* Goal, as goal-oriented paths are often taken to be the fundamental, unmarked path geometry cross-linguistically (e.g. Pantcheva 2011).

However, the decomposition of the prepositional domain proposed by Radkevich (2010) may, on closer inspection, support the existence of TransP. Based on a survey of the morphological realizations of spatial case and prepositions across 111 languages, Radkevich proposes the structure in (14), in which Path is modified by an Aspect affix, which can contribute a telic (i.e., bounded) interpretation of the path of motion, just as Trans does.[6] If we can recast Radkevich's Asp as Trans in at least some cases, this supports the present approach.[7]

(14)   Radkevich (2010, p. 98):

                    PathP

               Path   (Asp)   PlaceP

(15)   *Modified:*

                    PathP

               Path   AspP

                      Asp   PlaceP

---

[6]For consistency, I use the labels "Path" and "Place" rather than Radkevich's "M" and "L".

[7]Because Radkevich's approach relies on successive-cyclic movement in certain cases, the modified structure in (15) will not always produce the correct output. However, situating AspP *above* PathP, as more standardly claimed (by den Dikken 2010, Pantcheva 2011, a.o.) should generally produce the correct ordering of morphemes in those cases that do require successive-cyclic movement. Because of this, I hypothesize that Radkevich's derived "morphological structure" may in fact arise from two distinct underlying syntactic structures cross-linguistically, though future work is needed to determine whether this hypothesis is borne out cross-linguistically.

With TransP in the derivation, there is a much clearer conceptual parallelism between the verbal and prepositional domains. Source and *init* describe the origination of the path/event at a particular origin/INITIATOR. Goal and *proc* describe the orientation of the path/event towards a particular endpoint/UNDERGOER, but they do not contribute a culminating reading in and of themselves.[8] Trans and Res describe a minimal transition into a static locative relation/result state.

(16)   a.   …   [SourceP   [GoalP   [TransP   …]]]

      b.   …   [*init*P   [*proc*P   [*res*P   …]]]   (Ramchand 2008)

Although this parallelism appears promising, it leaves aside an important question: what is the status of Route? I detailed account of the properties of Route is somewhat outside the scope of the present study; however, I offer a few observations that suggest Route *should* be thought of as, in some sense, distinct from Source and Goal, both in Hmong and cross-linguistically.

First, as discussed in Chapter 4, Hmong Route predicates may appear independently as in (17a), with a Goal predicate only as in (17b), or with a Source–Goal complex as in (17c). That is, Route predicates do not obligatorily contain Source or Goal (despite having broadly the same structural configuration that leads to obligatory Source–Goal containment).

(17)   a.   kuv **hla**   tus choj
          1SG cross CLF bridge
          'I crossed the bridge.'

      b.   nws **taug** ib sab ntug dej   **tuaj**   (Jarkey 2015, p. 113)
          3SG follow one side edge water hither
          'He's following the river bank (hither).'

      c.   cov   Hmoob **hla**   dej   Na.Koom **dim** hauv Nplog-teb **mus** Thai-teb
          CLF.PL Hmong across water Mekong   from inside Laos   to   Thailand
          'The Hmong crossed the Mekong River from Laos to Thailand.'   (Jarkey 2015, p. 113)

Second, Route predicates may combine recursively with other Route predicates, as in (18). This is not predicted by Pantcheva's decomposition.

(18)   **taug~taug**   dej **nqis**   hav mus   (Jarkey 2015, p. 109)
      RDUP~follow.along water descend valley away

      '…followed the river down the valley away.'

---

[8]A similar conceptual parallelism between events and paths has been argued for by Zwarts (2019), who claims that INITIATOR/AGENT and UNDERGOER/THEME arguments of an event can function as the two endpoints of an "action path", and that this "action path" can satisfy the presuppositions of counterdirectional adverbials.

