

## MODIFYING AND STRENGTHENING THE PRO HYPOTHESIS

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### 0. Short Abstract

The syntax of Control structures like *They love to swim.* has long been a topic of debate. Current generative treatments of such sentences, as in, e.g., Baltin (1995), Bošković (1996, 2007), Chomsky & Lasnik (1993, 1995), Landau (2004, 2008), Sigurðsson (2008), among others, continue to analyze them in terms of a phonetically non-overt, non-expletive, pronominal (PRO) in the subject position of the complement clause, as in e.g., Chomsky's & Lasnik's structure in (1) below, with authors differing as to the status of the category XP (e.g., Is it CP or IP?) and the exact (Case) checking mechanisms at work (e.g., Is the distribution of PRO determined by a need for null Case, R feature checking, or something else? If PRO is associated with null Case, is it checked in Spec of IP, VP-internally, or elsewhere?).

- (1) They love [XP PRO to (PRO) swim].

The PRO hypothesis also continues to be challenged in alternative syntactic frameworks, semantic circles, and even within the generative tradition itself, cf. Bach (1979), Boeckx, Hornstein & Nunes (2010), Bresnan (1982), Chierchia (1985), Culicover & Wilkins (1986), Dowty (1985), Gazdar (1982), Hornstein (1999), Jackendoff (1990), Manzini & Roussou (2000), Montague (1974: Ch. 8), O'Neil (1995), Sag & Pollard (1991), among others. Within these frameworks, (1) is either treated as involving an embedded "bare VP" complement (in generative terms, a verbal small clause that is not dominated by a vP, but is associated, via argument structure, with an implicit thematic subject) or as an embedded IP complement with NP or feature movement into the matrix clause, as in, for example, (2), due to Hornstein (1999).

- (2) They love [(they) to (they) swim].

This presentation will:

- (a) critically examine four empirical paradigms currently assumed to favor a PRO approach to Control over competing analyses and demonstrate that Movement and implicit argument approaches can, in fact, offer what are arguably equally plausible treatments of these particular facts;
- (b) develop five novel arguments that are presently amendable to analysis only within a PRO approach;
- (c) put forth a novel PRO approach to Control according to which PRO continues to be analyzed as a non-expletive nominal, but one that lacks both phi- and Case features in the computational component. Contra standard theory, PRO will also be argued to never undergo movement to a position even as high as the first NegP that dominates its initial merge position. Furthermore, Control complementation will be shown to not be limited to a single type of XP, but to take the form of such diverse categories as CP, IP, vP and VP.

### 1. Detailed Abstract

#### **Part 1 of the Presentation: Arguments Previously Advanced in Favor of a PRO Approach to Control (as Opposed to a "Bare VP" or Movement Analysis) are Inconclusive**

The presentation will begin by critically re-examining four arguments currently assumed to favor a PRO approach to Control over competing theories. These are briefly summarized below in (3). (For a relatively recent enumeration of the first three arguments, see, e.g. Radford (2004: 108-111), for the last, Landau (2008), Sigurðsson (2008: 421), and the many references cited therein.)

- (3) a. Natural language grammars require an **explicit, predictable means of mapping argument structure onto syntax**. As part of that mapping process, it is assumed in generative theory that if the lexical semantics of a verb entails the existence of a thematic subject, then that thematic role must be assigned to one and only one non-expletive argument entering the derivation in the Spec of a thematic v/Pr. This hypothesis accounts, among other things, for contrasts of the type *I/\*There saw him.* in which the subject theta-role of the verb *see* in the *there* variant fails to be assigned. One consequence of this approach to argument mapping is that it entails that a subject theta-role be assigned to a non-expletive argument in the Spec vP/PrP of the complement clause of a Control verb like *plan* in *I was planning to attend the meeting*.
- b. The PRO hypothesis provides an explicit, systematic account of **binding and agreement facts** in Control clauses, accounting for contrasts like *\*They want John to help themselves./They want to help themselves.* I.e., positing a non-overt subject in the Control clause in the second example provides an appropriate antecedent for the anaphor *themselves*. Agreement contrasts such as *They want [PRO/\*their son to become millionaires.]* follow in a similar manner.
- c. The PRO hypothesis can **provide a means** of explaining **how predicative elements** in Control structures in rich case languages like Ancient Greek, Icelandic, and Russian surface in a **non-default case form**. I.e., the predicative element in a Control clause undergoes agreement with PRO.

