

# Aspectual differences between agentive vs. non-agentive uses of causative predicates

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# Introduction

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# Acknowledgements

Most of the Mandarin Chinese data are borrowed from joint work with Hamida Demirdache, Jinhong Liu and Hongyuan Sun.

# Data under study

(1) MANDARIN, Liu (2018)

Lùlu **guān-le** nà-shàn mén, dàn méi guān-shàng.

Lulu close-PFV that-CL door but NEG close-up

‘Lulu closed that door, but it didn’t get closed at all.’

(2) **Nà-zhen feng** **guān-le** nà-shàn mén, #dàn méi  
that-CL wind close-PFV that-CL door but NEG  
guān-shàng  
close-up

Intended: ‘That gust of wind closed that door, but it didn’t get closed at all.’

- (3) MANDARIN, Demirdache and Martin (2015)

Lùlu shāo le tā-de shu, dàn méi shāo zháo.

Lulu burn-PFV 3SG-DE book but NEG burn touch

'Lulu burned her book, but it didn't get burnt at all'

- (4) Huǒ shāo le tā-de shu, #dàn méi shāo zháo.

fire burn-PFV 3SG-DE book but NEG burn touch

Intended: 'The fire burned her book, but it didn't get burnt at all'

## Further illustration from Korean data

KOREAN, Park 1993, 22 and Jiyoung Choi, p.c.

- (5) a. **na-nun** changmwun-ul **kkay-ess-una**, changmwun-i an  
I-TOP window-ACC break-PFV-but window-NOM NEG  
kkayci-ess-ta.

break-INCHO-PFV-DEC

'I broke a/the window, but the window did not break.'

- b. **Kangpwung-i** yulichang-ul **kkay-ess-una**, #yulichang-i  
strong.wind-NOM window-ACC break-PFV-BUT  
an kkay-ci-ess-ta.

window-NOM NEG

Intended: 'A strong wind broke a/the window, but the window did not break.'

## Further illustration from Korean data

KOREAN, Park 1993, 22 and Jiyoung Choi, p.c.

- (6) a. **Chelswu-nun** mwul-ul **el-li-ess-una**, mwul-i  
Chelswu-TOP water-ACC freeze-CAU-PFV-but water-NOM  
an el-ess-ta.

NEG freeze-PFV-DEC

‘Chelswu froze the water, but the water did not freeze.’

- b. **Hanpa-ka** gangmwul-ul **el-li-ess-una**, #gangmwul-i  
cold.wave-NOM river-ACC freeze-PFV-BUT river-NOM  
an el-ess-ta.

NEG freeze-PFV-DEC

Intended: ‘A cold wave froze the river, but the river didn’t freeze.’

# Topic and goal of the talk

**Cross-linguistic generalization:** with a subset of causative verbs,

- The theme's referent does not have to endure any change developing towards a result state of the type encoded by the VP if the subject is associated with some **agentive** properties;
- By contrast, at least part of a change developing towards a *P*-result state has to take place when the subject is an **inanimate** entity (or an accidental agent).

See Jacobs 2011 on Salish languages, Demirdache and Martin 2015, Liu 2018 and van Hout et al. 2017 on Mandarin, Tsujimura 2003, 297-298 on Japanese, Travis 2010, 213 and Paul et al. 2016 on Malagasy, Park 1993 and Beavers and Lee 2019 on Korean, Kratochvíl and Delpada 2015 on Abui.

# Proposal in a nutshell

## Proposal:

- The way the **VP** combines with the **functional head** introducing the **external argument** is crucial for the inference of causal efficacy triggered by the resulting structure;
- Although causative verbs keep the **same semantics** (i.e. (causative, bi-eventive) event structure) when combined with  $\text{Voice}_{ag}$  and  $\text{Voice}_c$ , the **causative event type is tokenised in a different way** (is mapped with different event chunks in the model) depending on whether the external argument is an agent or a causer.
- This difference in the tokenisation of the causative event type is due to the **semantic differences between  $\text{Voice}_{ag}$  and  $\text{Voice}_c$** .

Zero-change construals and (non-)  
agentive uses of causative predicates

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## Zero-change use of causative predicates

'Zero-change' use of causative predicates: no change developing towards a *P*-result state is required in the theme's referent.

- (7) Yuēhàn shāo le tā-de shū, dàn gēnběn méi  
Yuehan burn PFV 3SG-DE book but at.all NEG.PFV  
shāo-zháo.  
burn-ignite

Yuehan burned his book, but it didn't get burned at all.

True if Yuehan put the book into the fire, and the book **didn't get burned at all** before I took it away from it, because it was too humid to immediately get on fire, for instance.

## Zero-change use of causative predicates

(8) **Lùlu guān-le** nà-shàn mén, dàn méi guān-shàng.

Lulu close-PFV that-CL door but NEG close-up

'Lulu closed that door, but it didn't get closed at all.'

(8) is true if Lulu tried to close the door, but didn't manage **even to partly close it** because something was blocking it.

# Partial-change use of causative predicates

'Partial-change' use of causative predicates: a **change** in the theme's referent developing towards *P*-result state is **initiated**.

(9) MANDARIN, partial-change construal

Yuēhàn shāo le tā-de shū, dàn zhǐ shāo le yíbàn.  
Yuehan **burn** PFV 3SG-DE book but only burn PFV half

Yuehan burned his book, but it was just half burned.

With **incremental theme causative verbs**, the partial-change use entails that a part of the theme's referent is in a *P*-result state.

