CONTROL, PARTIAL CONTROL AND TOUGH-CONSTRUCTIONS

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1. Introduction

This paper is concerned with a treatment of partial control (PC) phenomena (Wilkinson 1971, Williams 1980, Landau 2000, 2003, among others) in the movement theory of control (MTC) (Hornstein 1999, 2001, among others). Landau (2000) notes that the MTC has difficulty accounting for the existence of PC. In PC, the reference of the controller is a subset of that of the controlled embedded subject (PRO, henceforth). On the other hand, the MTC predicts the references of both to be identical, being two occurrences of a single DP (Section 2). Barrie and Pittman (B&P) (2004) attempt to derive PC within the MTC in terms of a chain-splitting operation, which applies to any control chain – i.e., chains created by A-movement from a θ-position to another θ-position. Once a two-member chain is split into two one-member chains, B&P argues, the strict identity of the reference is not required, insofar as the reference of PRO properly includes the reference of its antecedent (Section 3).

The goals of this paper are as follows. First, B&P (2004), in passing, cite a tough-sentence (Lasnik and Fienko 1974, Chomsky 1977, Jones 1985, Browning 1986, Kawai 1992, Kaneko 1996, Hicks 2009, Pytlik 2011, among others) as a confirmation case for their proposal, since PC reading is not available for the reference of the embedded object gap. B&P’s discussion is incomplete, however; Section 4.1 shows that a more relevant paradigm – with other types of missing object (MO) constructions – does not support their conclusion. Second, we examine another control relation in the tough- and other MO constructions: viz., PRO control by the matrix experience (Section 4.2). PC reading is not available even though both the experiencer and PRO are θ-

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There is a proposal (e.g., Rodrigues 2007) where PC arises from the phonetically null associative plural marker (-pro) attached to PRO. It is not clear, however, why EC- and raising-predicates are incapable of licensing it.

Throughout this paper, I will be using PRO to denote the phonetically null embedded subject, be it an A-trace (e.g., Hornstein 1999, 2001, Barrie and Pitman 2004), or a phonetically null DP (e.g., Landau 2000).

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marked. This is contrary to the prediction made by B&P’s analysis. The failure of B&P’s proposal could be taken as an additional argument against the MTC.

In a MO construction, the embedded infinitive clause does not have a tense independent from the matrix one. This is in accord with the observation made by Landau (2000): namely, PC is unavailable in infinitive clauses without an independent tense. The result of this study, thus, can be taken as support for some version of non-movement analysis of control, although there are some minor problems that need to be accounted for (Landau 2000, Brody 2002, van Urk 2010, Yoshimoto 2010, among others) (Section 5).

2. Background

2.1 Taxonomy of Control

Control is generally divided into two types (1): Non-Obligatory Control (NOC) and obligatory control (OC), the former of which is outside of the scope of this paper. OC is further divided into exhaustive control (EC), as in (2a), and partial control (PC), as in (2b). (See also Postal 1974, Davies and Dubinsky 2004, Landau 2000, Asudeh 2005, Yoshimoto 2010, Sato 2011). In EC, the reference of PRO and its controller are strictly identical, as in (2), whereas in PC, the reference of PRO includes that of the controller, as in (3). (4) and (5) list some representatives of EC- and PC-predicates, respectively.

(1)  
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<td>a.</td>
<td>nonobligatory control (NOC)</td>
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<td>b.</td>
<td>obligatory control (OC)</td>
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<td>i.</td>
<td>exhaustive control (EC)</td>
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<td>ii.</td>
<td>partial control (PC)</td>
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(2) \[ \lambda x \lambda P. \left[ \text{PRED} \left( x, P(x) \right) \right] \]

(3) \[ \lambda x \lambda P. \exists y \left[ \text{PRED} \left( x, P(y) \right) \wedge x \subseteq y \right] \]

(4) **Implicative:** dare, manage, bother, remember, condescend, force  
   **Aspectual:** begin, start, continue, finish, resume  
   **Modal:** have, need, is able

(5) **Factive:** glad, sad, dislike, like, hate, sorry  
   **Propositional:** believe, think, suppose, imagine, say, claim, deny  
   **Desiderative:** want, prefer, arrange, hope, demand, promise, intend  
   **Interrogative:** wonder, ask, inquire, guess, understand, know

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3 We also have cases with *split antecedents*, which we will not discuss. Observe that the MTC has a similar problem with this as accounting for PC.