Third, Ramchand (2012, p. 7–8) argues that at least some Route paths (those describing *through*-type paths rather than *past*-type paths) can directly predicate a DP, omitting any otherwise-intervening projections. This can be diagnosed by the availability of an underlying locative relation with prepositions like *into* in (19a), which is absent in examples like (19b).

(19)   a. John pushed the cart into the woods again.
            i. John pushed the cart into the woods before. (repetitive)
            ii. The cart was in the woods before. (restitutive)

       b. John pushed the cart through the garden again.
            i. John pushed the cart through the garden before. (repetitive)

Fourth, the cross-linguistic evidence in favor of a structural relationship between Route and Source/Goal is relatively weak. Pantcheva finds that while Source–Goal containment is attested in eight of eighty-one languages surveyed,[9] Route–Goal containment is found in only one (Slovak) and Route–Source containment in only two (Akhvakh and Avar; Pantcheva 2011, pp. 51–53).

I take these facts to be evidence that Route predicates are in some sense "outside" the same basic prepositional spine as Source, Goal, and Transition predicates. A structural configuration similar to the one proposed by Pantcheva may still obtain, but there is presently a gap in our understanding of precisely how Route predicates combine with Source/Goal predicates as in (17b–c) above. Perhaps Route predicates might be shown to correspond to some other element in the verbal decomposition, but precisely which is presently unclear.

6.3 Defining serialization

Serial verb constructions tend to follow similar patterns across languages. They commonly express notions such as directed motion, orientation or posture, change of state, or sequencing of actions, and they may fulfill causative, resultative, valency-increasing, and other functions (Foley & Olson 1985, Aikhenvald & Dixon 2006, Aikhenvald 2018). Despite these commonalities, it is difficult to provide a concise working definition of "serial verb construction" for cross-linguistic comparison. This, in my view, is due to three primary factors. First, the precise properties of SVCs can vary significantly from language to language. Second, authors may differ in their interpretation of various elements in the object language (i.e., is a particular lexical item truly a verb, or is it some other lexical/functional category?). Third, authors may have differing base assumptions about which phenomena the definition ought to encompass.

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[9]See (58) in Chapter 4.

In this section, I review previous approaches to defining the notion of "serial verb construction". I then build on the discussion of Chapter 3 to propose a formal definition for serialization that is more restrictive than certain cross-linguistic definitions (Bisang 2009, Haspelmath 2016), while remaining more general than certain language-specific formal approaches (Stewart 2001, Aboh 2009).

6.3.1 Previous approaches

By contemporary standards, many early definitions of serialization remain reasonable, if occasionally somewhat vague, characterizations of the properties of canonical serial verb constructions. Several examples of such definitions are offered in (20).

(20)   a. Serial verb constructions "are constructions in which verbs sharing a common core argument are merely juxtaposed with no complementizers or intervening conjunctions." (Foley & Van Valin 1984, p. 189)

   b. A serial verb construction is "a sequence of verbs appears in what seems to be a single clause. Usually there is only one tense/aspect specification for the whole chain of verbs; the verbs also have a single structural subject and share logical arguments…" (Baker 1989, p. 513)

   c. "A serial verb construction is a succession of verbs and their complements (if any) in a single clause with one subject and one tense or aspect value." (Déchaine 1993a, p. 799)

   d. "A serial verb construction is a succession of verbs and their complements (if any) with one subject and one tense value that are not separated by any overt marker of coordination or subordination" and "in a serial verb construction, V_1 and V_2 must share an internal argument." (Collins 1997, pp. 462, 463)

   e. "The archetypal serial verb construction consists of a sequence of two or more verbs which in various (rather strong) senses, together act like a single verb." (Durie 1997, pp. 289–290)

There are two main issues with these approaches. The first, as argued by Aboh, is that an argument-sharing requirement (as built into (20a), (20b) and (20d) above) is not empirically tenable in all languages (Aboh 2009). The second, as observed by Stewart, is that "there is no assurance that these superficial criteria pick out a natural class of structures" (Stewart 2001, p. 4). Both authors take a more formal approach in characterizing serialization. Stewart provides an explicit syntactic definition as in (21), in which both verbs must co-occur under a single Voice head. Aboh does not provide a cross-linguistic definition, but characterizes serial verb constructions in Gungbe and

other Kwa languages as in (22). The details of these two approaches are somewhat contradictory, but they share the goal of offering a concise formal-syntactic definition of serialization.

