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Perspectives on Syntactic Dependencies

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Perspectives on Syntactic Dependencies

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by

John Gluckman

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ABSTRACT OF THE DISSERTATION

Perspectives on Syntactic Dependencies

by

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Doctor of Philosophy in Linguistics
University of California, Los Angeles, 2018
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This dissertation examines how intensional content, i.e., belief ascription, constrains antecedent-gap chains. I defend the proposal that antecedent-gap chains are *intensionally uniform*: the antecedent and the gap must refer to the same thing. The core focus is defective intervention (Chomsky, 2000, 2001). Previous accounts have attributed defective intervention to syntactic mechanisms (Chomsky, 2001; Nevins, 2004; Preminger, 2014). These accounts are shown to be at best entirely stipulative and at worst empirically inadequate.

I make two new generalizations concerning defective intervention. The first is that defective interveners are all *attitude holders*. I support this generalization by closely examining the class of *tough*-predicates, which permit various kinds of arguments to be projected in the syntax between the antecedent and the gap. The second generalization is that defective intervention only arises when the antecedent-gap chain connects two *thematic* positions. I justify this generalization by looking broadly at all the cases of defective intervention reported in the literature, and more closely at the *tough*-construction, which has itself inspired decades of research. I illustrate that the antecedent-gap chain in the *tough*-construction is "mitigated" by beliefs.

The two core theoretical results of this dissertation are, I) a principled and explanatory account of defective intervention, and II) a principled and explanatory account of the *tough*-construction.

The dissertation of John Gluckman is approved.

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2018

For my family, Mom, Dad, and Jeff.

TABLE OF CONTENTS

LIST OF TABLES

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CHAPTER 1

Defective Intervention and *Tough*-Constructions

1.1 A history of Defective Intervention

A perennial topic of interest in syntactic research is how non-local elements can locally interact. Movement, or more broadly, antecedent-gap chains, are the paradigm example of a non-local interaction. There must be some method for connecting two distinct positions in the syntax.

(1.1) John, Mary saw <John>

Since the emergence of Minimalist syntax (Chomsky, 1995, 2000, 2001), the field has largely adopted a model where such chains involve establishment of a "relativized agreement" relation between these positions, i.e., *Agree*. The Agree-mechanism can be characterized by the slogan, "move the closest appropriate thing." For instance, in the example in (1.2a), *John* raises to subject position in the main clause because it is the closest noun that can do so.

(1.2) a. John seems <John> to like Mary

b. * Mary seems John to like <Mary>

On the Agree-model, the reason that (1.2b) is ruled out is because *John* is an *intervener* for *Mary*. *John* sits between the subject position and *Mary*'s merge position, and so *John* is closer to the subject position under c-command, and therefore will be given priority to move to spec-TP.

As a model of non-local dependencies in syntax, Agree has been extraordinarily successful in capturing a range of diverse sets of data including ϕ-feature realization, *wh*-movement, NPIs, scope, cliticization, phrasal and head movement, among others. As we've looked deeper though,

certain facts have been stubbornly, and surprisingly, resistant to an Agree approach.[1] One such case is the topic of this dissertation: *defective intervention* (Chomsky, 2000, 2001). Generally, defective intervention arises in contexts where *John* in (1.2b) is locally closer to the subject-position, and so blocks *Mary* from moving there, *but John doesn't move either*.

As an empirical phenomenon, consider the examples in (1.3), the case of defective intervention in the *tough*-construction (Hartman, 2011).

(1.3) a. Mary is important to talk to *e*.

b. * Mary is important to John to talk *e*.

The example in (1.3a) illustrates that an antecedent-gap chain can be formed between two positions in the syntax. This chain is not possible when we introduce *to John*. This is a case of *intervention* because *to John* apparently bars the chain from being formed. It's a case of *defective* intervention because *to John* cannot otherwise participate in the same antecedent-gap chain.

(1.4) * (to) John is important (to) *e* to talk to Mary

That is, while *to John* doesn't itself move to spec-TP, it blocks something lower from doing so. The following are the core cases of defective intervention as they've been reported in the literature. They are largely associated with subject-to-subject raising.

(1.5) *Icelandic subject-to-subject raising*

a. Ólafur hefur virst [*t* vera gáfaður]
Olaf.NOM has seemed to.be intelligent
'Olaf seem to be intelligent.'

b. * Ólafur hefur virst mér [*t* vera gáfaður]
Olaf.NOM has seemed me.DAT to.be intelligent
[intended: 'Olaf seems to me to be intelligent.']

(Holmberg and Hróarsdóttir, 2003:154)

[1] I'm unaware of any work that has tried to explain defective intervention in terms of Labelling Theory, though I suspect it will run into many of the same types of problems illustrated below, namely controlling under/over-generation without overly stipulating the solution.

(1.6) *Spanish subject-to-subject raising*

a. Este taxista parece [*t* estar cansado]
this taxi.driver seem.PRES to.be tired
'This taxi driver seems to be tired.'

b. * Este taxista me parece [*t* estar cansado]
this taxi.driver me.DAT seem.PRES to.be tired
[intended: 'This taxi driver seems to me to be tired.'] (Torrego, 1996:106)

(1.7) *French subject-to-subject raising*

a. Jean semble avoir du talent
Jean seem.PRES to.have of.the talent
'Jean seems to have talent.'

b. * Jean semble à Marie avoir du talent
Jean seem.PRES to Marie to.have of.the talent
[intented: 'Jean seems to Marie to have talent.'] (McGinnis, 1998b:149)

(1.8) *Italian subject-to-subject raising*

a. Gianni sembra fare il suo dovere
Gianni seem.PRES to.do the his duty
'Gianni seems to do his duty.'

b. * Gianni sembra a Piero fare il suo dovere
Gianni seem.PRES to Piero to.do the his duty
[intended: 'Gianni seems to Piero to do his duty.'] (McGinnis, 1998b:151)

The problem from the Minimalist perspective is that the movement across the intervener is blocked, but the intervener itself doesn't seem to otherwise interact with the impetus for movement, say, a probe on T. In general experiencers in such in subject-to-subject raising cannot trigger ϕ-agreement on the verb and/or they don't otherwise satisfy T's EPP feature by moving to spec-TP (McGinnis, 1998b) (*modulo* Icelandic, where the dative experiencer can move to a subject position, though it cannot trigger ϕ-agreement on the predicate Holmberg and Hróarsdóttir 2003; Thráinsson 2007 among others).

