Catalyzing causation: Hindrance and sufficiency in causative *get*

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April 26, 2024

The basic puzzle: too many causatives?

Languages use a range of **periphrastic causatives**:

(1) a. Nur **caused** the children to dance.

b. Nur **made** the children dance.

c. Nur **had** the children dance.

d. Nur **got** the children to dance.

- (1a)-(1d) all describe *causal situations*: some event involving Nur **brought about** the dancing
- But they are **not interchangeable:**

(1) a. **caused** $\sim$ Nur was indirectly involved

b. **made** $\sim$ Nur used force/coercion

c. **had** $\sim$ Nur was in a position of authority

d. **got** $\sim$ Nur used trickery/bribery/manipulation

The basic puzzle: too many causatives?

Languages use a range of **periphrastic causatives**:

(1) a. Nur **caused** the children to dance. [indirectness]

b. Nur **made** the children dance. [coercion]

c. Nur **had** the children dance. [authority]

d. Nur **got** the children to dance. [manipulation]

The classical hypothesis:

- causative verbs share a common CAUSE ($\sim$ *cause*) core (Dowty 1979)
- different periphrastic verbs add distinct non-causal entailments

Example: make = CAUSE + coercive implication

(2) X **make** Y do Z := X **cause** Y to Z
+ Y did not want to do Z

Causal reasoning and causal language

Problems with the classical hypothesis:

- pinning down universal 'supplementary' entailments has proven tricky
  for instance: **make** is acceptable when the causee is non-volitional or wants the relevant outcome
- binary cause-effect relations do not reflect 'practical' conceptions of causation

An alternative: causal models (complex networks of causal relations)

- causal language describes structures in these (language-independent) representations
- discourse contributions interact (in familiar ways) with such representations
- different model relationships correspond to different linguistic effects

(Nadathur & Lauer 2020, Baglini & Bar-Asher Siegal 2021, a.o.)

Today: towards a unified analysis of causative *get* constructions

Outline of the talk

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A forest of *get*-constructions

Get is syntactically and semantically promiscuous (McIntyre 2005, 2012, a.o.):

(3) a. Nur got a book. [standard]

b. Nur **got** fired. [passive]

c. Nur **got** her car stolen. [experiencer]

d. Nur **got** to go to the movies.[1] [implicative]

e. Nur **got** the children dancing. [progressive/resultative]

f. Nur **got** the door closed. [participial/resultative]

g. Nur **got** the children to open the door. [causative]

Today: focus on a unified causal analysis of (3f)-(3g)

[1] DiPillo (2023) calls this 'opportunity'-*get*; it shares the implicative inferential profile

Past work on participial *get* (McIntyre 2005)

Observations: participial *get* licenses **responsibility** and **hindrance** inferences

(4) Nur got the door closed.
   a. *Responsibility:* Nur was responsible for the door being closed.
   b. *Hindrance:* Nur faced difficulty/resistance in closing the door.

McIntyre's proposal: hindrance-*get* is the inchoative of (non-directive) *have*

$$(4) \sim \textsc{become}(\textit{Nur had}_{\textit{resp}}\ \textit{the door closed})$$

- presupposes subject action (trying?), only describes transition into HAVE state

  (5) Nur didn't get the door closed $\rightsquigarrow$ *Nur couldn't get the door closed*

- not causative (doesn't predicate CAUSE/causing event), **responsibility** inherited from HAVE
- **hindrance** follows from "failure to credit the attainment of the result to the subject's actions" (i.e., implicature from competition with actual causatives)

Inference patterns of causative *get*

Surprisingly little on *get* with infinitival complements:

(6) Nur **got** the door to close / **got** the children to close the door.

- **responsibility** remains, but not directness (cf. *Nur closed the door*)
- **hindrance** inferences disappear or become *manipulation*

Hypothesis: infinitival *get* is an indirect causative (adds a second causer)[2]

$$X \textit{ get } Y \text{ to } Z \sim X \textit{ influenced } Y \text{ to } \textit{bring about } Z(Y)$$

- marked with non-causal complements

(7) ??Nur got the door to be red. / ??Nur got the children to be old.

Observation: hindrance and indirectness also alternate with participial *get*

(8) a. Nur got the door closed (herself). +direct, +hindrance
b. Nur got the door closed (by Ola). −direct, −hindrance

[2] Cf. Hindi 'second'/*-vaa* causatives; Bhatt 2003, a.o.

