W-1-4

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Workshop: Toward a Genuine Explanation in Linguistic Theory

理論的帰結と分析（II）コピー形成とコントロール構文について
(Consequences II: Copy Formation and Control)

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1. Copy Formation

1.1 MERGE and Copy

- **Copies are formed generally by MERGE**. Just a property of MERGE. If they are formed by external MERGE, they will not appear in the output because of Resource Restriction. (LSJ)

(1) *Internal MERGE*
    WS = [{a, b}] → WS' = [{a, {a, b}}]

(2) *External MERGE*
    WS = [a, b] → WS' = [{a, b}] (not [{a, b}, a, b])

1.2 Interpretation and Externalization of a Copy

- So, let's imagine the simplest possible solution. We form, in the course of derivation, if there are two structurally identical elements, we may or may not take them to be copies. It's totally free. (LSJ)

(3) [The man [read *the book*]] liked *the book*.
    a. The man read *Aspects* liked *Aspects*.
    b. The man read *Aspects* liked *LGB*.

- Deletion should belong just to externalization, has nothing to do with internal language.
- If there are two structurally identical elements, we may or may not take them to be copies. It's totally free. (LSJ)

(4) [The man [was arrested ~~the man~~]]

- Minimal search, at this point, can be an operation which searches everything that's been generated and marks everything it finds undeletable.
- The only thing that minimal search can't find is something that it's c-commanded by a head, the head of a chain, in a technical word, can't find that. So, it doesn't mark undeletable, therefore it deletes. (LSJ)

1.3 Theta Theory / Duality of Semantics

- MERGE must also satisfy theta theory. That's the **bare output condition** that already mentioned.
- Theta theory holds that **theta assignment is univocal**. So, A single theta assigner cannot assign two theta roles to the same element. (WCCFL)
- The provision of theta theory is the theta assigner can assign one theta role, not it can assign different theta roles, but they have to go to different things. It can't assign two theta roles to the same element. (LSJ)

(5) *Bare Output Condition*
    Another source of possible specificity of language lies in the conditions imposed "from the outside" at the interface, what we may call *bare output condition*s. These conditions are imposed by the systems that make use of the information provided by C_{HL}, … (Chomsky (1995: 203))

(6) *John likes. (= John likes ~~John~~)

(7) John tried to win. (= John tried [~~John~~ to win])

- I think the basic answer to it [= what's a copy and what's a repetition] is given by a general property of language, which is sometimes called **"duality of semantics."** If you look quite generally at the interpretation of

expressions, it falls into two categories.

- There is **one category which yields argument structure** (theta-roles and the interpretation of complements of functional elements. There is **another category** which is involved in displacement, **which has kind of discourse-oriented or information-related properties or scopal properties and so on**, but not argument properties. That's duality of semantics.
- If you think about it a little further, you see that **the first type, argument structure, is invariably given by external MERGE**. The second type, **non-argument structure (other factors) is always given by internal MERGE**. (Chomsky (2020a: 43-44))

(8) Which boy did John ask which boy Bill met.
= [Which boy]$_1$ did John ask [which boy]$_2$ [which boy]$_3$ Bill met [which boy]$_4$ (Chomsky (2020a: 46))

1.4 IM configurations

- That does leave a problem why can X [= ~~John~~] be taken to be a copy of *John*. In other words, why can the lower *John* be a copy of the higher one and then delete in the normal way.
- The answer follows from the nature of derivation. For expository convenience I'll assume that there's an operation interpretation call it **Int** which **takes a look at the current stage of derivation** that is the workspace and it decides what can be done next. That's all.
- Int lacks access the history. So **strictly Markovian**. It doesn't know how that IM configuration was constructed.
- So there has to be an operation; let's call it **Copy Formation**. That assigns the copy relation to the actual cases of internal MERGE. It will also assign the copy configuration to copy relation to IM configurations that were constructed in some other way.
- Therefore, **Copy Formation yields two kinds of IM configurations**. One is just verifying the IM operation. One is configuration formed in some other way. The latter type let's call **IM gaps**.
- For Form Copy, bare output conditions are irrelevant. It's an important principle of distinction. (WCCFL)

(9) *John arrested. (= John arrest ~~John~~)
→ Two *John*s never be copies.

