A Contrastive View on Causation: Causer Neglect

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1. Introduction

Conceptualization of cause-effect relationships:
"Players": causer, causee/effect, directionality

Causation: cause-effect relationship (a cognitive and experiential universal)

Causativity: grammaticalized causation in different languages

Crosslinguistic view:
→ grammaticalization in different languages can reveal
  a) universal principles
  b) principles that are related to conceptualization differences

1. Introduction

Speaker conceptualization of causal relationships:

1. mapping constituents (causer/causee) onto conceptual prototypes (Agent/Goal etc.)

2. recognizing the temporal order of the antecedent (cause) and consequent (effect) due to human temporal processing

Constraints: asymmetry, primacy, word order

1. Introduction

Distribution of causative situation:
biclausal and monoclausal causativity

but:
• observation of asymmetry between causers and causees: not all "players" may be grammaticalized
• related to issue of control: causers have primary control
• asymmetry emphasizes different degrees of coercion, thus control of causees (transparent in case hierarchies)

1. Introduction

Why care?

phenomena to be observed:
• causer often unmarked (null-subject languages, passives)
• causers sometimes highly marked (cleft sentences)
• default: marked by primacy as they are increasingly subjects, e.g. early in sentence
• frequency universal: 79% of all languages have SO

Method: elicitation of specific preferences corresponding with the different L1 of speakers

sensory input: no explicit causal information
→ computed from sensory input in some way

sensory input: presence/absence of candidate cause and of effect

Covariation between cause and effect: extent to which they vary together

contingency
\[ \Delta P_i = P(e|i) - P(e|i') \]

\( i \) = candidate cause, \( e \) = effect

\( P(e|i) \) = probability of \( e \) given the presence of \( i \)
\( P(e|i') \) = probability of \( e \) given the absence of \( i \)
1.1 Causal asymmetry and the L2 learner

Learner interpretation of causal asymmetry:
- cf. assignment of conceptual roles
- uncontroversial in most lexical causatives of the break-type: John breaks the bottle → The bottle breaks

Continuum of grammaticality:
1. The knife cuts well
2. The bread cuts well
3. The axe splits well
4. The trunk splits well
5. John breaks well
6. The ice-pick breaks well
7. The ice breaks well

1.2 Causal asymmetry and intentionality

Problem case: Psych-verbs
- John amuses the audience →
- *The audience amuses →
- therefore double bias:
  1. grammaticality judgment (L2!)
  2. causee/causee attribution

2. Types of Causation

Core of a causal situation: event 1 temporally precedes event 2
- occurrence of event 2 perceived to be dependent on occurrence of event 1:
  both form a cause-effect relationship

Acquisition of Causation: cf. because - sentences which reverse order
- infant speech output: epistemic causativity
- (5) Mom likes me because she buys me an ice-cream

2.1 Conflation and degree of fusion

Cause and effect can be lexicalised with two different verbal elements or conflated into one verb

Degree of fusion leads to different types of causatives

Grammaticalization patterns:
- a) generic/periphrastic/auxiliary/analytic
  (make/have/let/get)
- b) synthetic 1 (develop, drown, break =
  • allow make-paraphrase, make break/ make drown)
- b) synthetic 2/morphological (soften, redden =
  • allow make-paraphrase, make soft/ make red)
- c) lexical/suppletive (kill, repair =
  • disallow make-paraphrase, make dead/whole)

German: impoverished in periphrastic/analytic causatives
lassen ("let"), strong permissive semantic component
or in jussives (rare)

(6’) Ich lasse Hans die Küche säubern
I let Hans.ACC the kitchen.ACC clean

relationship between Type a) and Type b):
(7) Mary whitens the wall
(7’) → Mary makes the wall white
2.2 Cause deletion in English inchoatives

The bottle broke → omitted causing/precipitating event

causer: completely excluded
causee: structurally in position of exerting control (occupies subject position/agentive role)
Comrie, 1989: Cause is structure-independent

• different means to express cause highlight focal elements of the causative situation
  → not rule-based but pragmatically conditioned by
  1. case-hierarchy of control of the causee
  2. heterogeneous nature of the grammaticalization of cause:
     PP: because of, thanks to, due to, owed to
     Conjunctions: because, so that

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3. Hypotheses and expectations

Typological view on English and German:

<table>
<thead>
<tr>
<th>English</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVO</td>
<td>SVO, case marking, V2</td>
</tr>
<tr>
<td>subject-first</td>
<td>topic-first</td>
</tr>
<tr>
<td>lexical causatives</td>
<td>lexical causatives</td>
</tr>
<tr>
<td>satellite-framed</td>
<td>satellite-framed</td>
</tr>
</tbody>
</table>

Animate-first principle: frequency universal, strong typological principle (Song, 2003)
  → presence/absence of a causer/causee in a transitive causative situation: biased by primacy of causer

3.1 Conceptualization bias

Important grammatical difference: heterogeneous structure of German inchoatives, cf.

