Rethinking the A/A′-distinction: evidence from English Tough Movement

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Introduction. The *tough-movement* (TM) construction in English (1) poses longstanding theoretical, challenges primarily owing to its seemingly paradoxical display of A and A′-behaviors.

(1) a. It is tough to analyze TM. b. TM_1 is tough to analyze t_1.

Thus while TM i) targets a Case position and triggers φ-agreement, ii) fails to exhibit weak-crossover (Lasnik & Stowell 1991), iii) creates new antecedents for binding (Pesetsky 2012), and iv) need not reconstruct for principle C (Pesetsky 2012) (A-behavior), it also i) can be long-distance and cross over NPs, ii) creates islands for A′-movement (Chomsky 1981), and iii) licenses parasitic gaps (Chomsky 1981) (A′-behavior). Building on recent discoveries concerning Dinka (Nilotic; van Urk 2015), I suggest that English *v* may host a composite A/A′-probe and that TM is derived via composite A/A′-movement. This approach derives the mixed A/A′-behavior and captures many otherwise puzzling constraints on TM.

Composite A/A′-probing Recent discoveries in a number of domains (Coon 2014; Deal 2014; van Urk 2015) support the idea that a head bearing two sets of unvalued features can form a *composite*-probe that searches for both sets simultaneously. A salient feature of composite probes, termed *multitasking* (2), is that an intervening XP that bears only a subset of the features on the probe (here H) does not trigger minimality effects (Rezac 2013; Richards 2015; van Urk 2015). Crucially, van Urk shows that in Dinka, a V2 language, (long distance) movement to Spec(CP) exhibits mixed A/A′-behavior, for example triggering φ-agreement on C and Case assignment on the moved DP, but skipping over intervening DPs (among other mixed properties). To explain this, van Urk proposes that C in Dinka is a locus for φ- and A′-features and thus may bear a composite A/A′-probe, suggesting such probes are optionally made available by UG.

(2) $\text{H}_{[\alpha:\_,\beta:\_]}$ [. . . $\text{XP}_{[\alpha:5]}$ . . . [. . . $\text{YP}_{[\alpha:6,\beta:9]}$ . . .]]

In English, there is a clear split of φ- and A′-features in the left periphery, hosted on T and C respectively, ruling out composite probes in this domain. However, evidence from *assure*-class verbs (Kayne 1984) suggests that *v*, which can host both φ- and A′-features (Chomsky 2000; Rezac 2013, a.o.), can host a composite probe: when the double-object and ECM constructions are combined, the result is illicit unless the infinitival subject bears A′-features. (3) is ungrammatical because the indirect object serves as an intervener for the φ-probe on *v*, blocking Agree into the infinitive and leaving the ECM subject without a licensing functional head (5). In (4), where the ECM subject bears φ- and A′-features, *multitasking* allows a composite A/A′-probe on *v* to overcome minimality and Agree with the ECM subject (6) (see Rezac 2013 for details and a related proposal & discussion of how IO is licensed in (2-b),(3-b)).

(3) *I assured [the reader] [$_{\text{Inf}}$ the propositions to be incorrect].

(4) [Which propositions]$_1$ did you assure the reader [$_{\text{Inf}}$ t_1 to be incorrect]?

(5) $\text{v}_{[\varphi:\_]}$ [$_{\text{VP}}$ assure $\text{IO}_{[\varphi:5]}$ [$_{\text{Inf}}$ $\text{SBJ}_{[\varphi:7]}$ . . .]]

(6) $\text{v}_{[\varphi:\_,wh:\_]}$ [assure $\text{IO}_{[\varphi:5]}$ [$_{\text{Inf}}$ $\text{SBJ}_{[\varphi:6,wh:9]}$]]

Proposal I propose that TM involves cyclic composite A/A′-movement triggered by successive *v* heads, terminating in matrix Spec(*v*P) (I postpone for now discussion of how this composite movement obtains cross-clausally). A step of pure A-movement displaces the moved DP from matrix Spec(*v*P) to Spec(TP).

(7) [$_{\text{TP}}$ DP [$_{\text{TP}}$ T [$_{v\text{P}}$ DP [$_{v\text{P}}$ v [$_{\text{AdjP}}$ tough [$_{\text{Inf}}$ [$_{v\text{P}}$ DP [$_{v\text{P}}$ PRO [$_{v\text{P}}$ v [. . . DP. . .]]]]]]]]]

A-Agree A/A′-Agree A/A′-Agree

The terminal step of A-movement, from *v*P to TP, requires that the theory allow A/A′-movement to feed A-movement. As such, I maintain a conservative version of *The Ban on Improper Movement*: all that is forbidden is for pure A′-movement to feed pure A-movement (Chomsky 1973; May 1979; Abels 2007).

Key Consequences First, this analysis captures the mixed A/A′-characteristics of TM; I adopt van Urk's system for deriving the properties of mixed movement with respect to binding, weak-crossover, etc. Second, the analysis captures many puzzling constraints on TM that have never been adequately treated. Specifically, under the assumption that C in English hosts A′- but not φ-features (Richards 2007; Chomsky 2008), the *ban on improper movement* leads to the prediction that movement to Spec(CP) may never feed A-movement. Given that TM involves a terminal A-movement step, we thus predict that insofar as intermediate movement to Spec(CP) is obligatory (C is a phase head; Chomsky 2001, et seq.), CPs should be islands for TM.

(8) [$_{\text{TP}}$ DP [T [$_{v\text{P}}$ DP [$_{v\text{P}}$ v [tough [. . . [$_{\text{CP}}$ DP [$_{\text{CP}}$ C [. . . [$_{v\text{P}}$ DP [$_{v\text{P}}$ v [. . . DP. . .]]]]]]]]]]]

