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A Causal Decomposition for Associated Motion Events in Santiago Laxopa Zapotec

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1. Introduction

It is a common observation that language is limited in the kinds of events it may encode in a single clause. Vendler (1957) posits that the most complex event descriptions, accomplishments, describe a process and its result. Seemingly in line with such a limit, English resultatives can only specify result states with post-verbal lexical material if a result isn't already present (Levin & Rappaport Hovav 1995), and productive morphological causatives in e.g. Hindi-Urdu (Bhatt & Embick [2003] 2017, Ramchand 2008) and Japanese (Harley 2008, Pytkäinen 2008) often feature similar restrictions on application.

Sometimes it has been claimed based on these kinds of observations that there are cross-linguistic, conceptual limits on the complexity and content of event descriptions (e.g. Levin & Rappaport Hovav 1995), within a theory of templatic verbal meaning with atoms like *DO* and *CAUSE* (Dowty 1979). Other approaches, e.g. Borer (2005), propose constraints derived from limited generativity in the syntax, where individual syntactic heads correspond to those Dowtian atoms. Not everyone admits the existence of hard constraints, however: Ramchand (2008) proposes canonical events involve a tripartite verbal syntax, but leaves open the possibility of recursion within that syntax for more complex meanings.

Accounts of these restrictions make strong predictions which have not been rigorously examined outside of the domain of causatives and resultatives. In this paper, I introduce a type of morphologically-complex predicate which has not yet been discussed in this literature, and which is free from the proposed restrictions discussed above. Though monoclausal, it describes a complex event with more atomic sub-events than merely a process and a result, and its sub-events are related in a manner which is not among the canonical Dowtian relations. In the face of this data, our theories of the restrictions on event composition will need to expand, or else we must understand why these exceptions should be permitted.

The construction in question is one in Santiago Laxopa Zapotec¹ (SLZ; Oto-Manguen, Oaxaca) where verbs marked with a certain set of prefixes, the *VENitive* *de-* and *ANDative* *ja-*, indicate that the event denoted by the verb is preceded by a motion event of coming or going, respectively.

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|-----|----|--------------------------|----------|----|--------------------------|----------|
| (1) | a. | B- <u>de</u> -ya'a | Xwanha'. | b. | ø- <u>ja</u> -ya'a | Xwanha'. |
| | | COMP- <u>VEN</u> -dance | Juana. | | COMP- <u>AND</u> -dance | Juana. |
| | | "Juana came and danced." | | | "Juana went and danced." | |

As it turns out, such constructions are not infrequent in the world's languages. Modern work in typology has settled on the appellation of ASSOCIATED MOTION (AM), and identified such systems in a large proportion of the world's languages, many of which closely resemble the construction I'll discuss. I will not treat the typology in detail here; see Guillaume & Koch (2021) for an in-depth introduction.

In this paper, with an eye towards these larger questions about the nature of and restrictions on event composition, I develop an account of the meaning of associated motion in SLZ. There are two particular puzzles for our semantics. First, associated motion presents a complex event made up of a sequence

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¹ A Northern Zapotec language spoken by around 1,200 people, mostly in the Sierra Norte village of Santiago Laxopa. Data here comes from virtual elicitations 2020-21 with a native speaker living in Santa Cruz, CA. The features of this construction vary across Zapotec languages, see Anderson (2019) on a Central Zapotec language.

More broadly, this proposal suggests that we might understand associated motion and the ways it breaks our current theories of the limits on event composition by looking further into the importance of enablement and plans. I offer some of this exploration here, bringing together other problematic data to argue that plans seem to be at the core of a larger class of exceptionally complex event descriptions. This picture supports a theory of event composition which is more generative than previously imagined, but still conditioned and constrained by certain universals.

To begin, I will motivate three notable generalizations about the meaning of the associated motion construction in SLZ: (i) it describes a sequence of two events, Motion and Goal, which need not be strictly temporally adjacent; (ii) grammatical aspect interacts with that sequence as a single event; and (iii) the sequence's single external argument must be a sentient, intentional actor. Interestingly, generalization (ii) shows us that the two events must somehow become a whole, and generalization (iii) shows us the semantics of this whole event must be strictly more than the sum of those two sub-events.

