The propositional domain
Which cartography?

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Workshop on Finiteness, Clause Types and Cartography, June 2023

Background questions

- What parts of clause structure, if any, are universal?
- Is there a universal set of categories/features/meanings that make up clause structure?
- What evidence can we use to determine clause structure and the order of projections?
- This talk:

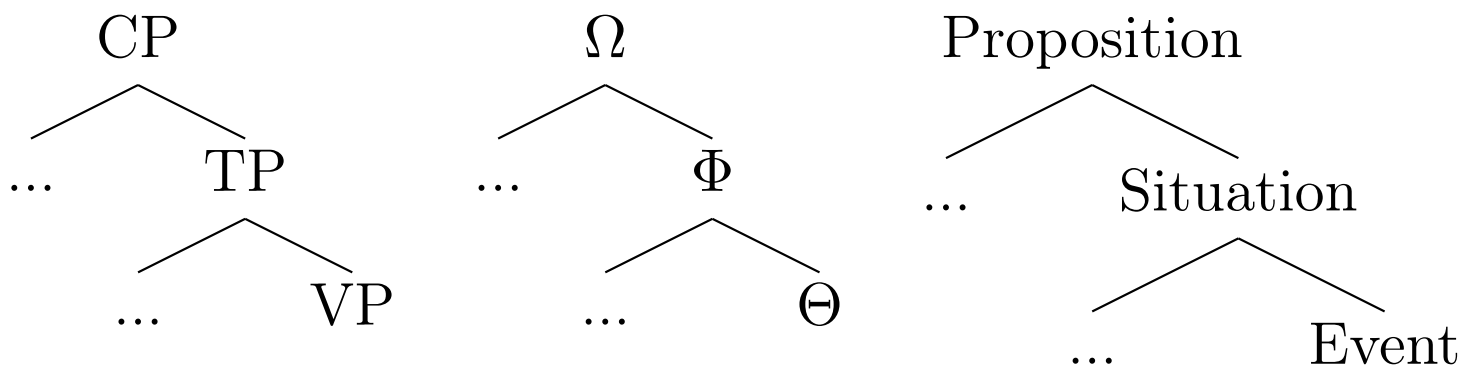
  ↪ Empirical focus: CP-domain

  ↪ Tools: Containment, implicational hierarchies, truncation

Basic clause structure

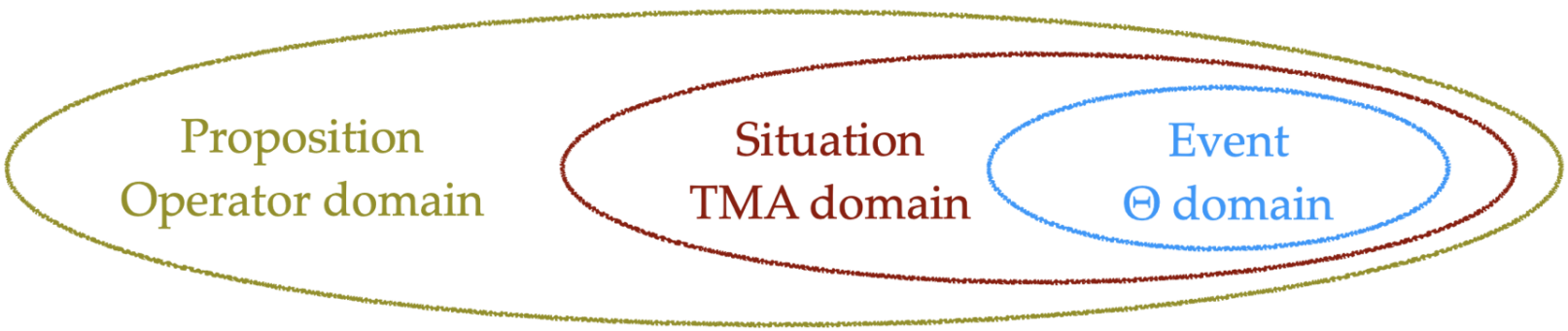
- Abstracting away from labels and specific instantiations, a three-way split is widely assumed.
  - Extended V-projection, labels: Voice, v, I, Mod, Asp, C...
  - Clausal domain with specific functions: operator (A′), A-properties, argument structure (Grohmann, 2003)
  - Semantic/conceptional sorts (Ramchand and Svenonius, 2014)

(1)



Containment

- Ramchand and Svenonius, 2014: Three sortal domains which are in a containment configuration
  - Events: argument structure, subevents, Aktionsart
  - Situations: include and elaborate Events (combine time/world parameters with existentially closed Event)
  - Propositions: include and elaborate Situations (combine speaker-oriented/discourse-linking parameters with existentially closed Situation).

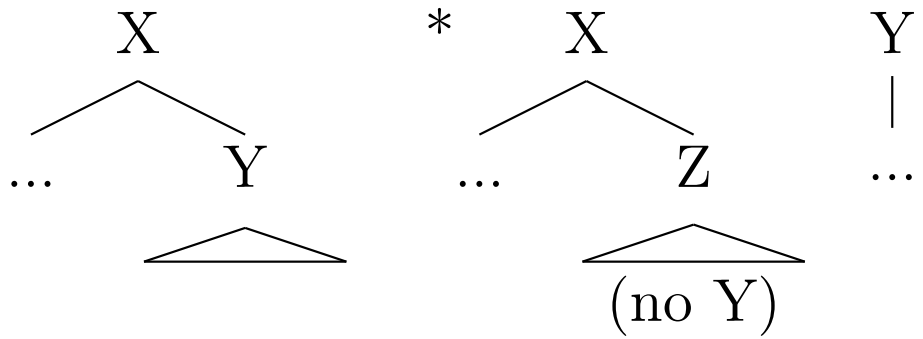


Containment (abstract)

- Containment: X *contains* Y if Y is a necessary component of the meaning or syntactic restrictions of X.
- Implicational relation: X → 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.

