

Composite A/A'-movement: Evidence from English *tough*-movement¹

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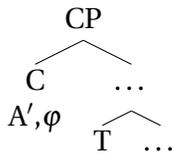
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1 Introduction

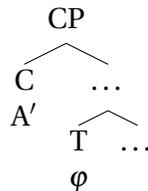
It is commonly held that all phrasal movement in natural language can be strictly classified as A or A'. Recent work on Dinka (van Urk 2015; Western Nilotic), however, has identified a movement operation that shows both A- and A'-behavior under the standard diagnostics. Van Urk (hereafter V15) argues that these data call for a revision of classical proposals of the A/A' distinction (e.g., Chomsky 1981; Mahajan 1990), whereby the distinct properties of A- and A'-movement arise as a reflex of the position that movement targets. Adopting the view that all movement is feature driven, V15 proposes to instead attribute the differences between the two movement types to the features involved in the triggering *Agree* relations: A-movement is triggered by φ -*Agree* and A'-movement by A'-*Agree* (A' standing here for one of the features *wh*, focus, topic, etc). The possibility for movement showing mixed A/A'-behavior – composite A/A'-movement – then arises when φ and A'-features present on the same head trigger movement together. On this view, the types of movement operations licensed in a given language or domain reduces to the distribution of φ - and A'-features in that language/domain. Dinka allows for composite movement to Spec(CP) because C hosts φ - and A'-features. English, on the other hand, does not allow composite movement in the left periphery, as φ and A'-features are hosted on distinct heads, T and C respectively. The theory therefore allows for the possibility of composite movement while preserving the strict differentiation between A- and A'-movement observed in many languages/domains.

Linking the possibility for composite movement to the distribution of features in this way raises the possibility that composite movement may also be possible in the clausal middle-field, which is often assumed to host both φ - and A'-features (Chomsky 1995; Fox 1999; Wurmbrand 2001; Chomsky 2001; Rezac 2013; a.o.). *A priori*, it seems possible that even a language where φ - and A'-features are clearly split in the left-periphery could license composite movement in the middle field, if the distribution of features is right. In this article, I argue that English is such a language – in particular, that English ν hosts both φ - and A'-features and that it can indeed trigger composite movement in some cases. I show first that if we adopt Sauerland (2003) and Legate's (2003) proposal that passive/unaccusative ν is a phase, it must be an intermediate landing site for both A- and A'-movement and hence, under V15's proposal, must host φ - and A'-features. This sets up an asymmetry whereby composite movement is expected in English at the ν P but not CP phase.

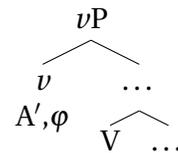
(1) Dinka CP/TP:



(2) English CP/TP:



(3) English ν P/VP:



In principle, then, composite movement should be possible in English for a ν P-internal DP targeting the closest Spec(ν P). Moreover, if we grant that some clauses lack a left-peripheral phase

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boundary (as argued by Wurmbrand 2014), we predict the possibility of *cross-clausal* composite movement that proceeds successive cyclically from one Spec(vP) to another.

I then argue this possibility for cross-clausal composite movement suggests a novel solution to the longstanding puzzle of English *tough*-movement (TM):

- (4) a. It was hard for me to convince Joan to read those books.
 b. Those books were hard for me to convince Joan to read *t*.

TM famously shows mixed A/A'-behavior that has long posed a challenge in the context of the traditional A/A'-dichotomy – it is long-distance and can cross over c-commanding DPs, yet it targets a case position and triggers φ -Agreement (see (4); for other mixed properties, see Section 3.1). Moreover, TM shows the exact behavior we expect if composite movement is possible at vP but not CP. It is fully acceptable across control infinitives, which plausibly lack a phasal CP-projection (Wurmbrand 2014) and should thus allow for cross-clausal Spec(vP) to Spec(vP) composite movement. Finite CPs, however, which are expected to block direct Spec(vP)-to-Spec(vP) movement, are (weak) islands for TM, degrading non-subject extraction and rendering subject extraction completely impossible (see Postal 1971; Bresnan 1972; Chomsky 1973; Lasnik and Fiengo 1974; Browning 1987; Rezac 2006).

- (5) a. ?This boulder would be easy for me to claim that I had lifted *t*. (Heycock 1991: 235)
 b. *Richard was hard to convince Barbara *t* read that book.

My proposal, then, is that TM involves cyclic composite-movement, triggered by successive *v* heads, into the clause hosting the licensing predicate.

- (6) [TP DP [TP T [vP DP [vP *v* [tough [... [vP DP [vP *v* [... DP...]]]]]]]]]]
 ↑ EPP-movement ↑ A/A'-movement ↑ A/A'-movement

The proposal captures both the mixed A/A'-nature of TM and its constrained nature compared to pure A'-movement, as well as several other novel and well-known aspects of TM that are challenging to account for on other approaches, e.g., the fact that TM creates islands for extraction from (cf. (7a,b)) and licenses parasitic gaps in (see (8)) the optional PP argument to the licensing predicate and is impossible for expletives (Postal and Pullum 1988) and most idiom chunks (Lasnik and Fiengo 1974; Rezac 2006; Hicks 2009).

- (7) a. Who was it foolish of *t* [to yell at Paul]?
 b. *Who₁ was Paul₂ foolish of *t*₁ [to yell at *t*₂]?

- (8) ?These books were tough [for critics of *pg*] [to praise *t* sincerely].

(Hukari and Levine 1990: 142, ex.41)

The remainder of the article is structured as follows. In Section 2, I sketch V15's theory of the A/A' distinction, then argue that English *v* but not C is a potential composite movement trigger. In Section 3, I review the core details of the TM construction and present my proposal. I then argue, in Section 4, that the analysis captures the relatively constrained nature of TM compared to pure A'-movement. Section 5 explores further predictions of the proposal, while Section 6 investigates the posited A'-component of the TM derivation. I conclude the paper by comparing TM to other constructions in English where composite movement might be expected to be possible but apparently isn't, e.g., *wh*-movement through Spec(vP). The tentative result that emerges is that composite movement is associated with a particular information-structural effect, which in turn suggests other cases cross-linguistically that may involve its operation.

2 Composite Movement

This section provides the necessary theoretical and empirical background on composite movement. In Section 2.1, I sketch V15's theory of the A/A' distinction and explain how it makes possible composite movement, then review the characteristic properties of such movement. Section 2.2 presents an argument that English *v*, but not C, must host both ϕ - and A'-features, given established results about cyclicity. This sets up the *v*P/CP asymmetry underlying the TM proposal.

2.1 The Featural View of the A/A' distinction & Composite Movement

For our purposes, V15's theory of the A/A' distinction can be summarized in two core hypotheses. To begin, let's assume that all phrasal movement is the result of a feature checking/unification operation, *Agree*, between the head whose specifier movement targets and the moving phrase (Chomsky 1995; Chomsky 2001). The first hypothesis is then that the differences among A- and A'-movement are derivative of the properties of the features triggering the movement. A-movement is universally triggered by ϕ -*Agree* and A'-movement by A'-*Agree*, with A' a placeholder for the features topic, focus, *wh*, etc.

- (9) **The featural view of the A/A' distinction:** Differences among A- and A'-movement are derived from properties of the features involved in the associated *Agree* relations, not the position movement targets.

The second hypothesis depends on the notion of “composite probing,” the phenomenon where two (or more) features present on the same head probe together *in unison*, searching for the closest goal bearing *both* of the features involved in the probe, and ignoring goals with only one or the other of the features (Chomsky 2001: 15-19; Bruening 2001: sec 5.7; Pesetsky and Torrego 2001; Haegeman 2012; Rezac 2013; Coon and Bale 2014; Kotek 2014; Deal 2014). Granting the existence of composite probing, the hypothesis is that ϕ - and A'-features present on the same head can likewise form a composite probe, which, by (9), triggers composite movement.

- (10) **Composite probe hypothesis:** A head bearing both ϕ - and A'-features can, in principle, license a composite ϕ /A'-probe that triggers composite A/A'-movement.

The statement in (10) leaves open the question of which A- and A'-properties composite movement shows. The theory makes explicit predictions here, although for reasons of space I will not derive them in detail, illustrating them instead by way of the paradigm case in Dinka.² Dinka is a V2-language, and it is the movement to Spec(CP) associated with this phenomenon that shows composite behavior. As mentioned in the introduction, Dinka C hosts ϕ -features – diagnosed by the fact that movement to Spec(CP) triggers ϕ -Agreement at C (see (11)) – in addition to the [Topic/Focus] features that ordinarily trigger V2 movement. The possibility for a composite probe at C then follows under (10), where the probe attracts the closest DP bearing both [Topic/Focus] and ϕ -features. If the target DP is in an embedded clause, composite movement can be successive cyclic, as in (11b). I illustrate the derivation for a general case of successive-cyclic composite movement in (11c).³

²I set aside the question of why composite movement shows the properties it does. Logically speaking, this is independent of the existence of composite movement, and a precise answer depends on a theory of how to derive the properties of A- and A'-movement from the triggering features, which V15 develops. For our purposes, I simply assume (i) composite movement exists, and (ii) Dinka is representative example.

³The analysis is incompatible with the activity condition (Chomsky 2000), as we must allow multiple instances of ϕ -*Agree* with one DP (see (11c)). There is a variety of cross-linguistic evidence suggesting the possibility for multiple

I begin by considering the clausal left-periphery. It is relatively uncontroversial that English furnishes discrete landing sites for A- and A'-movement (Chomsky 1973 and many subsequent authors) in this domain, and hence that φ - and A'-features are hosted on different heads (usually T and C respectively). There is a simple argument supporting this basic distribution of features that is worth reviewing here, as the core logic will recur throughout the article. Let's grant that movement out of a finite CP requires stopping off at Spec(CP) (Chomsky 1986; Chomsky 2001). If C only hosts an A'-probe, movement out of a finite CP will therefore always be A'-movement. Assuming A'-movement cannot feed A-movement (see, e.g., May 1979; Chomsky 1981; Abels 2007; Neeleman and Van De Koot 2010; Williams 2011), no movement-chain can simultaneously involve a stop at the obligatory landing site at Spec(CP) and a subsequent A-movement step. A-movement out of finite CP is therefore correctly predicted to be impossible.