Associated motion constructions entail a Motion event with a particular deictic orientation determined by the prefix. For instance, sentences featuring the venitive entail events of “coming,” motion towards the deictic center (2a). More strikingly, associated motion in SLZ also entails the realization of a second eventuality, the Goal specified by the prejacant verb and arguments. The construction is generally² infelicitous in situations where a Goal has not been realized, even if the subject intended to realize it (2b).

- The restrictions on the temporal relationship between Motion and Goal are rather loose. As is implicit in the terms I've adopted, Motion must precede Goal (3a). But there may be a significant period of time between the two events, during which the subject may undertake other activities (3b).

- ² My consultant permits the Goal to be merely prospective in a minority of predicates, e.g. (i) *-de-seni'a... yi'inhdo*, 'to come cook mole' and (ii) *-ja-tsuju... yej*, 'to go pick flower(s)'. No pattern is clear: e.g., (iii) *-de-yunhu... yu'u*, 'to come build house(s)' is stricter, despite being a verb of creation with an indefinite object like (i). These exceptions are set aside, but this clearly merits further investigation with a larger sample of speakers.

- b. Context: Juana arrived in Laxopa, slept, and danced at a fiesta on the next day.
 B-de-ya'a Xwanha' Laxup.
 COMP-VEN-dance Juana Laxopa.
 "Juana came and danced in Laxopa." (SLZ5063-010)

We are left with the generalization that associated motion describes a realized sequence of two events, Motion and Goal, which need not be temporally adjacent.

2.2. Interactions with aspect

Within the grammar these events are seen as components of a single meta-event. We can see this by examining the interaction of associated motion complexes with aspect.

In SLZ, completive marking introduces perfective outer aspect (Toosarvandani 2020). In simple clauses, this obligates telic events to culminate; that is, to reach their specified result states. As such, telic predicates marked with the completive are incompatible with denial of conclusion using the aspectual verb *biyuhll*, 'finish' (4a). Other aspect markers in the language, like the CONTINUATIVE, which can contribute imperfective aspect, are perfectly compatible with a lack of culmination (4b).

- (4) a. U-do Bedw'nh xwe. # Bitu b-iyuhll u-do =ba'.
 COMP-eat Pedro lunch NEG COMP-finish COMP-eat =he
 "Pedro ate lunch. He didn't finish eating." (Contr.) (SLZ5047-019)
- b. Dz-o Bedw'nh xwe. Bitu b-iyuhll u-do =ba'.
 CONT-eat Pedro lunch NEG COMP-finish COMP-eat =he
 "Pedro was eating lunch. He didn't finish eating." (SLZ5047-021)

The culmination entailment, in general,³ applies to associated motion with completive marking as well. When the Goal is telic, its result state regularly must hold when the whole complex is marked with the perfective (5).

- (5) B-de-do Bedw'nh xwe. # Bitu b-iyuhll u-do =ba'.
 COMP-VEN-eat Pedro lunch NEG COMP-finish COMP-eat =he
 "Pedro came and ate lunch. He didn't finish eating." (Contr.) (SLZ5047-040)

Assuming only one, simple perfective semantics for the completive, it would seem that associated motion sequences present their sub-events to aspect packaged in a single event description.

2.3. Intentional subjects

The associated motion complex has only one subject, which must be assigned the figure role in the Motion sub-event and the canonical subject role in the Goal sub-event. However, regardless of the typical subject properties of the Goal predicate, this subject must be an intentional actor.

We can see this obligation most clearly by examining the behavior of verbs which do not typically require intentional action, like *-xixe*, 'sneeze' (6a). When such a verb is used together with an associated motion prefix, it is no longer compatible with such accidents (6b). My consultant judges that the first sentence of (6b) can only describe the somewhat implausible and humorous scenario where Juana has traveled somewhere with the explicit intention of sneezing, or pretending to sneeze.