(2) X contains Y (semantics and/or syntax)

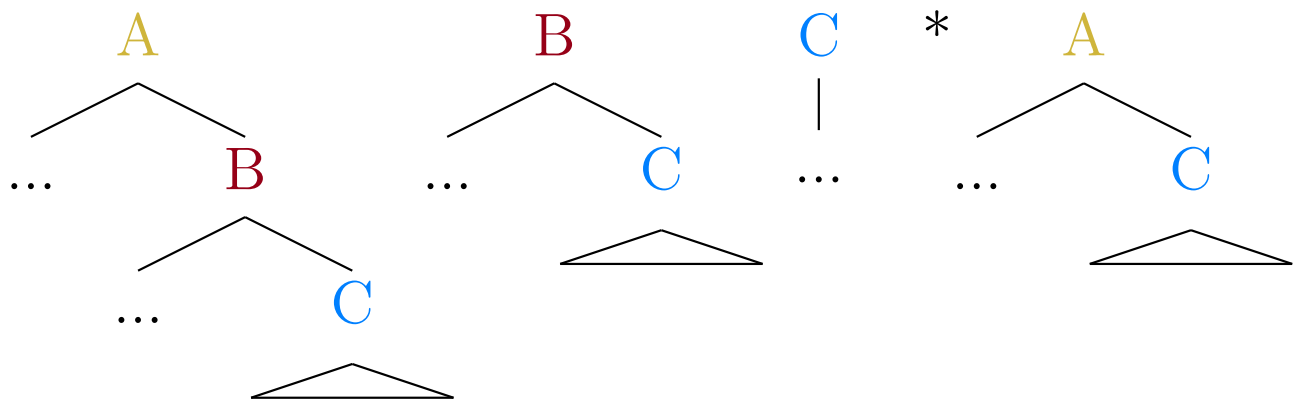


Truncation (abstract)

- 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

(3)



This talk

- Fine-grained structure of the *proposition* domain
- Hypothesis: There are containment relations, but they are not the 'typical' CP-projections.
- New(ish) evidence: ECM in Germanic

CP cartographies

Rizzi's left periphery

(4) All: 'I believe that we should say THIS to Gianni tomorrow'

a. Credo che a Gianni, QUESTO, domani, gli dovremmo dire.
I.believe that to Gianni THIS tomorrow him we.should say

b. Credo che domani, QUESTO, a Gianni, gli dovremmo dire.
I.believe that tomorrow THIS to Gianni him we.should say

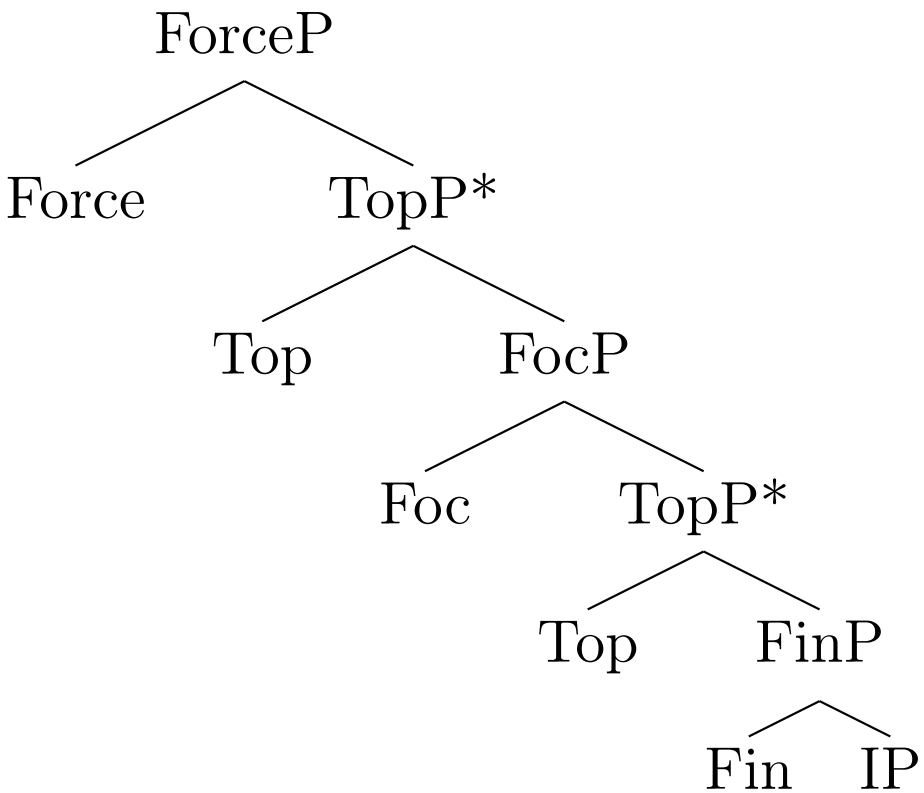
c. Credo che domani, a Gianni, QUESTO, gli dovremmo dire.
I.believe that tomorrow to Gianni THIS him we.should say

d. Credo che a Gianni, domani, QUESTO, gli dovremmo dire.
I.believe that to Gianni tomorrow THIS him we.should say

e. Credo che QUESTO, a Gianni, domani, gli dovremmo dire.
I.believe that THIS to Gianni tomorrow him we.should say

f. Credo che QUESTO, domani, a Gianni, gli dovremmo dire.
I.believe that THIS tomorrow to Gianni him we.should say

Rizzi's left periphery



- **Top** » Foc » **Top**:
  By definiton no containment
- If there was no lower Top,
  Top » Foc could maybe be related to information structural containment (Topic » Comment).
- Force » Fin: Satık (2022) suggests a non-semantic pure syntactic universal ordering between the two.

Cinque's clause structure

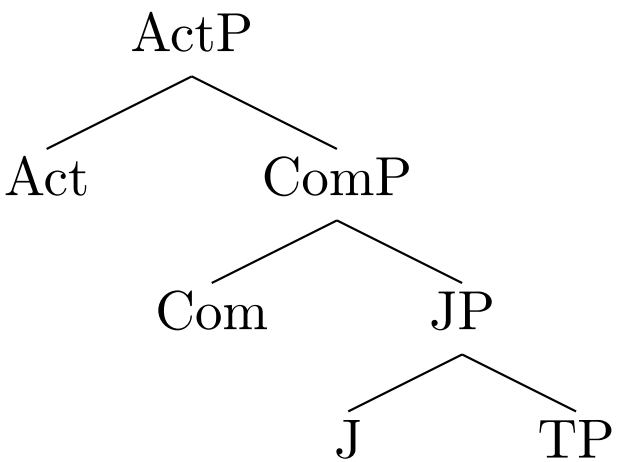
- Order of adverbs, auxiliaries, verbal affixes (Cinque, 1999, Cinque, 2001/2004/2006).

