

Arboreal containment: the predictable parts of clause structure

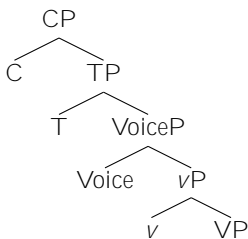
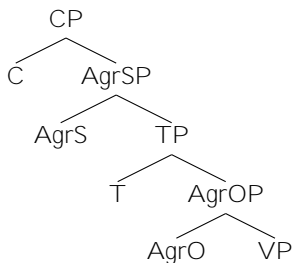
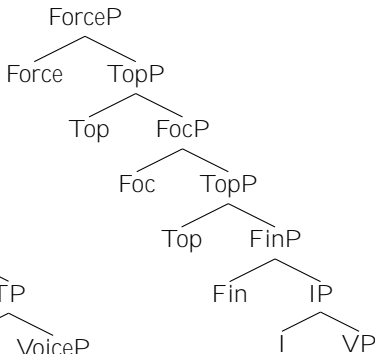
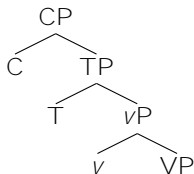
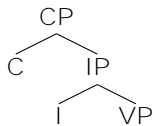
Susanne Wurmbrand



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Implicational hierarchies in clausal complementation (P34012-G).

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Structures you may have seen



... and many more options
and combinations

Questions about clause structure

- These choices are due to a mix of notational, theoretical, empirical, historical, socio-political conventions.
 - What parts of clause structure, if any, are universal?
 - Is there a universal set of categories/features/meanings that make up clause structure?
 - What determines the order of clausal projections? Is it universal?
 - What are the bounds of variation?
 - What evidence can we use to determine the content and order of clause structure projections (in single languages and generally)?

My research program

- Approach these questions from different empirical and theoretical angles
[complementation, syntactic dependencies (Agree, selection, Case, binding), syntactic domain effects (locality, phases, ellipsis), interface transfer, feature transmission, sharing, hierarchies...]
- Main take-home message:
 - ↪ Structure is not fixed universally (not rigidly cartographic).
 - ↪ There is variation, but it is also not free.
 - ↪ There are universals, but they are implicational.
- Core concepts of the theoretical model
 - ↪ Containment
 - ↪ Truncation

Clitic/pronoun climbing

- **Clause:** a **lexical predicate** (*eat, say, try*) plus all the functional structure on top of it (the verb's extended projection), until a new verb is reached.
 - **Clitic/pronoun climbing [CC]:** a clitic/pronoun that belongs to the embedded verb occurs in the higher clause.
 - The type of matrix verb changes the possibility of CC.
- (1)
- a. [Nova hat **behauptet**, [ihn nie zu **ärgern**.]]
 - b. [Nova hat **versucht**, [ihn nicht zu **ärgern**.]]
 - c. [Nova hat **ihn versucht**, [zu **ärgern**.]]
 - d. *[Nova hat **ihn behauptet**, [zu **ärgern**.]]
- 3 types of languages (sample of ≈ 30 languages from many families)

Type 0

- No CC to higher clause, independently of what the matrix verb is

(2) Brazilian Portuguese—Type 0

- João {**te*} **pode/quer/vai** {*te*} ver.
João {**you*} can/wants/goes {*you*} see.INF
'João can/wants to/is going to see you.'
- João {**me*} **tentou** {*me*} ver.
João {**me*} tried {*me*} see.INF
'João tried to see me.'

Data from:

Renato Lacerda, p.c. (based on Cyrino, 2010b: 200, (23)); Cyrino, 2010a: 18, (38)

Type 1

- CC is possible from **tenseless complements** (*try, begin, manage, come*); but not from **complements with a temporal value** (e.g., a future orientation).
- (3) I ***tried**/**decided** yesterday to finish it **tomorrow**.
- (4) Italian—Type 1
- a. Piero *ti* **verrà** a parlare di parapsicologia.
Piero to.you will.come to speak about parapsychology
'Piero will come to speak to you about parapsychology.'
 - b. *Piero *ti* **deciderà** di parlare di parapsicologia.
Piero to.you will.decide to speak about parapsychology
'Piero will decide to speak to you about parapsychology.'

Data from: Rizzi, 1982: 1, (1a–d)

Type 2

- CC is possible from **tenseless**, **temporally specified**, but not **propositional** (i.e., speech, belief complements) complements.

