CPs and their associates
Day 1–2
Introduction, CP basics, and the predicate hypothesis

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1 CP arguments

This seminar is about how clausal arguments, particularly finite CPs (e.g. English *that*-clauses), distribute in the clause.

> Why care?
>
> Because CPs distribute differently than other arguments in the clause. Understanding why this is so should shed light on both the nature of grammatical relations and predicate-argument structures as well as the nature of subordinate clauses.

The meat of the seminar will look at CP arguments that are—or are argued to be—displaced from standard argument positions:

(1) *Sentential subjects*
[That Ani arrived early] (that) proves nothing.

(2) *Expletive associate constructions*
It turns out [that Ani arrived early].

(3) *Clausal prolepsis*
I can believe **it** [that Ani arrived early].

Some questions:

- How do the CPs relate to the pronoun?
- Which element is the argument?
- Where do the CPs sit in the structure?

Some themes, ideas, and questions we will explore:

- CP arguments are not 'true' arguments, but predicates (Moltmann 2003, Moltmann 2013; Kratzer 2006; Moulton 2009, 2015; Elliott 2017, among others)
- CPs are either "doubled" or "integrated" in the structure by elements that *are* true arguments, e.g. Determiners/Pronouns.
- CPs can be embedded within (possibly null) determiners (Rosenbaum 1967; Davies and Dubinsky 1998; Han 2005; Davies and Dubinsky 2010; Takahashi 2010; Hartman 2012)
- What mechanism places the CP to right edge? Extraposition? How do we model extraposition?

Tentative **Agenda:**

- Day 1–2: Introduction, CP basics, and the predicate hypothesis
- Day 2–3: Sentential subjects
- Day 3–5: Clausal prolepsis

Readings: I will try put some of the key articles that I draw from in an accessible folder online. I will not presuppose you have read these before the classes.

2 Stepping back: basic distinctions among CPs

Complementizer phrases (CPs) come in many types:

- Relative vs. non-relative (e.g. a gap or no gap)
- Complement vs. Adjunct
  - Among complements: important distinction between embedded declarative vs. embedded question
- Finite or non-finite
- Mood
- Type of complementizer (often connected to overall meaning of CP, tense, mood, etc.)

Relative vs. Complement

Mainly about the presence of a gap:

(4) a. the claim that/which they made __
b. the claim that they made soup

With respect to argument CPs, in English we tend to focus on several parameters of CP arguments:

- Form: Finite or non-finite
- Meaning: Proposition, Question (very simplified)

(5) a. I want [for them to win]
b. I believe [them to be the best]
c. I believe [they are the best]

(6) a. I believe [that they won] — Proposition
b. I wonder [if they won]/[what they won] (+ others) — Question

(Other languages make many further distinctions, particularly in the area of mood, which can be reflected by verbal morphology or complementizer choice. Mood is not the topic of this course, so I set it aside.)

Selection

Clause embedding predicates require complements with a certain syntactic shape/category (category or "c" -selection) and with a certain meaning (semantic or "s" selection).

Grimshaw (1979): c-selection and s-selection both needed

Grimshaw pointed out that verbs with the same semantic requirements can take complements of different syntactic categories.

- Both *ask* and *wonder* select, in an intuitive sense, for a question. However, their options for realizing the complement syntactically are different: *ask* allows the question to be realized as a whole *wh*-clause CP (7a), a DP (7b), or by nothing at all—a null complement (7c).

(7) a. John asked me what the time was.
b. John asked me the time.
c. John didn't know the time so he asked me.

The verb *wonder* on the other hand allows only the CP option:

(8) a. John wondered what the time was.
b. *John wondered the time.
c. *John didn't know the time but he wondered.

Grimshaw concluded that syntactic and semantic selection must be independently given in lexical entries.

Over-generation problem:

Once both c-selection and s-selection were posited as part of lexical information, it was noticed by Grimshaw herself (Grimshaw 1979:317n.33) that this over-generated complements patterns, allowing for cross-classification of semantic and syntactic complements types that did not exist.

