

Intervention in *Tough* Constructions^{*}

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1. Introduction

The alternation in (1) poses several well-known questions for syntactic theory. One set of questions concerns the relation between the matrix subject of the *tough* construction and the object gap in the embedded clause. Is the matrix subject derived? If so, what are the steps in this derivation? I discuss new data that point toward an affirmative answer to the first question and a narrowed range of plausible answers to the second.

- (1) a. It is tough (for Mary) to please John. (“expletive construction”)
 b. John is tough (for Mary) to please. (“*tough* construction”)

This paper presents evidence that *tough* constructions display “defective intervention” effects in the sense of Chomsky (2000). Specifically, I show that an intervening experiencer in the matrix predicate blocks movement to the subject position of the matrix clause. This effect provides an argument in favor of analyses in which the matrix subject is derived by A-movement. The effect is mysterious under analyses in which the matrix subject is base-generated. Additionally, we will see that among the movement analyses, the intervention data favor those that posit two movement steps (A' followed by A) over those that posit one.

Experiencers are familiar interveners. In Romance, a matrix-clause experiencer DP can block the raising of an embedded subject DP to the subject position of the matrix clause. The examples below show that the experiencer is possible in the expletive construction (2a, 3a), but not the raising construction (2b, 3b).

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- (2) a. Il semble (au garçon) qu'elle a du talent. *French*
 expl. seems to.the boy that-she has of-the talent.
 'It seems to the boy that she has talent.'
- b. Elle semble (*au garçon) avoir du talent.
 She seems to.the boy to.have of-the talent.
 'She seems to the boy to have talent.'
 (slightly modified from McGinnis 2003)
- (3) a. Sembra (a Maria) che Gianni è stanco. *Italian*
 seems to Maria that Gianni is tired
 'It seems to Maria that Gianni is tired.'
- b. Gianni sembra (*a Maria) essere stanco
 Gianni seems to Maria to.be tired.
 'Gianni seems to Maria to be tired.'
 (Boeckx 2008; see originally Rizzi 1986)

Similar facts hold for Spanish (Torrego 1996) and for Icelandic (Holmberg and Hróarsdóttir 2004).¹ Traditionally, this interaction between raising and experiencers has been explained as a “blocking” effect—most recently (Boeckx 2008, Chomsky 2000, Holmberg and Hróarsdóttir 2004, Torrego 2002) in terms of *defective intervention*, a constraint on the Agree relation that is formalized below:

- (4) Defective Intervention Configuration:
 $\alpha > \beta > \gamma$, where $>$ is a c-command, β and γ match the probe α , but β is inactive so that the effects of matching [between α and γ] are blocked.
 (Chomsky 2000)

In the examples above, the matrix T^0 head is a probe and the experiencer DP is a “matching goal” (i.e., a potential valuer of T^0 's ϕ -features). However, the experiencer DP is inactive, having already Agreed (checked its Case) with its selecting preposition. It thus blocks the Agree relation between the matrix T^0 and the embedded subject DP. Since Agree in this framework is assumed to be a prerequisite for movement, it follows that subject-to-subject raising cannot proceed over a matrix experiencer. This explanation is not without its complications², but I lay these aside here and assume that some version of defective intervention is essentially the correct explanation for the raising contrasts,

¹ The cross-linguistic details are more complicated than this. In French and Italian (but not in Spanish or Icelandic) the raising sentences improve considerably when the experiencer is a dative pronominal clitic instead of a full DP. Furthermore, in French, Italian and Icelandic (but not in Spanish) the raising sentences become acceptable when the experiencer DP is A'-extracted.

² It must be explained, for instance, why certain languages like English do not show the effect with raising at all (though see Boeckx 2008 for claims of a related intervention effect that obtains with number agreement in English expletive constructions.)

regardless of how these complications are best resolved. My aim in this paper is to show that the same effect is revealed in *tough* constructions, once we scratch their surface.

2. *Tough* Constructions and *For*-Phrases

To investigate the existence of intervention effects in *tough* constructions, we must first identify a potential intervener. This task is complicated by a structural ambiguity in *tough* constructions with experiencer DPs. Consider the following sentences:

- (5) a. It is easy (for Mary) to please John.
b. John is easy (for Mary) to please.
- (6) a. It will be hard (for the students) to fail the test.
b. The test will be hard (for the students) to fail.