## Partial-change use of causative predicates

(10) MANDARIN, partial-change

Lulu guān le nèi-shàn mén, (dàn zhǐ guān-le yì  
Lulu close PFV that-CL door but only close-PFV one  
diǎn).  
little

Lulu closed the door, but it closed only partly.'

With **non incremental theme causative verbs**, the partial-change use entails that a change of the theme developing towards a *P*-result state is initiated.

# The Agent Control Hypothesis

Cross-linguistically, zero-change uses are easier to obtain when the subject's referent is a 'full' agent than when it is a causer (inanimate).

- (11) AGENT CONTROL HYPOTHESIS (weak version). Zero change-of-state non-culminating construals require the predicate's external argument to be associated with 'agenthood' properties. (Demirdache and Martin 2015)

# The Agent Control Hypothesis

Across languages, the **partial-change** use generally **does not seem to require agenthood** on the part of the external argument.

(12) MANDARIN, Demirdache and Martin (2015)

- a. **Huǒ shāo le** tā-de shu, #dàn méi shāo zháo.  
fire burn-PFV 3SG-DE book but NEG burn touch

Intended: 'The fire burned her book, but it didn't get burnt at all'

- b. **Huǒ shāo le** tā-de shu, OKdàn méi quán shāo-huǐ  
fire burn-PFV 3SG-DE book but NEG completely burn-destroy

'The fire burned her book, but it didn't burn completely.'

## Zero-change construals: not with anticausatives

When used **intransitively**, the **zero-change** reading is **impossible**, while the partial-change may still be felicitous.

MANDARIN, Martin et al. (2018a):

- (13) **Mén** **guān** **le**, (**#**dàn gēnběn méi guān-shàng).  
door close PFV but at all NEG.PFV

Intended: 'The door closed (but it didn't get closed at all).'

- (14) **Mén** **guān** **le**, (**OK**dàn zhǐ guān-le yì diǎn).  
door close PFV but only close.PFV one little

'The door closed (but it closed only partly).'

## Zero-change construals: not with anticausatives

MANDARIN, Martin et al. (2018a):

- (15) **shū** **shāo-le**, (#dàn gēnběn méi shāo-zháo).  
book burn-PFV but at all NEG.PFV burn-ignite

Intended: The book burned, but it didn't get burned at all.

- (16) **shū** **shāo-le**, OKdàn zhǐ shāo le yíbàn.  
book burn-PFV but only burn PFV half

The book burned, but it was just half burned.

## Zero-change construals: not with anticausatives

KOREAN, Jiyoung Choi (p.c.)

- (17) **Kang-i**    **el-ess-ciman**    **#(kang-i)** el-ci anh-ass-ta.  
river-NOM freeze-PFV-but river-NOM freeze-NEG-PFV-DEC

Intended: 'The river froze, but the river didn't freeze.'

## Zero-change construals: not with anticausatives

The zero-change use of anticausatives remains completely infelicitous even in presence of a PP-adjunct indicating that the ultimate cause of the denoted CoS is an action.

MANDARIN, Jinhong Liu & Hongyuan Sun, p.c.

- (18) Duokui John, shū shāo-le, (#dàn gēnběn méi  
thanks to John book burn-PFV but at all NEG.PFV  
shāo-zháo).  
burn-ignite

Intended: 'Thanks to John, the book burned (but it didn't burn at all).'

↪ whether the ultimate cause of the causation event reported is an action or not is not the only relevant factor.

# Source of zero-change construals in South and East Asian languages

- For Thai, Koenig and Muansuwan (2000) suggested that **incomplete-event readings of PFV accomplishments** are licensed by the PFV, and Altshuler (2014, 2017), Martin et al. (2018b) after them extend the proposal to Hindi and Mandarin.
- Differently from the standard perfective, the PFV in Hindi and Mandarin (and perhaps other S/E Asian lgs such as Korean) entails **event maximality**, but not **event completion**: the reported event has to cease, but does not necessarily culminate.

On event maximality, see also Filip 1999, Altshuler and Filip 2014.

# Source of zero-change construals in South and East Asian languages

Altshuler (2014) offers a modal definition of event maximality, according to which  $MAX(e, P)$  is satisfied if  $e$  is a complete  $P$ -event or ceases to develop further towards a  $P$ -event in the actual world. Simplifying things a bit, Altshuler's (2014) definition is as follows (his definition is more elaborate, and also uses Landman's (1992) stages, not just event parts):

(19)  $MAX(e, P)$  iff  $e$  is a part of a possible  $P$ -event and it is not a proper part of any actual event that is part of a possible  $P$ -event.

↔ A perfective associated to a maximality but no completion requirement is a partitive operator akin to imperfective T/A markers.

# Source of zero-change construals in South and East Asian languages

E.g. in Hindi, (20a) is infelicitous (maximality violated), but (20b) acceptable (Altshuler 2014).

- (20) a. maayaa-ne biskuT-ko **khaa-yaa** #aur use ab tak khaa rahii  
Maya-ERG cookie-ACC eat.PFV and it still eat PROG  
hai.  
be-PRS

Intended: 'Maya ate the cookie, and is still eating it.'

- b. maĩne aaj apnaa kek **khaayaa** ... (aur baakii kal  
I.-ERG today mine cake eat.PFV ...and remaining tomorrow  
khaũũgaa)  
eat.FUT

'I ate my cake today... (and I will eat the remaining part tomorrow)' (Singh 1991)

## The semantics of Voice<sub>ag</sub> vs. Voice<sub>c</sub>

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# Basic assumptions on the syntax and semantics of lexical causative verbs

- A derivation starts with a non-decomposable root, which combines with functional categories to build words (Marantz 1997, Embick and Noyer 2006);
- Voice is the functional category introducing the external argument of the predicate it combines with (Kratzer 1996);
- Voice receives a different meaning depending on whether it introduces a causer or an agent external argument (Schäfer 2008).