(10) John was arrested. (= John was arrested ~~John~~) / John seems to win. (= John seems [~~John~~ to win])
→ IM configuration formed by IM

(11) John tried to win. (= John tried [~~John~~ to win])
→ IM configuration formed by EM (IM gap)

1.5 Raising to Subject / Object

(12) [C [EA$_1$ [INFL [EA$_2$ vP]]]]

- It [= EA$_1$] lacks a theta role and every relevant noun phrase ought to have a theta role, but it does have a semantic role. It's the argument of predication.
- The existential presuppositions of subject positions are known to be much stronger than in what are called existential constructions. […] That's a semantic role of the surface subject. (LSJ)

(13) a.   There is a fly in the bottle.
     b.   There is a flaw in the proof
     c.   A fly is in the bottle.
     d.   *A flaw is in the proof. (LSJ)

- The next task is to extend the analysis to raising to object, which ought to come out the same as raising to subject. And in fact, raised object does have a semantic role.
- You get a *de re* interpretation in a raising case, not in the non-raising case. (LSJ)

(14) [v [EA$_1$ [believe [EA$_2$ to]]]]

(15) a.   John believed a fly to be in the bottle.

b. *John believed a flaw to be in the proof.   (LSJ)

(16) a. John believes someone in the group to be a police infiltrator.
         'There are somebody in the group, maybe Bill whom John believes to be a police infiltrator. (*de re*)
     b. John believes that someone in the group is a police infiltrator.
         'John believes that somebody or other in the group, because he doesn't know who, is a police infiltrator'
         (*de dicto*)
     c. The FBI prefers for someone in the group to be a police infiltrator.
         'John believes that somebody or other in the group, because he doesn't know who, is a police
         infiltrator' (*de dicto*)   (LSJ)

- We now have **a strong version of duality of semantics**.
- External MERGE is one-to-one associated with theta role. Internal MERGE is one-to-one associated with argument position.
- MERGE also always yields a theta or an argument role, **semantic role in the general sense**.   (LSJ)

2. Theories of Control
2.1 PRO in GB Theory

(17) a. Mary hopes [PRO$_{Mary}$ to win].
     b. Mary seemed [t_{Mary} to win].

- **The theoretical basis for the distinction in GB technically rests on distinguishing a level of D-Structure**. […] D-Structure is defined as the phrase marker that purely represents GF-theta, the level at which all and only thematic positions of the sentence are occupied by lexical material. […] Subsequent transformations move the lexical expressions located in theta-positions to non-theta-positions.
- These movements are **further restricted by the Theta-Criterion** so that going from one theta-position to another is strictly forbidden.   (Hornstein (1999: 70))

2.2 Movement Theory of Control
- Hornstein (1999, 2001, 2003), Boeckx and Hornstein (2004, 2006, 2007), and among others.
- This article submits these other assumptions to minimalist scrutiny. How well motivated are they? Why assume that chains are biuniquely related to theta-roles? What goes wrong if movement takes place from one theta-position to another? Why distinguish trace from PRO? […] The minimalist question is whether these differences require the technical apparatus standardly invoked to distinguish them.   (Hornstein (1999: 71))

(18) Mary hopes [t_{Mary} to win].

- So, he assumes that X raises to the position of John. **That eliminates PRO and control theory, which is an important step forward**, but **it conflicts with theta theory and duality of semantics.** Furthermore, **it's the only case that conflicts with it**, which as usual raises suspicions.
- There is also a technical problem. Technical problem shows up in [(19)].   (LSJ)

(19) *John saw. (= John saw ~~John~~)

2.3 Obligatory Control vs. Non-Obligatory Control

(20) a. *Mary hates [PRO$_{arb}$ to nominate oneself].
     b. *Mary realized that John hated [PRO$_{Mary}$ to nominate herself]
     c. *Mary's colleagues hated [PRO$_{Mary}$ to nominate herself].   (Landau (2013: 29))

(21) Mary expected [PRO$_{Mary}$ to attend the ceremony], and Sue did too ~~expected [PRO$_{*Mary/Sue}$ to attend the ceremony]~~.   (Landau (2013: 30))

(22) a. We thought that John would help Mary [PRO$_{*we/Mary}$ to expose herself/*ourselves].
     b. We thought that [PRO$_{we/Mary}$ to expose herself/ourselves] would help Mary.

c. We thought that it would help Mary [PRO~we/Mary~ to expose herself/ourselves]. (Landau (2013: 38))

3. Eliminating Control Theory

3.1 Subject Control

- For theta theoretic reasons, it cannot be a case of internal MERGE because of the univocality of theta theory. But X [= ~~John~~] can be taken to be a copy. An IM gap and therefore delete. This is the phenomenon of obligatory control.
- We therefore **capture an important insight of Norbert Hornstein's about the similarity of raising and control**.