Both the expletive construction and the *tough* construction may optionally take a *for*-DP sequence, but this sequence (the “*for*-phrase”) is potentially ambiguous between a PP experiencer in the matrix clause (7) and a complementizer-subject sequence in the embedded clause (8).

- (7) a. It is [_{AP} easy [_{PP} for Mary_i] [_{PRO_i} to talk to John]]
b. John is [_{AP} easy [_{PP} for Mary_i] [_{PRO_i} to talk to ____]]
- (8) a. It is easy [_{CP} for Mary to talk to John]
b. John is easy [_{CP} for Mary to talk to ____]

If the matrix subject is derived by movement, the structure in (7b) constitutes an environment for defective intervention by the experiencer. However, any intervention effect would be impossible to detect from the simple examples above, since the offending structure in (7b) is surface-identical to the benign structure in (8b). Fortunately, however, there are cases that can be used to resolve the ambiguity in favor of the structure in (7). The predictions for such cases are clear. If *tough* constructions involve a derived subject, then we should uncover a defective intervention effect wherever we can disambiguate in favor of the offending structure. (Concretely, the expletive construction should be grammatical and the *tough* construction should be ungrammatical.)³ On the other hand, if *tough* constructions involve a matrix subject that is base-generated, then no intervention effect should be uncovered. (Concretely, both the expletive construction and the *tough* construction should be grammatical.) In the following sections, I examine four disambiguating cases, and show that an intervention effect is revealed in each one.

3. Evidence from Other Prepositions in English

The structural ambiguity addressed in the previous section arises only because the English preposition commonly used to introduce experiencers is homophonous with the

³ The question of why the embedded subject should not act as a potential intervener even in the structure in (8b) is explained in Section 7 below.

complementizer *for*. Less frequently, however, other prepositions may be used to introduce experiencers:

- (9) a. It is important to John to avoid cholesterol.
- b. It is annoying to the girls to make small-talk.
- c. It was tough on me to lose my wife.

Since these prepositions are *not* homophonous with complementizers, a *to*-DP or *on*-DP sequence with one of the predicates in (9) is unambiguously a PP. By introducing an experiencer with one of these prepositions, we provide a confound-free testing ground for defective intervention. The result of the test is that the intervention effects are in fact observed: experiencers introduced by these prepositions are compatible with the expletive construction (a examples) but incompatible with the *tough* construction (b examples).

- (10) a. It is important (to Mary) to avoid cholesterol.
- b. Cholesterol is important (*to Mary) to avoid.
- (11) a. It is enjoyable (to John) eat strawberries.
- b. Strawberries are enjoyable (*to John) to eat.
- (12) a. It is annoying (to those boys) to talk to John.
- b. John is annoying (*to those boys) to talk to.
- (13) a. It was very hard (on me) to give up sugar.
- b. Sugar was very hard (*on me) to give up.

This effect is expected if the matrix subject is derived by A-movement from a position lower than the intervener. It is unexpected if the matrix subject is base-generated.

4. Evidence from Romance

A similar effect is observed when we examine *tough* constructions in French and Italian. These are languages in which the preposition used to introduce experiencers is *never* homophonous with a complementizer. Here, P-DP sequences are unambiguously PPs, so we predict that the DPs they contain should act as interveners to *tough* movement. This prediction is confirmed by the data, which show that the experiencer is available in the expletive construction (a examples), but unavailable in the *tough* construction (b examples):

- (14) a. Il est difficile (pour les chiens) de voir cette couleur. *French*
 It is difficult for the dogs DE see this color
 ‘It is difficult for dogs to see this color’
- b. Cette couleur est difficile (*pour les chiens) à voir.
 This color is difficult for the dogs A see.
 ‘This color is difficult for dogs to see.’

- (15) a. Il est difficile (pour les étudiants) de comprendre le problème.
 It is difficult for the students DE understand the problem
 ‘It is difficult for the students to understand the problem.’
 b. Le problème est difficile (*pour les étudiants) à comprendre.
 The problem is difficult for the students A understand.
 ‘The problem is difficult for the students to understand.’
- (16) a. È difficile (per i cani) vedere questi colori. *Italian*
 Is difficult for the dogs see these colors.
 ‘It is difficult for dogs to see these colors.’
 b. Questi colori sono difficili (*per i cani) da vedere.
 These colors are difficult for the dogs DA see.
 ‘These colors are difficult for dogs to see.’
- (17) a. È impossibile (per gli studenti) capire questi problemi.
 Is impossible for the students understand these problems.
 ‘It is impossible for the students to understand these problems.’
 b. Questi problemi sono impossibili (*per gli studenti) da capire
 These problems are impossible for the students DA understand
 ‘These problems are impossible for the students to understand.’

