

Hornstein, Norbert (2001) *Move! A Minimalist Theory of Construal*.  
Blackwell, viii+248pp, paperback ISBN 0-631-22361-4, \$34.95; hardback ISBN  
0-631-22361-6, *Generative Syntax* series 5.

Daniel Currie Hall, Department of Linguistics, University of Toronto

*Move!* presents a radical rethinking of the mechanisms by which coreference is established between nominal elements in a sentence. The principal goal of this book is to eliminate the rules of construal employed by Government-Binding theory (GB) in favour of a movement analysis compatible with the goals of the Minimalist Program (MP; Chomsky 1995, 1998). To this end, after a concise statement of the minimalist methodology he adopts (chapter 1), Hornstein presents movement-based accounts of controlled PRO (chapters 2 and 3), *tough*-movement and parasitic gaps (chapter 3), and reflexives and bound pronouns (chapter 5). These analyses rely on significant departures from a number of prevailing theoretical assumptions (particularly those concerning  $\theta$ -roles and restrictions on movement), the larger consequences of which are given due consideration in chapters 4 and 6.

The analysis of (obligatorily) controlled PRO in chapter 2 is representative of Hornstein's approach in general. The null hypothesis, he argues, is that the empty category in the lower subject position of a sentence like (1) is a trace (or copy) left by movement. (Non-obligatorily controlled PRO, Hornstein claims, is actually little pro.)

(1) John hopes PRO to leave.

In order to treat PRO as part of a chain that also includes *John*, Hornstein must substantially revise standard theta theory. He assumes that (a)  $\theta$ -roles are features assigned by verbs to DPs; (b)  $\theta$ -features can drive movement, which means that movement to  $\theta$ -positions is licit; and (c) a DP may receive more than one  $\theta$ -role in the course of a derivation. Given that Minimalist theories of syntax have independent reasons for positing the existence of features and feature-driven movement, this view of  $\theta$ -role assignment fits rather neatly into MP. It also permits a  $\theta$ -feature on *hopes* to drive the raising of an already  $\theta$ -marked DP from the lower clause. The relevant steps in the derivation of (1) are as follows:

1. *John* merges with *leave*, checking the verb's  $\theta$ -feature.
2. *John* moves to the subject position of the lower clause, checking D on INFL.
3. *John* moves to the specifier position of the higher vP, checking the external  $\theta$ -feature of *hopes*.
4. *John* moves to the matrix subject position, checking D and case.

This movement analysis of (1) accounts for several well-known restrictions on PRO. Since the chain headed by *John* is produced by overt A-movement (which is subject to the Extension Condition), PRO (i.e., the copy of *John* in the lower subject position) must have a local c-commanding antecedent. The antecedent must be a single DP constituent (*\*John<sub>i</sub> told Mary<sub>j</sub> PRO<sub>i+j</sub> to leave together*). Because the moved element receives a  $\theta$ -role

in the higher clause, expletives and idiom chunks are not eligible controllers (*\*There hope PRO to be three cats in the room, \*The shit expects PRO to hit the fan*).

Extending the movement analysis to account for control into adjuncts leads Hornstein to posit sideways movement. In (2), *John* must be able to move from the adjunct to the main clause:

(2)  $John_i$  saw *Mary* before  $PRO_i$  entering the room.

The derivation of (2) involves the following steps:

1. The subtrees [*before John entering the room*] and [*saw Mary*] are constructed by normal applications of Merge and Move.
2. *John* undergoes interarboreal movement to check the external  $\theta$ -feature of *saw*.
3. The adjunct merges with the matrix vP.
4. The matrix INFL merges and *John* moves to its specifier position.

This derivation illustrates a number of economy principles on which Hornstein's theory depends. First, all movement is 'greedy': it must check some feature of either the moved element or the target. Movement cannot be implemented as Attract, because in step 2 above, the element to be moved (*John*) is not within the search space c-commanded by the target *saw*. Locality is thus evaluated from the perspective of the moved element: movement of an XP to a target T can be blocked by an intervening landing site T', but not by an intervening XP'. (In chapter 4, Hornstein sketches an alternative approach to the superiority effects that have been taken as evidence for Attract.)