- (6) a. B-xixe Xwanha'. Bitu b-enhde =ba' =nh.
 COMP-sneeze Juana NEG COMP-do.on.purpose =she =it
 "Juana sneezed. She didn't do it on purpose." (SLZ5072)

³ The exceptions from fn. 2 apply, in addition to a few further exceptions which do require initiation, but not completion, e.g. *de-zuj... tu kart*, 'to come write a letter' and *ja-yep... ya'ado* 'to go climb mountain(s)'. But cf. unexceptional *de-xua... galje yet*, 'to come prepare twenty tortillas' and *ja-do... tu pastel'enh*, 'to go eat a cake'.

- b. B-de-xixe Xwanha'. # Bitu b-enhde =ba' =nh.
 COMP-VEN-sneeze Juana NEG COMP-do.on.purpose =she =it
 "Juana came and sneezed. She didn't do it on purpose." (Contr.) (SLZ5072)

This intentionality restriction seems to be an at-issue entailment of associated motion: if a sequence of events meets all the requirements discussed in prior sections, but the subject does not intend to realize the Goal, a speaker can't use associated motion (7a)—and indeed can felicitously deny it (7b).

- (7) Context: J. entered a room where P. was sleeping to get a book and accidentally woke him up.
 a. # Ja-s-banh Xwanha' Bedw'nh.
 COMP.AND-CAUS-awake Juana Pedro.
 Int: "Juana went and woke up Pedro." (SLZ5051-061)
 b. Bitu ja-s-banh =ba' Bedw'nh, perw be-s-banh =ba' leba'.
 NEG COMP.AND-CAUS-awake =she Pedro but COMP-CAUS-awake =she him
 "She didn't go wake up Pedro, but she did wake him up." (SLZ5062-014)

I conclude that associated motion must somehow introduce an entailment of subject intention, above and beyond entailment of Motion, and whatever lexical entailments come with the Goal.

3. The semantics of associated motion in SLZ: Enablement and plans

From the data above, we arrive at two key tensions in the meaning conveyed by associated motion in SLZ: (i) Motion and Goal are grammatically sub-events of some larger event despite lacking temporal coherence, and (ii) the construction introduces a requirement that the subject participate in the latter event intentionally. In this section, I will formulate a semantics which can navigate these tensions and accurately capture the meaning of the construction, previewed in (8).

- (8) $[[\text{VEN-dance Juana}]] \rightsquigarrow \lambda e_s. \exists e_1, e_2 \sqsubset e [\text{ENABLE}(e_1, e_2) \wedge \text{come}'(e_1, \text{JUANA}) \wedge \text{dance}'(e_2, \text{JUANA})]$
 $\wedge \exists s [\text{PLAN}(s, \text{JUANA}) \wedge \text{CAUSE}(s, e)]$

First, I argue that the two sub-events stand in a relationship of *enablement* with each other. This makes the right predictions when compared to an account couched in simple precedence. The second, and central component of the proposal draws on existing proposals for intentionality couched in *plans* as a component of event structure. I adopt an account where the associated motion construction entails that the subject holds a plan for the Goal. I show that a more parsimonious account which tries to capture intentionality without plans would face significant challenges that lead me to prefer the plan-based approach.

3.1. Not simple precedence or direct causation, but enablement

Given the data discussed in §2.1, a simple null hypothesis might be that the construction relates Motion and Goal sub-events only in terms of temporal order. This might look something like (9).

- (9) $[[\text{VEN-dance Juana}]] \rightsquigarrow \lambda e_s. \exists e_1, e_2 \sqsubset e [\tau(e_1) < \tau(e_2) \wedge \text{come}'(e_1, \text{JUANA}) \wedge \text{dance}'(e_2, \text{JUANA})]$

Ultimately, an approach like this can't be correct. It turns out that there are sequences of Motion and Goal with the appropriate order that are nevertheless infelicitous to describe with associated motion (10).

- (10) Context: As planned, J. visited us on Monday, then went back home and danced there on Tuesday.
 #B-de-ya'a Xwanha'.
 COMP-VEN-dance Juana
 Int: "Juana came and danced." (SLZ5074-004)

What seems to be crucial to this example's infelicity is that here, Juana's dancing is no longer contingent on her going to Laxopa, in the sense of Moens & Steedman (1988). A purely temporal semantics doesn't predict that such contingency would be necessary, so we need something more.

