The causal properties of associated motion

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In this talk:

Empirical focus: Santiago Laxopa Zapotec features a mono-clausal complex verbal construction with puzzling properties.

Proposal: The construction is best understood as introducing two sub-events related by **enablement**.

Upshot: Enablement in decomposition appears to be highly constrained, in a way which sheds light on the constraints on the complexity of a single clause.

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Background: Event decomposition

- Diagnostics for telicity, eventivity, and duration reveal a restricted typology of verbal meaning (Vendler, 1957): e.g. activities, accomplishments, etc.
- Following Dowty (1979), sub-eventualities combining via a restricted library of atomic relations (Levin & Rappaport Hovav, 1995; Borer, 2005; Ramchand, 2008)

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- Among these atoms is often a singular CAUSE relation
- Indeed, one type of causal dependency, "direct causation" seems to be shared cross-linguistically among:
  - lexical accomplishment verbs (*squash*)
  - (certain classes of) morphologically derived causatives (*flatten*)
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Some (more or less) typical decompositions

(1) $[\![[\text{Marta squash the can}]_{vP}]\!] \rightsquigarrow \lambda e\ .\ \exists e_1, e_2 \sqsubset e$
$[\text{DO}(e_1, \text{Marta}) \wedge \text{CAUSE}(e_1, e_2) \wedge \text{flat'}(e_2, \text{can})]$

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Background: Causal flavors

- "Direct causation" isn't the only causal dependency in natural language
  - multi-clausal constructions: *cause*, *make*, *have*, *let*[1]
  - structurally-higher causative derivation in e.g. Hindi-Urdu[2]
- Is direct causation really all that's possible within a clause?
- Why should there be any restrictions on the causal complexity of a single clause?

[1] Baglini & Bar-Asher Siegal (2020); Nadathur & Lauer (2020); Copley (2018); Donazzan et al. (2020)

[2] Singh (1992); Bhatt & Embick ([2003] 2017); Butt (2003); Ramchand (2008); Bhatia (2016)

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Associated motion in Santiago Laxopa Zapotec (SLZ)

(4) The VENITIVE in SLZ:

a. B-ya'a Xwanha'.
PERF-dance Juana
"Juana danced."

b. B-**de**-ya'a Xwanha'.
PERF-**VEN**-dance Juana
"Juana **came and** danced."

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Roadmap

1. Introduction
2. **Key data:** Associated motion in SLZ
3. **Proposal:** Enablement, not direct causation
4. **Discussion:** What's so weird about enablement?

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Introduction

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Discussion: What's so weird about enablement?

Associated motion?

- Well-attested construction, outside of European languages.

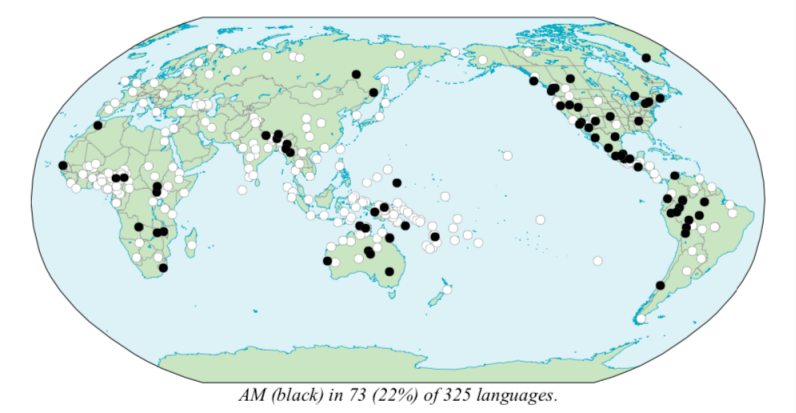

Figure 1: Ross's (2017) study of AM.

Associated motion?

- Well-attested construction, outside of European languages.
- SLZ's system is simple and typologically unmarked.[3]
- Close to more familiar serial motion constructions (*go get*).

[3] See Guillaume & Koch (2021) for a thorough cross-linguistic introduction to AM.

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[4] Shopen (1971); Pullum (1990); Jaeggli & Hyams (1993); Cardinaletti & Giusti (2001); Harris (2011); Bjorkman (2015); Anderson (2019)

Santiago Laxopa Zapotec (SLZ)

- Northern Zapotec (Oto-Manguean) language[5] spoken by at least 1200.

[5]See Anderson (2019); Silva-Robles et al. (2021) on AM in a Central Zapotec language.

Santiago Laxopa Zapotec (SLZ)

- Northern Zapotec (Oto-Manguean) language spoken by at least 1200.
- Data gathered from extensive fieldwork with one speaker in CA, ’20-21.

