[REVIEW]

Strengthening the PRO Hypothesis

By Lisa A. Reed, Mouton De Gruyter, Berlin, 2014, x+385pp.

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1. Introduction

This paper is a book review of Lisa A. Reed's *Strengthening the PRO Hypothesis*. In this book, Reed aims to capture various syntactic and semantic aspects of control constructions. In more specific terms, after providing an extensive and exhaustive review of the literature on this construction and presenting empirical data in favor of the existence of the empty category PRO,¹ Reed proposes a new syntactic analysis of control constructions, which assumes that (i) PRO lacks a Case or ϕ -feature, (ii) PRO does not necessarily undergo overt movement to the specifier position of a nonfinite TP, and (iii) control verbs can select various projections other than CP.

In this review, we will first summarize Reed's book, concentrating on only the essential points of her work. We will then make a couple of brief comments.

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¹ Reed (pp. 12–13) notes that the well-known term PRO in Chomsky and Lasnik (1977) among others was first introduced as a non-overt syntactic element under the term of the “Doom” pronoun in Postal (1970).

2. An Overview of the Book

2.1. Review of the Literature by Reed

Reed begins her analysis by providing a detailed review of control constructions. Within her review, previous approaches to control constructions are divided into two major categories: (i) approaches assuming the existence of PRO and (ii) approaches that deny the existence of PRO. We will briefly look at these approaches in turn.

2.1.1. PRO Approaches: Chapter 2

The PRO approach is considered the standard analysis of control constructions within the framework of generative grammar. Reed first takes up the PRO approach developed in the early frameworks of generative grammar, which is summarized as follows. In the framework of the Standard Theory, Chomsky (1965: 21–24) observed a contrast of “embedded passives” (a term used by Davies and Dubinsky (2004: 5)) between control constructions and the so-called Exceptional Case Marking (ECM) (Chomsky (1981)) constructions. Based on Chomsky’s (1965) observations, Rosenbaum (1967: 17–21) developed an analysis of control constructions that assumes the operation of an “Identity Erasure Transformation,” called “Equi-NP deletion” in Chomsky (1981: 87) among other names. This transformation is applied to an embedded subject NP under identity with an NP in the matrix clause when there is no intervening NP between the two NPs, i.e. according to Postal’s (1970: 468) “Minimal Distance Principle.” Postal (1970) developed Rosenbaum’s analysis, proposing an analysis that assumes the existence of a syntactic projection called the “Doom” pronoun (later dubbed PRO), pointing out the existence of a PRO whose antecedent is not determined by another NP contained in the sentence, i.e. arbitrary PRO. In the framework of the Revised Extended Standard Theory, Chomsky and Lasnik (1977), proposing the Rule of Control as a Filter and dispensing with Equi-NP deletion, argued that control verbs uniformly select S’ (=CP), not S (=TP), as complements. This argument is based on the uniform interpretation seen in *Cherri promised Cindy* [_S’ that [_S she would leave early]] (p. 25) and *Cherri promised Cindy* [_S’ [_S [_N e] [_{VP} to leave early]]] (p. 25). Given the interpretive parallelism between these clauses, it is reasonable to assume that the control verb *promise* uniformly takes CP as its complement.

The PRO approach was further advanced within Chomsky’s (1981, 1982) Principles and Parameters framework. As Reed (p. 50) summarizes, Chom-

sky (1982: 78–89) attempted to capture the distribution of PRO, making use of the two types of feature distinctions, i.e. [$\pm$ anaphoric] and [$\pm$ pronominal]. According to Chomsky (1981, 1982), PRO is a phonetically unrealized nominal element that has both anaphoric and pronominal properties. For instance, it is anaphoric in the sense that, like anaphors, PRO must be controlled by its appropriate controller, as in the case of obligatory control in *John_i asked Bill_k [PRO_{*i/k} to shave himself]* and *John_i promised Bill_k [PRO_{i/*k} to shave himself]* (p. 37). On the other hand, PRO can be argued to have a pronominal nature, because (i) PRO induces Postal's (1971) "cross-over" effect, as in **Who_i did [Doom_i punching Harry] annoy the most?* (p. 18, originally from Postal (1970: 482)),² and (ii) PRO can have an arbitrary referent, similar to a normal overt pronoun such as *they*, as illustrated in *[Criticizing oneself fairly] is difficult* (p. 21, originally from Postal (1970: 480)). Nominal elements with an anaphoric nature must satisfy Chomsky's (1981: 188) Binding Principle A, which states, "[a]n anaphor is bound in its governing category," whereas those with a pronominal nature must satisfy Chomsky's (1981: 188) Binding Principle B, which states, "[a] pronominal is free in its governing category." Therefore, because PRO is both anaphoric and pronominal, it must satisfy both Binding Principle A and Binding Principle B. To satisfy both requirements, Chomsky (1981: 191) proposed the well-known generalization that "PRO is ungoverned." Consider, for instance, the clauses *I persuaded Mary [S' [S PRO to stay]]* and *[S' [S PRO to clear myself of all charges]] is important to me* (p. 51). These examples illustrate that PRO can appear in an ungoverned position, i.e. a position "sheltered" by S' (=CP).

