

*MOVE AND CONSTRUAL EXAMINED: A CASE STUDY WITH TOUGH CONSTRUCTIONS**

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Abstract

This paper studies Hornstein's (2001) proposal that construal in natural language involves movement (construal-as-movement [CAM]), by examining the CAM analysis of *tough* constructions. The CAM analysis suffers because (a) it necessitates the global evaluation of derivational economy, (b) it is incompatible with the fact that *tough*-infinitives may be AP-internal, (c) it predicts the parallelism between *tough*-constructions and infinitival relatives, contrary to the fact, and (d) its treatment of Case is problematic. Finally, I briefly present a non-CAM analysis where the problems that arise with the CAM approach disappear. Although this study is primarily concerned with the CAM analysis of *tough*-constructions, the problems found herein reflect the problems of the CAM approach in general.

1. INTRODUCTION

Hornstein's (1998, 1999, 2001) proposal, that obligatory control and binding be subsumed under movement (to be referred to as the *construal-as-movement* [CAM] approach), has successfully provoked lively debates (Brody 1999; Boeckx and Hornstein 2003, 2004; Culicover and Jackendoff 2001; Landau 2003, among others). This approach claims to simplify grammar substantially by eliminating the modules for control, null-operator licensing, and operator predication. Consequently, *Move* — Copy and Merge — plays a central role in the architecture of grammar.

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The unification of distinct types of referential dependencies has been attempted in the past, as reported in Barss (1986), Brody (1985), Chomsky (1973/77, 1981, 1982, 1986), Heim, Lasnik, and May (1991), Manzini (1983), to name a few. These attempts at unification appear to be well motivated, given the striking similarity among the domains for binding, control, and A-trace licensing.

This study examines, as a case study of the CAM approach, Hornstein's analysis of *tough* constructions (TCs), as in (1).

- (1) *LSLT* is fun to read.

TCs offer a number of descriptive problems that remain unresolved.¹ This study identifies several shortcomings of the CAM analysis of TCs, and attempts to remedy these problems have been unsuccessful thus far. While its scope is limited to TCs and related constructions, this study raises some serious questions about the overall CAM approach.

2. BACKGROUND

2.1. The Construal-as-Movement (CAM) approach

The CAM approach makes the following assumptions:

- (2) a. θ -roles are features.
 b. Multiple θ -role checking by a single DP is allowed.
 c. Construals, such as reflexive and reciprocal binding and obligatory control, involve *A*-movement of a DP.
 d. Multiple Case-checking by a single DP is not allowed.
 e. MOVE is COPY + MERGE.
 f. Economy conditions can be violated for convergence (Chomsky 1995).
 g. Movement is driven by Greed (Enlightened Self-Interest [Lasnik 1995]): movement of α to β must be for the satisfaction of formal requirements of α or β .

With (2c), reflexive and reciprocal binding and obligatory control are analyzed as instances of *A*-movement, as illustrated in (3).

- (3) a. Mary persuaded *John* [*John* to leave].
 b. *John* criticized [*John*-[self]].

In (3a), *John* first merges as the embedded subject, and then *A*-moves to the matrix object position. *John* checks the θ -role for both the embedded subject and

¹See Browning (1987), Chomsky (1977, 1980, 1981), Gazdar and Pullum (1982), Jacobson (1992), Jones (1985), Kawai (1992) Lasnik and Fiengo (1974), Nanni (1978, 1980), and Tellier (1991), for previous analyses of *tough* and other missing object constructions.

the matrix object; however, *John* satisfies (2d) by checking only one Case feature. Below, (2d) will be referred to as *No Multiple Case* (NMC) for ease of presentation.²

Note that the A-movement of *John* in (3a) appears to be an economy violation, since Move is more costly than the merger of *Mary*. Yet, merging *Mary* in the matrix object, as in (4a), makes eventual convergence impossible. If *John* targets the matrix subject as in (4b), the move will violate Shortest Move; if *Mary* moves to the matrix subject (4c), Shortest Move will be satisfied, but the Case feature of *John* will remain unchecked.

- (4) a. persuaded Mary [John to leave].
 b. John persuaded Mary [John to leave].
 c. Mary persuaded Mary [John to leave].

Hornstein follows Chomsky's (1995: 374) position (2f): namely, a "violation of Procrastinate that is required for convergence [i.e., a *forced violation*] is not an economy violation." As Collins (1997) convincingly argues, however, (2f) is not a desirable condition for minimalism, since it necessitates global evaluation of economy with look-ahead. With (2f), all convergent derivations must be evaluated (and ranked) in terms of economy at each step in the derivation. It is strange to see (2f) and (2g) working together; Lasnik (1995) proposes the latter in order to eliminate the former. Therefore, I regard (2f) as a critical problem for the CAM approach to obligatory control. For the sake of discussion, however, let us reluctantly accept (2f), since it is crucial for the CAM analysis.

Now let us consider (3b). *John* first merges with *-self*, and then *John-self* merges with the verb. *John* moves to [Spec, V], and subsequently to the matrix subject position. So, *John* occurs in two Case positions. However, according to Hornstein (2001), the NMC is satisfied: the accusative Case feature is checked by *-self*, and the nominative Case feature by *John*.³ The copy of *John* in the object po-

²Under the checking theory of Case (Chomsky 1993; Chomsky and Lasnik 1993), (2d) follows if

- (a) each Case-bearing morpheme (such as D, *-self*, and WH-) has one and only one uninterpretable Case feature, and
 (b) a Case-bearing morpheme with its Case feature checked is "invisible" for movement rule (Lasnik 1995, Chomsky 2000).