↪ No containment

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

Krifka's speech act decomposition

Krifka (2023)



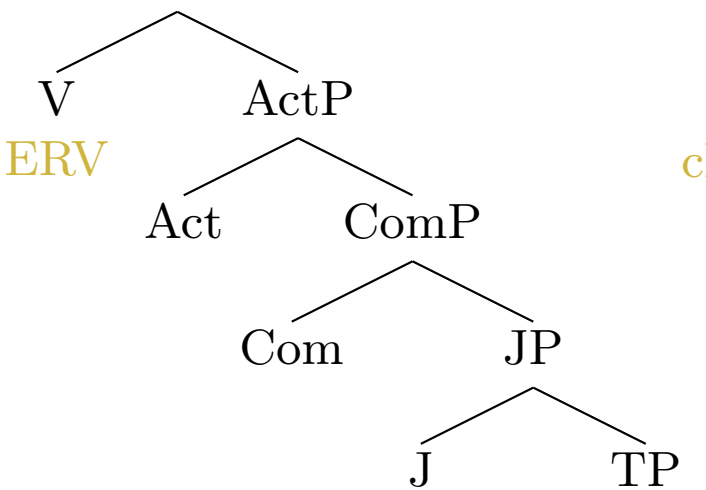
- Propositions (*Situations* in the Ramchand and Svenonius, 2014 terminology): locate the event time/word with respect to the speech time/world.
- Judgments (JP): express a private judgement about a proposition; JP makes a judge parameter available; evidential, epistemic (e.g., *probably*)
- Commitments (ComP): express a public commitment to a judgement (*I REALLY did not steal the chocolate*; *I swear...*; *honestly*)
- Speech act (ActP): expresses common ground update; identifies the judge with the speaker (typically) (*I hereby declare...*; *Again, ...*).

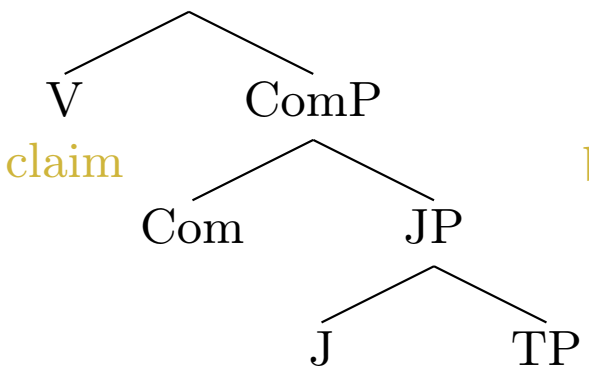
Questions

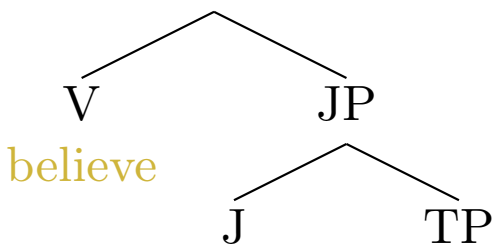
- Cinque's and Krifka's semantic hierarchies are similar/compatible (differences in details and motivation).
- Krifka's hierarchy is defined via containment: ActP is built on ComP; ComP is built on JP.
- Are the semantic hierarchies separate from Rizzi's syntactic hierarchy?
- Is there motivation for ActP, ComP, JP being *syntactic* projections?
- Non-cartographic aside: Is there motivation for information-structural TopP, FocP being syntactic projections?

Evidence: Hierarchy effects in complementation

- Clausal embedding (Krifka, 2023):
  - Embedded root clauses embed ActP (show properties of illocutionary acts; have the potential to update the common ground of the conversation).
  - Speech verbs embed (at least) a ComP.
  - Belief verbs embed (at least) a JP.







The phenomenon

- English first and second person pronouns (indexicals) always refer to the speaker and addressee, respectively.

(6) a. Leo said that I left. Embedding: I = speaker
b. Leo said: "I left." Quote: I = Leo

- There are languages where indexicals in an embedded clause 'shift' to refer to a matrix argument.
- The configurations do not involve quotes, but true embedding (the evidence involves *wh*-movement, negative licensing, distributive plural pronouns).

Illustration: Indexical shift in Buryat

(7) sajənə bi tɜrgə ɜmdəl-ɜ-b gɜžə mɜd-ɜ.
Sajana 1SG.NOM cart break-PST-1SG COMP know-PST
'Sajana found out that I broke the cart.' [T. Bondarenko, p.c.]
'Sajana$_i$ found out that she$_i$ broke the cart.'
[Bondarenko, 2017: 19, (83)]

ECM

- *Exceptional Case Marking* [ECM]
  - Case and theta-role are associated with different predicates.
  - Case is regular case of the matrix verb.

(8) a. I believe her to like salad.
b. *I believe her likes salad.

- ECM is retricted to infinitives in English.
- But many languages, among them Buryat, also allow it across finite clauses.
- Cross-clausal A-dependency [CCA] (Lohninger et al., 2022)

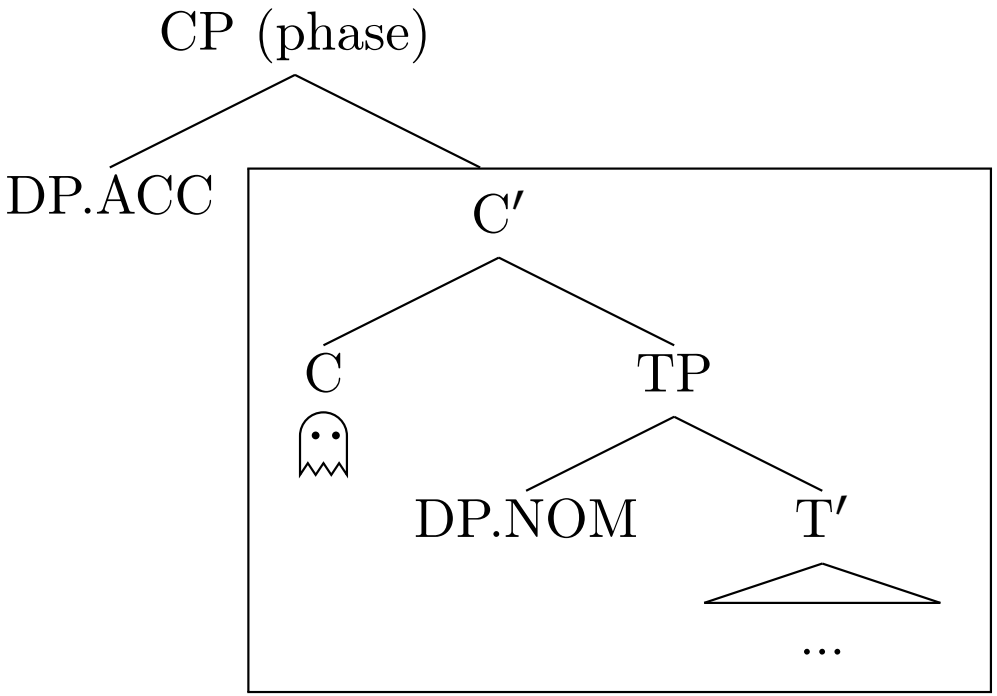
CCA and indexical shift

- Indexical shift: difference between ACC and NOM subjects
  - NOM subjects can or must shift, depending on the language.
  - ACC subjects never shift.

