

# Syntactic Theory 2

## Week 9: Hornstein (1999) on Control

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March 14, 2017

- Last time, we saw that we could dispense with theta roles as a syntactic formative, because semantic thematic roles could be assigned in configuration with functional heads that function as predicates, i.e.,  $v$  is a predicate that introduces causative semantics
- We also observed that theta roles were (almost) entirely redundant, because much of the information that theta roles encoded were also encoded in the semantic representation.
- However, one function of D-structure + Theta Theory that was not motivated by the semantics, but entirely by the syntactic reification of theta roles, was the inability to move into a theta position:

- (1) a.  $*[_{TP} \text{John}_i [_{VP} t'_i [_{V'} \text{hug } t_i]]]$   
b.  $\lambda e.\text{hug}(e) \wedge \text{Agent}(e,\text{john}) \wedge \text{Patient}(e,\text{john})$

- **Theta Criterion:** Each theta role must be assigned to one DP, and each DP must be assigned one theta role
- Hornstein (1999) will tell us that in abandoning D-Structure in Minimalism, there's nothing in principle that bans A-movement into a theta position. Instead, this may be the best way to analyze control in Minimalism

- (2) a.  $\text{John} [_{VP} \text{seemed} [_{TP} t_i \text{ to be napping}]]$   
b.  $\text{John} [_{VP} \text{wanted} [_{TP} t_i \text{ to be napping}]]$

- On this analysis, the only distinction between control and raising is that the same DP receives two theta roles in control configurations, but only one in raising. Thus, we don't need PRO.

### 1 Reminder: Control in GB

- D-structure forces us to posit that in control configurations, there is a silent pronominal that is obligatorily bound by an argument in the higher clause, because we see that a DP is interpreted with thematic roles assigned from two distinct verbs:

- (3) a. John<sub>i</sub> wants [TP PRO<sub>i</sub> to win]  
       John wants λ*w*. John to win in *w*
- PRO necessarily is a distinct element from *t*. Descriptively, *t* must obey the ECP, whereas PRO must not be governed:
- (4) \*John<sub>i</sub> is illegal [CP [TP *t*<sub>i</sub> to park here]]
- (5) \*I<sub>i</sub> believed [TP PRO<sub>i</sub> to win]
- (6) a. John<sub>i</sub> was seen *t*<sub>i</sub>  
       b. \*John<sub>i</sub> was seen PRO<sub>i</sub>
- The PRO theorem (PRO must not be governed) relies on government, which is against Minimalist desiderata (Chomsky 1995)
  - Chomsky (1981) suggested that the PRO theorem might obtain because PRO is both an anaphor (must be bound in its governing category; Principle A) and a pronoun (must be free in its governing category; Principle B), and thus could only surface if it lacked a governing category
  - Furthermore, postulating PRO requires enriching the set of silent elements that are (putatively) part of UG – i.e., there are no (few?) cases of “overt PRO”.

## 2 The Issues

- Williams (1980): There are two types of control – obligatory control (OC) and non-obligatory control (NOC).
  - OC must have an antecedent that is local and that c-commands it:
- (7) a. \*It was expected PRO to shave himself  
       b. \*John thinks that it was expected PRO to shave himself  
       c. \*John’s campaign expected PRO to shave himself
- Furthermore, PRO must have a sloppy interpretation under ellipsis:
- (8) John expects PRO to win and Bill does ~~expects PRO to win too~~ (= Bill wins)
- PRO cannot have split antecedence:
- (9) \*John<sub>j</sub> told Mary<sub>m</sub> PRO<sub>j+m</sub> to wash themselves
- PRO must receive a *de se* interpretation:
- (10) The unfortunate expects PRO to get a medal
- And, PRO must be bound by the focus operator *only*:

- (11) Only Churchill remembers PRO giving the BST speech  
 = Only Churchill remembers himself giving the BST speech  
 ≠ Only Churchill remembers Churchill giving the BST speech