Turning to the English middle field, there are theoretical and empirical reasons to suspect the presence of both φ -features (Kayne 1989; Chomsky 1995; Chomsky 2001) and an obligatory intermediate landing site for A'-movement (Chomsky 1986; Fox 1999; Chomsky 2001), which under the featural view entails the presence of A'-features. The precise distribution of these φ - and A'-features, however, is not firmly established (cf. Chomsky 2001; Richards 2007; Chomsky 2008; Rezac 2013). As it happens, V15's featural view of phrasal movement affords new perspective on this debate. Let's assume that the presence of an obligatory intermediate landing site for A'-movement entails that ν is a phase head and hence a barrier to all higher probes (e.g., Chomsky 2001), and moreover that ν has only A'-features. By the logic in the previous paragraph, this entails that all movement out of ν P must be A'-movement.⁵ Given that movement to subject position in passives and unaccusatives involves clear A-movement out of ν P, it follows that ν in such cases must either not be a phase, or else our assumption that ν bears only A'-features must be incorrect. This logic holds independent of our assumptions concerning Case/object licensing: if passive/unaccusative ν is a phase, a φ -probe is required to allow A-movement to escape the ν P phase, even if we reject the assumption that the object must be Case licensed by φ -Agree.

For present purposes, I will adopt the hypothesis advanced by Sauerland (2003) and Legate (2003) that all incarnations of ν are phases. It follows that ν must host both φ - and A'-features to license A- and A'-movement across itself. The result is that the conditions for composite φ /A'-probes are met in the ν P but not CP domains.

(12) **Composite- ν /Split-C hypothesis:**

- a. English ν hosts φ - and A'-features.
- b. English C hosts only A'-features

3 Proposal

Given (12), English ν , but not C, meets the conditions for licensing composite probes. In principle, we therefore predict the possibility for *intra-clausal* composite movement of a ν P-internal DP to the nearest Spec(ν P). Assuming that some clauses lack a phasal CP-projection, as argued by, e.g., Wurmbrand (2014), we also predict the possibility for *cross-clausal* composite movement, proceeding successive-cyclically from Spec(ν P) to Spec(ν P).

As mentioned previously, this state of affairs suggests a solution to a longstanding puzzle in English syntax, the proper analysis of the TM construction. TM involves cross-clausal movement showing mixed A/A'-behavior that is most acceptable when the clause being moved out

⁵ Note that I am excluding here movement of those DPs in Spec(ν P) that have been externally merged and hence that have not been attracted by the probe on ν . This does not affect the argument.

of plausibly lacks a left-peripheral phase boundary, just as the theory leads us to expect if composite movement is involved. The remainder of this paper is dedicated to pursuing an analysis along these lines. In this section, I offer a brief primer on TM, including the essential challenges it poses, in Section 3.1, then present my formal proposal concerning TM, in Section 3.2.

3.1 A primer on English TM

For the purposes of this paper, I will take TM to be the process responsible for the alternation in (13). Formally, TM establishes a dependency between the *target* (*Aspects* in (13b)), which surfaces as the subject of the associated licensing predicate (*tough* in (13b)), hereafter *tough-movement predicate* (TMP), and an associated gap (*t* in (13b)) embedded in the clausal argument to the TMP. I assume the target is not a semantic argument of the TMP, instead being assigned a thematic/conceptual role as if at the site of the lower dependent (Chomsky 1981; Pesetsky 1987a; Brody 1993; Rezac 2006; Hicks 2009).

- (13) a. It was tough to read *Aspects*.
 b. *Aspects* was tough to read *t*.

TM so defined poses two essential challenges. First, it shows properties characteristic of both A- and A'-movement. Like A-movement and unlike A'-movement, it terminates in a case position, is associated with ϕ -Agreement on the matrix T, fails to exhibit weak-crossover effects, creates new antecedents for Condition A, and bleeds Condition C.

- (14) a. *No weak crossover* (Lasnik and Stowell 1991)
 No employee₁ will be easy for us to get his₁ boss to fire *t*.
 b. *New antecedents for anaphor binding* (Ruys 2000; Pesetsky 2012)
 Jon and Mary were hard for each other₁'s friends to get along with.
 c. *Bleeds Condition C* (Mulder and den Dikken 1992; Takahashi 2011)
 Mary₁'s father is tough for her₁ to get along with *t*.

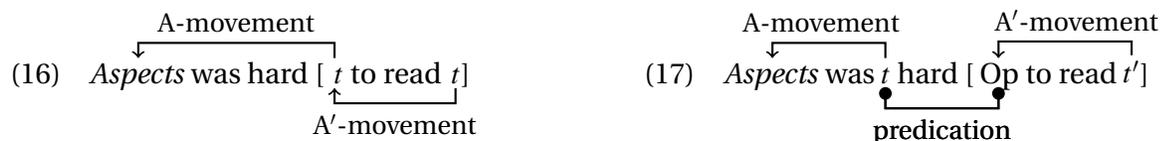
Unlike A-movement and like A'-movement, TM can cross over c-commanding DPs, licenses parasitic gaps, and creates islands for A'-movement.

- (15) a. *Long distance*
Aspects was annoying to be asked by Joan to convince Matt to read *t*.
 b. *Licenses parasitic gaps* (Chomsky 1982)
 ?*On Raising* is easy to admire *t* without having read *pg*.
 c. *Creates islands for A'-movement* (Chomsky 1977; Rezac 2006)⁶
 *Where₁ was *Syntactic Structures*₂ enjoyable [to read *t*₂ *t*₁].

⁶The island effects induced by TM are roughly on a par with *wh*-islands: extraction is impossible for subjects and non-DPs, and possible but degraded for nested non-subject DP extraction (cf. (i), (ii)).

- (i) TM
 a. *Where₁ was your paper₂ enjoyable to write *t*₂ *t*₁.
 b. ??Which cafe₁ was *Aspects*₂ hard [to read *t*₂ in *t*₁]?
 c. *In which cafe₁ was *Aspects*₂ hard [to read *t*₂ *t*₁]
- (ii) *wh*-islands

To highlight the second essential challenge, it's helpful to have in mind the basics of existing modern treatments of TM, which universally assume the TM derivation is bipartite: an A'-component that terminates at the left-edge of the clausal argument to the TMP links to an A'-component strictly contained within the clause hosting the TMP. The major point of variation among analyses has then been how these two parts are linked together. *Improper-movement* based accounts posit a movement operation directly linking the two steps (see (16); Brody 1993; Hicks 2009; Takahashi 2011; Hartman 2011; a.o.), while *base generation* accounts instead base-generate the target in the matrix clause and link it via a special predication mechanism to an A'-chain headed by a null operator in the clausal complement (see (17); Chomsky 1977, 1981; Rezac 2006; Keine and Poole 2016).⁷



The second essential challenge of TM is then that, despite its A'-behavior, it is considerably more constrained than pure A'-movement, e.g., being degraded for non-subjects and impossible for subjects out of finite CPs (see (5)). This is mysterious under approaches which posit pure A'-movement in the clausal argument to the TMP.

3.2 Proposal

The theory of composite movement sketched in the previous section, combined with the feature distribution in English, suggests a novel analysis of TM: the mixed A/A'-nature of the construction points to composite movement in the manner of Dinka V2-movement, a fact that is then corroborated, at least informally, by the blocking effects of finite CPs. I therefore propose that English TM involves composite movement:

- (18) **TM as Composite Movement:** TM involves cyclic composite movement through the specifiers of successive v heads, terminating in matrix Spec(vP), followed by EPP movement to Spec(TP)

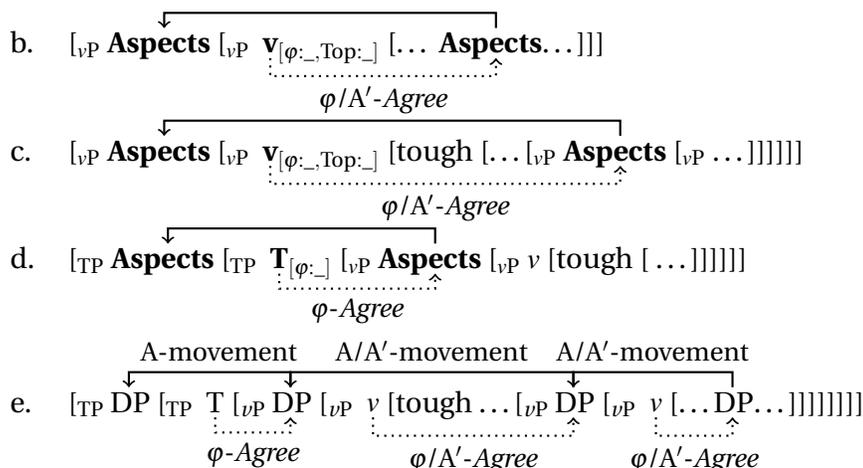
For now, I assume that the A'-component of the composite movement is motivated by an optional [Topic] feature on the moved DP, so that TM is triggered by a composite ϕ /Topic probe (see, e.g., Perlmutter and Soames 1979; Pulman 1993; Goh 2000a, 2000b; Hicks 2009). I reserve full discussion of the information-structural effects of TM to Section 6. To demonstrate the proposal, I detail the derivation of (13b), repeated below.

First, the embedded v and *Aspects* undergo ϕ/A -Agree. *Aspects* then moves to Spec(vP), where it is accessible to higher probes, as in (19b). Next, the matrix v undergoes ϕ/A' -Agree with *Aspects*, which moves to Spec(vP) of the matrix clause, as in (19c). This requires that composite probing operate across the intervening clause boundary, as previously discussed, an issue I take up in detail in the next section. Finally, a ϕ -probe on T attracts DP to subject position (19d).⁸ The derivation and resulting structure are summarized in (19e).

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- a. *Where₂ could you not decide what₁ to order t_1 t_2 ?
 b. ??Which bar₂ could you not decide what₁ to order t_1 at t_2 ?
 c. ??At which bar₂ could you not decide what₁ to order t_1 ?

⁷Browning (1987) and Heycock (1991) propose a version of the base generation approach where the null-operator moves into the clause hosted by the TMP. Of extant analyses, this is closest to my proposal.

(19) a. *Aspects* was hard to read.



This straightforwardly captures the first fundamental challenge of TM – its mixed A/A'-behavior – by analogy to Dinka V2-movement: given that both operations involve a composite chain, they should show the same mix of properties, as is borne out (see Table 2). In the following three sections, I turn my attention to various other predictions of the proposal. Section 4 argues that the second fundamental challenge of TM, the fact that it is constrained relative to pure A'-movement, also follows from the proposal here. In Section 5 I consider the predictions of allowing composite movement to cross into the clause hosting the TMP. Section 6 explores the information structural effects of TM.