The problem may sound extremely technical — and it is. As originally phrased in Chomsky (1995), defective intervention is a problem from the perspective of Minimalist syntax because it points to some "hidden" properties that disrupt long-distance dependencies. It requires us to

postulate a theory of Agree where an Agree-probe can agree but fail to value any of its features, i.e., there is no morphological evidence of a "failure" (cf Preminger 2014).

Still, there is a very real *atheoretic* question about why some dependencies get to cross interveners, and others don't. For instance, in many languages experiencers in subject-to-subject raising contexts do not give rise to intervention effects.

(1.9) a. John seems to Mary to be asleep.

b. *Dutch subject-to-subject raising*

Daarom lijken de grafieken$_i$ Jan/hem [t_i niet te kloppen]
therefore seem the charts Jan/hem not to be-correct

'Therefore, the charts seem to be wrong to Jan/him.' (Broekhuis, 2007:49-50)

c. *French subject-to-subject raising + clitic*

Jean lui semble avoir du talent
Jean her.DAT seem.PRES to.have of.the talent.

'Jean seems to her to have talent.'

d. *Italian subject-to-subject raising + clitic*

Gianni gli sembra fare il suo dovere
Gianni him.DAT seem.PRES to.do the his duty

'Gianni seems to him to do his duty.'

The grammatical examples in (1.9) are often referred to as a *dative paradox* (Kitahara, 1997; Boeckx, 1999; Preminger, 2014) because the dative element can be clearly shown to c-command into the lower lower clause, and hence should be considered an intervener under a standard conception of locality. And yet, it can be passed over without apparent issue.

Notice that there isn't a "defective intervention parameter," such that we can claim that some languages are defective intervention languages, and some are not. Languages like French and Italian display defective intervention in some cases (when there's a lexical experiencer) but not in others (when there's a clitic). Thus, there is intra-language variation with respect to intervention in how the experiencer is realized, i.e., either as a clitic or as a lexical experiencer.[2] The effects

[2]It is also worth noting that the facts for such languages are extremely murky. Judgements vary across speakers as to the acceptability of raising across lexical experiencers. I return to this topic later.

can also vary within a language depending on the construction. For instance, in Spanish, there is no defective intervention with small clauses, despite the fact that experiencer clitics are otherwise interveners *with the same verb*.

(1.10) *Spanish subject-to-subject raising out of a small clause*

Este chico me parece *t* inteligente
this boy me.DAT seem.PRES *t* intelligent

'This boy appears to me intelligent.' (Ausín and Depiante, 2000)

Likewise, in Icelandic, the class of "symmetric DAT-NOM" verbs permit either the dative marked or the nominative marked argument to be the subject. (See Wood and Sigurðsson 2014 for evidence that in the base structure the dative c-commands the nominative, and that in both cases the preverbal NP is in a subject (A-)position.)

(1.11) a. Mér hafa alltaf nægt *t* tevnnir skór
me.DAT have always sufficed two.pairs shoes.NOM

b. Tevnnir skór hafa alltaf nægt mér *t*
two.pairs shoes.NOM have always sufficed me.DAT
'I have always made do with two pairs of shoes.'

(1.12) a. mér hefur aldrei hentað *t* etta
me.DAT has never suited this.NOM
'This has never suited me.'

b. etta hefur aldrei hentað mér *t*
this.NOM has never suited me.DAT
'This has never suited me.' (Wood and Sigurðsson, 2014:277)

Indeed, English shows variability depending on construction (Hartman, 2011, 2012). Experiencers do not intervene in subject-to-subject raising as we've seen, but they are defective interveners in the *tough*-construction and raising-to-object/ECM.

(1.13) a. Cholesterol is important (*to Mary) to avoid *e* (Hartman, 2011:125)

b. Mary proved John (*to me) to be a liar (Hartman, 2011:127)

It's also not possible to state a generalization like, "For some predicates in some languages, an experiencer and a non-expletive subject are in complementary distribution." That is, we might postulate simply a lexical restriction for certain predicates such that they can only (c-)select for one lexical argument. In other words, it might be the case that some raising verbs can appear with either a dative experiencer, or a subject, but not both as once; if the raising verb has a subject, then there cannot be an experiencer, and vice versa.

The reason this doesn't work is that in *all* languages, $\overline{\text{A}}$-moving the experiencer out of the way immediately permits subject-to-subject raising (or equivalent).[3]

(1.14) a. *Icelandic subject-to-subject raising*

Hverjum hefur Ólafur virst vera gáfaður?
who.DAT has Olaf.NOM seem.PAST to.be intelligent
'Who has found Olaf intelligent?' (Holmberg and Hróarsdóttir, 2003:658)

b. *French subject-to-subject raising*

A Marie, Jean semble avoir du talent
to Marie, Jean seem.PRES to.have of.the talent
'To Mary, John seems to have talent.' (Dominique Sportiche, p.c.)

c. *Spanish subject-to-subject raising*

A Piero, Gianni non sembra fare il suo devere
to Piero, Gianni not seem.PRES to.do the his duty
'To Piero, Gianni seems to not do his duty'

(Torrego, 1996:106), (citing Burzio 1986)

d. *English* tough-*constructions*

To Mary, Cholesterol is important to avoid *e*. (Hartman, 2011:129)

This suggests that the chain created between the subject and its gap is *possible* in these contexts, but is ruled out because an experiencer sits in between the subject and the gap. This variability both across and within languages is perhaps the most difficult aspect to model. Is it even possible to capture the observed variation within and across languages with a principled system of constraints?

