Modeling causative complexity across languages with the Interclausal Relations Hierarchy

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SYNOPSIS

- Introducing CAL
- A new study design for semantic typology
- Variables and stimuli: the CAL Clips
- Preliminary findings
- Summary
INTRODUCING CAL

- Causality Across Languages
  - NSF Award #BCS-1535846; PI J. Bohnemeyer
- a new horizon in semantic typology: causality
  - first ever large-scale meaning-based crosslinguistic study of the representation of causality
subprojects

The semantic typology of causality
- how are causal chains semantically categorized across languages for the purposes of linguistic encoding?

The representation of causality in discourse
- how are causal chains represented in narratives across languages?

Causality at the syntax-semantics interface
- how much variation is there across languages in form-to-meaning mapping in the representation of causal chains?

Causality in language and cognition
- how are causal chains cognitively categorized across cultures and what role does language play in this variation?
the sample

Figure 1.1. Big map, lotsa languages, southern void
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A NEW STUDY DESIGN FOR SEMANTIC TYPOLOGY

- domain: form-meaning mapping in causatives
- the ‘Iconicity Principal’ (Haiman 1983): simple ‘direct’ causal chains favor simple causative constructions

(2.1) Le=máak=o’ t-u=nik-ah le=bàaso-s-o’b=o’
YUC DEF=person=D2 PRV-A3=scatter-CMP(B3SG) DEF=cup-PL-PL=D2
‘The man, he scattered the cups’

Figure 2.1. HO5_cuptower
the Iconicity Principle (cont.)

while more complex constructions/descriptions are preferred for more complex, ‘indirect’ chains

- e.g. Bohnemeyer et al (2010); Comrie (1981); Dixon (2000); Haiman (1983); Haspelmath (2008); Kemmer & Verhagen (1994); Levin & Rappaport-Hovav (1995); Levshina 2015, 2016, 2017; McCawley (1976, 1978); Shibatani ed. (1976); Shibatani & Pardeshi (2002); Talmy (1976); Verhagen & Kemmer (1997); inter alia

(2.2) a. #Le=x-ch’úupal=o’ t-u=nik-ah 
le=bàaso-s-o’b=o’
YUC DEF=female:child=D2 PRV-A3=shatter+slap-APP-CMP(B3SG) DEF=cup-PL-PL=D2
‘The girl, she scattered the cups’

b. Le=x-ch’úupal=o’ t-u=mèet-ah
DEF=F-female:child=D2 PRV-A3=make-CMP(B3SG)
u=nik-ik 
le=bàaso-o’b le=máak=o’
A3=scatter-INC(B3SG) DEF=cup-PL DEF=person=D2
‘The girl, she made the man scatter the cup’

Figure 2.2. HUO2_cups
our research question: what exactly does ‘simple’ or ‘direct’ mean - and does it mean the same thing across languages?

some candidate variables
(cf. Bohnemeyer et al 2010; Dixon 2000)

- **mediation** - the presence/absence of an intermediate subevent b/w cause and effect
  - ≈ an intermediate participant (CE) b/w CR and AF

- **prototypicality** - the extent to which the causal chain conforms to the prototypical agent-patient schema
  - hypothesized to be associated with simple transitive causative clauses (Hopper & Thompson 1980)
  - in particular, **agentivity**: the extent to which the causer is a prototypical intentional human agent
some candidate variables (cont.)

- **domain** - physical/biological vs. psychological vs. social causation

- **force dynamics** - causation vs. letting/enabling (Talmy 1988)

- **contiguity** of subevents - absence/presence of temporal/spatial gaps b/w subevents

Figure 2.3. *A multidimensional continuum model of causation directness*
previous quantitative studies into the form-meaning mapping in causatives

- typological “library” studies: Escamilla 2012
- elicited production studies: Bohnemeyer et al 2010
a new approach

Figure 2.4. A hybrid study design for semantic typology
advantages of this hybrid design type

vis-à-vis corpus studies

applicable to languages for which (large) corpora are unavailable

provides both positive and negative evidence

gives direct access to the scene being described

vis-à-vis traditional elicited production studies (the staple in contemporary semantic typology)

allows rapid data collection and analysis from a larger number of speakers

provides both positive and negative evidence
we used the **Layered Structure of the Clause (LSC)** model of Role and Reference Grammar (Van Valin 2005)

to assign a complexity level to each construction type

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**Figure 2.5.** Juncture (left) and nexus types in the Layered Structure of the Clause model (Van Valin 2005: 188)
why the LSC model?

because it gives us a single scale

on which to rank the relative complexity level of any causative coding device

namely, the morphosyntactic side of the Interclausal Relations Hierarchy

in contrast, in phrase structure grammars, one would have to assess separately

the complexity of the causing event representation

the complexity of the resulting event representation

the complexity of the construction that relates the two
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VARIABLES AND STIMULI: THE CAL CLIPS

- design: E. Bellingham; J. Bohnemeyer
- 58 short video clips featuring everyday causal chains
  - most staged/enacted, a few found on the internet
- variables manipulated
  - **causer (CR)** type: volitional vs. accidental vs. force
  - **causee (CE)**; = intermediate participant in the chain) type
    - volitional/controlled
    - vs. involuntary response to psychological impact
    - vs. involuntary response to mechanical impact
    - vs. no CE
affectee (AF) type

- volitional/controlled
- vs. involuntary response to psychological impact
- vs. involuntary response to mechanical impact
- vs. physical object

resulting event type
physical state change vs. location change vs. process

force dynamics

- causation (43 core + 10 sup.) vs. letting (5 sup. scenes)
stimuli: the CAL Clips (cont.)

