

Causation and serialization in White Hmong

Abstract

The first VoiceP constituent of the verbal extended projection (the so-called “first phase” of [Ramchand 2008](#) or “domain of special meanings” of [Marantz 1997, 2007](#)) has a special status across a number of empirical domains, including both causative constructions and serial verb constructions. In this paper, I present data at the intersection of these two domains from White Hmong (Hmong-Mien), in which the direct causative is expressed by a productive serial verb construction, while the indirect causative requires a dedicated causal verb *ua* ‘make’. A variety of diagnostics show that they instantiate the familiar “high/low” or “lexical/productive” causative paradigm already well-attested cross-linguistically. I argue that the differing syntactic and semantic properties of White Hmong causatives derive ultimately from the lexical-semantic content of the predicates that constitute them. I propose a principle governing the syntactic distribution of “rich lexical verbs”, which limits them—and thus also limits the occurrence of serial verb constructions—to within the first phase. I then propose a unified semantics for direct and indirect causation, building on [Kratzer’s \(2005\)](#) treatment of resultative constructions, under which such “rich lexical verbs” are compatible only with direct (and not indirect) causation. Finally, I suggest that this proposal also offers an explanation for cross-linguistic limits on the expressive power of serial verb constructions.

Keywords: causatives, verb serialization, event structure, lexical/functional split, first phase, Hmong

1 Introduction

The notions of monoeventivity (or “single-eventhood”) and monoclausality play a key role in characterizing a number of empirical domains. Two are of particular interest here: causative constructions, where monoeventivity and monoclausality are argued to distinguish direct, lexical causation from indirect, productive causation ([Pylkkänen 2008](#); [Harley 2008](#); [Nie 2020](#), among others), and serial verb constructions (SVCs), of which monoeventivity and monoclausality are frequently assumed to be key properties ([Aikhenvald, 2006](#); [Bisang, 2009](#); [Cleary-Kemp, 2015](#)).

In this paper, I examine a phenomenon at the intersection of these two domains: causatives in White Hmong (Hmong-Mien; henceforth simply “Hmong”).¹ Hmong has

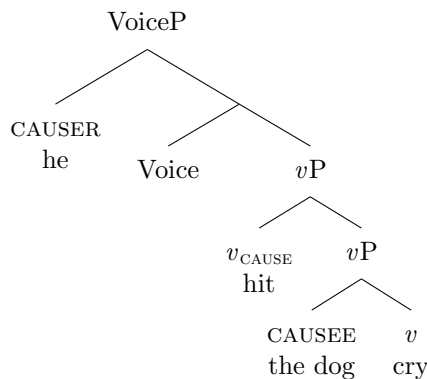
¹The use of “Hmong” throughout this paper is primarily a convenience. However, due to the high degree of grammatical similarity between White Hmong and the closely-related Green Mong, it is likely that the

two distinct causative constructions, both of which are “periphrastic” in the strict sense: the causative meaning arises from a combination of two words, one describing the cause and one describing the effect. Despite this, the two constructions represent a familiar paradigm cross-linguistically: one conveys direct, “lexical” causation, the other indirect, “functional” causation. Examples (1) and (2) illustrate the direct and indirect causatives respectively.² The major distinction between the two is in the element that describes the cause. The direct causative is a productive SVC, whose first element (in (1), *tsoo* ‘smash’) can be any agentive transitive verb, while the indirect causative is always has the functional verb *ua* ‘make’ as its first element.

- | | | |
|-----|--|---|
| (1) | nws ntaus tus dev quaj
3SG hit CLF dog cry
‘He hit the dog (making it) whine.’ | Direct causative
(SVC causative) |
| (2) | nws ua tus dev quaj
3SG make CLF dog cry
‘He made the dog whine.’ | Indirect causative
(<i>ua</i> -causative) |

Both constructions share the same subject–verb–object–verb surface word order, but as we will see they can be distinguished by a number of syntactic and semantic properties, including (i) their ability to temporally dissociate cause and effect, (ii) their ability to describe causation with intermediate steps, (iii) the number of scope sites for certain adverbs, and (iv) the availability of an agentive interpretation for the causee. To derive these contrasts, I argue that as shown in (3), the direct causative involves the merger of a causative head v_{CAUSE} within the “first phase” (that is, the first VoiceP constituent in the verbal extended projection), while the indirect causative must be captured by a more highly articulated structure in which v_{CAUSE} P embeds an additional VoiceP, as in (4).

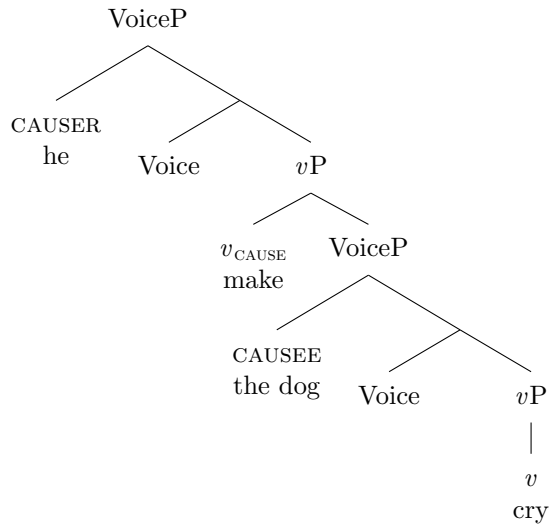
- (3) Direct causative (= (1)):



data presented in this paper are well-formed in both varieties—though examples have not been verified with Green Mong speakers.

²All uncited examples come from contextualized elicitation (following [Matthewson, 2004](#); [Bowern, 2008](#); [Bochnak and Matthewson, 2015](#)) with Canadian speakers of White Hmong. Thank you to Ka Lee-Paine and Sy Moua for sharing their language with me. Any errors are my own. In cited examples, some glosses and translations have been modified for consistency. All examples are presented in the Romanized Popular Alphabet (RPA) orthography, in which “coda consonants” represent tones, and doubling of the vowel represents nasalization.

(4) Indirect causative (=2):



This proposal is consistent with the well-known notion that causation may be encoded in one of two syntactic positions a higher syntactic position than direct causation (see e.g. Harley, 2008, 2017; Travis, 2010; Nie, 2020, among others). And as I will demonstrate, the structures in (3–4) offer a straightforward account of the differences in syntactic complexity between the two constructions.

However, there are two points that require further examination. First, how do these structures, both of which involve the same causative head v_{CAUSE} , encode the semantic distinctions between direct and indirect causation? Second, given that both are periphrastic we must be careful to rule out the possibility of (for example) SVCs that encode *indirect* causation, which are not possible in Hmong.

We can gain some insight into these questions by approaching them from a different direction. Note that although the basic form of the two constructions is somewhat similar, they differ crucially in the meaning of the verb that describes the causing event. The indirect causative in (2) involves what I will refer to as a “functional verb”, *ua* ‘make’, while the direct causative involves what I will call a “rich lexical verb”. The key distinction here is that a verb with “rich” lexical semantic content is one that describes a particular conceptual action—for example, the verb *ntaus* ‘hit’ in (1)—while “functional” verbs have relatively weak or underspecified lexical semantic content, instead expressing primarily grammatical meanings. (This distinction will be developed further below.) So instead, we might ask: why should verbs with rich lexical-semantic content be linked to direct causation, while functional verbs are associated with indirect causation?

