Arboreal containment: the predictable parts of clause structure

Susanne Wurmbrand



This work has been supported by the Austrian Science Fund (FWF) Project Implicational hierarchies in clausal complementation (P34012-G).

Salzburg, June 2023

Structures General questions This talk

Structures you may have seen



Structures General questions This talk

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)?

Structures General questions This talk

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:
 - \hookrightarrow Structure is not fixed universally (not rigidly cartographic).
 - \hookrightarrow There is variation, but it is also not free.
 - \hookrightarrow There are universals, but they are implicational.
- Core concepts of the theoretical model
 - \hookrightarrow Containment
 - \hookrightarrow 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 \approx 30 languages from many families)

Type 0

- No CC to higher clause, independently of what the matrix verb is
- (2) Brazilian Portuguese—Type 0
 - a. João $\{*te\}$ pode/quer/vai $\{te\}$ ver. João $\{*you\}$ can/wants/goes $\{you\}$ see.INF 'João can/wants to/is going to see you.'
 - b. 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 napisać. Mark them tried write.INF 'Mark tried to write them.' [SW corrected]
 - b. Marek ją zdecydował się przeczytać. Mark it decided REFL read.INF 'Mark decided to read it.'
 - c. *Piotr *je* powiedział że Marek czytał. Peter them said that Mark read.PAST.IMPERF 'Peter said that Mark was reading them.'

Data from: Bondaruk, 2004: 138, (23); 154, (57a); Wurmbrand, 2014a: 278, (5a)

Clitic/pronoun climbing Types of languages Implicational complementation hierarchy

ICH

CC	claim	decide	try
Type 0	*	*	*
Type 1	*	*	\checkmark
Type 2	*	\checkmark	\checkmark
Not found	\checkmark	*	
		\checkmark	*

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



Converging insights Containment The model Back to the 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/conceptional sorts (Ramchand and Svenonius, 2014)
- Fine-grained structure of the three domains shows many similarities across languages, but also variation.



Converging insights Containment The model Back to the ICH

Containment

- Ramchand and Svenonius, 2014: Three sortal domains which are in a containment configuration
 - $\bullet\,$ 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).



Converging insights Containment **The model** Back to the ICH

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)



Converging insights Containment **The model** Back to the ICH

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).

 \hookrightarrow 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).



Converging insights Containment The model Back to the ICH

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?

 \Rightarrow 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)]

What the system does/doesn't predict Universal TMA domain, but no universal T Rigid ordering in English, but no containment Possible containment relation Summary and take-home messages

Mandarin clause structure



• 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 \ast perfect
 - \hookrightarrow 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.
 b. I am considering my options right now. ✓ non-stative

What the system does/doesn't predict Universal TMA domain, but no universal T Rigid ordering in English, but no containment Possible containment relation Summary and take-home messages

Predictable vs. variable

\hookrightarrow Proposition » Situation » Event

- Event
 - The relevant argument structure projections must be present, depending on valency (VP, vP, 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)

What the system does/doesn't predict Universal TMA domain, but no universal T Rigid ordering in English, but no containment Possible containment relation Summary and take-home messages

Predictable vs. variable

• Proposition

- $\bullet \ Some \ {\rm speaker/context/proposition-related} \ {\rm projection} \ {\rm must} \ {\rm be} \ {\rm present} \\$
- $wh \gg Fin$
- 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).

What the system does/doesn't predict Universal TMA domain, but no universal T Rigid ordering in English, but no containment Possible containment relation Summary and take-home messages

Thank you!

Main collaborators



Iva Kovač

Magdalena Lohninger

Other collaborators:

Tanya Bondarenko (Harvard), Shannon Bryant (Rutgers), Irina Burukina (Budapest), Cora Cavirani-Pots (Leuven), Jozina Vander Klok (Humboldt), Caroline Pajančič (Vienna), Ileana Paul (Western Ontario), Asia Pietraszko (Rochester), Deniz Satık (Harvard), Viola Schmitt (Humboldt), Koji Shimamura (Kobe), Neda Todorović (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, affixes, 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 \hookrightarrow many zero heads
- How can it be learned?
- How can it have evolved?
- Why is the hierarchy the way it is?

 \hookrightarrow 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
 - $\bullet~$ UT » T « TT ~||~ TT » Asp « 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



- 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.
 - $ightarrow
 m Foc/wh \gg
 m Fin/C$
- Open question: what kind of containment is this?