Yet, (2d) has been challenged by Bejar and Massam (1999), Bošković (1997), Bruening (2001), Massam (1985), Tanaka (2002), among others. Hornstein (personal communication) has acknowledged this, citing that *wh*-operators in Romance languages may be doubly Case-marked, once *in-situ* and once in [Spec, C]. Nonetheless, (2d) is necessary for Hornstein's (2001) analysis.

³Unlike his 2001 proposal, Hornstein (1999) proposes that reflexives are phonetically realized A-traces in a Case-marked position. See Kawai (2000, 2002a) for problems with this approach.

sition first deletes for the purpose of linearization, and then becomes the supporting element for *-self* by surfacing phonetically in the form of *him*.

2.2. CAM Analysis of TCs

Hornstein's analysis of TCs is a hybrid of the *tough movement* analysis in (5b) (Postal 1971; Rosenbaum 1967), and the *wh*-movement analysis in (5c) (Browning 1987; Chomsky 1977, 1980, among others).

- (5) a. *LSLT* is fun to read.
 b. *LSLT* is fun to read *LSLT*.
 c. *LSLT* is fun [~~*wh*~~_i [*PRO* to read *t*₁]].

The CAM analysis involves *wh*-movement of the embedded object to the embedded [Spec, C] and the process of *promotion*, which takes a DP from the embedded [Spec, C] to the matrix subject. Promotion is also involved in relativization, as in (6a) (Kayne 1994; Vergnaud 1974).

- (6) a. This is a book [*wh*_i [*pro* to read *t*₁]].
 b. [*pro* to read WH-book].
 c. [WH-book [_C C [*pro* to read WH-book]]].
 d. [a [_{NP} book]] // [[WH-book [_C C [*pro* to read WH-book]]]].
 e. [a [_{NP} book]] [[WH-book [_C C [*pro* to read WH-book]]]].

First, *book* merges with WH-, an element of lexicon LEX containing the *wh*-feature, which then merges with *read to*, and *pro* (6b). After that, WH-*book* moves to [Spec, C] (6c); in (6d), *book* is merged with the indefinite article *via* promotion. Note that promotion is *sideward* movement (Nunes 1995, 2004). Sideward movement occurs "when an element in one subtree is merged to a position in another "unconnected" subtree" (Hornstein 2001: 47). This is an instance of interarboreal movement, since the NP and the CP are yet to be merged together at this point in the derivation.⁴ In (6c), the CP is not yet adjoined to the "main" tree, so it has not gained the "adjunct" island status, according to Hornstein. Thus, movement out of the CP at (6c) is licit, but not at (6d).

For his analysis of TCs to work, Hornstein makes the following assumptions:

- (7) a. *LSLT* checks a θ -role by being the "object" of the embedded predicate.
 b. *LSLT* checks a θ -role by being the "subject" of the matrix predicate.
 c. AP and CP do not form a constituent.

⁴Sideward movement targets a non-c-commanding position, a seemingly unorthodox solution. Hornstein has an elegant answer: proper binding effects are epiphenomenal to innerarboreal movement. The Extension Condition (Chomsky 1995) demands that at each step in the derivation, Merge must be at the roots of the tree; thus, innerarboreal movement always targets a c-commanding position, unlike interarboreal movement. See Nunes (1995, 2004) for extensive discussions on sideward movement.

- d. CP merges after the matrix IP is formed.⁵
- e. The embedded subject is arbitrary in reference, thus being pro.

With the exception of (7a), the assumptions in (7) are rather controversial. For example, many theorists would object to (7b), although I agree with Hornstein.⁶ Even more problematic are (7c–e). For the sake of illustration of the CAM approach, however, let us temporarily accept (7). A step-by-step derivation is given below.

- (8) a. *Read* and WH-*LSLT* merge, yielding V' .
- b. *pro* merges with V' , and, then raises to the Spec of a newly merged I.
- c. WH-*LSLT* moves to the newly created [Spec, C], in order to have its *wh*-feature licensed.
- d. *Fun* is “plucked from the array” (Hornstein 2001: 110).
- e. *LSLT* sideward-moves from the CP to merge with *fun*, checking the subject θ -role of *fun*: Promotion.
- f. After the matrix IP is formed, the CP is adjoined to the matrix IP.
- (9) a. [_{VP} read WH-*LSLT*].
- b. [_{IP} pro I [_{VP} read WH-*LSLT*]].
- c. [_{CP} WH-*LSLT* [_C [_{IP} pro [_{VP} read WH-*LSLT*]]]].
- d. [_A *fun*] // [_{CP} WH-*LSLT* [_C [_{IP} pro to [_{VP} read WH-*LSLT*]]]].
- e. [_{AP} *LSLT* [_A *fun*]] // [_{CP} WH-*LSLT* [_{IP} pro to read WH-*LSLT*]].
- f. [*LSLT* is [_{AP} *LSLT* [_A *fun*]] [_{CP} WH-*LSLT* [pro to read WH-*LSLT*]]].

The need to license or check the *wh*-operator-feature motivates the movement of *LSLT* in (8c) and (9c); then, sideward movement takes place at (8e) and (9e), forming [*LSLT*-*fun*]. *LSLT* subsequently raises to the matrix subject position, checking the nominative Case. Finally, CP adjoins to IP as in (8f) and (9f).

A question arises as to how the NMC is satisfied in (9). Hornstein (2001: 130, fn. 70) does not explicitly discuss this question, but, briefly considers a solution. Namely, that his treatment of reflexives, discussed in the previous subsection, extends to TCs: *LSLT* and WH- each check one and only one Case feature.

