

CPs and their associates

Day 2–3

Sentential subjects

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Sentential subjects (1) are important because they implicate basic notions like category and subject-hood. (What grammatical categories can be subjects? What is the grammatical status of embedded clauses?)

- (1) That socca would be so tasty surprised me.

At least for English, the correct treatment of sentential subjects has been debated. The debate surrounds at least three choice points in the analysis of sentential subjects, which form the three sections of this handout:

§1 **Category:** are sentential subjects DPs or CPs?

§2 **Movement:** do sentential subjects (and topics) move to their surface location or are they base-generated there?

§3 **Position:** are sentential subjects truly in the subject position or some type of satellite position?

The main contenders

Satellite analysis Sentential subjects are satellites, linked to the subject position via a null operator (Koster 1978, Alrenga 2005) or some sort of **clausal associate pronoun**.

- (2) [_{CP} [_{CP} That socca would be so tasty] OP_i [_{TP} t_i surprised me]]

DP shell analysis Sentential subjects involve a silent DP shell (Rosenbaum 1967, Davies and Dubinsky 1998, Han 2005, Davies and Dubinsky 2010, Takahashi 2010, Hartman 2012).

- (3) [_{DP} D [_{CP} that socca would be so tasty]] surprised me

1 Category: CP or DP

Lots of languages require sentential subjects to be DP'd (often by a demonstrative) if in subject position; D is possible, but not required, in object position but subject to variability.

- (4) Persian
- a. *(In) ke Maryam raft ma'alum-e
this that Maryam left.3SG clear-is
'That Maryam left is clear.'
- b. Ma'alum-e (*in) ke Maryam raft.
clear-is this that Maryam left.3SG
'It is clear that Maryam left.' (Hartman 2012, (57–58))
- (5) Russian
- a. *(To) čto Daša ušla izvestno vsem
that.N.SG COMP Dasha left.F.3SG known.N everyone.DAT
'That Dasha left is known to everyone.'
- b. Vsem izvestno (??to) čto Daša ušla
Everyone know.sc 3pl COMP that Dasha left.F.3SG
'Everyone knows that Dasha left.'
(Hartman 2012, (60)–(61))

In English, D is null (Davies and Dubinsky 1998, Han 2005, Davies and Dubinsky 2010, Takahashi 2010, Hartman 2012).¹

- (6) [_{DP} D [_{CP} that socca tastes so good]] surprised me

Argument for DP from emphatic reflexives Davies and Dubinsky (1998)

Subject clauses license emphatic reflexives but object clauses do not:

- (7) a. That Leslie arrived late itself put Kelly in a foul mood.
b. Kelly was angry that Leslie arrived late (*itself).

But bona fide DPs license emphatic reflexives in both subject and object position:

- (8) a. John himself bought the original manuscript.
b. John bought the original manuscript itself.

But I think this is also compatible with the satellite analysis, in which there is the trace of DP operator in subject position

- (9) [_{CP} [_{CP} That Leslie arrived drunk] OP_i [_{TP} t_i itself put Kelly in a foul mood]]

¹I set aside the question of whether there is a null N, see Picallo (2002), Moulton (2020), Hartman (2012).

Argument from Case (Hartman 2012)

CPs in complement position do not need case: unlike DPs they can complement nouns and passivized verbs.

- (10) a. It was once believed [_{CP} that the world was flat].
b. *It was once believed [_{DP} this falsehood].

But CPs, like DPs, cannot appear as subjects of non-finite clauses suggesting they need Case licensing:

- (11) a. *It appears [[that Mary is sick] to be the best explanation]
b. *It appears [[Mary's sickness] to be the best explanation]
- (12) a. [That Mary is sick] is the best explanation.
b. [Mary's sickness] is the best explanation.

Alrenga's **Satellite analysis** though still involves a DP (null operator) argument that would presumably need Case.

It could also be that these embedded clauses simply do not have the structural room at the left-periphery to house CP satellites (See §3).

Hartman's other arguments for DP status:

- Like DPs, CP subjects (but not CP objects) license *pro* → **but that could be via null DP associate**
- Like DPs, CPs subject subject control agreement → **but that could be via null DP associate**

1.1 The DP gap requirement

Famously, moved clauses must associate with DP-category gaps (Webelhuth 1992).