To answer this, I propose a semantics of causation based on Kratzer’s (2005) treatment of resultative constructions (which itself follows Lewis 1973 and Rothstein 2001). Kratzer argues that certain predicates—those that I refer to as rich lexical verbs—are, by virtue of their lexical semantics, only compatible with direct causation. I build on this approach, arguing that the direct interpretation arises when the denotation

of the verb describing the cause imposes relatively strong constraints on the sorts of eventualities to which it can apply, while the indirect interpretation arises when the denotation of the verb describing the cause is less restrictive. This allows indirect causatives to describe longer and more varied causal chains than direct causatives are able to. I provide a formal treatment of this analysis in Section 3.3.

This approach also captures limits on the expressive power of Hmong direct causatives, as well as other SVCs in Hmong and cross-linguistically.³ The term “serial verb construction” is one that tends to be employed somewhat differently by different authors, so for concreteness, I will adopt the following set of criteria, following work by Jarkey (2015) on Hmong and Cleary-Kemp (2015) cross-linguistically. Serial verb constructions are those multi-verb constructions that: (i) describe a single event, (ii) form a single clause without overt conjunction or linking, (iii) share one or more arguments, and (iv) consist of multiple “main verbs”.⁴ At present, the “main-verbhood” requirement is most important, as it corresponds to just the sort of lexical/functional contrast I have outlined here. In this formulation, “main verbs” are those which can stand alone as the main predicate of monoverbal clauses, and therefore exclude auxiliaries, light verbs, and other functional elements—including those functional elements that may be homophonous with or derived from rich lexical verbs (Cleary-Kemp, 2015, 102–103).

As under this definition, SVCs necessarily involve verbs with rich lexical-semantic content, they are naturally constrained by the distribution of such rich lexical-semantic content within the verbal extended projection. By hypothesis, such rich lexical verbs can only be initially merged within the first VoiceP constituent of the event domain: the region sometimes referred to as the “first phase” (following Ramchand, 2008).⁵

The direct and indirect causative differ in the position of v_{CAUSE} ; when v_{CAUSE} merges within the first phase, it can host any of a wide variety of rich lexical verbs, but when v_{CAUSE} merges outside the first phase, it is only capable of hosting functional elements like *ua* ‘make’. The result is that productive SVCs express only those meanings that can be encoded within the first phase. This predicts that functional meanings related to viewpoint aspect, tense, or mood should not be expressible via productive verb serialization, a prediction which is borne out for Hmong.

The structure of this paper is as follows. Section 2 summarizes the existing literature on both Hmong causative constructions, then augments it with a number of additional diagnostics aimed to more clearly establish their contrasting properties. Section 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 4 discusses questions about the differences between serializing and non-serializing languages, and about the formal analysis of serialization in general.

³See discussion in Section 4.2.

⁴These criteria are generally in alignment with, though slightly more restrictive than, the definition of serialization proposed by Aikhenvald (2006) and Dixon (2006).

⁵This same region has also been identified as the “domain of special meaning”, within which irregular semantic meanings can be derived (Marantz, 1997, 2007; Arad, 2003).

2 Description of Hmong causatives

White Hmong is a Hmong-Mien language traditionally spoken in Laos and Thailand. 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 usually optional ([Mottin, 1978](#); [Jarkey, 2015](#)). As the English glosses in this paper indicate, examples have generally been elicited in contexts that make salient a perfective interpretation, which may but need not co-occur with the sentence-final Perfect marker *lawm*, but as my consultants often produce such simple examples without any overt aspect marking at all, and as overt aspect marking appears inconsequential for the present discussion, I have generally omitted these optional aspect markers throughout.

In this section, I establish the grammatical properties of both Hmong causative constructions. Sections 2.1 and 2.2 review the basic characterizations of the direct and indirect causatives, respectively, as given in prior literature. I then compare and contrast these two constructions in the complexity of their event structure (Section 2.3) and in the possibility of an agentive causee (Section 2.4), with the indirect causative in both cases requiring a more complex syntax than the direct causative. Despite these differences, the two constructions behave similarly with respect to the availability of (un)intentional and (non)implicative interpretations (Section 2.5). Taken together, these properties support the structure I will argue for in Section 3.

2.1 Direct causatives through serialization

The direct causative is the better-described of the two Hmong causative constructions. [Jarkey \(2015\)](#), in her book-length study of Hmong SVCs, refers to it as “Cause-Effect SVC” and provides a detailed description of its properties.⁶ A simple example of this construction is provided in (5).

- (5) nws ntaus tus dev quaj
3SG hit CLF dog cry
‘He hit the dog (making it) whine.’

In this construction, V_1 describes a causing action, while V_2 describes its effect. (V_1 and V_2 here are used in a strictly descriptive sense, referring to the relative linear position of the two verbs. These labels do not correspond to any set of properties independent of their usage in a particular SVC.) The obligatory word order of this construction is Agent- V_1 -Object- V_2 .⁷

The choice to refer to the causee as an ‘object’ here may require some explanation. (After all, *tus dev* ‘the dog’ in (5) could perhaps be called the ‘subject’ of the intransitive *quaj* ‘cry’.) [Jarkey \(2015, p. 143–147\)](#) points out several ways in which the causee

⁶Other sources that discuss serialization in Hmong either provide a relatively cursory description of this construction ([Creswell and Snyder, 2000](#)), do not differentiate it from other types SVCs ([Riddle, 1989](#)), or omit this construction entirely ([Mottin, 1978](#); [Bisang, 1991](#); [Clark, 1992](#)).

⁷This word order contrasts with some other Hmong SVCs; for example, the ‘Attainment’ SVC, which we will examine briefly in Section 3.4, has an obligatory A- V_1 - V_2 -O or S- V_1 - V_2 word order ([Jarkey, 2015, 147](#)).

patterns with internal rather than external arguments of simple monoverbal clauses.⁸ Although several of the properties Jarkey cites are somewhat tendential, they together support a view in which the causee serves as an internal argument with respect to the construction as a whole. I will not discuss Jarkey’s specific criteria in detail here, though two of these diagnostics (lack of an agentive interpretation, exemption from certain selectional restrictions) will be included in Section 2.4.

Jarkey (2015, p. 131–134) also offers a characterization of the types of verbs that can participate in this construction. V_1 must be an agentive transitive verb, from one of three sub-classes: affective verbs, like *ntaus* ‘hit’ in (5), effective (or creation) verbs, like *ua* ‘build’ in (6), and transfer verbs, like *xa* ‘send’ in (7). V_2 must have an inchoative meaning, broadly speaking, describing a change of state, as does *loj* ‘be.big’ in (6), a change of location, as does *mus* ‘go’ in (7), or inception of an action, as does *quaj* ‘cry, whine’ in (5). V_2 is generally intransitive, although change of location verbs in this position may take inner locative objects, as in (7). Neither verb is lexically specified with a causative meaning; rather, the causative meaning seems to arise from the combination of the two verbs (within the context of this construction).

- (6) lawv **ua** lub tsev **loj-loj**
 3PL build CLF house RDUP-be.big
 ‘They built the house really big.’
- (7) nws **xa** ib tsab ntwav **mus** rau nws niam (Jarkey, 2015)
 3SG send one CLF writing go to 3SG mother
 ‘She sent a letter to her mother.’