Independently of the evidence, a complex event whose subparts are related only in time would have been somewhat surprising given what we know about complex events like causatives and resultatives. Nevertheless, we can't lean directly on traditional theories of those phenomena either. Following e.g. Bittner (1999) and Levin (2020), the contingency exhibited in those constructions is limited to direct causation. While temporal precedence is too weak, direct causality is too strong for associated motion, as these sequences freely admit intervening time and events.

I propose that the correct approach is a type of weak causation, such that the Motion event merely must contribute to the particular occurrence of the Goal. Truswell (2011), drawing from similar proposals by force-dynamic theorists like Talmy (1988) and Wolff (2003), calls this kind of dependency *enablement*.

$$(11) \text{ ENABLE}(e_1, e_2) := \text{the occurrence of } e_1 \text{ positively influences the occurrence of } e_2$$

With this enablement relation we can also ultimately derive the temporal precedence requirement: given that causal contributions flow in only one direction, an enabling event must precede the event it enables. And finally, note that though we have ruled out irrelevant or subsequent motion, an enablement approach is not too strong to rule out acceptable cases like (3b). So long as a Motion event contributes to the occurrence of a Goal, associated motion is predicted to be felicitous, regardless of intervening time.

An enablement account thus allows us to capture all of the data, and moreover leaves us in a desirable world where sub-events of associated motion meta-events, like accomplishments and causatives, stand in a non-trivial relationship with one another. In accomplishments, that relationship is direct CAUSE, and in associated motion that relationship is the weaker ENABLE.⁴ A simple denotation for associated motion featuring enablement would look as in (12).

$$(12) \llbracket \text{VEN-dance Juana} \rrbracket \rightsquigarrow \lambda e_s. \exists e_1, e_2 \sqsubset e [\text{ENABLE}(e_1, e_2) \wedge \text{come}'(e_1, \text{JUANA}) \wedge \text{dance}'(e_2, \text{JUANA})]$$

3.2. Plans, and how we can apply them for associated motion

In the remainder of this section, I will turn to the second piece of my proposal, arguing that the intentionality of associated motion subjects is a reflex of a plan entailment.

The intuition that certain linguistic constructions make reference to events which are planned is common to many proposals for the semantics of the progressive, the future, and especially the futurate (e.g. Dowty 1979, Landman 1992, Copley 2008). In such cases, the notion of a plan is usually given a modal semantics: if there is a plan for p held by x , p holds in all metaphysically-accessible possible worlds which are optimal on x 's desires (Copley 2008). When talking of merely forecasted events, the existence of a plan for e is one way we might forecast e . But the notion of a plan need not be only used in accounts of predictive language.

Plans can be held by individuals for events in which they don't participate, but on the special condition when they are held for events in the planner's control, they become a window onto one way to formalize intention. Using the definition above, it is very nearly the same thing for x to do e intentionally as for x to hold a plan to do e and then do e .⁵ It is this connection to intentionality that makes plans relevant here.

This is somewhat of a change to how we might usually go about formalizing intentional action, as a subcomponent of a thematic relation between events and arguments (Dowty 1991). But assuming that the associated motion construction does not modify the argument semantics associated with the Goal verb, we cannot adopt such a thematic approach to the intentionality introduced by associated motion. One

⁴ Interestingly, if we follow Altshuler (2016), a similar pair of non-trivial relations holds for narrative sequencing in discourse, with RESULT and NARRATION relations paralleling CAUSE and ENABLE respectively.

⁵ Cases where they diverge feature strange circumstances in the time between the plan and e . With some assumptions, the causal approach I'll adopt from Copley (2014) can do away with these through a requirement that the plan ultimately cause e rather than just exist at some prior moment.

of the consequences of approaching intention via the existence of a plan instead is that intention can be understood as separate from an argument's lexically-specified participation in an event.