# Voice<sub>ag</sub> vs. Voice<sub>c</sub>

The functional head introducing **agent subjects**, or Voice<sub>ag</sub>

- **does not introduce any further eventuality**;
- only introduces an external argument  $x$  of an event  $e$  denoted by the VP it combines with, and
- specifies that  $x$  is the agent of  $e$  (Kratzer 1996).

The functional head introducing **causer subjects**, or Voice<sub>c</sub>

- **introduces a further eventuality  $v$**  (an external argument)
- as well as a relation  $R$  between  $v$  and the event  $e$  denoted by the VP it combines with, (Pykkänen 2008).

Key question: the nature of the relation  $R$ .

# Causative and anticausative verbs have a bi-eventive structure

Kratzer (2005), Schäfer (2008), Alexiadou et al. (2006, 2015) a.o.: we can dispense with the BECOME predicate in the representation of lexical causatives, and simply be left with a causing event  $e$  and a result state  $s$ .

↪ Causatives and anticausatives have exactly the same event structure, and semantically differ only by the presence vs. absence of Voice (Schäfer 2008).

The causative alternation is essentially a Voice alternation.

# Causative and anticausative verbs have a bi-eventive structure

Take e.g. *shā* 'kill' in Mandarin, also used as an anticausative by a subset of Mandarin speakers:

- (21) *shā Fido* 'kill Fido/Fido die'  $\rightsquigarrow$   
 $\lambda e. \exists s (\text{cause}(e, s) \wedge \text{dead}(s) \wedge \text{theme}(s, \text{fido}))$

On its anticausative use, *shā Fido* receives the meaning (21), while on the agentive causative use, it receives the meaning in (22b).

- (22) a.  $\text{Voice}_{ag} \rightsquigarrow \lambda P \lambda x \lambda e. \text{agent}(e, x) \wedge P(e)$   
b.  $\text{Voice}_{ag}$  [*shā Fido*]  $\rightsquigarrow$   
 $[\lambda P \lambda x \lambda e. \text{agent}(e, x) \wedge P(e)]$   
 $(\lambda e. \exists s (\text{cause}(e, s) \wedge \text{dead}(s) \wedge \text{theme}(s, \text{fido}))) =$   
 $\lambda x \lambda e. \exists s (\text{agent}(e, x) \wedge \text{cause}(e, s) \wedge \text{dead}(s) \wedge \text{theme}(s, \text{fido}))$

## But... the causative event type is tokenised differently

OK, the **event structure is identical** in both the intransitive and transitive uses....

**But** the causative event type **is tokenized differently**, because the **number of participants** involved in causing events in  $[[VP]]$  is different.

# But... the causative event type is tokenised differently

## Intransitive use:

- **only one participant** is involved in causing events in  $[[VP]]$  (the theme's referent).
- $\rightsquigarrow$  Therefore, the causative event type denoted by the VP is tokenised as a **change-of-state** of the participant—aka a BECOME event.
- Note that it is quite normal to conceive a **change** developing towards a *P*-result state as a **cause** of this state.
- Causative analyses have been proposed for inchoative verbs.

See e.g. Piñón (2011) analyses Hungarian inchoative verbs such as *hőssé válik* 'turn into a hero' or *el tűnik* 'disappear'.

## But... the bi-eventive event type is tokenized differently

### Transitive (**agentive**) use:

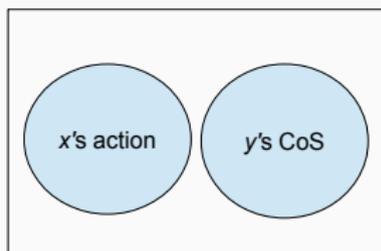
- **two** participants are involved in causing events in  $[[VP]]$ , namely the **subject's referent**—the agent of  $e$ —**and the theme's referent**;
- $\rightsquigarrow$  the causative event type denoted by the VP is tokenised as a *bigger* and more *complex* event.

# But... the causative event type is tokenized differently

Causal chain denoted by an agentive lexical causative statement:



no eventuality denoted by the subject



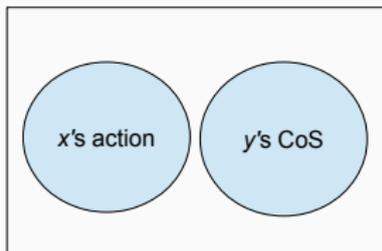
causing event denoted by the VP

## But... the causative event type is tokenized differently

Causal chain denoted by an agentive lexical causative statement:



no eventuality denoted by the subject



causing event denoted by the VP

But the **two** subparts the event **token** realize a **single** causing event in the **(semantic) event structure** projected by the predicate, not decomposable at the semantic level.

## Agentive causatives: complex event token realizing one and a single event in the event structure

Argument against the decomposition of the causing event  $e$  in the event structure into an *ACT* and an ensuing *COS* in the semantics: Fodor's (1970) famous observation that these sub-events are not accessible for separate adverbial modification by temporal and manner adverbials:

- (23) Fred<sub>*i*</sub> accidentally shot<sub>*e*</sub> his dog on Dec. 23! #He<sub>*i*</sub> eventually **killed**<sub>*e' ⊃ e*</sub> it on Dec. 25.

## Agentive causatives: complex event token realizing one and a single event in the event structure

Note that the infelicity of this example cannot arise as a consequence of the fact that **cause** must relate temporally adjacent eventualities (Danlos 2000, Rappaport Hovav and Levin 2001, Neeleman and Van de Koot 2012)

- (24) a. Fred **killed** his dog. He fired a shot at it on Dec. 23. It had a hemorrhage. It died on Dec. 25.
- b. The widow **murdered** her guest by putting arsenic in his coffee.