This construction is always understood to convey a causal meaning. It cannot be understood to describe a simple sequence of causally-unrelated actions. For example, (7) is infelicitous either (i) in a context where the subject sent a letter and then the subject went to her mother, or (ii) in a context where the subject sent some things and then an unrelated letter went to the subject’s mother. (7) can only convey that the subject’s sending directly caused the letter to go to her mother.

2.2 Indirect causatives with *ua* ‘make’

In contrast to the direct (SVC) causative forms discussed in the previous section, 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 several examples but little discussion. Bisang (1991) includes *ua* in a list of several verbs with meanings broadly related to causation, but does not discuss its properties.⁹ The most thorough discussion of the indirect causative comes from Jarkey (2006, 2015),

⁸The causee generally (i) cannot receive an agentive interpretation, (ii) is not subject to selectional restrictions imposed by certain verbs on their external arguments, (iii) can easily receive a non-referential interpretation, unlike most external arguments in Hmong (Fuller, 1985), and (iv) can participate in a particular word order alternation that is restricted to internal arguments.

⁹Other 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 that is relevant to the present discussion.

who provides a relatively brief comparison of *ua* ‘make’ with other complement-taking verbs.

Causatives with *ua* ‘make’, as in (8–9), have an intuitively indirect meaning, which is well-captured by the translations involving the English *make*-causative. Just as in the direct causative, the indirect causative is formed from two verbs, such that the first describes a cause and the second describes an effect, giving rise to a similar S–V₁–O–V₂ surface word order. However, the first element of the indirect causative must always be the causative verb *ua* ‘make’, which does not specify the nature of the causing event. This is not consistent with the working definition of “serial verb construction” established in Section 1. Although *ua* has an alternative, “main verb” usage in which it means ‘build, create’, as was seen in (6) above, that is clearly not the same sense of *ua* as found in, for example, (8) or (9) below.

(8) kuv **ua** nws **ntshai** dab
 1SG make 3SG fear spirit
 ‘I made him fear ghosts.’

(9) nws **ua** tus muam **poob** rooj (Jarkey, 2015)
 3SG make CLF sister fall table
 ‘He made his sister fall off the table.’

In addition, the cause and effect may be separated in time in the indirect causative, possibly by quite large temporal gaps. (This will be discussed in more detail in Section 2.3.)

Jarkey (2015, p. 247) claims that the Hmong indirect causative “never involves the causer acting directly on the causee”. While it is certainly true that the indirect causative does not *require* the causer to act directly on the causee (e.g., (8) might be true and felicitous in a context in which the causee hears the causer telling a scary story), neither does it rule out that possibility. It is possible to construct true and felicitous examples like (10), which in context involves direct action of the causer on the causee.¹⁰

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

kuv **ua** Tub **hais** lub
 1SG make Tou say word
 ‘I made Tou speak.’

With this cursory understanding of the two Hmong causative forms, we can now undertake a more focused comparison, which will continue for the remainder of Section 2.

2.3 Mono- vs. bi-eventivity

As mentioned in Section 1, monoeventivity, or “single-eventhood”, is frequently cited as a definitional property of verb serialization. Likewise, in the literature on causatives,

¹⁰I hypothesize that Jarkey’s generalization may simply represent the effects of competition with the direct causative, which does require the causer to act directly on the causee.

Nie (2020) takes monoeventivity to be one of the two primary axes along which causative constructions may differ cross-linguistically. 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 to 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 temporally connected, as in (11a). The *hitting* must have led directly to the *whining* with no intermediate steps.

- (11) 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, lacks this property. It is perfectly compatible with a situation in which the cause and effect are dissociated in time, as demonstrated by (12), in which the cause is situated in time by *nag-hmo* ‘yesterday evening’ and the effect by *hnuh-no* ‘today’.

- (12) [haus cawv ntau-ntau nag-hmo] **ua** nws **mob**
 [drink alcohol RDUP-much yesterday-evening] make 3SG be(come).sick
 taub.hau hnuh-no
 head 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. I test this here by considering the number of possible attachment sites for certain adverbs, including both *rov.qab* ‘again’ and manner adverbs like *ceev* ‘quickly’.

Direct causatives have only one attachment site for such adverbs. As shown in (13a), *rov.qab* ‘again’ may apply to the entire complex event, including both its cause and effect parts. There is no attachment site such that, as in (13b), *rov.qab* ‘again’ applies only to the effect.¹¹

- (13) a. 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.

- b. CONTEXT: Yesterday, I said something mean to Tou, which made him start crying. Today, I hit Tou, which made him start crying again.

*kuv ntaus Tub rov.qab quaj
 1SG hit 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. They must take scope over the entire causative construction, as in (14a), and not over the effect alone, as in (14b).

- (14) a. kuv ceev-ceev ntaus Tub quaj
 1SG RDUP-quickly hit Tou cry
 ‘I quickly hit Tou and he cried.’

- b. *kuv ntaus Tub ceev-ceev quaj
 1SG RDUP-quickly hit Tou cry

Intended: ‘I hit Tou and he quickly began to cry.’

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 (15a–b), and manner adverbs, as in (16a–b), may take scope either over the entire causative construction, or over the effect alone.

- (15) a. kuv rov.qab ua Tub hais lub
 1SG again make Tou say word
 ‘I made Tou speak again.’

Presupposition: There is a prior event in which I made him speak.

- b. kuv ua Tub rov.qab hais lub
 1SG make Tou again say word
 ‘I made Tou speak again.’

Presupposition: There is a prior event in which he spoke.

¹¹Under a typical decompositional analysis of *again*, like that of von Stechow (1996), we might expect (13b) to be well-formed (by analogy with so-called ‘restitutive’ readings found with e.g. English *again*). This somewhat surprising behavior of Hmong *rov.qab* ‘again’ will be discussed briefly in Section 3.1.

- (16) a. kuv nrov-nrov **ua** Tub hais lub
 1SG RDUP-loudly make Tou say word
 ‘I loudly made Tou speak.’
 b. kuv **ua** Tub nrov-nrov hais lub
 1SG make Tou RDUP-loudly say word
 ‘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.

2.4 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. Pykkänen, 2008; Harley, 2008; Nie, 2020). Causatives that contain agentive causees require an embedded Voice to host said causee, and this Voice 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 (17), such modifiers can be controlled either by the causer or by the causee.

- (17) a. kuv txhob.txwm/yuam.kev **ua** [kuv tus kwv] **ua** lub
 1SG purposely/wrongfully **make** 1SG CLF younger.brother **make** CLF
 tais poob
 bowl fall
 ‘I purposely/accidentally made my brother drop the bowl.’
 b. kuv ua [kuv tus kwv] txhob.txwm/yuam.kev **ua** lub
 1SG make 1SG CLF younger.brother purposely/wrongfully make CLF
 tais **poob**
 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 (18a). They cannot, however, be applied to the causee, as (18b) shows.