The above analysis, however, is difficult to maintain within the Minimalist framework of Chomsky (1995, 2000), because this framework was constructed to entirely eliminate the notion of government and binding principles.³ A Minimalist analysis taken up by Reed is that of Chomsky and Lasnik (1993), who assumed that PRO bears null Case and ϕ -features. As an argument for the ϕ -features of PRO, Reed takes up Chomsky and Lasnik's (1993) examples concerning agreement, as in the contrast *They want [PRO to be officers]* and **I want [PRO to be officers]* (p. 97, originally from Chomsky and Lasnik (1993: 561)). These examples indicate that

² "Doom" here corresponds to PRO, as mentioned in note 1.

³ For the details of Case-theoretic reasons for motivating null Case approach to PRO, see Reed's summary in her Section 2.3.1.

PRO bears ϕ -features that induce agreement with the predicate NP *officers*. Let us next examine the null Case of PRO. The null Case is checked by a corresponding non-finite T, i.e., more accurately, by a control T, not by an ECM or raising T, as elaborated in subsequent works such as Bošković (1997) among others. This checking relation is established under certain syntactic relations such as the specifier-head relation. Allowing PRO to appear in the position where the null Case cannot be checked, e.g. in the specifier position of finite T, leads to ungrammaticality, as in *They certified [that she/*PRO is fit for duty]* (p. 98).

2.1.2. Approaches That Do Not Assume PRO: Chapter 3

After an extensive review of the PRO approach, Reed gives a review of an approach that does not assume the existence of PRO. This approach is largely divided into two approaches: the “Movement Theories of Control (MTC) approach” (p. 144) and the “implicit argument” approach (p. 173, note 9) (or the “bare VP” approach (p. 173)).

The MTC approach has been advanced by Hornstein (1999), among others. Reed (pp. 144–145) shows that, under this approach, control constructions like (1a) are derived as in (1b).

- (1) a. The crew plans [PRO to finish up by 9:00]. (p. 144)
- b. The crew plans [_{IP} (the crew) to (the crew) finish up by 9:00].⁴ (p. 145)

In (1b), *The crew* (i.e. the controller in (1a)) is first merged as a subject of the embedded VP, and it undergoes movement via the specifier position of the embedded IP to the matrix subject position. Therefore, under the MTC approach, PRO is seen to be the trace or copy of the controller.

Reed next takes up the implicit argument approach to control constructions, developed by Montague (1974) among others, who denied the existence of PRO by simply assuming that the control verb takes VP as its complement, as illustrated in *Emma tried [_{VP} to play a very difficult piece on the piano]* (p. 171). As shown, the control verb *tried* takes a bare VP with no non-overt element such as PRO occurring within that projection. With regard to the issue of the reference of an understood infinitival subject, Reed reviews Montague’s accounts. Roughly speaking, she (pp. 173–174) states that, in the sentence *Mary tried to win* (p. 174), the predi-

⁴ We follow Reed’s notation, where the elements enclosed in parentheses are equivalent to the trace *t*.

cate *try* takes both the predicate *win* (working as a *winning* property) and the individual *Mary* as its arguments, with the former functioning as an internal argument and the latter functioning as an external argument. She then argues that, in this case, “the individual [...] *Mary* stands in a *try*-relation to the property *win*” (p. 173). It would seem that we could paraphrase this to say that *Mary* functions as an argument for *try-to-win*.

2.2. Critical Reexamination of Arguments for PRO: Chapter 4

Having quite extensively reviewed the literature on control constructions, Reed goes on to conduct a critical reexamination of arguments in favor of the existence of PRO. Her reexamination comprises four factors: (i) thematic relations within control constructions, (ii) the facts concerning binding, (iii) the facts on agreement, and (iv) the realization of (non-) default Case in languages such as Ancient Greek. Examining these factors in detail, Reed draws the conclusion that they are not only accounted for by the PRO approach, but they are also accounted for by the MTC and implicit argument approaches. For expository purposes, we will narrow our focus on the third case, which is given in (2) as follows:

- (2) a. *They want [their son to become **millionaires**].
 b. They want [PRO to become **millionaires**]. (p. 230)

Similarly to Chomsky and Lasnik’s (1993) data discussed in the last paragraph of 2.1.1, if we adopt the PRO approach, the contrast in (2) receives a quite straightforward account, because it follows from the existence of PRO that in (2b) PRO’s ϕ -features agree with the predicate NP *millionaires*.