- However, NOC has none of these properties:

- (12) a. It was believed that PRO shaving was important  
 b. John<sub>i</sub> thinks that it is believed that PRO<sub>i</sub> shaving himself is important  
 c. Clinton's<sub>i</sub> campaign believes PRO<sub>i</sub> keeping his sex life under control is necessary for electoral success  
 d. John thinks that PRO getting his resume in order is crucial and Bill does ~~think that PRO getting his resume in order is crucial~~ too  
 e. John told Mary that PRO<sub>i</sub> + J washing each other would be fun  
 f. The unfortunate believes that PRO getting a medal would be boring.  
 g. Only Churchill remembers that PRO giving the BST speech was momentous

- Hornstein suggests that these differences parallel the difference between anaphors and pronouns:

- (13) a. \*John's campaign expects himself to shave himself  
 b. Clinton's<sub>i</sub> campaign believes that his<sub>i</sub> keeping his sex life under control is necessary for electoral success

- Instead of postulating that PRO is both a pronoun and anaphor, perhaps there is a PRO that is a pronoun and a PRO that is an anaphor – i.e., there are two PROs, OC PRO and NOC PRO

- If PRO must be ungoverned, then we predict that PRO raises to Spec,TP to avoid being governed (at S-Structure, presumably):

- (14) John expects [<sub>TP</sub> PRO<sub>i</sub> to be seen *t<sub>i</sub>* ]

- However, we should then predict that this derivation should be good, although it isn't:

- (15) \*John expects [<sub>TP</sub> PRO to appear to *t<sub>i</sub>* [<sub>CP</sub> that Sally left]]

- Chomsky & Lasnik (1993) propose that PRO actually raises for "Null Case" which can only be assigned by non-finite T<sup>0</sup>. The reason that (15) is bad is because it's movement out of a Case position, i.e., a freezing violation / unmotivated movement by Greed

- However, this essentially just stipulates the distribution of PRO. WHY does PRO need "Null Case", and why can only PRO receive it?

- Additionally, this does not entirely explain away the properties of PRO. There still needs to be some Control Theory to capture the interpretative component of (OC) PRO

- (16) a. John<sub>j</sub> hopes/expects/wants [<sub>TP</sub> PRO<sub>j/\*k</sub> to win]  
 b. John<sub>j</sub> persuaded Bill<sub>b</sub> [<sub>TP</sub> PRO<sub>\*j/b/\*k</sub> to win]

- There are only a few cases where PRO must be bound by a higher subject over another object –

(17) John<sub>j</sub> promised Bill<sub>b</sub> [<sub>TP</sub> PRO<sub>j/\*b/\*k</sub> to win]

- Hornstein says that this looks very similar to a Minimality violation:

(18) \*John<sub>j</sub> seems Bob said that [<sub>TP</sub> t<sub>j</sub> to win]

- Adjunct control never can take an object as an antecedent – i.e., object control only occurs with complement clauses:

(19) John<sub>j</sub> saw Mary<sub>m</sub> without PRO<sub>j/\*m</sub> without leaving the room

- Hornstein also suggests that perhaps we were wrong in our generalization – sentences like the following might involve PRO in a governed position:

(20) John<sub>i</sub> shaved/showered/washed himself/PRO<sub>i</sub><sup>1</sup>

### 3 The Movement Theory of Control

- Hornstein's proposal is that OC PRO is the same as *t* – namely, a lower copy
- Additionally, NOC is just *pro* – a silent version of a pronoun
- Some assumptions to get this to work:

(21) a. Theta roles are features of verbs  
 b. Movement is Enlightened Self-Interest  
 c. DPs check theta-roles of verbs that they merge with  
 d. A DP can check as many theta-roles as it needs to by ESI  
 e. Sideward movement is permitted

(22) a. John hopes to leave  
 b. John [<sub>vP</sub> John hopes [<sub>TP</sub> John to [<sub>vP</sub> John leave]]]