Table 2: Mixed A/A'-behavior of TM and Dinka movement to Spec(CP)

	TM	Dinka V2-Movement
A properties		
Association with ϕ -Agree & Case	✓	✓
No WCO	✓	✓
New antecedents for binding	✓	✓
No obligatory recon. for Condition C	✓	✓
A'-properties		
Crosses over DPs	✓	✓
Creates islands for mvmt	✓	✓
Licenses parasitic gaps	✓	NA

⁸The proposal depends on composite movement being allowed to feed A-movement. This is expected under two of the leading approaches to the ban on improper movement. The first, due to Neeleman and Van De Koot (2010), is an intellectual descendent of May's (1979) influential account and isolates the impossibility of A'-before-A movement to the fact that phrases having undergone A'-movement behave for the purposes of binding theory as in they were in the lowest position in the chain. As we have seen, composite-movement does not share this property, both creating new antecedents for binding and bleeding Condition C. From the perspective of this account, it is thus equivalent to A-movement and so should be able to feed it. The second, due to Williams (2003, 2011, 2013) posits a representational constraint on movement chains such that no step may "descend" on the functional hierarchy VP- ν P-AspP-TP-CP. For example, once movement has targeted CP, it cannot then target TP in a higher clause, ruling out canonical cases of composite movement. Given that TM involves successive cyclic ν P- ν P movement, it is predicted to be capable of feeding later movement to Spec(TP).

- (25) **Constraints on cross-clausal TM:** TM across a clause boundary α is:
- a. Fully acceptable if α lacks a phasal CP-projection
 - b. Degraded for non-subjects and impossible for subjects if α contains a phasal CP-projection.

4.2 Testing the prediction

Testing the predictions in (25) depends on an explicit theory of which clause boundaries contain phasal CP-projections. I will largely follow Wurmbrand's (2014) conclusions in this domain, assuming control infinitives lack a phasal CP-projection, while *for-to* infinitives, subjunctives, and finite indicatives have a phasal CP-projection.¹³ My assumptions concerning subjunctives depart from Wurmbrand's, for reasons to be made clear below. The predictions of the theory can be stated as follows:

- (26) **Prediction I':** TM across a clause boundary α is:
- a. Fully acceptable if α is a control infinitive
 - b. Degraded for non-subjects and impossible for subjects if α is a finite indicative, subjunctive, or *for-to* infinitive

A final comment is in order before we move on to test the predictions, specifically concerning the degree of degradation we should expect when non-subject DPs are targeted by TM across a phasal CP. Because the present theory explicitly links TM past a phasal CP and extraction from a *wh*-island, we expect a similar level of unacceptability in the two cases. It is therefore important to bear in mind the caveat that judgements concerning the acceptability of non-subject DP extraction from *wh*-islands are variable, and there are a variety of examples in the literature of non-subject DP extraction from *wh*-islands that are reported to be quite good. I illustrate in (27).

- (27) a. ?Which book did the students forget who wrote? (Grimshaw 1986)
 b. ?What kind of gifts are there rules about who can give to whom?
 (Chung & McCloskey 1983)
 c. ?What books do you know who to persuade to read? (Pesetsky 1982)

All else being equal, we should thus not be surprised to find comparable variation in cases involving TM of a non-subject DP past a phasal CP, and specifically to find instances where such TM is relatively good. With this in mind, I proceed to test the predictions in (26).

4.2.1 Control Infinitives

The present theory predicts that TM out of (successive) control infinitives should be fully acceptable. This is borne out, as has been widely observed in the literature (Postal 1971; Bresnan 1972; Chomsky 1973; Lasnik and Fiengo 1974; Browning 1987; Rezac 2006).

- (28) a. This book is easy [_{Inf} to read *t*]
 b. This book was easy [_{Inf} to convince Bob [_{Inf} to read *t*]]

¹³I set aside ECM infinitives and raising infinitives, as they can never serve as the argument to a TMP.

As predicted, non-subject TM out of un-ambiguous *for-to* infinitives is therefore degraded but not impossible, just as with corresponding extraction from a *wh*-island. Finally, because the *complementizer-trace* effect independently blocks subject extraction from *for-to* infinitives, we cannot test whether the anti-subject prediction is borne out.

4.2.3 Subjunctives

Turning to subjunctives, non-subject TM is possible but mildly degraded out of subjunctive arguments to TMPs (see (34); this is a novel observation, to the best of my knowledge). Subject TM is impossible (see (35)).

- (34) a. ?This form is important [_{Sbj} that he sign *t* by tomorrow].
 b. ?This medication is essential [_{Sbj} that she take *t* by 5PM].
- (35) a. *Sue is important [_{Sbj} *t* take the final exam tomorrow].
 b. *Sue was easy for Sally to demand [_{Sbj} *t* give the lecture].

This is exactly as predicted by the theory, granting that English subjunctives have a phasal CP-projection. Note that this is essentially the null-hypothesis: English subjunctive CPs share the overt complementizer with finite indicatives, and, unlike in many languages, are never permeable to A-movement. The impermeability even extends to contexts where we would otherwise expect A-movement to be possible, e.g. with a verb like *expect*, which both takes a subjunctive complement (see (36a)) and independently licenses A-movement out of a clausal complement (see (36b)), but never tolerates A-movement out of its subjunctive complement (see (36c)).

- (36) a. I expect that John be on time.
 b. John is expected [*t* to be on time].
 c. *John is expected [*t* be on time].

In the framework we have adopted, additional stipulations must be invoked to explain these facts if subjunctives lack a CP-phase, so I will assume the predictions of the theory are again borne out.¹⁵

¹⁵Wurmbrand (2014) claims subjunctives *do not* have a phasal CP-projection, based on their apparent permeability to QR (see (i)), at least as compared with finite indicatives.

- (i) She has requested that they read only *Aspects*. (✓ *only* » *request*)
 (Wurmbrand 2014: ex.2)

Setting aside the details of the argument, it is not clear to me that the substantiate a robust enough distinction between finite indicatives and subjunctives to categorically differentiate them on these grounds, especially since examples like (i) are the primary evidence brought to bear on the claim. For example, an embedded object *only*-DP, which scopes out of the subjunctive clause in (i), can also scope out of a finite indicative with relative ease. Conversely, wide scope for a universal quantifier in a subjunctive clause is not much easier for speakers I have consulted than in a corresponding examples with a finite indicative.

- (ii) I know for certain that John read only *Aspects*
 ... although I suspect he also read *Lectures on GB*
- (iii) a. A professor requested that John read every Chomsky book. (?* *every* » *a*)
 b. A professor said that John read every Chomsky book. (?* *every* » *a*)

While there may be a slight difference in permeability to QR, it does not seem categorical enough, at least in English (the case may be different in, e.g., Greek; see Farkas and Giannakidou 1996), to justify the distinction. This is especially pertinent given the fact that subjunctives have an overt complementizers and are not permeable to A-movement, both of which require non-trivial explanations if there is no phasal CP.

4.2.4 Finite indicatives

With finite indicatives, we predict essentially the same behavior as with subjunctives: non-subject extraction should be possible but degraded, and subject extraction should be impossible.

Turning to the data, the availability of TM differs according to whether the CP is a direct argument of the associated TMP or embedded in an infinitival argument to the TMP. I consider embedded finite CPs first, where TM behaves as predicted. Subject extraction is thus impossible, as expected if finite CPs are islands for TM (see (38))

- (37) a. *Jon is hard to believe [_{CP} *t* liked Sue].
 b. *That book was easy to show [_{CP} *t* sold well when it was first released].

For non-subject extraction, we have to contend with considerable variation in reported judgements (see (38)). Bearing in mind the caveat from above, and taking in conjunction the judgements offered by the cited authors (again, in square brackets) and those provided by my consultants (immediately preceding square brackets), it seems clear that non-subject extraction is degraded but possible for most speakers (note in particular the reported differences in the nearly identical (38b,c)). Again, this is exactly the sort of variation we expect if island-violating movement is at stake.

- (38) a. ??[*]John was easy to demonstrate that Bill killed. (Lasnik & Fiengo 1974)
 b. ?[*]Kim is tough for me to believe that Sandy would ever marry *t*. (Hukari and Levine 1991)
 c. ?[]Mary is tough for me to believe that John would ever marry *t*. (Kaplan and Bresnan 1982)
 d. ?[%]Mary is hard for me to believe Leslie kissed. (Dalrymple and King 2000)
 e. ?[?]This boulder would be easy for me to claim that I had lifted *t*. (Heycock 1991)
 f. ?[]This book is difficult to convince people that they ought to read *t*. (Chomsky 1981)

For finite indicative arguments to TMPs, TM is robustly impossible for both subjects and non-subjects (Lasnik and Fiengo 1974; Browning 1987; Rezac 2006).

- (39) a. It was hard [_{CP} that I lost my hat].
 b. *My hat was hard [_{CP} that I lost *t*].
 c. *I was hard [_{CP} *t* lost my hat].

With subjects, things are therefore as predicted. The present account does not, however, immediately capture the impossibility of non-subject extraction in these cases.

At present, we'll have to set this aside as the one area where the predictions are not straightforwardly borne out. That said, it's important to point out that it's not incompatible with anything we have said so far that additional factors could intervene to block TM in this case. In the Appendix, I sketch an analysis of the problematic case that amounts to just this. The basic idea is that TMPs function obligatorily as *low*-experiencer psych predicates (Postal 1971; Belletti and Rizzi 1988; Pesetsky 1995; Hartman 2012) when they combine with finite indicative arguments. Following Hartman (2012), this means that they project their CP argument as their external argument, above the search space of the composite probe on *v*. This suffices to rule out TM.

- (40) [_{vP} [_{CP} ... DP ...] [_{vP} *v* [_{AdjP} hard [_{PP} on me]]]]
 ↑
 φ/A'-Agree

4.2.5 Summary

In sum, the predictions of the composite-movement analysis are straightforwardly borne out in all but one case, where there is reason to suspect that TM is blocked independently and in a manner consistent with the broader conclusions of this article. The results of this section are summarized in Table 3.