Comparing causative and participial *get*: the patterns

- Both constructions imply subject **responsibility** (but not intent)

  (9) Nur (inadvertently) got the door closed / got the door to close,
  #but she wasn't responsible for the door closing.

- Causative *get* is always indirect (no **hindrance**, at best *manipulation*)
- Participial *get* can be direct or indirect: **hindrance** varies with directness
- Negation (in both cases) licenses **inability** instead of inaction:

  (10) Nur didn't get the door to close.
  $\rightsquigarrow$ *Nur couldn't close the door / didn't manage to close the door*

Hypothesis: shared patterns suggest a shared (causal) core

More precisely:

- **responsibility** diagnoses a shared semantic relation of **causal sufficiency**
- **inability** indicates that the subject-involved event is presupposed

Outline of the talk

Sufficiency causatives (Nadathur & Lauer 2020)

Recall: **make** = CAUSE + coercive implication *first hypothesis*

(2) *X* **make** *Y* do *Z* := *X* **cause** *Y* to *Z*
+ *Y* did not want to do *Z*

- **but:** **make** is fine when the causee plausibly wants the outcome, and even with non-volitional causees

(11) a. "A surprise surgery [. . .] brought Albert in contact with nurses who made her feel happy and important [. . .]"

b. "Too much water made the plant die"

Solution: the sufficiency thesis (Lauer & Nadathur 2018, Nadathur & Lauer 2020)

> **make** expresses that the cause **guaranteed** its effect (i.e., made it *inevitable*)

- **Coercive implication:** if Nur's action guaranteed that the children danced, they *could not have acted freely*

Causal dynamics and causal dependency relations

Causal dependencies are cashed out in a **causal network model** (Pearl 2000)

- **causal information** is represented in a **directed acyclic graph** D
- **nodes:** finite set P of salient *propositional variables* (can take values $u, 0, 1$)
- **edges:** atomic relations of **causal relevance** ($P \xrightarrow{\text{c-influences}} Q$)
- **structural equations:** specify how nodes' values are determined by their ancestors'

  Function F_D assigns to each $X \in P$ a pair $\langle Z_X, f_X \rangle$ where Z_X is the set of X's immediate ancestors, and $f_X : \{0,1\}^{|Z_X|} \rightarrow \{0,1\}$
- **causal consequences:** of a situation s (3-way valuation of P) are calculated using D and F_D

In lexical semantics:
Causal language refers to (predicates, presupposes) particular structural configurations as different causal dependency types

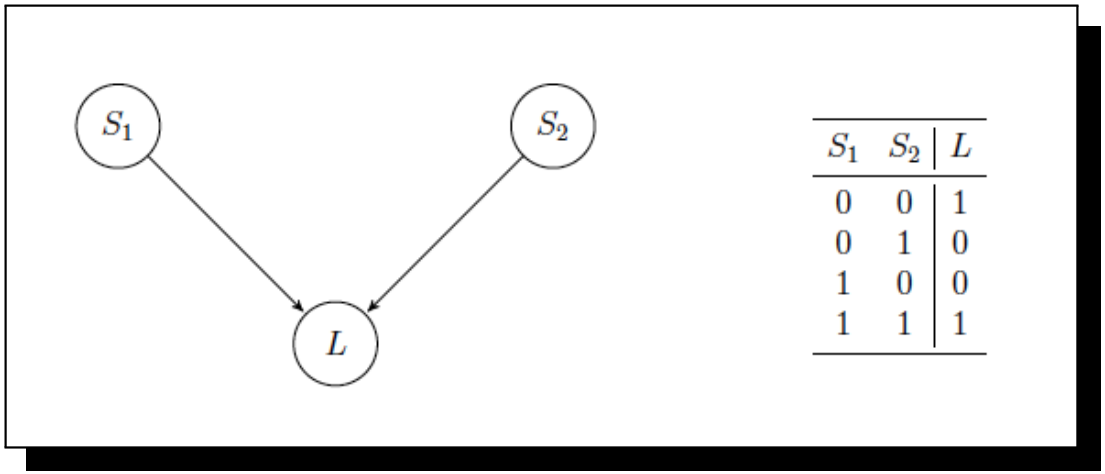
(cf. Nadathur & Lauer 2020, Baglini & Bar-Asher Siegal 2021)

Illustration: the Lifschitz circuit

(12) **The circuit example:** one light, two switches (Lifschitz 1990)

a. The light comes on (L) exactly when both switches are in the same position (up or not up).

b. At the moment switch 1 is down, and switch 2 is up.