The basics

- SLZ features two AM markers among its verbal prefixes.
- Verifiably mono-clausal (see Duff, To appear).

(5) VENITIVE *de-* (towards speaker)

B-**de**-do Bedw'nh xche'.
PERF-**VEN**-eat Pedro dinner.

'Pedro came and ate dinner.'

(6) ANDATIVE *ja-* (not towards speaker)

∅-**ja**-do Bedw'nh xche'.
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Two entailed events

(7) AM entails the Motion event.

B-de-daw =e' xche', # perw bitu b-id =e'.
PERF-VEN-eat =he dinner but NEG PERF-come =he

"He came and ate dinner, but he didn't come." (Contr.)

(8) AM entails the Goal event.

B-de-do Maziare'nh xche'. # Bitu u-daw =e'.
PERF-VEN-eat NAME dinner NEG PERF-eat =he

"Maziar came and ate dinner. He didn't eat." (Contr.)

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The meta-event

(9) **PERF applies to the Motion-Goal sequence.**

B-de-do Bedw'nh xwe. # Bitu b-iyuhzh u-do =ba'.
PERF-VEN-eat Pedro lunch NEG PERF-finish PERF-eat =he

"Pedro came and ate lunch. He didn't finish eating." (Contr.)

Mandatory sequencing

(10) **Motion must precede Goal.**

Context: Pedro ate dinner, and then he came to our house.

\# B-de-do Bedw'nh xche'.
COMP-VEN-eat Pedro dinner.

Int: "Pedro ate dinner and came."

No mandatory adjacency

(11) **Intervening time and events are permitted.**
Context: Juana arrived in Laxopa, slept, and danced at a fiesta on the next day.

B-de-ya'a Xwanha' Laxup.
PERF-VEN-dance Juana Laxopa.

"Juana came and danced in Laxopa."

More than sequencing!

(12) **AM entails some relationship between Motion and Goal.**
Context: Juana planned a busy week. She visited us in Laxopa on Monday, went back home to Zoogocho, and danced in Zoogocho on Tuesday.

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PERF-VEN-dance Juana
Int: "Juana came and danced."

Interim summary

The puzzle for our semantics:

Ⓐ **Loose Event Composition**

AM projects a meta-event that includes Motion and Goal events:

1. in a strict order (Motion > Goal)
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Discussion: What's so weird about enablement?

Desiderata for compositional relation

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Direct causation?

- Can motion of a figure to a particular location be said to **directly cause** their dancing, or eating dinner?
  - **Intuition:** Absolutely not.
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Using means phrases

- For independent reasons, English can't use lexical causatives or resultatives to describe an event directly causing an unergative event.
- Enter **means phrases**!

(13) Alvin turned on the light **by flipping the switch**.

(14) Cecile reset the printer **by pressing the button**.

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Means phrases express direct causation

- Means phrases require the same direct causation as lexical causatives (and resultatives) (Goldman, 1970; Balkanski, 1992) unlike periphrastic *cause*.

(15) Context: Alvin has an unplugged lamp with a button. He plugged in the cord and then pressed the button and the lamp turned on.

a. Alvin pressing the button turned on the lamp.
b. Alvin pressing the button caused the lamp to turn on.
c. Alvin turned on the lamp by pressing the button.
d. # Alvin plugging in the cord turned on the lamp.
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Motion as means?

(16) Motion-Goal pairs don't have a viable means-clause paraphrase.

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b. # Pedro ate dinner by going home.

c. # Juana cooked tortillas by coming to my house.

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Some Motion can manage

(17) ...unless Motion alone could achieve the result.

a. Juana woke Pedro by going into his room.

b. Pedro saw his grandmother by going to her house.

- The key difference seems to be whether the Goal predicate requires agentive action beyond Motion.

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- $\textsc{cause}(e_1, e_2) :=$ e_1 can make certain the particular e_2 given what's been fixed in context (e.g. Baglini & Bar-Asher Siegal, 2020).

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Why isn't Motion sufficient for dancing?

(19) # Juana danced by going to Laxopa.

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$L \not\models D$

Why isn't Motion sufficient for dancing?

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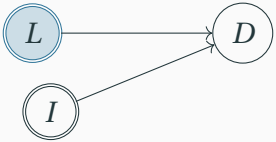

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Enablement

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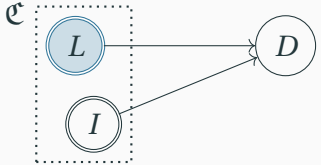

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Enablement in AM

(20) $[\![[\text{VEN-dance Juana}]]\!] \rightsquigarrow \lambda e\ .\ \exists e_1, e_2 \sqsubset e$
$[\text{come'}(e_1, \text{Juana}) \wedge \text{ENABLE}(e_1, e_2) \wedge \text{dance'}(e_2, \text{Juana})]$

Appropriately restrictive

(21) Context: Juana visited us in Laxopa on Monday, went back home to Zoogocho, and danced in Zoogocho on Tuesday.