(23) a. John seemed to win. (= John seemed [~~John~~ to win])
b. John tried to win. (= John tried [~~John~~ to win])

- But I stress similarity. **It's not identity**, because **there are two kinds of IM configurations**: one derived from merge; the other from forming copy. These are trace and PRO in traditional terms.
- All of this just **derives from the Strong Minimalist Thesis**. (WCCFL)

(24) a. One interpreter each seems [to have been assigned t to the diplomats]
b. *One interpreter each tried [PRO to be assigned to the diplomats]
(WCCFL, cf. Burzio (1981); Chomsky (1981: 61))

- The distinction is solidly established that sustains theta theory and the so-called duality of semantics.
- External MERGE is linked to theta theory argument structure; internal MERGE is linked to other properties of utterances discourse related information related and so on. (WCCFL)

3.2 Object Control

- In both cases, minimal search determines that the two occurrences of *Bill* are copies.
- If V is *expect*, the paired copies were generated by internal MERGE.
- If V is *persuade*, Bill was generated by external MERGE with its own theta role. It's an IM gap PRO structure.
- In both cases, minimal search deletes the lower copy of Bill. (WCCFL)

(25) a. John expected Bill to leave.
b. John persuaded Bill to leave.

(26) John INFL [v [Bill V [~~Bill~~ to leave]]]]

- Notice that the analysis of *persuade* resurrects an approach to double complement constructions in *Logical Structure of Linguistic Theory*, back in 1955.
- In the *LSLT* analysis, a transformation was used to form the verbal complex *persuade to leave*, which has the object *Bill*.
- In our analysis, *to leave*, in fact, *Bill to leave* is the complement of *persuade* and *Bill* is the object of the verbal complex *persuade Bill to leave*. (LSJ)

(27) The teacher [gave to him] several books
→ The teacher gave several books to him (cf. Chomsky (1955/1975); Larson (1988))

(28) The teacher v Bill [persuade [~~Bill~~ to leave]]

3.3 Partial Control

- Idan Landau has raised some interesting problems for Honrstein's analysis based on what he calls partial control.
- If you have a Hornstein's style trace system, it doesn't work because it has to be singular. (LSJ)

(29) a. *John managed to meet at noon. (Exhaustive Control)
b. John arranged to meet at noon. (Partial Control) (LSJ)

(30) a. John arranged/managed for us to meet at noon.
     b. John arranged/managed to meet at noon.

- [(29)] have the sense of [(30a)], not the sense of [(30b)].
- The simplest assumption seems to be that [(29)] derive from [(30a)] by deletion of *for us*, something that happens in other circumstances.
- There are lexical idiosyncrasies, *arrange* vs. *manage*, but the basic structure remains intact. No need to change the notion of copy, no special notion of partial control.   (LSJ)

4. Conclusion

- We can **capture Hornstein's crucial insight about control** while avoiding the empirical problems that bar general recourse to internal MERGE.
- We also **maintain in effect the PRO/trace distinction** with its strong empirical support.
- We also maintain **theta theory unchanged** and **duality of semantics unchanged**.   (WCCFL)

- Throughout this discussion, I haven't used the interface level.
- At any point in the derivation, the interpretative system can apply to a phase, that's been constructed. That will yield the information needed by other cognitive systems to access the thought. At any point in externalization, the sensory-motor system can access the derivation and use, take it as instructions for whatever the sensory-motor system it is.
- So, it maybe then that **conceptual-intentional and sensory-motor systems are dispensable.** They can be eliminated just as D- and S- structures were eliminated. **All that remains is generation and access by language external systems.**   (LSJ)

5. Comments and Discussion
5.1 Raising / Control Contrasts

(31) a. Who did you hear stories about?
     b. *Who did you expect stories about [to terrify John]?
     c. Which famous person did Martha persuade friends of [to sign her program]?

5.2 Partial Control

(32) *EC-predicates* (Implicative; Aspectual; Modal; Evaluative)
     a. *Yesterday, John managed to solve the problem tomorrow.
     b. *Yesterday, John was able to solve the problem tomorrow.
     c. *Yesterday, it was smart of John to solve the problem tomorrow.   (Landau (2013: 160))

(33) *PC-predicates* (Factive; Propositional; Desiderative; Interrogative)
     a. Yesterday, John hoped to solve the problem tomorrow.
     b. Yesterday, John wondered how to solve the problem tomorrow.
     c. Today, John regretted having solved the problem last week.
     d. Today John claimed to have solved the problem last week.   (Landau (2013: 160))

5.3 Split Control

(34) a. John proposed to Mary [PRO$_{John+Mary}$ to meet each other at 6].
     b. John asked Mary [whether PRO$_{John+Mary}$ to get themselves a new car].
     c. John discussed with Mary [which club PRO$_{John+Mary}$ to become members of].   (Landau (2013: 172))

(35) John proposed to t_{John}+Mary [$t_{John+Mary}$ to meet each other at 6].   (cf. Fujii (2006, 2010))

(36) John proposed/*committed/*seemed to Mary [to help each other at 6].   (Landau (2013: 174))

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