(9) sajənə bi tɜrgə ɜmdəl-ɜ-b gɜžə mɜd-ɜ.
Sajana 1SG.NOM cart break-PST-1SG COMP know-PST
'Sajana found out that I broke the cart.' [T. Bondarenko, p.c.]
'Sajana$_i$ found out that she$_i$ broke the cart.'
[Bondarenko, 2017: 19, (83)]

(10) sajənə namәjə tɜrgə ɜmdəl-ə(*-b) gɜžə mɜd-ɜ.
Sajana 1SG.ACC cart break-PST(*-1SG) COMP know-PST
'Sajana found out that I broke the cart.'
*'Sajana$_i$ found out that she$_i$ broke the cart.'
[Bondarenko, 2017: 19, (82)]

Structural approach



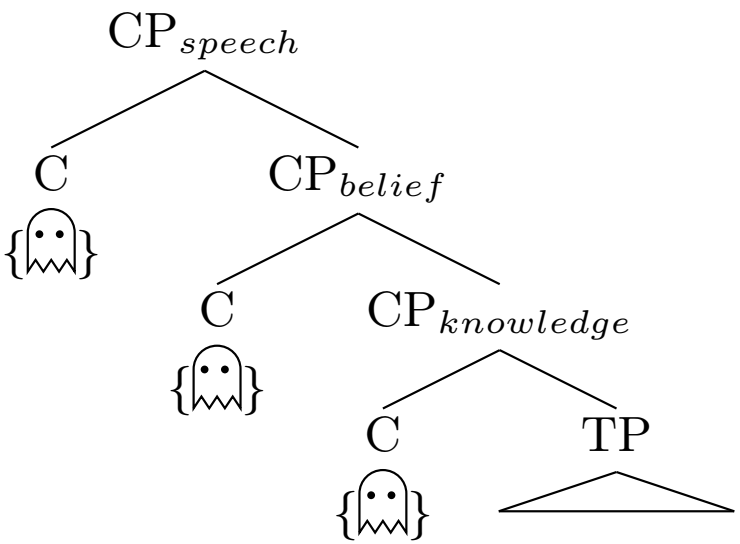
- 👻: context-shifter (quantifier or operator) changes the context—indexicals do not refer to the speech context but the context of the matrix clause
- See Anand and Nevins, 2004, Anand, 2006, Sudo, 2012, Sundaresan, 2012, 2018, Shklovsky and Sudo, 2014, Podobryaev, 2014, Messick, 2016

Indexical shift hierarchy

(11) "if indexical shift is effected in the scope of a non-speech attitude predicate, it must also be effected in the scope of a speech predicate." (Sundaresan, 2018: 29).

	speech	belief	evidential/knowledge
Zazaki	✓	*	
Tamil	✓	?	*
Navajo, Laz	✓	✓	*
Tamil, Nez Perce	✓	✓	✓

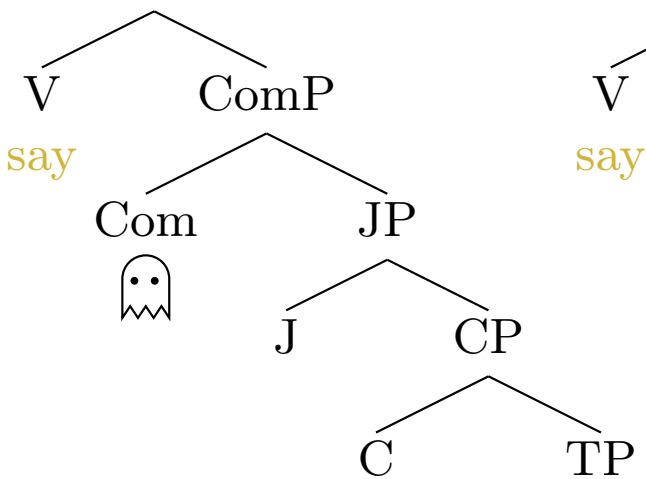
Flexible monster position



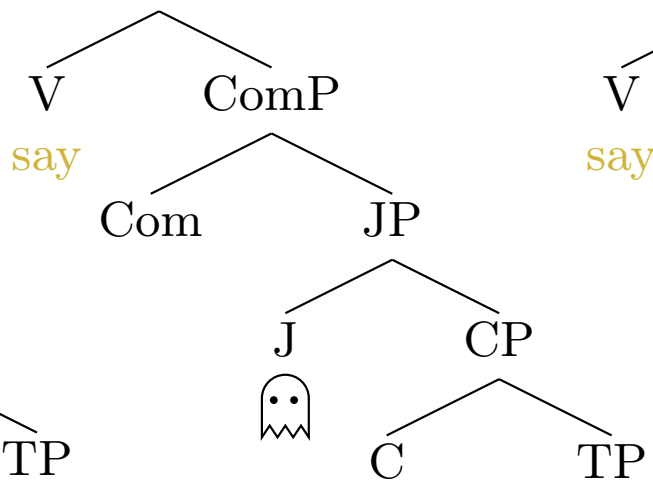
- Language variation: 👻 can occur in different CP positions.
- If 👻 is in the highest CP position, it will only be present when the full structure is produced.
- Truncation eliminates 👻 associated with the truncated projection.
- If 👻 is associated with a lower CP position, it will also be present when higher projections are added.

Deriving the hierarchy

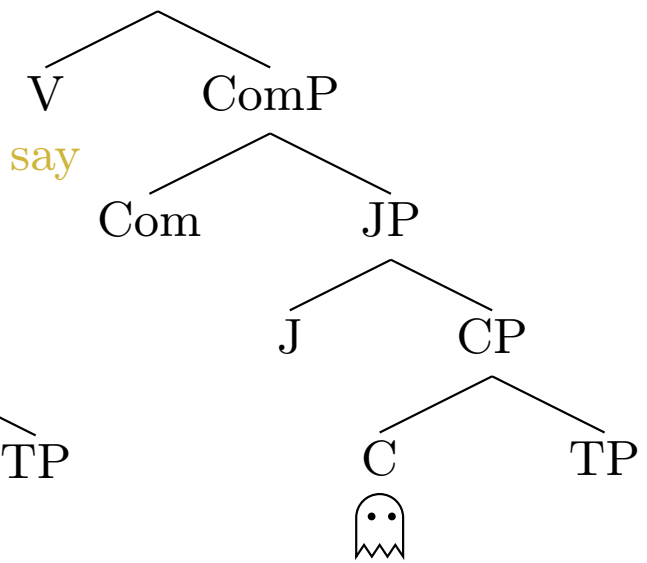
	speech	belief	evidential/knowledge
Zazaki	✓	*	
Tamil	✓	?	*
Navajo, Laz	✓	✓	*
Tamil, Nez Perce	✓	✓	✓



Zazaki



Navajo



Tamil (CP: see below)

ECM in Germanic

- Variation across Germanic which types of infinitives allow/require ECM.
- If not otherwise mentioned, the Swedish and Norwegian data were collected by. C. Christopoulos (see also Christopoulos and Wurmbrand, 2020).

