

### Causation and complexity in language

**Complexity:** the relationship between a phenomenon and the number of algorithms to formalize it

**Causation:** the relationship established between two events due to spatiotemporal contiguity in a repeatable configuration

- core of causative meaning: cause-effect relationship  
→ cognitive and experiential universal
- causation is the ontological center of human cognition
- is "the cement of the universe" (Mackie, 1974)
- reflects human cognition of cause-effect relationships
- derived from gestalt perception and spatiotemporal contiguity

Causation is therefore  
→ a property shared by all speakers of all languages  
→ all languages grammaticalize causation  
• difference in grammaticalization corresponds with difference in rules/algorithms → differences in complexity

### Causation and causativity

Event 1 temporally precedes event 2, occurrence of event 2 is perceived to be dependent on the occurrence of event 1  
→ both form a cause-effect relationship

**Causativity:** the lexicalization of causation in which a cause-effect relationship/a causal situation is expressed

1. as a series of simple verbal propositions  
*John bought a knife because he needed it*
2. as a complex verbal proposition  
*John made us suffer*
3. as one simple proposition, usually the "effect" under neglect of the cause  
*The bottle broke*

### Universal causative meaning

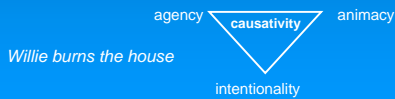
Recognition of cause-effect relationships in nature: relevant for:

- reasoning and inference
- intentionality
- perception of time
- projection and deixis

→ syntactically grammaticalized in basic word order  
→ semantically anchored in metaphors

- important semantic component: agency
- agency: bounded by semantic parameters animacy and intentionality

Complex/compound events underlie gradual causal complexification



### The causal event

Causal event: can be grammaticalized as a

- a) single event
- b) complex event
- c) sequence of separate, causally related events (action chain) (Langacker, 2002).

**Action chain:** coded by separate verbs as in *cause to die...*

- a) one lexeme (affix, separate word) specifies energy input
- b) another lexeme codes process driven by it

- a) and b) have overt causative marking
- conflation of a) and b) possible

potential: creation of single-clause expressions with more than the usual number of participants  
→ stretches normal SVO pattern beyond capacity  
*John made Mary read the text*  
Complement clause –S: Mary (the causative pivot)  
• grammatical role in complement clause is determined by semantic role

### Complexity of causal events

causal event: inherent complexity  
determined by: number of participants  
roles of participants

Component events:

- a) causing/precipitating event *John "brought it about that" + b)*
- b) caused event *a) + Mary read the text*

component events can be

- a) lexicalized in full
- b) abbreviated for cognitive standard situations, cf.

<i>John broke the bottle</i>	or
<i>Das Taschentuch</i>	<i>wehte weg</i>
<i>The handkerchief</i>	<i>blew away</i>

### Causer and causee

Complexity scale for compound events: reflected in lexical surface  
• omitted situation: excludes the causer from compound event

but:

Causer: not reflected on the lexical surface  
Causee: structurally in the position of exerting control occupies subject/agentive role

suggests that causation is structure-independent (e.g. Comrie, 2000)  
→ causation is complexity independent?

possible solution:  
Imeans to express cause highlight focal elements of the causative situation  
→ not rule-based but pragmatically conditioned

- a) by the case-hierarchy of control of the causee and
- b) by the heterogeneous nature of the grammaticalization of cause

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### Grammaticalizing cause

- prepositional phrases (*because of, thanks to, due to, owed to...*)
- conjunctions (*because, so that*)
- passive by-phrase
- cleft sentences

**Cause and control:**  
differences in grammaticalization different interpretation  
Causer for lexical/synthetic causatives in active clauses:  
in S-position, agentive role, volitional content maximum control  
causee: expected in the patient or experiencer role  
(on the receiving end of the verbal event)  
→ for all active sentences we expect the causee to be in O-position  
Control issue comes up in passives when causees are  
in subject position and causer is either absent or relegated to the  
by-phrase

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### Causativity and the English verb

Type 1: Causative auxiliaries  
• enable paraphrase of 2. and 3.

Type 2: Core Causatives

Type 3: Peripheral Causatives

- relationship between type 2 and type 3: **continuum of grammaticalization**

lexicalized, two words      A & +CAUS morpheme      zero-lexicalized

←-----→

*kill/die*                      *actualize*                      *move*

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### Type 2: Core Causatives

*move/change/grow/develop/open/close/start/stop/  
begin/break/crack/split/tear*  
as V<sub>trans</sub> with +ANIM subjects

**tentative rule # 1**  
type 2 causatives allow paraphrase with type 1 causatives

<i>move the cup</i>	<i>make the cup move</i>
<i>change the coilor</i>	<i>make the color change</i>
<i>grow the plant</i>	<i>make the plant grow</i>
<i>develop the city</i>	<i>make the city develop</i>
<i>open the door</i>	<i>make the door open</i>
<i>break the glass</i>	<i>make the glass break</i>

**tentative rule #2**  
type 2 causatives allow ergative effects  
*the cup moves, the color changes, the plant grows, the door opens,  
the glass breaks*

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### Type 3: Peripheral Causatives

**tentative rule #3:**  
Type 1 causatives underlie conflation constraints  
cf. small clauses for copular *be*-constructions  
*John makes Bill happy*  
\**John happies Bill*

**tentative rule #4:**  
*make* + Adj needs morphemes  
*John makes paper soft*  
*John softens paper*  
*sad – sadden*  
*rich – enrich*

**tentative rule #5**  
*make* + V  
*John makes Bill sing* – small clause for: *that Bill sings*  
• cause not encapsulated → contained in satellites, not V

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### Problems and conclusion

**Problems**

<i>?John makes Bill dead</i>	→	<i>John kills Bill</i>
<i>?John makes the tea cool</i>	→	<i>John cools the tea</i>
<i>John makes Bill blind</i>	→	<i>John blinds Bill</i>

[Transitivization]

but:

<i>Hans macht Wilhelm tot</i>	→	<i>Hans tötet Wilhelm</i>
<i>Hans macht den Tee kühl</i>	→	<i>Hans kühlt den Tee</i>
<i>Hans macht Wilhelm blind</i>	→	<i>Hans blendet Wilhelm</i>

[Transitivization]  
[stem vowel change]

**Conclusion**

- English is causally impoverished
- needs 3-way typology of causation
- fewer rules indicate lower complexity than German
- conflation underlies constraints
- grammaticalization is rule-governed but heterogeneous

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