- (10) a. John_{nom} shaved [_{DP} [_{NP} John] -self_{acc}].

⁵Nothing seems to force the infinitive to adjoin at a specific stage in the derivation. Presumably, some scope condition (e.g., mutual c-command) must be at work in order to yield the clause-boundedness of the infinitival adjunct.

- (i) *[Mary said [that [John would be tough]] yesterday [to talk to]].

⁶Among those who are critical of (7b) I cite: Browning (1987), and Cinque (1991). For arguments in favor of (7b) see Jones (1985), Kawai (1992, 2002b, 2004), Lasnik and Fiengo (1974), Nanni (1978, 1980), Postal (1971), Rosenbaum (1967), among others.

- b. *LSLT*_{no n} is fun [WH_{acc}-*LSLT* [pro to read [WH_{acc}-*LSLT*]]].

Although this account works adequately for the data presented thus far, it has problems as discussed in section 3.4.⁷

3. PROBLEMS WITH *tough*-CONSTRUCTIONS

Let us now consider four problems in the CAM analysis of TCs:

1. *tough*-infinitives as AP-level adjuncts,
2. the asymmetry between *tough* constructions (TCs) and relative constructions,
3. the embedded subject as a case of obligatory Control, and
4. problems in Case feature checking.

3.1. Position of *tough*-infinitives

Here, we examine the position of *tough*-infinitives. Hornstein (2001) argues that the infinitives are IP-level adjuncts (7d), yet evidence indicates that they are AP-internal. The argument/adjunct status of *tough*-infinitives (7c) has by no means been settled. Certainly it seems that the complement status of *tough*-infinitives is more widely assumed than the adjunct status (see Browning 1987, Cinque 1991).⁸ At the

⁷In the subsequent discussion, we concentrate on TCs. However, it seems appropriate to posit that the issues discussed here extend to other types of missing object constructions, such as degree constructions, *pretty* constructions, *has-someone* constructions and parasitic gaps, as identified respectively in examples (i a–d) below. (For more discussion on those constructions, see Browning (1987), Chomsky (1977, 1980, 1981, 1982, 1986), Engdahl (1983), Jones (1985), Barss (1986), Kawai (1992), Lasnik and Fiengo (1974), Wilder (1991), among others).

- (i) a. John is too stubborn [WH-John [to talk to WH-John]].
 b. Mary is pretty [WH-Mary [to look at WH-Mary]].
 c. John has Mary [WH-Mary [to thank WH-Mary]].
 d. Which books did you recommend which books, without [reading which books].

⁸An anonymous reviewer points out that the extraction data in (ia) suggests the complementhood of the *tough*-infinitive (see Bach 1977, Browning 1987, Chomsky 1977, Cinque 1991, and Jones 1985, among others):

- (i) a. Which violin₂ are these sonatas₂ easy to play t₂ on t₁?
 b. What₁ did you bring John in [to discuss on t₁]?
 c. ??Which violin₂ did you write those sonatas₁ [to play t₁ on t₂].
 d. cf. I wrote those sonatas [to play on this violin].

same time, evidence against the complement analysis does exist, as well (see Hornstein 2001, Jones 1985, Kawai 1992, Nanni 1978, 1980, Wilder 1991). For example, a *tough*-infinitive is optional, as in (11).⁹ It can serve as a pre-nominal modifier (12a–b), while a complement cannot (12c–d) (Kawai 2002b; Nanni 1978, 1980).

- (11) a. Marijuana is illegal (to sell).
 b. The exam was difficult (to pass).
- (12) a. a difficult to pass exam
 b. a hard to persuade student
 c. an eager to please man
 d. *a reluctant to fly pilot
 e. *a reluctant to fly a bomber pilot¹⁰

That is, the wh-extraction in (ia) does not yield a severe ungrammaticality associated with Adjunct Island violations (something like an ECP violation in GB framework). If we accept the reviewer's position, then the question immediately arises as to why a missing object is not generally licensed within a complement, as shown in (13). Further, it is also known that extraction from a purpose clause, a VP-level adjunct (Bach 1982; Jones 1985), is not as severe as typical Adjunct Island violations, as in (ib/c). Therefore, the extraction data, though suggestive, cannot definitively settle the argument-/adjunct-hood of *tough*-infinitives. For our present task, however, it should suffice to accept the assumptions made in Hornstein (2001).

⁹With many *tough*-class predicates, the interpretation of the predicate with the infinitive is not identical to that without the infinitive, as an anonymous reviewer correctly points out. However, putting aside idioms, the shift in interpretation with/without the infinitive is predictable; thus, positing two distinct lexical entries for each *tough*-class predicate seems superfluous. See Pustejovsky (1995) and Pustejovsky and Boguraev (1996) on similar types of polysemy.

¹⁰An anonymous reviewer accepts the contrast in (12), but reminds us of (ib) as a potential problem (Wilder 1991):

- (i) a. *a [_{AP} difficult to convince anyone that they ought to read ____] book
 b. (?)a difficult book to convince anyone that they ought to read
 c. *a [difficult for toddlers to swallow ____] pill

The source of the ungrammaticality in (ia/c) is not clear. For example, the length (or, heaviness) of pre-nominal modifiers is quite restricted; thus, the "heaviness" of a pronominal modifier may be the cause of ungrammaticality in (ia). Likewise, the ungrammaticality (ic) indicates that a *tough*-class adjective as a pronominal modifier may host an Experiencer. A tough construction with an Experiencer behaves differently (Tanaka 2004) from that without an Experiencer in terms of predicate raising (Kawai 1992; Harley 2000):

- (ii) a. [How tough to please] is the tenure committee?
 b. *[How tough for all the assistant professors to please] is the tenure committee?