[3]I refer the reader to Holmberg and Hróarsdóttir (2003) for evidence that there is indeed subject raising in Icelandic in this context. I will discuss (1.14d) more in Chapter 2.

There have been a few different threads in the literature on defective intervention. The first prominent approach is to say something about (counter-)cyclicity of operations. These theories generally start from the dative paradox in English (i.e., cases where there is a lack of intervention) and extend the theory to ungrammatical cases. In these theories, during one stage of the derivation the intervener is, effectively, "hidden" from movement processes, and then later the experiencer becomes visible (Kitahara, 1997; Boeckx, 1999, 2008; Torrego, 2002). The cross-linguistic variation comes from parameterizing which processes occur before others. If the experiencer is "uncovered" before movement to T is triggered, then we will see intervention effects.

Another line has pursued the idea that elements can have varying levels of "activity," regulating how they interact with other syntactic processes (Chomsky, 2000, 2001; Richards, 2004; Broekhuis, 2007; Preminger, 2014). These approaches have been mostly concerned with cross-linguistic data (that is, largely just Icelandic), and they have been attempts to model not just movement contrasts, but variation in how ϕ-features are passed in non-local dependencies. In these theories, a more granular view of features and their interaction with probes and interfaces is manipulated to derive when elements do and do not agree and/or move.

A third line of inquiry, closely related to the activity idea, has pursued a structural difference, hypothesizing that different projections encasing the experiencers can mitigate how the experiencers interact with syntactic processes (Torrego, 1996; Řezáč, 2008; McGinnis, 2008). In these theories, the presence or absence of a PP (of KaseP) above the experiencer, again with assumptions about feature specifications, is used to derive the cross-linguistic variation.

I will summarize the various veins in the following sections. But let me preface the discussion by saying what I think all previous attempts are missing, and my proposed solution. As expressed by Torrego (2002:249), "Research on this topic for the last 15 years provides evidence that variation in the *morphosyntactic* expression of the Experiencer plays a significant role in the possibilities of subject-to-subject raising over an Experiencer [emphasis mine — JDG]." I think that this is the wrong way to look at the problem. By tying intervention to morphosyntax, we can only rely on stipulation when the intervention effects do not appear, or vice versa. That is, if dative experiencers associated with feature F (or projection FP) are defective interveners, then we are forced to simply stipulate dative experiencers which aren't defective interveners simply lack F/FP. For instance, it

has not been possible to derive based on independent principles the fact that Spanish clitics are interveners for raising out of infinitival clauses but not small clauses.

(1.15) *Spanish subject-to-subject raising out of a small/non-finite clause*

Este chico me parece [*t* (*estar) inteligente]
this boy me.DAT seem.PRES to.be intelligent

'This boy appears (to be) intelligent.' (Ausín and Depiante, 2000)

While all accounts will require stipulation of some sort (as explicitly observed in Preminger 2014), modeling the inter- and intra-language variation has ultimately required simply stipulating what does, and does not, intervene. For this reason, I believe that such an approach is on the wrong track.

The proposal I put forth in this dissertation builds on two novel generalizations concerning the distribution of defective intervention:

(1.16) *Defective Intervention Generalization I (DIG I)*
Defective interveners are all attitude holders

(1.17) *Defective Intervention Generalization II (DIG II)*
Defective intervention arises in chains in which the antecedent and the gap are thematically associated with two different predicates.

DIG I observes that there is a natural *semantic* class of defective interveners, i.e., they are elements to which we attribute beliefs. When we consider all the core cases of defective intervention, it's always true that the defective intervener is an attitude holder. From a morpho-syntactic perspective, DIG I is a surprising characteristic of defective interveners, and it suggests that there is something about attitude holders in particular that disrupt an antecedent-gap chain. But there is no *a priori* reason that the mechanism for creating antecedent-gap chains should care about whether an intervener has a belief or not.

DIG II observes something a bit more subtle: the constructions that exhibit defective intervention are all structures in which the antecedent and the gap are thematically associated with

two different predicates. DIG II requires us to acknowledge that defective intervention only arises in the following kinds of constructions: control structures, the *tough*-construction, Raising-to-Object/ECM. These are constructions in which it has (plausibly) been argued that the chain consists of two thematic roles, one assigned to the subject, and one assigned to the gap.

DIG II builds on a good deal of previous research illustrating that many cases of "raising" verbs are not what they seem. This is true in Romance languages, where the raising verbs are actually ambiguous between raising and control predicates (Baschung, 1998; Torrego, 1996; Cuervo, 2003a; Haegeman, 2006; Pujalte and Saab, 2011), and only the control structure exhibits defective intervention. And it's true of Icelandic as well, where the raising constructions are derived from Raising-to-Object/ECM, which are widely believed to instantiate a chain connecting two thematic positions (Runner, 2006). Chapter 3 illustrates that the *tough*-construction supports DIG II as well.

Taken together DIG I and DIG II explain the distribution of defective intervention, where it does —- and does not — appear, on empirical grounds. It does not stipulate the appearance of defective intervention. Rather the two generalizations together correctly identify all and only the places *where* defective intervention exists. Chapter 2 lays out the core theoretical machinery for *why* defective intervention exists. The central claim of this thesis is that there is a uniformity constraint on syntactic chains:

(1.18) *Intensional Chain Uniformity (ICU)* (informal version)

Every link in an antecedent-gap chain must refer to the same thing in the actual world.

According to ICU, what goes wrong in cases of defective intervention is that the gap and the antecedent don't refer to the same individual in the actual world. For example, in the *tough*-construction, "the speaker's Mary" isn't the same as "John's Mary," and so the chain connecting these positions isn't (intensionally) uniform.