(5) Polish—Type 2

- a. Marek *je* próbował napisa .
Mark them tried write.INF
'Mark tried to write them.' [SW corrected]
- b. Marek *j* zdecydował si przeczyta .
Mark it decided REFL read.INF
'Mark decided to read it.'
- c. *Piotr *je* powiedział e Marek czytał.
Peter them said that Mark read.PAST.IMPERF
'Peter said that Mark was reading them.'

ICH

CC	claim	decide	try
Type 0	*	*	*
Type 1	*	*	✓
Type 2	*	✓	✓
Not found	✓	*	
		✓	*

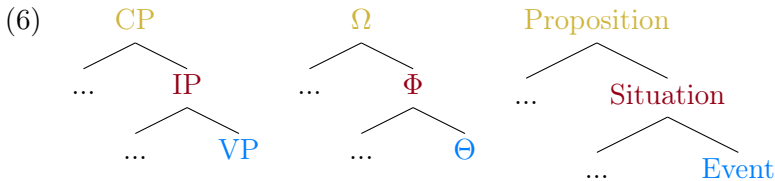
- This is not a coincidence, but reflects different degrees of transparency (whether a clause is transparent for CC) of different types of clauses.



Implicational complementation hierarchy [ICH]

Broad clausal domains

- Clauses are built in three (possibly universal) broad domains.
 - Extended V-projection grid
 - Clausal domain with specific functions: operator (A'), A-properties, argument structure (Grohmann, 2003)
 - Semantic/conceptual sorts (Ramchand and Svenonius, 2014)
 - Fine-grained structure of the three domains shows many similarities across languages, but also variation.



Containment

- Ramchand and Svenonius, 2014: Three sortal domains which are in a containment configuration
 - **Events** (*v, Voice, Appl*): argument structure, subevents, Aktionsart
 - **Situations** (*T, Agr, Mod, Asp*): include and elaborate Events (combine time/world parameters with existentially closed Event)
 - **Propositions** (*C, Fin, Force*): include and elaborate Situations (combine speaker-oriented/discourse-linking parameters with existentially closed Situation).

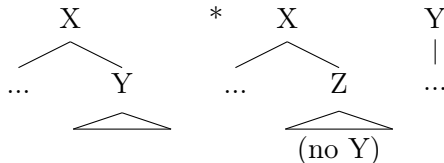


Containment (abstract)

- **Containment:** *X contains Y* if *Y* is a necessary component of the meaning or syntactic restrictions of *X*.
- **Implicational relation:** $X \rightarrow Y$ (the presence of *X* entails the presence of *Y*, but not vice versa)

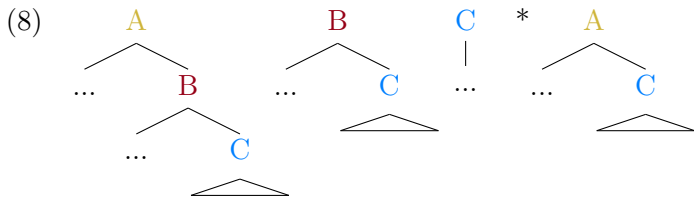
One-way implication: *Y* may be happy on its own—it is not licensed/selected by *X*.

(7) *X* contains *Y* (semantics and/or syntax)



Truncation (abstract)

- Structure is built from the bottom.
- Structure building can stop at any time (but the output must meet the interface conditions; i.e., be pronounceable and interpretable).
↪ **Implicational hierarchy: a higher structural domain entails the presence of a lower domain**



Semantic classification of complements

- The three classes of complements (illustrated with *try*, *decide*, *claim*) differ in meaning.
- The meanings map to the meanings of the clausal domains identified in Ramchand and Svenonius (2014) (see Wurmbrand, 2014b; Wurmbrand and Lohninger, 2023).

- (9) a. Nova tried **to win**. Event
b. Nova decided **to win (tomorrow)**. Situation
c. Nova claimed **to be winning/to have won**. Proposition

← *Non-transparent*

Proposition

claim, believe

Situation

decide, plan

Event

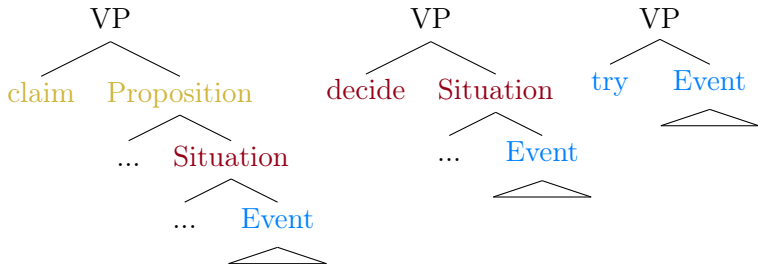
try, manage

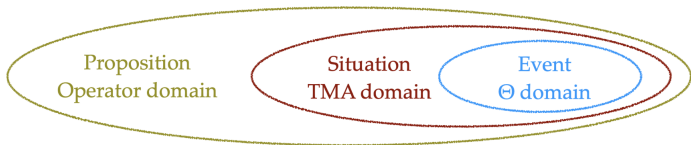
→ *Transparent*

Deiving the ICH

- The ICH follows from **containment and truncation**
- The larger, more complex a complement is, the less transparent it is.
- Different target domains for CC: Theta domain—Type 0, TMA domain—Type 1, Operator domain—Type 2 (Wurmbrand, 2014a)

