Predictability and informativeness in iconicity of complexity: A Gricean perspective

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Jürgen Bohnemeyer

jb77@buffalo.edu
http://www.acsu.buffalo.edu/~jb77/

University at Buffalo
The State University of New York

SYNOPSIS

- A new study design for semantic typology
- Preliminary findings
- Iconicity in causatives: a Gricean account
- Summary

A NEW STUDY DESIGN FOR SEMANTIC TYPOLOGY

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

(1.1) 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 3.1. *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); Wolff (2003); *inter alia*

(1.2) 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 3.2. *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** of the CR
        and **patientivity** of the CE/AF (the second chain participant)

- 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

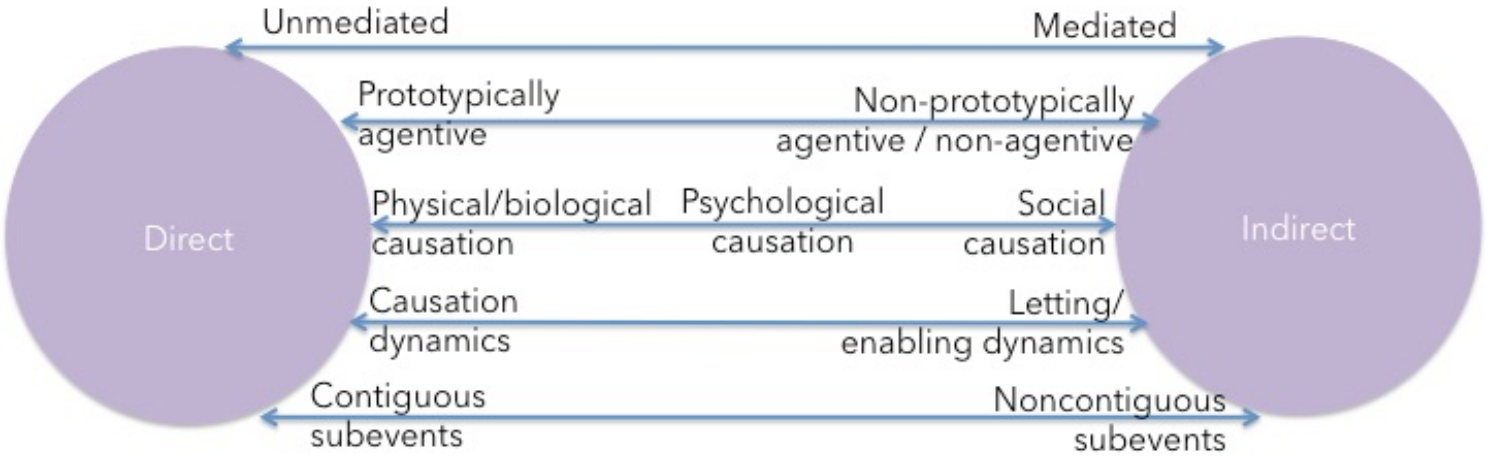

Figure 1.1. *A multidimensional continuum model of causation directness*

- previous quantitative studies
  into the form-meaning mapping in causatives
  - typological "library" studies: Escamilla 2012
  - elicited production studies: Bohnemeyer et al 2010
  - corpus-based studies:
    Haspelmath 2008: 22-23; Levshina 2015, 2016, 2017