However, Reed (pp. 229–231) points out that this type of data can also be accounted for with the MTC and implicit argument approaches. For instance, in the MTC approach, the matrix subject *They* is first merged as an embedded subject, agreeing successfully with the predicate NP *millionaires*, and then undergoes movement into the matrix subject position.

In addition, under the implicit argument approach, the NP *They* functions as an external argument of the complex predicate *want-to-become-millionaires*, which approximately means that *They* functions both as a subject of *want* and as a subject of *become*, with the predicate NP *millionaires* correctly agreeing with *They*.

2.3. Presenting Empirical Arguments for the PRO Approach: Chapter 5

After giving a critical reexamination of the empirical data for the PRO approach, Reed provides five types of empirical arguments for PRO: (i) indirect infinitival *wh*-questions, (ii) patterns concerning quantifier float, (iii)

patterns relating to the distribution of expletive elements, (iv) patterns concerning the restrictions on the co-occurrence of expletives and the verbs in French, and (v) patterns of clitic climbing in French. Here, we only take up the first argument.

Reed points out that a control verb can take as its complement an infinitival indirect *wh*-question, as in *Larry told them* [_{CP} **which outfit** [_{IP} PRO *to buy (which outfit) for themselves*]] (p. 241). In the PRO approach, this example is readily accounted for as a case of normal *wh*-movement applied within the embedded CP.

On the other hand, Reed points out that in the MTC advanced by Hornstein (1999), the example mentioned above has a structure similar to *Larry told them* [_{CP} **which outfit** [_{IP} pro *to buy (which outfit) for themselves*]] (p. 242). Here, the empty category pro, instead of PRO, appears in the specifier position of embedded IP and the embedded CP functions as a so-called *wh*-island (Ross (1967)), which prohibits the movement of an element out of that domain. Under Hornstein's analysis, arbitrary pro occurs in the specifier position of the embedded IP. However, Hornstein's analysis faces a number of problems, as Reed (pp. 242–243) shows. One of these problems is the fact that the distribution of such a pro is restricted to the non-finite clauses in English, whereas, in languages such as Italian and Spanish, it is not.⁵

Furthermore, Reed shows that the implicit argument approach cannot be adopted to account for this construction because it is obvious that, with this approach, the control verb takes a VP complement and that the *wh*-phrase moves incorrectly into the specifier position of VP as its final landing site.

2.4. Reed's Proposal: Chapter 6

Having considered the set of empirical data from 2.2 (Reed's Chapter 4) and 2.3 (Chapter 5), Reed proposes a brand new syntactic analysis of PRO. Her proposal in Chapter 6 can be summarized as follows:

- (3) a. PRO bears [N] and [–expletive] features, but it has no Case or ϕ -feature.
- b. Control and gerundive Ts bear no EPP or ϕ -feature.⁶

⁵ For another problem with regard to this issue, see pp. 242–244, which is concerned with obligatory Event control phenomena, as discussed in Williams (1985).

⁶ A word for terminological clarification may be in order here. As for the term “gerund,” we adopt Huddleston and Pullum's (2002: 1220–1222) view, in which the distinction between “gerund” in traditional terms (e.g. *I remember [seeing them to-*

- c. Control predicates may take as their complements projections such as IP, i.e. projections other than CP.

Given (3a, b), which, as Reed (p. 4) points out, is partially similar to Bowers' (2002) assumption, we see that PRO and control or gerundive T do not establish an agreement relation: rather, PRO appears in the positions where such a relation of agreement cannot be established. This proposal contributes to the capture of the basic distribution of PRO (which appears only in an ungoverned position, as mentioned in 2.1.1). An interesting point concerning (3a) is that Reed is assuming that an ordinary NP has partially similar properties to PRO, as illustrated in example (4) (and the similar French example in p. 263).

- (4) **The villagers/PRO/*They/*Them** being poor, they didn't have the financial resources needed to hire an expert. (p. 121)

As (4) shows, both the lexical NP *The villagers* and PRO appear in the subject position of gerundial constructions, where the pronominal elements *They* and *Them* do not. Reed accounts for this fact by supposing that an ordinary lexical NP, similarly to PRO, lacks a Case feature (though it has ϕ -features), and that it can appear in the position where a Case feature is not valued because gerundive T is assumed to have no ϕ -features to value the Case feature of NP.⁷ On the other hand, the pronominals, which have Case features, are ruled out, because their Case features are not valued by such a gerundive T.