(1.19) * $\overbrace{\text{Mary is important}}^{\text{Speaker's beliefs}}$ to John $\overbrace{\text{to talk to <Mary>}}^{\text{John's beliefs}}$

ICU doesn't make reference to morpho-syntactic properties of the intervening element. It simply asks whether the chain is about the same individual. Importantly, I show that ICU will

only ever be violated when two conditions are met: i) there is a chain connecting two thematic positions; ii) there is an attitude "shift" between the antecedent and the gap. That is, it is the configuration picked out by DIG I and DIG II. Thus, we will properly explain *where* defective intervention appears, and *why* it appears in precisely those places, without recourse to additional stipulations.

Before moving on, let me finally say that this dissertation is concerned with defective intervention as it applies to antecedent-gap chains, not as it applies to agreement phenomena. Much of the work on defective intervention has been concerned with how to model certain non-local dependencies as ϕ-features (Sigurðsson and Holmberg, 2008; Řezáč, 2008; Preminger, 2014) among many others. This will not be addressed in this dissertation. I believe that nothing I say below comments on the nature of the defective intervention observed in these contexts. And indeed, there is good reason to believe that the two phenomena are distinct. For example, one well-known fact that has been discussed concerning Icelandic defective intervention is that subject-raising across a *wh*-trace is possible, but ϕ-agreement across one is not.

(1.20) a. Það virðist/*virðast einhverjum manni [hestarnir vera seiner]
EXPL seem.SG/seem.PL some man.DAT the.horses.NOM to.be slow
'It seems to some man that the horses are slow.'

b. Hvaða manni veist þú að virðist/*virðast t_{wh} [hestarnir vera seinir]
which man.DAT know you that seem.SG/seem.PL the.horses to.be slow
'To which man do you know that the horses seem slow?

c. Hverjum hafa hestarnir virst t_{wh} [t_{np} vera seinir]
who.DAT have the.horses.NOM seemed to.be slow
'To whom have the horses seemed slow?'

(Holmberg and Hróarsdóttir, 2003:652)

Thus, there is good reason to believe that the defective intervention facts for ϕ-agreement and antecedent-gap chains should be described by different mechanisms. I will focus here solely on antecedent-gap chains.

This chapter is organized into two parts. I will start by discussing previous work on defective intervention in section 1.2. I divide up the discussion into two main camps. The first considers those analyses which try to model defective intervention as fundamentally a product of formal features and Agree (subsection 1.2.1). I then turn to a related proposal which seeks to find a structural reason for defective intervention in subsection 1.2.2. In subsection 1.2.3 I consider two alternative proposals that have tried to model (at least some of) the intervention effects in different and interesting ways. In subsection 1.2.4 I introduce the first of two generalizations concerning defective intervention discussed in this dissertation, in particular, the fact that defective interveners are attitude holders.

I then turn to the *tough*-construction in section 1.3, in particular justifying why it should be included in this dissertation. The second half of the chapter focuses not only on the diverse and strange characteristics of the *tough*-construction (subsection 1.3.1), but also on the diverse (and strange) analyses that have been proposed to account for the phenomenon. I concentrate the discussion of previous accounts on two debates: whether the antecedent-gap chain involves movement or predication (subsection 1.4.1) and whether the non-finite clause is "small" or "big" (subsection 1.4.2).

1.2 Review of approaches to defective intervention

1.2.1 Features and Agree

One line of proposals concerning defective intervention attempts to derive the patterns from more fundamental aspects of Minimalist syntax, in effect getting the most out of formal Agree and how it interacts with elements in the syntax (Schütze, 1997; Chomsky, 2000, 2001; Anagnostopoulou, 2003; Richards, 2004; Broekhuis, 2007; Preminger, 2014). Perhaps the purest form of this is in fact proposed in Chomsky's (2000; 2001) original formulation. The core idea behind this theory is that elements can be either active or inactive — the *Activity Condition*. Elements with uninterpretable features are active, in that they can be targeted by probes, agree, and subsequently move. Elements not bearing uninterpretable features, or whose uninterpretable features have been deleted

by already entering into an Agree-relation, are inactive; they are not visible to further operations and so are skipped by subsequent probes.

The system has been foundational in our current modeling of long-distance dependencies, and it has been expanded and refined by many authors (Richards, 2004; Nevins, 2004; Broekhuis, 2007; Preminger, 2014). The refinements have been necessary because in its original form, the system isn't quite fine-grained enough as it doesn't distinguish between defective interveners and non-interveners (Preminger, 2014). For example, assume for the sake of argument that elements bearing uninterpretable features are [+active] and elements without interpretable features are [−active]. In this system, lexical experiencers in French are for all purposes [−active] elements: they don't (A-)move (nor trigger ϕ-agreement on the main predicate).

(1.21) a. * À Marie semble *t* [que Jean a du talent]
to Marie seems.PRES that Jean a of.the talent
[intended: 'It seems to Marie that Jean has talent.'] (McGinnis, 1998b:91)

But if *à Marie* is [−active], then it shouldn't affect subject-raising across the experiencer. On the other hand, if *à Marie* is [+active], then we expect it move to spec-TP. Thus, given a strict dichotomy between active and inactive elements, we cannot derive defective intervention.

Various attempts have been made to refine the system — including Chomsky (2000, 2001). One appealing approach has been essentially to *reject* that there is such a thing as defective intervention at all (Nevins, 2004; Richards, 2004; Broekhuis, 2007; Preminger, 2014).[4] In these theories, the reason that a probe-goal relationship cannot cross an experiencer is because the probe has in fact established a relationship with the experiencer already. That is, the dative experiencer was never inactive — but it wasn't "active enough." Independent properties of datives are proposed to account for why it doesn't move and/or doesn't trigger ϕ-feature agreement.

Perhaps the most fleshed-out of these theories is that of Preminger (2014). He illustrates that if we accept that an agree-probe can find a target but still fail to agree/copy features onto itself, we derive straightforwardly the observed patterns. In Icelandic, the default 3rd person singular agreement on the verb indicates a failed agreement relationship with the experiencer. That is, T

[4]See also (Bruening, 2014) discussed in subsection 1.2.3.

has identified the experiencer as a target for Agree, but due to the experiencer's case, no features can be transferred/checked on the probe.