- (18) a. kuv **ncaws** txhob.txwm/yuam.kev tus dev **khiav**
 1SG kick purposely/wrongfully 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/wrongfully 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 desires/intents 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 relevant set of desires/intents that are in some sense *capable* of determining the outcome of the event being described. These adverbs, then, can either affirm or deny that this has happened: *txhob.txwm* ‘purposely’ indicates that the outcome of the described event was consistent with the causee’s desires/intents, while *yuav.kev* ‘wrongfully, accidentally’ indicates that the described event was not consistent with the causee’s desires/intents.

This view is supported by direct causative examples like (18b). 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 has no relevant desires/intents capable of determining the outcome of the event (that is, it has no agency), 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 (18b) while *yuam.kev* should vacuously apply.¹²

In addition to the behavior of agent-oriented modifiers, there is another relevant diagnostic for agency: selectional restrictions imposed by certain verbs on their external arguments. For example, *mus* ‘go’ requires an agentive external argument, and the example in (19), which features the non-agentive subject *ib tsab ntawv* ‘a letter’ is quite degraded as a result.

- (19) ?? *ib tsab ntawv mus rau kuv niam* (Jarkey, 2015, p. 144)
 one CLF writing go to 1SG mother
 Intended: ‘A letter went to my mother.’

However, when *mus* ‘go’ appears as V₂ in the direct causative, it does not enforce such a restriction on the causee, despite the appearance of a similar predicate-argument relationship between *ib tsab ntawv* ‘a letter’ and *mus* ‘go’ in both (19) and (20).

- (20) *kuv xa ib tsab ntawv mus rau kuv niam* (Jarkey, 2015, p. 144)
 1SG send one CLF writing go to 1SG mother
 ‘I sent a letter to my mother.’

Jarkey (2015) presents this data as evidence that the causee in direct causatives should not be considered a grammatical subject. Not only must the causee be a patient or theme (Jarkey, 2015, p. 144), but the agency requirement normally imposed by verbs like *mus* ‘go’ does not hold in this environment. Just as in the examples with agent-oriented modifiers, it seems clear that the notion of ‘agency’ is not relevant for the causee argument.

¹²One consultant observed of the version of (18b) 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, even in this ungrammatical example, that the desires/intent of the causee have the capability of determining the outcome of the event in some way.

Both the distribution of agent-oriented modifiers and the (relaxing of) selectional restrictions of verbs point us to the same conclusion: the causee in the Hmong direct causative construction cannot serve as an agent, while the causee in the indirect causative construction can. From this, I conclude that the syntactic structures of the “effect” portions of these two constructions are distinct—in particular, I will claim in Section 3 that the “effect” portion of the indirect causative comprises a full VoiceP capable of hosting an agentive causee and various types of adverbs, while the “effect” portion of the direct causative comprises only a *vP*.

2.5 (Un)intentional and (non)implicative causation

Before analyzing the behavior discussed in Sections 2.3 and 2.4, 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 different than previously supposed: that 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 3.2. 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 (18a) 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 (21), in which it can truly and felicitously describe intentional causation.

- (21) 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 lub
 1SG make Tou say word
 ‘I made Tou speak.’

And as we have already seen from the subject-oriented adverb tests in Section 2.4, repeated here, both causative constructions are capable of describing either intentional or unintentional causation.

- (17a) kuv txhob.txwm/youam.kev **ua** [kuv tus Indirect causative
 1SG purposely/wrongfully make 1SG CLF

kwv] **ua** lub tais **poob**
 younger.brother make CLF bowl fall

‘I purposely/accidentally made my brother drop the bowl.’

- (18a) kuv **ncaws** txhob.txwm/yuam.kev tus dev **khiav** Direct causative
 1SG kick purposely/wrongfully CLF dog run
 ‘I purposely/accidentally kicked the dog and it fled.’

The second question pertains to the interpretation of the effect. Jaisser (1984, cited in Jarkey 2015, p. 247) offers an observation about the meaning of the indirect causative that does not appear to be entirely correct. She describes the indirect causative as entailing the completion of the effect.¹³ However, (22a) is judged to be true and felicitous even in a context in which the caused action is still ongoing at utterance time. Note that the same is true for the direct causative in (22b).

- (22) CONTEXT: A moment ago, my brother hit the dog, making it whine. It is still whining now.

- 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.’

In light of this, it seems more apt to recast Jaisser’s observation. While neither causative form entails the *completion* of the effect, they do both entail the *actuality* of the effect.¹⁴ As demonstrated by the two examples in (23), neither Hmong causative can receive the sort of non-implicative interpretation consistent with, for example, an expression of a goal or purpose. Rather, they unambiguously convey that the effect occurred.

- (23) CONTEXT: My brother hit the dog. He was trying to make it whine, but it didn’t whine at all.

- 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.’

¹³As Hmong is a non-culminating Accomplishment language, “completion” here should be understood to mean that the effect is maximal in the world of evaluation, and not that it has necessarily reached a particular endpoint.

¹⁴Alternatively, one could characterize Hmong causatives as entailing the *inception* of the effect, though this is perhaps only a consequence of the actuality entailment plus the counterfactual notion of causation that I discuss in Section 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.

In short, 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 in this paper.

2.6 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 (24).

(24)	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 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 (25). 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 (26).

(25) Direct causative:

$$[\text{VoiceP CAUSER } [vP [v_{\text{CAUSE}} V_1] [vP \text{ CAUSEE } V_2]]]$$

(26) Indirect causative:

$$[\text{VoiceP CAUSER } [vP [v_{\text{CAUSE}} \text{ ua }] [\text{VoiceP CAUSEE } [vP V]]]]$$

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.

3.1 Syntax of Hmong causatives

As seen in Section 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 (24) above.) This section focuses on the first two; the last of these, directness, I will set aside until Section 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). And 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 follow Pylkkänen (2008), Harley (2017), and others in taking Voice to merge the external argument, while causation is encoded by a distinct head, which I here label v_{CAUSE} .¹⁵ 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.

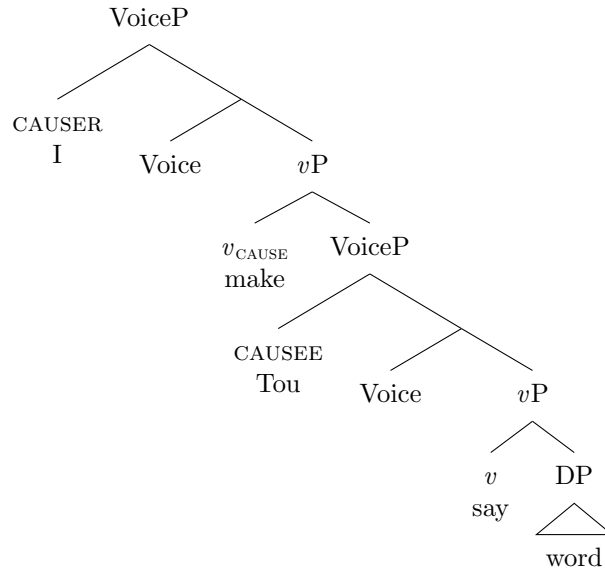
The distribution of adverbs leads us to the same conclusion. Under the assumption that agent-oriented adverbs, including manner adverbs, adjoin to VoiceP, the availability of two attachment sites for elements like *txhob.tɔw* ‘purposely’ or *ceev* ‘quickly’ likewise indicates the presence of multiple VoiceP layers in the indirect causative, one corresponding to the cause and one to the effect. The direct causative, in contrast, has only one VoiceP to which these adverbs can adjoin.