Second, Move is deemed less economical than Merge, on the familiar grounds that Move consists of two steps (Copy plus Merge), while Merge involves only one. This is what allows subjects but not objects to control into adjuncts like the one in (2). Otherwise, the internal  $\theta$ -feature of *saw* could be checked by moving *John* instead of by merging *Mary*, ultimately yielding *\*Mary saw John<sub>i</sub> before PRO<sub>i</sub> entering the room*.

Finally, economy principles evaluate only convergent derivations. In the derivation of [*before John entering the room*], moving *John* from its base position to Spec IP is less economical than merging *Mary* in Spec IP. However, if *Mary* merged as the lower subject, *John* would be unable to receive case. The economy of a contemplated step in a derivation thus cannot be evaluated in isolation, but must depend on whether the derivation can ultimately converge.

Taken together, these last two points produce a somewhat counterintuitive view of how economy works. On the one hand, economy conditions cannot be evaluated strictly locally, because they cannot prevent operations that are globally necessary for convergence. On the other hand, an uneconomical operation earlier in a derivation cannot be allowed simply because it permits a more economical operation later in the derivation: in (2) moving *John* to check the internal  $\theta$ -feature of *saw* cannot be permitted on the grounds that it allows the external  $\theta$ -feature to be checked by Merge. Economy is contingent on convergence, but it cannot be calculated simply by comparing the total cost of the steps taken by competing convergent derivations, because it requires that more economical operations be used first. Economy principles must be far-sighted with respect

to convergence, but near-sighted with respect to themselves. Hornstein does not resolve the resulting question of exactly where and how economy is evaluated. This is, of course, a question for MP in general, and not peculiar to Hornstein's theory; however, it would be an appropriate question to address in a book that challenges as many assumptions as *Move!* does.

In chapter 3, Hornstein explores further consequences of sideways movement. Movement from adjuncts is restricted by the position to which they are adjoined. Before an adjunct merges with the main clause, a DP in the adjunct can undergo sideways movement to the root of the main clause. It cannot move to a position higher than where the adjunct itself will merge, because then merger of the adjunct will violate the Extension Condition. How early in the derivation of the main clause the DP can move is restricted by the preference for Merge over Move, as in (2) above: movement is permitted only if it is not possible to check the same features by merging elements from the lexical array. Once the adjunct has merged, extraction from it is restricted by whatever constraints produce island effects in general. Hornstein describes these in GB terms of barriers and Subjacency, but directs the reader to Uriagereka (1999) for a more Minimalist account.

Hornstein's theory thus predicts that adjuncts at different heights will permit 'control' from different positions in the main clause, and chapter 3 provides a number of examples. Adjuncts like the one in (2) attach at the level of light vP, and can be controlled only by subjects. *For*-adjuncts like the one in (3) attach to either VP or v', and can be controlled only by internal arguments. (Hornstein says that control is restricted to objects and passive subjects; Elizabeth Cowper (p.c.) notes the presence of counterexamples such as *Mary<sub>i</sub> went to prison for PRO<sub>i</sub> hitting a cop.*)

(3) John<sub>i</sub> arrested Bill<sub>j</sub> for PRO<sub>j/\*i</sub> speeding.

Sideways movement from adjuncts also allows Hornstein to account for some phenomena traditionally analyzed as involving null operators. For example, *tough*-movement, treated in GB as shown in (4a), is analyzed by Hornstein as in (4b):

- (4) a. [<sub>IP</sub> *Moby-Dick* is [<sub>AP</sub> easy [<sub>CP</sub> Ø<sub>i</sub> PRO<sub>arb</sub> to read t<sub>i</sub> ]]].  
 b. [[<sub>IP</sub> *Moby-Dick*<sub>i</sub> is t<sub>i</sub> easy] [<sub>CP</sub> t<sub>i</sub> pro to read t<sub>i</sub> ]].

In Hornstein's version, *Moby-Dick* originates as the object of *read* and moves to Spec CP of the adjunct in order to check a 'relative' WH feature. It then undergoes sideways movement to check the θ-feature of *easy*, and finally moves to Spec IP of the main clause, whereupon the adjunct CP merges with the matrix IP.

Hornstein's analysis of parasitic gaps, illustrated in (5), is similar:

(5) Which book<sub>i</sub> did you read t<sub>i</sub> before t<sub>i</sub> Fred reviewed t<sub>i</sub>?