In this system, movement past an experiencer isn't possible because the grammar simply doesn't generate this parse. T has tried, and failed, to move something to its specifier. Preminger parameterizes the constraint: There are languages like Icelandic where the closest element (whatever it is) simply moves to spec-TP (if T bears an EPP feature). And then there are languages where only those elements which can be ϕ-agreed with move to spec-TP. The system works quite well in a language like Icelandic, because experiencers can indeed move to spec-TP. [5]

(1.22) a. mér hafði virst [María lesa bókina]
me.DAT had seemed Mary to.read the.book
'It seemed to me that Mary read the book.' (Thráinsson, 2007:657)

b. henni virðast [myndirnar vera ljótar]
her.DAT seem.PRES the.paintings.NOM to.be ugly
'It seems to her that paintings are ugly.' (Sigurðsson and Holmberg, 2008:2)

Thus, the fact that they do not display ϕ-agreement is irrelevant. T can still target the experiencers for movement, indicating that they can be identified as targets for ϕ-agreement, and failing that, still interact with the Agree system.

Problems arise with this story when we turn to other languages. For instance, with respect to French, Preminger cites the following examples as evidence that there doesn't need to be movement out of the lower clause.

(1.23) a. Il semble au général être arrivé deux soldats en ville.
there seems to.the general to.be arrived two soldiers in town.
'There seem to the general to have arrived two soldiers in town.'

[5] It's actually a bit more complicated to show that the experiencers in this case are sitting in spec-TP, as there is an available pre-verbal topic position that's available as well. The examples can be fixed with recursively embedding the these inside of higher clause.

(i) Jón telur [mér virðast Haraldur.NOM hafa gert etta vel]
Jon.NOM believe.PRES me.DAT to.seem Harald.NOM to.have done this well
'John believes Harald to seem to me to have done this well.' (McGinnis, 1998b:213)

For simplicity, I'll ignore this complication. It is an accepted fact in Icelandic that experiencers *can* move to a "canonical" subject position.

b. Il semble au général y avoir deux soldats manquants à la caserne
there seems to.the general to.have two soldiers missing at the barracks
'There seem to the general to be two soldiers missing from the barracks.'

(Preminger, 2011:135)/(Boškovič, 2007:603)

In (1.23), T has failed to agree with *au général* and so simply bears default agreement. Nothing moves out of the lower clause because T has already probed, identified the experiencer as a target for agreement, but bears default agreement because no ϕ-features can be transferred/checked on the probe due to the case associated with the experiencer. And since generally dative elements cannot move to spec-TP in French, nothing gets to move to spec-TP. There's no chance of moving anything below the dative experiencer because T has essentially "used up" its chance to move something.

The problem with such examples is that they don't actually show that movement out of the lower clause has failed to happen. In fact, they seem to show exactly the opposite: an *expletive* has raised out of the lower clause. The sentences in (1.23) correspond to the finite clause version in (1.24), which have expletive subjects.[6]

(1.24) a. Il semble au général que il sont arrives deux soldats en ville
it seems.PRES to.the general that it are arrived two soldiers in town
'It seems to the general that there arrived two soldiers in town.'

b. Il semble au géénéral que il y a deux soldats manquants à la
it seems.PRES to.the general that it there has two soldiers missing at the
caserne
barracks
'It seems to the general that there are two soldiers missing from the barracks.'

More troubling for Preminger is the fact that there is no defective intervention parameter, as we've illustrated above. For instance, even in a language like Icelandic in which the closest ele-

[6]Preminger is actually predicting that in the absence of an experiencer, *deux soldats* should be able to raise to subject position. This is possible for (1.23a), because *deux soldats* can in fact be the subject of the lower clause, but (1.23b) cannot involve subject-raising.

(i) * Deux soldats semblent y avoir manquants à la casserne
two soldiers seem.PRES to.have missing to the barracks
[intended: *'Two soldiers seem there to be missing from the barracks.']

ment is predicted to move to spec-TP, we find cases where either element moves, like Wood and Sigurðsson's (2014) symmetric DAT-NOM constructions (1.25), and certain symmetric applicative verbs (1.26) (Thráinsson, 2007).

(1.25) a. mér hefur aldrei hentað *t* etta
me.DAT has never suited this.NOM
'This has never suited me.'

b. etta hefur aldrei hentað mér *t*
this.NOM has never suited me.DAT
'This has never suited me.' (Wood and Sigurðsson, 2014:277)

(1.26) a. Koninginum voru gefnar *t* ambáttir
the-king.DAT were given maidservants.NOM
'The king was given female slaves.'

ambattín var gefin konunginum *t*
the-maidservant.NOM was given the-king.DAT
'The maidservant was given the king.' (Zaenen et al., 1985:460)

The same point can be made with Spanish raising out of a small clause. Clitics, which are interveners in raising out of infinitival clauses, are not interveners when raising out of small clauses.

(1.27) *Spanish subject-to-subject raising out of a small clause*

Este chico me parece [(*estar) *t* inteligente]
this boy me.DAT seem.PRES to.be *t* intelligent]
'This boy appears to me (to be) intelligent.' (Ausín and Depiante, 2000)

Indeed, in general, outside of subject-to-subject raising, dative clitics simply aren't interveners in Spanish. For instance, passivization can cross a dative clitic, as can movement across an experiencer of a psych-verb (Řezáč, 2008).

(1.28) a. Los libros le fueron entregado <los libros>
the books her.DAT were.PL given
'She was given the books.' (Řezáč, 2008:86)

b. Un juguete les gustó (a los ninõs) <un juguete>
a toy them.DAT liked (to the children)
'The children liked a toy.' adapted from (Torrego, 2002)

Under Preminger's story, we would simply need to stipulate that certain (inherently) dative marked nominals are available targets for Agree, while others aren't, *within a single language*. This leaves us in no better a position that pure stipulation of the phenomenon.[7] Variations on how case interacts with movement and what counts as "local" (e.g., adopting McGinnis's (1998a) ideas concerning equidistance of targets for Agree) do not fix the core problem. The issue is not whether we can devise a theory that covers the data. Rather, the problem is the amount of stipulations that are required to get the empirical coverage.