Furthermore, according to (3b), neither control T nor gerundive T bears the EPP feature, so that PRO does not necessarily undergo an overt movement into the specifier position of the control T. Reed illustrates this, using

gether] (Huddleston and Pullum (2002: 1220))) and "present participle" (e.g. [*Not having read this book*], *I can't comment* (Huddleston and Pullum (2002: 1220))) cannot be obviously drawn. Therefore, we use the phrase "gerund" to include both of these V-ing forms. Similarly, Reed seems to use this term to include both types.

⁷ An anonymous *EL* reviewer pointed out that, under Reed's analysis which assumes that an ordinary lexical NP has no Case feature, it is not clear how we should rule out examples such as **It seems to John be crazy*, where the NP *John* remains Caseless in its base-generated position. Under Reed's (pp. 265–267) framework, the raising T *to*, similarly to control T, is ϕ -incomplete, so that it does not need to agree with any element. Furthermore, the NP *John* in this example does not bear an uninterpretable Case feature, and EPP feature of the matrix T is satisfied by merging the expletive *It* in its specifier position. Therefore, this type of example will be predicted to be incorrectly convergent. This may be another problem with Reed's framework, which needs some consideration. It should be added that the example of unaccusative verbs pointed out in Section 3 may raise a similar problem.

the following contrast:

- (5) a. [To **both** be betrayed by their friends] would be disastrous.
 b. *[**Both** to be betrayed by their friends] would be disastrous.
 (p. 257)

If PRO obligatorily rises into the control T's domain, (5b) would be acceptable, just as (5a) is. Reed (pp. 257–258) further argues that PRO's movement is restricted to the position within the projection lower than NegP.

Finally, as proposed in (3c), Reed argues that the projections taken by control predicates are not necessarily restricted to CP; rather, they can take other projections, as shown below:

- (6) a. *_{[CP C [IP He would buy a car]]} was believed at that time.
 b. _[IP To PRO buy a car] was desirable at that time. (p. 260)

Following Stowell (1981: 396), Reed attributes the unacceptability of (6a) to the violation of the Empty Category Principle (Chomsky (1981: 250)). That is, the empty category C is not properly governed by anything in (6a). Note here that if (6b) contained CP in the subject's projection, it would incorrectly be ruled out for the same reason as (6a).

In summary, under Reed's theory, (i) PRO is a non-expletive nominal element without phonetic content, totally lacking Case or ϕ -feature, (ii) control T does not bear an EPP or ϕ -feature, inducing no agreement with PRO or overt movement of PRO, and (iii) control verbs can select CP as well as other projections such as IP. The combinations of these assumptions account for the basic syntactic properties of PRO. Furthermore, according to Reed, the empirical data discussed in 2.2 and 2.3 can be successfully accounted for because her analysis *does* assume the existence of PRO.⁸

⁸ As an anonymous *EL* reviewer pointed out, Chomsky and Lasnik's (1993: 561) examples *They want* [PRO *to be officers*] and **I want* [PRO *to be officers*] (reproduced from 2.1.1) may be problematic for Reed's analysis, because PRO lacks ϕ -features under her system. This contrast can be accounted for by Reed's theory of control. In her Chapter 7, Reed proposes her version of Control Theory, according to which, as a default, PRO's reference is determined by the interaction of (i) syntactic requirements that restrict PRO's antecedent to its closest c-commanding element within a certain domain and (ii) lexical specifications required by control verbs (with *motivate* and *promise* lexically specifying PRO's referent differently, as developed in pp. 303–304). In the case where this default rule cannot be applied, PRO receives an arbitrary interpretation (yielding PRO_{arb}). In this sense, Reed proposes a way of determining the reference of PRO that makes use of both syntax and semantics. As a result of this mechanism, PRO, inherently lacking ϕ -features, comes to bear ϕ -features by the time it is interpreted at the semantic interface. Therefore, under Reed's system, the examples above can be accounted for as a case of a (mis)match in ϕ -features between PRO (that receives its ϕ -features from the

3. Comments on Reed

We have so far reviewed the original contents of Reed's book only briefly. In this section, we will provide a few comments on her work. As a first comment, we would like to say that Reed's work deserves attention, because it presents a novel syntactic-feature-based analysis based on the critical reevaluation of empirical arguments for PRO and the presentation of solid empirical arguments in favor of PRO (some of which have not been seen in the literature).