- For instance, lexical entries could be written to s-select for questions but c-select for only noun phrases and not sentential complements.
- It turns out that if a predicate selects for a semantic category it always c-selects for an unmarked, or 'canonical' syntactic expression of that semantic category.
- So there are no predicates such as *knaw* that select for embedded questions only in the form of NPs but not wh-CPs:

(9) Made-up verb *knaw*: not an attested pattern
   a. John knaw the time.
   b. *John knaw what time to leave.

Instead there are predicates like English *know* that c-select for both types, and predicates like *wonder* that only select for what Grimshaw called the canonical structural realization (CSR) of questions, which is the syntactic category expressed by wh-clauses.

- CSRs are hard-wired in UG (so 'for free') but DP selection requires trigger in the input - and so learned on a case-by-base basis.

Enter Case theory

Pesetsky (1982, 1991) proposes to solve the over-generation problem by **eliminating c-selection** and replace it by Case theory.

- Stowell (1981): DPs must licensed by abstract Case, CPs may and must not.
- Stowell used this to explain why CPs show up in positions that DPs cannot — that is positions that are case licensed.

(10) Complements of adjectives:
   a. I am happy **the thing**.
   b. I am happy **that this happened.**

Note that DPs need case-providing *of* here, whereas CPs in fact **resist** this:

(11) a. I am happy **about the thing**.
   b. *I am happy **about that this happened.**

(12) Case Resistance Principle (Stowell 1981)
   CPs cannot appear in Case-marked positions.

Back to Pesetsky's c-selection-only view:

- So if a predicate selects for, say, embedded questions it can always have a CP complement but only a DP complement if the predicate is a Case assigner.
- *Know* and *ask* assign Case, so they can take both CPs and DPs.
- *Wonder* does not assign Case so it only allows complements made available by the CSR of questions.
- Ruled out is the pattern in of made-up *knaw* since it disallows the CP complement (which comes for free) but allows the DP complement.
  - see Odijk (1997); Rothstein (1992); Alrenga (2005) for counter-evidence to the s-selection only account

3 Syntactic distribution of CPs vs. DP

Stowell's CRP was part of a wider theory designed to account for the syntactic distributional differences between CPs and DPs.

CPs appear in lots of positions that DPs cannot and vice versa (Emonds 1972; Stowell 1981; Grimshaw 1982).

(13) a. We are aware *(of) the thing. [P DP]
b. We are aware (*of) that they left. *[P CP]

(14) a. The destruction *(of) the city. [N *(P) DP]
b. The idea (*of) that Fred would leave. [N CP]

(15) a. This captures the fact that he's appreciated. DP-only taking verb
b. *This captures that he's appreciated.

(16) a. *John complained something. CP-only taking verb
b. John complained that she left.
c. *Something seems. CP-only taking verb
d. It seems that she left.

- Case theory (and the CRP) was taken to be a good explanation for these facts.
- One question that arose concerned sentential subjects: If CPs cannot be case marked why are they in the subject position.
- Stowell (following earlier work by Koster (1978)) said they weren't as witnessed by the fact that they don't easily sit in the subject position:

(17) a. *?To what extent is that the moon is made of cheese a theory worth considering?
b. To what extent is the theory that the moon is made of cheese worth considering?

- But these data are controversial - and we will return to this when we talk about sentential subject more thoroughly tomorrow.

There's also an (somewhat still) active debate about whether the CRP is even true.

- If CPs didn't require Case, then why should they be awkward in the following case-less positions ((Bošković 1995), Pesetsky (2019))

(18) *Caseless position that prohibit DPs*

a. *It seems Mary to have solved the problem.
b. *It was believed Mary to speak French well.
c. *Mary is aware Bill to be the best candidate.
d. *Mary's belief it to have been raining

(19) *Caseless position that prohibit CPs*

a. *It seems [that the world is round] to be a tragedy.
b. *It was believed [that the world is round] to be a tragedy.
c. *Mary is aware [that the world is round] to be a tragedy
d. *Mary's belief [that the world is round] to be a tragedy

Tomorrow we will talk about alternative ways of thinking about the above data, namely that sentential subjects are more generally excluded from a number of embedded contexts.

