[Review]

Control as Movement


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1. Introduction

Since Hornstein’s (1999) proposal that control should be derived via movement, the MTC (Movement Theory of Control) has been one of the most controversial topics in current minimalist study. While it has gained some empirical support, it has been intensively criticized in various aspects as well.

In *Control as Movement*, the authors attempt to defend the MTC from these criticisms. They offer solutions to a number of empirical problems that some researchers have raised, and discuss the empirical and conceptual virtues of the MTC.

2. Basic Properties of the MTC

Raising and control structures have generally been treated differently. In the Government and Binding approach, the former is typically analyzed in terms of movement, shown in (1), whereas the latter is treated as a case of base generation and subsequent interpretive operation of a subject PRO, as in (2).

(1) a. John seemed to kiss Mary.
   b. John₁ seemed \([t₁ \text{ to kiss Mary}].\)

(2) a. John tried to kiss Mary.
   b. John₁ tried \([\text{PRO₁ to kiss Mary}].\)

In this reviewed book, the authors argue that raising and obligatory-control sentences are both generated through movement, with the assumption that the movement into a θ-position is possible, given the abandonment of D-
structure. Thus, the syntactic representation of the sentence (2a) should be illustrated as (3) rather than (2b).

(3) John₁ tried [t₁ to kiss Mary]  

This approach to Obligatory Control reduces obligatory control PROs to NP-traces. (4) is an illustration of the derivation of a typical control construction.

(4) a. [kiss Mary]  Merger of ‘kiss’ and ‘Mary’ + θ-assignment  

b. [T [kiss Mary]]  Merger of T  

c. [John [T [kiss Mary]]]  Merger of ‘John’ + θ-assignment  

d. [C [John [T [kiss Mary]]]]  Merger of C  

e. [tried [C [John [T [kiss Mary]]]]]  Merger of ‘tried’ + θ-assignment  

f. [T [tried [C [John [T [kiss Mary]]]]]]  Merger of T  

g. [John₁ [T [tried [C [t₁ [T [kiss Mary]]]]]]]  Movement of ‘John’ + θ-assignment  

It is important to notice that the derivation in (4) requires DPs to carry multiple θ-roles, allowing the movement from one θ-position to another. In the example above, John gets the first θ-role in (4c). It gets a second one when it moves to the matrix subject position in (4g). Thus, the derivation converges while the DP, John moves from one θ-position to another, and assigned multiple θ-roles. As the authors point out (section 3.2), the reason why this movement is impossible in the GB (Government and Binding) system, an earlier version of the Principles and Parameters approach, is the existence of D-structure. D-structure is the place where all lexical insertions and θ-assignments are executed and serves as an input to all movement operations. This entails that the movement into a θ-position is not possible because all the thematic positions are filled at the generation of D-structure, after which all the transformational rules are applied. On the other hand, the abandonment of D-structure in the Minimalist framework opens the door for the movement into a θ-position. The MTC, based on the assumption that movement into a θ-position is possible, points to some empirical virtues.

Since Williams (1980), the assumption has been that there is a distinction between OC (Obligatory Control) and NOC (Non Obligatory Control). The authors assemble various diagnostic properties of OC PRO, which is similar to the properties of a reflexive (section 2.4 and section 3.4).
(5) a. *It was expected PRO to shave himself.
b. *John₁ thinks that it was expected PRO₁ to shave himself.
c. *John₁’s campaign expects PRO₁ to shave himself.
d. *John₁ said that PRO₁ will travel tomorrow.
e. John₁ wants PRO₁ to win and Bill₁ does too. (=Bill win)
f. *John₁ asked Mary₂ PRO₁+₂ to shave themselves/each other.
g. [The unfortunate]₁ expects PRO₁ to get a medal.
h. [Only Churchill]₁ remembers PRO₁ giving the BST speech.

(5a) shows that OC PRO must have an antecedent. (5b) shows that the antecedent must be local and (5c) indicates that it must c-command PRO. (5d) shows that PRO cannot exist in case-marked positions. These four properties follow if OC PRO is an A-trace. (5e) shows that OC PRO only licenses a sloppy reading under ellipsis. The property that is shared with raising is assumed to be a result of A-movement.

(6) John seems [t₁ to be cooperative] and [Bill does, too].