- a new approach

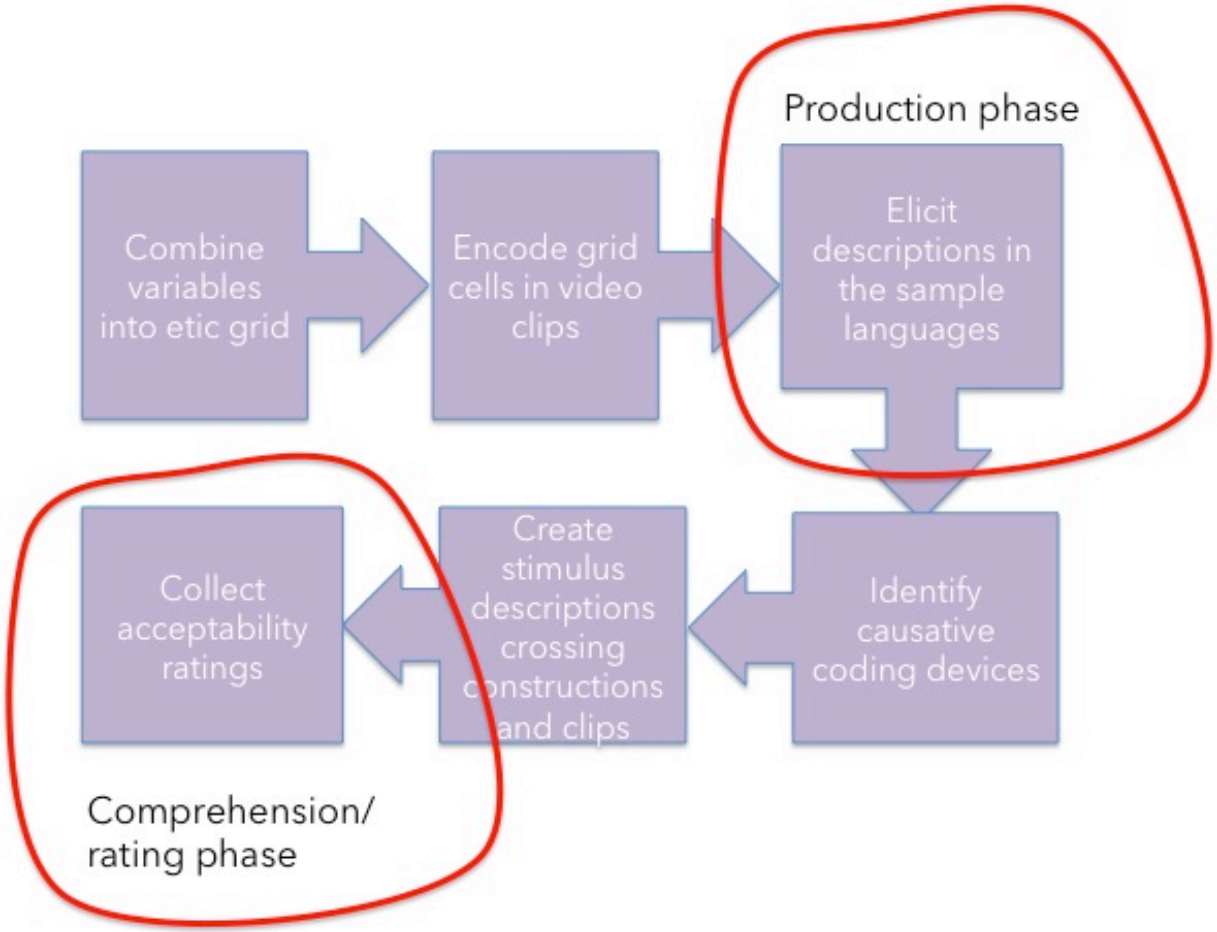

Figure 1.2. *A hybrid study design for semantic typology*

- 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

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PRELIMINARY FINDINGS

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

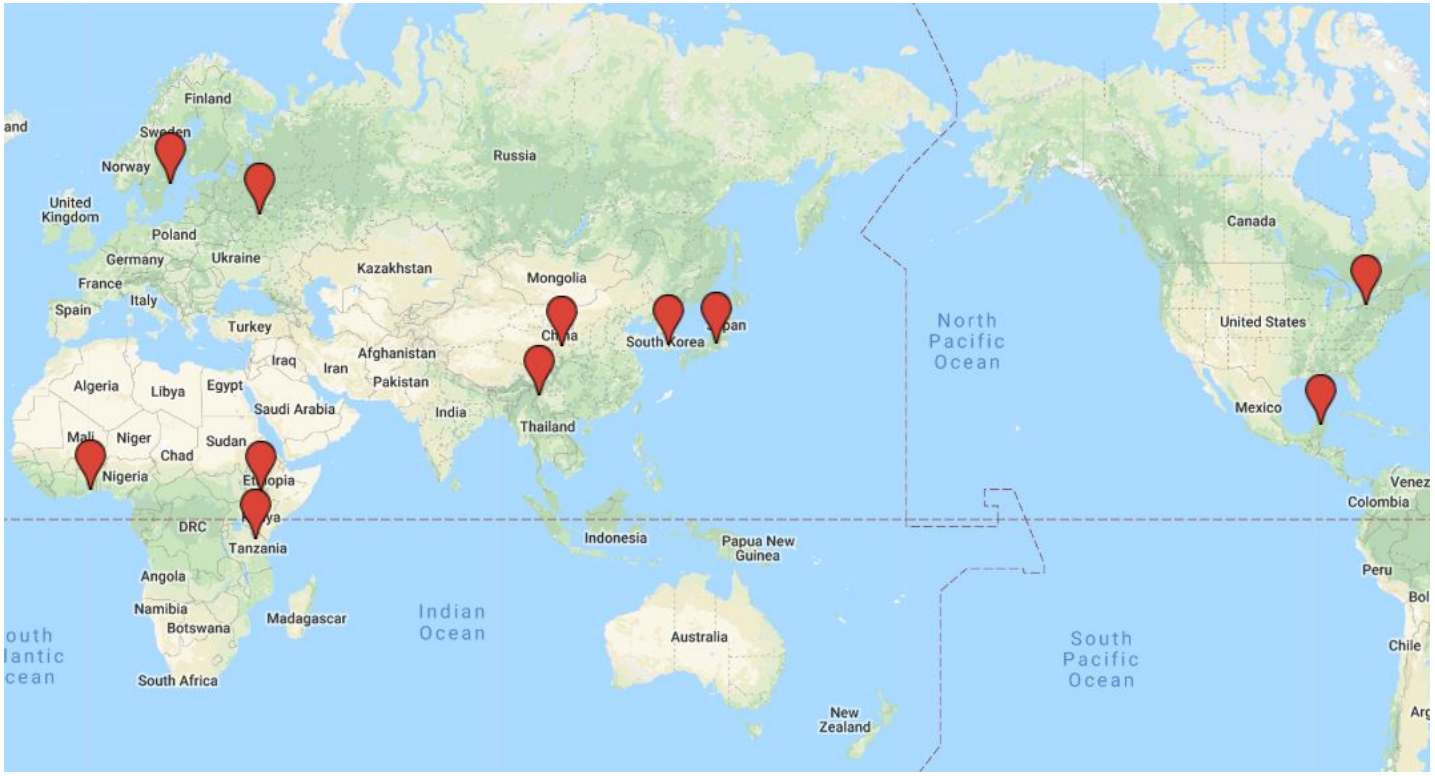

Figure 2.1. *The current sample of the CAL Semantic Typology subproject*

- populations included in the analysis so far and researchers

Language	Genus	Field site	Participants	Researcher	Affiliation
Datooga	Nilotic	Tanzania	12	A. Mitchell	U of Bristol
English	Germanic	U.S.A.	13	E. Bellingham, S. Evers	UB
Japanese	Japonic	Japan	14	K. Kawachi	National Defense Academy of Japan
Korean	Isolate	R.O.K.	12	S. Park	UB
Russian	Slavic	Russia	12	A. Stepanova	UB
Sidaama	Cushitic	Ethiopia	12	K. Kawachi	National Defense Academy of Japan
Swedish	Germanic	Sweden	12	P. Järnefelt, G. Montero-Melis, E. Bylund	Stockholm U
Yucatec	Mayan	Mexico	12	J. Bohnemeyer	UB
Zauzou	Lolo-Burmese	P.R.C.	12	Y. Li	UB

Table 2.1. *The current sample of the CAL Semantic Typology subproject*

- waiting in the wings:
  Ewe (J. Essegbey, UFL); Mandarin (J. Du, F. Li, Beihang U)

- causative coding devices included in the analysis

Table 2.2. *Causative coding devices in the sample languages that were included in the analysis*

Construction	Datooga	English	Swedish	Japanese	Korean	Russian	Sidaama	Yucatec	Zauzou
Transitive causative verbs	✓	✓	✓	✓	✓	✓	✓	✓	No
Morphological causatives	✓	No	No	✓	✓	No	✓	✓	No
Resultative constructions	No	✓	✓	No	✓	No	No	No	✓
Periphrastic causatives	✓	✓	✓	No	✓	✓	No	✓	✓
Single-core constructions augmented by an oblique causer PP/NP	✓	✓	No	✓	✓	No	✓	No	No
Event nominalizations used as causer arguments	No	No	No	No	✓	✓	✓	No	No
Causal converb constructions	No	No	No	✓	✓	No	✓	No	No
Causal connective constructions	✓	✓	✓	✓	No	✓	✓	✓	✓
'So X that Y'-type constructions	No	✓	✓	No	No	✓	No	No	No

- we used the **Layered Structure of the Clause** model of Role and Reference Grammar (Van Valin 2005)
  - to assign a complexity level to each construction type