(10) Minimal complement structures





- To yield an **Event**, **Situation**, **Proposition**, the respective domains must be present (universal).
- But: the system does not require any *specific* projections in any of the domains (perhaps with the exception of V).
- Are there finer-grained containment relations?
→ In all three domains, certain relations are defined via containment, yielding implicational hierarchy effects. But large parts of the clausal architecture is variable (vs. cartography, Cinque, 1999 et seq).

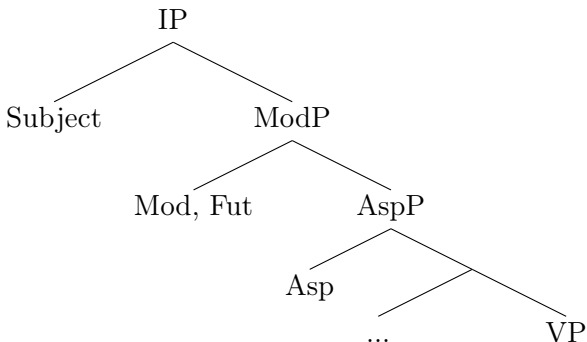
Tenseless languages

- Mandarin: language without any tense or agreement morphology, only aspect.
- Ongoing debate: is there tense (syntax as well as semantics):
 - Huang (1998); Li (1990): 'finite' vs. 'non-finite' IP distinction
 - Lin (2005): no syntactic, nor semantic tense; other means to determine temporal interpretation: adverbs, aspect, modals

- (11) a. Lisi **zai** xie yi-ben xin shu
Lisi prog write one-SC new book
'Lisi is writing a new book.' [Lin, 2005: 16, (21b)]
- b. Wo **hui** hen mang
I will very busy
'I will be busy.' [Lin, 2005: 18, (25a)]

Mandarin clause structure

(12) Lin (2005)



- Even in accounts that assume that there is no (syntactic or semantic) tense in a morphologically tenseless language, a TMA domain is necessary.

TMA domain

- English has a rigid ordering of auxiliaries:
mod » **perf** » **prog** » **pass/Voice**
 - Universal fine-grained clausal hierarchy (Cinque, 1999, 2001/2004/2006)?
 - Such cartographic or other selectional systems struggle with optionality, both within and across languages.
 - Within: What does *should* select in English (other than infinitival morphology)?
- (13) a. The room should have **been being** cleaned.
b. The room should **be being** cleaned now. [Corpus example]
c. The room should **be** cleaned.
d. He should **clean** the room.

Across languages

- The order **mod** » **perf** is fixed in English, but not cross-linguistically (e.g., German allows both orders).

- (14) a. *She has must(ed) eat. (cf. She must have eaten.)
b. Sie hat essen müssen/wollen. perfect » modal
c. Sie muss/will schon gegessen haben. modal » perfect

↔ There is no universal containment configuration.

- The restriction in English does not come from a universal ordering, but from English-specific properties (e.g., finiteness of modals)

Progressive » Event

- English: mod » perf » prog » pass/Voice
- Progressive is at the border of the Theta and TMA domains, and this may be due to a containment relation.
- All TMA domain elements elaborate an Event—the TMA domain contains the Theta domain.
- Progressive has a stronger connection to the Event, since it is sensitive to Aktionsart.

- (15) a. I like/*am liking my options. *progressive stative
 b. I am considering my options right now. ✓ non-stative

Predictable vs. variable

↔ Proposition » Situation » Event

● Event

- The relevant argument structure projections must be present, depending on valency (VP, ν P, ApplP, VoiceP)
- Variation: language-specific bundling of Voice, causative, and verbalizer (Harley, 2017)

● Situation

- *some* TMA projection must be present (T, Mod, Asp).
- Possible containment: Progressive » Event; Tense » Aspect
- Variation: order of root modals (w.r.t. each other), root modals and perfect; language-specific bundling of tense and agreement (Bobaljik and Thráinsson, 1998)

Predictable vs. variable

• Proposition

- *Some* speaker/context/proposition-related projection must be present
- *wh* » Fin
- Open question: what kind of containment is that?
- Different types of CP projections:
 - Force, Fin, *wh*... (Rizzi, 1997)
 - Speech act phrases (Speas and Tenny, 2003; Miyagawa, 2010)
 - Act, Judge, Commitment (Krifka, 2023)
- Krifka's system is very promising as it is defined via containment.
- Reflected in indexical shift hierarchies (Sundaresan, 2018; Deal, 2018) and ECM (Wurmbrand, to appear).