(8) John stops the train → The train stops
(8') Hans stoppt den Zug → Der Zug stoppt
  → English - German 1:1 mapping

(9) John moved the stone → The stone moved
(9') Hans bewegte den Stein → *Der Stein bewegte
  (9'') *Der Stein bewegte sich

• co-referenced reflexive PRO in verb-internal position
  → conceptual difference: causee is its own causer

3.2 Inchoativity bias

<table>
<thead>
<tr>
<th>Causative</th>
<th>Inchoative</th>
</tr>
</thead>
<tbody>
<tr>
<td>The sun reddens the sky</td>
<td>The sky reddens</td>
</tr>
<tr>
<td>The wine reddens his face</td>
<td>His face reddens</td>
</tr>
</tbody>
</table>

German: stemV change

Die Sonne rötet den Himmel
reflexive
particleV
suppletion

*Der Himmel rötet
*Der Himmel rötet sich

Sein Gesicht errötet
His face blushes

*Der Himmel errötet
*Der Himmel errötet sich

3.2 Case-marking bias

Causer: agentic, +/-intentional
Causee: consumer of the verbal action (most lexical causatives) or “causative pivot” (Langacker, 2002)
Action chain: conflated, “single-clause expressions with more than the usual number of … participants” (ibid)
  → exhausts frame of complementation within one clause

(10) Bill drowns → John drowns Bill

[B =>[A ]] to [A ]

John drowns Bill

A is causative pivot, takes ACC or ABS, O-role
B is action-chain head, S-role
3.2 Case-marking bias

Case marking: triggers hierarchy of more coercive vs. less coercive causation
ACC: A undergoes direct, coercive causation
DAT: A indirect, noncoercive causation, is attributed
some agentivity

cf. causative make and especially catenative help
(11) John makes Bill sing
(11') Hans hilft Wilhelm singen

• explicit case marking in German
English: enables process focus (Slobin, 1997)

English/ German: manner-languages (Talmy, 1985)

• explicit manner: these causatives form awkward
transitives that stretch the causative-inchoative
alternation, cf.
(13) John moved the vase → The vase slid (across the table)
(13') John slid the vase

Manner: does not cross the conceptual boundary
between causer and causee.

• no explicit manner: cause takes over function of
manner or cause becomes ungrammatical:
(14) John slowed the train → The train grinded
but (14') *John grinded the train

→ manner presupposes intentionality

• caused motion: typically very specific
• spontaneous/inchoative motion: typically generic

3.3 Manner bias

Unaccusatives: V, with S-Agent, cf. fall, melt, sink
• typical causee processes can be used V, as in
(15) The sun melted the ice
(16) The torpedo sank the ship

But: process can be coerced but not without a causer
of ungrammaticality of imperatives or –er nominals
(17)*Fall!; *Melt! or *Sink!
(17') *faller; *melter; *sinker

3.4 Unaccusativity bias

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4. Data and discussion

Vantage point of research: L2 learners provide a
crosslinguistic view because they (may be) naïve
conceptualizers
→ thus study on causer/causee assignment of L2
learners

Expected outcome:
• variables to be obtained: total number of causer or
causee supplied in incomplete sentences
The closet's moving (causer missing) vs.
John's moving (causee missing)

• causer/causee attribution: measured in occurrences of
supplied arguments in sentence complementation task

4.1 Data and discussion: Methodology

Test design:
• subjects: German adult learners of English; n=49
• target: identification of the causative situation
• role assignment: triggered by different parameters
(resultativity, inchoativity, animacy, manner, psych…)

Parameters of the present study:
causer centered: resultativity
causee centered: inchoativity

independent variables:
all V are lexical causatives: +caus-inch or –caus-ich
+resultative or -resultative

dependent variables: +/-causer or +/-causee supplied

4.2 Data and discussion: Examples

Complementation task
Causal perspective on situation: presented in pairs
Causer/causee: missing from sample sentences in
equal numbers

Varied design: causativity-inchoativity and resultativity
+caus-inch & +result
The glass' breaking
John's breaking
+caus-inch & -result
The city's developing
The architects' developing
-caus-inch & +result
The treasure's finding
The detective's finding
-caus-inch & -result
The knife's cutting
The bread's cutting
4.3 Data discussion: overview

Number of test participants: \( n = 49 \)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total causers supplied</td>
<td>392</td>
</tr>
<tr>
<td>(cumulated)</td>
<td>31%</td>
</tr>
<tr>
<td>Total causees supplied</td>
<td>405</td>
</tr>
<tr>
<td>(cumulated)</td>
<td>32%</td>
</tr>
<tr>
<td>no suppletion</td>
<td>468</td>
</tr>
<tr>
<td>total</td>
<td>1265</td>
</tr>
<tr>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Mean assignment:
- 8 causers/participant
- 8.3 causees/participant
- 9.5 neither/participant