As expected, when the PP is adjoined higher than the landing site of tough-movement, the DP experiencer it contains is too high to act as an intervener, and result is acceptable:

- (18) a. (Per i cani), questi colori sono difficili da vedere, (per i cani).
 b. (Pour les chiens), cette couleur est difficile a voir, (pour les chiens).

Again, if the matrix subject of the *tough* construction is derived by movement, these contrasts are readily explained as effects of defective intervention. If the matrix subject is base-generated, an independent explanation must be sought.

5. Evidence from Quantification

A third way of resolving the structural ambiguity of the *for*-phrase involves quantifier scope. Universal quantifiers within the *for*-phrase provide the following diagnostic: If the *for*-phrase is a PP in the matrix clause, we expect a universal quantifier contained in it to be able to scope above the matrix predicate, as in (19). (The preposition *to* and the clausal subject construction are used to show that the *for*-phrase is truly a matrix PP.)

- (19) a. It is [_{AP} important [_{PP} to everyone] [to arrive on time]].
 b. [To arrive on time] is [_{AP} important [_{PP} for everyone]].
 * Important > Everyone
 OK Everyone > Important

- The availability of the wide-scope reading, then, diagnoses a structure in which the *for*-phrase is a PP in the matrix clause—a structure that should trigger intervention effects in the *tough* construction, but not the expletive construction. This is precisely what we see.

- In the expletive construction, a universal quantifier within the *for*-phrase takes either wide or narrow scope, suggesting that both the [_{PP} for QP] and the [_{CP} for QP...] options are available. In the *tough* construction, however, a universal quantifier within the *for*-phrase does not take wide scope, suggesting that the [_{PP} for QP] option is unavailable. If the subject of the *tough* construction is derived by movement, this unavailability is accounted for as an effect of defective intervention. If the subject is base-generated, no such account is possible.

Our final disambiguating tactic involves the presence of two *for*-phrases in the *tough* paradigm. Note that there is nothing semantically deviant about this doubling. The expletive construction allows it:

- ⁴ It is possible to produce a marginal wide scope reading by focusing the QP, e.g.:

- (i) -- Is it disappointing to you for me to arrive late?
-- ?Not just you. It's disappointing to me for EVERYONE to arrive late.

This is true of a wide scope reading of (22) as well:

- (ii) -- This test is impossible for Bill to fail.
- ?This test is impossible for EVERY student to fail.

Crucially, though, one of the two *for*-phrases must be analyzed as a matrix PP, and this will provide an environment for defective intervention. We thus predict that the expletive construction, but not the *tough* construction, should be compatible with two *for*-phrases. This is in fact the case, as noted originally by Chomsky (1973, 1977):

- (24) a. It is [_{AP} easy [_{PP} for the rich] [_{CP} for the poor to do the work]].
b. *The work is [_{AP} easy [_{PP} for the rich] [_{CP} for the poor to do ____]]
- (25) a. It is [_{AP} convenient [_{PP} for John] [_{CP} for Mary to bring the wine]].
b. *The wine is [_{AP} convenient [_{PP} for John] [_{CP} for Mary to bring ____]].

This contrast was originally taken as evidence that the *for*-phrase in the *tough* construction is always a matrix PP (the opposite conclusion to that reached here). The ungrammaticality of the (b) examples was attributed to the impossibility of two experiencers of the same *tough*-predicate. In the context of the present discussion, however, the inclusion of two *for*-phrases can be seen simply as another way of forcing an environment for defective intervention. The contrast above therefore receives a satisfactory explanation, and is assimilated to the three other cases where the presence of a matrix experiencer is compatible with the expletive construction, but not the *tough* construction. As in the previous cases, this explanation of the contrast goes through only if we assume that the subject of *tough* constructions is derived by movement.

7. Implications for Existing Analyses

The preceding sections have laid out the evidence that *tough* constructions are subject to defective intervention by a matrix experiencer. We are now in a position to assess the implications of this fact for the syntax of the *tough* construction. Let us begin with a very brief typology of existing analyses. (I purposely abstract away from the technical details of the individual analyses; what is relevant is the overall form of the derivations.)