A A′ A/A′

TM is thus predicted to be possible only in cases where intervening CP-phases are *absent*. To this end, Wurm-

brand (2014, 2015, to appear) has argued extensively that control infinitives and subjunctives differ from finite indicatives and *for-to* infinitives in lacking a left-peripheral phase boundary. To a first approximation, then, TM should be possible out of control infinitives (Chomsky 1973; Lasnik & Fiengo 1974; Browning 1989), and subjunctives (9) and blocked out of finite indicatives (10) and *for-to* infinitives. This is borne out straightforwardly with subjunctives (9) and finite indicatives (10).

(9) a.?This book is essential that you read *t*.
b.?This document is important that you sign *t*.

(10) a.*My book is annoying that you bought *t*.
b.*John is hard that Mary likes *t*.

Given that *for*+DP sequences following *tough*-predicates are ambiguous between a matrix PP and a *for-to* infinitive construal (11), it is non-trivial to test for the blocking effects of *for-to* infinitives, which has lead to some controvery in the literature (cf. Bresnan 1972; Lasnik & Fiengo 1974 with Hartman 2012; Keine & Poole 2015). What is clear is that TM is severely degraded in contexts that force the *for-to* construal (see (12,13); non-thematic DPs and *not*-initial DPs can only be subjects – see Postal 1974 on the latter – ruling out a PP construal). TM also semantically disambiguates in favor of a matrix PP construal (cf. (14), (15)), suggesting *for-to* infinitives but not matrix PPs block TM.

(11) a. It was hard [$_{PP}$ for Sue] [$_{Inf}$ to sleep]
b. It was hard [$_{CP}$ for Sue to sleep]

(12) a. It's impossible [$_{CP}$ for there to be a book about Max]
b. [*]Max is impossible [$_{CP}$ for there to be a book about *t*]. (Lasnik & Fiengo 1974)

(13) a. It was hard (on me) [$_{CP}$ for not many people to buy my book]
b.*My book was hard [$_{CP}$ for not many people to buy *t*]

(14) It was hard for every lawyer to pass the bar exam
= every lawyer had trouble passing the exam (matrix PP)
= it was unlikely to come about that every lawyer passed the bar exam (*for-to*)

(15) The Bar Exam is hard for every lawyer to pass
= every lawyer had trouble passing the exam (matrix PP)
≠ it was unlikely to come about that every lawyer passed the bar exam (*for-to*)

The blocking effect of finite CPs weakens when the relevant clause is embedded in a control infinitival argument to the *tough*-predicate (16) (Chomsky 1973; Browning 1989; a.o.). Structurally speaking, TM in these

(16) a.?Bill is hard [$_{Inf}$ to believe [$_{CP}$ that John fired *t*]].
b.?The test was hard [$_{Inf}$ to pretend [$_{CP}$ I passed *t*]].

cases is parallel to movement out of relative-clause and *wh*-islands: all cases involve movement that is expected to be blocked by an inaccessible CP layer but is nonetheless possible, subject to certain limitations (Pesetsky 1984; Postal 1998). It thus appears that the grammar provides a mechanism to "skip over" or ignore inaccessible CPs in some cases (17). Strikingly, TM out of finite clauses shows the same collection of behaviors as movement out of *wh*-islands, one of which is that extraction is degraded for objects and impossible for subjects, thus deriving this formerly mysterious constraint on TM and corroborating the core details of the analysis. Of course, we must ask why such special mechanisms

(17) [$_{vP}$ wh [. . . [$_{CP}$ wh [. . . [*t* [. . . *t* . . .]]]]]]

(18) a.*Who did you ask whether *t* likes Mary?
b.?Who did you ask whether Mary likes *t*?

(19) a.*John is hard to believe [$_{CP}$ *t* liked Sue]
b.?John is hard to believe [$_{CP}$ Sue liked *t*]

for skipping inaccessible CPs – violating subjacency – are impossible for finite CPs when they are arguments to *tough*-predicates (10). The key is to observe that when *tough* is combined with a finite CP argument, it functions as an *object-experiencer* predicate (Belletti & Rizzi 1988; Pesetsky 1995): instead of describing the ease or difficulty with which an agent carries out an action – the salient reading when it is combined with a control-infinitive – *tough* in (20) describes the experience of an optionally overt argument induced by the event described in the CP. Following Hartman (2012), CP arguments of obj-exp predicates obligatorily extrapose. Subjacency-violating movement can be independently shown to be impossible out of extraposed clauses ((21); Taraldsen 1981); the inability to extract out of finite CP arguments to *tough* follows.

(20) a. It was hard (on me) that no-one liked my book.
b. It was annoying (to me) that no-one liked my book.

(21) a.?Who did you wonder (*yesterday) if Sue met *t*?
b.?What book did you meet the prof (*once) who wrote *t*?

Given that this analysis posits A/A′-movement *into* the matrix clause, a final consequence is that TM should create islands for the A′-extraction of and licenses parasitic gaps in *v*P-internal matrix-clause arguments. This is borne out (20,21), as expected if TM involves an A′-like step into the matrix clause.

(22) a.Who was it foolish of to yell at Sue?
b.*Who was Sue foolish of to yell at?

(23) ?These books were tough [for critics of *pg*] [to praise *t* sincerely]. (Hukari & Levine 1990)

Selected References Hartman, J. 2012. Varieties of Clausal Complementation. PhD Thesis. MIT. **Keine S. & E. Poole. 2015**. Intervention in tough-constructions. *GLOW* talk. **Rezac, M. 2013**. Case and Licensing: Evidence from DOC+ECM. *LI*. **van Urk, C. 2015.** A uniform syntax for phrasal movement. PhD Thesis. MIT. **Hukari & Levine. 1990.** The complement structure of *Tough* constructions. Proceedings of ESCOL '90.