(i) John, persuaded Mary \[ \text{PRO} \_2 \text{to meet at } 6 \].
Given that meet and gather require a plural subject, as shown in (6), PRO in (7) must be interpreted as plural. There, with such PC predicates as want and wonder, PRO is interpreted as a superset of the reference of the controller (as denoted as \( PRO_i \)), as in (3). With EC predicates, dare and begin, this is not the case, as shown in (8).

(6) a. We/*John met at 6pm.
   b. We/*Bill gathered during the strike.
   c. We/*Mary applied together for the grant.

(7) a. John, wants [\( PRO_i \) to meet at 6].
   b. John, wondered where [\( PRO_i \) to gather at 6].

(8) a. * John, dared [\( PRO_i \) to meet at 6].
   b. * John, began [\( PRO_i \) to gather at 6].

3. Movement Theory of Control (MTC)

The MTC attempts to reduce “control” into ‘displacement’ (or, internal merge and subsequent agreement), thereby eliminating PRO as a syntactic formative. While any attempt to eliminate the redundancy in grammar is favorable, there lies a major difficulty in the MTC with respect to PC. Under the MTC, control and raising are both instances of A-movement; yet, raising does not offer PC at all, as in (9), as noted by Landau (2000).

(9) a. * John, seemed \( [t_{1,} \) always to gather at six].
   b. * The protester, appears \( [t_{1,} \) to have gathered in front of the embassy].

The MTC predicts control to be parallel with raising, if A-movement of a DP is involved in both cases.

3.1 Barrie and Pittman 2004

Barrie and Pittman (2004) attempt to account for PC within the MTC. (See also Barrie 2004). In a nutshell, they claim (11).

(11) a. Alleged cases of EC are not control, but raising, restructuring, etc.
    b. Control always allows PC.

B&P (2004) offer an extensive empirical argument for (11). (See also Postal 1974, Martin 1995, Wurmbrand 1998, 2001, among others). Regarding (11a), PC-predicates do not allow the embedded subject to be an expletive (12a), whereas raising- and EC-predicates do (12b/c). Second, with PC-predicates, the passive complements are not semantically equivalent to their active counterparts, as in (13), whereas with raising and EC-predicates, they are, as in (14).

I do not share, with Boeckx and Hornstein (2004) and Bowers (2008), the view that a PC reading is available in raising, and that the distinction between PC and EC is not robust.
(12) a. * Manami told it to be busy at the airport.
   b. Manami permitted it to be busy at the airport.
   c. It seems to be busy at the airport.

(13) a. The professor persuaded the assistant to interview the applicants.
   b. The professor persuaded the applicants to be interviewed by the assistant.

(14) a. The professor expects the assistant to interview the applicants.
   b. The professor expects the applicants to be interviewed by the assistant.

As for (11b), B&P argue that it follows from principles of grammar. Under the MTC, raising and control are distinguished as in (15). If so, the observational generalization in (16) holds for the chains created by raising and control.

(15) a. Raising is A-movement from a θ-position to a non-θ position.
   b. Control is A-movement from a θ-position to a θ-position.

(16) A two-member chain created by A-movement has either:
   a. one thematic position, if the matrix predicate is a raising predicate.
   b. two thematic positions if the matrix predicate is a control predicate.

(17) θ-Criterion
    No DP can possess more than one θ-role. (B&P 2004: 88)

If so, any control chain violates θ-criterion (17), given that the chain, counting as a DP, has two θ-roles (16b). For this reason, the standard version of the MTC (e.g., Hornstein 1999, 2001) has eliminated the θ-Criterion. B&P diverge from the standard MTC, and maintain (17) as a core principle of grammar. They consider this as desirable, once complemented with a “last resort” operation of Chain Splitting (18). An ill-formed two member chain is split into two single-member chains with only one θ-position each, as schematically illustrated in (19). (18) is a “last resort” operation in the sense of Chomsky and Lasnik 1993/1995 (20).

(18) Chain Splitting (B&P 2004: 88–89):
    A chain in violation of the θ-Criterion must split into separate chains such that there is no longer any violation of this constraint.