To be specific, here I will follow Copley (2014) away from a modal account of plans, and into one which conceives of plans as part of event structure, which can be located in time, and exert causal forces. I will treat plans for an eventuality e as a state s which an individual (the plan's *director*) may be in. They exert causal force by their enactment: a plan for e can cause e if it is followed and e is achieved. In this way of thinking, intentional events e_i are those with causal chains that include a plan state for e_i held by an event participant.

Copley's work provides evidence that plans can be part of the grammar of event structure from two intentional constructions in English: futurates (Dowty 1979, Copley 2008, 2014, 2018) and *have*-causatives (Copley & Harley 2009, Copley 2018).⁶ Both of these constructions are only felicitous if the predicate they are built on can be planned (13). But what's crucial is that this plannability restriction co-occurs with event structural consequences: from patterns of modification by temporal and manner adverbials we can diagnose that the plan is present in the structure as a state (14).

- (13) a. The Red Sox (play, #beat) the Yankees tomorrow. (Copley 2008: p. 261)
b. Obama had (Clinton travel to France, #it rain) last Tuesday. (Copley & Harley 2009: p. 5)
- (14) a. Yesterday, John was getting married right now. (Copley 2014: p. 74)
b. In 1999, the DNC had the primaries start with Iowa in 2000.

The futurate also shows us that plans are independent from a requirement for an intentionally-acting argument. In (13a), the director of the relevant plan need not be the Red Sox, but instead is most naturally the organization responsible for the scheduling of baseball games. A thematic theory of intention could say nothing about the presence of intention here, unless by positing an extra implicit argument.

But this is not to say that plan entailments don't sometimes relate to argument structure: in *have*-causatives the matrix subject is mandatorily the director. This explains why subjects of *have*-causatives regularly must be acting intentionally: director-subjects necessarily hold a plan for the embedded event.

A version of Copley's (2018) denotation of a *have*-causative is given in (15), simplified to the formalism I will use going forward.⁷ Here, the predicate *PLAN* takes the plan state s and the director x as arguments, and the predicate *CAUSE* must dictate that the resulting event be the one which was planned.

- (15) $\llbracket \text{have Juana dance} \rrbracket \rightsquigarrow \lambda x_e \lambda s_s. \text{PLAN}(s, x) \wedge \text{CAUSE}(s, e) \wedge \text{dance}'(e, \text{JUANA})$

Accepting these proposals as evidence that plans are visible elsewhere in grammar, an entailment of a plan thus offers us a way of deriving intention in the case of associated motion. Just as outlined for *have*-causatives above, we will want associated motion to entail the existence of a plan to bring about the main verbal sequence with the subject as director. In light of this, we can supplement the simple denotation from (12) to arrive at (16).

- (16) $\llbracket \text{VEN-dance Juana} \rrbracket \rightsquigarrow \lambda e_s. \exists e_1, e_2 \sqsubset e [\text{ENABLE}(e_1, e_2) \wedge \text{come}'(e_1, \text{JUANA}) \wedge \text{dance}'(e_2, \text{JUANA})]$
 $\wedge \exists s [\text{PLAN}(s, \text{JUANA}) \wedge \text{CAUSE}(s, e)]$

The subject of the construction will be the director of a plan which brings about the eventuality described by the main event predicate. By virtue of this director status, the subject must hold the intention of realizing the sequence of Motion and Goal.

⁶ Properly, these constructions do admit non-planned exceptions: Copley (2018) proposes that they require *dispositions*, states which can bring about a temporally distant effect, of which plans are merely the most common type.

⁷ Note that this encodes some entailments which Copley chooses to leave unspecified, in particular specifying the nature of the relationship between x and e' as mediated by a plan e .

There is some deviation here from the previous deployments of plans discussed above: for instance, the plan lies outside of the visible event variable, and won't be visible to tense or aspect.⁸ Perhaps this would be objectionable to some restrictive theory of decomposition which admitted plans only in particular configurations within an event description, but in the absence of any such theories, I see this to be a reasonable possibility given these building blocks.

3.3. Considering a modal alternative

I will conclude this part of the paper by examining an alternative way of deriving associated motion's intention requirement, in an effort to justify the path taken above. The particular alternative is one which may seem more intuitive and parsimonious than a recourse to plan entailments: a modal dependency anchored to the subject. Nevertheless, I'll show that its viability requires assumptions and enrichments which make it a much less appealing explanation.