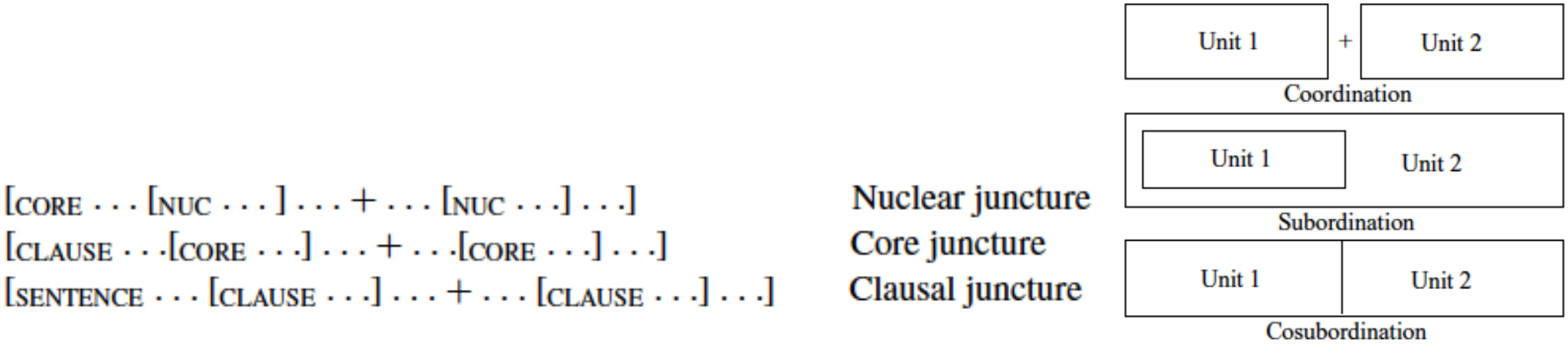

Figure 2.3. *Juncture (left) and nexus types in the Layered Structure of the Clause model (Van Valin 2005: 188)*

- distribution of construction types of juncture levels

Table 2.3. *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)*

Juncture level Language	Field site	Simplex or nuclear-layer	Core-layer	Clause-layer
Datooga (Nilotic)	Tanzania	MC, TC	AC, PC, SC	CC
English (Germanic)	United States	RV, TC	PC	AC, CC, SC
Japanese (Japonic)	Japan	MC, TC	AC	CC
Korean (isolate)	South Korea	MC, RV, TC	PC	CC, CV
Russian (Slavic)	Russia	TC	PC	AC, CC, SC
Sidaama (Cushitic)	Ethiopia	MC, TC	AC, PC	CC
Swedish (Germanic)	Sweden	RV, TC	PC	CC, SC
Yucatec (Mayan)	Mexico	MC, TC	PC	CC
Zauzou (Loloish)	China	RV	CC, CV, PC	CC

- analysis: a descriptive look at the data
  - compact response types: simplex causative verbs, morphological causatives, complex predicates
    - rarely acceptable with mediated ('indirect') chains
      - exceptions occur in languages that allow compact causatives of already base-transitive verbs (Japanese, Sidaama, Zauzou)

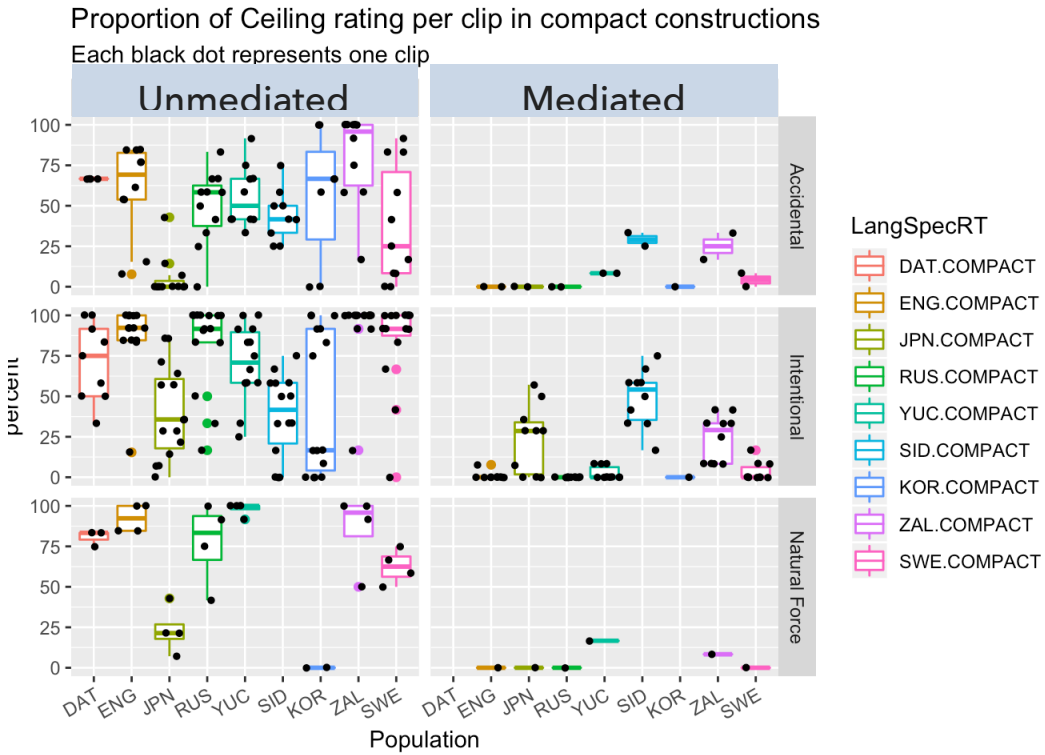

Figure 2.4. *Compact response types: proportion of ceiling rating per clip by mediation and causer type (dots represent clips)*

- analysis: a descriptive look at the data (cont.)
  - periphrastic causatives:
    acceptable with both unmediated and mediated chains