Table 3: Constraints on Cross-clausal TM

Environment	Prediction		Result	
	Subject	Non-subject	Subject	Non-subject
Control Infinitive	NA ¹⁶	✓	NA	✓
<i>for-to</i> infinitive	NA	✓ ^{??}	NA	✓ ^{??}
Subjunctive	✗	✓ ^{??}	✗	✓ ^{??}
Finite indicative				
Embedded	✗	✓ ^{??}	✗	✓ ^{??}
Argument	✗	✓ ^{??}	✗	✗

✓^{??} indicates possible but degraded

Finally, the relatively constrained nature of TM compared to pure A'-movement on display in Table 3 *cannot* be immediately accounted for by those analyses that assert TM involves pure A'-movement within the complement to the TMP (see (16) and (17)). Given that A'-movement freely passes through and terminates at the edge of phasal CPs, these accounts must invoke additional stipulations to explain the constrained nature of TM.¹⁷ On the present approach, this behavior is a direct consequence of the independently observable mixed A/A'-nature of the construction.

5 Additional predictions

The present account leads to a number of additional predictions in domains not obviously related to composite movement. In this Section, I explore these predictions, which in many cases bring to light novel empirical facts about the TM construction.

¹⁷In this context it's important to note that the blocking effect of *for-to* infinitives and subjunctives is also observed in embedded contexts, as with finite indicatives.

- (i)
 - a. ?John was foolish to expect [for Sue to hire *t*].
 - b. ?This form is important for you to demand [_{sbj} that he sign *t* by tomorrow.]
 - c. *Sue is important for you to demand [_{sbj} *t* come to the meeting]

¹⁷Control-infinitives do not have overt subjects, by definition. We can likewise rule out TM of the subject of a non-finite argument to a TMP, as in (ii), under the assumption that TMPs simply don't select for raising or ECM infinitives, which are the only non-finite clauses that license overt subjects in English.

- (ii) *John is hard [*t* to laugh]

5.1 Matrix-PP effects

One of the main innovations of the composite movement analysis of TM is that it extends the component of the TM derivation with A' -characteristics – the composite A/A' -movement, in this case – into the clause hosted by the TMP.¹⁸

- (41) $\overbrace{[_{VP} DP [\dots \text{tough} [\mathbf{for DP}] [_{Inf} \dots [_{VP} DP[\dots]]]]]}^{A/A'-\text{movement}}$

Given that many TMPs take an optional PP argument, the present approach therefore predicts that this PP is crossed over by composite movement. This generates several predictions that do not obviously follow on other approaches to TM, which I explore here.¹⁹

I will rely in the ensuing discussion on two types of PP arguments that unequivocally tolerate TM across them.²⁰ The first is *of*-PP arguments to predicates of *attribution of mental properties* (Stowell 1991), as in (42). The second is *for*-PP arguments to canonical TMPs like *easy*, *tough*. As we saw in the previous section, *for-to* infinitives degrade TM, so the fully acceptable TM in, e.g., (43) must involve a *for*-PP (see also Longenbaugh 2016).

- (42) a. It was foolish/clever/wise/smart/dumb [of Bob] [to make that remark].
 b. That remark was foolish/clever/wise/smart/dumb [of Bob] [to make *t*].
- (43) John was hard [for Sue] [to talk to]

5.1.1 Extraction

The first prediction derives from the fact that TM (and composite movement more generally) creates islands for A' -extraction.

- (44) a. Where₁ was it hard [to read *Aspects* *t*₁]?
 b. *Where₁ was *Aspects*₂ hard [to read *t*₂ *t*₁]?

We therefore predict that this island-effect should extend to the matrix PP, assuming it too is crossed over by composite movement.

- (45) **Prediction II:** TM renders extraction from the PP argument to the TMP impossible

As (46) shows, this is borne out.²¹

¹⁸Recall that both the base-generation and improper-movement type approaches generally hold that the A' -chain terminates at the left-edge of the clausal argument to the TMP (see (16), (17)), but see fn. 19.

¹⁹Browning (1987) and Heycock (1991) sketch versions of the base generation approach that involve movement of the null operator into the matrix clause. Neither author explores the predictions discussed in this section, but it is conceivable that some of the facts could be accounted for under their analyses. Because these accounts face serious trouble with the reconstruction data discussed below, and because both authors leave the details of their analyses unspecified, I will not discuss them further.

²⁰Hartman (2009), Keine and Poole (2016) have claimed that TM is impossible past PP-arguments to the TMP. Longenbaugh (2016) challenges this claim, which is independently problematic given (42) and (43).

²¹Rezac (2006) points out a potential counter-example: the entire *for-PP* can appear left-peripherally in analogues to (47), as in (ia). However, this appears to be correlated with the independent fact that *for*-PPs have a extremely free distribution in the clause (see (ib)); *of*-PPs, whose distribution is considerably more constrained (see (ic)), are blocked from appearing left-peripherally if TM has taken place (cf. (iid,e)). This suggests that (ia) involves base generation of the *for*-PP in the left-periphery.

- (i) a. ?For whom was Mary hard [to please *t*]?
 b. (For John) Mary was (for John) hard (for John) to please *t*.

- (46) a. Who was it clever [of t] [to hire Sue]?
 b. *Who₁ was Sue₂ clever [of t_1] [to hire t_2]?
 c. Sue was clever [of Bill] [to hire t].
- (47) a. Who was it hardest [for t] [to get along with John]?
 b. *Who₁ was John₂ hardest [for t_1] [to get along with t_2]?
 c. John was hardest [for Mary] [to get along with t].

5.1.2 Parasitic Gaps

Second, recall that TM – and hence composite movement – licenses parasitic gaps (see (48); the licensing is somewhat marginal compared to pure A'-movement).²²

- (48) a. ?*Aspects* was easy to read t without owning a copy of pg .
 b. ?Sue was hard to get along with t despite being related to pg .

We therefore predict that TM should also license parasitic gaps in the PP argument to the associated TMP.

- (49) **Prediction III:** TM licenses parasitic gaps in the PP argument to the TMP

Following Hukari and Levine (1990), this is borne out: parasitic gaps are licensed in the object of matrix *for*-PPs. While the data in (50) are hard for some speakers, they are not worse than parallel examples in (51), where the parasitic-gap-hosting phrase is unambiguously crossed over by composite movement.²³

- (50) a. These books were tough [for critics of pg] [to praise t sincerely].
 (Hukari and Levine 1990: 142, ex.41)
 b. ?Parties like this are easy [for the organizers of pg] [to set up t].
- (51) a. ?This book was tough to keep it from being easy [for critics of pg] [to lambast t]
 b. ?This party won't be easy to prevent it from being hard [for the organizers of pg] [to set up t].

Given the difficulty of these examples for some speakers, a concern is that they involve a *for-to*-infinitive parse, which we have seen degrades TM. While this would not be incompatible with the composite movement account, it would fail to confirm the present prediction. I believe we can set this concern aside, however. As Postal (1971) and Longenbaugh (2016) observe, *for-to* and *for*-PP parses give rise to subtly different interpretations, which are truth-conditionally distinct in many cases. For example, under the *for*-PP parse in (52a), the event of taking the test annoyed *John*. Under the *for-to* parse, the event of John taking the test annoyed some unspecified individual (I overtly disambiguate the two readings by fronting the infinitive). Crucially,

-
- c. (*Of John₁) it was (*of John₁) foolish (of John₁) to criticize Sue
 d. Of whom was it foolish t to criticize Sue?
 e. *Of whom₁ was Sue₂ foolish t_1 to criticize t_2 ?

²² Unfortunately we can't confirm this in Dinka, which lacks parasitic gaps (Coppe van Urk, p.c.)

²³ In (51), I rely on the *prevent-from* construction, which tolerates TM out of both the pre- and post-prepositional arguments.

- (i) a. Sue was hard to prevent t from winning the race.
 b. The race was hard to prevent Sue from winning t .

parasitic gaps are possible under the reading in (52a), as in (53), (54).

- (52) It was annoying for John to take the test.
 a. [To take the test] was annoying [for John]. (for-PP parse)
 ≈ Taking the test annoyed John
 b. [For John to take the test] was annoying (for Sue). (for-to parse)
 ≈ John's taking the test annoyed someone(/Sue)
- (53) ?Papers like this can be irritating [for the reviewers of *pg*] [to comment on *t*].
 ≈ Commenting on papers like this irritates reviewers (✓ for-PP)
- (54) ?Parties like this are usually annoying [for the organizers of *pg*] [to set up *t*].
 ≈ Setting up parties like this annoys organizers (✓ for-PP)

Parasitic gaps are also licensed in *of*-PP arguments to TMPs, modulo the awkwardness of “*of* <*noun*> <*preposition*>” sequences. Again, the crucial observation is that the parasitic gaps in (55) are not significantly worse than the corresponding ones in (56), where the gap-hosting phrase is embedded in the infinitival argument to the TMP and hence unambiguously crossed over by composite movement.

- (55) a. ?This cause would be foolish [of benefactors of *pg*] [to denigrate *t* publically]
 b. ?That topic was smart [of the people who work on *pg*] [to present *t* in that way].
- (56) a. ?This cause will be hard to keep it from being seen as foolish [of benefactors of *pg*] [to have supported *t*].
 b. ?That topic will be hard to keep it from seeming foolish [of the people who work on *pg*] [to have presented *t* in this way].

5.2 Reconstruction

In Dinka, V15 observes that operators/DPs crossed-over by composite movement can nonetheless bind variables/anaphors contained in the moved phrase.

- (57) Thúrâi è ròth-kén₁ àa-cíi kòc₁ ké tíng.
 pictures P **self.PL-PL.2PL** 3P-PRE.OV **people.GEN** 3PL see.NF
 ‘The pictures of themselves₁, the people₁ have seen.’ (Dinka; V15: 101, 18a)

Assuming variables/anaphors must be (locally) c-commanded at LF by their antecedent, and that QR does not license binding (e.g., Buring 2005) this suggests composite movement licenses reconstruction. This leads to the prediction that TM should behave similarly.

- (58) **Prediction IV:** The TM target can reconstruct below its surface position.

As has been previously observed in the literature, a variable contained within the TM target can indeed be bound by a phrase crossed-over by movement, confirming the prediction. This is true both for pronominal variables bound by crossed-over quantifiers (Sportiche 2002; Hicks 2009;

Pesetsky 2012),²⁴ and for anaphors (Pesetsky, 2012).²⁵ This is especially clear in (60b), where the TM target contains a variable bound by the DP that associates with *only*.

- (59) a. Pictures of his₁ friends are hard for every artist₁ to sell. (Sportiche 2002:117)
 b. Pictures of his₁ friends will be hard to convince any artist₁ to sell.
- (60) a. Pictures of himself₁ are hard for John₁ to look at *t*. (Pesetsky 2012)
 b. I only said that pictures of himself₁ will be hard to convince BILL₁ to sell.
 ≈ Bill is the only *x* s.t. I said it'll be hard to convince *x* to sell *x*'s pictures

In the absence of a bound variable, the possibility for the TM target to take scope below the TMP is less clear. On the basis of data like (61), it is sometimes claimed (Epstein 1989; Rezac 2006; Fleisher 2013) that scope-reconstruction is flatly impossible. While the narrow-scope reading of the TM target is indeed difficult in these cases, there are a variety of examples where scope reconstruction does appear to be possible.²⁶ In the remainder of this section, I review these examples, confirming that TM does permit reconstruction for scope in many instances.