If so, the ungrammaticality of (i) bears little to the contrast in (12); the pronominal adjectival modifier contains more structure than those in (12). See also Jacobson (2000).

- (13) a. *John seems to like.
 b. *John is possible to talk to.
 c. *John is eager to talk to.¹¹

Since infinitival complements do not host missing objects, as seen in (13), the fact that missing objects are present within the *tough*-infinitives in (1) and (12a–b), further supports the non-complement status of these infinitives.

To sum up, the evidence presented above suggests the adjuncthood of *tough*-infinitives. The adjunct status of *tough*-infinitives cannot be firmly established, however, given the existence of the data in favor of argumenthood (Browning 1987; Chomsky 1977). In this study I do not intend to settle this long-standing debate, which would be beyond the scope of this paper; rather, since our goal is to examine the CAM approach, it seems appropriate to adopt the adjunct status of *tough* infinitives, the assumption that Hornstein makes in the CAM analysis.¹²

I now argue against Hornstein's (2001) assumption in (7d): namely, *tough* infinitives are IP-level adjuncts (7d). Instead, *tough*-infinitives are shown to be A'-level adjuncts immediately below (Kawai 1992; Wilder 1991); this is problematic for the CAM approach, since a *tough* infinitive, which is merged before promotion, becomes an island blocking promotion.

First, a rationale (*in order to*) clause, an IP-adjunct (Jones 1985), must follow the *tough*-infinitive (14). This ordering effect follows if the *tough*-infinitive is adjoined to a position lower than IP; otherwise, an ordering constraint on IP-level clauses must be stipulated.

- (14) a. John is being difficult [to argue against] [in order to impress his advisor].
 b. *John is being difficult [in order to impress his advisor] [to argue against].

Second, Taylor (2003) shows that a TC can be embedded inside a degree-Missing Object construction, as in (15); a *tough*-infinitive cannot be an IP adjunct, since it must be embedded inside the Degree Phrase.

¹¹The CAM approach does not predict that the sentences in (13) will be ungrammatical; we will return to this point in section 4.2. For our current purpose, it suffices to recognize their ungrammaticality.

¹²Suppose that *tough*-infinitives are indeed complements. Then, being a complement, the infinitival CP is not an island, thus allowing raising (i.e., Control) of the embedded subject, as seen in (ib); observe the full grammaticality of the wh-extraction from the subject-Controlled embedded infinitive in (ic). Short of banning a movement of a Caseless DP into [Spec, C], the ungrammaticality of (ia) seems to be unaccounted for. We will consider slightly different cases in section 3.4.

- (i) a. *John₁ is fun [_{CP} t₁ [_{IP} t₁ to read *LSLT*]].
 b. John₁ is too stubborn [t₁ to read *LSLT*].
 c. What is John too stubborn to read?

- (15) a. John is [_{DEG} too [_{AP} easy [_{TC} to find]] [to play hide and seek with]]
 b. John is [_{DEG} too [_{AP} easy [_{TC} to beat up]] [to hire as my body guard]]

Third, the *tough*-infinitive can be raised with the predicate (16a), deleted with an A (16b), and coordinated with an A (16c).

- (16) a. Howard said *LSLT* would be [fun to read], and [fun to read] *LSLT* was.
 b. *LSLT* is fun to read, but *SPE* is not [~~fun to read~~].
 c. *LSLT* is [fun to read] and [interesting].

With Strict Cycle, the intraposition of an IP-adjunct to an AP-internal position is not possible; therefore, the infinitival adjunct must merge AP-internally. Finally, as we saw in (12), [*A-infinitive*] can serve as a pre-nominal modifier without its subject.

- (17) a. [_{DP} a [_{NP} [_{AP} fun to read] book]]
 b. [_{DP} an [_{NP} [_{AP} impossible to convince] student]]

In short, evidence strongly suggests that *fun to read* forms a constituent in (17a); in other words, the infinitival CP is internal to AP.

The next question is whether the infinitive is an AP-level (18b) or A'-level adjunct (18a).

- (18) a. [_{AP} [*LSLT* [_A fun]] [_{CP} WH-*LSLT* [_{IP} ...]]]
 b. [_{AP} *LSLT* [_{A'} [_A fun]] [_{CP} WH-*LSLT* [_{IP} ...]]]]

As a sister to [_{AP} *LSLT fun*], the CP in (18a) yields an appositive interpretation, whereas the CP in (18b) yields a restrictive reading, since it is a sister to [_{A'} *fun*].¹³ Note that the interpretation of the infinitive in (19a) is restrictive as in (19c), rather than appositive as in (19b).

- (19) a. *LSLT* is fun for linguists to read.
 b. $\lambda y \lambda x$ [[*x* is fun for *y*] & [for *y* to read *x*]].
 c. $\lambda y \lambda x$ [*x* is [for *y* [fun [for *y* to read *x*]]]]. (cf. Jacobson 1992)

If this is true, then the infinitive is functioning as a modifier of the A, something comparable to a relative clause modifying an N.

This conclusion, if correct, is problematic for the CAM analysis. The infinitival CP is merged before promotion, thereby becoming an island; sideward movement for promotion will be blocked, because it would necessitate crossing a barrier between [Spec, C] and [Spec, A].¹⁴

¹³By assumption, we do not consider the option that the infinitive is sister to A⁰.