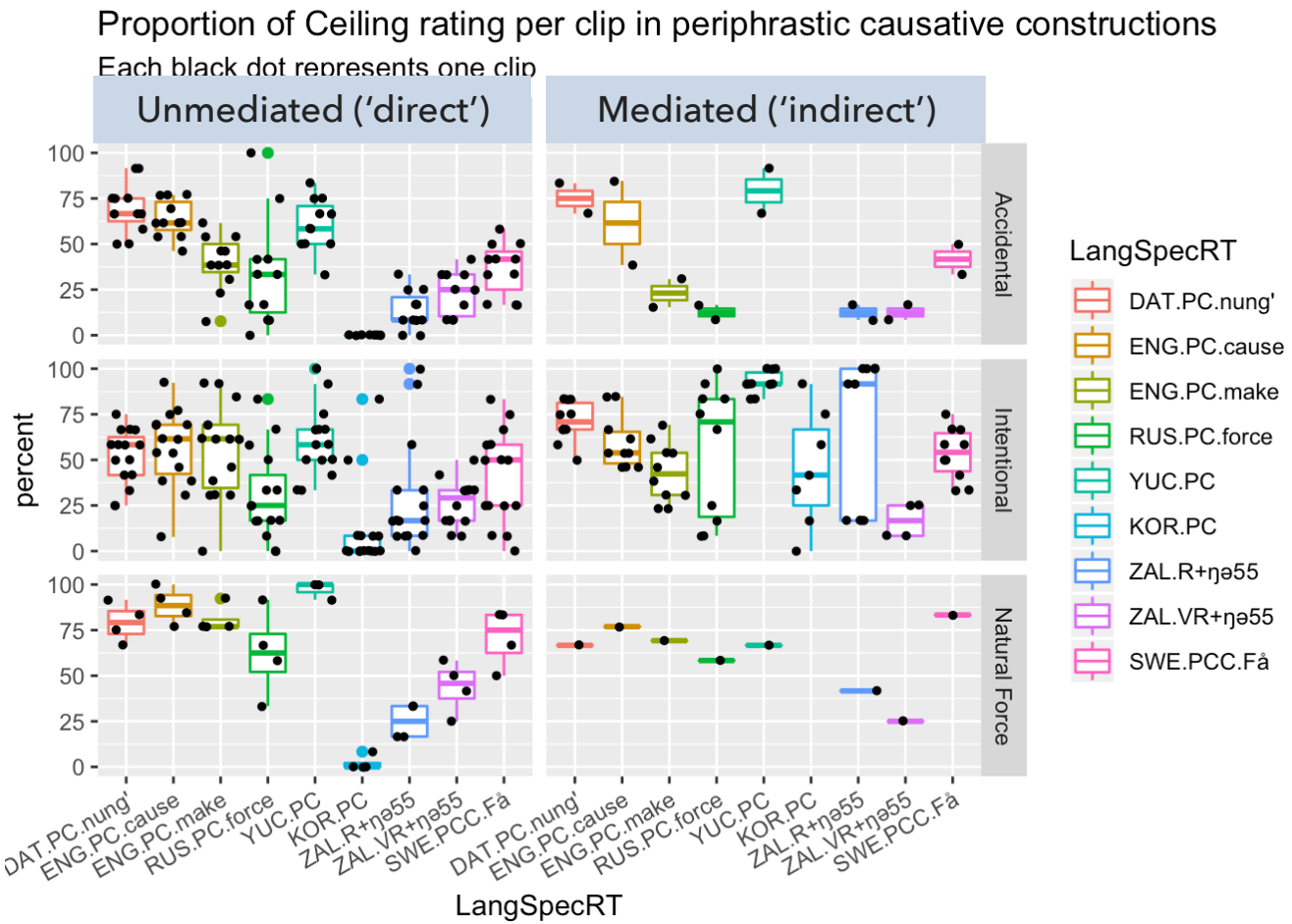

Figure 2.5. *Periphrastic causatives: proportion of ceiling rating per clip by mediation and causer type (dots represent clips)*

- analysis: predictive models - conditional inference trees (Hothorn, Hornik, & Zeileis 2006; Tagliamonte & Baayen 2012)
  - compact response types only: mediation is the most powerful predictor in most languages

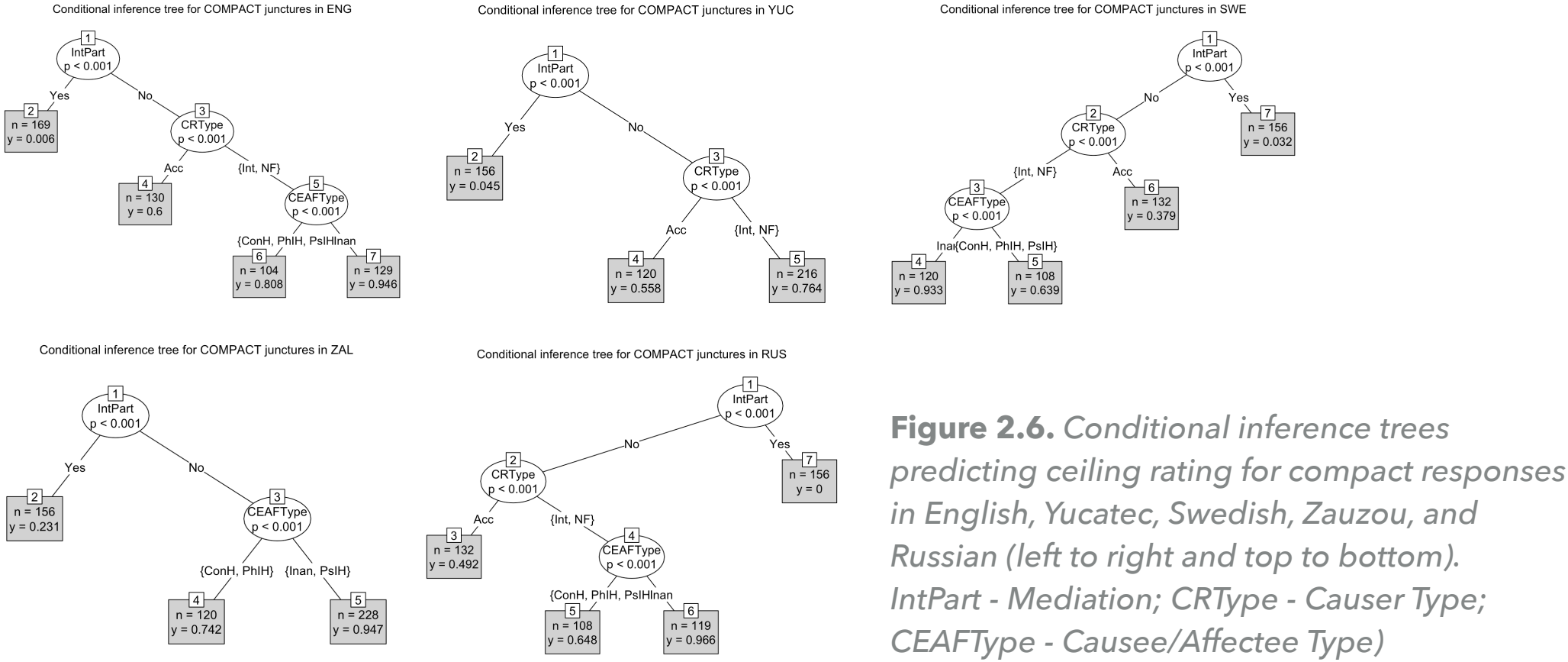

Figure 2.6. *Conditional inference trees predicting ceiling rating for compact responses in English, Yucatec, Swedish, Zauzou, and Russian (left to right and top to bottom). IntPart - Mediation; CRType - Causer Type; CEAFType - Causee/Affectee Type)*

- analysis: predictive models - conditional inference trees (cont.)
  - exceptions occur in Japanese and Korean due to specific properties of morphological (Japanese) and syntactic (Korean) causatives in these languages
  - the Datooga and Sidaama data could not be modeled due to paucity of observations (Datooga) and rampant inter-speaker variation (Sidaama)