- (61) a. It is easy to talk to many people. (easy » many)
 b. Many people are easy to talk to. (??easy » many)
 (cf. Epstein 1989: 651)
- (62) a. How many students is it easy to teach? (n-many » easy; easy » n-many)
 b. How many students are easy to teach? (n-many » easy; *easy » n-many)
 (Fleisher 2013: 325)

The first cases I consider involve TM that targets the object of a verb of creation, or of possessive *have*. The semantics of these verbs strongly biases towards a narrow scope reading, forcing reconstruction (Heycock 1995; Fox 1999). If the target of TM is truly blocked from reconstructing, the examples below should all therefore be infelicitous. Speakers I have consulted almost unanimously accept the a. examples, however, with narrow scope for the TM target.²⁷ Moreover, even those speakers who have difficulty with the a. examples accept reconstruction in the b. examples, which differ minimally in that the target contains a variable bound by an opera-

²⁴Reconstruction for is apparently degraded when the bound variable is a possessor (see, e.g., Hicks 2009). Speakers I have consulted are unsure of the judgement, but regardless, similar reports have been made for reconstruction in other contexts (Sportiche 1997; Harizanov 2014: 1056), so I set this aside.

(i) [*]His₁ students can be hard for every professor₁ to reach.

²⁵Reflexives in the object position of *picture* NPs are sometimes said to be exempt from Condition A of the binding theory (e.g., Reinhart 1992; Charnavel and Sportiche 2016; a.o.), so (58a) on its own is not unequivocal. Example (60b) presents a stronger case. Given that association with focus is subject to weak-crossover effects (Rooth 1985; Kratzer 1991), the sloppy reading paraphrased above requires (i) that *himself* be bound, and (ii) that it reconstruct below *Bill*. This example is additionally informative in that the strict reading is quite difficult, suggesting the anaphor is not exempt, as exempt anaphors always license a strict reading (Reinhart 1992; Charnavel 2017). The question of why *himself* cannot be exempt here is not relevant to the argument, so I leave it open.

²⁶This claim constitutes the primary argument for base generation approaches to TM. However, even if we ignore the fact that reconstruction is possible in other contexts, the case against movement is not all that strong. There are a variety of movement operations cross-linguistically that pass all diagnostics for contentful movement (e.g., weak-crossover, Condition C effects, etc.) but that fail to reconstruct for scope. Two clear examples are scrambling in Hindi-Urdu and *wh*-movement in English (at least on some semantic analyses; see Heim 2012, 2014). Taken in conjunction with the fact that reconstruction is possible elsewhere, this argument for base generation, at least, is at best equivocal.

²⁷Note that the choice of verb of creation also marginalizes the wide-scope generic reading for the target, which might otherwise be hard to distinguish from the narrow-scope reading.

tor crossed over by TM. It therefore appears that the presence of a bound variable facilitates the narrow-scope reading, at least in some cases.²⁸ This helps explain why (59), (60) are acceptable while acknowledging scope reconstruction is difficult in (61), (62).

- (63) a. A nice picture of his mother is essential for John to have on his desk. (*? essential » a nice picture*)
 b. A nice picture of his₁ mother is essential for every student₁ to have on his desk. (*✓ essential » a nice picture*)
- (64) a. Two books might be hard for Mary to write. (*?hard » two*)
 b. Two books about herself might be hard for Mary to write. (*✓ hard » two*)
- (65) a. A joke about Sally will only be easy to convince SUE to tell. (*? easy » a joke*)
 b. A joke about herself will only be easy to convince SUE to tell. (*✓ easy » a joke*)
- (66) a. A picture of Bill should be easy to persuade any artist to draw. (*? easy » a picture*)
 b. A picture of her daughter should be easy to persuade any artist to draw. (*✓ easy » a picture*)

Second, even if we expand consideration to examples that do not involve verbs of creation or variable binding, the absence of scope reconstruction is not categorical. Returning to the data in (61) and (62), the narrow scope reading can be facilitated by adding modifiers in the embedded clause, and by using *would* in the matrix clause.

- (67) a. Many/five people are hard to talk to at the same time. (*?easy » many/five*)
 b. Several/three books are hard to read at once. (*?hard » several/three*)
- (68) a. How many questions would be easy to answer in ten minutes? (*?easy » n-many*)
 b. Three questions would be easy to answer in ten minutes. (*?easy » three*)
 (Fleisher 2013: fn.4)

I conclude that TM does allow scope reconstruction in many instances.²⁹ From the perspective of the present analysis, this is the crucially important conclusion. First, it indicates that the TM-target originates in the base position, as predicted. Second, it raises fundamental questions for competing base-generation accounts (see fn.26): given established results about binding and scope, even a single instance of reconstruction is sufficient to rule out base-generation accounts, as the target of TM is simply never below its matrix position. For the purposes of this paper, this is sufficient, so that I will leave the two secondary questions raised by this discussion – why is

²⁸Thanks to Irene Heim (p.c.) for first pointing this out to me. Note also that this is obscured in (59), (60), where the TM target is a generic bare-plural whose scope relative to the TMP is difficult to independently ascertain.

²⁹There are targets that resist reconstruction, even if they contain a bound variable. Such cases generally lack the bound variable reading, corroborating the general account here. It is unclear what factors control whether reconstruction is available, although it's worth noting that reconstruction is difficult for many such targets even in many A-raising environments (even when controlling for split-scope readings; Iatridou and Sichel 2011).

- (i) a. No students are certain to win.
 ??≈ It's not certain that students will win.
 b. Few students are certain to win.
 ??≈ It's not certain that few students will win.
- (ii) a. No pictures of his₁ friends are easy to convince every photographer₁ to sell.
 ??≈ It isn't easy to convince every photographer to sell pictures of his friends.
 b. ??Few photos of himself₁ will be hard to convince John₁ to look at.
 ??≈ It will hard to convince John to look at few photos of himself.

reconstruction difficult in many cases and why does the presence of a bound variable facilitate it – mostly to future research. It’s worth pointing out, though, that there is a cross-linguistic precedent for anaphor/variables licensing otherwise difficult reconstruction: in Hindi-Urdu, local scrambling does not license scope reconstruction unless the target DP contains an anaphor, in which case it may reconstruct below the anaphor binder (Bhatt and Homer 2017).

5.3 Summary

In this section, I discussed several additional predictions of the composite-movement analysis that are borne out: TM creates islands for extraction from and licenses parasitic gaps in the associated PP-argument, and reconstructs below the TMP. It’s worth pausing briefly here to consider how alternative treatments of TM fare with respect to these data. Modern base generation accounts generate the TM target above the PP-argument in Spec(*v*P) (e.g., Keine and Poole 2016) or Spec(TP) (e.g., Rezac 2006) and therefore do not predict any of the data in this section. Improper-movement accounts posit a step of A-movement across the PP-argument. Given that A-movement does not license parasitic gaps (Engdahl 1983) or create islands for A'-movement, neither the parasitic gap nor the island data are accounted for, although these accounts can capture the reconstruction facts.³⁰

6 A'-Component

A crucial part of the proposed analysis is that TM is triggered in part by an A'-feature present on the *v* associated with the TMP. In broad terms, A'-movement has detectable information-structural consequences, in a way that A-movement need not: it is associated with topicalization, focusing, question formation, scope alteration, etc. We are therefore led to the prediction that TM should likewise have information-structural consequences.

(69) **Prediction V:** TM has information-structural consequences.

This Section is devoted to arguing that (69) is borne out. The explicit proposal I will defend is that the target of TM must be an “aboutness-topic” in the sense of Chierchia (1992) and Jäger (2001). In Section 6.1, I make explicit the notion of topic I adopt here. Section 6.2 then presents the arguments that the target of TM is obligatorily an aboutness topic.

6.1 A theory of aboutness topic

In this section, I sketch the theory of aboutness topic that I adopt, which is due to Jäger (2001). I will keep the discussion in this section mostly informal, as the technical details of Jäger’s pro-

³⁰David Pesetsky (p.c.) points out that A-movement across an experiencer PP slightly degrades extraction in some cases (see (ia)), which is unexpected given common assumptions about island effects. I suspect this is due to the independent difficulty of extracting out of *to*-PP arguments to *seem*, as in (ib,c), where there has been no movement, and the awkwardness of having two sequential occurrences of the token *to*. Controlling for the latter issue renders extraction quite acceptable, as in (id). Given these concerns, and the fact that the degradation is significantly weaker in these instances than in the corresponding TM examples, I will assume different mechanisms are at stake in the two cases.

- (i)
- a. ?Who₁ did John₂ seem to *t*₁ *t*₂ to be upset.
 - b. ?Who₁ did John seem to *t*₁ like he had been fired?
 - c. ?Who₁ does it seem to *t*₁ like/that Bill should be fired?
 - d. How many jurors₁ did Sally₂ appear to *t*₁ at the trial *t*₂ to be innocent?

positional are by and large not relevant to the ensuing argumentation.

With this in mind, the core of Jäger's proposal is that each clause furnishes a unique element, the aboutness topic (AT), that functions to ground the clause in the local context. In principle, any argument in the clause can be the AT, including the Davidsonian event-argument. ATs are then defined so that they have the following two properties. First, in the absence of a higher generic operator, ATs must be anaphoric to an entity present in the local context.³¹ This holds equally well of definites *and* indefinites, i.e., topical indefinites do not introduce new discourse referents but rather quantify over entities already familiar in the context. Second, ATs are defined such that if they are in the scope of a higher generic operator, they are obligatorily bound by it, following a proposal by Chierchia (1992). A final aspect of the theory that will be important in the coming discussion is that the Davidsonian event-argument of individual level predicates cannot be the AT of the clause. Since each clause must have an AT, the subject of intransitive individual-level predicates must be the AT. The relevant aspects of the theory are summarized in (70).

(70) **Jäger's theory of Aboutness Topic**

- a. Every clause has an AT.
- b. Definite ATs must be anaphoric to a familiar discourse entity.³²
- c. Indefinite ATs must be anaphoric to a familiar discourse entity or else generic.
- d. The subject of an intransitive individual-level predicate must be the AT.