Cross-linguistic distribution

Setting aside Case, it's important to know that CPs and DPs nonetheless distribute differently in a range of languages. That is, it's not just an English thing nor is it likely just a Case thing.

CPs vs. DPs in head final languages

Farudi (2007) reports the following facts for Persian:

(20) a. man [$_{DP}$ ketāb-ro] [$_{PP}$ be giti] dād-am (Persian)
I book-OBJ to Giti gave-1SG
'I gave the book to Giti'

b. Giti fekr mi-kon-e [$_{CP}$ ke man ketāb-ro dust dār-am]
Giti think DUR-do-3SG that I book-RA friend have-1SG
'Giti thinks that I like the book'

c. *Giti [$_{CP}$ ke man ketāb-ro dust dār-am] fekr mi-kon-e.

Accompanied by a demonstrative element *in*, the CP can remain preverbal:

(21) Giti [**in-o** ke rahmin mi-ā-d emshab] fekr mi-kone-e
Giti [this-OBJ that Rahmin DUR-come-3SG tonight] thought DUR-do-3SG
'Giti thinks that Rahmin is coming tonight.' (Farudi 2007)

- We don't know if this is a complex NP with a null N.

Outside of Indo-European/Indo-Iranian languages

Similar patterns emerge: while DP-like clauses can appear in the canonical DP positions, candidates for CPs (*ki*-clause borrowed from Persian) cannot.

(22) Turkish

a. Aykut [Olcay-ın istifa et-tiğ-in-**i**] san-ıyor
Aykut Olcay-GEN resign do-DIK-2SG-**acc** believe-PROG.3SG
'Aykut believes that Olcay resigned.'

b. Aykut san-ıyor [**ki** Olcay-ın istifa et-ti]
Aykut believe.PROG-3SG COMP Olcay-NOM resign do-PAST-3SG
'Aykut believes Olcay resigned,' Predolac (2017)

Things are more complicated, of course. See Predolac (2017) for lots of details on Turkish.

In Japanese and Korean, we find that both nominalized and non-nominalized clauses can appear in the canonical object positions (Shim and Ihsane 2015).

(23) **Embedded by Comp *ko***

Na-nun [kay-ka swukecey-lul ta ha-yass-ta-**ko**] mit-e.
I-TOP he-NOM homework-ACC all do-PST-DEC-*ko* believe-DEC
'I believe that he finished his homework.'

(24) **Nominalized with *-kes***

Na-nun [kay-ka swukecey-lul ta ha-yass-ta-nun **kes**-ul] mit-e.
I-TOP he-NOM hmwrk-ACC all do-PST-DEC-ADN *kes*-ACC believe-DEC
'I believe that he finished his homework.'

But the non-nominalized clauses cannot be subjects.

(25) a. *mina-ka ttena-ss-ta-ko-(ka) nollawu-ess-ta
Mina-NOM leave-PAST-DECL-COMP-(NOM) surprising-PAST-DECL
'That Mina left was surprising.'

b. mina-ka ttena-ss-ta-nun-kes-i nollawu-ess-ta
Mina-NOM leave-PAST-DECL-KES-ADN-NOM surprising-PAST-DECL
'That Mina left was surprising.' (Yeom 2018)

German

CPs distribute differently from DP:

- Preverbal positioning of the CP is often reported to be either "awkward", "clumsy, but not ungrammatical ((Müller 1998)) or "heavily degraded" (Féry 2015), although sometimes you see ungrammatical.

(26) a. Hans hat $[_{DP}$ diese Lüge $]$ verbreitet. (German)
Hans has this lie spread.about
'Hans has spread this lie'
b. ??Hans hat $[_{CP}$ dass Joachim Marlene liebt $]$ verbreitet.
Hans has that Joachim Marlene loves spread.about
c. Hans hat verbreitet $[_{CP}$ dass Joachim Marlene liebt].
'Hans has spread.about that Joachim Marlene loves.'