*Which book* merges in the position of the 'parasitic' gap, WH-moves to Spec CP of the adjunct, moves sideways to check the internal θ-feature of *read*, and finally WH-moves to the matrix Spec CP. The fact that the 'parasitic' gap in the adjunct must be licensed by the 'true' gap in the matrix clause follows from the fact that the adjunct

attaches to the matrix clause too low to permit *which book* to move directly to the higher Spec CP; it must pass through the matrix VP first. Here, in contrast to (2), the element that moves out of the adjunct must target the matrix verb's internal  $\theta$ -position rather than its external one. As in (2), economy principles would prefer that the internal  $\theta$ -feature of *read* be discharged by merging *you* rather than by moving *which book*. In (5), however, this alternative, like the economical derivation that yields the ill-formed passive version in (6), is ruled out by the requirements of convergence.

(6) \*Which book<sub>i</sub> t<sub>i</sub> was read t<sub>i</sub> by you before t<sub>i</sub> Fred reviewed t<sub>i</sub>?

In (6), the trace of *which book* in the matrix Spec IP c-commands the 'parasitic' gap in the lower object position. In GB terms, this configuration violates Principle C: the lower case-marked trace (variable) is illicitly A-bound by the higher one. Hornstein recasts Principle C in Minimalist terms by proposing a Scope Correspondence Axiom (SCA) similar to the Linear Correspondence Axiom (LCA) of Kayne (1994). The SCA holds at LF and states that if  $\alpha$  c-commands  $\beta$ , then  $\alpha$  takes scope over  $\beta$ . Assuming that both case-marked copies of *which book* are subject to this axiom, neither may c-command the other, because the SCA would then require *which book* to scope over itself. Since this is impossible, the economical derivation fails to converge at LF, and so (5), although uneconomical, is permitted.

In addition to sideways movement, Hornstein's analyses of *tough*-movement and parasitic gaps depend on the possibility of movement from an A'-position (Spec CP in the adjunct) to an A-position. This is another departure from standard assumptions, but within MP there is no *a priori* reason to suppose that such movement is illicit.

Chapter 5 asks, "Is the Binding Theory Necessary?" Hornstein argues that it is not. Having analyzed obligatorily controlled PRO as a copy left by movement, he suggests a similar treatment for reflexives. In chapter 2, Hornstein proposed that sentences like (7) involve movement from object to subject position within a single clause:

(7) John<sub>i</sub> washed t<sub>i</sub>.

Verbs like *wash*, Hornstein claims, assign accusative case to their objects only optionally; if no accusative case is assigned, then the object can become the subject without receiving conflicting case features. When accusative case is assigned (as it is obligatorily with verbs like *see*), coreference between subject and object can be achieved only through the use of a reflexive, as in (8):

(8) John<sub>i</sub> saw him<sub>i</sub>+self.

Hornstein proposes that in (8), the object that merges with *saw* is *Johnself*. Accusative case is checked by *self*, and *John* moves to become the subject. The trace left by *John* is deleted (to satisfy the LCA), but *him* must be spelled out in its place to support the bound morpheme *self*.

So far, Hornstein has reduced Principle A to conditions on movement, and replaced Principle C with the more Minimalist SCA. To eliminate Principle B, he argues that

(bound) pronouns are inserted by the syntax as a costly last resort when movement is impossible. Essentially, (9a) and (10a) are grammatical because (9b) and (10b) are not:

- (9) a. Everyone<sub>i</sub> loves his<sub>i</sub> mother.  
b. \*Everyone<sub>i</sub> loves t<sub>i</sub>'s mother.
- (10) a. Which person<sub>i</sub> is it that John denied the claim that Mary liked him<sub>i</sub>?  
b. \*Which person<sub>i</sub> is it that John denied the claim that Mary liked t<sub>i</sub>?

Consider the derivation of (9). Once [*loves everyone's mother*] has been constructed, the external  $\theta$ -feature of *loves* must be checked. There are no more nominals in the lexical array. Moving *everyone* is disallowed by the Left Branch Condition and perhaps also by the resulting conflict between genitive and nominative case. So, as a last resort, the computation 'demerges' *everyone*, inserts *his* in its place, and remerges *everyone* at the root. This process (Demerge + Insert Pronoun + Merge) is more costly than Move (Copy + Merge), and so it is available only where Move is not. Since anaphors are generated by Move, syntactically inserted pronouns will appear precisely where anaphors cannot. (Deictic pronouns, as in *Mary<sub>i</sub> saw her<sub>j</sub>*, are present in the lexical array.)