¹⁵The 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.)

This same behavior is also observed with *rov.qab* ‘again’, which functions just in the same way as agent-oriented and manner adverbs in Hmong. However, its behavior is somewhat puzzling: under a typical decompositional analysis of English *again* (and similar lexical items cross-linguistically), we might expect *rov.qab* to be more flexible in its scope than is actually observed. By analogy with [von Stechow 1996](#), we might expect that even within the direct causative construction, *rov.qab* ‘again’ should have both a “repetitive” reading (modifying the entire cause–effect complex event) and a “restitutive” reading (modifying the effect only). However, such a “restitutive” reading is not possible. As a full analysis of *rov.qab* is not crucial for the present investigation, I will simply assume that (i) as with other Hmong adverbs, the semantic scope of *rov.qab* ‘again’ is fixed by its syntactic position, and (ii) *rov.qab* ‘again’ is subject to the same constraints on its distribution as are other adverbs in Hmong. With these assumptions, *rov.qab* also serves as a straightforward diagnostic for the presence (or lack) of multiple VoiceP layers.

These behaviors point to a uniform conclusion: that the indirect causative involves recursion of VoiceP. Specifically, the indirect causative must embed a VoiceP–*v*P complex describing the effect under the VoiceP–*v*P complex describing the cause.

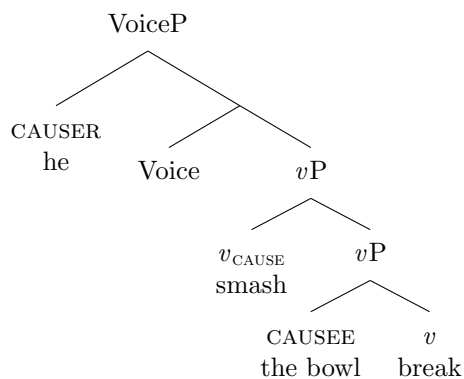
- (27) kuv **ua** Tub **hais** lub Indirect causative
 1SG make Tou say word
 ‘I made Tou speak.’



Not only does this account for the distribution of agents and adverbials, but 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).

By the same diagnostics, direct causatives can be shown to lack these embedded VoiceP and *v*P layers. Instead, I argue that direct causatives instantiate the structure in (28), which contains a single Voice head, whose complement is headed by *v*_{CAUSE}.

- (28) nws **tsoo** lub tais **tawg** Direct causative
 3SG smash CLF bowl break
 ‘He smashed the bowl and it broke.’



Though many analyses have been given of direct causative constructions cross-linguistically, the Voice–*v*_{CAUSE}–*v* structure in (28) presents a roughly similar syntactic complexity to that supposed for agentive transitives and (non-serializing) lexical causatives. For example, (29) schematizes Ramchand’s (2008) characterization of English lexical causatives which, modulo category labels and certain assumptions regarding spell-out, is very close to the current proposal for Hmong direct causatives. If we take *init(iation)* as analogous to *v*_{CAUSE} and *proc(ess)* to be *v*, the basic syntax is similar—the null cause morpheme that Ramchand assumes for English is simply spelled out with a lexical verb in Hmong.

- (29) English lexical causatives: (Ramchand, 2008, p. 86)
 [*init*P [Karena] [[*init* ∅_{CAUSE}] [*proc*P [the butter] [*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 ultimately descriptive. It refers to a heterogeneous group of constructions cross-linguistically, and does not necessarily correspond to any particular theoretical structure or set of structures. As such, we should be careful to avoid presupposing a particular level of 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 basic 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, as *ua* ‘make’ is a functional causative verb on par with English

make: both *ua* and *make* are the exponent of a causative head which selects for a VoiceP complement (see e.g. Tubino Blanco, 2011, ch. 4), both describe a causing event whose nature is unspecified, and both give rise to an indirect causal interpretation. In the direct causative, however, an open class of verbal roots with rich lexical-semantic content can occupy a position that is usually reserved for functional morphemes cross-linguistically. This allows Hmong, a highly isolating language, to form structures and express meanings usually associated cross-linguistically with functional morphology that, for the most part, Hmong lacks.

The ability to insert lexical roots in functional heads is not exclusive to causatives; rather it appears quite general in Hmong.¹⁶ I hypothesize that this same behavior underlies the full range of SVCs observed in Hmong, with various underlying structures giving rise to the various documented construction types. However, the seemingly general nature of this behavior in Hmong raises an important question: why can the indirect causative not *also* take the form of an SVC? Or, put more generally, what factors determine which grammatical heads can host verbal roots in Hmong, and which cannot?

I propose that although the distribution of morphological roots with rich lexical-semantic content is more flexible in Hmong than, for example, in English, such roots are nonetheless constrained by a cross-linguistic principle that places hard limits on their distribution even in highly-productive serializing languages. This principle can be stated as in (30).

(30) 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 event domain).

The definition of rich lexical-semantic content must, for present purposes, identify a class of roots whose meanings clearly correspond to particular conceptual actions (including *tsoo* ‘smash’, *thawb* ‘push’, *xa* ‘send’, etc.) and must exclude light verbs, aspectual verbs, auxiliaries, and similar elements. Although these latter elements may still be considered syntactically verbal in some senses, they convey primarily grammatical meanings, and merge in T° , Asp° , or various other positions outside the first phase. It is in this second group that I place dedicated causal verbs like *ua* ‘make’.

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, as the meanings of SVCs in Hmong generally appear to be highly compositional.

Note that this constraint does not rule out head movement to positions above 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

¹⁶In forthcoming work, I argue that verbal roots in Hmong can spell out other non-verbal categories, including various heads within the prepositional domain and the head of a Ramchand-ian Res(ult) phrase.

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 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 (31), while the direct causative construction cannot, as shown in (32).

- (31) kuv [_{*v*_{CAUSE}} **ua**] [_{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.’ (≈ ‘I made my brother drop the bowl.’)
- (32) *kuv [_{*v*_{CAUSE}} **thawb**] [_{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 (31) and (32) 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 (31)—so long as the *v*_{CAUSE} head is spelled out by a “functional” verb like *ua* ‘make’. The ungrammaticality seen in (32) arises only when this *v*_{CAUSE} head is spelled out by a root with “rich” lexical-semantic content. That is, (32) 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 2.2. 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.

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).

3.2 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.