Speech complements

(12) Jónas sagði *(Garp) hafa farið í bíó.
Jonas said *(Garpur.ACC) have gone to cinema
'Jonas said that Garpur has gone to the cinema.'
[Gísli Harðarson, p.c.] Icelandic

(13) He claimed (*her) to have gone to the movies. English

(14) Jeg hevdet (*henne) å ha fullført oppdraget.
I claimed (*her) to have completed mission.the
'I claimed (*her) to have completed the mission.' Norwegian

(15) Sie behauptet (*ihn) gewonnen zu haben.
She claims (*him) won to have.
'She claims (*him) to have won.' German (also Dutch)

Belief complements

(16) Astrid taldi *(Ottó) ekki hafa vaskað upp diskana.
Astrid believed *(Ottó) not have.INF washed up dishes.the
'Astrid believed Ottó not to have washed up the dishes.' Icelandic
[Gísli Harðarson, p.c.; based on Christensen, 2007: 156, (25a)]

(17) I believe her to have won the triathlon. English

(18) *Jag tror henne (att) vara begåvad.
I believe her (to) be gifted
'I believe her to be gifted.' Swedish

(19) *Jeg tror ham (å) være dum.
I believe him to be stupid
'I believe him to be stupid.' Norwegian

(20) Ik geloof (*haar) slim te zijn.
I believe (*her) smart to be
'I believe (her) to be smart.' Dutch (also German)

Objective epistemic complements

(21) Ég álít *(Leó) vera kláran.
I consider *(Leo) be clever.
'I consider Leo to be smart.' Icelandic
[Gísli Harðarson, p.c.; based on Holmberg, 1986: 159, (60b)]

(22) I consider her to have won. English

(23) Han måste anse Peter att inte vara lika klok som jag.
He must consider Peter to not be as clever as I
'He must consider Peter to not be as clever as me.'
[Johnson and Vikner, 1994: 78, (47a)] Swedish (colloquial)

(24) Jag anser honom (*att) vara dum
I consider him (*I/C) be stupid
'I consider him stupid'
[Holmberg, 1986: 159, (61b)] Swedish (standard)

Objective epistemic complements

(25) %Vi anser henne å være intelligent.
We consider her to be intelligent
'We consider her to be intelligent'
[Sigurðsson, 1989: 83, (3) OK] Norwegian

(26) Internett-brukerne anser dette å være en fordel.
internet-users.DEF consider this to be an advantage
'The internet users consider this to be an advantage.'
[Lødrup, 2008: 162, (26)] Norwegian

(27) Dutch, German: no verb *consider* that takes infinitive

Germanic ECM Hierarchy

- Non-*proposition* complements do not allow ECM in any of the Germanic languages

(28) I decided (*Leo) to go to the party.

	finite CP	*say*	*believe*	*consider*	*decide, try*
Icelandic	*	✓	✓	✓	*
English	*	*	✓	✓	*
Swedish	*	*	*	✓	*
Norwegian	*	*	*	(✓)	*
German, Dutch	*	*	*	*	*

↪ *Proposition* complements are CPs—isn't this problematic for ECM?

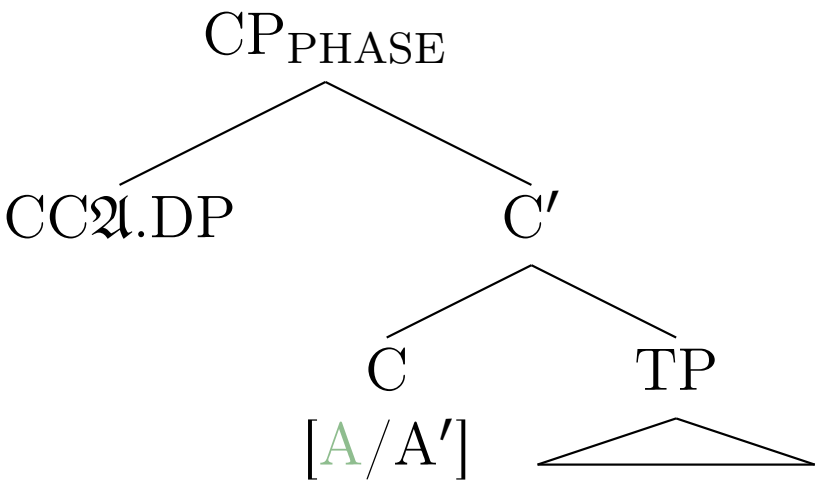
ECM is compatible with CP

- CC𝔄 is true ECM (Lohninger et al., 2022)
- Tests: Island-sensitivity, A-movement restrictions, A-Minimality, connectivity effects within the embedded clause.

(29) badmə [$_{CP}$ mini ba:bɜ-jə 👻 [$_{TP}$ nam-da durə-güj gɜžə
Badma.NOM [$_{CP}$ 1SG.GEN father-ACC 👻 [$_{TP}$ 1SG-DAT love-NEG COMP
]] hanə-nə.
]] think-PRS
'Badma$_i$ thinks that my father doesn't love me/him$_i$.'
[T. Bondarenko, p.c.]

- ECM can involve a CP (CP-omission cannot be a (universal) condition for ECM.)

Composite probes—unifying ECM



- ECM (whether finite or non-finite) *always* involves at least some layers of the CP-domain.
- Language variation: CP-projections may involve A-qualities (van Urk, 2015; Lohninger et al., 2022).
- The A-domain of a clause extends into the CP-domain, with language-specific endpoints.

Believe vs. consider

- *believe* and *consider* statements often overlap in meaning.
- Context that distinguishes between them: if the judge of a sentence does not know whether a proposition is true or false.
  - *believe*-statement: inappropriate (since *believe* (JP) expresses the function that the judge takes the proposition to be true)
  - *consider*-statement: OK (for example, if the speaker is responsible for deciding whether or not to close the schools for a 'snow' day).

  ↪ *consider* complement does not necessarily involve a JP, but it is still a proposition

(30) Context: Looking out the window, I see snow in the air, but I cannot tell whether it is snowing or the snow is just swirled up from the ground by the wind.

a. #I believe it to be snowing.
b. I consider it to be snowing.