To provide one brief illustration of how the same array of facts can be accommodated under alternative approaches to Control (the remaining paradigms in (3) will be shown to be open to similar alternative treatments), consider how a Movement analysis, like that of Hornstein (1999) would treat the binding data mentioned above in (3b). According to Hornstein, *John* in a sentence like (4a) and *they* in (4b) enter the derivation as the subject of the embedded verb: the former, singular NP fails to serve as an appropriate antecedent for the plural anaphor *themselves*, while *they* matches it in phi-features.

- (4) a. *\*They want [John to (John) help themselves].*  
b. *They want [(they) to (they) help themselves].*

“Bare VP” approaches offer a different account: Meaning Postulates (MPs) associated with Control verbs like *want* specify that the matrix overt subject be understood to be co-referential with the implicit subject of the complement, thereby entailing that the two match in phi-features.

This portion of the presentation arrives at the conclusion that there are, at present, no compelling arguments in favor of a PRO approach to Control as opposed to alternative theories, paving the way for the discussion of Section 2.

## **Section 2 of the Presentation: Five Novel Arguments in Favor of a PRO Approach to Control**

In this portion of the presentation, the facts briefly summarized below in (5) will be argued to favor a PRO approach to Control over competing theories:

- (5) a. At present, only the standard (i.e. Chomsky & Lasnik) PRO analysis accounts for the **placement of wh-elements** in indirect questions like the following. That is, the attested placement is expected if Control verbs may select for CP complements.  
*Larry told them [CP which outfit to buy (which outfit) for themselves.]*  
Assuming Obligatory Control involves **IP** complementation, as Hornstein (1999) must in order to allow NP Movement out of the embedded clause, or **VP** complementation, as argued in Dowty (1985) and others, provides no landing site for *wh*-elements in these types of sentences. Making recourse to either adjunction to IP or to VP in order to do so has the undesirable effect of overgenerating similar (but ungrammatical) adjunction structures in non-Control sentences.

- (5) b. Only the PRO approach presently provides a **means** of accounting for the fullest range of **floating quantifier placement** facts attested in Control complement clauses.

A bare VP approach to Control predicts no contrasts in Q-Float between Control sentences and other implicit argument constructions, failing to capture well known contrasts like *I urged my students [to all take that course.]* and *\*This point needs [all emphasizing]*. Under the PRO approach, the former structures involve explicit arguments (PRO) and the latter, implicit ones.

Hornstein's Movement approach to Control treats Subject and Object Control in a parallel fashion – both involve simple NP movement – thereby failing to predict contrasts in floating quantifier placement of the type:

*\*The students wanted [all to be ready to leave by 9.]*

versus *I persuaded the students [all to be ready to leave by 9.]*

Baltin (1995: 212, 217, 224-226) offers one possible PRO analysis of this contrast: Given the lack of mutual c-command between *the students* and the embedded clause in Subject Control structures, the latter is [-predicative], failing to license *all*. In Object Control configurations, the embedded clause is in the requisite c-command relationship with *the students*, making it [+predicative], licensing *all*.

- c. At this point, only the PRO approach offers a **reason why** the presence of **an expletive is forced in certain complement clauses headed by a non-thematic verb**. For example, both the bare VP and the Movement approaches seem unable to provide a non-stipulative account of examples like *\*It is desirable [to become known that he is dishonest.]* I.e., why can't a Control head like *desirable* accept a bare VP headed by a non-thematic verb like *become*? Alternatively, in Hornstein's terms, why do Control heads select for infinitival clauses whose [+T] feature must be checked by a theta-marked NP? The PRO approach accounts for this fact by assuming that PRO is simply a [-expletive] pronoun, just as *they* and *she* are.

- d. Only the PRO approach leads one to **expect potential expletive contrasts** involving verbs like French *falloir* ‘to be necessary’ and *devoir* ‘must.’ **Bare VP** approaches to Control would lead one to expect that since these two verbs both express deontic modality, there is no principled reason why both would not select the same type of complement clause, incorrectly leaving one with no explanation for contrasts such as the following:

*Il \*faut/doit y avoir du savon dans toutes les toilettes publiques.*

‘It is necessary to have soap in all public restrooms.’

‘There must be soap in all public restrooms.’

**Hornstein's movement approach** to Control would predict both of these examples to be licit as pro, under this theory, can be inserted as a Last Resort to check off infinitival I/T's features.