Second, v_{CAUSE} incorporates the semantic content of the (verbal) roots that it hosts. I assume that such roots simply constitute properties of events, as in (33), and for concreteness, I assume that they combine with v_{CAUSE} in the syntax as shown in (34) below. (In this respect, the structures in examples (27) and (28) above represent a slight simplification.) The meanings of v_{CAUSE} and the verbal root then combine by function application.

$$(33) \quad \llbracket \text{hit} \rrbracket = \lambda e. \text{hit}(e)$$

$$(34) \quad \begin{array}{c} v_{\text{CAUSE}} \\ \swarrow \quad \searrow \\ v_{\text{CAUSE}} \quad \checkmark \\ \emptyset \quad \text{hit} \end{array}$$

I propose the denotation for v_{CAUSE} shown in (35), which is of type $\langle vt, \langle vt, vt \rangle \rangle$, where v represents the semantic type of eventualities. This will combine successively with two properties of events: first, a property Q supplied by the root it combines with, which will come to describe the cause, and second, a property P supplied by the complement of v_{CAUSE} , which will come to describe the effect. This derives a new property that holds of internally-complex events whose two parts are linked by causation.

$$(35) \quad \llbracket v_{\text{CAUSE}} \rrbracket = \lambda Q_{\langle v, t \rangle} \lambda P_{\langle v, t \rangle} \lambda e. Q(e) \wedge \exists e' [P(e') \wedge \text{CAUSE}(e)(e')]$$

In the present example, Q is supplied by *ntaus* ‘hit’. This derives the function from properties of events to properties of events that is given in (36).

$$(36) \quad \llbracket (34) \rrbracket = \lambda P_{\langle v, t \rangle} \lambda e. \text{hit}(e) \wedge \exists e' [P(e') \wedge \text{CAUSE}(e)(e')]$$

This new function takes as its argument a property of events P , supplied by the vP complement of v_{CAUSE} . For the present example, this property is given in (37a), which describes an event of *Tou crying*. This yields the property of events in (37b), which characterizes the set of *hitting* events that cause some event of *Tou crying*.

$$(37) \quad \begin{array}{l} \text{a. } \llbracket vP \rrbracket = \lambda e. \text{cry}(e) \wedge \text{UNDERGOER}(e)(\text{Tou}) \\ \text{b. } \llbracket (36) \rrbracket(\llbracket vP \rrbracket) = \lambda e. \text{hit}(e) \wedge \exists e' [\text{cry}(e') \wedge \text{UNDERGOER}(e')(\text{Tou}) \wedge \\ \quad \text{CAUSE}(e)(e')] \end{array}$$

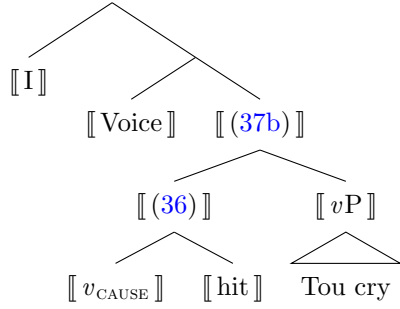
The meaning in (37b) then combines with external argument-introducing Voice, the result of which combines with the external argument, in this case *kuv* ‘I’.¹⁷ The resulting denotation for VoiceP is given in (38b), with the entire derivation schematized in (39).

¹⁷Following Rappaport Hovav and Levin (2000) and Ramchand (2008), among others, I label the thematic role of the external argument as INITIATOR, to encompass both agents and “pure” causes.

- (38) a. $\llbracket \text{Voice} \rrbracket = \lambda P_{\langle v, t \rangle} \lambda x \lambda e. P(e) \wedge \text{INITIATOR}(x, e)$
 b. $\llbracket \text{Voice} \rrbracket(\llbracket (37b) \rrbracket)(\llbracket I \rrbracket) = \lambda e. \text{hit}(e) \wedge \text{INITIATOR}(I, e) \wedge \exists e'[\text{cry}(e') \wedge \text{UNDERGOER}(e')(Tou) \wedge \text{CAUSE}(e)(e')]$

- (39) kuv ntaus Tub qua:j
 1SG hit Tou cry
 ‘I hit Tou (making him) cry.’

$\llbracket \text{VoiceP} \rrbracket = \llbracket (38b) \rrbracket$



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 (35). 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).

So, the denotation for v_{CAUSE} given in (35) combines with our placeholder meaning for *ua* ‘make’ to yield the function in (40). 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.)

- (40) $\llbracket v_{\text{CAUSE}} \rrbracket(\llbracket \text{make} \rrbracket) = \lambda P_{\langle v, t \rangle} \lambda e. \text{MAKE}(e) \wedge \exists e' [P(e') \wedge \text{CAUSE}(e)(e')]$

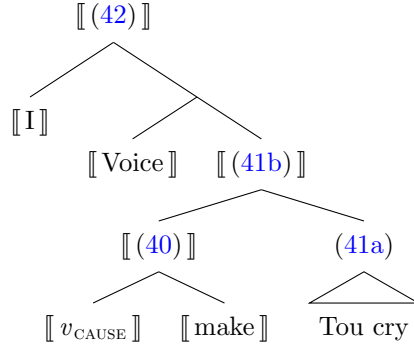
Just as before, this function must now combine with a property of events. In the case of the indirect causative, this property of events corresponds to a VoiceP constituent (rather than a *v*P).¹⁸ This property combines with (40) to yield the complex property of events in (41b), which characterizes the set of *making* events that cause events of *Tou’s crying*.

- (41) a. $\llbracket \text{VoiceP} \rrbracket = \lambda e. \text{cry}(e) \wedge \text{INITIATOR}(e)(\text{Tou}) \wedge \text{UNDERGOER}(e)(\text{Tou})$
 b. $\llbracket (40) \rrbracket(\llbracket (41a) \rrbracket) = \lambda e. \text{MAKE}(e) \wedge \exists e'[\text{cry}(e') \wedge \text{INITIATOR}(e')(\text{Tou}) \wedge \text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$

As before, this complex property of events combines with a Voice head (using the same denotation as in (38a) above), which introduces the external (causer) argument. This results in the complex property of events in (42) (with the the full derivation schematized in (43) below).

- (42) $\llbracket \text{Voice} \rrbracket(\llbracket (41b) \rrbracket)(\llbracket \text{I} \rrbracket) = \lambda e. \text{MAKE}(e) \wedge \text{INITIATOR}(e, \text{I}) \wedge \exists e'[\text{cry}(e') \wedge \text{INITIATOR}(e')(\text{Tou}) \wedge \text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$

- (43) 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. As you may have already noticed, the logical forms of the direct and indirect causative constructions (repeated here as (44a–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 (27) 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 (44a), may incorporate the properties denoted by any number of rich

¹⁸In (41a), I assume that Tou is both INITIATOR and UNDERGOER of the *crying*. This represents an example like those discussed in Section 2.4, in which the causee has at least some degree of agency. Importantly, this should not be taken to imply that the causee necessarily receives an INITIATOR role in *all* cases. It is plausible that causees in certain other indirect causatives receive an UNDERGOER role only, and this contrast can be captured by varying the featural specification of Voice (as in e.g. Nie, 2020).

lexical verbs, for example *ntaus* ‘hit’, while the indirect causative, as in (44b), must include the more vague property described by the causative verb *ua* ‘make’.

- (44) a. Direct causative:
 $\lambda e. hit(e) \wedge \text{INITIATOR}(e, I) \wedge \exists e' [cry(e') \wedge \text{UNDERGOER}(e')(Tou) \wedge \text{CAUSE}(e)(e')]$
- b. Indirect causative:
 $\lambda e. \text{MAKE}(e) \wedge \text{INITIATOR}(e, I) \wedge \exists e' [cry(e') \wedge \text{INITIATOR}(e')(Tou) \wedge \text{UNDERGOER}(e')(Tou) \wedge \text{CAUSE}(e)(e')]$

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 (44a), and indirect causation with less restrictive properties of events, like our relatively vague placeholder property MAKE in (44b)

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.¹⁹

The key is that 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 (45a), although causal chains can also comprise an arbitrarily large number of elements, as in (45b).