40 sentences, randomized order

4.4 Data discussion: Dependencies

\( \chi^2 \) : causer/causee x +/-result

<table>
<thead>
<tr>
<th></th>
<th>resultative</th>
<th>resultative</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>causer supplied</td>
<td>202</td>
<td>199</td>
<td>392</td>
</tr>
<tr>
<td>causee supplied</td>
<td>210</td>
<td>186</td>
<td>405</td>
</tr>
<tr>
<td>total</td>
<td>412</td>
<td>385</td>
<td>797</td>
</tr>
</tbody>
</table>

critical value (5%) and 1 df = 3.84

\( H_0 \) = there is no relation between causer/causee assignment and resultativity

\( H_0 \) cannot be rejected due to 0.52 < 3.84

4.4 Data discussion: Dependencies

\( \chi^2 \) : causer/causee x +/-caus-inch

<table>
<thead>
<tr>
<th></th>
<th>caus-inch</th>
<th>caus-inch</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>causer supplied</td>
<td>221</td>
<td>119</td>
<td>340</td>
</tr>
<tr>
<td>causee supplied</td>
<td>243</td>
<td>121</td>
<td>364</td>
</tr>
<tr>
<td>total</td>
<td>464</td>
<td>240</td>
<td>704</td>
</tr>
</tbody>
</table>

critical value (5%) and 1 df = 3.84

\( H_0 \) = there is no relation between causer/causee assignment and caus-inch

\( H_0 \) must be rejected due to 15.1 > 3.84, \( p < .005 \)

\( \rightarrow \) small but significant effect

4.5 Data discussion: Correlation

inconclusive \( \chi^2 \) results
Thus look at stability and consistency in test subject behavior

Scatterplots:

4.5 Correlation: Scatterplot 1

4.5 Correlation: Scatterplot 2
4.5 Correlation: Scatterplot 3 and score

Pearson product moment $r$
1) $+\text{causer} \times -\text{resultative} \; r = 0.38208812$
2) $+\text{causer} \times +\text{resultative} \; r = 0.4911263$
$p > .001$, two-tailed (critical value 0.451)
Thus a small effect for weak positive correlation of causer and +resultatives

4.6 Data discussion: Animacy

<table>
<thead>
<tr>
<th>total</th>
<th>no suppletion</th>
<th>+ANIM relative</th>
<th>-ANIM relative</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>302 / 31</td>
<td>82.5</td>
<td>17.5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>405 / 32</td>
<td>94.9</td>
<td>5.1</td>
<td>100</td>
</tr>
</tbody>
</table>

Animacy: strongest cue for causer assignment
- learners supply cause or causee arguments or neither
- no-suppletion: reflexive reading or
  John's breaking... to John's breaking up with Lucy was terrible
- supplied causees: largely animate (83%)
- supplied causees: largely non-animate (95%)

4.7 Data discussion: Reflexives

<table>
<thead>
<tr>
<th>No suppletion</th>
<th>reflexive</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total %</td>
<td>11 / 67</td>
<td>437 / 93.3</td>
</tr>
</tbody>
</table>

neither causer nor causee supplied:
- fewer learners than expected supply reflexive inchoative
- due to the perceived grammaticality of many English forms without reflexive where German reflexive is obligatory

4.8 Data discussion: Trends

- neither causer nor causee supplied: fewer learners than expected opted for the reflexive inchoative

Inchoative: temporal onset is present, therefore:
1) Causatives: (19) $\text{CAUSE } [x, \text{BEGIN} \{ \text{BECOME} [V_{caus} y] \}] = \text{become } y$ (but was not $y$ before)
   (19') The architects develop the city
2) Inchoatives: (20) $[x \text{ BECOME } x \text{ BE AT A/A+er}] = \text{become developed or more developed}$
   (20') The city develops

German verbs of the move-type do not follow this formula:
1) Causatives: (21) $\text{CAUSE } [x, \text{BEGIN} \{ \text{BECOME} [V_{caus} x] \}]$ as in
   (21') Die Stadt entwickelt sich
   The city develops itself

5. Conclusion

L2 learner’s assignment of causer/causee roles in ambiguous causatives depends on

Parametric cues:
1) Animacy bias of causer and causee
   - data trends point towards a salience of the causee
   - rejects hypothesis 1 in favor of hypothesis 2
   Most spontaneous/inchoative verbal events are conceptualized as cognitive standard situations in which a causer is the default assumption, unmarked and/or phonetically zero
   - ties in with Croft’s observation of causer avoidance (common agent suppression, Croft 2001) in English passive
2) Resultativity bias in favor of causers
   - resultative causativity is supplied with cause

6. Selected references