Were we to translate the plan intuition couched above into modal terms, we might arrive at a denotation something like (17), where BOUL is the set of desirable and epistemically accessible worlds for an individual as defined in (18). Here, intentionality is derived by locating the Goal event (underlined) not only in the real world, but also as a desired consequence of the Motion event for the subject.

$$(17) \quad \llbracket \text{VEN-dance} \rrbracket^w \rightsquigarrow \lambda x \lambda e. \exists e_1, e_2 \sqsubset e \left[\text{come}'(e_1, x, w) \wedge \text{ENABLE}(e_1, e_2, w) \wedge \text{dance}'(e_2, x, w) \wedge \right. \\ \left. \forall w' (w' \in \text{BOUL}(x, \tau(e_1), w)) \left[\exists e' [\text{ENABLE}(e_1, e', w') \wedge \text{dance}'(e', x, w')] \right] \right]$$

$$(18) \quad \text{BOUL}(x, t, w) = \lambda w'. w' \text{ is accessible to } w \text{ according to the beliefs of } x \text{ at } t \text{ and } w' \text{ is optimal on the desires of } x \text{ at } t.$$

Note that if we took away the occurrence of actuality, this would be a suitable approach to the meaning of the motion-plus-infinitive construction in English (19), resembling the proposal of Truswell (2011). It seems desirable that intentionality could be derived in the same way for these two similar constructions.

$$(19) \quad \llbracket \text{come to dance} \rrbracket^w \rightsquigarrow \lambda x \lambda e. \text{come}'(e, x, w) \wedge \\ \forall w' (w' \in \text{BOUL}(x, \tau(e), w)) \left[\exists e' [\text{ENABLE}(e, e', w') \wedge \text{dance}'(e', x, w')] \right]$$

It is perfectly possible for a construction or lexical item to entail duplicate events inside and outside of a modal operator like (17). In some sense, this is a very intuitive conception of what it means to do something intentionally: to actualize an intention. But in the domain of modality, we have access to explanations which might derive the connection between the modal and the actual more parsimoniously. Actuality entailments of exactly this kind have been shown to arise with particular interactions of modality and perfectivity (Bhatt 1999, Hacquard 2009). For instance, in French, perfective, and not imperfective ability modals entail the complement to have occurred in actuality. For Hacquard (2009), this arises because perfective aspect locates events in its scope in the actual world. When there is modality within that scope, the event e described in the scope of the modal will not only occur in w' but also w .

Perhaps perfectivity in SLZ has the same actuality component. This would derive the actuality in (17) from a non-redundant event description like (19). Unfortunately, an approach that depends on actuality introduced by the perfective encounters two major problems: (i) perfective aspect doesn't generate actuality entailments for SLZ's own motion-plus-infinitive construction (20a); and (ii) associated motion's actuality entailments are not limited to perfective aspect, also occurring (subject to higher modality) with e.g. the future-oriented potential (20b).

⁸ Another deviation comes in limiting the proposal to merely plans, rather than the entire set of dispositions considered by Copley (2018). This is mostly for convenience here: In SLZ, AM subjects can only be animate plan-holders, but this restriction to plans is probably due to selectional restrictions on subjects of deictic durative motion events: e.g. *-ide* 'come' and *-ej* 'go' independently require animate subjects. If AM subjects must also be animate, we would derive the limitation to plans even if we substituted DISPOSITION for PLAN in the denotation.

- (20) a. B-ide Xwanha' wi-ya'a, perw bitu b-ya'a =ba'.
 COMP-come Juana INF-dance but NEG COMP-dance =she
 "Juana came to dance, but she didn't dance." (SLZ5074-007)
- b. De-ya'a Xwanha'. # Bitu e-ya'a =ba'.
 POT.VEN-dance Juana NEG POT-dance =she
 "Juana will come and dance. She won't dance." (Contr.) (SLZ5074-016)

Neither of these are impossible for a modal, actuality-entailment account to deal with, but the weight of the assumptions that will be necessary ultimately make this type of explanation less fortuitous for SLZ than the plan-based account. We would need to assume that constructions can differ in how they interact with actuality-triggering aspect semantics, and that the actuality trigger can occur in a wider distribution of aspect categories than previously observed. I do not have evidence against these assumptions, but it seems to me that we might at this point give up on the idea that such an account would be a parsimonious way to derive intentionality while maintaining the actuality of the Goal, without merely stipulating duplication of an event in subject-desirable and actual worlds.