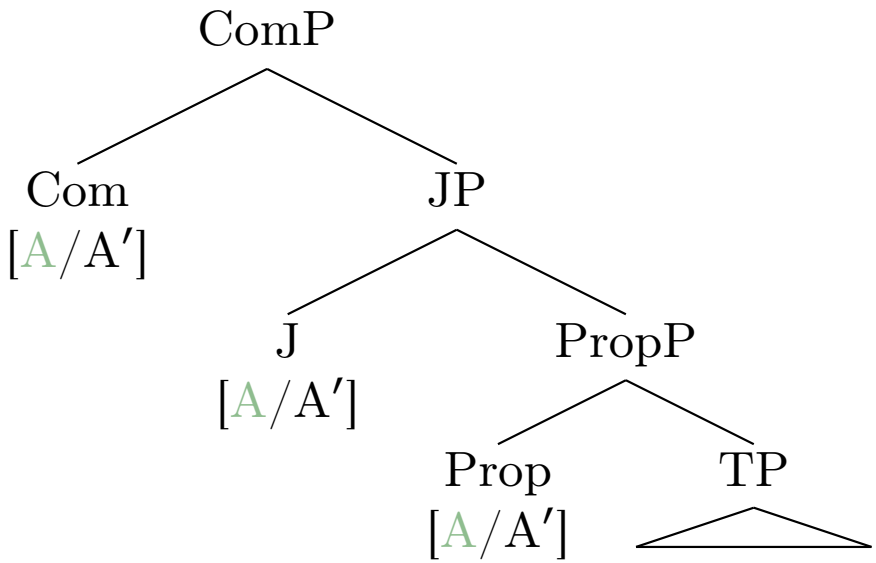
Same in Icelandic

(31) Context: Ottó attempted to do the dishes (or at least has gone through the motions) and Astrid knows that, but he did such a bad job and the dishes are still dirty (or at least in Astrid's opinion).

a. #Astrid taldi Ottó ekki hafa vaskað upp diskana.
Astrid believed Ottó not have.INF washed up dishes.the
'Astrid believed Ottó not to have done the dishes.' Icelandic
[Gísli Harðarson, p.c.]

b. Astrid áleit Ottó ekki hafa vaskað upp diskana.
Astrid considered Ottó not have.INF washed up dishes.the
'Astrid considered Ottó not to have done the dishes.' Icelandic
[Gísli Harðarson, p.c.]

Hierarchy via containment & truncation

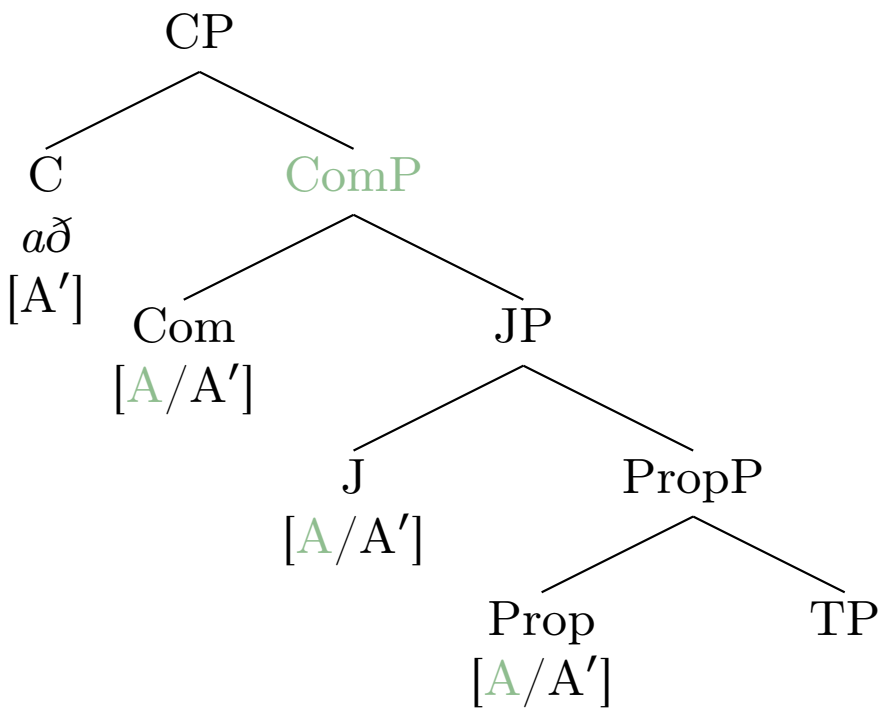


- Icelandic: [A] up to ComP
- English: [A] up to JP
- Sw, No: [A] up to PropP
- German, Dutch: [A] up to TP

- ComP: complements of verbs of communication; public commitment
- JP: mental attitude contexts (evidentials and subjective epistemics); no public commitment, only a (private) judge function
- ProP: objective epistemic *propositions*; no JP; mapped to a proposition via PropP layer (turns a *situation* in a *proposition*, following Ramchand and Svenonius, 2014).

Icelandic ECM

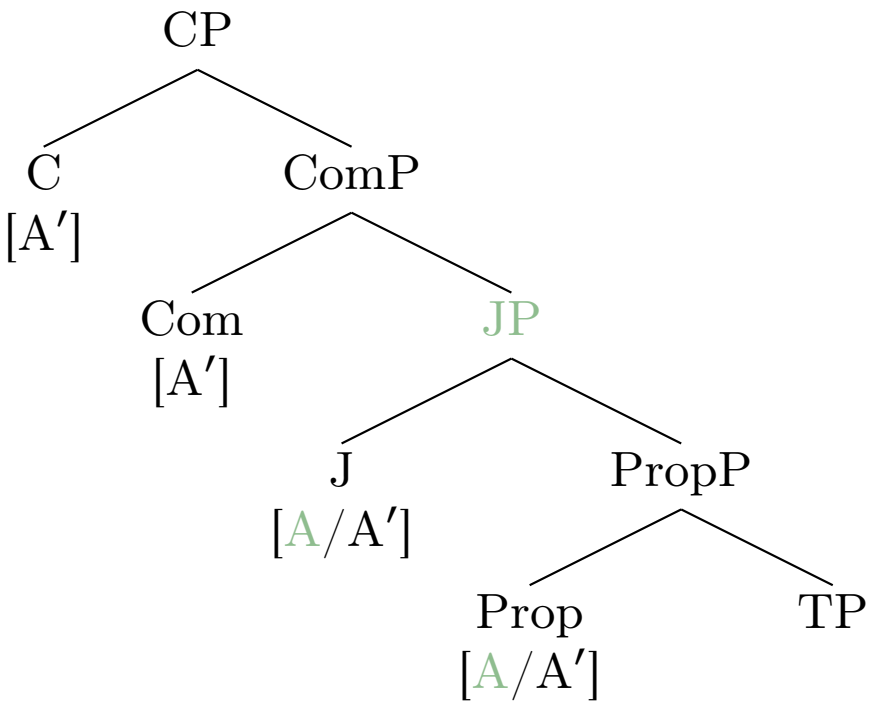
	finite CP	*say*	*believe*	*consider*	*decide, try*
Icelandic	*	✓	✓	✓	*



- Since all PropPs are mixed [A/A′] positions in Icelandic, they can host a CCA-DP (and allow further A-dependencies).
- **að* is in C above PropPs and does not have A-properties (must be truncated in ECM).