- Only predicates that also license DP arguments (e.g. *sucks* but not *seems*) allow sentential subjects:

- (13) a. *{This/the Giant's loss} really **seems**.
b. {This/the Giant's loss} really **sucks**.
- (14) a. It really **sucks** that the Giants lost the World Series.
b. That the Giants lost the World Series really **sucks**
(Alrenga 2005, p.175, (1/2))
- (15) a. It **seems** that the Giants lost the World Series.
b. *That the Giants lost the World Series **seems**.
(Alrenga 2005, p.176, (1/2))

A similar pattern occurs with passivized verbs (Williams 1981, Grimshaw 1982, Postal 1986).

- (16) a. Most baseball fans {hoped/felt/wished/insisted/reasoned} that the Giants would win the World Series.
b. *That the Giants would win the World Series was hoped/felt/wished/insisted/reasoned (by most baseball fans).
c. *Most baseball fans hoped/felt/wished/insisted/reasoned that.
d. It was hoped/felt/wished/insisted/reasoned (by most baseball fans) that the Giants would win the World Series
(Alrenga 2005, p. 183, 26–27)

- The DP Shell analysis straightforwardly predicts the DP gap requirement.
- The Sattelite anlysis also does, on the assumption that the null operator *must* be a DP.
 - But is this assumption valid? There are potential cases of CP null operators.
 - *As*-parentheticals have been argued to involve a null CP operator (Stowell 1987, Potts 2002).

(17) The results were fantastic, as Albert {boasted/commented/complained}

- Verbs like *boast/complain/comment* cannot take DPs (**We boasted something*) only CPs, so the natural conclusion is that the gap is a CP.
- LaCara (2016) argues that *as*-parenthetical involve ellipsis, so perhaps it can be maintained that there is no such thing as a CP null operator.

1.2 When can CPs take a DP shell?

Hartman's answer

The DP shell is a **last resort** strategy, that kicks in because subjects need to be DPs.

- Blocked for object (and object of P) CPs.

Potential wrinkle: One would hope Hartman's DP shell would explain the DP gap requirement,² but the last resort strategy cannot fully capture the DP gap requirement.

- In addition to sentential subjects, topicalized CPs in English (and I believe German, Webelhuth (1992)) obey the DP gap requirement:

- (18) a. Most baseball fans believed/knew/expected that the Giants would win.
b. Most baseball fans believe/knew/expected that/it.
c. That the Giants would win, most baseball fans believed/knew/expected.
- (19) a. Albert {boasted/commented/complained} that the results were fantastic.
b. *Albert {boasted/commented/complained} that/it/something, namely that the results were fantastic.
c. *That the result were fantastic, Albert boasted/commented/complained.
- I do not know of any evidence that topicalized phrases apart from CPs need to be DPs; or that topicalized phrases in general need to leave DP gaps.
 - So Hartman would need a separate account of the DP gap generalization, but that would be undesirable.

Takahashi's answer

The null D is purely a reflex of movement.³

- Takahashi uses Fox (2002)'s implementation of the Copy Theory of movement, which involves lower copies crucially headed by a determiner.
- Takahashi focuses on reconstruction data, which I turn to next.

²Hartman actually never mentions the DP Gap requirement at all as far as I can tell.

³This is actually not quite true: Takahashi is forced to say that the null D has a feature that can only be checked by Topic.

2 Movement, or Base-generation?

The Satellite analysis suggests that there is no direct movement dependency between the the CP and the gap. We therefore may not expect reconstruction effects.

- Takahashi (2010) argues that there is syntactic reconstruction and therefore argues against the satellite analysis.
- Moulton (2013) argues that the reconstruction effects are only apparent, and that the CP is base-generated high.

2.1 Moulton (2013)

Bound variable ‘reconstruction’: 3rd person pronouns in left-dislocated CPs can co-vary as a function of quantifiers that c-command the gap position.⁴

- (20) a. That he₁’ll end up looking like his father doesn’t seem to any young man₁ to be very likely.
 b. That he₁’ll end up looking like his father, every young man₁ expects.

↔ Usual conclusion: binding implies C-command, therefore the CP has moved from a position below the quantifier (Takahashi 2010).

Anti-Reconstruction At the same time, left-dislocated CPs can bleed condition C:⁵

- (21) That Texas would be a surprise was always possible, but . . .
 a. That Ms. Brown₁ would lose Ohio, she₁ never expected.
 b. That she₁ would lose Ohio, Ms. Brown₁ never expected.
 c. *She₁ never expected that Ms. Brown₁ would lose Ohio.