¹⁴There is a way to make the *promotion* analysis of TCs work with the A'-level adjunct status of the infinitive: namely, by means of an ergative analysis of TCs (Kawai 1992, 2004; Tellier 1991), briefly presented below. *LSLT* first merges with A as its complement, rather than as its subject. Next, the infinitival merges to the [fun [*LSLT*]] complex, possibly fol-

3.2. Non-parallelism between TCs and Relative constructions

As noted above, Hornstein's (2001) analysis of TCs is a version of *wh*-movement analysis, which treats TCs and relative constructions alike in the relevant respects. However, the parallelism between the two constructions breaks down at some point, a problem for an *wh*-movement analyses.

First, unlike relative constructions, such as in (20), TCs show no evidence for the involvement of a *wh*-operator (*wh*-feature). For Hornstein, a relative pronoun is an overt realization of the *wh*-feature. Even infinitival relatives, generally without an overt *wh*-operator (21a), can host an overt *wh*-operator under pied-piping (21b) (Levin 1984), unlike TCs (21c–d) (Browning 1987; Kawai 1992).

- (20) a. This is t book (which/that) Mary bought at the Coop.
 b. Those v/ho propose a new analysis must defend it.
 c. Tell me the reason why I should stay.

- (21) a. This is the car (*which) to ride on.
 b. This is the car on which to ride.
 c. This car is hard (*which) to ride on.
 d. *This car is hard on which to ride.

In other words, TCs lack directly observable evidence of *wh*-operator's involvement. Hornstein (2001: 113, n. 88) acknowledges this fact, speculating on the existence of an additional, yet-to-be-known, restriction against overt realization of the *wh*-feature in TCs. Reliance on an unknown, construction-specific restriction is generally not desirable.

Second, infinitival relatives can license certain kinds of adjunct traces for reason or manner (22a, c–d), while TCs cannot (22b, e) (Browning 1987; Kawai 1992; Tellier 1991).

- (22) a. This would be the reason [Op₁ [to deny this paper t₁]].

followed by the merger of the Experiencer PP subject (cf. Belletti and Rizzi 1988, Kawai 1992, Kim and Larson 1989, and Pesetsky 1987). Subsequently, *fun-LSLT* raises to the *small a* (much like a *small v*). Finally, *LSLT* raises to the matrix subject position. The intuition behind this analysis is as follows. English TCs are underlyingly ergative constructions, parallel to (i), but are forced to confirm a non-ergative surface order, reflecting an English language specific property.

- (i) a. Me gusta *LSLT*. (Spanish)
 To me likes *LSLT*.
 b. Neker₁ tetsik *LSLT*. (Hungarian)
 To me likes *LSLT*.

There are technical problems with this analysis, as an anonymous reviewer correctly points out. The ultimate success of this kind of analysis remains to be seen.

- b. *This kind of mistake would be difficult [Op₁ [to deny this paper t₁]].
- c. I wonder [why₁ [you denied it t₁]].
- d. That's the way [Op₁ [to handle the situation t₁]].
- e. *That's not easy [Op₁ [to handle the situation t₁]].

Any parallel treatment of TCs and relative clauses fails to predict the contrast in (22) without an added stipulation.¹⁵

Third, the analysis fails to predict the fact that the infinitive in a missing object construction does not license a temporal adverb (Kawai 1992), as (23a) illustrates:

- (23) a. *The test is difficult for the students to take tomorrow.
- b. This is the test for the students to take tomorrow.

The contrast in (23) is not predicted by the promotion analysis of TCs.

Finally, unlike infinitival relatives (24a), tough-infinitives may not be subject-controlled by the matrix subject (24b): they must be object-controlled.

- (24) a. He is the man [~~the~~ man to prove the theorem].
- b. *The Whalers would be difficult/impossible [~~the~~ Whalers to win the cup].

If TCs indeed involve promotion, just as in infinitival relatives, then the contrast in (24) is not expected.

In conclusion, the CAM analysis of TCs incorrectly predicts the parallelism between TCs and infinitival relatives; this is an issue for any standard *wh*-movement analysis of *tough* constructions. In section 4.2, we will briefly discuss the merits of a non-*wh*-movement analysis of TCs over the standard *wh*-movement counterpart.

3.3. Obligatory control by the Experiencer

Hornstein (2001) adopts a view that the embedded subject is *pro*, a case of arbitrary control.

- (25) *LSLT* is fun [PRO/pro to read].

Prima facie, this seems reasonable, since the reference of the embedded subject in (25) ranges over a set of arbitrarily collected (human) individuals. However, closer examination indicates that the embedded subject is indeed controlled.

The embedded subject in TCs does not behave as a free pronoun with an arbitrary interpretation (Browning 1987; Epstein 1984; Jones 1985; Kawai 1992; Martin 1995). Unlike (26d), where the Experiencer and the Agent are distinct, the reference of the embedded subject must be identified with the Experiencer of the matrix predicate (26c), be it overt or implicit (26a–b).

¹⁵In Kawai (1992), I suggested that in a TC, a null operator does not land on [Spec, C], but is adjoined to an IP (Topicalization in Lasnik and Saito's (1992) sense). This analysis stipulates an additional condition: namely, the overt predication operator must be "associated with" X⁰ position, such as [Spec, C], for an agreement reason. The same effect is obtained if WH- is not involved in TCs, a possibility to be considered later.

- (26) a. John₂ is tough for Mary₁ [PRO₁/*ARB to talk to].
 b. Jill₃ said that John₂ is tough for Mary₁ [PRO₁/*ARB/*₃ to talk to].
 c. *The hard work is pleasant for the rich for the poor to do. (Chomsky 1981)
 d. It is pleasant for the rich for the poor to do the hard work.
 e. It is fun (for pro) [PRO to play baseball].
 f. [_S' (∀x₁) [_SIt is fun (for x₁) [_S x₁ to play baseball]]].