S_1	S_2	L
0	0	1
0	1	0
1	0	0
1	1	1

- (a) states the causal laws (dynamics)
- (b) gives us an initial setting (background situation)
- given (b), a **normal causal development** will be a situation in which the light is off ($L = 0$)

Causal dependence relations (structurally defined)

Given two events C and E, and a background situation s which does not fix the occurrence of C ...

(13) C is **causally sufficient** for E relative to s if

a. s does not produce E as a normal causal development

the effect wasn't already inevitable

b. $s' = s + C$ does produce E as a normal causal development

the cause guarantees the effect

(14) C is **causally necessary** for E relative to s if

a. s does not guarantee E

b. $s' = s + C$ has a supersituation s'' which does not fix E, but has it as a normal causal development

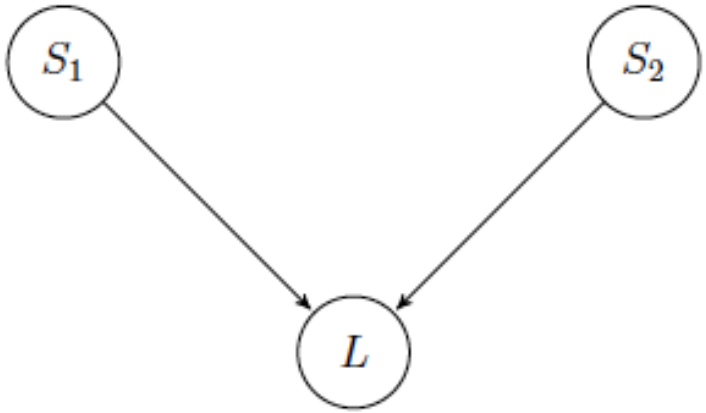
the cause makes the effect possible

c. there is no supersituation s'' of s' which makes (b) true but does not have C as a normal causal development

the effect was not possible without the cause

Illustration: the Lifschitz circuit

Suppose switch 1 is fixed up ($S_1 = 1$). In this background situation, flipping switch 2 up is both necessary and sufficient for the light to come on.



S_1	S_2	L
0	0	1
0	1	0
1	0	0
1	1	1

Nadathur & Lauer 2020:

- if **make** predicates sufficiency and **cause** predicates necessity (and possibly something more; Baglini & Bar-Asher Siegal 2021), we correctly predict that . . .

(15) a. Turning the second switch on **made** the light go on.
b. Turning the second switch on **caused** the light to go on.

. . . are both acceptable

Comparing causative *make* and *get*

Make is a **direct** sufficiency causative, need not select for causative complements:

(16) a. Nur made the door (?be) red / the children (?be) old
b. ??Nur got the door (to be) red / the children (to be) old

Interpersonal make, get (Wierzbicka 1998) differ with respect to **causee volition:**

(17) a. Nur made the children dance. — No choice; volition irrelevant
b. Nur got the children to dance. — She influenced them; volition matters

- similar contrast with inanimate causees

(18) a. Nur made the door open. — Forcibly; non-canonical opening
b. Nur got the door to open. — Manipulation of internal mechanism

Claim: *Get* is an **indirect** sufficiency causative.
A *get*-cause suffices for the **proximate** (final necessary/sufficient) cause of its causative complement

Catalytic causation: indirect sufficiency

(19) **Proposal.** Let X stand for an event C_1 or its most prominent participant.

a. $[\![X \text{ get } Y \text{ to VP}]\!]^D$ is defined w.r.t. situation $s \subseteq w^*$ and model D iff $s(C_1) = 1$ and there is some event C_2 which is **causally necessary and sufficient** for $E = [\![\text{VP}]\!]([\![Y]\!])$ relative to s, D.
presupposes the truth of C_1 and selects for a caused/causative complement

b. If defined, $[\![X \text{ get } Y \text{ to VP}]\!]^D = 1$ in s iff C_1 is **causally sufficient** for C_2 relative to $s - C_1, D$.
asserts **causal sufficiency**, *guaranteeing C_2 and thus E*

- captures **responsibility**, via chained sufficiency (selects causal complement)
- captures McIntyre's observations about presupposed action

(10) Nur didn't get the door to close.
$\rightsquigarrow$ *Nur couldn't close the door / didn't manage to close the door*

- **NB:** acceptability of unergative complements suggests an explicitly causal lexical representation (Levin & Rappaport Hovav 1994, Copley & Harley 2015)

(1d) Nur **got** the children { to dance / dancing }.