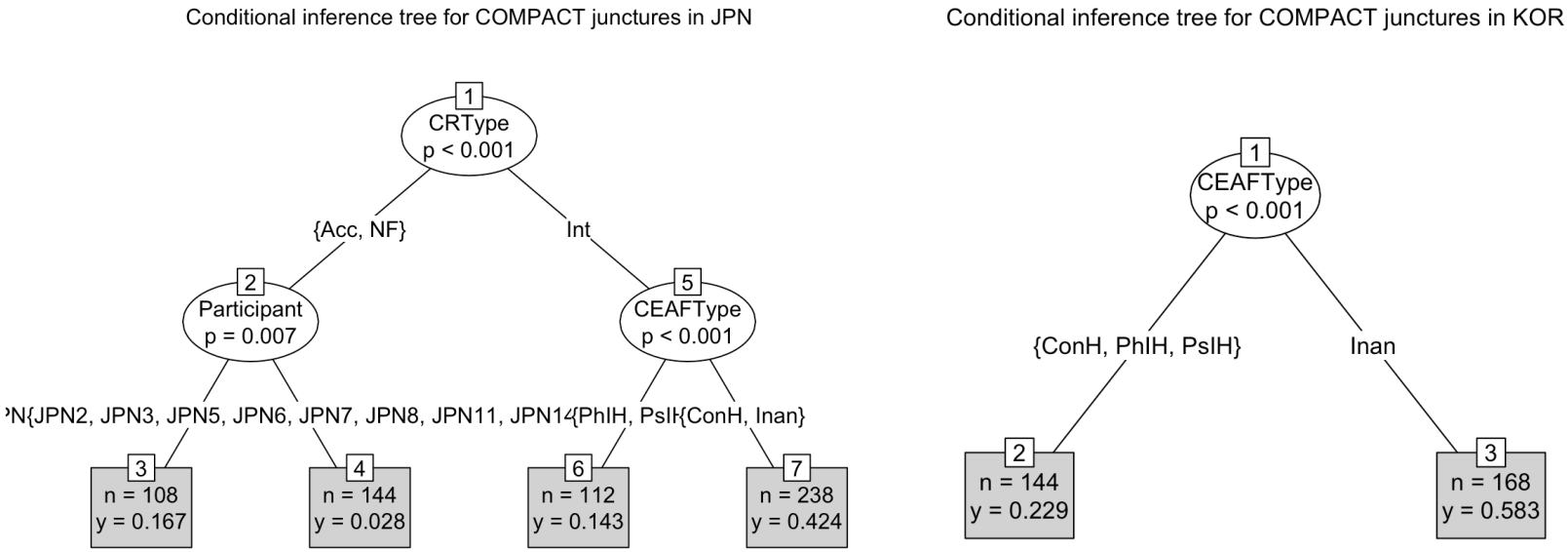

Figure 2.7. *Conditional inference trees predicting ceiling rating for compact responses in Japanese (left) and Korean (IntPart - Mediation; CRType - Causer Type; CEAFType - Causee/Affectee Type)*

- analysis: predictive models - conditional inference trees (cont.)
  - a cross-population model of the compact stimulus ratings shows the same effects

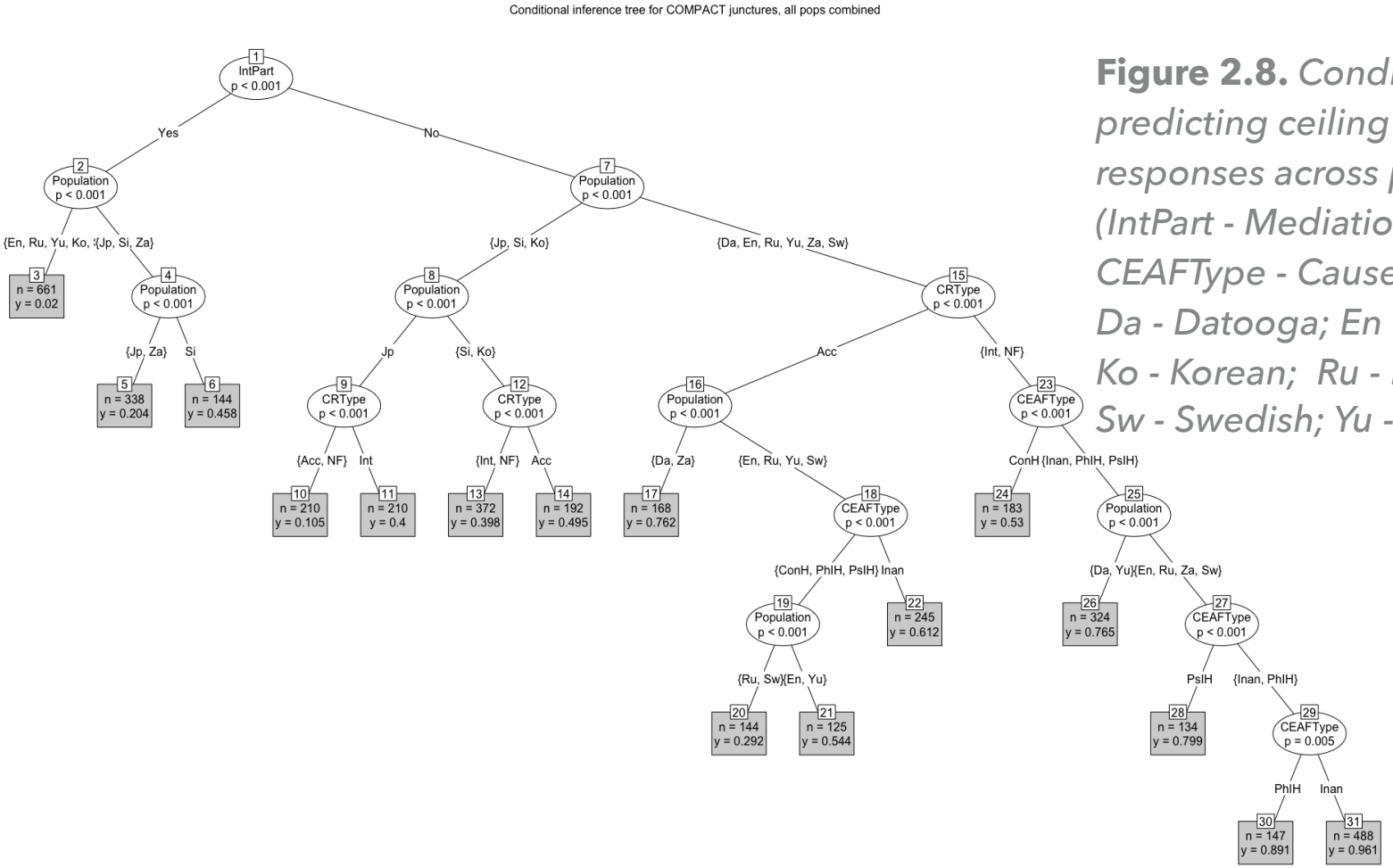

Figure 2.8. *Conditional inference tree predicting ceiling rating for compact responses across populations (IntPart - Mediation; CRType - Causer Type; CEAFType - Causee/Affectee Type; Da - Datooga; En - English; Jp - Japanese; Ko - Korean; Ru - Russian; Si - Sidaama; Sw - Swedish; Yu - Yucatec; Za - Zauzou)*