This is reminiscent of PRO_{ARB} interpretation in the construction with *fun* proposed by Epstein (1984). Namely, PRO_{ARB} is controlled by the covert Experiencer *pro* (26e), which functions as a universal quantifier after QR in LF (26f). The same mechanism seems to be at work in TCs:

- (27) The embedded subject in a TC is obligatorily controlled by the Experiencer of the matrix predicate.

Under the traditional view of control, (27) is about a referential dependency relation between two positions. However, under the CAM approach, (27) must mean that the embedded subject must A-move to the Experiencer PP.

This change at first appears to be compatible with the overall analysis, since this A-movement does not disrupt the A'-movement of the tough-subject (relativized minimality effects (Rizzi 1990)).¹⁶ However, with this change, the theory incorrectly predicts that a DP can move from the embedded subject to the matrix subject via the embedded [Spec, C] and Experiencer PP, thus creating subject-controlled *tough*-infinitives, as in (28a–b). A clearer case is found in the *has-someone* construction in (28c), where the embedded subject DP moves to the matrix object, thus incorrectly creating a subject-controlled infinitive.

- (28) a. *The Whalers were impossible [_{CP} [_{IP} ~~The Whalers~~ to win the cup]].
 b. *The comedian was boring [_{CP} [_{IP} ~~the comedian~~ to repeat old jokes]].
 c. *The advisor has his student [_{CP} [_{IP} ~~his student~~ to finish the paper for the course]].
 d. [DP<sub>[+Case]] ← sideward movement [_{CP} [_{IP} [DP]<sub>[-Case] ...]].
 e. I brought Oxana in [_{CP} [_{IP} ~~Oxana~~ to lecture on the particles of Belarusian]].
 f. Yehor may be the student [_{CP} [_{IP} ~~the student~~ to solve the ergative puzzle]].</sub></sub>

Consider the schematic representation in (28d). The embedded subject is in a Caseless position; thus, under Greed, it may sideward-move to a Case position for the satisfaction of its Case requirement. Therefore, (27) fails to predict the ungrammaticality of (28a–c), which is a problem. At the same time, the type of movement in (28d) is best not banned, since that seems to be what happens in the infinitival relative in (28e) and purpose clause in (28f).

¹⁶Regarding this revision, Hornstein (personal communication) has admitted that he “can live with” it. However, as in any discussion involving modifications of someone else’s analysis, I may misrepresent the spirit of his analysis. I apologize in advance if this is indeed the case.

3.4. Case

Recall, as discussed in section 2.1, that Hornstein (2001: 130, n. 70) suggests that the promotion analysis of TCs satisfies the No Multiple Case (NMC (2d)) in the same way the CAM analysis of reflexive binding does. That is, *WH-* and *LSLT* independently check one Case each, as in (29b).

- (29) a. John_{nom} shaved John-self_{acc'}.
 b. *LSLT*_{nom} is fun [WH_{acc}-*LSLT* [PRO to read [WH_{acc}-*LSLT*]].

With this, Hornstein maintains the standard treatment of Case in minimalism (cf. Chomsky 1995): namely, any Case-bearing morpheme/noun has one and only one Case feature that needs to be checked. The account has worked thus far with TCs. However, this is problematic.

Let us first consider a successful case in a parasitic gap construction (30) and its relevant derivational steps (31).

- (30) Which books did you recommend without reading?
 (31) a. pro reading [WH_{acc}-book].
 b. before [[WH_{acc}-books] [PRO reading [WH_{acc}-books]]].
 c. recommended [WH_{acc}-books_{acc'}] // without [WH_{acc}-books] ...
 d. WH_{acc}-books_{acc'} did you recommend without reading?

WH-books first merges with *reading*, and *WH-* checks the accusative Case (31a). After *WH-*raising within the PP (31b), *WH-books* merges with *recommend* via sideward movement, and *books* checks the accusative Case (31c). Thus, the NMC is satisfied in (31d). However, the same explanation fails for a simple *wh*-movement, as in (32).

- (32) a. Which books did you recommend?
 b. [WH_{acc}-books [you recommended [WH_{acc}-books]]].

Recall that *WH-books* checks two Cases in (30); thus, we assume that *WH-* and *books* each has one Case feature. If so, one of the Case features is left unchecked, and the derivation crashes — a Case Filter violation effect, even though (32) is perfect. This is a problem. In order to accommodate (30) and (32), we need a stipulation like (33a–b).

- (33) a. [WH-DP] has one Case feature, if it does not undergo promotion.
 b. [WH-DP] has two Case features, if it undergoes promotion.

However, (33) is far from desirable. It does not seem to follow from any known principle. Further, suppose that Case-features are “inserted” into nominal expressions before the time of lexical insertion (or at the *Lexical Array* (Chomsky 1995, 2000)). Then, at the point of lexical insertion, it is not obvious whether or not the [WH-DP] undergoes sideward movement. In other words, (33) does not work without looking ahead into the further steps of derivation. Observe, moreover, that the

bifurcation of the Case theory in (33), if anything, highlights that sideward movement is distinct from the standard type of movement, contrary to the spirit of the CAM approach. Therefore, (33) should be taken as a strong case against the CAM approach.

There are ways of avoiding this potential problem. For example, we may abandon the NMC, and say that the dichotomy of the Case theory is *no Case* vs. *any number of Cases*, a position that enjoys empirical support, as discussed in footnote 2). This rejection of the NMC allows us to eliminate (33), but, as a result, the cases that motivated the NMC, such as (38), need an alternative account.