We may still be comfortable with the account sketched in (17), essentially a plan entailment cast in modality and not event structure. As it turns out, understanding intention as related to event structure is useful for understanding patterns that will be discussed in the next section. As a result, though we don't have any evidence which discriminates between these options, I ultimately favor the plan-based approach.

4. Revisiting restrictions on complex events

Above, I have demonstrated how the machinery of enablement and a plan entailment might derive the particular causal structure of the associated motion meta-event and the intentionality of its subject. This is a contribution in and of itself, demonstrating that semantic puzzles posed by a previously unstudied construction can be understood within the bounds of currently accepted theories for linguistic meaning and the way it is composed. Even still, as noted in the introduction, the way I have combined pieces here, however independently-motivated they are, generates a type of complex event description which is unfamiliar to theories that would posit strict limitations on verbal meaning. The possibility of a predicate *ENABLE*, and even the possibility of relating multiple processes within the same event description, break certain generalizations within our most restrictive theories. In this section, I will suggest one way we can deal with such exceptions to typical verbal meaning without throwing away a restrictive theory. It is key that we observe these exceptions in the presence of plan entailments. I propose that plans⁹ are a mandatory property of events which lie outside typical restrictions on compositional complexity.

To do this, we can consider some evidence in the literature on event structure in English that in fact many complex predicates require an intentional subject. We can capture these data, and maintain a restrictive theory of decomposition, if we assume that these cases also require the existence of a plan.

The class of predicates I will examine are those which permit gaps in their run-times, sub-eventualities (under relevant granularity) which don't satisfy the appropriate event description or represent an incremental subpart of an event which does so. I'll assume the right notion of those sub-eventualities which are not gaps is in particular a "process stage" in the sense of Landman (1992), which relation I'll write as simply *STAGE*. Gaps would correspond to Landman's "planning stages" and "pause stages".

- (21) A predicate *P* permits gaps iff: $\exists e, e' [P(e) \wedge e' \sqsubset e \wedge \neg \text{STAGE}(e', e)]$

As an example, Tovena (2011) points out that the accomplishment in (22) is perfectly felicitous even in a context where the hour run-time includes a gap where Max is not performing any action on the radio.

- (22) Context: Max fiddled around with the device for 15 minutes, sat still for 15 minutes, and then worked with his hands actively on the device for 30 more minutes and succeeded.
 Max repaired the radio in one hour.

⁹ I leave open the possibility that, following Copley (2018), what we actually want here are dispositions.

According to Tovená, what makes this possible is that it presents an eventuality that involves a plan: repairs occur with an intentional telos for a working object. This seems to correctly rule in and out other examples. When a telos is present due to the desires of some individual, unexpected pauses or even backtracking can be included in the event (23a), but in a similar scenario which lacked anyone's intentions or expectations, this would no longer be an appropriate way to describe an event with these lapses (23b).

- (23) Context: A persistent but clumsy groundsperson was cleaning a football field. He saw a leaf at one goal line, and began, tediously, using his leaf blower to blow it to a pile at the other end of the field. For 15 minutes, he blew it continuously forward, but then he got turned around and after another 15 minutes he had blown it nearly back to its starting point. He took a 15-minute break before finally, after another 15 minutes, he blew it all the way to his pile at the opposite goal line.
- a. The groundsperson blew the leaf across the field in one hour.
 - b. # The wind blew the leaf across the field in one hour.

Others have observed the same requirement for a plan when coercing an activity to an accomplishment by accommodating reference to a preceding state (Moens & Steedman 1988, Copley & Harley 2015).