# Agentive causatives: complex event token realizing one and a single event in the event structure

The problem of (23) rather comes from the fact that the temporal adverbial *must* scope on the **single, undecomposed, (causing) event** in the event structure:

- (25)  $\text{Voice}_{ag}$  [on December 25[kill Fido]]  $\rightsquigarrow$   
[ $\lambda P \lambda x \lambda e. \mathbf{agent}(e, x) \wedge P(e)$ ]  
( $\lambda e. \exists s(\mathbf{cause}(e, s) \wedge \mathbf{dead}(s) \wedge \mathbf{theme}(s, \mathbf{fido}) \wedge \tau(e) \subseteq$   
**dec. 25)** =  
 $\lambda x \lambda e. \exists s(\mathbf{agent}(e, x) \wedge \mathbf{cause}(e, s) \wedge \mathbf{dead}(s) \wedge$   
**theme}(s, \mathbf{fido}) \wedge \tau(e) \subseteq \mathbf{dec. 25}))**

## Agentive causatives: complex event token realizing one and a single event in the event structure

- (v)  $\text{Voice}_{ag}$  [on December 25[kill Fido]]  $\rightsquigarrow$   
[ $\lambda P \lambda x \lambda e. \mathbf{agent}(e, x) \wedge P(e)$ ]  
( $\lambda e. \exists s(\mathbf{cause}(e, s) \wedge \mathbf{dead}(s) \wedge \mathbf{theme}(s, \mathbf{fido}) \wedge \tau(e) \subseteq$   
**dec. 25)** =  
 $\lambda x \lambda e. \exists s(\mathbf{agent}(e, x) \wedge \mathbf{cause}(e, s) \wedge \mathbf{dead}(s) \wedge$   
 $\mathbf{theme}(s, \mathbf{fido}) \wedge \tau(e) \subseteq \mathbf{dec. 25})$ )

This obviously accounts for why sentence (23) is contradictory:  $x$  must on Dec. 25 be the agent of an event  $e$  leading to Fido's death. Therefore, there is no room left to identify  $e$  with a previous action of  $x$  taking place on Dec. 23.

## Separate modification is possible with causer (eventuality-denoting) subjects

Martin (2018): things are different with causer subjects!

- (26) a. Fred<sub>i</sub> accidentally shot<sub>e</sub> his dog on Dec. 23!  
#He<sub>i</sub>; eventually killed<sub>e'⊃e</sub> it on Dec. 25.
- b. Fred accidentally shot his dog on Dec. 23!  
OK This gunshot/**this** eventually killed it on Dec. 25.

True, separate modification never seems possible with entity-denoting subjects, but with eventuality-denoting subjects, it is possible to modify separately the eventuality denoted by the subject, and the (causing) *P*-ing event.

## Separate modification is possible with causer (eventuality-denoting) subjects

How to account for (26b)?

Pylkkänen (2008): the Voice head **identifies** the event introduced by the subject  $e$  (e.g., the **gunshot** in (26b)) and the **causing event** introduced by the verb (e.g., the killing event in (26b)):

$$(27) \text{ Voice}_P \rightsquigarrow \lambda P \lambda e \lambda e'. P(e') \wedge e = e'$$

If the Voice head introducing causer external argument encoded a relation  $R$  of identity between  $e$  and  $e'$ , (26b) should be contradictory (gunshot would happen both on Dec. 23 and Dec. 25).

$\rightsquigarrow$  We need to **give up the assumption that  $R$  is the identity relation.**

# The semantics of $\text{Voice}_c$

Proposal:

- $\text{Voice}_c \rightsquigarrow \lambda P \lambda v \lambda e. \text{event}(v) \vee \text{state}(v) \wedge R(v, e) \wedge P(e)$
- $R$  can either be **cause**, or **overlap** 'o'
- **cause** is very much preferred

(28)  $e \circ e' \stackrel{\text{def}}{=} \exists e'' [e'' \sqsubseteq e \wedge e'' \sqsubseteq e']$   
'an event  $e$  overlaps with an event  $e'$  if there is an event  $e''$   
which is a part of  $e$  and a part of  $e'$ '

# The semantics of $\text{Voice}_c$

Let us combine  $\text{Voice}_c$  with *kill Fido on December 25*:

- (29) a.  $\text{Voice}_c[\text{on December 25}[\text{kill Fido}]] \rightsquigarrow$   
 $[\lambda P \lambda v \lambda e. \mathbf{event}(v) \vee \mathbf{state}(v) \wedge R(v, e) \wedge P(e)]$   
 $(\lambda e. \exists s (\mathbf{cause}(e, s) \wedge \mathbf{dead}(s) \wedge \mathbf{theme}(s, \mathbf{fido}) \wedge \tau(e) \subseteq$   
 $\mathbf{dec. 25}) =$   
 $\lambda v \lambda e. \exists s (\mathbf{event}(v) \vee \mathbf{state}(v) \wedge R(v, e) \wedge$   
 $\mathbf{cause}(e, s) \wedge \mathbf{dead}(s) \wedge \mathbf{theme}(s, \mathbf{fido}) \wedge \tau(e) \subseteq \mathbf{dec. 25})$

# The semantics of $\text{Voice}_c$

Let us now apply this predicate to the definite event description  $\iota v.\text{gunshot}(v)$ , and derive the predicate in (30), where the alternative that  $v$  is a state is eliminated, and where  $R$  stands for **cause**:

$$(30) \quad \text{The gunshot}[\text{Voice}_c[\text{On December 25}[\text{kill Fido}]]] \rightsquigarrow \\ \lambda e. \exists s (\text{cause}(\iota v.\text{gunshot}(v), e) \wedge \text{event}(v) \vee \text{state}(v)) \wedge \\ \text{cause}(e, s) \wedge \\ \text{dead}(s) \wedge \text{theme}(s, \text{fido}) \wedge \tau(e) \subseteq \text{dec. 25})$$

The **gunshot** *causes* the **causing event**  $e$  leading to death denoted by the verb (rather than being identified with it).