- (34) a. *John_{nom} hit John_{acc}.
 b. *[which_{acc} advisor_{nom}] hit [which_{acc} advisor].

Given the ungrammaticality of (34a–b), the need to check the nominative Case must not trigger movement. We might adopt Lasnik's (1995: 134) suggestion that "the NP that will move (or whose formal features will) must have a Case feature that has not been checked off." Then, the object DPs in (34) are invisible for movement, being Case-checked. Unfortunately, this suggestion will also make the promotion analysis of TCs impossible. The Case-checked [WH-DP] in the embedded [Spec, C] becomes invisible for sideward movement, unless the visibility condition on Greed is bifurcated as in (33): a Case-checked [WH-DP] is visible if it undergoes promotion. We do not seem to have a principled way to rule out (34) within the CAM analysis.

Allowing multiple Case-checking is also problematic in other respects. Recall that with (33b), [WH-DP] checks two Case-features if it undergoes sideward movement. In the cases that we have considered thus far, the [WH-DP] in missing object constructions always originates in a Case position and moves to another Case position, shown schematically in (35).

- (35) [_{IP} [_{DP} [_{+Case2}] ...] [_{CP} WH [_{+Case1}]-DP [_{IP} ... — [_{+Case1}] ...]].

However, under the CAM analysis nothing forces the [WH-DP] to be generated in a Case position. Thus, (36a) is predicted.

- (36) a. [WH-DP] can sideward-move from a Caseless position to a Case position via another Case position, as in (34b).
 b. [_{CP} [which [_{+Case1}] DP [_{+Case2}]]] [_{IP} — [_{+Case2}] ... — [_{+Case1}]] [_{CP} — [_{-Case}] [_{IP} — [_{-Case}] ...]].

As long as there are two Case positions somewhere in the "chain", the Case requirement of the [WH-DP] is satisfied.¹⁷

The prediction in (36a) is not borne out, however. Consider (37).

- (37) a. *Which advisor is fun [to torment his students]?

¹⁷Not captured in (36a) is the traditional observation (Chomsky 1982; Freidin and Lasnik 1981) that the formal variable of an \bar{A} -chain is Case-marked.

- b. Which advisor is fun [_{PP}for which advisor] [_{CP}which advisor [_{IP}[which advisor to torment his students]]?¹⁸
- c. For which x=advisor, is it fun for x to torment his students?

Which advisor moves from a Caseless embedded subject position to the matrix subject position via the object of the Experiencer. The failure of (36a) is more clearly illustrated by *have-someone* constructions.¹⁹

- (38) a. *Which advisor has ~~which advisor~~ [~~which advisor~~ to thank his students]?
- b. [[_{CP} which_{acc} advisor_{nom}] [_{IP} [which_{acc} advisor_{nom}] has [which_{acc} advisor_{nom}]]]
[[_{CP}which advisor [_{IP} [which advisor] to thank his students]]].
- c. For which x=advisor, x has x-self for the purpose of thanking his students.

Notice that *which-DP* sideward-moves from a Caseless position (the embedded subject) to a Case position via another Case position, before raising to the matrix [Spec, C]. *WH-* has a good reason to raise; it has to check its Case- and *wh*-feature for eventual convergence. Thus, (36a) incorrectly predicts that (37a) and (38a) are grammatical. There seems to be no principled way to rule out (37a) and (38a) under the CAM approach, however; therefore, we have a good reason to discard (33b).

To sum up, the CAM analysis makes several incorrect predictions regarding the Case requirements for a [WH-DP]. In particular, the failure of (33b) is problematic for the CAM approach, although an alternative view of Case theory can be explored.

4. CONCLUSION

4.1. Summary of discussion

This paper presented five problems in Hornstein's (2001) analysis of *tough* constructions (TCs) and the CAM approach.

First, the CAM approach relies upon Greed (forced violations of Procrastinate as a non-violation of economy), which involves a global comparison of all the convergent derivations in terms of economy at every step of derivation. As Lasnik

¹⁸It is conceivable that (37a) is ruled out because *for* might be stranded. However, *for* is phonetically null when the Experiencer is also phonetically null. Thus, PF deletion of *which advisor* in the object of *for* will most likely trigger PF deletion of *for*, as well.

¹⁹In (37b) and (38b), the question *WH-* must be able to check the embedded relative feature, since the same takes place in (ia), as illustrated in (ib).

- (i) a. Which book is fun to read?
- b. [_{CP} [which_{acc} book_{nom}] [_{IP} [which_{acc} book_{nom}] is fun [_{CP} [which_{acc} book] [PRO to read [which_{acc} book]]]
- c. [_{CP} [which book_{nom}] [_{IP} [which book_{nom}] is fun [_{CP} [WH_{acc}-which book] [PRO to read [WH_{acc}-which book]]]

Alternatively, an additional relative *WH-* may be involved, as in (ic); in that case, the question *wh-* must not have its own Case feature.

(1995) and Collins (1997) eloquently demonstrate, a global comparison of economy must be replaced with a more local evaluation of economy, i.e., which Chomsky (2000) calls *Suicidal Greed*. Second, recall that *tough* infinitives are AP-internal adjuncts, rather than IP-level adjuncts. If so, a *tough*-infinitive is merged before promoting the subject DP, thus becoming an island that blocks promotion. Third, the analysis incorrectly predicts the parallel behavior between *tough*-constructions and infinitival-relatives, because both move *WH-DP* to [Spec, C]. Fourth, TCs require obligatory Control of the embedded subject by the matrix Experiencer, which amounts to sideward movement of the embedded subject to the matrix Experiencer. This incorrectly predicts the availability of subject-control of TCs. Finally, there are problems with the CAM treatment of Case checking (33a–b).