B-de-ya'a Xwanha'.
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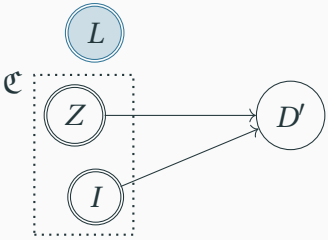

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Interim summary

CAUSE too strong for the Motion-Goal relationship
ENABLE derives the appropriate, weak restrictions

Roadmap

Introduction

Key data: Associated motion in SLZ

Proposal: Enablement, not direct causation

Discussion: What's so weird about enablement?

Attested mono-clausal enablement

Wolff (2003): Direct causation can ignore intervening forces when an agent is acting intentionally.

(22) **Lexical**: She turned on the TV.

(23) **Periphrastic**: She caused the TV to turn on.

- Intentional animations: 80% prefer Lexical
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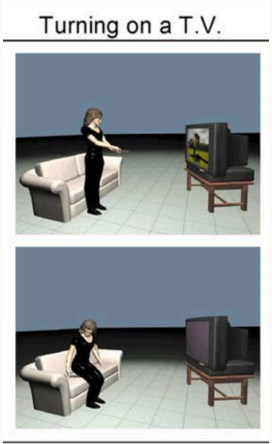

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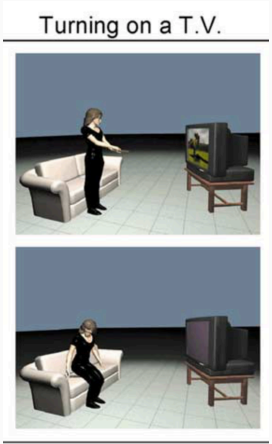

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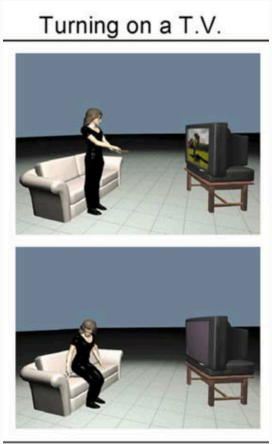

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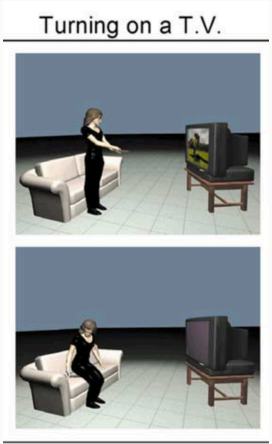

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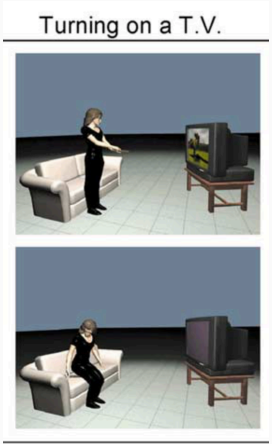

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A = person acts
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T = TV is on
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- If uncertain about the causal model, intentional action + result can suggest causal dependency (Thorstad & Wolff, 2016).
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- Does a plan help construct a causal model where Motion could guarantee the Goal?

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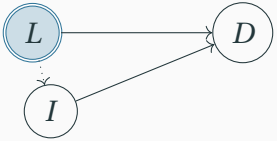

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- This much of a reduction would have a hard time explaining persistent contrasts between plans and deterministic dispositions:

(25) Juana danced by going to Laxopa.

a. Context: Juana was enchanted so that whenever she is in Laxopa, she automatically starts to dance. She showed her friends.
My judgement: OK

b. Context: Juana, from Zoogocho, made a plan to go and dance in Laxopa. She went and did so according to her plan.
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Another explanation could come from a force-based verbal semantics a la Copley & Harley (2015):

- Forces are functions from situations to situations.
- Rather than each clause composing to one event, composition to one force. (Sharper intuitions?)
- Hypothesis: Plans (etc.) are the only forces which can include forces which are not directly causally related.

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We can understand a new puzzle using existing causal tools: **enablement** and **plans**.

These two components **travel together** in a way that deserves further study. (And may call into doubt whether we need ENABLE.)

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Special thanks to my consultants and collaborators Fe Silva-Robles and Raul Diaz for sharing their language and their time.

Thanks!

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