# The semantics of Voice<sub>c</sub>

$\rightsquigarrow v$  may take place before the event  $e$  that must take place on December 25, e.g. on December 23:

$$(31) \quad \lambda e. \exists s (\text{cause}(\iota v. \text{gunshot}(v), e) \wedge \text{event}(v) \vee \text{state}(v) \wedge \\ \tau(v) \subseteq \text{dec. 23} \wedge \text{cause}(e, s) \wedge \\ \text{dead}(s) \wedge \text{theme}(s, \text{fido}) \wedge \tau(e) \subseteq \text{dec. 25})$$

See also:

$$(32) \quad \text{Yesterday's stabbing eventually killed him this morning.}$$

# The semantics of Voice<sub>c</sub>

A 2d argument against the view that Voice<sub>c</sub> specifies that  $v=e$  is provided by progressive lexical causative sentences:

- (33) **Fukushima nuclear accident** is **destroying** our planet. (uttered in 2018)

Although **Fukushima nuclear accident** happened (and culminated) in 2011, it may still **be destroying** the planet today, 7 years later. In (33), the (past) accident  $e$  **culminated** with regard to the **nuclear accident** description in 2011, but **causes a destroying event** which is still ongoing today.

If  $e$  is understood as *caused* by the eventuality  $v$  denoted by the subject, rather than identified with it...

- When does a causing event  $e$  in  $\llbracket \text{VP} \rrbracket$  start?
- Is there a difference in the way we tokenise the causative event type denoted by the VP when the subject is an agent or a causer?

If  $e$  is understood as *caused* by the eventuality  $v$  denoted by the subject, rather than identified with it...

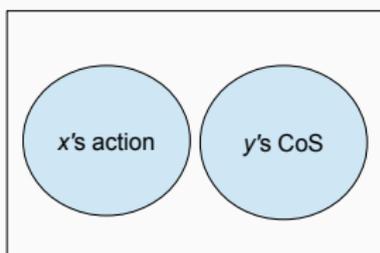
- When does a causing event  $e$  in  $\llbracket \text{VP} \rrbracket$  start? **either with an action (with agents) or with a CoS of the theme (with causers)**
- Is there a difference in the way we tokenise the causative event type denoted by the VP when the subject is an agent or a causer? **yes: it is tokenised through  $\text{actions} \oplus \text{CoSs-tokens}$  (with agents) or  $\text{CoSs-tokens}$  only (with causers)**

# Proposal

Reminder: if the external argument  $x$  is introduced by  $\text{Voice}_{ag}$ , a causing event  $e$  in  $\llbracket \text{causative VP} \rrbracket$  is mapped with two event chunks in the ontology:



no eventuality denoted by the subject



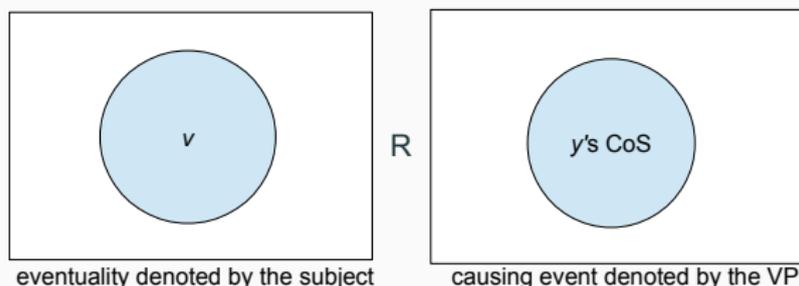
causing event denoted by the VP

Causal chain denoted by an agentive lexical causative statement

# Proposal

When the external argument is introduced by  $\text{Voice}_c$  (and  $R$  interpreted as **cause**), the causative event type denoted by the VP is tokenised as a *CoS* of the theme referent, and caused by the eventuality  $v$  introduced by the subject:

Causal chain denoted by a non-agentive lexical causative statement  
(with  $R=\text{cause}$ )



↪ If we abstract away from the external argument, a **non-agentive causative VP** is tokenised the same way as its anticausative counterpart.

The main difference between non-agentive causative VPs and anticausative VPs is that in the former case, there is an external argument which introduces an eventuality  $v$  causing the event  $e$  denoted by the VP.

- (34) a. Event types denoted by causative VPs used **agentively** are tokenized as events having an **action  $e'$**  of the subject's referent and an ensuing **change-of-state  $e''$**  of the theme's referent as proper parts.
- b. Event types denoted by causative VPs used **non agentively** are tokenized as **changes of state  $e''$**  of the theme's referent (when  $R=\mathbf{cause}$ ).

## Argument 1: *in*-adverbials

- An *in*-adverbial measures the time span between the onset and the telos of the (complete) eventualities denoted by the predicate.
- With a causative predicate, it therefore measures the time span of the causing event ( $\text{telos}(e) = \text{left boundary}(s)$ ).

Let us compare the interpretation of such adverbials when modifying causatives used agentively and non-agentively.