Previous analyses of *tough* constructions can be divided into two types: those that take the matrix subject to be base-generated, and those that take it to be derived by movement. Among the base-generation analyses, there are those according to which the gap in the lower clause results from an object deletion process (Lasnik and Fiengo 1974, Akmajian 1972), and those according to which the gap in the lower clause is the trace of a *wh*-moved null operator (Chomsky 1977, 1981). Among the derived-subject analyses, there are those according to which it is derived by one-step A-movement to the matrix subject position (Rosenbaum 1967, Postal 1971), and those according to which it is derived in two steps: initial A'-movement to the edge of the lower clause, followed by A-movement to the matrix subject position (Brody 1993, Hornstein 2000, Hicks 2003).

How does the defective intervention effect bear on these four classes of analyses? The analyses that base-generate the matrix subject in the highest clause leave the intervention facts unexplained. This is because the intervention effect implicates movement to the matrix subject position, and these analyses deny such movement. On the object deletion analyses, there is no movement at all. On the classic null-operator analysis

of Chomsky (1977, 1981) there *is* movement, but it does not cross the matrix experiencer, and in any case it is of the wrong type (A'- rather than A-) to produce an intervention effect—i.e., even if the experiencer *were* in an intervening position, it would not be a matching goal for a probe that seeks a [wh] feature.

The family of derived-subject analyses is able to predict the intervention effects. However, those analyses that derive the subject by one-fell-swoop A-movement (Rosenbaum 1967, Postal 1971) actually suffer from *over*-prediction. Consider an updated version of the one-step movement analysis: the matrix T^0 will probe for a matching goal, but the inactive subject of the embedded clause should always be a defective intervener, blocking movement of the lower object. Thus, one-step movement predicts intervention effects even in the absence of a matrix experiencer. (Concretely, *tough* constructions are predicted never to allow *for*-phrases, counter to fact.) To be sure, this deficiency is tied up with a larger problem, namely that one-step movement analyses are incompatible with otherwise supported proposals about the locality of A-movement. In view of these issues, an updated one-step movement analysis will turn out to be a non-starter for a variety of reasons.⁵

This leaves us with two-step movement analyses (Brody 1993, Hornstein 2000, Hicks 2003). On these analyses, the embedded object undergoes A'-movement to the edge of the embedded clause, followed by A-movement to the subject position of the highest clause.⁶ If there is more than one embedded clause, A' movement proceeds successive-cyclically until the edge of the next-to-highest clause. Crucially, the movement “responsible” for the intervention effect (A-movement) crosses only the highest clause, so the false predictions of the one-step movement analysis are avoided. On the two-step analysis, an embedded subject is correctly predicted not to intervene, since it is not a matching goal for a probe seeking a [wh] or other A' feature.⁷ At the same time, the A' component of the two-step analysis preserves the insights of Chomsky (1977) regarding the trademark A' properties of *tough* movement (it can apply across indefinitely many embedded clauses, and it is subject to island constraints).

⁵ For example, I have assumed for argument's sake that the lower object could in principle be an active matching goal for the matrix T^0 probe, even though it is far from clear how this is so, since its Case feature is already valued by its selecting V or P. (This is just a Minimalist statement of the observation that *tough* movement does not seem to be Case-motivated in the way that canonical instances of A-movement (passives, unaccusatives, subject-to-subject raising) are.)

⁶ As the authors of these accounts are aware, this derivation constitutes a violation of the Improper Movement Ban. See Brody (1993) for a reformulation of the ban to allow the derivation, and Hicks (2003) for an innovative way to circumvent the ban. (Hicks assumes that a complex DP containing both a smaller DP and a null element is merged as the object of the embedded clause and moves to the lower Spec,CP. Then the smaller DP alone moves out of this complex and raises to the higher subject position.)

⁷ I make no claim about exact nature of this A' feature. Previous authors have taken a similarly noncommittal stance. E.g., Hornstein (2000:110) notes that “[i]t is plausible that some sort of A'/WH features are required to permit movement through Spec CP,” and suggests that “WH features of the ‘relative’ variety can append to an expression to provide it an exit from its containing clause via Spec CP” (see also Hornstein 2000:118-19). Hicks (2003), explicitly proposes a feature he calls “*iwh ϕ* ”. Below, I refer to the relevant feature simply as the A' feature.