- John gets the leaver theta role in the lowest *vP*, then raises to Spec,TP to satisfy the EPP (due to Enlightened Self-Interest). It hasn't discharged its Case feature yet, so it needs to continue to raise. Then, it raises to the matrix Spec,*vP* to receive the hoper theta-role, also due to ESI. Finally, it raises to the matrix Spec,TP and checks its Nominative Case.
- Why must OC have an antecedent? Because you can't be a lower copy of nothing

(23) \*It was expected PRO to shave himself

<sup>1</sup>On that note, it's unclear how to articulate Binding Theory without government, since governing category crucially relies on this notion. Since anaphors and PRO have similar distributions and locality requirements, how might we capture these?

- Why must the controller c-command PRO? Because Merge must target the root given the Extension Condition, i.e., there's no way to move into a more embedded structure to derive a non-c-commanding antecedent

(24) \*John's campaign expected PRO to shave himself

- Why must PRO be local to its antecedent, i.e., why can't another DP in an A-position intervene? Because A-movement over an A-position is unacceptable (= Relativized Minimality)

(25) \*John thinks that it was expected PRO to shave himself

- Why no split antecedence with OC PRO? What would the lower copy be?

(26) \*John told Mary [<sub>TP</sub> ? to wash themselves]

- Why sloppy interpretation under ellipsis? First, note that raising predicates also require a sloppy interpretation:

(27) Mary seems to be happy and Sally does seem ~~*t* to be happy too~~ too → Sally seems to be happy too

- Whatever forces the ellipsis site to have a bound variable in raising predicates also forces it to have a bound variable in control predicates too – because in both structures there's a lower copy in the ellipsis site

- Why must OC PRO be *de se*?

(28) John  $\lambda x$  [ $x$  hopes  $x$  leave]

- Hornstein claims that this functionally turns *hope to leave* into a reflexive predicate on par with *wash* or *shave*

- Similar arguments are made for the interpretation of *only* DPs in control predicates:

(29) Only Churchill  $\lambda x$  [ $x$  remembers  $x$  giving the BST speech]

- A movement theory of control does not overgenerate to the cases that Chomsky & Lasnik (1993) were worried about:

(30) \*We never expected [ PRO to appear to  $t$  that ... ]

- On Hornstein's analysis, *we* would get Accusative/Oblique Case in the PP complement position, and thus should be frozen for further A-movement. Thus, Hornstein predicts this to be ungrammatical

- Hornstein's analysis also accounts for the traditional diagnostic of idioms and expletives:

(31) a. The shit seems to have hit the fan

- b. There seems to be man in the garden
- (32) a. #The shit expects PRO to hit the fan  
 b. \*There expects to be a man in the garden

(32-a)

- loses its idiomatic interpretation because *the shit* now has two theta roles – one from *expect* and from *hit* which is presumably related to the idiomatic interpretation; thus, it forces us to consider the idea that the shit is expecting something, leading to oddity

(32-b)

- is ungrammatical for essentially the same reason as in the previous theory – in Hornstein’s technology, the agent theta-role of *expects* isn’t checked by the expletive *there*

## 4 Minimality

- Descriptively, PRO must be bound by the closest DP (**Minimal Distance Principle**)

- (33) a.  $DP_i V [ PRO_i ]$   
 b.  $DP V DP_i [ PRO_i ]$

- Recall that Relativized Minimality says that {A/A’/Head} movement must not move over another {A/A’/Head} position:

- (34)  $*X_i Y_j t_i$   
 Where X and Y are both A positions/A’ positions/Heads

- (35) John persuaded Harry to leave [<sub>TP</sub> John [<sub>vP</sub> ~~John~~ persuaded+v [<sub>VP</sub> Harry persuaded [<sub>TP</sub> Harry to [<sub>vP</sub> Harry leave]]]]]

- First, Harry merges with *leave* to receive its theta role; then, it moves to Spec,TP to check the EPP (= ESI); then, it merges with *persuaded* to receive its theta role, and receives its Accusative Case thereabouts, freezing it in place; next, Harry merges with *vP*, receives its theta role, then moves up. Thus, we understand this as meaning that Harry is the persuadee and leaver.