(5f) shows that OC PRO cannot have split antecedents. Since the multiple DPs cannot be moved from one and the same position, this phenomenon is accounted for once OC PRO is an A-trace. That is, an A-trace cannot have different antecedents. (5g) shows that OC PRO only allows a *de se* reading. That is, in the sentence the unfortunate must believe that s/he, herself/himself will get a medal. In other words, the sentence does not allow the interpretation that the unfortunate, who turns out to be awarded a medal, believed that someone other than him would get the medal, which contrasts with the sentence that uses a pronoun instead of PRO.

(7) The unfortunate expects that he₁ should get a medal.

In (5h), Only + NP must be the controller of PRO. That is, the sentence means that only Churchill could have this memory because he was the sole person who gave the BST speech but it does not have the following paraphrase: Only Churchill remembers that he (Churchill) gave the BST speech. In other words, only Churchill can be the controller of PRO in (5h). If control is derived through movement, then we can see why the sentence cannot have the paraphrase. The constituent, only Churchill moves from the position indicated by PRO to the matrix subject in (5h), yielding the logical form below. This only allows the reading in which PRO is bound by only Churchill. These two interpretive properties are consistent with the MTC. The MTC yields the Logical Forms of (5g) and (5h) as represented in (8a) and (8b), respectively.

(8) a. [The unfortunate] \( \lambda x \) ([x expected x to get a medal])
b. [Only Churchill] \( \lambda x \) ([x remembers x giving the BST speech])
\textbf{“Intra-chain “binding” within these complex monadic predicates is restricted to \textit{de se} and bound readings as it involves complex monadic predicates” (p. 51).}

In sum, as the MTC reduces OC PRO to an A-trace, it explains not only why OC PRO is phonetically null but also why it exhibits anaphoric behavior as shown above. Since an A-trace has often been regarded as an anaphor and being subject to Principle A, it is not surprising. Lastly, by treating OC PRO as a trace of A-movement, the MTC can explain why PRO must appear in a non-Case marked position and why it cannot be controlled directly from A’-position. That is, A’-binding is impossible in the case of control as shown in (9).

(9) a. Who\textsubscript{1} attempted PRO\textsubscript{1} to eat the cake?
   b. *Who\textsubscript{1} did John attempt PRO\textsubscript{1} to eat the cake?

Notice that one of chief properties of A-movement is that it starts from a non-Case marked position and terminates at a Case-marked position. Thus, given the MTC, PRO, an A-trace, is predicted to appear in a non-Case marked position and the controller must be Case-marked.

3. Empirical Advantages

As discussed in the last section, the MTC can predict that PRO should appear in a non-Case marked position, more specifically the subject position of an infinite clause, since an A-trace is generated in such a position. However, the MTC also predicts that OC PRO can appear in the subject position of a finite clause if that language allows A-movement from the subject position of a finite clause. The authors claim that Brazilian Portuguese is such a language. They point out that null subjects in finite indicative clauses in Brazilian Portuguese show all the diagnostic properties for OC PRO. For example, the null subject in (10) must be controlled by the most local c-commanding antecedent, and it has only a bound reading.

(10) \textit{Brazilian Portuguese:} (p. 64)

\begin{quote}
[[O Pedro]\textsubscript{i} disse [que [só o irmão d[o João\textsubscript{k}]]\textsubscript{m}
   \text{The Pedro said that only the brother of the João was thinking that should receive a medal}]
\end{quote}

\begin{quote}
\text{“Pedro said that [only João’s brother] was thinking that he should get the medal.”}
\end{quote}

Furthermore, the authors observed that null subjects in finite indicative clauses in Brazilian Portuguese cannot be generated within an island. The
sentence in (11) where the relative clause has the null subject is unacceptable.

(11) *[O João disse [que [o bolo [que comeu]] não estava bom]]
      The João said that the cake that ate not was good
      ‘João said that the cake that he ate was not good.’

Under the current proposal, o João should move from the subject position of the relative clause to the matrix subject position. This movement, however, steps over two islands. This is why the sentence in (11) is unacceptable.

Once the existence of finite control is attested, it provides one of the strongest bits of empirical evidence for the MTC. It is unclear how PRO-based approaches can treat this phenomenon without some extra stipulations regarding control into the subject in a finite clause.

Another novel kind of empirical evidence for the MTC is backward control phenomenon where the controller is c-commanded by its controlee, a phonetically null element, which is indicated as ∆.