(19) CHAIN-SPLITTING(Chain(α, β)) → Chain(α) & Chain(β)

(20) A “last resort” operation applies only to form a legitimate LF object.

As a result, according to B&P (2004: 89), the reference of the lower copy may include that of the controller:
Although the chain between the raised DP and the copy is now split, the lower copy still retains its identity. Pragmatic factors, such as the presence of the collective adverb *together*, force the addition of a semantic plural feature [SEM PLURAL].

In short, under this analysis, control involves movement from a θ-position to θ-position, creating an ill-formed chain; Chain Splitting applies to any control chain in order to salvage the derivation; as a result, control always allows PC. Raising, which now includes EC-cases, yields well-formed chains with one, and only one, θ-role; thus, Chain Splitting may not apply to raising chains, given (19); hence, PC is not available in raising, as desired.\(^5\) Observe that B&P’s Chain Splitting approach makes a set of predictions, as described in (22).

\begin{enumerate}
\item A chain with two θ-positions yields PC.
\item A chain with only one θ-position yields EC.
\end{enumerate}

4. **Tough constructions**

B&P, in passing, use a *tough* sentence as a confirmation case for their analysis. Here, we will test the predictions in (22) by examining the absence of PC in *tough* and related missing object (MO) constructions. We will see, below, that (i) B&P’s discussion is incomplete, and a full paradigm does not support their conclusion, and (ii) the prediction in (22) fails with the experience-PRO control relation in those constructions.

4.1 “Control” of the embedded object by the matrix subject

Recall the prediction made by B&P’s proposal (22b); Chain Splitting does not apply to a chain with one and only one θ-position. B&P argues that this prediction is confirmed in *tough*-sentences, under the assumptions in (23), schematically represented in (24).\(^6\) B&P note that PC reading, as in (25b), is not available in (25a). The data in (26) and (27) make the same point.

\(^5\) B&P’s (2004) presentation of their analysis is somewhat sketchy and details are not fully clear. There are several potential difficulties within their proposal. In particular, B&P’s resurrection of the notion *chain* seems incompatible with the Inclusiveness condition (Chomsky 1995), since it adds “new objects … in the course of computation apart from rearrangements of lexical properties …” (Chomsky 1995: 228). However, for the sake of discussion, let us accept a chain as a legitimate object at the interface.

\(^6\) The assumptions in (23) are not uncontroversial. Direct movement from the embedded object to the matrix subject seems rather questionable, and the non-θ status of the matrix subject has not been firmly established (Lasnik and Fiengo 1974, Jones 1985, Kawai 1992, 2002, Kaneko 1996, among others). Admittedly, the non-θ subject analysis of *tough*-constructions seems more popular (e.g., Rosenbaum 1967, Browning 1986, Goh 2000, Hicks 2009, among others).
The matrix subject is a non-θ position.

The embedded object A-moves to the matrix subject.

a. The matrix subject is difficult to VERB DP.
   b. DP₁ is difficult to VERB e₁.

This stone statue₁ is difficult to put e₁, in a circle.

These stone statues₁ are difficult to put e₁ in a circle.

This stone statue₁ is difficult to line up e₁, in a circle.

These stone statues₁ are difficult to line up e₁ in a circle.

This sonata₁ is difficult to play e₁, together.

These sonatas₁ are difficult to play e₁ together.

Observe that their demonstration is incomplete, since it only tests the prediction in (22a). In order to make a complete paradigm, however, we need to also consider (22b) with cases with a thematic matrix subject.

It turns out that English offers exactly the right kinds of constructions to test (22b). Tough constructions have their related Missing Object (MO) constructions (Lasnik and Fiengo 1974, Jones 1985, Browning 1986, Kawai 1992, 2002, Pytlyk 2011): e.g., pure OD (aka pretty) construction and degree construction with an MO, such as in (28a) and (29a), respectively. The predicates of those constructions have a thematic subject, as the ungrammaticality of (28b) and (29b) shows.

Mary₁ is pretty to look at e₁.

It is pretty to look at Mary.

Mary₁ is too stubborn to talk to e₁.

It is too stubborn to talk to Mary.