- analysis: predictive models - conditional inference trees (cont.)
  - in contrast, core junctures show much more variation across populations

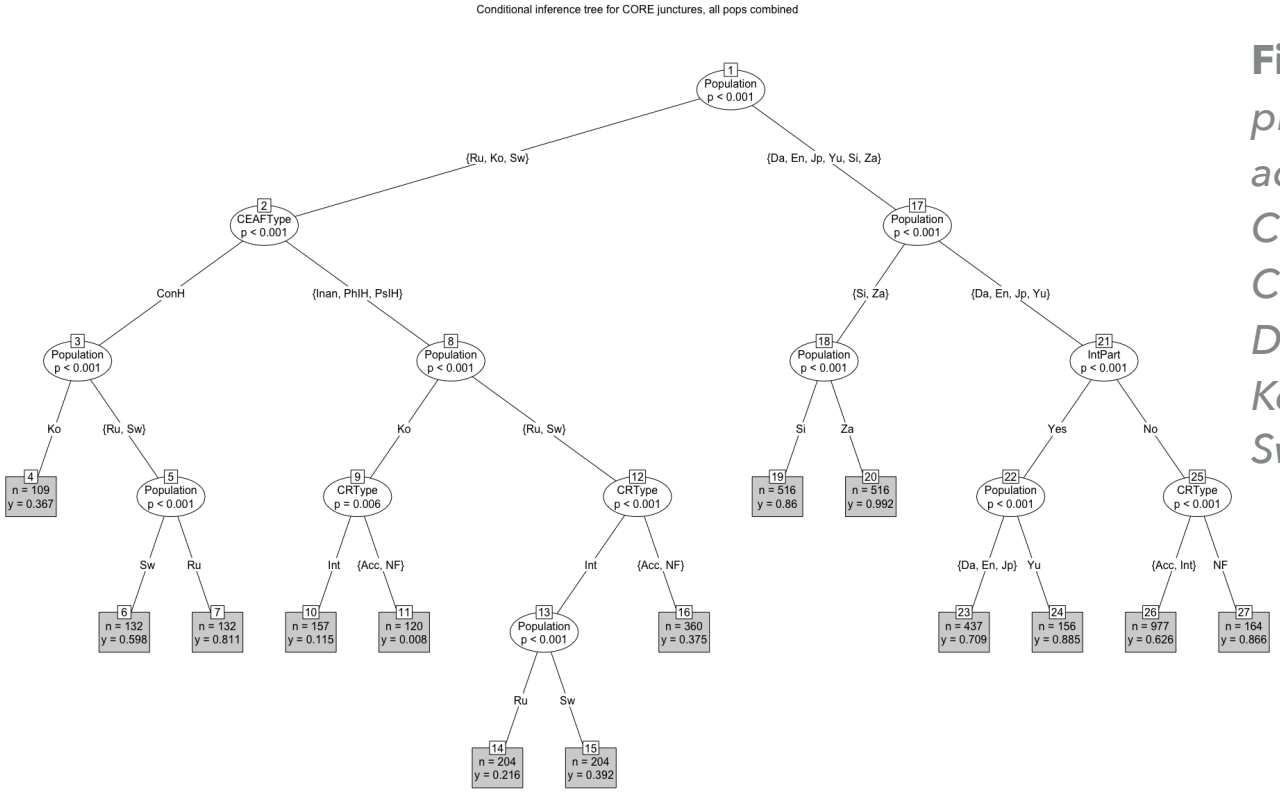

Figure 2.9. *Conditional inference tree predicting ceiling rating for core junctures across populations (IntPart - Mediation; CRType - Causer Type; CEAFType - Causee/Affectee Type; Da - Datooga; En - English; Jp - Japanese; Ko - Korean; Ru - Russian; Si - Sidaama; Sw - Swedish; Yu - Yucatec; Za - Zauzou)*

- analysis: predictive models - conditional inference trees (cont.)
  - for clause-layer junctures,
    mediation no longer is a significant factor

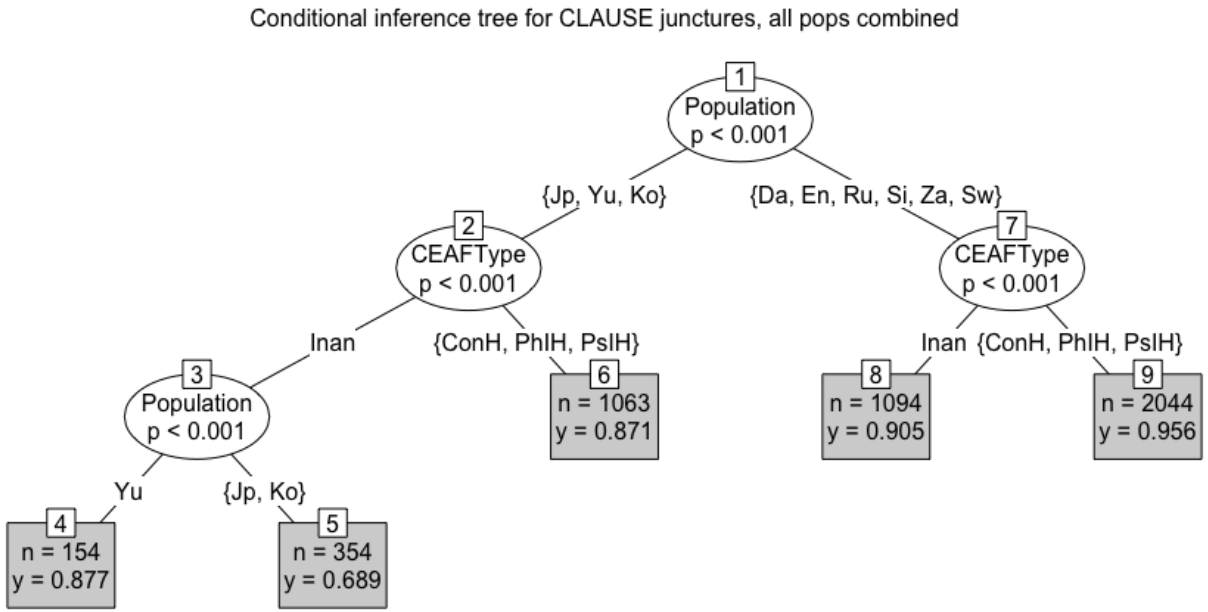

Figure 2.10. *Conditional inference tree predicting ceiling rating for clausal junctures across populations (IntPart - Mediation; CRType - Causer Type; CEAFType - Causee/Affectee Type; Da - Datooga; En - English; Jp - Japanese; Ko - Korean; Ru - Russian; Si - Sidaama; Sw - Swedish; Yu - Yucatec; Za - Zauzou)*