6.2 TM as topicalization

With Jäger's theory in place, I propose that the target of TM is an AT in Jäger's sense.

- (71) **Information-structural effects of TM:** The target of TM is the AT of the clause containing by the TMP.

Syntactically, I take (71) to indicate that the ν associated with the TMP has an unvalued [AT] feature that probes and attracts a valued counterpart on the target DP. Below, I present four arguments in support of (71).

6.2.1 Bare plurals

One of the most direct consequences of Jäger's theory of AT pertains to the interpretations available to bare plurals (BPs). BPs in English are in principle ambiguous between an existential reading, where they introduce a novel discourse entity, and a generic reading, where they are bound by a generic operator (see (72a); Carlson 1977, a.o.). Because BPs do not readily allow for an anaphoric reading, it follows from (70c) that topical BPs must be generic (Jäger 2001: 122).³³ Given (70d), this accounts for the fact that BP subjects of intransitive individual-level predicates lack the existential reading (Carlson 1977; Diesing 1992).

³¹As does Jäger, I will primarily limit discussion to the behavior of ATs in matrix clauses, so that "discourse" can be safely substituted for "local-context," although it is important to keep in mind that ATs in the scope of intensional predicates are sensitive to their local context, not the discourse itself (see fn.35).

³²I assume that definites generally cannot be bound by a generic operator, unlike indefinites, accounting for the contrast in (70b) and (70c).

³³In Jäger's theory, something else must be said to block the anaphoric reading, which arises if we assume BPs restrict a variable bound by existential closure. This issue is not limited to this framework, so I set it aside.

- (72) a. Firefighters are available. [Stage level]
 ≈ There exist firemen who are available. (✓ *existential*)
 ≈ Firefighters are typically available. (✓ *generic*)
 b. Firefighters are altruistic. [Individual level]
 ≠ There are firemen who are altruistic. (✗ *existential*)
 ≈ Firefighters are typically altruistic. (✓ *generic*)

Given these facts, we predict that a BP target of TM should be obligatorily generic. It has been widely observed in the literature that this is borne out (Postal 1971; Lasnik and Fiengo 1974; Heycock 1991; Rezac 2006). In (73), the absence of the existential reading, which introduces some subset of *beavers, stories, songs*, can be diagnosed by the fact that the pronoun in the parenthetical continuation must refer to all *beavers, stories, songs*, not to some subset. This leads to pragmatic infelicity in the cases here.^{34,35}

- (73) a. Beavers are hard to kill. (#They're over there) (Postal 1971)
 (✗ *existential*, ✓ *generic*)
 b. Stories about France are hard for Tim to tell. (#They are very sad)
 (✗ *existential*, ✓ *generic*)
 c. Beatles songs are hard for Sue to listen to. (#John Lennon sings them)
 (✗ *existential*, ✓ *generic*)

6.2.2 Expletives

The second argument pertains to expletives, which I assume are semantically vacuous. They therefore cannot be anaphoric to an entity in the local context nor bound by a generic operator, and hence cannot serve as ATs. If TM involves topicalization, they should therefore be impossible targets. This is borne out, explaining the longstanding puzzle (Postal and Pullum 1988; Jacobson 1992; Dalrymple and King 2000; Rezac 2006; a.o.) that TM cannot target expletives. I rely on the *prevent-from* construction in the examples below (see fn. 23). TM is possible for an anaphoric DP in the post-*prevent* position (see (74)), but impossible for *it-*, *meterological-*, and *there-*expletives (cf. (75) - (77), respectively).

- (74) a. Bill will be hard to prevent *t* from coming to the party.
 b. Sally will be hard to keep *t* from visiting John.
 (75) a. We'll try to prevent it from becoming obvious that Bill is drunk.
 b. *It'll be hard to prevent *t* from becoming obvious that Bill is drunk.
 (cf. Postal and Pullum 1988: ex.7)

³⁴Generic readings are also possible for topical indefinites more generally. We therefore predict that an indefinite target of TM should be ambiguous between a generic and anaphoric reading (see (70c)). The generic reading is possible (Postal 1971; Lasnik and Fiengo 1974, e.g., *A thesis is typically hard to write*. Concerning the anaphoric reading, in basic cases it is difficult to tease apart from the existential reading where the indefinite introduces a novel discourse referent, as the readings differ only in that quantification is limited to familiar entities in the former case. I will not investigate this distinction further in this paper.

³⁵The fact that a topical BP must be generic is built in to the meaning of topic and is independent of the position in which the BP is interpreted, unlike under Diesing's account (see Jäger 2001: 5.1,5.2; although Diesing does not generally discuss how embedded infinitival clauses are parsed into LFs under her mapping hypothesis). It is therefore compatible with the reconstruction effects in the previous section. Likewise, indefinite topics more generally are fully compatible with reconstruction. The AT feature will simply require that they reference a variable familiar in the local embedded context rather than the discourse. Jäger does not discuss the behavior of ATs in embedded contexts, so I will not elaborate beyond these promissory remarks.

- (76) a. Scientists can prevent it from raining, with enough money.
 b. *It will be hard to prevent *t* from raining.
- (77) a. Sue single-handedly prevented there from being a riot.
 b. ?*There was hard to prevent *t* from being a riot.

6.2.3 Predicate nominals

The third argument is based on predicate nominals, which are not referential (Zamparelli 1995) and so cannot be anaphoric to an entity in the local context nor bound by a generic operator. They should therefore not make acceptable ATs.³⁶ This is independently confirmed by the fact that BP subjects of individual-level predicate nominals must be generic. The BP subject therefore *must* be the AT, so that predicate nominals are not possible ATs.

- (78) a. Firefighters are heroes. (#They're over there) (X *existential*)
 b. Elephants are mammals. (#They're over there) (X *existential*)

TM should therefore be unable to target predicate nominals.³⁷ In testing the prediction, we must take into account that TM is most acceptable when the clausal complement denotes an *intentional* event undertaken by the (implicit) *for*-PP argument (Nanni 1978; Longenbaugh 2016). Given that unmodified predicate-nominals are generally stative, we might independently expect TM to be degraded. To control for this, I embed the predicate nominals under either the intentional *become*, or put them in the *prevent-from* construction, as below. With this in mind, TM is indeed blocked for predicate nominals.

- (79) a. *A good doctor will be hard to become.
 b. *The best doctor in Boston isn't easy to become.
 c. *A professor of physics will be impossible to keep John from being/becoming.
 d. *The new department head will be impossible to keep Sue from being/becoming.

6.2.4 Idiom chunks

The final argument concerns idiom chunks. To a first approximation, the individual constituents (chunks) that make up idioms have no independent denotation, idioms being non-compositional. DP idiom-chunks are therefore poor ATs, so we expect TM to be blocked. This reflects the intuitions of some speakers I consulted (see also Lasnik and Fiengo 1974).

³⁶There are a variety of other non-referential DPs that should be ruled out as ATs on similar grounds, most notably DPs headed by *every* and *no*. That said, these DPs can serve as the subject of intransitive individual-level predicates, suggesting they are not categorically barred from being ATs (see (ia)). Jäger does not discuss such examples, and I will not propose an analysis of them here. I will point out, however, that they are also licit targets of TM, so that the correlation between the subject of an intransitive individual-level predicate and the target of TM holds (see (ib)), whatever the proper analysis of such phrases in Jäger's system may be.

- (i) a. Every/no firefighter is altruistic
 b. Every/no book was hard for Sue to finish.

³⁷Note that predicate nominals should otherwise be licit targets for TM, as they bear ϕ -features and can undergo *A'*-movement (see (i)).

- (i) a. I want to be the best doctor that I can be.
 b. A good doctor is what Sue is.

There are, however, speakers who tolerate TM of at least some idiom chunks (see also Rezac 2006; Hicks 2009). In general, it appears that whether an idiom chunk can be a TM target correlates with whether it can be taken to have independent, albeit usually non-literal, meaning. Consider the common example *the cat is out of the bag*. Under its most natural reading, this idiom consists of two individual meaning parts, *the cat* and *be out of the bag*. These parts have the non-literal meanings, *a secret* and *become widely known*, but they compose by the standard means of functional application. Correspondingly, *the cat* can be used to refer to a previously mentioned secret. This can be confirmed independently by a variety of tests for referentiality, e.g., *the cat* can be modified by a demonstrative and can be co-referential with pronouns (see Nunberg et al. 1994 for additional diagnostics). It should therefore, in principle, make an acceptable AT and hence target for TM.

(80) That cat is out of the bag. It(=the cat) was quite a secret.

This more nuanced view of idioms leads us to the prediction that the accessibility of an idiom chunk for TM should correlate with its referential status. This is largely borne out. Below, I report the amalgam of judgements from an informal study of native speakers (judgements are for the accessibility of the idiomatic reading).

- (81) a. ?That habit will be hard to kick *t*. (cf. (81k))
 b. ?That shit will be hard to keep *t* from hitting the fan. (cf. (81l))
 c. ?That cat will be hard to keep *t* from getting out of the bag. (cf. (81m))
 d. ?That hatchet was hard to bury *t*.
 e. ?Those tabs were easy to keep *t* on the activists.
 f. ??Advantage was easy to take *t* of the workers.
 g. ??The ice was hard to break *t*.
 h. ??Attention was hard to pay *t* in that lecture.
 i. ??Heed was hard to pay to that warning.
 j. ?*Strings will be hard to pull to get you a job.
 k. *The bucket will be easy to kick *t*. (cf. (81a))
 l. *The fan will be hard to keep the shit from hitting *t*. (cf. (81b))
 m. *The bag will be hard to keep the cat from being out of *t*. (cf. (81c))
 n. *The wagon is easy to fall off.

While there is speaker variation in the reported judgements, the acceptability of, e.g., modifying the idiom chunk with a demonstrative does correlate with its accessibility to TM for almost every speaker. Thus, for most speakers the idiom-chunks in (81f-n) all reject demonstrative modifiers, suggesting that indeed they are not referential.³⁸

6.3 Summary

On the basis of the four arguments presented above, I conclude that TM is fundamentally a topicalization operation. This confirms that TM has information-structural effects, as predicted

³⁸Hicks (2009) and Rezac (2006) relate the accessibility of a given idiom chunk to TM correlates with its accessibility to passivization and relativization, respectively. However, in the cases where it can be tested, most idioms that resist TM can be passivized, with a few exceptions. Likewise, relativization can target many of the idioms that reject TM, as in (iia-c), and conversely many idioms that can undergo TM cannot be relativized, as in (iie). It therefore does not appear that there is a clear correlation between the possibility for an idiom chunk to undergo A- or A'-movement and its accessibility to TM. Whether the idiom chunk can be construed as referential seems a better indicator, as expected if TM involves topicalization.

by the composite movement account.