(21)   "SVCs are constructions in which two verbs combine under a single functional head. Along with sharing the same object, the verbs are licensed by a single Voice that licenses the subject (Agent) which sets about a plan of one macro-event which may be resultative or consequential." (Stewart 2001, p. 265)

(22)   "V$_1$ merges as a functional (verbal) element within the extended projection of the lexical verb (i.e., V$_2$) that introduces the arguments" (Aboh 2009, p. 2)

In the typological literature on serial verb constructions, a different approach predominates: the definition of serial verb constructions according to some prototypical set of properties (from which some divergence is not only possible, but expected). This approach is exemplified by Aikhenvald & Dixon (2006) and Aikhenvald (2018), who provide an especially detailed list of prototypical properties as in (23).

(23)   Properties of a serial verb construction (Aikhenvald 2018, pp. 3–4)

   a. A serial verb construction (SVC) consists of two or more verbs, each of which could also function as the sole verb in a clause.

   b. There is no mark of dependency—such as coordination, subordination, or dependency of any sort—between the verbs within a serial verb construction.

   c. A serial verb construction is monoclausal—it functions as a single predicate.

   d. The serial verb construction itself will have its own transitivity value.

   e. There is usually at least one core argument shared by all the verbs in a serial verb construction.

   f. The serial verb construction is conceived as describing a single event.

These properties pick out a rather expansive class of constructions, within which Aikhenvald & Dixon (2006) and Aikhenvald (2018) recognize two broad sub-types of serial verb construction, referred to as "symmetrical" and "asymmetrical" serial verb constructions. "Symmetrical" SVCs are formed with multiple verbs from unrestricted and open classes; "asymmetrical" SVCs are formed with one element from a restricted and closed class.

(24)   a. "A SYMMETRICAL serial verb construction combines verbs of any semantic type. None of the components can be considered the 'head'." Aikhenvald (2018, p. 6)

b. "An ᴀꜱʏᴍᴍᴇᴛʀɪᴄᴀʟ serial verb construction involves two or more verbs of different status. The 'major' component can be virtually any verb; it is chosen from a semantically and grammatical unrestricted class, and can be considered the 'head' of the construction. The 'minor' component is chosen from a limited and closed subclass of verbs of a certain semantic set." Aikhenvald (2018, p. 6)

There are two issues with the particulars if this approach. First, the tension between the notions of (un)restricted and open/closed class make it difficult to categorize specific constructions. For example, the Hmong direct causative construction and attainment constructions both appear asymmetrical in one respect (verb positions are restricted to particular transitivity/situational aspect classes) and symmetrical in another (both constructions involve open classes of verbs). Note, however, that Aikhenvald (2018) treats these particular Hmong constructions as symmetrical, suggesting that the open- versus closed-class distinction is more important.

This brings us to the second issue: if membership in a closed class is the primary criterion, perhaps so-called "asymmetrical serial verb constructions" are not properly serial verb constructions at all. If one of their members must be drawn from a small, closed class, that element is (all else being equal) more likely to be a functional morpheme, light verb, modal verb, auxiliary, or similar, and are less likely to be a genuine lexical verb. Of course, it is still worthwhile to draw comparisons across natural classes of phenomena, but in comparing these various sorts of multi-verb constructions with genuine serial verb constructions, we must be exceedingly clear about how the properties of such constructions differ. For example, one asymmetrical serial verb construction cited by Aikhenvald is the Hmong construction in (25) below (brackets mine). This construction is treated by Jarkey (2006, 2015) as a straightforward case of a modal verb embedding a clausal complement.