- interim conclusions
  - the Iconicity Principle is borne out quantitatively across languages
  - however, the preferred structural complexity level of causatives is driven not only by Mediation
    - but also by Causer Type and Causee/Affectee Type
    - and in some languages, those competing variables dominate over Mediation

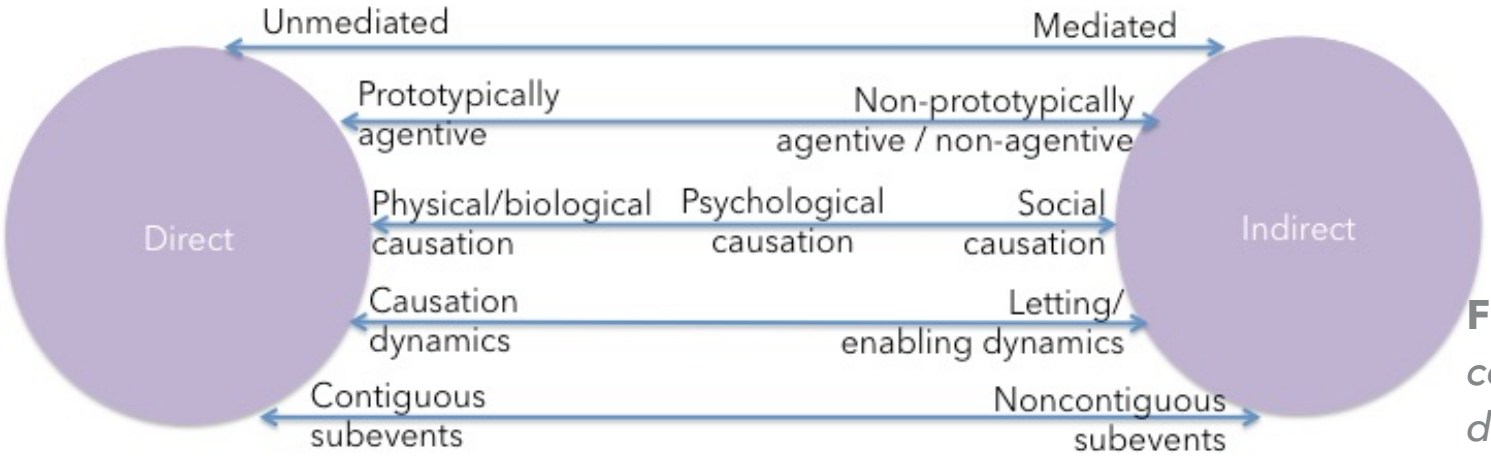

Figure 2.11. *A multidimensional continuum model of causation directness*

SYNOPSIS

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ICONICITY IN CAUSATIVES: A GRICEAN ACCOUNT

- why does the Iconicity Principle hold across languages?

(5.1) 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 5.1. *HO5_cuptower*

(5.2) 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 5.2. *HUO2_cups*

- why does the Iconicity Principle hold across languages? (cont.)
  - Haspelmath (2008): frequency/predictability
    - more frequent = predictable constructions are used for more frequent = predictable meanings
      - Zipf's Law of Abbreviation (Zipf 1935, 1945)

stop	3267	*cause to stop*	6
kill	2400	*cause to die*	2
raise	466	*cause to rise*	3
bring down	269	*cause to come down*	0
drown	80	*cause to drown*	0

Table 5.1. *Frequency of some lexical and syntactic causatives in the British National Corpus (Haspelmath 2008: 23)*

- why does the Iconicity Principle hold across languages? (cont.)
  - McCawley (1978): Gricean account of the frequency/predictability effect

(5.3) *Sally stopped the car*

Simple high-frequency expression: stereotype implicature (Atlas & Levinson 1981) to direct causation

(5.4) *Sally caused the car to stop*

Complex, infrequent expression: manner implicature to indirect causation

- why does the Iconicity Principle hold across languages? (cont.)
  - however, iconicity of complexity is driven not only by manner and stereotype implicatures
    - but also by scalar implicatures

(5.5) **Entailment patterns between more/less informative utterances involving non-causative descriptions**

a. *Floyd has more than two cats* ∴ *Floyd has two cats*
b. *Sally and Floyd bought a piano* ∴ *Sally bought a piano*

(5.6) **Implicatures licensed by the entailment relation in (5.5)**

a. *Floyd has two cats* +> *Floyd has exactly two cats*
b. *Sally bought a piano* +> *Sally bought a piano by herself*

(5.7) **Entailment patterns between more/less informative utterances involving causative descriptions**

a. *Floyd broke the vase* ∴ *The vase broke*

b. *Sally made Floyd break the vase* ∴ *Floyd broke the vase*

(5.8) **Implicatures licensed by the entailment relation in (5.7)**

a. *The vase broke* +> *Nobody broke the vase (intentionally)*

b. *Floyd broke the vase* +> *Nobody made Floyd break the vase*

- cf. also Rappaport-Hovav (2014)
  - who anticipates the above analysis w/o explicitly treating it as scalar implicature phenomena

"In the description of a change of state, the cause of the change of state is relevant; therefore, since an utterance which specifies the cause of the change of state is more informative than one which expresses just the change of state, it is to be preferred, all things being equal. (…) When are all things not equal? That is, when is the anticausative licensed even though the corresponding causative is more informative? I suggest that there are two such conditions: (i) the cause is recoverable from context; (ii) the speaker does not know the cause." (Rappaport-Hovav 2014: 23)

- fundamentally, all generalized conversational implicatures involve a metalinguistic comparison
  - between the actual utterance *U* and potential alternative descriptions of the same situation *s*