## Argument 1: *in*-adverbials

- (35) Mary killed the mosquito in ten minutes (OK that said, it died in less than a minute).

The *in*-adverbial measures the time span of the causing event  $e$ , mapped to the  $x$ 's action  $e'$  and  $y$ 's change-of-state  $e''$ .

$\rightsquigarrow$  The continuation in parenthesis is not contradictory, because it might be that  $\tau(\text{CoS } e'') \subset \tau(\text{causing event } e)$ .

## Argument 1: *in*-adverbials

(36) The poison killed him in ten minutes (#that being said, he died in less than a minute).

In (36), the *in*-adverbial measures *y*'s change-of-state—the dying event, exactly as in the anticausative counterpart of (36):

(37) He died in ten minutes because of the poison.

# Argument 1: *in*-adverbials (Exp. 1)

## EXP. 1:

- TVJT (N=28) on French causative sentences with an *in*-adverbial, in a context entailing that the causing event starts before the CoS.
- Two conditions: agent vs. causer subjects.
- Predictions: the test sentences should be judged more often true with an agent subject than with a causer subject.

## Argument 1: *in*-adverbials (Exp. 1)

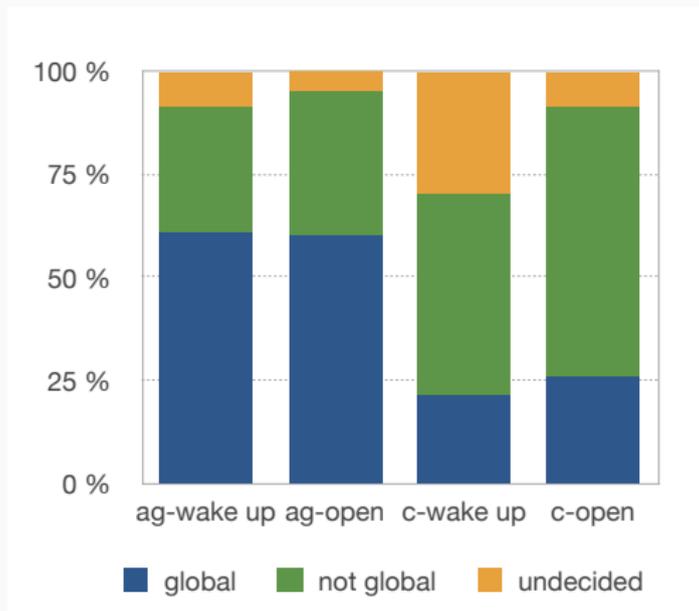
- (38) a. *Causer-context*: The dishwasher started running at 10.00 (=v). At 10.15, Paul was awake, and it was because of the dishwasher. Paul started waking up at 10.13 (= CoSe').
- b. *The dishwasher* woke up Paul in 15 minutes.
- c. *Agent-context*: Ana has to wake up Paul and put her plan into action at 10.00 (=v). At 10.15, Paul is awake (and this was because of Ana). He started to wake up at 10.13 (= CoSe').
- d. *Ana* woke up Paul in 15 minutes.

## Argument 1: *in*-adverbials (Exp. 1)

- (39) a. **Causer-context**: At 10.00, the wind starts blowing in the direction of the window (=v). The window remains closed but after 10 minutes, at one point, the door suddenly opened (what took less than a minute) (=CoS e').
- b. **The wind** opened the window in 10 minutes.
- c. **Agent-context**: At 10.00, Anatole (a 3 years old) decides to open the window which is one meter higher than the living-room table, and immediately starts elaborating a strategy to achieve his plan (=v). At 10.10, the window is opened (because of Anatole). He needed less than a minute for the opening of the window proper (=CoS e').
- d. **Anatole** opened the window in 10 minutes.

# Argument 1: *in*-adverbials (Exp. 1)

Results: (YES answers, NO answers, undecided)



↪ The causing event is more often interpreted as starting before the CoS with an Agent than with a Causer subject.

## Argument 2: *begin*-statements

A second argument concerns the interpretation of *begin*-causative statements.

When the causative predicate has a causer subject, the *begin*-statement requires the change-of-state to start:

- (40) a. **The conversation** started giving her an idea.  
b. **The accumulated heat** started breaking the stone.  
c. **The fire** started burning the books.

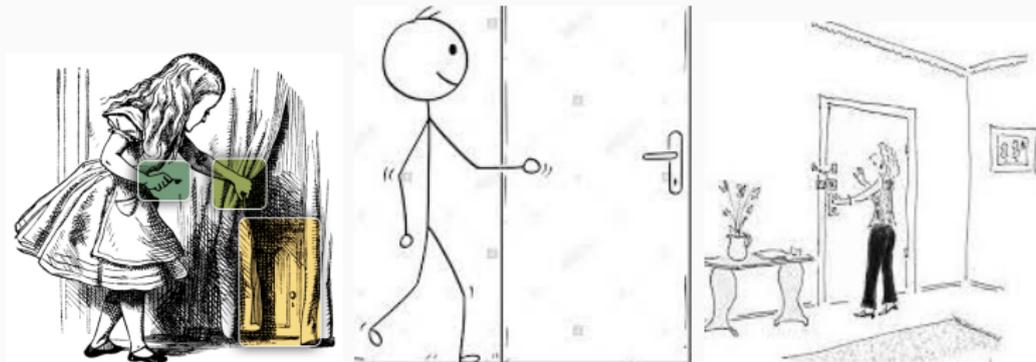
This is expected if a causative event type is tokenized as a **change-of-state** when the predicate is combined with **Voice<sub>c</sub>**.