We can also praise Reed for providing a review of quite a wide range of the previous approaches to control constructions, the space devoted to which amounts to more than half of the work. We are aware of no other such book that reviews the literature on this issue more extensively than this one, apart from the work by Davies and Dubinsky (2004) among others. Therefore, we can safely say that Reed's review will play a prominent role in providing the whole history and fundamental theories of control constructions for its readers.

It seems to me, however, that Reed's work has a number of problems. The first problem is that, in her system, PRO lacks both null Case and ϕ -features, and control T also lacks ϕ -features for agreement. That is, PRO can appear and be licensed in such a position where it does not enter into relations of agreement with other items. If this analysis is correct, it would be incorrectly expected that PRO appears without limit in other positions where no agreement relations are established. Such positions, for instance, may include the position of an adjunct (e.g. [_{VP} [_{VP} *read the review*] [_{NP} *yesterday*]]/[_{VP} [_{VP} *read the review*] [PRO]]), e.g. as in the positions of "bare NP adverb" (Larson (1985)), the position of NP that modifies another NP (e.g. [*The* [_{NP} *Faculty of Liberal Arts*] [_{NP} *Review*]]/[*The* [PRO] [_{NP} *Review*]]), the complement position of an unaccusative verb (e.g. [_{VP} *arrived* [_{NP} *a man*]]/[_{VP} *arrived* [PRO]] with the latter deriving e.g. [*There* [_{VP} *arrived* [PRO]]]), and so forth. Furthermore, if there is no restriction on the number of PROs that may appear in such a position, it could appear, in

matrix subject NP) and the predicate NP *officers*. It should be noted, however, that, in order to account for this contrast, Reed's system has to refer to the semantic consideration, which is not necessary under an approach that assumes the existence of ϕ -features within PRO. I am grateful to the reviewer for bringing my attention to this issue.

principle, to multiply without limit (e.g. [PRO [PRO [PRO [...]]]]).⁹

The second problem concerns the assumption that a gerundive T is unable to value Case features of pronominals. However, as a number of descriptive works point out, at least in English, pronominals *do* occur as a subject of a gerundive T, as illustrated in (7).¹⁰

- (7) They appointed Max [he/him being the only one who spoke Greek].
(Huddleston and Pullum (2002: 1191))

If this judgement is shared generally and thus sustained, Reed's assumption on gerundive T's feature matrix will need some modification. At least, it should be reconsidered whether the position of the gerundive clause affects its acceptability.

4. Conclusion

In this paper, we have reviewed Reed's work on control constructions, which, as is explicitly claimed in the title of the book, attempts to "strengthen" the PRO approach. With an extensive and exhaustive review of the area of control constructions within the framework of generative grammar and other frameworks, including formal semantics, as well as a

⁹ One might argue that at least some of these undesirable overgenerations can be blocked by assuming that, along with Reed (p. 273), PRO intrinsically bears a non-expletive property and this property bans PRO from being base-generated in a non-thematic position. One way to implement this idea within the Minimalist framework, which dispenses with Chomsky's (1981: 36) θ -criterion, is to assume the existence of some kind of feature (e.g. Reed's (p. 267) [-expletive]) checked under agreement with another item. The existence of such a feature, however, seems to be doubtful. Suppose that the feature [-expletive] is shared by an ordinary NP contained within a simple sentence such as *Mary likes the boy*. In this case, even if the feature [-expletive] of *the boy* can be checked by merging it with the verb *likes*, the same checking relation cannot be established in the case of *Mary*, because it is outside that verb's c-commanding domain. Therefore, it can be concluded that such a theory is an unprincipled stipulation; at least, elaborations as to the functions of this feature will be needed for Reed's theory.

In this regard, an anonymous *EL* reviewer pointed out the existence of the mechanism of θ -role assignment as assumed in Chomsky (2004: 110–111), where it is stated that argument-structural properties of predicates should be satisfied by External Merge. As the reviewer suggested, if this system is tenable, it is possible to avoid PRO's being externally merged in a non-thematic position. It should be noted, however, that the case of unaccusative verbs still seems to be problematic for Reed's analysis.

¹⁰ The gerundial clause *he/him being the only one who spoke Greek* in (7), similarly to (4), serves as an adjunct to the matrix clause. Therefore, it is safely arguable that the examples (4) and (7) belong to the same type of constructions.

cautious reexamination of the empirical arguments that were assumed to support the PRO hypothesis and the presentation of new empirical facts in favor of this hypothesis, Reed's work, although not free from problems, presents a unique syntactic analysis, which will enable us to successfully account for a wide range of empirical data. In this sense, it seems safe to say that it is well worthwhile to refer to this book to obtain a better understanding of control constructions.

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