Assuming that A-movement of the embedded object to the matrix subject is involved in (28a) and (29a), Mary is moved from a 0-position to another 0-position, thus creating ill-formed chains. Being ill-formed, they are subject to Chain Splitting (18). Thus, (22b) predicts that PC reading is available with those two constructions. This prediction is not borne out, however, as shown in (30) and (31). Observe that the sentences are grammatical if the matrix subjects in those sentences are made into plural.

This puzzle piece₁ is a bastard to put e₁, together.

My advisor₁ is an angel to defend my thesis in front of e₁, together.

This sonata₁ is too demanding (for me) to play e₁, together.

This opera₁ is too long (for me) to watch e₁, back-to-back.

Bill₁ is too busy to gather e₁, at 6.

Thus, the prediction that B&P’s analysis makes is not confirmed with MO constructions. Tough- and other MO constructions do not offer PC-reading, independent of the 0-hood of the matrix subject.
This result may be explained as follows. In *tough-* and other MO constructions, the matrix subject and the embedded object do not involve A-movement, nor do they form an A-chain between them; rather, they involve something like null operator (Op) predication (Chomsky 1977, Browning 1986, Kawai 1992, among others). If so, those constructions do not offer counterexamples for B&P’s proposal; they are simply irrelevant. In short, the “control” relation between the matrix subject and the embedded object in *tough-* and other MO constructions neither support nor refute B&P’s proposal. Of course, this weakens B&P’s position since one of the goals of MTC is to reduce obligatory referential dependencies into movement; we need to reinstitute Op predication.

4.2 Control of the embedded subject by the matrix experiencer

In this subsection, we will look further into MO constructions since they offer another type of control: namely the one between the “experiencer” and the embedded subject PRO in MO constructions. I take this control relation as a case of OC-PRO, following Epstein’s (1985) argument, not as a case of NOC-PRO. Consider (32).

(32) a. The hard work is pleasant (for the rich) to do.  (Chomsky 1981)
   b. It is pleasant for the rich for the poor to do the hard work.
   c. It is pleasant for the rich (for the rich) to do the hard work.
   d. The hard work is pleasant to do.
   e. The hard work is pleasant [PRO\textsubscript{ARB} to do].
   f. The hard work is pleasant [for pro\textsubscript{1}] [PRO\textsubscript{1} to do].

Judging from the interpretation of (32a), the experiencer of the matrix predicate – be it overt or covert – obligatorily controls PRO. It cannot mean something like (32b), a pragmatically more plausible reading. In short, in a MO-sentence (32a/d), the experiencer of the matrix predicate and the agent of the embedded predicate must be identical, as shown in (32c). What is commonly attributed as arbitrary PRO (PRO\textsubscript{ARB}) in (32e) is, according to Epstein (1985), due to the phonetically null experiencer pro (32f), interpreted at the interface as an experiencer with a universal quantifier. If so, the controller – whether it is overt or covert – is the experiencer (position), and PRO in the subject (agent) position; thus, under the MTC, movement is from a θ- to a θ-position.\footnote{Given the unavailability of PC reading with cost in (35), the difference between oblique and structural Case plays no role here.} Consequently, PC is predicted to be available under B&P’s analysis.

This prediction is, however, not borne out, as shown in (33)-(36). This markedly contrasts with a non-MO infinitive (37), where a PC reading is available.

(33) a. * The library\textsubscript{1} is easy for John\textsubscript{2} [PRO\textsubscript{2} to gather together in e\textsubscript{1}].
   b. * This room\textsubscript{1} is too small for John\textsubscript{2} [PRO\textsubscript{2} to gather in e\textsubscript{1}].
(34) * Mary is pretty (for me) [to look at e1, each other/together].
(35) * The vacation house_i cost John$_2$ $900 [\text{PRO}_2$, to share e$_1, \text{together}].$
(36) * These files$_1$ work for me$_2$ [\text{PRO}_2, to exchange e$_1, \text{each other}].$
(37) It would be easier for John$_1 [\text{PRO}_1$, to gather at the station].

Therefore, we conclude that movement from a θ-position to a θ-position does not always yield PC reading, contrary to B&P’s predictions in (13).

5. Implications

With respect to MO-constructions, the predictions in (22) are not borne out. This casts doubt on the strict correlation between the number of θ-roles in a chain and the availability of PC. The result that we saw in the previous section is correctly predicted by Landau’s (2000) tense-agreement based analysis.