(12) a. [Δ₁ V [DP₁...]]
    b. [DP V Δ₁ [DP₁...]]


(13) Tsez (Polinsky and Potsdam (2002))
    [Δ₁/2* [kidba₁ ziya bišra yoqsi]
     girl.ERG cow.ABS feed began
     ‘The girl began to feed the cow.’

One of the main pieces of evidence for the analyzed structure is that the case that the overt subject bears is always the one that is found in the embedded clause. The verb teqa takes a dative subject. Then, in (14) where that verb is in the embedded clause, the overt subject bears a dative subject. This means that the subject in the embedded clause rather than matrix one is pronounced.

(14) Tsez (Polinsky and Potsdam (2002))
    kid-ber b babiw-s xabar teq-a y -oq -si
    girl DAT father GEN story hear INF begin PAST.EVID
    ‘The girl began to hear the father’s story.’

The MTC can explain the backward control phenomena, combined with the copy theory of movement (see Chomsky (1995)). Once the movement is assumed to leave a copy of the moved element rather than its trace, the de-
derived constructions of the backward control which sent to PF are:

(15) a. \[\text{DP}_1 \text{ V} \ [\text{DP}_1 \ldots] \] (Subject control) (p. 105)
b. \[\text{DP} \text{ V} \text{ DP}_1 \ [\text{DP}_1 \ldots] \] (Object control)

Given these constructions, backward control is derived by the deletion of the upper copy of DP$_1$ at PF. (See Bošković (2002) for another instance of the upper copy deletion in wh-fronting in Romanian)

(16) The deletion of the upper copy in the phonological component (backward control):

a. \[\text{DP}_1 \text{ V} \ [\text{DP}_1 \ldots] \] (p. 106)
b. \[\text{DP} \text{ V} \text{ DP}_1 \ [\text{DP}_1 \ldots] \]

Backward control is therefore to be expected when the MTC is coupled with the copy theory of movement but it is also true that some details of technical implementation are still to be worked out, as the authors admit. Namely, “a full account of backward control must also specify what licenses the phonetic interpretation of copies, be they high or low” (p. 115).

On the other hand, backward control configuration as in (15) poses very serious problems for any kind of PRO-based approaches which tie the distributional properties of PRO to government (e.g. Chomsky (1981)), null Case (e.g. Martin (2001)), or the tense properties of the heads C and T of the clause containing PRO (e.g. Landau (2004)). As these analyses treat (OC) PRO as a kind of anaphor, the authors point out, “PRO-based analyses of backward control are inconsistent with the two central principles of binding” (p.103), which are described below.

(17) a. Anaphors cannot bind their antecedent. (p. 103)
b. Anaphors must be bound by their antecedent.

In backward control configurations in (15), “DP$_1$ fails to bind PRO and hence should not be a potential antecedent for PRO. Worse still, PRO c-commands DP$_1$ and so should induce a principle-C effect and thus be unable to bear the same semantic value as PRO. In standard cases, this should induce a disjoint reference or strong crossover effect. Clearly, this is incompatible with the fact that in the relevant languages and constructions” (p. 103). Since the principles in (19) have held in the generative tradition, the existence of backward control establishes a strong counter example to PRO-based approaches.

4. Partial Control: An Empirical Challenge on the MTC

Landau (1999, 2000, 2004) points out that there exist control constructions where an embedded predicate must take a semantically plural subject,
but the controller is singular, as in (18). These constructions are called partial-control constructions.

(18) The chair decided [PRo₁ to meet at 6]. (p. 182)

Showing that the relation between the controller and controlee is obligatory control (for example, the controlee must be locally c-commanded by its antecedent), Landau argues that partial control provides strong counter evidence against the MTC. That is, once OC PRO is regarded as a result of A-movement, how can a singular element be the antecedent of a semantically plural empty category? On the other hand, given the PRO-based analysis the solution for partial control is basically to posit a semantically plural PRO when the embedded predicate requires a semantically plural subject.

(19) The chair decided [PRo(pl) to meet at 6].

However, as Hornstein (2003) points out, it is not always the case that a predicate that selects a plural subject licenses partial control:

(20) a. They sang alike/were mutually supporting.
   b. *John hoped/wants [PRO to sing alike/to be mutually supporting]. (p. 184)

From this, the authors suggest that predicates that support partial control are in fact the ones that can select a commutative PP.