- Question:** Does this violate MOM?
- Question:** How is Accusative Case assigned here?
- Question:** Can we block subject control in these cases? How?
- So, why no object control into adjuncts?

- (36)  $NP_i V NP_j [ PRO_{i/*j} ]$

- (37) John<sub>i</sub> head Mary<sub>j</sub> [without/before/after PRO<sub>i/j</sub> entering the room]

- First, Merge together the adjunct:

(38) [TP John [TP ing [<sub>vP</sub> John enter the room]]]

- Then, merge the *vP*:

(39) [<sub>vP</sub> heard Mary], [TP John [TP ing [<sub>vP</sub> John enter the room]]]

- *John* then sideward moves to check the theta role of the matrix *vP*, *vP* and the adjunct merge, and then *John* raises to Spec,TP for Case:

(40) [TP John [<sub>vP</sub> John [<sub>vP</sub> heard Mary] [TP John [TP ing [<sub>vP</sub> John enter the room]]]]]

- John doesn't move over Mary, because it sideward moves out of the adjunct – i.e., Mary never c-commands a copy of John in this structure, so Relativized Minimality is never violated
- **Question:** What would the derivation of object control look like in this analysis? What principle is violated?
- Returning to NOC – why are these configurations NOC? Because these are positions where A-movement would be prohibited!

(41) a. It was believed that PRO shaving was important  
 b. John<sub>i</sub> thinks that it is believed that PRO<sub>i</sub> shaving himself is important  
 c. Clinton's<sub>s</sub> campaign believes PRO<sub>i</sub> keeping his sex life under control is necessary for electoral success  
 d. John thinks that PRO getting his resume in order is crucial and Bill does ~~think that PRO getting his resume in order is crucial~~ too  
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- These NOC PROs are all in islands – thus, we predict that OC PRO should be blocked, since movement can't cross islands! Thus, NOC PRO is some kind of "Last Resort" – we stick in NOC PRO (= *pro*) when movement is blocked.
- To conclude – why is this derivation bad?:

(42) a. \*[TP John<sub>i</sub> [<sub>VP</sub> t'<sub>i</sub> [<sub>V'</sub> hug t<sub>i</sub>]]]  
 b. λ*e*.hug(*e*) ∧ Agent(*e*,john) ∧ Patient(*e*,john)

- Hornstein seems to assume the "Inverse Case Filter" – that is, not only do DPs need Case, but a Case needs to assigned to a DP. This is natural under the "pairing up" approach implied in Minimalism, but it's unclear how to handle sentences like *It was believed that John stole the painting*
- Granting the ICF, however, we can argue that *John hugged t* is bad because either John is Accusative, and then T<sup>0</sup>'s Nominative feature goes unchecked, or John is Nominative, and then *v*<sup>0</sup>'s Accusative feature goes unchecked

- Hornstein also suggests that we might eliminate the Binding Theory in this way, by postulating that anaphors are essentially pronounced traces

- (43) a. [TP John<sub>i</sub> [VP t'<sub>i</sub> [V' hug t<sub>i</sub>]]]  
 b. PF: John hugged himself

- This has a night upshot – we can also imagine that pronouns are essentially a “Last Resort” – if you locally A-move you pronounce your trace as an anaphor; if you cannot locally A-move, then you pronounce the tail of the dependency as a pronoun. Thus, we explain why OC PRO and NOC PRO have their distributional and semantic properties, and we get the parallelism with anaphors and pronouns “for free”

- (44) a. John hugged himself  
 b. \*John<sub>j</sub> hugged him<sub>j</sub>

- (45) a. \*John's mom hugged himself  
 b. John's mom hugged him

- (46) a. \*John expected it to rain hard on himself  
 b. John expected it to rain hard on him

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