Landau (2000) argues the availability of PC is closely related to the tense of the embedded infinitive, as in (38). With EC-predicates, the infinitives do not license the temporal adverb tomorrow, as in (39a/b), but with PC-predicates, they do, as in (39c/d).

(38) PC is available in an infinitive with an independent tense (i.e., unrealized future (UF) tense), but not in an infinitive without an independent (UF) tense (Stowell 1982).

(39) a. * Yesterday, John began to kiss Mary tomorrow.
    b. * Yesterday, John dared to kiss Mary tomorrow.
    c. Yesterday, John wanted to kiss Mary tomorrow.
    d. Yesterday, John hoped to kiss Mary tomorrow.  

MO constructions lack the independent tense interpretation (40), thus the lack of PC reading in them is correctly predicted by (38).

(40) a. * Yesterday, Mary was easy to kiss tomorrow.
    b. * Yesterday, Mary was pretty to look at tomorrow.
    c. * Yesterday, Mary was too stubborn to talk to tomorrow.

The infinitive clauses of MO constructions “act” as if they lack a functioning C within. They disallow any pied-piped overt complementizer (41a/b), unlike infinitival relatives (41c) (Kawai 1992). In addition, they disallow overt for-complementizer (42a/b), unlike its non-MO counterpart (42c).

(41) a. * John is difficult with whom to talk.
    b. * John is too stubborn with whom to write a paper.
    c. This is the man with whom to write a paper.
(42) a. * The hard work is pleasant for the rich [\text{CP for [\text{IP the poor to do e}]]].

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8 The real issue here is the tense of the matrix clause, not the presence of yesterday. The sentences in (39a/b) remain ungrammatical without the temporal adverb.
b. * The theorem was too complex for the teacher \([CP \text{ for } [IP \text{ the students to prove } e]]\).

c. It is pleasant for the rich for the poor to do the hard work.

d. The coach was too incompetent for the team \([CP \text{ for } [IP \text{ the supporters to cheer for them}]]\).

(43)
a. Last year, the revenue was too small to give away bonuses this year
b. The air miles he earned last year were not enough for John to fly to Europe this year.

Further, with degree constructions without a missing object, both the independent (UF) tense and PC are available, as in (44).

(44)
a. The schedule for last night was too tight for John\(_1\) [PRO\(_1\) to gather together tonight ].

b. His advisor was too busy for John\(_1\) [PRO\(_1\) to write the article together ].

c. Yesterday, the coach was too drunk for the team to win the game today.

The data in (39)–(44) seem to support the generalization in (38). Unfortunately, the ungrammaticality of (45) is problematic for (38).

(45)
a. * Yesterday, it was gratifying to finish the dissertation tomorrow.
b. * Yesterday, it was impossible to deliver the packet tomorrow.

Recall that the type of sentences in (45) can host PC, as in (37), and a for complementizer, as in (42c); thus, (38) predicts the availability of the independent (UF) tense in the embedded complements, contrary to the fact, as shown in (45). Snarska (2007, 2008, 2009) also points out another problem for (38); namely, PC is available in some adjunct gerundive clauses without an independent tense (and C). Thus, (38) needs further modification. Perhaps, what we need is to reverse the picture, following the spirit of B&P’s proposal; that is, PC is in principle available for all control cases, unless some condition blocks it. For that, we need to find out the relevant difference between the infinitives in (43) and (45).

Van Urk (2010) offers an attractive alternative analysis, which is rather similar in intuition with B&P’s proposal, although a detailed discussion on it is beyond the scope of this paper. In his analysis, EC and raising are indeed obtained by movement, whereas PC is not. Recall that B&P’s approach first creates a two member chain only to break it up into two one-member chains later. This redundancy can be eliminated if two one-member chains are created from the beginning. This analysis also takes the presence of an independent tense as crucial characteristics for the availability of PC. His analysis correctly
accounts for a wide range of control- and related phenomena, and is very successful cross-linguistically. Therefore, it is a rather attractive approach.

At the same time, I have some reservation with this solution as the ultimate answer to control, because such a hybrid theory is a step backward from a theory without redundancy. As Brody (1997, 2001, 2002) argues, the apparent redundancy between the movement (internal merge and agree) and well-formedness of chains seems undesirable for grammar. Further investigation is in order.

References