Yet even with a purely stipulated system, problems persist under all accounts that seek to relativize defective intervention to "pure" Minimalist syntax. The primary problem is that everyone must assume that $\overline{\text{A}}$-traces are "invisible," since as a rule, $\overline{\text{A}}$-moving the experiencer out of the way permits movement.[8]

(1.29) a. *Icelandic subject-to-subject raising*

Hverjum hefur Ólafur virst vera gáfaður?
who.DAT has Olaf.NOM seem.PAST to.be intelligent
'Who has found Olaf intelligent?' (Holmberg and Hróarsdóttir, 2003:658)

b. *French subject-to-subject raising*

À Marie, Jean semble avoir du talent
to Marie, Jean seem.PRES to.have of.the talent
'To Mary, John seems to have talent.' Dominique Sportiche (p.c.)

c. *Spanish subject-to-subject raising*

A Piero, Gianni non sembra fare il suo devere
to Piero, Gianni not seem.PRES to.do the his duty
'To Piero, Gianni seems to not do his duty'

(Torrego, 1996:106), (citing Burzio 1986)

d. *English* tough-*constructions*

To Mary, Cholesterol is important *t* to avoid *e*. (Hartman, 2011:129)

[7]See also Anagnostopoulou 2003 for a similar point with respect to passivization across lexical datives in French and Italian, though I'm not convinced that the dative argument is syntactically intervening between the antecedent and the gap in such contexts.

[8]This is different from Chomsky's (2000) proposal that A-traces are invisible. In fact, for defective intervention, A-traces actually are *not* invisible (Holmberg and Hróarsdóttir, 2003).

The problem here is that $\overline{\text{A}}$-traces are *not* invisible for other non-local dependencies. For instance, while *Mary* can (pseudo-)passivize in (1.30a), it cannot do so across a direct object, whether *in situ* or *ex situ* (1.30c).

(1.30) a. Mary was read to <Mary>.

b. * Mary was read a book to <Mary>.

c. * A book, Mary was read to <Mary> / * Which book was Mary read *t* to <Mary>?

Thus, in general, an account that links defective intervention to some featural property of the experiencer is, in the end, forced to simply stipulate what is and is not an intervener.

1.2.2 Prepositional shielding and countercyclicity

A related approach that has been adopted by a number of authors is to confine the variation to a prepositional or Kase phrase that contains the experiencer argument. In these proposals, it is the PP/KaseP that interacts with the Agree mechanism and gives rise to the (lack of) intervention effects. The idea has been spelled out in a number of different ways.

The most straightforward idea comes from Kitahara (1997); Boeckx (1999, 2001, 2008). Their goal is to account for the fact that experiencer arguments in raising structures do not intervene, yet still apparently c-command into the lower clause — *the dative paradox*. The idea they propose, generally, is that at the stage when the subject moves to spec-TP out of the lower clause, the experiencer is safely inside of a PP, unseen by the probe on T. However, a subsequent process counter-cyclically allows the experiencer to c-command into the lower clause by reanalyzing or incorporating the preposition into the verb.

(1.31) a. Step 1: [John seems [$_{PP}$ to Mary] <John> to be asleep] (subject-raising)

b. Step 2: [John seems-to [Mary [<John> to be asleep]]] (reanalysis)

As pointed out by Boeckx (2008), languages might differ on the ordering of these processes.[9]

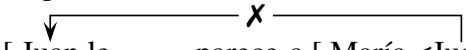
[9]Boeckx suggests this on page 38 but actually argues (from Boeckx 1999, reprinted in Boeckx 2008) that in the relevant languages, the experiencers are just DPs anyway , and so reanalysis of a prepositional element is moot. See discussion below for the DP vs. PP differentiation.

English orders the movement before reanalysis/restructuring. But Spanish might have the other order, so that at the point when T is looking for a subject, the experiencer is fully visible.

(1.32) a. Step 1:

[le parece-a [María Juan estar cansado]] (reanalysis)
her.DAT seem-to Maria Juan to.be tired

b. Step 2:



[Juan le parece-a [María <Juan> estar cansado]] (*subject raising)
Juan her.DAT seem-to Maria Juan to.be tired

'[Intended: 'Juan seems to Maria to be tired.']

However, even looking past the counter-cyclicity of the approach here, Boeckx (1999) notes that allowing c-command to be established at LF runs into major problems with licensing elements like anaphors, NPIs, and bound variables, which need to be licensed before movement. Moreover, it is actually empirically suspect, as he himself points out: English permits experiencer interveners without a prepositional element.

(1.33) John strikes Bill as <John> being a genius

Boeckx is forced to conclude that in this case there's a null preposition.[10]

Hartman (2011, 2012) has a slightly different take on the preposition incorporation account. He argues that syntactic structure is constrained in cases of movement by maintaining consistent asymmetric c-command relations. The basic idea is that "movement triggered by a probe P [can]not result in the creation or destruction of an asymmetric c-command relationship between two matchings goals of P."[11]

[10]An alternative proposal suggested by Boeckx (1999) posits a fully cyclic account based on parallels to pseudo-passives, though this too isn't fully implementable, since pseudo-passivization actually *permits* movement (Gallego, 2009:fn 43). That is, the result of pseudo-passivization is movement, but experiencers in English do not move.

(i) The bed was slept-in <the bed>

(ii) * Mary seems-to <Mary> [John to be tired]

[11]Note that the constraint is "relativized" to matching elements. This is how he builds Relativized Minimality into the account.

The account straightforwardly derives why we see experiencer intervention in, say, Italian. When the subject has moved across the experiencer it creates a new c-command relation: the subject c-commands the experiencer.