The descriptive generalization in (33) indicates that the analysis cannot naturally predict the distinction between constructions that do or do not involve promotion/sideward movement—or, using more traditional terms, between null operator constructions and standard *wh*-movement. In other words, the CAM approach does not provide a real reduction in the theory, contrary to Hornstein's contention. Each of the problems outlined above may not be insurmountable. However, collectively, they seem to indicate a more deeply-rooted problem in the CAM approach.

4.2. An alternative

A non-CAM-based alternative is available which avoids the problems listed above. Namely:

(39) *Promotion* does not exist.

The problems discussed in sections 3.1, 3.3, and 3.4 disappear with (39). First, it eliminates (33a–b) above; without promotion, only one Case-feature is required for any [WH-DP] complex. Second, recall that we saw something like (40a) in section 3.1, based upon data parallel to (40c–d); in section 3.3, we also saw examples such as (40b) based upon the kind of data found in (40e–f).

- (40) a. Infinitival complements may not involve promotion.
 b. Infinitival adjuncts involve promotion (operator movement).
 c. *Mary is eager to talk to.
 d. Mary is eager to win the cup.
 e. The Whalers are impossible to beat.
 f. *The Whalers are impossible to win the cup.

The CAM approach does not satisfactorily capture this argument-adjunct asymmetry; Control in (40c–d) and what is traditionally called *operator predication* in (40e–f) are both viewed as instances of movement; thus no real qualitative difference exists between them. It also fails to explain why operator predication is not allowed in a complement. Hornstein (2001: 113) suggests that movement within

a complement cannot proceed via promotion, because the relevant predicate “cannot select[s] [a relative C]”. This is a dubious claim, however. Relative clauses are adjuncts, and therefore are not selected by a predicate in the standard sense of *selection*.

By assuming (39), an alternative becomes available that appeals to non-redundant constituent licensing (Abney 1986; Kawai 1992; Tellier 1991, for example). Suppose that each syntactic object is uniquely *licensed* — at the interface with semantics (LF/SEM), presumably — by having a certain relation to other elements (licensors) in the phrase structure. Complements are licensed by virtue of being selected by the predicate, whereas adjuncts, not being selected by a head, must be licensed via Predication (see Williams 1980). Null-operator Predication within a complement results in redundant licensing, thus making the clause an illegal (LF) object.

Third, (39) also eliminates an additional complication under the CAM approach:

- (41) a. A detached subtree is not an island.
 b. Non-complements are islands.

Example (41a) relativizes islandhood through derivation. Without promotion, an adjunct may remain an island throughout the derivation (41b), since predication operator does not move out of an adjunct.

Observe that elimination of promotion alone will not solve the non-parallelism between TCs and infinitival relatives, as discussed in section 3.2. Immediately below, we briefly present a non-promotion analysis of TCs that derives the non-parallelism: that is, a topicalization analysis of TCs (a minimalist adaptation of the analysis proposed in Kawai 1992), where topicalization is taken as adjunction in the sense of Lasnik and Saito (1992). With this analysis, the non-parallelism between an infinitival relative and a TC is captured; only the former involves a *wh*-operator, whereas the latter involves topicalization (adjunction) of a DP to a clausal left-periphery. This explains why an overt relative operator is never licensed in TCs. Additionally, the lexical government effect follows, since adjoined items are incapable of licensing their adjunct trace (Lasnik and Saito 1992).

The question arises as to why Topic interpretation is absent in TCs. I consider the Topic feature to be a syntactic feature whose function is to move a DP to a peripheral position. The displaced item is then interpreted in a variety of ways at the interface SEM, such as the subject of predication (Williams 1980), or topicalization (Lasnik and Saito 1992). I suggest that the topicalized DP works as the predicate variable in the sense of Williams (1980).

If this alternative is on the right track, then the minimal unit of a predicate (Predication Phrase (PredP)) is sufficient for a *tough*-infinitive, rather than CP or IP/TP; C plays no role, and the yet-to-happen reading that an infinitival I/T carries is absent (Stowell 1982). In other words, this analysis may be a minimalist version of the VP-hypothesis of *tough*-infinitives (Jones 1985; Kawai 1992; Lasnik and

Fiengo 1974; among others). This might also explain why temporal adverbs are not licensed in a *tough*-infinitive; an infinitive that is less than an IP/TP may not be able to license a temporal adverb (Kawai 1992), lacking the relevant temporal feature(s). This less than IP/TP hypothesis may also derive the [+stage]-level requirement on the infinitive, and explain the lack of subject-controlled *tough*-infinitives.

4.3. Closing remarks

This study has examined the CAM analysis of TCs and its problems. Nevertheless, while it is premature to evaluate the CAM approach as a whole, I remain skeptical of its ultimate success, given the problems discussed in this paper. Most compelling is the fact that a number of problems vanish once promotion is abandoned. Without promotion, the attractiveness of the CAM approach weakens substantially, since we need an independent mechanism for identifying construals that can also handle Control and binding. This does not necessarily mean that we must abandon any attempt to unify some/all of the phenomena discussed above; indeed, Chomsky (1986) and Heim, Lasnik, and May (1991) quite successfully unified certain phenomena in terms of movement. Alternatively, it may be possible that Brody (1999) is correct, when he states that "because it seems unpromising to try to reduce all semantic identity relations to movement, the natural place for expressing chain identity is the (quasi-) semantic component where ... the concept of identity will be automatically available." Clearly, further investigation on the matter is in order.

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