It seems that there is a dependence between the presence of a plan and the flexibility of an event description. Within a causal approach to plans, we might say that gaps are only permissible in events caused by a plan. What is not clear at present is why this should be. One way in which it could be derived involves the wholesale restructuring of the Davidsonian program, as proposed by Copley & Harley (2015) or Tovená (2011). If the Davidsonian variable is a force rather than an event, then the types of events which are described by a clause must be those which are the course of a single force. The only forces whose course could include a gap, it seems, would be those forces instantiated in complex plans.

While this offers a parsimonious way of capturing the generalization, for the purposes of this work I will refrain from recasting event semantics so fully. Instead, I will just propose it as a filter on the acceptability of the meanings affiliated with the event projection of a clause.

- (24) EVENT FILTER: For a prejacent P to Asp, if P admits events e with a gap, a plan must cause e .
- $$\forall e (P(e) \wedge \exists e' [e' \sqsubset e \wedge \neg \text{STAGE}(e', e)]) [\exists s, d [\text{PLAN}(s, d) \wedge \text{CAUSE}(s, e)]]$$

Intuitively, such a filter seems to say something about the integrity of event descriptions: plans are a way for an event to hang together even when it is complex enough to lack temporal contiguity.

Note that as stated, this is a restriction on possible meanings for entire verbal predicates, not necessarily particular lexical verbs. I understand this as being grammatical pressure which then is transmitted onto the entailments of the subparts of such predicates. In some cases (e.g., 23) we observe flexibility of single lexical items to occur with or without plans. As a result, it must be possible at least some of the time for the plan entailment to arise as a non-lexical inference, or perhaps, alongside a particular theory of verbal syntax, higher in the structure than the verb itself. Nevertheless, it seems reasonable to assume in other cases this pressure will lead to a plan being grammaticalized as part of the unchanging entailments of a particular vocabulary item.¹⁰ This is what I conclude about the associated motion prefixes. As morphemes that construct event descriptions which, due to their enablement relation, admit gaps (see §2.1 and §3.1), they have been associated with a plan entailment.

This Event Filter does not stand alone: Similar proposals have been made in other work grappling with relationships between intention and event complexity. For instance, Wolff (2003) describes the importance of an intentional agent in a series of experiments on the felicity of lexical vs. periphrastic causatives (e.g. *move* vs. *make move*). He found that participants were willing to describe sequences of events which were not linked by direct causation using lexical causatives, but only when a sentient character seemed to initiate the sequence in order to realize a goal. This dependency between enablement and intentionality is also present in Truswell (2011). As discussed in §3.1, for Truswell, event descriptions may only be made up of sub-events related by direct CAUSE or else ENABLE, but for Truswell, ENABLE is

¹⁰ What other morphemes might do this? Auxiliary *come* and *go* in English (as in *go get*) also seem monoclausal, permit gaps, and are known to require intentional subjects (Shopen 1971, Anderson 2019, *i.m.a.*).

actually a triadic relation which construes a sub-event e_1 as enabling the realization of a following sub-event e_2 by an intentional actor x . As a result, any event description without temporal coherence would require a plan. This would include all cases discussed above, including *repair* but also associated motion.

How is this hard limit related to the apparently-distinct hard limits for resultatives, and many (if not all) causatives? Truswell (2011) provides some preliminary insight: He thinks of the larger complex events that enablement might derive as ‘extended events’, a class of events built of ‘core events’. The latter are those which conform to the templates of e.g. Levin & Rappaport Hovav (1995), and are maximal at a certain point in the structure, perhaps the ν P. Expansion into an ‘extended event’ is then permitted, conditioned on more lax restrictions like the Event Filter, within a larger domain: the scope of an operator like Asp which existentially closes the event variable. Note that this would predict that heads like ν EN must compose between ν P and Asp; in forthcoming work I show that this is indeed the case for associated motion in SLZ (Duff, to appear).

If the particular predictions of this nested-domain theory can be investigated and supported further, it strikes me as a reasonable expansion upon our existing theories that leave room for constructions with semantics like the one I’ve proposed here for associated motion, without giving up on a restrictive theory of events in languages. It seems that the best path towards this kind of investigation will require continued investigation of morphologically-complex events in less-studied languages.

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