(1.34) a. D-structure

sembra [$_{PP}$ a Maria] [Gianni essere stanco] (no c-command)
seems to Maria Gianni to.be tired

b. S-structure

c-command

* Gianni sembra [$_{PP}$ a Maria] [<Gianni> essere stanco] (c-command)
Gianni seems to Maria Gianni to.be tired

'Gianni seems to Maria to be tired.'

English, on the other hand, permits preposition reanalysis (as diagnosed by the fact that it permits pseudo-passivation and P-stranding). The result, according to Hartman, is that at D-structure, the experiencer doesn't c-command the subject of the lower clause, and the subject of the lower clause doesn't c-command the experiencer. And at surface structure, they c-command each other, so no new *asymmetric* c-command relations have been formed.

(1.35) a. D-structure

[T [seems [$_{PP}$ to Mary] [John to be tired]] (no c-command)

b. S-structure

cc

[John T [seems-to [Mary [<John> to be tired]]]] (c-command × 2)

cc

At D-structure, neither the experiencer nor the subject of the lower clause c-command each other, but at S-structure they both c-command each other. Of course, the analysis rests on the assumption that experiencers in Italian (and similar) do not c-command into the lower clause, which is dubious. All evidence suggests that experiencers can c-command into the lower clause in Romance languages as well (Burzio, 1986). So despite the fact that they do not have prepositional reanalysis (i.e., they do not permit pseudo-passives or P-stranding), they do seem to be able to accomplish a c-command relation.[12]

[12]Presumably, in Italian and French, the clitic is incorporated at S-structure (and not at D-structure) and so his account holds. But it is unclear why Spanish still permits experiencer intervention when there's a clitic.

Moving beyond reanalysis, some authors have attempted to capture the facts by arguing that certain apparent PPs are in fact DPs. Řezáč (2008); Gallego (2009) argues that this is the case in Spanish and French. Since the experiencers are DPs, they are interveners, i.e., potential targets for agreement. English PPs are just PPs. Since PPs don't move to subject position in English, they are not interveners.[13]

Though of course they differ in their implementation, I understand these accounts to be fundamentally identical to a featural based account reviewed in the previous section. If we attribute the intervention to a particular structural and/or featural property of dative (experiencers), we must stipulate that these properties are lacking elsewhere. The prime example of these was clitic intervention in Spanish, repeated here. Clitics intervene in subject-to-subject raising, but not in other contexts, even with the the same verb and same thematic role.

(1.36) a. Este chico me parece [*t* (*estar) inteligente]
this taxi.driver me.DAT seem.PRES to.be intelligent
'This taxi driver seems to me (to be) intelligent.' (Ausín and Depiante, 2000)

b. Los libros le fueron entregado <los libros>
the books her.DAT were.PL given
'She was given the books.' (Řezáč, 2008:86)

c. Un juguete les gustó (a los ninõs) <un juguete>
a toy them.DAT liked (to the children)
'The children liked a toy.' adapted from (Torrego, 2002)

Moreover, as discussed in (Anagnostopoulou, 2003), at least for French, the experiencer arguments do not pattern like DPs with respect to a number of diagnostics.

Torrego (2002)[14] suggest a possible way out of this problem that, while I do not think is fully implementable, at least points to the right generalization. She starts from the observation that there is a cross-linguistic connection between dative interveners and "point-of-view," which they

[13] Actually, this isn't true either, since PPs can be in a subject position with locative inversion (Landau, 2010).

(i) Down the hill rolled the ball.

[14] Torrego builds on a suggestion by (Boeckx, 2008) that Point-of-View is housed in the left periphery, and that movement to this projection "circumvents" intervention. See the sketch in (Boeckx, 2008:32ff).

she links to a [person] feature on dative elements in general. Given this connection, it might be possible to single-out the dative elements in raising structures as encoding a particular point-of-view property.

Starting from this idea, Torrego (2002)[15] proposes an account in which a Point-of-View head (PoV^0) in the left periphery must check its uninterpretable [person] feature somewhere within the clause. Putting aside some technicalities of her approach, subject-to-subject raising in a language like Spanish is not permitted past an experiencer because $\text{PoV}^0_{[person]}$ is unable to delete is [person] feature. This follows because all other [person] features have already entered into an checking configuration — in particular the [person] feature associated with the subject is checked by T and the person feature associated with the experiencer is functionally checked by v — although it's slightly more complex than this — see Torrego (2002) for the details.

Unfortunately, in order to maintain this idea, she must simply stipulate when PoVP is present and when it is not. For instance, it is not present when there is no raising (p. 258), otherwise (1.37) would also be expected to have "intervention" effects because there is nothing for $\text{PoV}^0_{[person]}$ to check its [person] feature against.

(1.37) le parece (a esta gente) que este taxista está cansado
him.DAT seem (to these people) that this taxi.driver is tired
'It seems to these people that that taxi-driver is tired.' (Torrego, 2002:259)

Technicalities aside, I think there is much to admire about her idea. First, for Torrego, movement across an experiencer isn't *inherently* bad. That is, the derivation doesn't fail to raise the subject across the intervening experiencer (*contra* e.g., Preminger 2014). This movement is perfectly legitimate from a syntactic perspective. Rather, the derivation fails because of the *consequences* of the movement.

Second, she ties defective intervention to a particular semantic class of elements, in particular nominals bearing a "point-of-view." This is a key discovery, I think. It immediately allows us

[15]Note that this is a distinct theory from what is proposed in (Torrego, 1996). In her previous account, she focuses discussion on clitic doubling languages, arguing that the clitic is inserted to case-check the experiencer. Her core proposal is that certain clitics are designated to co-occur with expletive subjects, ruling out subject-to-subject raising if they are present.

to partition out why, say, passivization across a dative clitic in Spanish is fine. Or similarly why raising can cross (some) datives in Icelandic passives and symmetric DAT-NOM verbs. The reason — or rather, intuition at this point — is that these elements aren't "perspectival."