A CP *within* a complex NP can appear pre-verbally:

(27) Wir haben [Peters Behauptung [dass er zu Hause gewesen sei]] überprüft.
we have Peter's claim that he at home been was checked.
'We checked Peter's claim that he was at home.'

- various extra-syntactic reasons have been given for this kind of pattern, including prosody and sentence processing (Hawkins 1994).
- So it's not immediately obvious that it's *just* the 'weight' or a processing difficulty with center-embedding (Kuno 1974) that forces extraposition of clauses in German.
  - See, however, Féry (2015) (and references therein) for a prosodic explanation, contrasting CP complements of V vs. CPs in NP.
- Webelhuth (1992) says that pre-verbal CPs (i.e. in the **middle field**) allow only DP type gaps: *freuen mich* selects CPs, not DPs, and the CP cannot occur anywhere pre verbally:

(28) a. *Ich freue mich das
I am-happy RELF that
'I am happy about that.'
b. Ich freue mich daß Hans krank ist.
I am-happy RELF that Hans sick is
'I am happy that Hans is sick.
c. *[Daß Hank krank ist] freue ich mich.
(Webelhuth:1992: 105(118–120))
d. *weil ich [daß Hans krank ist] mich nicht freuen kann.
since I that Hans sick is RELF not be-happy can
'I cannot be happy that Hans is sick.'
(Webelhuth:1992: 107(136))

Webelhuth says that middle field CPs allow only DP type gaps: *glauben* can select DPs, so middle field and topicalized CPs are fine.

(29) a. Ich glaub' das
I believe that
'I believe that.'
b. [Daß Hank krank ist] Ich glaub'.

c. ?weil ich [daß Hans krank ist] glauben kann.
since I that Hans sick is believe can
'I can believe hat Hans is sick.'

- One idea is that CPs that sit in the middle-field (and move leftward generally) are really DPs with a silent D
  - we will see more example of this proposal in the case of sentential subjects (and topics) tomorrow
- Extraction evidence might fit this idea: if middle-field CPs are housed within (null) DPs, and DPs that contain CPs (complex NPs) are islands for extraction (*Who do you hear the report that the department hired __?), then we would expect an island violation.
- The follow contrasts in extraction are from Müller (1998):

(30) (Ich weiß nicht) wen_1 er gesagt hat $[_{CP}$ dass Claudia t_1 geküßt hat]
I know not whom he said has that Claudia kissed has
'I don't know who he said that Claudia has kissed' (Müller 1998: 145(58a))

(31) *(Ich weiß nicht) wen_1 er $[_{CP}$ das Claudia t_1 geküßt hat] gesagt hat.
I know not whom he that Claudia kissed has said has
'I don't know who he said that Claudia has kissed'(Müller 1998: 146(58b))

- The issue of extraction is a complex one, which I cannot do justice to here (see especially Müller 1998 for the full range of complexities and an analysis).
- Webelhuth's observations about middle-field CP arguments is part of a larger generalization about (leftward) moved CPs: they can only leave gaps where DPs are otherwise licensed.
- We will talk a lot more about this in the session on sentential subjects (and topics).

Interim summary

- CPs distribute differently from DPs
- CP complements are either required (or strongly prefer) to move rightward

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4 The predicate hypothesis

A growing body of literature has explored the hypothesis that CP arguments are not truly arguments that saturate the predicate, but rather predicates themselves, which semantically and syntactically hook up with the verb differently than 'normal arguments'.

- Moltmann 2003, 2013, 2020; Kratzer 2006; Arsenijevic 2009; Moulton 2009, 2015, 2017; Elliott 2017; Bochnak and Hanink 2022; Bondarenko 2022

The idea has many different implementations but the general idea is that unlike DPs, CPs do not reduced the arity of a predicate, which is to say they do not saturate an argument slot.

- Rather, it has been argued that CPs are predicates which modify or restrict but do not saturate an argument slot.

4.1 Evidence for non-argument/non-saturating status

Much of the evidence for the predicate analysis of CPs comes from CPs that appear to complement Ns, e.g. in complex NP constructions (*the claim that they stole money*).