Outline of the talk

Extending the analysis to participial *get*

Assume: participial *get* selects for **resultative** complements (cf. Fleisher 2006)

(20) Y be closed $\sim \exists e, s[\textsc{prox-cause}(e)(s) \,\&\, \textsc{closed}(Y)(s)]$
$\textsc{prox-cause}(e)(s) \equiv e$ is *causally necessary* and *sufficient* for s in context

- **Indirectness** with non-finite complements is derived via specification of an intervening (non-subject) causer, on which the *get*-subject acts (Wolff 2003)
- **Resultative complements** are underspecified, permitting readings on which the (inferred) agent of the proximate cause is identified with the *get*-subject

(8a) Nur got the door closed (herself)

a. *Presupposes:* Nur is the agent of an actual event C_1, there is an event C_2 which is necessary/sufficient for the door to close

b. *Asserted:* C_1 is causally sufficient for C_2

c. *Pragmatically:* Nur is the agent of C_2

- This derives **directness**, but why the **hindrance** inference?
(Short answer: C_2's *necessity*)

Hindrance *get* and implicative *manage*

McIntyre (2005) compares the 'hindrance' inference of *get* to the **non-triviality presupposition** of implicative *manage*:

(21) a. Nur managed to close the door.

b. Nur got the door closed.

⇝ *Nur intended / tried to close the door*
⇝ *Closing the door was difficult? effortful? unlikely? (for Nur)*

- **Challenge:** *manage*'s projective content can't be tied to effort, intention, trying, difficulty, . . . because *manage* is acceptable where these inferences are denied (Coleman 1975, Baglini & Francez 2016)

(21a) Nur managed to close the door
. . . inadvertently, . . . easily, . . . without even trying, . . . as we expected

- the facts with *get* are similar (Baglini 2012)

(21b) Nur got the door closed.
. . . inadvertently, . . . easily, . . . without even trying, . . . as we expected

Hindrance *get* and implicative *manage*

Solution: an effect is **non-trivial** if it has a **causal prerequisite**

(22) **Causal semantics:** *x manage to P* (Nadathur 2023, cf. Baglini & Francez)

a. *presupposes:* the existence of an action A such that $A(x)$ is **causally necessary** and **sufficient** for $P(x)$

b. *asserts:* $A(x)$

Compare to **'direct' resultative** *get*

(8a) Nur got the door closed (herself)

a. *Presupposes:* Nur is the agent of actual C_1, some C_2 is necessary/ sufficient for the door to close

b. *Asserted:* C_1 is causally sufficient for C_2

c. *Pragmatically:* Nur is the agent of C_2

- Given (c): $C_2 \sim A(x)$ in (22) (Nur must act to realize the *get*-result)
- No subject hindrance w/out (c): C_2 is necessary, but *get*-subject not involved

Outline of the talk

Conclusions and outlook

Indirect causal sufficiency offers a unified approach to participial (resultative) and causative *get* (and predicts selection for causative complements)

- **sufficiency** explains responsibility inferences; **intervening cause(r)** explains the hindrance/indirectness alternation
- should extend to *get* with progressive complements (*Nur got the children dancing*) if these can be treated as **caused progressive states**
- **experiencer** *get* may also be explicable (*Nur got her car stolen*; resultative, −direct, −intention)

Looking farther afield:

- *Get*-**passives** suggest more subject responsibility than standard passives (*Nur got / was fired*); captured by indirect sufficiency + passive complement?
- **Implicative** (opportunity) *get*: implicative inferential profile pattern, but 'causing' action assigned to a non-specified agent (indirect but guaranteeing relation to the proximate complement cause)

(3d) Nur **got** to go to the movies.

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