(25) cov   menyuam xav   [ua.si nram pas-dej]   (Jarkey 2015, p. 250, cited in
      ᴄʟꜰ.ᴘʟ child   want play down pond-water   Aikhenvald 2018, p. 166)
      'The children want to play down at the pond.'

Aikhenvald, on the other hand, refers to the structure in (25) as an example of "complement clause serialization". However, this structure has very little in common with the other Hmong serial verb constructions discussed in this thesis and by Jarkey (2015), whether in terms of syntactic structure, lexical semantics, or in the details of semantic composition. In this case, the label "serial verb construction" does not seem to contribute any explanatory power, only a surface-level morphological generalization. We are left with the same objection voiced by Stewart, already quoted above, that such definitions may not pick out a natural class of structures (Stewart 2001, p. 4).

Recently, certain authors have taken yet another approach: there have been attempts to define "serial verb construction" in reference to a single core notion, of which the various prototypical properties noted above are simply reflexes. Bisang (2009) argues that this core property is monoeventivity, while Haspelmath (2016) argues that it is monoclausality. Cleary-Kemp's (2015) definition takes a similar approach, though it makes reference to both notions, monoclausality and monoeventivity (as well as a somewhat weaker "argument-sharing" requirement).

(26) "The concept of single eventhood is a more general concept from which a number of Aikhenvald and Dixon's (2006) criteria can be iconically derived." (Bisang 2009, p. 792)

(27) A serial verb construction is "a monoclausal construction consisting of multiple independent verbs with no element linking them and with no predicate–argument relation between the verbs." (Haspelmath 2016, p. 292)

(28) "[F]our core characteristics are distilled: main verbhood, monoclausality, single eventhood, and argument sharing. A construction must have all of these properties in order to qualify as an SVC." (Cleary-Kemp 2015)

These approaches are similar to that of Aikhenvald & Dixon (2006) and Aikhenvald (2018) in that they allow for a degree of variation in the surface form of serial verb cosntructions. If serial verb constructions are taken to necessarily be monoclausal, monoeventive, or both, it is easy to see how they might gravitate towards similar (but non-identical) sets of grammatical properties across languages.

6.3.2 A new definition of "serial verb construction"

In this thesis, I have raised two main questions relevant to the definition of serialization as a whole. The first, as discussed in Chapter 3, relates to the differing behavior of "lexical" and "functional" uses of verbs. Specifically, there are robust contrasts in lexical-semantic content, the underlying syntax, and productivity between direct causatives, like that (29), and indirect causatives, like that in (30). How should our definition of serialization reflect these contrasts?

(29) nws **ntaus** tus dev **quaj**
      3sg hit   clf dog cry
      'He hit the dog (making it) whine.'

(30) nws **ua**   tus dev **quaj**
      3sg make clf dog cry
      'He made the dog whine.'

Here, I offer a new (theory-dependent) definition of serialization, which takes these facts into account. In a sense, this new proposal arises as a primarily syntactic implementation of an earlier criterion from Bisang (2009), given in (26). Bisang's proposal has been criticized by Haspelmath (2016) and Aikhenvald (2018) for its reliance on a cognitive notion of "event", and for the variability and vagueness inherent therein. These criticisms, however, have little to say about the linguistic object referred to as an "event" (as in Davidson 1967, et seq.). Events in the Neo-Davidsonian sense are not merely semantic abstractions—rather, they are anchored to the syntax by the properties of events that describe them. More specifically, an event is tied to a particular region in the verbal extended projection responsible for deriving properties of events: the region delimited by the external argument-introducing head (Ramchand 2008, Travis 2010, a.o.), which can be referred to variously as the "event domain", the "first phase" (Ramchand 2008), or the "domain of special meanings" (Marantz 1997).