I will review three such arguments.

Argument from *of*-complements in NP (Moulton 2017)

CP complements to N cannot be arguments—these Ns don't take proposition-denoting arguments at all:

(32) a. He claimed that./*his claim of that
b. I believe the story./*the belief of the story (Zucchi 1989, 14 (28c))
cf. lexical P *belief in the story*
The belief that he left / the claim that he left

- If these nouns don't take arguments (even with case-rescuing *of*) then the CP 'complement' (which *is* possible) cannot be an argument.
- This is not the strongest argument, as pointed out by K. Djärv and Srinivas and Legendre (2022).

Argument from *of*-complements in NP

CP 'complements' of nouns behave like adjuncts in obviating condition C violations, unlike arguments (Lasnik 1998; Moulton 2013 *contra* Freidin 1986 and Lebeaux 1988):

(33) a. *Which depiction [of John's$_1$ face] does he$_1$ hate most? *argument*
b. Which book [from John's$_1$ library] did he$_1$ read? *modifier*
c. Which book [that John$_1$ hated most] did he$_1$ read? *modifier*

(34) a. The fact that [John$_1$ has been arrested] he$_1$ generally fails to mention.
b. Whose allegation [that Lee$_1$ was less than truthful] did he$_1$ refute vehemently? (Kuno 2004: 335(72))

- Adjuncts are not elements that saturate a predicate (they typically modify or restrict it).
- This points to the view that CPs do not saturate (nominal) predicates like normal saturating arguments.

Argument for non-argument status from nominalizations (Moulton 2014, 2015)

Grimshaw (1990): A nominalization can describe the eventuality that its counterpart verb does, in which case it can and must appear with at least its internal (object) argument.

- These are *Argument Structure Nominals* (ASNs).

(35) a. They quickly destroyed the evidence
b. their quick **destruction** of the evidence (ASN)

Another kind of nominalization creates *Non-Argument Structure Nominals* (NASNs), which describe a variety of things related to the verb, sometimes the underlying internal argument or a result.

(36) *Non-Argument Structure Nominals*
a. the **assignment** was sitting on the table (=the thing assigned)
b. his **claim** was false (=the thing he claimed)
c. the **destruction** was widespread (=the result of a destroying)

One of Grimshaw's discovery was that ASNs have more verbal characteristics than NASNs, such as the ability to take **aktionsart modifiers**.

- Nominalizations can exhibit the same aktionsart distinctions as their associated verb phrases (Vendler 1967, Dowty 1979).
- Like *destroy*, *destruction* with a definite object is telic; *observe/observation* is only atelic.
- Crucially, as (39) shows, the aktionsart modifier requires the internal argument.

(37) a. The Romans destroyed the city in three hours/*for three hours.
b. The doctor observed the patient for three hours/*in three hours.

(38) a. The total destruction of the city in two days/*for days appalled everyone.
b. Only observation of the patient for several weeks/*in several weeks can determine the most likely course of action. (Grimshaw 1990:58(28b/29b))

(39) a. *The total destruction in two days was widespread.
b. *Only observation for weeks can determine the best course of action.

According to this diagnostic, CP-taking predicates cannot form ASNs—even in the presence of a CP complement. Grimshaw's minimal pair with DP- vs. CP-taking *observe/ation* illustrates the contrast.

(40) a. We observed the butler for several weeks.
b. Observation of the butler for several weeks is needed.

(41) a. They observed that the butler was likely the killer for several weeks.
b. *Their observation that the butler was likely the killer for several weeks was not supported by evidence.

The use of *observe* that takes a clause forms only an NASN. This is an entirely systematic property of CP-taking predicates when nominalized (42)–(49).