The **PRO approach** does not necessarily involve uniform c-selection for Control verbs. E.g., the standard PRO approach could treat *falloir* as selecting for CP complements and *devoir* for defective IP/TP complements i.e., IPs/TPs not associated with null Case. (An alternative PRO account of these data will be offered below in Section 3.)

- (5) e. The PRO approach leads one to **expect contrasting clitic pronoun placement in Control structures across the Romance languages.**

Bare VP approaches to Control assume that meaning dictates selection for a bare VP. Therefore, the equivalent of *want* in the Romance languages should select for a bare VP complement, incorrectly predicting clitic climbing in French-type languages of the type  
\**Je le veux faire.*  
'I want to do it.'

The Movement approach, which assumes uniform selection for an IP complement, does not offer an immediate account of the ungrammaticality of such examples either, but will be shown to possibly be open to a modification that would allow it to be captured.

The standard PRO approach does not necessarily entail uniform c-selection of a given complement type. Therefore, one could assume, as in Cinque (2001) and Cardinaletti & Shlonsky (2004), that CPs and vP/PrPs are selected in clitic climbing languages, but only CPs in non-climbing ones.

To provide a brief summary of one of these arguments (all will be addressed in the presentation), only a PRO approach to Control offers an immediate account of the placement of wh-items in indirect questions, such as (6a) below. (That such examples involve Obligatory Control is established by the illicitness of the anaphor *themselves* in clearly Non-Obligatory Control sentences like (6b); that (6a) is an indirect question, not a free relative clause, is established by the use of an embedded infinitival clause and the wh-element *which outfit*, cf. Baker (1989: 163-181).)

- (6) a. Larry told them [<sub>CP</sub> **which outfit** [<sub>IP</sub> to [<sub>vP</sub> PRO buy (which outfit) for themselves]]].  
b. \*[PRO to buy an expensive outfit for themselves] would be nice.

If Control involves either a bare VP or a Hornstein-style IP structure, then it is unclear what the surface syntactic position of the wh-element in (6a) might be: One cannot simply assume that wh-elements adjoin to VP or IP since this would overgenerate in non-Control structures, as made clear by the ungrammaticality of (7a) in Standard English and (7b) in Belfast English:

- (7) a. \*Larry told them [<sub>CP</sub> [<sub>IP</sub> they should [<sub>vP</sub> **which outfits** [<sub>vP</sub> buy (which outfits)]]]].  
b. \*Larry told them [<sub>CP</sub> **that** [<sub>IP</sub> **which outfits** [<sub>IP</sub> they should buy (which outfits)]]]].

Having remotivated a PRO approach to Control, the final portion of the presentation will be devoted to laying out the exact mechanisms needed to accommodate the fullest range of empirical facts.

### **Section 3 of the Presentation: A Novel PRO Approach to Control**

In this portion of the presentation, it will be argued that:

- As previously assumed, PRO is a non-expletive nominal. However, contra current assumptions, it lacks both phi- and Case features in the computational component.
- Also contra standard theory, PRO never undergoes movement to a position even as high as the first NegP that dominates its initial merge position.
- Control complementation takes the form of such diverse categories as CP, IP, vP and VP.

The first claim is motivated (among other considerations to be indicated shortly) by the distributional fact exemplified below in (8): namely, PRO and non-pronominal NPs are licensed in gerundive contexts like (8), but pronominal NPs are not.

- (8) **Les villageois/PRO/\*Ils/\*Eux** étant pauvres, ils n'avaient pas les moyens d'engager un expert.  
'The villagers/PRO/\*They/\*Them being poor, they didn't have the financial resources needed to hire an expert.'

According to standard theory, non-pronominal NPs are associated with phi- and Case features parallel to those associated with pronouns, an assumption challenged by the facts in (8). Specifically, if the NP meaning *the villagers* in (8) is associated with structural Case, then the structural Case pronominal equivalent of it should be licensed there as well. If, on the other hand, *les villageois* is in a default Case position in (8), then the default Case pronoun should be licit. However, no pronominal forms are attested;

furthermore, PRO, assumed to be associated with null Case, is. An account of this (and other distributional facts) follows if the following non-standard assumptions are made:

- (9) a. The **presence of an abstract Case feature on a noun is recoverable from overt morphological inflection.** Therefore, in English and French-type languages, **only pronouns** are associated with an **unvalued Case feature.** I.e., **non-pronominal Ns like cats and PRO are Caseless.**
- b. The **presence of phi-features on a noun** is also recoverable from **overt morphological inflection.** Therefore, in English and French-type languages, **pronouns and lexical Ns are both** associated with inherently **valued phi-features.** I.e., **PRO entirely lacks phi-features in the syntactic component.** (The person, number features understood to be associated with PRO are assumed to be semantically determined, as suggested, e.g., in Jackendoff & Culicover (2003).)
- c. **All Case and phi-features (even interpretable ones) must be checked.**
- d. The **presence of unvalued phi-features on functional categories** is **recoverable from overt syntactic effects of agreement**, (e.g., in the case of AgrO/Tr, by VP adverb and Floating Quantifier placement), **not from overt inflection for person, number, and gender.** I.e., AgrO/Tr and semantically [+tense] I/T continue to be associated with phi-features under this system.
- e. While **gerundive I/T** lacks phi-features of its own, perhaps as a consequence of its partial tense marking (expressed in English by *-ing*), it **can still check a noun's phi-features.** I.e., gerundive I/T lacks phi-features that would require checking.

The facts in (8) now follow from the fact that only non-pronominal Ns and PRO lack a Case feature that would require checking by phi-incomplete gerundive I/T.

As will be shown in the presentation, the novel system in (9), coupled with Bowers' (2002) proposal that matrix verbs may differ in syntactic transitivity (i.e. the presence of an AgrO or Tr head, associated with phi-features, in the matrix clause) also accounts straightforwardly for the distribution of NPs in small clauses (10), ECM configurations (11), tensed complement clauses (12), as well as for expletive contrasts of the types in (13) and (14).

- (10) a. I made/let [<sub>AgrOP/TrP</sub> John/him (made/let) [<sub>vP</sub> \***PRO**/(John/him) eat the whole pie]].
- b. The workers deliberately got [<sub>VP/VP</sub> hurt **PRO**].
- (11) He believes [<sub>AgrOP/TrP</sub> himself/Bill (believes) [<sub>IP</sub> (himself/Bill)/\***PRO** to be quite the ladies' man]].
- (12) Mary forgot [that \***PRO/she/the students** had sent in an abstract].
- (13) a. It is desirable [(for) **it/\*PRO** to become known that he is dishonest].
- b. Will actually expects [(for) **it/\*PRO** to seem that he is smart].
- (14) a. Il **faut/\*doit** [**PRO faire** attention où on marche ici].  
 it is-necessary to-pay attention where one walks here  
 'It is necessary to watch one's step when walking through here.'
- b. De par la loi, il **doit/\*faut** [y avoir du savon dans toutes les toilettes publiques].  
 as per the law there must there to-have some soap in all the toilets public  
 'By law, there must be soap in all public restrooms.'

The remaining assumptions that (a) PRO never undergoes movement to a position even as high as the first NegP that dominates its initial merge position and (b) Control complementation takes the form of such diverse categories as CP, IP, vP and VP will be motivated by Q-Float data of the type in (15) and clitic climbing data as in (16).

- (15)    a. \*[Both to be betrayed by their friends] would be disastrous.  
             Ungrammaticality originally observed in Baltin (1995: 211).
  - b. \*They decided [to all not leave at the same time].  
             Originally observed in French by Sportiche in (1988: 437-438).
  - c. The workers deliberately got [VP (\*all) hurt PRO].
- (16) **Lo volevo**    [<sub>vP/PrP</sub> PRO vedere subito].  
 it want-PAST-1SG    to-see immediately  
 'I wanted to see it immediately.'

Specifically, the ungrammaticality of Q-Float in examples like (15a-c) indicates that PRO fails to undergo movement to Spec of IP, as such movement would license the floating quantifier under both Baltin's predication-style analysis of Q-Float and a Sportiche-style "stranding" analysis of Q-Float, as in Bošković (2004). That PRO does not even move as far as NegP is indicated by the ungrammaticality of (15b).

Finally, the facts in (15c) and (16) (among others to be introduced during the presentation) support the view that Control complement clauses may take the form of phrases "smaller" than CP. I.e., vP/PrP complementation is needed in (16) to allow clitic climbing, and a VP small clause Control structure, without movement of PRO, is needed to account for the lack of intermediate projections and Q-Float in examples like (15c).