Before concluding, it's worth pointing out that the analysis proposed here captures the similarities between the target of TM and the subject of individual level predicates, which have been frequently observed in the literature (Lasnik and Fiengo 1974; Heycock 1991; Rezac 2006).³⁹ This has proved difficult to analyze, especially because TMPs don't show other properties associated with individual-level predicates: they don't trigger "lifetime effects", where the tense of the clause refers to the time of existence of the subject, not the predicate itself (cf. (82a,b); Kratzer 1995), and permit temporal modification without coercion (cf. (83a,b); Magri 2009). The present account makes sense of this behavior: TMPs and individual-level predicates share in common the requirement that their subjects be ATs, but the origins of this requirement are fundamentally different.

- (82) a. Bill was easy to mail the book to. (\nRightarrow Bill is dead)
b. Bill was from Paris (\Rightarrow Bill is dead)
- (83) a. Sally is sometimes hard to talk to.
b. #Sally is sometimes related to Art.

7 Towards a general theory of composite probing

In the four preceding sections, I defended a composite-movement analysis of English TM, bolstering the proposal that English ν is a composite-movement trigger. In this section, I turn to the conceptual issues surrounding composite movement more generally. I begin, in Section 7.1, by investigating the scope of composite probing in English. In Section 7.2, I extend this result to suggest other cases cross-linguistically that may involve composite movement.

7.1 Constraining Composite Probing

One of the essential conclusions underlying the proposed analysis of TM is that English ν can host both φ - and A' -features, and so might be expected to furnish a composite probe. While the arguments presented in the previous sections support this conclusion in the case of TM, it appears that allowing ν to trigger composite movement in general over-generates a variety of illicit

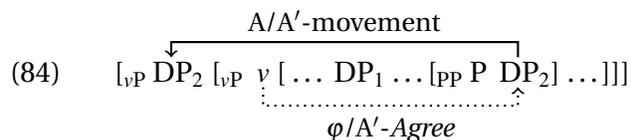
-
- (i) a. The ice was broken, and we have been friends since. (ii) a. The attention Mary paid in class helped her on the test.
b. Strings were pulled, and Bill got a job. b. The heed they paid was wise.
c. Heed was paid to the warning, thankfully. c. The strings Sue pulled got me a job.
d. ??The bucket was kicked by poor old Bill. d. ?*The cat John let out of the bag upset me.
e. ??The wagon was fallen off of by Sue. e. ?*The shit that hit the fan amazed Sally.

³⁹The only other account I am aware of is due to Rezac (2006). Following Diesing (1992), he assumes that existential readings for BPs are contingent on being interpreted in the scope of ν P at LF, so that the TM facts follow if the target is base generated in Spec(TP). Diesing approach has been criticized on various grounds (see, e.g., Burton and Grimshaw 1992; Van Valin 1986; Jäger 2001; Magri 2009), and most of the criticisms also apply to this analysis of TM. One major issue is that the subject of TM clearly patterns like ordinary subjects in terms of the traditional tests for ν P-internal origin: there is no violation of the CSC under conjunction of a TMP and an unaccusative (Burton and Grimshaw 1992; McNally 1992), and quantifiers may be floated below the surface subject (Sportiche 1988). A second challenge is that, as we saw in Section 5, the target of TM can reconstruct into the scope of the TMP, casting doubt on it being base generated in Spec(TP).

- (i) a. The book [[fell t] and [was t hard to pick up]]
b. Those books (all) have (all) been hard to read

structures. I illustrate with the prepositional dative construction (PDC), where the predictions and data are particularly clear.

Following Barss and Lasnik (1986) and Larson (1988), I assume that the DP argument asymmetrically *c*-commands the PP argument in the PDC. If composite movement to *v* is possible in English *wh*-question formation, as in (84), it should therefore be possible for a fronted object of the PP argument to avoid a weak-crossover violation, to bind an anaphor in the DP argument, and to avoid obligatory reconstruction for Condition C, as can composite movement in other cases. As is well known, the PDC does not obviously show any of these properties.⁴⁰



- (85) a. *Weak crossover* (Larson 1988: 338)
 ?*Which worker₁ did you send his₁ paycheck to *t*?
- b. *Condition A anaphora*
 *Which student₁ did you show herself₁ to *t* in the mirror?
- c. *Reconstruction for Condition C*
 ??Which claim that John₁ is a genius did you introduce him₁ to *t*?

We also expect that if the lower object has A'-features, it should be capable of being passivized over the higher object (see (86b)), counter to fact.

- (86) a. *Who was given those packages to *t* by you?
- b.
$$[\text{who } [\text{TP who } [\dots [\text{vP who } [\text{given } [\text{those packages } [\dots [\text{to who}]]]]]]]]]$$
- A'-movement A-movement A/A'-movement
-

These conclusions are not limited to the PDC: in general, a *wh*-phrase cannot bind into or escape a Condition C violation induced by an asymmetrically *c*-commanding DP, even if the structure should permit a composite movement step over it.

- (87) a. ??Which student's₁ grades did you persuade his₁ teacher to raise *t*?
- b. ?*Which two students₁ did you persuade each other₁'s friends to invite *t*?
- c. ??Which claim that John₁ is a genius did you persuade him₁ to deny *t*?

At least with *wh*-movement, then, *v* does not freely license a composite φ/A'-probe in English. V15 makes a similar point concerning C in West Flemish and Nez Perce, both of which have com-

⁴⁰A possible objection is that (85a)-(85c) are illicit because they violate the Case filter: perhaps the φ-probe is "used up" agreeing with the lower DP, so there is no φ-probe left to license the higher DP. van Urk (2015) points out that this problem generalizes to any case where a composite A/A'-probe skips over a DP for a more suitable goal bearing φ- and A'-features, including the core Dinka and TM cases. One solution compatible with the proposal here is to abandon Case licensing altogether. The strongest empirical argument in favor of the Case filter is the impossibility of non-finite T to host subjects in English (Preminger 2014: 234), and there are now compelling alternative analyses of these data (e.g., Pesetsky's (2016) exfoliation framework). That said, there are solutions to this problem compatible with Case theory, one due to Rezac (2013) and the other to van Urk (2015: 86). I briefly outline the former, which holds that in configurations like (i), *v* first undergoes pure φ-Agree with the closer DP, licensing it and valuing the φ-features on *v*. The A'-feature on *v* then probes the lower object. Following Chomsky (1995: secs 4.4.4, 4.5.2, 2001: 15-19), Rezac proposes that this agree step generalizes to include the otherwise inactive φ-features on *v* by the so-called *free rider* property on *Agree*, resulting in an overwrite of these features. The probe is thus composite in our sense, and licenses composite movement. Composite φ/A'-*Agree* therefore "skip over" intervening DPs without A'-features while still Case-licensing these DPs.

plementizer agreement (and presumably φ -features at C) but do not license composite movement to C (Haegeman 1990; Deal 2014).

Given the evidence compiled above that v *does* furnish a composite probe in TM cases, some aspect of the TM construction must be responsible for licensing this behavior. The obvious difference between a TM derivation and the cases considered above is the identity of the A' -feature triggering the associated movement: in question formation, the A' -feature is the *wh*- or Q-feature commonly assumed to trigger movement to Spec(CP) in questions; in TM, the A' -feature is [AT], as argued above. Capitalizing on this difference, I therefore propose that composite probes in English are relativized to the particular combination $[\varphi] \oplus$ [AT].

(88) **Relativized Composite A/A'-probes** (English):

The features [AT] and $[\varphi]$ can form a composite probe.

Given (88), we can then take TM predicates to be unique in that they are associated with a v that bears an unvalued [AT] feature that can join with the φ -probe to attract the target DP.⁴¹ This ensures that composite movement is not generally available at v , as desired.

Before moving on, I pause briefly to justify the notion of “relativized” composite probing invoked in (88). Conceptually speaking, the idea of relativizing a composite probe to particular feature combinations derives from the simpler proposal that a probe can be sensitive to a particular feature value (e.g., a number probe that is sensitive to only [plural]). This has been proposed independently in both the φ and A' -domains to account for patterns of omnivorous agreement (see Béjar and Rezac 2009 Coon and Bale 2014 on Algonquin; Nevins 2007, Preminger 2014 on Basque; Preminger 2014 on Mayan; D’Alessandro 2016 on Romance) and interactions between focus and *wh*-movement (see Abels 2012, van Urk 2015), respectively. Once we allow probes to be sensitive to particular features, there is no reason why this should not extend to composite probes. Blocking it would require an independent stipulation. I will therefore take (88) to be conceptually well motivated. There is also an empirical precedent for this proposal, as Coon and Bale (2014) argue that the agreement phenomena in Mi’gmaq involve relativized composite φ -probing.

Finally, (88) raises the *prima facie* problem that embedded v heads in a TM chain must license composite movement, despite the fact that I have just proposed that only the v associated with the TMP can bear the relevant [AT] feature. However, this is not essentially different from the problem that intermediate movement poses in general. For example, long distance *wh*-movement proceeds through CP projections that are not themselves interrogative; it follows that these intermediate heads must be able to host the relevant features for triggering the intermediate movement, but only when the associated movement feeds a higher terminal movement step. There are a variety of solutions to this problem, most of which should be compatible with the present discussion. For concreteness, I will follow Chomsky’s (2000, 2001, 2008) solution and assume that an optional unvalued [AT] feature can be added to a v head if and only if the addition has an effect on the result. In this case that the added feature must therefore facilitate the eventual fronting of the target to Spec(v P) of the clause hosting the TMP and the valuation of the [AT] feature on that head. Over-generation of [AT] on v heads not involved in TM chains is blocked in the same way as any other type of intermediate movement that doesn’t feed a later movement step.

⁴¹There is a stipulation here – TMPs are exactly and only the class of predicates that can associate with a v bearing a [AT] feature – but it is not fundamentally different from the stipulations we make in defining any class of predicates, namely that they are specified in the lexicon to appear in a particular syntactic context.

7.2 Cross-linguistic manifestations

Taking (88) as a successful description of the licensing conditions on composite probes in English, an immediate question is whether this extends to other languages, i.e., whether (88) might help us identify further cases of composite movement. I cannot undertake a comprehensive review here, but I will suggest a few directions for future research.