In Section 3.3.1, I appealed to precisely this domain in explaining the differing syntactic and semantic properties of the Hmong direct and indirect causative constructions. I proposed a principle which constrains the distribution of "lexical verbs" (and therefore also the distribution of productive serial verb constructions) such that they can only appear within the event domain. This is reprinted in (31).

(31)   First-phase lexical insertion principle:

Verbal roots with "rich" lexical-semantic content cannot be initially merged outside the first phase (the first VoiceP constituent of the verbal extended projection).

With this in mind, I offer the new (theory-dependent) definition of serial verb construction in (32). This makes reference not to monoclausality or monoeventivity in and of themselves, but instead requires that a serial verb construction must be instantiated within a single event domain.

(32)   Definition of "serial verb construction" (proposed)

a. Formed from two or more lexical verbs

b. No overt coordination or linking

c. Co-occur within a single "event domain" (i.e., the first VoiceP constituent of the verbal extended projection)

→   Monoclausal

→   Monoeventive

This definition brings together elements of several prior proposals. Not only must a serial verb construction be entirely contained within a single clause (Haspelmath 2016), it must be

contained within a specific region of that clause: the first VoiceP constituent, which is responsible for the derivation of the event (Stewart 2001, Bisang 2009). This has the benefits of these prior approaches, in that it both (i) restricts the realizations of serial verb constructions to only those generable within the event domain, and (ii) allows for variation in the surface-level properties of serial verb constructions. It has two advantages over these prior proposals: it restricts the possible underlying structures further than either Bisang (2009) or Haspelmath (2016) do, and it allows for slightly more variation in surface properties than Stewart (2001) does.

The second question raised in this thesis, as discussed in Chapter 4, relates to predicates that are genuinely cross-categorial. Specifically, if Hmong path predicates function both as verbs and as prepositions, can they truly be considered to form "serial verb constructions"? In cases like (33), I argue that the path predicate functions only as a preposition in the narrow syntax—so perhaps it should not qualify as a genuine serial verb construction. However, the path predicate also has some notion of verbhood encoded in its lexical entry (i.e., verbal categorial features, verbal lexical-semantic content), and perhaps that is enough to qualify (33) as being formed from multiple verbs.

(33) kuv khiav [**mus** tajlaj]
      1SG run   to   market
      'I ran to the market.'

The definition of "serial verb construction" in (32) excludes cases like (33). In spite of the verbal uses that Hmong path predicates show in certain environments, I view this as reasonable. In distinguishing serialized verbs from words of other lexical or functional categories, it is important to take into account the properties of predicates *within the construction itself*, rather than merely considering their properties in general.

6.4 Conclusion

This thesis examines the syntax and semantics of White Hmong, with a focus on several constructions described in previous literature as serial verb constructions. Throughout, I have argued that these constructions (for the most part) follow the syntactic and semantic contours of well-known constructions already familiar from non-serializing languages, including direct/lexical causatives, directed motion constructions, and resultatives.

What distinguishes serial verb constructions from their non-SVC counterparts boils down primarily to vocabulary insertion. Serializing languages "re-use" verbal predicates to lexicalize a

variety of heads that in non-serializing languages are often spelled out with "functional" lexical items: causative affixes, prepositions, and result particles among them.

The distribution of serial verb constructions, however, is not as free as this might imply. Although this approach places serial verb constructions on a continuum with light verb constructions, aspectual verbs, auxiliaries, and other "functional" uses of verbs—which might be treated as an even broader application of similar vocabulary insertion mechanisms—true serial verb constructions involve multiple predicates with their full "verbal" lexical semantics. These meanings are only accessible in the environment of appropriate categorizing heads. This places hard limits on the expressive power of genuine serial verb constructions cross-linguistically: their syntactic and semantic complexity must be no more than can be derived within the first phase.

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