References I

- Bobaljik, Jonathan D., and Höskuldur Thráinsson. 1998. Two heads aren't always better than one. Syntax 1 1:37–71.
- Bondaruk, Anna. 2004. PRO and control in English, Irish and Polish: A Minimalist analysis. Lublin, Poland: Wydawnictwo KUL.
- Cinque, Guglielmo. 1999. Adverbs and functional heads: A cross-linguistic perspective. Oxford/New York: Oxford University Press.
- Cinque, Guglielmo. 2001. "Restructuring" and functional structure. In University of Venice Working Papers in Linguistics, ed. Laura Brugè, volume 11, 45–127. University of Venice.
- Cinque, Guglielmo. 2004. "Restructuring" and functional structure. In Structures and beyond: The cartography of syntactic structures, ed. Adriana Belletti, volume 3, 132–191. Oxford/New York: Oxford University Press.
- Cinque, Guglielmo. 2006. "Restructuring" and functional structure. In Restructuring and functional heads: The cartography of syntactic structures, ed. Guglielmo Cinque, volume 4, 11–63. Oxford/New York: Oxford University Press.
- Cyrino, Sonia. 2010a. On complex predicates in Brazilian Portuguese. Iberia: An International Journal of Theoretical Linguistics 2:1–21.

References II

- Cyrino, Sonia. 2010b. On romance syntactic complex predicates: why Brazilian Portuguese is different. *Estudos da Língua(gem)* 8:187–222.
- Deal, Amy Rose. 2018. Compositional paths to de re. In Proceedings of the 28th Semantics and Linguistic Theory Conference, ed. Sireemas Maspong, Brynhildur Stefánsdóttir, Katherine Blake, and Forrest Davis, volume 28, 622–648.
- Grohmann, Kleanthes K. 2003. Prolific domains: On the anti-locality of movement dependencies, volume 66 of Linguistik Aktuell/Linguistics Today. Amsterdam/Philadelphia: John Benjamins.
- Harley, Heidi. 2017. The "bundling" hypothesis and the disparate functions of little v. In *The verbal domain*, ed. Roberta D'Alessandro, Irene Franco, and Ángel Gallego, 3–28. Oxford: Oxford University Press.
- Huang, C-T James. 1998. Logical relations in Chinese and the theory of grammar. Taylor & Francis.
- Krifka, Manfred. 2023. Layers of assertive clauses: propositions, judgements, commitments, acts. In Propositional Arguments in Cross-Linguistic Research: Theoretical and Empirical Issues, ed. Jutta M. Hartmann and Angelika Wöllstein, 115–181. Tübingen: Narr Verlag.

References III

- Li, Audrey Yen Hui. 1990. Order and Constituency in Mandarin Chinese. Dordrecht: Kluwer Academic Publishers.
- Lin, Jo-Wang. 2005. Time in a Language Without Tense: The Case of Chinese. Journal of Semantics 23:1–53.
- Miyagawa, Shigeru. 2010. Why agree? why move?: Unifying agreement-based and discourse-configurational languages. MIT Press.
- Ramchand, Gillian, and Peter Svenonius. 2014. Deriving the functional hierarchy. Language Sciences 46:152–174.
- Rizzi, Luigi. 1982. Issues in Italian syntax. Dordrecht: Foris Publications.
- Rizzi, Luigi. 1997. The fine structure of the left periphery. In *Elements of grammar:* Handbook of generative syntax, ed. Liliane Haegeman, 281–337. Dordrecht: Kluwer Academic Publishers.
- Sabel, Joachim. 2020. P and the Emergence of the Infinitival Left Periphery. In Variation in P—Comparative approaches to adpositional phrases, ed. Jacopo Garzonio and Silvia Rossi, 135–163. Oxford: Oxford University Press.
- Speas, Peggy, and Carol Tenny. 2003. Configurational properties of point of view roles. In Asymmetry in Grammar, ed. Anna Maria Di Sciullo, 315–344. Amsterdam, Philadelphia: John Benjamins.

References IV

- Sundaresan, Sandhya. 2018. An alternative model of indexical shift: Variation and selection without context-overwriting. University of Leipzig.
- Wurmbrand, Susanne, and Magdalena Lohninger. 2023. An implicational universal in complementation—Theoretical insights and empirical progress. In *Propositional Arguments in Cross-Linguistic Research: Theoretical and Empirical Issues*, ed. Jutta M. Hartmann and Angelika Wöllstein, 183–229. Tübingen: Narr Verlag.
- Wurmbrand, Susi. 2014a. Restructuring across the world. In Complex visibles out there. Proceedings of the Olomouc Linguistics Colloquium 2014: Language use and linguistic structure, ed. Ludmila Veselovská and Markéta Janebová, Olomouc Modern Language Series, 275–294. Palacký University.
- Wurmbrand, Susi. 2014b. Tense and aspect in English infinitives. *Linguistic Inquiry* 45:403–447.
- Wurmbrand, Susi. to appear. The size of clausal complements. Annual Review of Linguistics 10.