Finally, the two-step movement analysis captures the revealing fact (pointed out by David Pesetsky, p.c.) that only experiencers in the *highest* clause act as interveners. Those in intermediate clauses do not:

- (26) a. It is impossible for it to be important to Mary to avoid cholesterol.
b. Cholesterol is impossible for it to be important to Mary to avoid.
(...because we all know she's perfectly healthy.)
- (27) a. It is important to Mary for it to be easy to avoid cholesterol.
b. *Cholesterol is important to Mary for it to be easy to avoid.
(...because she's on a diet and doesn't want temptations.)

The expletive construction provides the control case, showing that when no movement occurs, an experiencer is allowed in an intermediate clause (26a) and in the matrix clause (27a). The contrast between the *tough* constructions shows that when movement occurs, an experiencer in the intermediate clause is allowed (26b) but an experiencer in the matrix clause triggers an intervention effect (27b).

The explanation made possible by the two-step movement analysis is as follows. Movement over the intermediate clauses is A'-movement, driven by Agree relations with successive C heads. This movement is not susceptible to intervention by an experiencer, because the experiencer is not a matching goal for the relevant Agree relation (it is not a potential checker of the A' feature on C). In contrast, the movement over the matrix clause is A-movement, driven by an Agree relation with the matrix T. This movement *is* susceptible to intervention by an experiencer, since the experiencer *is* a matching goal for the relevant Agree relation (it is a potential valuer of the ϕ -features on T).

We have seen in this section that the intervention effect in *tough* constructions strongly favors analyses on which the matrix subject is derived by two-step movement. All other analyses fail to account for the intervention. The object-deletion and null-operator analyses offer no explanation, since there is no movement to the matrix subject position. The one-step A-movement analysis makes the wrong empirical predictions and faces serious theoretical problems as well. Only the family of two-step (A'-, then A-) movement analyses is able to explain why (and where) the defective intervention effects are observed.

8. Concluding Remarks

This paper has argued that *tough* constructions display a defective intervention effect with matrix experiencers. On the surface, the effect is concealed by the structural ambiguity of the *for*-DP sequence in the *tough* paradigm. I showed that when this ambiguity was eliminated, the effects of defective intervention were revealed. I argued that these effects implicate A-movement to the matrix subject position, and are thus left unexplained by analyses of the *tough* construction that base-generate the matrix subject. Finally, I argued that the full set of intervention facts is predicted only by the “two-step”

analyses that posit A'-movement to the edge of the highest embedded clause, followed by A-movement to the matrix subject position.

Let me end by mentioning two issues for further research. The first issue is why English, which lacks defective intervention by experiencers in raising constructions (*John seems to Mary to be tired*), should show the intervention effect in *tough* constructions. I cannot offer an account of this asymmetry here. However, given the variety of proposals competing to explain the lack of intervention in English raising (see Kitahara 1997, Boeckx 1999, Chomsky 2000, Collins 2005), the effect of the *tough* construction facts is to “narrow the goalposts” by adding another informative piece to this puzzle. That is to say, whatever process permits raising over an experiencer in English should be a process specific to the syntax of raising and/or the experiencers of raising verbs. It should not extend naturally to *tough* constructions. (One idea that seems worth pursuing is that the experiencers of English raising predicates and the experiencers of English *tough*-predicates are introduced in slightly different syntactic positions, and that the intervention asymmetry results from this difference.)

The second issue for further research concerns the language-specific amelioration of intervention effects when the experiencer is realized as a pronominal clitic. Recall that subject-to-subject raising over an experiencer in French and Italian (but not Spanish) becomes relatively or fully acceptable (subject to speaker variation) if the experiencer is realized as a clitic instead of a full DP. It is reasonable to ask whether a similar improvement is observed in *tough* constructions. In French, this appears to be the case:

- (28) a. Ce problème m'est difficile à comprendre.
This problem me-is difficult A understand
'This problem is difficult for me to understand.'
- b. Cette opinion lui a été difficile à accepter.
This opinion him has been difficult A accept
'This opinion was difficult for him to accept.'

Out of three French informants, two judged these sentences acceptable, and one judged them to be “marginally better” than their counterparts with full-DP experiencers.

Regardless of how the amelioration is explained for subject-to-subject raising (see Torrego 2002, Boeckx 2008 for discussion), the fact that this phenomenon is paralleled in *tough* constructions suggests that we are dealing with the same basic intervention effect in both cases. If the parallelism with the Romance raising paradigm is complete, then clitic experiencers should ameliorate the intervention effect in *tough* constructions in French and Italian, but not in Spanish. I leave the investigation of these and other cross-linguistic contrasts for future inquiry.

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