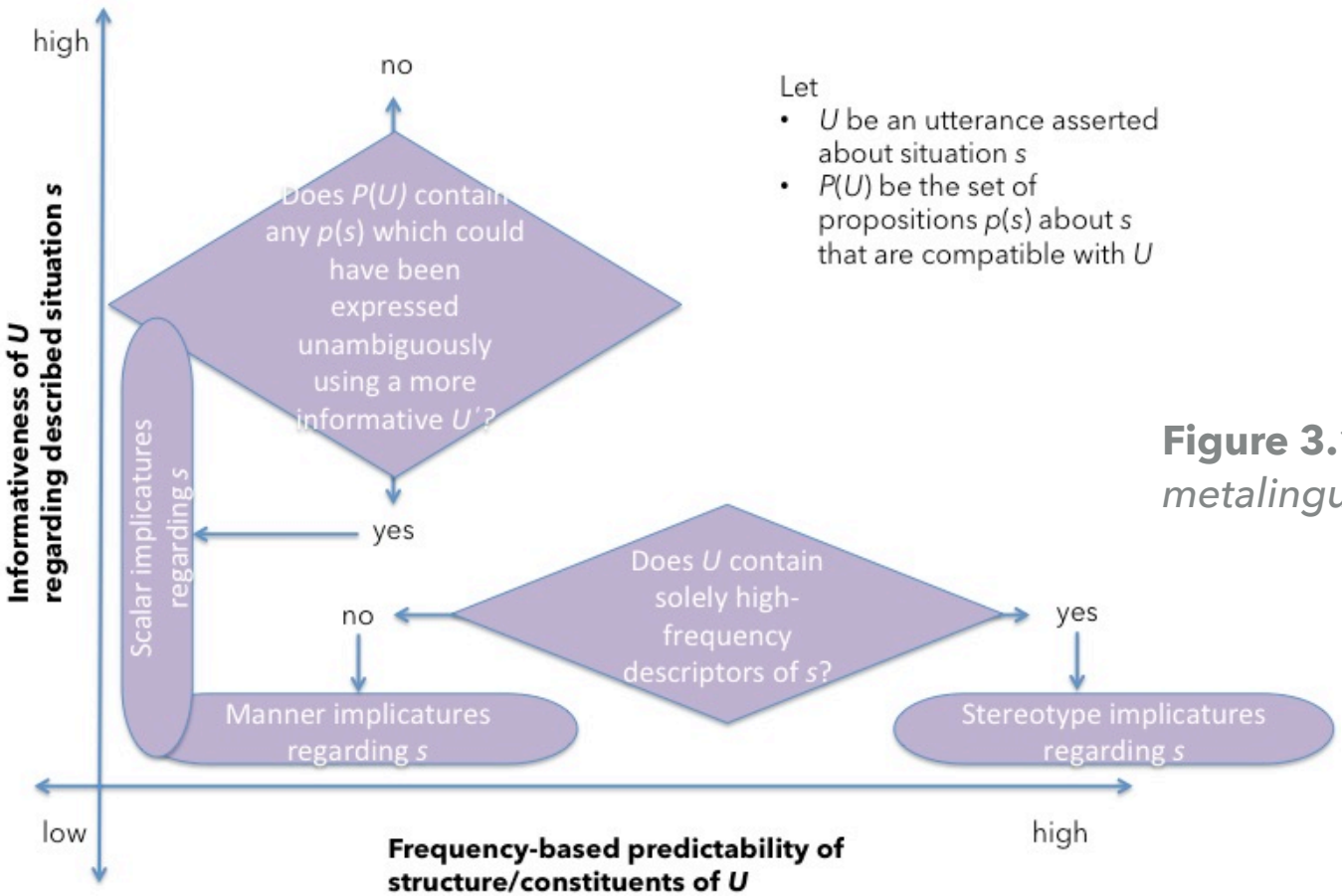

Figure 3.1. *GCIs and metalinguistic reasoning*

- due to this metalinguistic aspect, both Manner and Quantity maxims promote iconicity of complexity

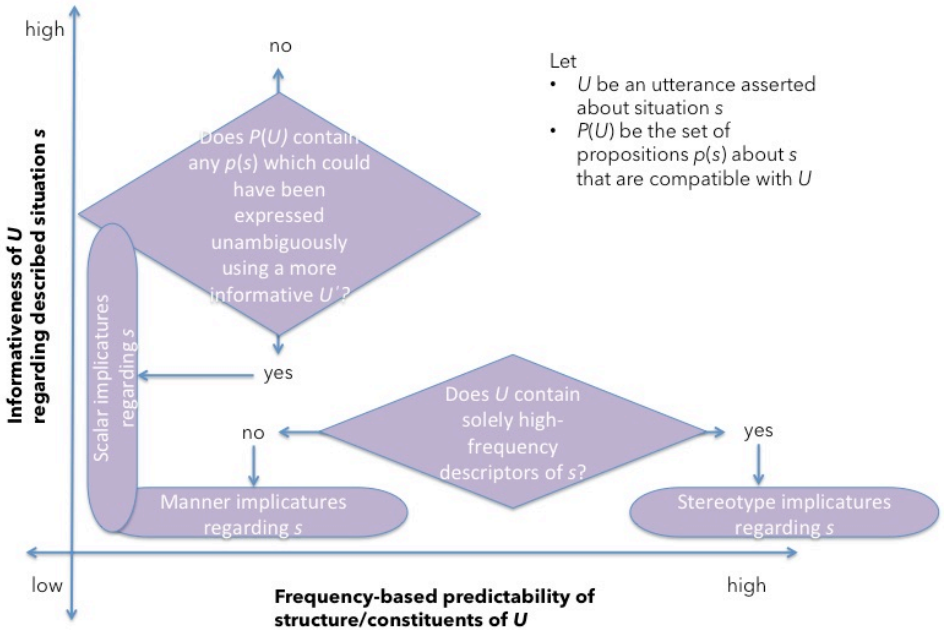

Figure 3.1. *GCIs and metalinguistic reasoning*

"(A) We might be well advised to consider more closely the nature of representation and its connection with meaning, and to do so in the light of three perhaps not implausible suppositions.

(1) That representation by means of verbal formulations is an artificial and noniconic mode of representation. (2) That to replace an iconic system of representation by a noniconic system will be to introduce a new and powerful extension to the original system, one which can do everything the former system can do and more besides. (3) **That every artificial or noniconic system is founded upon an antecedent natural iconic system.**" (Grice 1989: 358; *emphasis JB*)

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SUMMARY

- the Iconicity Principle is empirically confirmed
  - contrary to Escamilla (2012)
  - across languages, speakers prefer
    - morphosyntactically simpler representations for semantically simpler (more direct) causal chains
    - morphosyntactically more complex representations for semantically more complex (less direct) causal chains
- however, directness of causation is sensitive not only to mediation, but also to a host of other factors
  - including agentivity, patientivity, and force dynamics

- languages differ in the primary semantic variable that governs complexity of causatives
  - in most languages in our sample, this is mediation
    - i.e., the presence/absence of an intermediate participant in the causal chain
  - however, in Japanese, the dominant variable is agentivity
    - compact descriptions (incl. morphological causatives) are acceptable with mediated chains,
      - but not with accidental human causers or natural force causers

- iconicity of complexity in causative representations is driven not only by frequency/predictability
  - high-frequency constructions <-> stereotypical scenes
  - low-frequency constructions <-> atypical scenes
- but also by informativeness
  - less informative representations trigger scalar implicatures
    - to the non-applicability of richer alternatives
- both effects are predicted and explained under a broad Gricean framework of communication

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  who contributed to the studies presented here

Clockwise from top left: Erika Bellingham, Pia Järnefelt, Yu Li, Guillermo Montero-Melis, Anastasia Stepanova, Sang-Hee Park, Alice Mitchell, Kazuhiro Kawachi

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    Eric Pederson; Robert D. Van Valin, Jr., Phillip Wolff
    - all of whom shall be held blameless for any foolish and harebrained claims in this presentation
  - our sponsor

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ありがとう!
Thanks!