(42) a. I decided that he was a fraud *in 5 minutes*.
b. *my decision that he was a fraud *in 5 minutes*
c. *my decision *in 5 minutes* that he was a fraud

(43) a. John proved that he was competent *in only a few minutes*.
b. *John's proof that he was competent *in only a few minutes*
c. *John's proof *in only a few minutes* that he was competent

(44) a. I explained *in under an hour* that I was innocent.
b. *my explanation that I was innocent *in under an hour*
c. *my explanation *in under an hour* that I was innocent

(45) a. John claimed *for years* that the earth was flat.
b. *John's claim *for years* that the earth was flat

(46) a. John demonstrated that he was a skilled pianist *in just a few short minutes*.
b. *John's demonstration *in just a few minutes* that he was a skilled pianist

According to aktionsart diagnostics, then, clause-taking nouns do not form ASNs.

This isn't just a property of these particular predicates not an incompatibility between the meanings of these predicates and event nominalization.

- Some DP and CP-taking verbs (not all, of course, but some) can form event nominalizations with their DP objects (expressed in *of*-PPs)—even those DP arguments that bear the same relation to the verb that the CP appears to. But no CP is allowed.

(47) a. Lisa explained the problem in two minutes flat.
b. Lisa's explanation of the problem in two minutes flat (impressed me).
c. *Lisa's explanation in two minutes flat that there was problem (impressed me).

(48) a. John suggested that possibility for so many years.
b. John's suggestion of that possibility for so many years (got tiresome)
c. *John's suggestion that he father a child for so many years (got tiresome).

(49) a. John demonstrated that he was a skilled pianist *in just a few short minutes*.
b. *John's demonstration *in just a few short minutes* that he was a skilled pianist.
c. cf. John's demonstration of his skills in just a few short minutes.

According to the aktionsart diagnostics, clause-taking nouns just don't form ASNs.

Intermin summary

- Various diagnostics show that the CP that 'complements' nouns do not behave like canonical, saturating arguments.[1]
- There is some evidence that they behave more like modifiers (e.g. relatives).
- Some very recent work that pushes this agenda forward a lot is Bondarenko (2022).
- In what follows I will present an implementation in which CP complements to N — and to V — are predicative and therefore non–saturating.

4.2 Details about the predicate hypothesis

(50) **The CP Predicate Hypothesis**
Complementizers turn closed sentences into predicates of various semantic types

(51) *Relative clauses:* predicates of individuals (derived by movement)
The story [that John told] $\rightsquigarrow$ { x: John told x }

- Semantics is intersective:

(52) the x: x is a story and John told x

(53) *Complement clauses:* predicates of individuals with propositional content

(no movement)

The story [that John is a liar] $\rightsquigarrow$ { x: **the content of x** is that John is a liar }

Also an intersective semantics:

(54) the x: x is a story and the content of x is that John is a liar

[1] But see critical re-evaluation in Hankamer and Mikkelsen (2021), and Srinivas and Legendre (2022) for a counter-reply.

In lambda-terms the CP is a function from an argument *x* that has content (e.g. like an abstract claim) to a truth value (given world) if the proposition expressed in the TP is the content of that individual x. (I am ignoring the intensional arguments here — but they're crucial):[2]

(55) λx. the content of x = that John is a liar

This composition with the head noun is intersective, e.g. predicate modification (Heim and Kratzer 1998)

(56) *story that John is a liar* $\rightsquigarrow$
λx. x is a story and the content of x = that John is a liar

Extension of the predicate hypothesis to the VP domain

- Various authors (including me) extend the predicate hypothesis to CP 'complements' of VERBs.
- Three relevant approaches (there are others):

Light verb analysis

Verbs are underlyingly complex NPs with light verbs Arsenijevic (2009); Moltmann (2003, 2013, 2020)

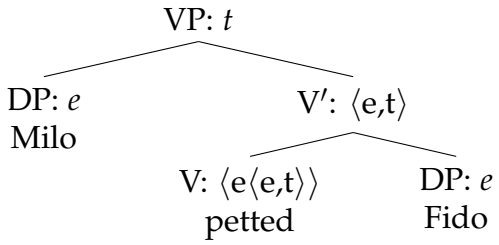
(57) a. Sam claimed that they won
Sam [MADE [claim [that they won]]]
b. Sam believed that they won
Sam [HELD [belief [that they won]]]
etc.