⁴In these and the examples that follow, the quantificational binder is an NPI, which serves to rule out the possibility that quantifier itself QRs to bind the pronoun. Of course, if the quantifier did QR to bind the pronoun, this would create a (very) weak crossover violation.

⁵We expect sentential subjects to bleed Condition C since A-movement in general can. Throughout the discussions that follow, we focus on A-bar movement of clauses (topicalization) as the representative case. The topicalization that seems most natural is often contrastive in some way and an antecedent sentence is given to support this information structure.

Key test cases: creating a reconstruction conflict: Syntactic reconstruction is diagnosed by the following design which creates a binding theory conflict (Lebeaux 1990, Romero 1998 and Fox 1999).

- (22) a. $[_{XP} \dots \text{pronoun}_1 \dots \text{r-expression}_2 \dots] \dots \text{pronoun}_2 \dots *t_{XP} \dots \text{QP}_1 \dots *t_{XP} \dots$
 b. $[_{XP} \dots \text{pronoun}_1 \dots \text{r-expression}_2 \dots] \dots \text{QP}_1 \dots {}^{ok}t_{XP} \dots \text{pronoun}_2 \dots *t_{XP} \dots$
 (Fox 2000: 149(9))

Moved material gives rise to reconstruction conflicts as the sentences based on the design in (22) shown below (Lebeaux 1990, Fox 1999):⁶

- (23) a. *Which part that he₁ played with Madonna₂ did she₂ think that every aspiring actor₁ had failed at?
 b. Which part that he₁ played with Madonna₂ did every aspiring actor₁ wish that she₂ would support? (Lebeaux 1991: 223(43))
- (24) a. *But the paper that he₁ gave to Mrs. Brown₂, I don't think she₂ would want any man₁ to read.
 b. But the paper that he₁ gave to Mrs. Brown₂, I don't think any man₁ would want her₁ to read.

⁶Sidenote: Late-merger needed to account for (23b)/(24b) (Lebeaux 1988, Chomsky 1995, Fox 2002); the relative can be late-merged to the intermediate copy, allowing for variable binding but bleeding condition C:

(i) ⟨Which part⟩ did every aspiring actor₁ ⟨which part that he₁ played with Madonna₂⟩ wish that she₂ would support ⟨which part⟩?

Fronted CPs don't exhibit reconstruction conflicts

(In (26) Bound *they* is truly singular (*smartest*, see Rullmann 2003).

- (25) a. ... But that he₁ might be too old for Mrs. Brown₂, I don't think she₂ would want any man₁ to believe.
b. ... But that he₁ might be too old for Mrs. Brown₂, I don't think any man₁ would want her₂ to believe.
- (26) a. ... But that they₁ might be the smartest in Mrs. Brown₂'s class, I don't think she₂ would want any student₁ to believe.
b. ... But that they₁ might be the smartest in Mrs. Brown₂'s class, I don't think any student₁ would want her₂ to believe.

Controls:

- (27) a. *Copy location satisfying variable binding and Cond C*
... But that he₁ might be too old for Mrs. Brown₂, I don't think any man₁ would want her₂ to believe.
b. *No variable binding needed*
... But that John₁ might be too old for Mrs. Brown₂, I don't think he₁ would want her₁ to believe.
c. *No possible Condition C violation*
... But that he₁ might be too old for her₂, I don't think any man₁ would want Mrs. Brown₁ to believe.
d. *Condition C violation in situ*
*?I don't think she₂ would want any man₁ to believe that he₁ might be too old for Mrs. Brown₂

Sentential subjects also fail to show reconstruction conflicts

- (28) That they₁ might be the smartest in Mrs. Brown₂'s classes didn't appear to her₂ to enter any student₁'s mind.

Another argument from null complement anaphora

Co-varying interpretations for pronouns are available in (29).

- (29) a. That he_1 was in danger, no boy_1 had any clue.
b. That he_1 was putting the entire economy at risk, I don't think any stock broker₁ was aware.
c. That she_1 was being intimidated, I don't think any doctor₁ had any suspicion.
d. That $they_1$ might be the smartest kind in the class, every student₁ had some idea.

But these left-dislocated CPs haven't moved, because ...