The final chapter of *Move!* steps back from the technical details of Hornstein's approach and considers some larger questions about what makes his theory a Minimalist one. If the operation Move is uneconomical, is Hornstein's approach any more Minimalist than GB-style rules of construal? Hornstein argues, *contra* Chomsky (1995), that Move can be less economical than Merge without being conceptually inferior. Move consists of Copy plus Merge. The need for Merge is unquestioned; as for Copy, Hornstein suggests that it is necessary for lexical access--the process of copying items from the lexicon into the numeration. Move is thus composed of two operations independently necessary to Minimalist syntax. A theory of coreference based on movement, then, is conceptually more congenial to MP than one that requires the addition of a separate construal module.

Hornstein's writing style throughout the book is engagingly colloquial without ever seeming to condescend. Nor does the informal style come at the expense of formal precision; Hornstein will occasionally characterize an ill-formed sentence as "not kosher," but he always makes sure the reader understands exactly which step in the derivation was *treyf*, and why. The overall effect is that of a friendly and enthusiastic colleague talking about his latest ideas. (One occasionally wishes there were a blackboard in the room; all structures are given as bracketed strings rather than trees.)

From the stated goal of the *Generative Syntax* series ("The books in this series serve as an introduction to particular aspects or modules of this theory") or the blurb on the back cover ("...provides an accessible, in-depth, and empirically oriented look at Chomsky's Minimalist Program"), one might infer that *Move!* is intended as a textbook on MP. The first chapter does indeed provide a concise introduction to Minimalist concepts and constructs for anyone familiar with GB. The main contribution of this book, however, is not in explaining MP, but in advancing it. Hornstein takes very seriously the

conceptual premises of Minimalism, and *Move!* does a remarkable job of pushing these premises to their empirical limits. No theoretical assumption is immune to questioning. The result is a theory that looks very different even from other Minimalist views of syntax, but which manages to replace the Binding Theory, and makes inroads into a variety of other areas (superiority effects, quantifier raising, relative clauses) along the way.

Empirical questions left unanswered in *Move!* (e.g., how does the pronominal part of a reflexive get its case and  $\phi$ -features?) are for the most part acknowledged in the text or in the endnotes. There are, however, a few gaps in the theoretical discussion. While Hornstein devotes a section of chapter 6 to justifying the role of Move in MP, he does not do the same for the costly operations Demerge and Insert Pronoun, on which his reanalysis of Principle B depends. Without such a discussion, it is difficult (on the one hand) to say whether these operations are methodologically preferable to a construal module, or (on the other hand) to be certain that they are less economical than the operations that insert *self* into a derivation (as must be the case in order for *John<sub>i</sub> saw him<sub>i</sub>+self* to block \**John<sub>i</sub> saw him<sub>i</sub>*).

In some places, *Move!* could benefit from further synthesis with other work in MP. References to phases—currently the primary means of accounting for locality restrictions on movement in MP—are unfortunately few, oblique, and confined to the endnotes. It would also be interesting to set Hornstein's view of control beside the structures proposed by Wurmbrand (1998) for restructuring and non-restructuring infinitives. (Wurmbrand's structures would, I think, account for the scope facts discussed in section 7.2 of chapter 2.)

On the whole, however, *Move!* is impressive both in its attention to technical and empirical detail and in its sensitivity to the larger questions at issue. It offers an exciting view of what the Minimalist Program can achieve when its principles are put to the test.

### Works cited

- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.  
Chomsky, Noam. 1998. "Minimalist Inquiries: The Framework." *MIT Occasional Papers in Linguistics* 15.  
Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT Press.  
Uriagereka, Juan. 1999. "Multiple Spell Out." In S.D. Epstein and N. Hornstein, eds., *Working Minimalism*, 251-82. Cambridge, Mass.: MIT Press.  
Wurmbrand, Susi. 1998. *Infinitives*. Doctoral dissertation, MIT.

---

*Daniel Hall is a graduate student at the University of Toronto.*