- (45) a. $e_1 \rightarrow e_2$
 b. $e_1 \rightarrow \dots \rightarrow e_n$

Importantly, directness of causation is not a property of the causal chain itself—though the geometry of the causal chain does play a role. Each “link” in the causal chain involves a direct causal relation, and longer chains allow for the possibility of indirect causation, but ultimately, the directness of causation depends on the meanings of the predicates that describe the causal chain (Kratzer 2005; following Rothstein 2001). That is, a longer causal chain may describe either direct or indirect causation.

¹⁹Strictly 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).

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 alternatively be conceived of 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 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.

Instead, whether causation is understood to be direct or indirect comes down to the extension of the predicate that describes it. 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 cause the object to experience different 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, by some action of the arms in prototypical cases, a forceful impact against the object. Second, there are limits on what real-world happenings can be included within a single event of *hitting*. I take these two things to be related: while a *hitting* event can be one in which, for example, *hitting* and some result (e.g. *crying*) have partial temporal overlap, a *hitting* event generally cannot be one in which there is a *hitting* followed by a *waiting* followed by a *crying*. Such sequences are simply not found within the extension of Hmong *ntaus* ‘hit’ or English *hit*. This seems to be a general property of those verbs with rich lexical semantic content: their denotations are tightly-fitted to the temporal extent of the concepts they describe.

In the context of a Hmong causative construction, it is clear that predicates like *ntaus* ‘hit’ can be used to describe certain kinds of causal chains. The causal chains within the denotation of *ntaus* ‘hit’ have a variety of possible endpoints (or “culmination parts”; Kratzer (2005) following Rothstein 2001), which correspond to possible results of the *hitting* (including the patient’s feeling pain, bruising, breaking, etc.). However, these causal chains must only include those “links” that fall within the extension of one or both of the predicates that describe them.

This restriction effectively sidesteps the question of granularity discussed above, as it is based on how events map to concepts, and crucially *not* on the number of events present in a given causal chain. For example, a causal chain described by predicates *ntaus* ‘hit’ and *quaj* ‘cry’ must include only causal steps that can be construed as part of the extension of either *hit* or *cry*. This means that both examples schematized in (46) can be well-formed direct causatives, with (46a) representing a case in which the cause is conceived of as atomic, and (46b) a case in which the cause is conceived

of as having internal parts (which, as discussed above, might comprise neurological impulses, muscle movements, and so on).

$$(46) \quad \begin{array}{l} \text{a. } \underbrace{e_1}_{\llbracket hit \rrbracket} \rightarrow \underbrace{e_2}_{\llbracket cry \rrbracket} \\ \text{b. } \underbrace{e_1 \rightarrow \dots \rightarrow e_n}_{\llbracket hit \rrbracket} \rightarrow \underbrace{e_{n+1}}_{\llbracket cry \rrbracket} \end{array}$$

However, there is no possibility for any intermediate step (that is neither part of the *hitting* nor the *crying*) to intervene between the two. That is, the configuration in (47) is ruled out.

$$(47) \quad \underbrace{e_1}_{\llbracket hit \rrbracket} \rightarrow \dots \rightarrow \underbrace{e_n}_{\llbracket cry \rrbracket}$$

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 require the same sort of conceptual consistency as, for example, an event of *hitting* or of *pushing*, it can effectively be “stretched” over the sorts of arbitrarily long causal chains that are excluded in the case of the direct causative. 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 intermediate causes, as schematized in (48).

$$(48) \quad \underbrace{e_1 \rightarrow \dots \rightarrow e_n}_{\llbracket make \rrbracket} \quad \llbracket cry \rrbracket$$

The meaning I propose for *ua* ‘make’ is given in (49). 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.

$$(49) \quad \llbracket make \rrbracket = \lambda e. \text{ACTION}(e) \wedge \text{COMPLEX-CAUSAL-EVENT}(e) \\ \text{(where COMPLEX-CAUSAL-EVENT}(e) = 1 \text{ iff } e \text{ can be mapped to a causal chain)}$$

We can now replace the placeholder property indicated by MAKE in (44b) with this denotation, giving the indirect causative a logical form as in (50).

$$(50) \quad \lambda e. \text{ACTION}(e) \wedge \text{COMPLEX-CAUSAL-EVENT}(e) \wedge \text{INITIATOR}(e, \text{I}) \wedge \exists e' [\text{cry}(e') \wedge \text{INITIATOR}(e')(\text{Tou}) \wedge \text{UNDERGOER}(e')(\text{Tou}) \wedge \text{CAUSE}(e)(e')]$$

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 can be involved in only the first “link”.

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 (51) 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.

- (51) 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 (12), repeated here. In this position, they can apply to the cause alone, and do not contradict temporal modifiers taking scope over the effect alone.

- (12) [haus cawv ntau-ntau nag-hmo] **ua** nws **mob**
 [drink alcohol RDUP-much yesterday-evening] make 3SG be(come).sick
 taub.hau hhub-no
 head day-this
 ‘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.

- (52) Bittner’s Generalization ([Bittner, 1999, 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 (53). In the present approach, concealed causatives and other direct causatives represent causation in its general case. Indirect causatives constitute a subset of causatives: those whose causing event may itself be internally-complex. Across the board, causative constructions must spell out the entire causal chain to which they correspond.

- (53) A causative construction must exhaustively spell out the causal relation (i.e., causal chain) that it represents. Indirect causative constructions arise only when the causing event is internally-complex.

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 (31–32), repeated here. An indirect causative may embed another causative, as in (31), but a direct causative may not embed another causative, as in (32).

- (31) 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.’
- (32) *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 (54).

- (54) 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 (54) above. However, we have not yet seen analogous examples for the direct causative, in which the present approach predicts v_{CAUSE} to take either simple or internally-complex v P complements.

This is also borne out. Despite the impossibility of double-causative forms like (32), the Hmong direct causative may embed other types of complex event description. One possibility is the so-called “Attainment” SVC (Jarkey, 2015), a construction used to derive culminating accomplishment predicates and certain intransitive resultative-like meanings. Two examples of this construction are given in (55).

- (55) a. tus dev **los ti** kuv “Attainment” SVCs
 CLF dog come be(come).close 1SG
 ‘The dog came close to me.’
- b. lub tais **poob tawg**
 CLF bowl fall break
 ‘The bowl fell (and as a result) broke.’

Three key properties distinguish the Attainment SVC from the direct causative construction. First, the Attainment SVC may be intransitive, while the direct causative is obligatorily transitive. Second, the direct causative has obligatory S–V–O–V word order, while the Attainment SVC obligatorily has S–V–V–(O) word order (the object, if present, follows both verbs). Third, V_2 in the Attainment SVC obligatorily receives a telic interpretation, while the second verb in the direct causative construction, as seen in Section 2.5, need not. In forthcoming work, I argue that the Attainment SVC comprises v and its ResP complement (for “Result”, following Ramchand (2008) and, subsequently, Folli and Harley (2016)), in which v and Res are spelled out by V_1 and V_2 , respectively. Despite the fact that the direct causative cannot embed another direct causative, it can embed an Attainment SVC, as in (56).