(21) a. The chair met/gathered/applied together for the grant with Bill.
   b. *The chair sang alike/is mutually supporting with Bill. (p. 22)

Then, it is proposed that the partial control predicates involve the licensing of a null commutative PP with the infinitival subject being an NP-trace, as in (22).

(22) The chair hoped [t₁ to meet procommitative at 6]. (p. 185)

A chief argument for this analysis and against PRO-based approaches comes from constructions with a secondary predicate (see Rodriguez (2007)). Observe that the secondary predicates modify John in the two sentences in (23).

(23) a. John hates to meet angry.
   b. John wants to meet ready for all contingencies. (p. 187)

The MTC with the null commutative approach is compatible with this state of the affair. Assuming that secondary predication is clause-bound, the secondary predicate modifies the trace of the matrix subject.

(24) a. John₁ hates [t₁ to meet procommitative angry].
   b. John₁ wants [t₁ to meet procommitative ready for all contingencies]. (p. 187)

On the other hand, under PRO-based analyses, the secondary predicate
must modify the set of people including John that is denoted by PRO as illustrated in (25), contrary to the fact.

(25)  
   a. John, hates [PRO\textsubscript{i+k} to meet angry].
   b. John, wants [PRO\textsubscript{i+k} to meet ready for all contingencies].

(p. 188)

In sum, after Landau’s work, partial control has been one of the strongest arguments for PRO-based approach after the MTC was proposed. However, the authors show that under close scrutiny, partial control is not only compatible with the MTC but also lends empirical support to the MTC. That said, as the authors conclude, “this should not be taken to imply that we fully understand partial control. There remain several open questions. For example, why the extensive speaker and language variation regarding the accessibility of such readings? All speakers easily get the exhaustive readings and for many the partial readings are difficult to get if attainable at all. But even in this regard the MTC proves to be no worse than PRO-based alternatives, which do not have an explanation for those facts either.” (p. 190)

5. Conclusion

As I pointed out at the beginning, the MTC has been a controversial proposal. The most provocative part of this proposal, in my view, is its premise that the movement into a θ-role is possible, that is, a DP can receive multiple θ-roles. However, since the minimalist program has eliminated D-structure, the movement into a θ-position is at least a viable option. As reviewed above, the MTC points to some empirical virtues for taking this direction. The MTC covers virtually all of the facts concerning obligatory control in a principled manner as discussed in section 2. Especially, it can explain why PRO is unpronounced in a simple way; because it is a result of movement, i.e. a trace. In contrast, virtually all PRO-based approaches stipulate that PRO is intrinsically phonologically null.

In addition, the MTC leads to the discovery of new kind of data. Backward control is one aspect of this data as I reviewed in section 3. A simple theory like the MTC often suffers from a variety of empirical difficulties. The reviewed book attempts not only to overcome these difficulties but also to turn them into conceptual and empirical supports for the MTC. The analysis on partial control is reviewed here in section 4, for partial control has been taken as one of the strongest counter example to the MTC.
Finally, if the MTC is on the right track, it entails that the movement into a θ-position is possible. Although Chomsky (1993) dismisses D-structure, “Chomsky (1993) actually retains the thematic restrictions coded at D-structure, but in another form. It proposes banning movement into θ-positions, or restricting a DP’s θ-role assignment to its first merge. In sum, in Chomsky (1993), the elimination of D-structure is only partial. The MTC requires that it be complete: not only must Satisfy be rejected, but the segregation of functions between lexical insertion and movement (the first being designated to satisfy θ-relations, the latter to satisfy all the other grammatical dependencies) should be given up as well.” (p. 244). In other words, taking the proposal in the reviewed book, namely, the MTC seriously leads to the complete abandonment of D-structure, which paves the way for a rather radical development of a theory of syntax.

REFERENCES


1 In fact, Chomsky (1986) suggests that movement into θ-position is a viable option, discussing secondary predicate constructions:

(i) John left the room angry.

Here, a single NP John receives two θ-roles from the primary predicate and the secondary predicate. In order for an argument to bear two θ-roles in this type of constructions, Chomsky (1986) attempts to loosen up on the θ-criterion. I am grateful to an anonymous reviewer for the comment on this issue.


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