Thank you!

Main collaborators



Iva Kovač



Magdalena Lohninger

Other collaborators:

Tanya Bondarenko (Harvard), Shannon Bryant (Rutgers), Irina Burukina (Budapest), Cora Cavarani-Pots (Leuven), Jozina Vander Klok (Humboldt), Caroline Pajan i (Vienna), Ileana Paul (Western Ontario), Asia Pietraszko (Rochester), Deniz Satik (Harvard), Viola Schmitt (Humboldt), Koji Shimamura (Kobe), Neda Todorovi (Toronto), Lisa Travis (McGill).

Appendix

Fine-grained structure

- Clausal hierarchy (Cinque, 1999, 2001/2004/2006)
 - There are strong similarities across languages in the ordering of adverbs, auxiliaries, and auxiliaries.
 - Intended (in the strongest form): universal hierarchy of projections (functional heads)
- (16) a. Glücklicherweise wird es bald regnen. unmarked order
 b. Bald wird es glücklicherweise regnen. marked order
- (17) a. Ich muss schwimmen gehen. unmarked order
 b. Ich geh schwimmen müssen. marked order, perhaps *

Cinque Hierarchy

- (18) speech act (frankly, honestly) >> evaluative ((un)fortunately, luckily) >> evidential (allegedly, reportedly) >> epistemic (probably, presumably) >> past (yesterday) >> future (tomorrow) >> irrealis (perhaps) >> alethic (necessarily) >> habitual (usually, generally) >> repetitive(I) (repeatedly, again) >> frequentative(I) (often) >> volitional >> celerative(I) (quickly) >> anterior (already) >> terminative (no longer) >> continuative (still) >> perfect >> retrospective (just) >> proximative (soon) >> durative (long, briefly) >> generic/progressive (usually) >> prospective (almost) >> obligation (necessarily) >> permission/ability (possibly) >> completive (completely) >> Voice (well) >> celerative(II) (quickly, fast) >> repetitive(II) (again) >> frequentative(II) (often)

[Grouping by SW; may not be accurate.]

General questions

- **Variation in the inventory:**
 - e.g., German lacks (im)perfective, progressive
 - Option 1: gaps are reflected in syntax and morphology
↪ the hierarchy is not universal
 - Option 2 (strict cartography): uniform syntax, gaps are purely morphological ↪ many zero heads
- How can it be learned?
- How can it have evolved?
- Why is the hierarchy the way it is?
↪ It is highly unlikely (both empirically and theoretically) that there is a fine-grained fixed universal clause structure.

Voice, tense, aspect

- Voice » v
- Tense » Aspect:
 - (Viewpoint) Aspect: relation between the assertion/reference/topic time [TT] and the event/situation time [ET]
 - Tense: relation between the utterance time [UT] and the TT
 - $UT \gg T \ll TT \quad || \quad TT \gg Asp \ll ET$ TT is a necessary component of T

wh-C generalization

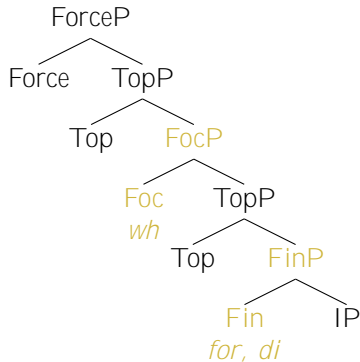
(19) *Wh-Infinitive Generalization* [Sabel, 2020: 146, (37)]

If a language has *wh*-movement to Spec CP in infinitives, then [that] language has the option of filling the C-system of this (type of) infinitive with an overt complementizer.

- (20) a. Nova wants **for** him to win.
b. Nova wonders **where** to go for lunch.

Left periphery

(21) Rizzi (1997)



- Impossible: OP in Spec,CP (infinitive) and no infinitival complementizer in the language.
- Infinitival complementizer does not entail the option of *wh*-infinitives (truncation), but *wh*-infinitives entail the option of a complementizer in the language.
↔ Foc/*wh* » Fin/C
- Open question: what kind of containment is this?

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