- they don't show **island** effects
- their gaps have the distribution of **Null Complement Anaphors**

Sentential topics related to DP gaps *do* show island effects:

- (30) a. That John left, (that) I think that Mary is not happy about.
b. *That John left, (that) I wondered whether Mary is happy about.
c. *That John left, I made the claim that Mary is happy about.

In contrast, the left-dislocated CPs exhibited in (29) can be related to their gaps across islands:

- (31) ...But that he_1 was actually in danger...
a. I think that Mary said that no boy_1 had any clue.
b. I wondered whether any boy_1 had any clue at all.
c. I made the claim that no boy_1 had any clue.

Diagnosis: It's Null complement anaphora (NCA)

The constructions in (29) involve a base-generated CP in the left-periphery with a null complement anaphor in the gap position—no movement dependency.

- NCA is a null pro-form anaphor (Hankamer and Sag 1976, Grimshaw 1979, Depiante 2001)
- NCAs can be CPs (32); this explains the obviation of the DP Gap Requirement.

- (32) Fred moved to Paris but Mary didn't know/was not aware/had no idea.

There are no island constraints regulating the relation between NCA and its antecedent (because it's not movement):

- (33) a. When Jack asked Hector to drive, I wondered whether he refused e_{NCA} .
b. Anna did the dishes. The fact that no one else volunteered e_{NCA} , made her upset.

Correlation: Just those Ns and As that allow NCA also allow left-dislocated CPs (topicalized CP antecedents given in the (a) examples and the general availability of NCA shown in the (b) examples).

- (34) a. ...But that John was in danger, I had no clue.
b. John was in danger, but I had no clue.
- (35) a. ... But that John was in danger, I was unaware.
b. John was in danger and we were completely unaware.
- (36) a. ...But that John was in trouble, I had a suspicion.
b. John didn't tell me he was in trouble, but I had a suspicion.

Where NCA is independently not allowed, neither are fronted CPs:

- (37) a. *...That John was in danger, I had a belief.
b. *John was not actually in danger, but we had a belief.
- (38) a. *...That John was in danger, I didn't hear any report.
b. *John was in danger but I didn't hear any report.
- (39) a. *...That Rita was stealing, I overheard a rumor.
b. *They didn't know Rita was stealing, but I overheard a rumor.

Summary:

- Two arguments that bound variable interpretations in fronted CPs do not arise through syntactic reconstruction:
 - while movement of DPs gives rise to “reconstruction conflicts”; sentential subjects and topics don't exhibit such conflicts.
 - Bound variable interpretations are possible even if there is no movement dependency (the null complement anaphora cases)
- In my 2013 paper I argue that semantic reconstruction (via a null operator) gives rise to variable binding without syntactic reconstruction; the sentential subject/topic is base-generated high
- I remain agnostic about whether sentential subjects are topicalized or not, but if a true subject they must be base-generated as such (precedent: I-level subjects in Diesing 1990).

My point:

- At least some sentential subjects and topics do not move to their surface position (in the paper I say that this is the case for all)
- The issue of movement can be separated from the issue of position (and category).

3 Position: Subject or topicalized/satellite element?

Here are some of the diagnostics (I am omitting complex ones involving extraction and co-occurrence with other left-field material.)

3.1 Subject-aux inversion

Koster claimed that subject aux inversion is not possible for sentential subjects, which follows if CPs are not in subject position (e.g. Spec,TP):

- (40) a. *Did [that John showed up] please you?
b. *What does [that he will come] prove? (Koster 1978, 53)

But it has been argued that extra-grammatical considerations of prosody and processing complexity render these unacceptable and that acceptable examples exist (Delahunty 1983, Davies and Dubinsky 2010, Hartman 2012):

- (41) *Delahunty's examples*
a. Does [that Fred lied to them] bother all of the people who bought stock in his company?
b. Does [that the world is round] bother as many people now as it did 500 years ago?
c. Does [that quarks have wings] explain their odd behaviour?
d. Does [that quarks have wings] explain anything at all?
e. To what extent did [that Fred failed to show up] anger those of his devoted fans who had waited by the stage door since dawn of the previous day?
f. Who does [that Fred left early] bother so greatly that he refuses to visit us any more?
- (42) *Hartman's examples*
a. ?Does [that your brother earns more than you] bother you?
b. ?Is [that I like you] so obvious?
c. ?When did [that I earn more than you] become an issue?
- (43) *Davies and Dubinsky examples*
a. To whom is [that pigs can fly] most surprising?
b. Is [that I am done with this homework] really amazing?