English ECM

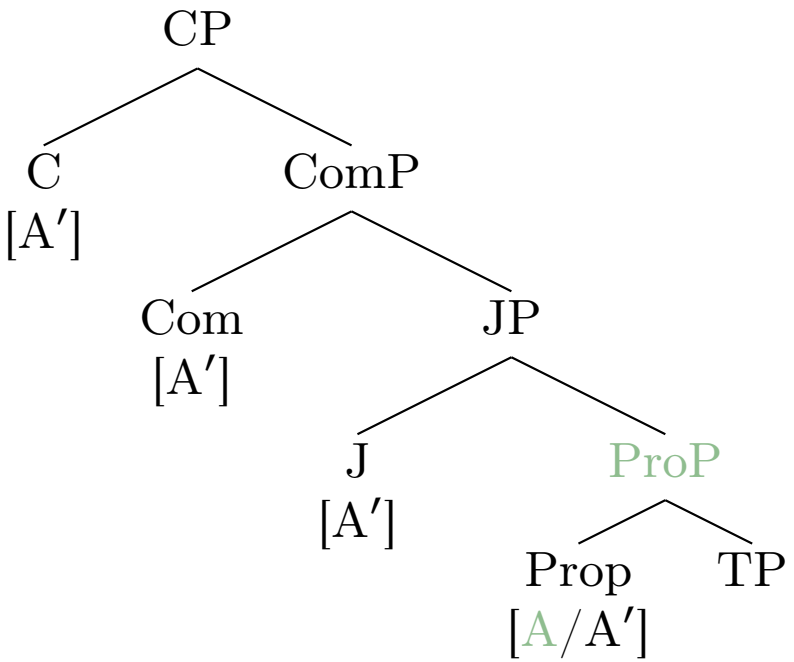
	finite CP	*say*	*believe*	*consider*	*decide, try*
English	*	*	✓	✓	*



- *claim, say*: minimally ComP
- Truncation down to JP, creating a mixed [A/A′] domain, is only possible in *believe* and *consider* contexts, hence only these allow ECM.
- Since ComP (and above) is a pure [A′] domain in English, A-dependencies across it are blocked.

Swedish, Norwegian ECM

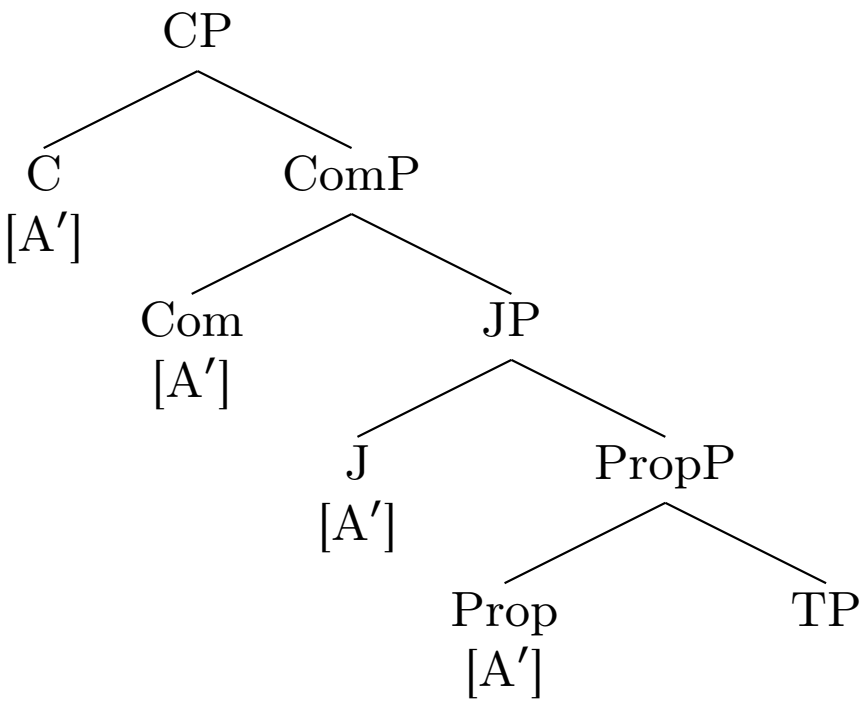
	finite CP	*say*	*believe*	*consider*	*decide, try*
Swedish	*	*	*	✓	*
Norwegian	*	*	*	(✓)	*



- ComP and JP are a pure [A′] domains in Swedish; A-dependencies across them are blocked.
- Truncation down to PropP is only possible in *consider* contexts, hence only these allow ECM.

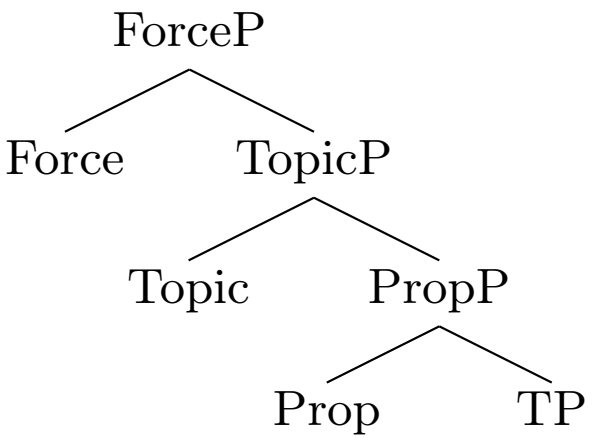
German, Dutch ECM

	finite CP	*say*	*believe*	*consider*	*decide, try*
German, Dutch	*	*	*	*	*



- No propositional projection can include A-features.
- ECM is blocked throughout (only small clause, AcI is possible, which does not involve the CP-domain).

Composite A/A′ status of other CP-layers?



- No cut-off point—CP2 [A/A′]: Finite ECM (Buryat, Mongolian)
- Maximally TopP [A/A′]: Finite ECM/LDA with Topic restrictions (Tsez, Turkish).
- Maximally FocP [A/A′]: Finite ECM with Focus (Mursell, 2020).

Still to be developed

- Why does ECM require a propositional domain? Semantic property? See Appendix for some options but no full explanation yet.
- What are the A-features that "travel" up into the CP-domain? See Lohninger et al. (2022) for a connection to predication.
- ECM and ECM hierarchy beyond Germanic?