- (56) kuv **rub** [tus dev **los** [**ti** (kuv)]]
 1SG pull [CLF dog come [be.close (1SG)]]
 Direct causative + “Attainment” SVC

‘I pulled the dog (so that it) came close (to me).’

The analysis I have put forward here predicts just this sort of complexity: the direct causative construction should be unable to embed a full VoiceP constituent, but it is free to embed internally-complex *v*P constituents.

4 Conclusion

I have argued in this paper 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 lowest VoiceP constituent of the event domain. 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 from [Aikhenvald and Dixon’s \(2006\)](#) typological study of causative serial verb constructions cross-linguistically. 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.

4.1 Causative serial verb constructions cross-linguistically

Due to the terminological confusion surrounding the label “serial verb construction”, it can be difficult to be sure 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.

In examining causative SVCs cross-linguistically, this is a particularly thorny issue. Case in point: I do not classify the Hmong indirect causative as an SVC, nor is it counted as an SVC under the previously-mentioned criteria used by [Jarkey \(2015\)](#)

and Cleary-Kemp (2015). Some authors, however, take a less restrictive definition of “serial verb construction”, which would include the Hmong indirect causative (see e.g. Mortensen 2019 on Green Mong), as well as other constructions formed with aspectual verbs, light verbs, or other elements that would not be considered “main verbs”.

In this second camp are Aikhenvald and Dixon (2006), who draw a distinction between two types of causative SVCs, which they label “cause-effect” and “causative” SVCs (Aikhenvald, 2006, 14–17). While the precise dividing line between the two is somewhat uncertain, there are clear contrasts between their most prototypical forms. Notably, “cause-effect SVCs” consist of two open-class lexical verbs, while “causative SVCs”, on the other hand, are formed with one closed-class, functional verb and one open-class, lexical verb. To be clear, “causative SVCs” in the specific sense used by Aikhenvald and Dixon (2006) are not considered genuine SVCs under the criteria adopted in Section 1 of this paper. But regardless of the specific labels employed, the present analysis predicts that these two groups of constructions should pattern just as observed in Hmong: the first group should only be able to express direct causation, while the second should allow for indirect causation.

The examples Aikhenvald (2006, 16-17) uses to illustrate these two groups of constructions align with this prediction: the Mwothlap “cause-effect SVC” in (57) formed with the rich lexical verb *tit* ‘punch’ appears to describe direct causation, while the Yimas “causative SVC” in (58) formed with the functional verb *cay* ‘try to make’ appears to describe indirect causation. To the extent that these examples are representative of two robust groups of constructions, it appears that the present analysis makes a correct prediction.

- (57) “Cause-effect SVC” Mwothlap (François 2006, cited in Aikhenvald 2006, 16)
 Tali mi-**tit** **teñ teñ** Kevin
 Tali PRF-punch cry REDUP Kevin
 ‘Tali made Kevin cry by punching him.’
- (58) “Causative SVC” Yimas (Foley and Olson 1985, cited in Aikhenvald 2006, 17)
 na-bu-**wul-cay**-pra-kiak
 3SGO-3SGS-**afraid-try.to.make**-come-remote.past
 ‘They tried to make him afraid as he came.’

Unfortunately, this conclusion is still rather speculative at present. Many descriptions of these and other similar constructions do not explicitly address the (in)directness of causation, so it remains somewhat unclear how robust a group “cause-effect” SVCs really are, and how strictly they correlate with direct causation cross-linguistically.

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 the primary criterion. Emblematic of this approach is the ‘Argument Sharing Hypothesis’ of Collins (1997) (see also Déchaine, 1986; Foley and Olson, 1985; Baker, 1989), which offers the definition of serialization in (59).

(59) Argument Sharing Hypothesis (Collins, 1997):

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

Historically, many analyses have pursued this same intuition. These have operated under a variety of theoretical assumptions, but have aimed for the same general goal: to precisely encode argument-sharing in the syntax. In doing so, they have often employed more complex or ‘exotic’ syntactic structures/behaviors, including multiple-headed VPs (Baker, 1989), widespread empty categories (Hale, 1991), object control (Collins, 1997), or multidominance (Hiraiwa and Bodomo, 2008). While employing a more complex syntax is not problematic *per se*, there are some disadvantages to this approach.

First, in light of more recent typological work on serialization, this hypothesis in its strict form no longer appears empirically tenable. So-called “switch-function” serialization (Aikhenvald, 2006), in which the apparent internal argument of V_1 functions as the apparent external argument of V_2 , has proven to be a relatively common pattern cross-linguistically (with the Hmong direct causative construction being one relevant example). And at least one author, Aboh (2009), has explicitly argued against the Argument Sharing Hypothesis for a particular group of languages.²⁰ Even a requirement that *some* argument be shared faces empirical challenges. Though relatively uncommon, certain constructions with *no* shared arguments have been described as SVCs (see Aikhenvald (2006, p. 18–21) on so-called “event-argument” and “resultative” SVCs).

Second, one might expect *a priori* that in those languages in which serialization is a relatively common and productive strategy, it instantiates a relatively simple underlying syntax. But this is not necessarily a feature of the 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).

Third, 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 result from semantic inferences, like those discussed by Kratzer (2005) in the context of English resultatives. For example, a sentence like *the butler wiped the table clean* 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 analysis proposed in this paper offers a potential way to resolve these issues. We have seen an example of an SVC, the Hmong direct causative, that is formed by merging one verbal root in v and another in a functional head within the same event domain (in this case, v_{CAUSE}). But it’s not clear why v_{CAUSE} alone should show this

²⁰Aboh (2009) argues that in the Kwa languages, V_1 of the SVC is in fact a functional verb that spells out Asp^o, 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.

behavior; presumably, other functional heads might be equally good candidates for hosting verbal roots.²¹

In this view, SVCs can be defined as those constructions that result when multiple verbal roots merge within the first phase of the same extended projection, with the properties of specific constructions varying depending on the underlying syntactic structures and 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 is treated as a primary factor, if not *the* primary factor, in diagnosing verb serialization (Aikhenvald 2006; Bisang 2009; Cleary-Kemp 2015, Haspelmath cf. 2016). When multiple verbal roots merge within the same event domain, they naturally come to describe a single event.

What are the consequences of this view for argument sharing? In a Neo-Davidsonian semantics, a DP argument must compose with the property of events via a thematic function. One possible way to account for argument-sharing in SVCs is to take the strict position that shared arguments must receive *multiple* thematic roles, one from each predicate (or subevent-denoting head) that shares it. That is, a shared argument must be related to multiple parts of the complex property of events that the SVC denotes. 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 via a single thematic function. As the various parts of the event are already quite closely connected, the semantic 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 any predicate–argument relationship in the syntax.

Importantly, this analysis also predicts limits on the expressive power of SVCs cross-linguistically. As the distribution of verbal roots is restricted by the constraint given in (30) 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 from typological studies of serialization (see Aikhenvald, 2006), it appears to be borne out cross-linguistically as well.

²¹As mentioned in Section 3.4, I argue in forthcoming work that other Hmong SVCs involve the merger of verbal roots in Res and (prepositional) Path heads. Broadening the scope of the data to include other constructions and other languages, we might also expect to find SVCs in which verbal roots spell out Voice^o or Appl^o.

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