### Bibliography

- Bach, Emmon. 1979. Control in Montague Grammar. *Linguistic Inquiry* 10.4: 515-531.
- Baker, C.L. 1989. *English syntax*. Cambridge: MIT Press.
- Baltin, Mark. 1995. Floating quantifiers, PRO, and predication. *Linguistic Inquiry* 26.2: 199-248.
- Boeckx, Cedric, Norbert Hornstein and Jairo Nunes. 2010. Icelandic control really is A-movement: Reply to Bobaljik and Landau. *Linguistic Inquiry* 41.1: 111-130.
- Bošković, Željko. 1996. Selection and the categorial status of infinitival complements. *Natural Language and Linguistic Theory* 14.2: 269-304.
- Bošković, Željko. 2004. Be careful where you float your quantifiers. *Natural Language and Linguistic Theory* 22.4: 681-742.
- Bošković, Željko. 2007. The syntax of nonfinite complementation: An economy approach. In *Minimalist syntax: The essential readings*, ed. by Željko Bošković and Howard Lasnik, 86-111. Oxford: Blackwell Publishers.
- Bowers, John. 2002. Transitivity. *Linguistic Inquiry* 33.2: 183-224.
- Bresnan, Joan. 1982. Control and complementation. *Linguistic Inquiry* 13.3: 343-434.
- Cardinaletti, Anna, and Ur Shlonsky. 2004. Clitic positions and restructuring in Italian. *Linguistic Inquiry* 35.4: 519-557.
- Chierchia, Gennaro. 1985. Formal semantics and the grammar of predication. *Linguistic Inquiry* 16.3: 417-443.
- Chomsky, Noam, and Howard Lasnik. 1993. The theory of principles and parameters. In *Syntax: An international handbook of contemporary research*, ed. by Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld, and Theo Vennemann, 506-569. Berlin: Mouton de Gruyter.
- Chomsky, Noam, and Howard Lasnik. 1995. The theory of principles and parameters. In *The minimalist program*, Noam Chomsky, 13-127. Cambridge, Mass.: MIT Press.
- Cinque, Guglielmo. 2001. "Restructuring" and the order of aspectual and root modal heads. In *Current studies in Italian syntax: Essays offered to Lorenzo Renzi*, ed. by Guglielmo Cinque and Giampaolo Salvi, 137-155. Amsterdam: Elsevier.
- Cinque, Guglielmo. 2004. "Restructuring" and functional structure. In *The cartography of syntactic structures*, ed. by Adriana Belletti, 132-191. Oxford: Oxford University Press.

- Culicover, Peter and Wendy Wilkins. 1986. Control, PRO, and the projection principle. *Language* 62.1: 120-153.
- Dowty, David. 1985. On recent analyses of the semantics of Control. *Linguistics & Philosophy* 8.3: 291-331.
- Gazdar, Gerald. 1982. Phrase structure grammar. In *The nature of syntactic representation*, ed. by Pauline Jacobson and Geoffrey Pullum, 131-186. Dordrecht: Reidel.
- Hornstein, Norbert. 1999. Movement and Control. *Linguistic Inquiry* 30.1: 69-96.
- Jackendoff, Ray. 1990. *Semantic structures*. Cambridge, Mass.: MIT Press.
- Jackendoff, Ray, and Peter Culicover. 2003. The semantic basis of Control in English. *Language* 79.3: 517-556.
- Landau, Idan. 2004. The scale of finiteness and the calculus of Control. *Natural Language and Linguistic Theory* 22.4: 811-877.
- Landau, Idan. 2008. Two routes of control: Evidence from case transmission in Russian. *Natural Language and Linguistic Theory* 26.4: 877-924.
- Manzini, M. Rita and Anna Roussou. 2000. A minimalist theory of A-movement and control. *Lingua* 110.6: 409-447.
- Montague, Richard. 1974. The proper treatment of quantification in ordinary English. In *Formal Philosophy*, ed. by Richard Thomason, 247-270. New Haven, Conn.: Yale University Press.
- O'Neil, John. 1995. Out of control. In *Proceedings of the Twenty-Fifth Meeting of the North East Linguistic Society*, Volume 1 (*NELS 25*), ed. by Jill Beckman, 361-371. Amherst: GLSA.
- Radford, Andrew. 2004. *Minimalist syntax: Exploring the structure of English*. Cambridge: Cambridge University Press.
- Sag, Ivan and Carl Pollard. 1991. An integrated theory of complement control. *Language* 67.1: 63-113.
- Sigurðsson, Halldór Ármann. 2008. The case of PRO. *Natural Language and Linguistic Theory* 26.2: 403-450.