Low Restrict Analysis

This is the implementation of the Predicate Hypothesis originally in Kratzer (2006).

- Typically, when a verb that selects and internal argument, the internal argument composes via function application and reduces the arity of the predicate.
- Semantic types help: *e* is the type of individual, and $\langle e,t \rangle$ is a function from individuals to truth values (a one-place predicate) and $\langle$e,$\langle e,t \rangle\rangle$ is a function from individuals to a function from individuals to truth values (a two-place predicate).

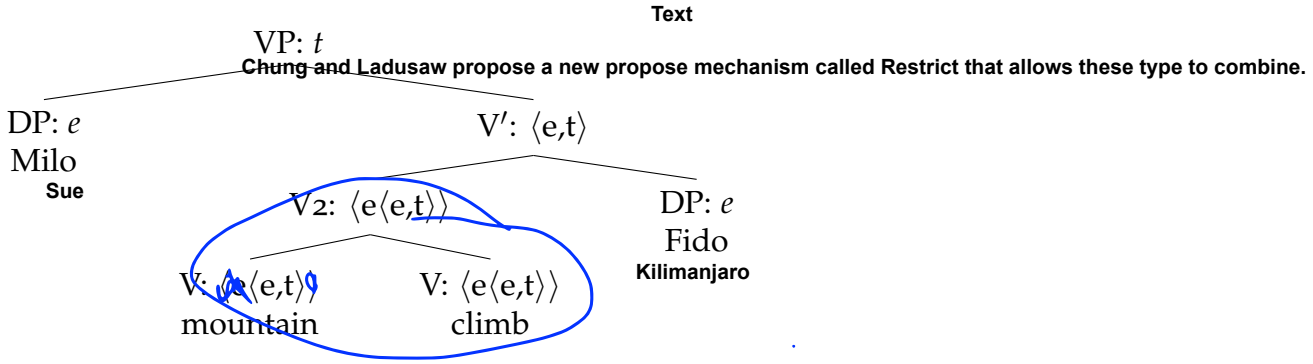
[2]For the semantics of such content individuals and this equality semantics see Moulton (2009, 2015); Moltmann (2013, 2020); Elliott (2017); Bondarenko (2022)



Chung and Ladusaw (2004) propose a compositional mechanism called *Restrict*, which allows an argument to merely be restricted by a predicate of type ⟨e,t⟩ rather than saturated.

They looked at Chamorro constructions, but English incorporation as in (58) helps illustrate: the N *mountain* restricts *climb*, which is then saturated by *Kilimanjaro*:

(58) Sue mountain-climbed Kilimanjaro.



Adding events in the translation we can interpret the verbal compound as a function something like (59), where *e* here stands for event (not individual).

- the predicate mountain *restricts* the meaning of the internal patient argument, but doesn't reduct the arity of the verb

(59) V2 ⇝ $\lambda x \lambda y \lambda e$[climb(e) & *patient*(x)(e) & mountain(x) & *agent*(e)(y)]

When the object comes in it saturates the internal argument slot, and then is indirectly predicated of *mountain*:

(60) V′ ⇝ $\lambda y \lambda e$[climb(e) & *patient*(Kilimanjaro)(e) & mountain(Kilimanjaro) & *agent*(e)(y)]

Then the subject comes in and we existentially close the event argument:

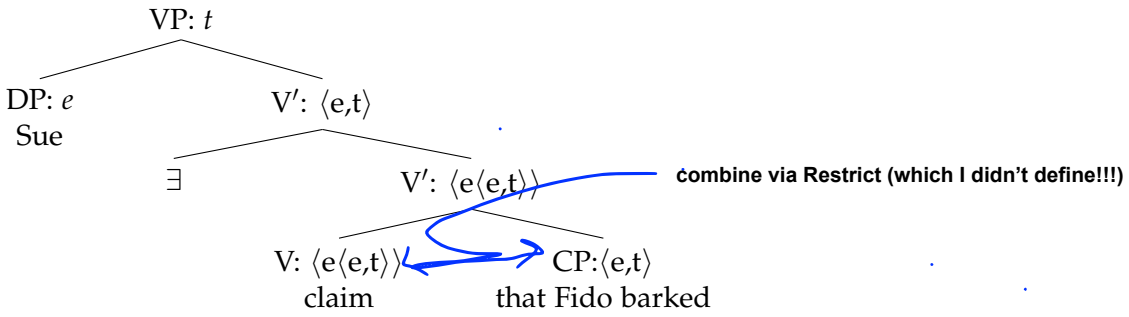
(61) VP ⇝ $\exists e$[climb(e) & *patient*(Kilimanjaro)(e) & mountain(Kilimanjaro) & *agent*(e)(Sue)]