- examples

- CR = force; CE = none; AF = mechanically impacted; resultant event = location change; FD = causation
stimuli: the CAL Clips (cont.)

examples (cont.)

- CR = accidental; CE = volitional/controlled; AF = object; resultant event = location change; FD = letting
stimuli: the CAL Clips (cont.)

examples (cont.)

- CR = volitional; CE = psychologically impacted; AF = object; resultant event = physical change; FD = letting
stimuli: the CAL Clips (cont.)

examples (cont.)

CR = volitional; CE = volitional/controlled; AF = object; resultant event = process; FD = causation
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PRELIMINARY FINDINGS

- the languages from which data has been collected for the Semantic Typology subproject so far

Figure 4.1. The current sample of the CAL Semantic Typology subproject
populations included in the analysis so far and researchers waiting in the wings: Ewe (J. Essegbey, UFL); Mandarin (J. Du, F. Li, Beihang U)

### Table 4.1. The current sample of the CAL Semantic Typology subproject

<table>
<thead>
<tr>
<th>Language</th>
<th>Genus</th>
<th>Field site</th>
<th>Participants</th>
<th>Researcher</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datooga</td>
<td>Nilotic</td>
<td>Tanzania</td>
<td>12</td>
<td>A. Mitchell</td>
<td>U of Bristol</td>
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<tr>
<td>English</td>
<td>Germanic</td>
<td>U.S.A.</td>
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<td>E. Bellingham, S. Evers</td>
<td>UB</td>
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<td>Japanese</td>
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<td>K. Kawachi</td>
<td>National Defense Academy of Japan</td>
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<td>Korean</td>
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<td>UB</td>
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<td>A. Stepanova</td>
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<td>Yucatec</td>
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<td>Zauzou</td>
<td>Lolo-Burmese</td>
<td>P.R.C.</td>
<td>12</td>
<td>Y. Li</td>
<td>UB</td>
</tr>
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</table>
causative coding devices included in the analysis

Table 4.2. *Causative coding devices in the sample languages that were included in the analysis*

<table>
<thead>
<tr>
<th>Construction</th>
<th>Datooga</th>
<th>English</th>
<th>Swedish</th>
<th>Japanese</th>
<th>Korean</th>
<th>Russian</th>
<th>Sidaama</th>
<th>Yucatec</th>
<th>Zaouzou</th>
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<tbody>
<tr>
<td>Transitive causative verbs</td>
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<tr>
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<td>✓</td>
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<td>Resultative constructions</td>
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<tr>
<td>Periphrastic causatives</td>
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<tr>
<td>Single-core constructions augmented by an oblique causer PP/NP</td>
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<td>✓</td>
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<td>✓</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Event nominalizations used as causer arguments</td>
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<td>No</td>
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<tr>
<td>Causal converb constructions</td>
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<td>Causal connective constructions</td>
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<td>No</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>‘So X that Y’-type constructions</td>
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<td>✓</td>
<td>✓</td>
<td>No</td>
<td>No</td>
<td>✓</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
distribution of construction types over LSC juncture levels

**Table 4.3.** Construction types by language and juncture (AC - Adjunct causer/reason (‘because of x’), CC - Causal connective, CV - Converb, MC - Morphological causative, PC - Periphrastic causative, RV - Resultative construction (incl. resultative-type serial verb construction), SC - Scalar Connective construction (‘So x that y’), TC - Transitive causative verb)

<table>
<thead>
<tr>
<th>Language</th>
<th>Field site</th>
<th>Simplex or nuclear-layer</th>
<th>Core-layer</th>
<th>Clause-layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datooga (Nilo)</td>
<td>Tanzania</td>
<td>MC, TC</td>
<td>AC, PC, SC</td>
<td>CC</td>
</tr>
<tr>
<td>English (Ger)</td>
<td>United States</td>
<td>RV, TC</td>
<td>PC</td>
<td>AC, CC, SC</td>
</tr>
<tr>
<td>Japanese (Jap)</td>
<td>Japan</td>
<td>MC, TC</td>
<td>AC</td>
<td>CC</td>
</tr>
<tr>
<td>Korean (isol)</td>
<td>South Korea</td>
<td>MC, RV, TC</td>
<td>PC</td>
<td>CC, CV</td>
</tr>
<tr>
<td>Russian (Slav)</td>
<td>Russia</td>
<td>TC</td>
<td>PC</td>
<td>AC, CC, SC</td>
</tr>
<tr>
<td>Sidaama (Cush)</td>
<td>Ethiopia</td>
<td>MC, TC</td>
<td>AC, PC</td>
<td>CC</td>
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<tr>
<td>Swedish (Ger)</td>
<td>Sweden</td>
<td>RV, TC</td>
<td>PC</td>
<td>CC, SC</td>
</tr>
<tr>
<td>Yucatec (Maya)</td>
<td>Mexico</td>
<td>MC, TC</td>
<td>PC</td>
<td>CC</td>
</tr>
<tr>
<td>Zauzou (Lolo)</td>
<td>China</td>
<td>RV</td>
<td>CC, CV, PC</td>
<td>CC</td>
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