## Argument 2: *begin*-statements

When the causative predicate is used **agentively**, the *begin*-statement entails that **an action** performed by the subject's referent has started (onset of the action=onset of the causing event). But in an appropriate context, such an action may start **although no ensuing CoS has been initiated yet**:

- (41) a. **Paul** started giving her an idea (but she is even not listening to him...).
- b. **The workers** started breaking the stone (but it's so hard, it will take some time before it starts breaking).
- c. **Lulu** started burning the book (but it's so humid, it may take a lot of time before it starts burning).

## Argument 3: progressive causative sentences



Those actions are all seen as proper parts of (possible) ‘open the door’-events, and this while the door is not opened yet.

This supports the view that the causative event type denoted by the VP is tokenised as an event-token having an **action** as one of its subcomponents.

## Argument 3: progressive causative sentences

The pattern is very different with **causers**. For instance, we typically hesitate to endorse the claim that the wind *is opening* the window while it has not triggered a change of the door towards an open-state yet.

This is a well-known observation about progressive causative sentences with inanimate subjects.

## Argument 3: progressive causative sentences

Bonomi (1997): Suppose that the water of a brook which has just been diverted is approaching a little garden. In this context, sentence (42b) is clearly false, while (42a) is true:

- (42) a. The water is descending to that garden.  
b. #The water is *wetting* that garden.

Bonomi suggests that this is due to the fact that the event in progress *e* is not seen as a part of an event of the water's *wetting* the garden.

This supports the proposal that a causative event type denoted by a VP used *non-agentively* are tokenized as *CoSs* of the theme's referent.

## Argument 3: progressive causative sentences

Truswell (2011): in a context where the sea is approaching a sandcastle, (43a) is felt to be false—and this even if it is pretty certain that the sea *will* destroy the sandcastle, while (43b) is true while I'm gathering the instruments I'll be using to destroy the castle (although I haven't touched it yet).

- (43) a. #The sea is destroying the sandcastle.  
b. I' m destroying the sandcastle.

## Argument 3: progressive causative sentences

**EXP. 2:** TVJT on French progressive sentences (N=28), three possible answers (YES, NO, undecided).



(44) 'On this picture, the sea is destroying the sandcastle.'

(Context: the tide is rising in the direction of the sandcastle)

Results: 82% NO, 3% YES, and 14.3% undecided.

## Argument 3: progressive causative sentences

Task 2: TVJT on 45 after the tornado-video:

<https://www.youtube.com/watch?v=M77jJh6B4ok&feature=youtu.be>

(45) In the first seconds of the video, the tornado is destroying the house.

Results: 70% NO, 21% YES, and 10% undecided.

Again, this supports the view that a causative event type denoted by a VP used **non-agentively** is tokenized as a **CoS** of the theme.

Why are denials of causal efficacy easier with agentic subjects?

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# An account for why zero-change construals are easier to obtain with agent subjects

We can now account for why **zero-change construals** of standard lexical causatives are **easier to obtain** when the external argument is introduced by **Voice<sub>ag</sub>** than when introduced by **Voice<sub>c</sub>**.

# An account for why zero-change construals are easier to obtain with agent subjects

- **Partitive aspectual operators** such as the Mandarin PFV only require that there be a **part of a VP-event in  $w_0$** .
- When the causative predicate is combined with **Voice<sub>ag</sub>**, the **causative event type** is tokenised as a macro-event that may (in the right conditions) **starts before  $y$ 's CoS  $e''$** .
- The partitive may therefore return an **initial fragment of  $e$  which is causally inert**.
- Denying the occurrence of any part of the change therefore does not generate a contradiction.

# Why zero-change construals are easier to obtain with agent subjects

An example:

- (46) a. Lùlu **guān-le** nà-shàn mén (dàn méi guān-shàng).  
Lulu close-PFV that-CL door but NEG close-up
- b. Lulu[Voice<sub>ag</sub>[close the door]]  $\rightsquigarrow \lambda e. \exists s(\mathbf{agent}(e, \mathbf{lulu}) \wedge \mathbf{cause}(e, s) \wedge \mathbf{close}(s) \wedge \mathbf{theme}(s, \iota x. \mathbf{door}(x)))$
- c. PFV<sub>MA</sub>[Lulu[Voice<sub>ag</sub>[close the door]]]  $\rightsquigarrow \exists e \text{MAX}(e, \lambda e'. \exists s(\mathbf{agent}(e', \mathbf{lulu}) \wedge \mathbf{cause}(e', s) \wedge \mathbf{close}(s) \wedge \mathbf{theme}(s, \iota x. \mathbf{door}(x)))$

$e'$  starts when  $x'$ 's action starts.

# Why zero-change construals are infelicitous with causer subjects

- When the causative predicate is combined with  $\text{Voice}_c$ , the causative event type denoted by the VP *is* by assumption tokenised as *y*'s CoS.
- $\rightsquigarrow$  The partitive operator must return a part of that change.
- Denying the occurrence of any part of the CoS in the subsequent discourse therefore generates a contradiction.
- That zero-change construals are always infelicitous with anticausatives is due to the same reason.
- Partial-change construals are licensed because the partitive may return a proper part of the CoS.