Perhaps the most obvious case to consider is German clause-internal scrambling, which is associated with essentially the same information-structural effects as TM (e.g., Diesing 1992; Kratzer 1995; Jäger 2001; a.o.). Thus the subject of an individual level predicate must move to this position in most cases (see (89a)), and a scrambled indefinite DP must be bound by a generic operator or adverb of quantification, or else be discourse anaphoric.

- (89) a. weil *(Feuerwehrmänner) angeblich *(Feuerwehrmänner) selbstlos sind
 because firemen allegedly altruistic are
 ‘Because firemen are allegedly altruistic.’
 b. weil einer alten Dame gewöhnlich eine Katze gehört
 because an old lady.DAT usually a cat.NOM belongs
 ‘Because an old lady usually owns a cat.’ (Jäger 2001: 109)

Strikingly, scrambling of this sort is well known to show both A- and A'-properties (Webelhuth 1989, a.o.), e.g., it licenses parasitic gaps and crosses-over c-commanding DPs, but it also creates new antecedents for binding (in some cases). While further study is needed, if a composite movement derivation can be confirmed, it would nicely corroborate the core results of this paper.

An additional case worth investigating is English topicalization. This construction is usually thought to mark *contrastive* rather than *aboutness* topic (Constant 2014), although the two can sometimes overlap. If the construction involves an [AT] feature at C in at least some cases, we might expect that the intermediate movement through lower ν heads to show composite behavior. In this context it is perhaps telling that topicalization is known to show some mixed A/A'-behavior, being, e.g., immune to weak-crossover (Lasnik and Stowell 1991). If composite-movement is at stake, we expect weak-crossover to re-emerge if the relevant pronoun is in the subject position of a finite clause, as the Spec(ν P)-to-Spec(CP) movement across it will then be pure A'-movement. Speakers I consulted are uncertain of the judgement.⁴²

- (90) a. This book₁, I would never ask its₁ author to read t , but that book, I would. (✓ *sloppy reading*; Lasnik & Stowell 1991: 697)
 b. This books₁, I suspect its₁ author likes, but that book, I don't.
 (% *sloppy reading*)

A third case is involves French past-participle agreement with A'-moved objects. Assuming that ν is the locus of participle agreement (Kayne 1989; Chomsky 1995, 2000, 2001; Legate 2014), it is not implausible that such derivations involve a composite probe. The striking fact is that participle agreement in such cases is conditioned on the relevant *wh*-phrase being discourse anaphoric (Déprez 1998), suggesting that it must be an AT.

⁴²Part of the difficulty in judging the key example may be that there is also the possibility for movement to skip the intervening finite CP. In this case, the movement step across the relevant pronoun would be from embedded Spec(ν P) to matrix Spec(ν P), and hence could be composite. If this derivation is possible, we expect the bound reading to be marginally available.

- (91) **Combien de fautes** a-t-elle fait(es)?
 how.many of mistakes.F.PL has-3.F.SG made.F.PL
 ‘How many mistakes has she made?’

Finally, even in Dinka, there is some evidence that topicality is involved in licensing composite movement, as movement to Spec(CP) in Dinka can serve to mark contrastive or aboutness topic (van Urk 2015: 95 ff.). This movement can also mark focus, as in answering a question, and feed relative-clause formation, so it’s not clear to what degree the composite status is correlated with topic, but the two do overlap.

While more work is needed, two tentative conclusions emerge. First, composite movement is likely more common than is usually acknowledged, its effects having been masked by the rigidity of the traditional A/A’ distinction. Second, there is a close connection between topicality and composite movement in many languages.

8 Conclusion

Extending V15’s conclusions concerning movement to Spec(CP) in Dinka, I have in this article explored the consequences of allowing heads that bear both φ - and A’-features to trigger composite A/A’-movement. In English, the feature distribution in the CP and ν P domains is such that ν but not C is expected to license composite movement. I argued that this state of affairs suggests a novel analysis of the TM construction, whereby the target DP undergoes successive cyclic composite movement from Spec(ν P) to Spec(CP). This analysis offers a number of advantages, including a principled explanation for the mixed A/A’-behavior of TM and its relatively constrained nature compared to pure A’-movement. Several other novel and well-known facets of the construction also follow straightforwardly on this account. I showed, moreover, that TM has the potential to shed light on the cross-linguistic distribution of composite movement. Specifically, by comparing TM to other movement operations that might be expected to show composite behavior but don’t, e.g., *wh*-movement through Spec(ν P), the tentative conclusion emerged that topic is crucial in triggering composite movement. There is preliminary evidence that this conclusion extends to variety of other languages and constructions. This, in turn, suggests that the cross-linguistic distribution of composite movement may be significantly broader than previously acknowledged.

9 Appendix: ruling out TM from finite indicative CPs

Recall that the composite movement account correctly captures the permeability of various clause types to TM with one exception: finite indicative arguments to TMPs are unexpectedly resistant to non-subject TM. In this appendix, I argue that once the argument structure of TMPs is taken into account, this behavior follows under the composite movement account of TM.

The argument has three steps. First, I show that TMPs function obligatorily as psych predicates when they combine with finite indicative, but not non-finite, arguments. Second, I show that TMPs can be classified among the *low*-experiencer psych predicates, which means, following Hartman (2012), that they project their non-experiencer CP argument as their external argument. Finally, I show that as the external argument, finite indicatives are above the search space of the composite probe on ν , and that this suffices to rule out TM.

To begin, observe that in the presence of an infinitival argument, TMPs permit two readings (see also Longenbaugh 2016). The first, which I will call the *agentive* reading, describes the ease or difficulty by which an optionally overt agentive argument affects the event described in the in-

finitive. The second, which I will call the *psych* reading, describes the psychological effects of the event described in the infinitive on an optionally overt experiencer argument. As Longenbaugh (2016) points out, the status of the optionally overt prepositional argument can influence the availability of the two readings, so that *for*-PPs tend to induce the *agentive* reading and *on*-PPs must induce the *psych*-reading.

- (92) a. It was hard for Paul to get himself arrested (but he managed it).
 ≈ Paul had difficulty getting himself arrested (agentive reading)
 b. ?It was hard on Paul to get himself arrested (#but he managed it)
 ≈ Getting himself arrested caused Paul distress (psych reading)

For the first step of the argument, the crucial observation is that when TMPs combine with a finite indicative argument, only the *psych*-reading is available. This is true independent of the status of the prepositional argument. I will therefore assume that TMPs function as psych predicates when they combine with a finite indicative argument.

- (93) It was hard for/on Paul that he got himself arrested (#but he managed it).
 ≠ Paul had difficulty getting himself arrested. (✗ agentive reading)
 ≈ Getting himself arrested caused Paul distress (✓ psych reading)

The second step of the argument is to show TMPs are *low*-experiencer psych-predicates, so I begin by defining this class. It is generally agreed upon that psych predicates can be classified into two groups based on the relative structural position of the experiencer argument (see least Postal 1971; Belletti and Rizzi 1988; Pesetsky 1995; Hartman 2012). *Low*-experiencer predicates are those psych predicates where the experiencer is merged below its co-argument, as opposed to *high*-experiencer predicates, where the experiencer is the higher argument.

In the case that the co-argument is a CP, Hartman (2012) has identified two diagnostics for probing the relevant argument structure.⁴³ First, *low*- but not *high*-experiencer predicates permit causative paraphrases, and second, *low*- but not *high*-experiencer predicates resist nominalization. TMPs pattern as *low*-experiencer predicates in both cases (see (94), (95)).

- (94) It was hard on/for Bob that Mary left.
 ≈ Mary's leaving caused Bob (to experience) hardship.
 (95) a. *Bob's hardship that Mary left.
 b. *Bob's ease that Melvin left.

There is a third argument, not mentioned by Hartman (2012): if the experiencer is merged below its co-argument, it shouldn't be able to bind into it. As shown in (96a), pronominal experiencer arguments don't induce Condition C effects with co-indexed R-expressions in the CP (cf. (96b), where the object c-commands the CP).⁴⁴

⁴³With a DP co-argument, the structure can usually be straightforwardly inferred from the surface form, as the subject DP must have been merged higher in the structure in order to have been attracted by T. This calculus is not available in the case of TMPs, however, given that the experiencer is a PP and the second argument a clause, so that simple locality constraints are not sufficient to determine the position of the arguments.

⁴⁴Quantifier binding is marginally possible here (see (ia)), but it is well known that object quantifiers can bind into post-verbal XPs that they do not c-command under other diagnostics (see (ib)).

- (i) a. ?It was easy on no customer₁ [that he₁ had to change his₁ bank PIN]
 b. ?Sue thought [every student₁ was a liar] [before she met him₁] (✓ binding)
 (cf. Lasnik and Stowell 1991: 690)

- (96) a. It was hard on him₁ [that the government had denied Jon₁ a visa]
 b. *The letter finally convinced him₁ [that the government had denied Jon₁ a visa]

I conclude that TMPs are *low*-experiencer psych-predicates when they combine with finite indicative CPs. Following Hartman (2012), the CP is merged as the external argument.⁴⁵

For the third step of the argument, I now show that this is sufficient to block TM. I adopt the common assumption that a head cannot probe its specifier (Chomsky 2004: 109; Ko 2005, ?; Preminger and Polinsky 2015), so that finite indicative arguments to TMPs are above the search space of the composite probe on *v*.

- (97) [vP [CP ... DP ...] [vP v [AdjP hard [PP on me]]]]
 \uparrow
 ϕ/A' -Agree

It follows that TM could only be licensed in these cases if there is a higher probe that can attract the target out of CP. There are two options to consider: (i) there is a higher composite probe that attracts the target; (ii) there is a higher ϕ -probe that attracts the target. Concerning option (i), as argued in Section 6, composite movement is licensed in TM contexts by the presence of an [AT] feature on the *v* associated with the TMP. Option (i) is then ruled out on the assumption that this special feature can only be introduced on the *v* associated with a TMP (see Section 7.1). Concerning option (ii), I assume that pure A-movement of the target DP out of CP is ruled out by locality: as is well known, A-movement cannot take place out of finite CPs (see also fn.12), blocking this option.⁴⁶ I therefore conclude that TM is predicted to be impossible out of finite indicative arguments to the TMP. The composite movement analysis therefore captures the full array of data described in Table 3.

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⁴⁵To derive the correct word order, the CP must then extrapose (Hartman 2012)

⁴⁶Given that finite CPs can serve as surface subjects to TMPs, this option may also be ruled out because CP is itself a goal for the ϕ -probe on T.

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