Lohndal (2013) suggests that there is inter-speaker variation: some speakers allow true sentential subjects others do not (could mean some speakers have null D shell while others do not).

3.2 Embeddability

In non-finite clauses, Koster/Alregna predict topics are unavailable (but not in bridge contexts, where sentential subjects are good—not shown).

- (44) a. *John believes [[that Bill is sick] to be obvious].
b. [That Bill is sick] John believes [to be obvious]. (Alrenga 2005)

But there are some quite acceptable examples in the literature:

- (45) a. I found [that no one left such a boring party early] remarkable.
b. I thought [that no one would leave such a boring party early] unlikely
(attributed to Haegeman 2010 in Lohndal)

Sometimes I feel a contrast depending on the embedded predicate (judgments mine):

- (46) *Falsity predicate (CP as truth-bearer)*
a. *Control:*
You can consider it false that “he or she” is gender-neutral language, but reliable sources disagree.⁷
b. *Non-extraposed/subject CP*
???I consider [that “he or she” is gender-neutral language] (completely) false.
- (47) *Fact/possibility predicate (CP as a state of affairs or fact)*
a. *Control:*
I consider it a possibility/very odd that he would do such a thing.
b. *Non-extraposed/subject CP*
?I consider that he would do such a thing a possibility/very odd.

Easier to “accommodate” a null FACT or SITUATION denoting CP (as in Moltmann, forthcoming)?

⁷https://en.wikipedia.org/wiki/Wikipedia_talk:Gender-neutral_language

3.3 Information structure

Hartman also argues that sentential subjects show no evidence of the information structural properties associated with topicalized phrases (all examples from Hartman 2012, pp.73–74)

- (48) A: Have you ever been to Paris?
B: Paris, I visited last year.
- (49) A: What did you do last year?
B: #Paris, I visited last year.
- (50) A: What's bothering you?
B: That John's not here is bothering me!
- (51) A: What happened? (Why are you here?)
A: That Mary left convinced me to stay.

But see Miller (2001) for a lot more nuance and corpus data.

3.4 Maybe null D is available for some speakers?

Davies and Dubinsky (2010):

- (52) a. ...Their importance lies in that they took place at all (The Guardian 2003)
b. We're getting close, but all indications point to that discodermolide might be the next drug of choice... (CNN Science & Technology Jun 19947 (Granath and Wherrity 2005 (11))
- (53) *South East US English*
a. They never came to church without that they brought their Bibles.
b. Gene left despite that John said he wouldn't. (Dubinsky and Williams 1995: 126)

Grimshaw's (1982) *capture*-class verbs: those that (for her) only accept DP not CP (*express*, *reflect*, *capture*, *bring out*, *contemplate*, *attribute*, and *give*. There is variation here, however.

- (54) a. The model doesn't capture that we can switch crops easily (COCA, Cash, David W. 2003. Innovative Natural Resource Management. Vol. 45 Issue 10, p8-20.)
b. I think it nicely captures that there's a lot left to find! (Adam Auton on Twitter <https://twitter.com/adamauton/status/649618071817072640>)

One possibility: we could see if there is **any correlation** between whether people accept these cases that require a null D and if they are more liberal in accepting S/Aux-inversion of sentential subjects and (certain) embedded sentential subjects.

FWIW, I am not optimistic about that. For one, sentential subjects in English belong to a particular register, and it's not clear that it would be the same register that tolerates the cases above.

4 Conclusion

Category

- If sentential subjects are covertly DPs in English, then you need to control the distribution of null D more generally.
 - This is not trivial, but maybe it's mostly an English problem (so let's move on!).
- If sentential subjects are CPs, you need to posit some null DP associate to capture the DP-effects
 - this might have to require a satellite position analysis (but depending on your theory of subjects, maybe it doesn't have to)

Movement

- Moulton (2013) contends that there are clear cases of non-movement; this is compatible with satellite accounts and (potentially) subject accounts (if subject can be base-generated at least sometimes)

Position

- The jury is out.
 - The grammar of sentential subjects may simply be under-determined in English, so learners guess or select one type of grammar at random (see Han, Musolino, and Lidz (2016) for such cases), hence Lohndal's assessment that there is inter-speaker variation.

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