# Why zero-change construals are infelicitous with causer subjects

An example:

- (47) a. The gust of wind[Voice<sub>c</sub>[close the door]]  $\rightsquigarrow$   
 $\lambda e'. \exists s (\text{cause}(\iota v. \text{gust-of-wind}(v), e') \wedge \text{event}(v) \vee \text{state}(v)) \wedge$   
 $\text{cause}(e', s) \wedge \text{close}(s) \wedge \text{theme}(s, \iota x. \text{door}(x)))$
- b. PFV<sub>MA</sub>[The gust of wind[Voice<sub>c</sub>[close the door]]]  $\rightsquigarrow$   
 $\exists e. \text{MAX}(e, \lambda e'. \exists s (\text{cause}(\iota v. \text{gust-of-wind}(v), e) \wedge \text{event}(v) \vee$   
 $\text{state}(v)) \wedge \text{cause}(e', s) \wedge \text{close}(s) \wedge \text{theme}(s, \iota x. \text{door}(x))))$

$e'$  starts when the change-of-state of the door starts.

# Summary

- Zero-change construals of lexical causative verbs are possible with agentive subjects, because with such subjects, the causing event denoted by the VP may have a still not causally efficacious act fragment as a part, which can then be picked up by the partitive operator.
- By contrast, with non-agentive (causer) subjects, the event denoted by the VP is conceived as the change-of-state of the theme's referent. Since any part of the change-of-state is also a change-of-state, denying any change in the next clause leads to a contradiction.

Thank you!

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# Degree of acceptance of zero-change construals in South and East Asian languages

The availability of **zero-change uses** for causative predicates has been **experimentally established** for some South and East Asian languages (see Chen 2016, van Hout et al. 2017 and Liu 2018 on Mandarin, Arunachalam and Kothari 2010 on Hindi).

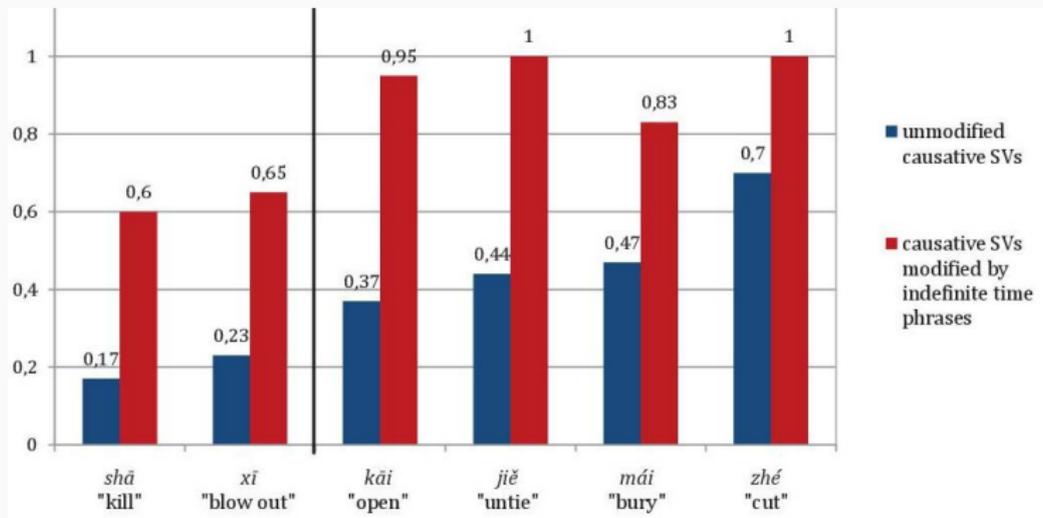
But they are typically **not easy to accept** and quite **difficult to obtain** (esp. for ACC denoting events which are typically short). E.g., the Hindi Singh's (1994) example (48) is rejected by some of my Hindi informants.

- (48) miiraa ne kamiiz Taangii par wo Tangii nahii.  
Mira ERG shirt hang.PFV but it hang NEG

'Mira hung a shirt but it wasn't hung.'

# Degree of acceptance of zero-change construals in South and East Asian languages

Liu's (2018) TVJT with PFV agentive causative SVs in a zero-change situation (N=30) (in blue, YES answers to questions with unmodified causative SVs, e.g. *Did John open the door?*):



# Degree of acceptance of zero-change construals in South and East Asian languages

Chen's (2016) collection of acceptability judgments from 84 Mandarin speakers on a [1-5] scale (1=completely acceptable; 5=completely unacceptable):

Rating\Sentences	1	2	3	4	5	Total	Mean	SD
1 crack	35	35	6	8	0	84	1.85	0.92
2 shoot	37	32	4	9	2	84	1.89	1.06
3 blow	37	31	5	8	3	84	1.92	1.1
4 fill	35	31	7	9	2	84	1.95	1.07
5 break	36	30	6	8	4	84	1.98	1.15
6 wake	13	37	9	20	5	84	2.61	1.18
7 pick	11	13	12	28	20	84	3.39	1.35
8 close	9	10	11	29	25	84	3.61	1.32
Total	213	219	60	119	61	672	2.57	1.19

⇒ zero-change uses of perfective causative SVs are possible, but restricted.

# An account for why zero-change construals with agent subjects are nevertheless restricted

Zero-change construals, although semantically possible, rest on two pragmatic steps:

- the cancellation of the culmination inference automatically triggered by the PFV<sub>MA</sub> (Gyarmathy and Altshuler 2019, Martin et al. 2018b a.o.).
- the identification of a causally inert/non-efficacious part of the causing event.

# Why zero-change construals with agent subjects are nevertheless restricted

That zero-change construals are quite restricted may be due to the fact that these two requirements bring about some cognitive costs:

- May be difficult to find a context where an act fragment is already a V-ing event while still causally inert.
  - E.g., some native speakers of Mandarin found the zero-result reading of (46a) at first sight very marked, but then accepted it in a second phase, imagining a scenario where an obstacle prevents the closing of the door.
- If the culmination inference is an abductive inference (Gyarmathy and Altshuler 2019), its inhibition is expected to require extra-effort (Noveck et al. 2011).