The internal argument could also simply be existentially closed too:

(62) a. Sue mountain-climbed.
b. VP ⇝ $\exists e,x$[climb(e) & *patient*(x)(e) & mountain(x) & *agent*(e)(Sue)]

Kratzer (2006) suggests that CP complements are predicates and simply **restrict** the internal argument rather than saturate it.

(63) Sue claimed that Fido barked.

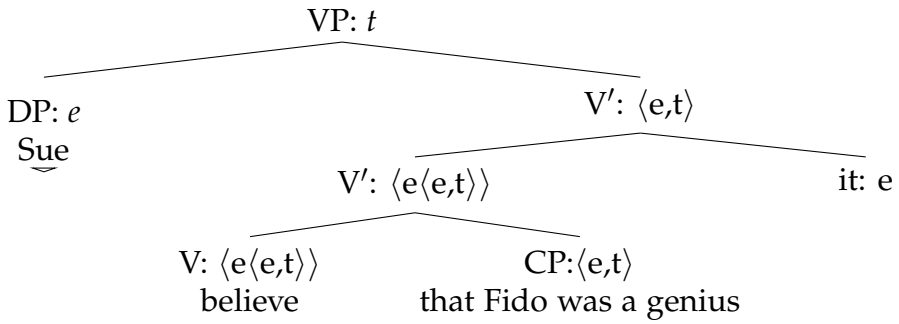


VP $\rightsquigarrow$ $\exists$e[*agent*(e)(Sue) & $\exists$x[claim(e) & *theme*(x)(e) & *content*(x) = that Fido barked]]

Preview of prolepsis topic

We will return to this analysis when we discuss Longenbaugh (2019)'s analysis of expletives prolepsis. He argues that on sentence like (64), the CP restricts but instead of existentially closing the argument as above, the pronoun **it** saturates the argument:

(64) Sue believed it that Fido was a genius.

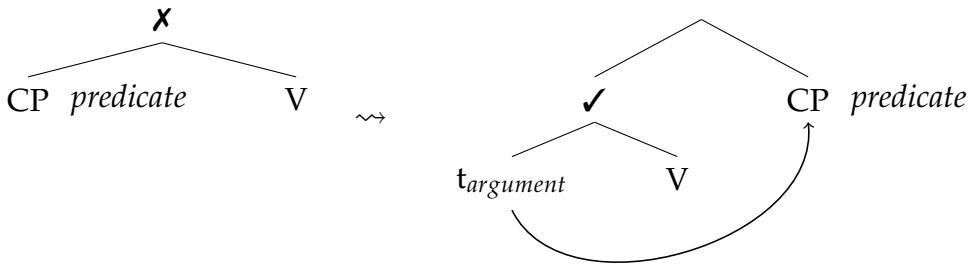


- Rightward extraposition of the CP derives the word order.
- We will return to this construction and its analyses later in the week.

Movement analysis

In Moulton (2015) I proposed that the CP does not compose with the verb via restrict, but instead undergoes movement and leaves a trace (copy) of a type that can saturate the verb (compare to Quantifier raising).

(65) Movement of the CP resolve the composition problem (compare to Quantifier Raising)



- I actually argue that extraposition is leftward movement followed by remnant VP movement (following Kayne 1993, den Dikken 1994, Hinterholzl 1999)
- The goal of that analysis is to connect the right-peripheral position of CPs (see above cross-linguistic data) to this type-driven movement.

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