Take-home conclusions

- ECM typically, but not necessarily (cf. finite ECM), involves truncation of *some* CP-layers.
- But it also requires the presence of a propositional domain (i.e., at least some CP-layer).
- One modeling choice: A-domain can be extended into the CP, with language-specific endpoints.

Take-home conclusions

- PropPs cannot just be seen as extensions of the TP-domain.
  - PropPs are part of the CP-domain—semantically PropPs are distinct from the TP-domain (Ramchand and Svenonius, 2014).
  - The distribution of traditional restructuring draws a clear line between the TP-domain and the CP-domain, and PropPs belong to the CP-domain (see Appendix)
- Since ECM, a syntactic property (Case), seems to follow the semantic CP hierarchy, it offers support for the syntactic presence of semantic projections (if the implicationa hierarchy can be confirmed in a broader empirical context).

Thank you!

How to define ECM: English perspective

- Pesetsky (1992): ECM requires a non-agentive matrix verb in English.
- Moulton (2009): ECM constructions report attitudes of acceptance/belief
  - ECM verbs (since they ascribe beliefs) cannot report lies, whereas speech verbs can.
  - Attitude (holder) is put into the complement clause—F head, F_{DOX}

(32) a. No ECM
He whispered, said, asserted, declared, conjectured, ... that Mary was guilty ...but he knew she wasn't. [Moulton, 2009: 171, (73)]

b. ECM possible
He believed, held, fancied, suspected, understood, remembered, assumed... her to be guilty/that she was guilty
... #but he knew she wasn't. [Moulton, 2009: 171, (73)]

Alternative

Both of these accounts:

↪ Do not seem to carry over to Icelandic where ECM is obligatory with speech complements (even without changing them to beliefs).

↪ Do not cover the variation.

Combined syntax and semantics requirements

- ECM requires a Judge (or perhaps some evidentiality).
- Like in Moulton's account this would mean that ECM is in part licensed semantically (the connection, however, is not clear yet; also not in Moulton's account).
- The specific distribution among different types of *Propositions* is a language-specific syntactic property—how high the A-features can occur.

How to (not) approach the variation

Why do some languages never have ECM?

No "exceptional" Case?

- An issue with *exceptional* Case?
- E.g., Case and theta-role must come from the same predicate?
- Problem: **All** Germanic languages have small clauses, AcI—which involves exactly such a split.

(33) Eg let {*að} Jón {*að} fara.
I let {*to} Jon {*to} go
'I let Jon go.' [Icelandic, Holmberg, 1986, 158:57a]

(34) Vi horde {*att} dem {*att} komma
We heard {*to} them {*to} come.
'We heard them come.' [Swedish, Holmberg, 1986, 158:57b]

(35) Han hade ikke set eller hørt mig (*at) bestille noget.
He had not seen or heard me (*to) do anything
'He hasn't seen or heard me do anything.' [Danish, Holmberg, 1986, 155:49b]

(36) Vi lot / hørte Jon (*å) synge i dusjen.
We let / heard Jon (*to) sing in shower.the
'We let/heard Jon sing in the shower.'
[Holmberg, 1986, 155:49a] Norwegian

(37) Ich sah / hörte / ließ ihn (*zu) spielen
I saw / heard / let him (*to) play
'I saw/heard/let him play.' [German]

Lack of matrix case?

- Coincidence that all ECM verbs do not license accusative?

(38) Ich erwarte ein Paket / eine Entschuldigung / eine
I expect a.ACC package / an.ACC apology / a.ACC
Freundin.
friend.FEM
'I am expecting a package/an apology/a girlfriend.'
expect + DP (Theme)

(39) Ich erwarte, PRO rechtzeitig informiert zu werden.
I expect PRO timely informed to be.PASS
'I expect to be informed in time.' Subject control

(40) *Ich erwarte ein Paket geliefert zu werden.
I expect a package delivered to be.PASS
'I expect a packaged to be delivered.' *ECM

No CP-deletion?

- Based on the common account that ECM requires CP-deletion, one could approach the lack of ECM via a restriction on omitting CPs.
- This, however, would contradict (and lead to a serious problem) what we know about these (and other) languages regarding restructuring.
- Detour: CP-omission is also the crucial factor for restructuring (aka clause union, complex predicates).

Restructuring

- German and Dutch show extensive restructuring properties (verb clusters, scrambling, pronoun fronting, long passive...)

(41) Sie hat {einen Frosch} beschlossen / versucht, {einen Frosch} zu küssen.
She has {a frog} decided / tried {a frog} to kiss
'She decided/tried to kiss a frog.'

Restructuring restriction

- In propositional infinitives, however, these properties are typically blocked.
- Propositional infinitive: speech, belief

(42) Sie hat {*einen Frosch} behauptet / geglaubt, {einen Frosch} geküsst
She has {*a frog} claimed / believed {a frog} kissed
zu haben.
to have
'She claimed/believed herself to have kissed a frog.'

The puzzle: Restructuring but no ECM

- This is typically accounted for by the obligatory presence of a CP despite differences in the approaches to restructuring, one common claim is that restructuring is always blocked in the context of a (real) CP.)
- It is then, however, particularly puzzling why these languages do not ever allow ECM.

(43) weil ihn Leo [~~ihn~~ zu treffen] erwartet hat.
since him.ACC Leo [him to meet] expected has
'since Leo expected to meet him.' TP-complement

(44) weil ich (*den Leo) rechtzeitig anzukommen erwartet habe.
since I (*the.ACC Leo) on.time to.arrive expected have
'since I expected (Leo) to arrive on time.' *ECM

Complementation

- The typological and theoretical works have shown that different types of complements are more or less dependent, transparent, integrated into the matrix clause.
- At least broadly, the conclusions converge on a hierarchy like the one below (see Wurmbrand and Lohninger, 2023).

Implicational transparency hierarchy

Transparency	Proposition	Situation	Event
Romance	*	*	✓
Germanic, Slavic	*	✓	✓
Not found	✓	*	
Not found		✓	*

- This hierarchy can be explained by containment and truncation:
  - Since Propositions contain a Situation and an Event, they are necessarily the most complex and the most difficult to establish dependencies across.
  - Certain operations require less complex complements—truncation.
  - Situation complements may lack the highest domain; Event complements may lack the higher two domains.
  - Proposition complements cannot lack the (entire) highest domain.

The dilemma

- The contexts that resist restructuring involve proposition compliments (attitude and speech).
- But these predicates are the (only) ones that allow ECM in Germanic (tendentiously also cross-linguistically; but some situation ECM is occasionally found).
- ECM | restructuring: (almost) complementary distribution

	Type	Proposition	Situation	Event
Restructuring	Romance-type	*	*	✓
Restructuring	Slavic-Type	*	✓	✓
ECM	Germanic	✓ (restricted)	*	*

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