1.2.3 Alternatives

Finally, let me highlight a couple of alternatives that do not fit neatly into either a feature-based or prepositional shielding-based/counter-cyclicity camp. The two proposals discussed in this section take as a starting point the cases of defective intervention in the *tough*-construction as in (1.38), and so they are particularly relevant to the present work.

(1.38) a. Mary is important to talk to *e*.

b. * Mary is important to John to talk to *e*.

One account that has become increasingly influential is that of (Bruening, 2014), where it's proposed that cases of defective intervention are, fundamentally, a violation of a linearity constraint. By analogy to the known fact that adjuncts cannot appear between a verb and its complement, likewise experiencers PPs and other adjuncts cannot intervene between a predicate and a non-finite clause with a gap.

(1.39) a. * The pope will deliver tomorrow a benediction. (Bruening, 2014:716)

b. * The pope will be difficult tomorrow to get an audience with *e*

(Bruening, 2014:710)

The problem, of course, is that adjuncts *can* linearly intervene between a verb and its object, say, if there's heavy-NP shift.

(1.40) The pope will deliver tomorrow a benediction that he wrote while in Spain.

Moreover, it's not even true that in the *tough*-construction the main clause predicate must be linearly next to the clause bearing the gap.

(1.41) Mary is more difficult than John to talk to *e*

Bruening's examples seem much more compatible with a classic ECP story (Moreno and Petersen, 2017). Since the adjuncts he discusses are demonstrably high in the clause, the non-finite clauses must extrapose around the adjuncts, and the gap is no longer bound (however this is formulated in current Minimalist syntax).

Experiencer PPs like *to John* in (1.38b), however, are clearly above the non-finite clause. They can c-command into the lower clause in order to, say, bind a variable. (I discuss this issue in more depth in chapter 2.)

(1.42) a. It is difficult for no student$_i$ for his$_i$ exams to be cancelled.

b. It's fun for no mother$_I$ for her$_i$ child to be sick.

Thus, while it may be true that "linearity" explains some instances of "intervention," this cannot be the explanation in the core cases of defective intervention.

Keine and Poole (2017) offer a more compelling approach, but it's based on a similar intuition. To be fair, their account is modeled solely to account for the *tough*-construction; they do not take a stance on defective intervention as a phenomenon in other cases.

According to Keine and Poole, *tough*-predicates come in two "flavors." On the one hand, they combine with a propositional argument, and are of type $\langle st, st\rangle$. This is the case when there is no gap. *Tough*-predicates can also be of type $\langle\langle e, st\rangle, \langle e, st\rangle\rangle$, in which case they take an open proposition as their first argument, and then an individual as their second argument, passing the individual into the proposition. This is the case for when there's an antecedent-gap chain.

Intervention effects arise because after the opened *for*-CP combines with the main-clause predicate the resulting phrase of type $\langle e, st\rangle$ can no longer be targeted by the Applicative head that introduces the judge (type $\langle\langle st\rangle, \langle e, st\rangle\rangle$), which requires something of type $\langle s, t\rangle$. (This is why is can appear when there's no gap.)

While I concur with Keine & Poole in that the experiencer plays a special role in defective intervention, I see a few things wrong with the overall approach. For one thing, prefiguring the discussion to come, it's unclear why there isn't a *tough*-construction with a finite clause, e.g., **Mary was important that John talk to e*. Finite clauses can be open propositions as well, so it's

not clear what would rule this configuration out.

Moreover, in order to make the experiencer combine with a "normal" predicate of personal taste, Keine and Poole are forced to conclude that in such cases the experiencer is merged at the propositional level. Again, this doesn't quite fit the facts, as the subject can c-command an experiencer.

(1.43) a. No child$_i$ is ugly to his$_i$ mother.

b. No building$_i$ is beautiful to its$_i$ architect.

Finally, the overall stipulative nature of the account raises serious questions in much the same way as the acounts outlined above. Why are Appl heads of type $\langle\langle st\rangle, \langle e, st\rangle\rangle$? This is not typically what is assumed for Applicatives. Moreover, if the judges are in general applied arguments (i.e., unselected), what is the difference between the judge-dependent predicates and the non-judge-dependent predicates? Finally, couldn't we imagine that some language configures things so that, in fact, the types work out? The fact that judge-intervention in the *tough*-construction is extremely robust across languages — possibly exceptionless — is unexplained.

1.2.4 The right and the wrong

It should be clear that no account of defective intervention is possible without massive stipulation. In short, if we suppose that some particular featural or structural property is the cause of defective intervention, we must then be able to explain why such features and/or structures do not appear elsewhere. What is "special" about the places where defective intervention occurs? Or conversely, what is "special" about the places where it doesn't?

From the point of view of the present study, I wish to build on Torrego's observation with the following generalization which is surface-true of all instances of defective intervention.[16]

[16] Again, Torrego is formalizing a sketch from (Boeckx, 2008). Note that Boeckx (2008) mentions a number of other possible cases of defective intervention including object honorification in Japanese, super-raising, and *wh*-extraction out of adjuncts in Italian. I will have nothing to say about such constructions, though it seems plausible to me that at least some of these are related to a "perspectival" property in some way. Further research will be enlightening here.

(1.44) *Defective Intervention Generalization I (DIG I)*

Defective interveners are all attitude holders.

Looking back at all cases of defective intervention, including those noted in Hartman (2011, 2012), all of the constructions involve belief-ascription, and the element to which we ascribe the belief is always the intervener. This is true for subject-to-subject raising, raising-to-object/ECM, passivization out of finite clauses, and the *tough*-construction. This is a strange coincidence, and it will form the backbone of the study in Chapter 2.

1.3 Why *tough*?

As it stands, DIG I is not very informative. Indeed, it may simply be a red herring. We could easily say that defective intervention occurs in a certain syntactic configuration, and this configuration also happens to be one in which attitude holders are licensed. That is, it may be that the attitudinal nature of the interveners isn't the *cause* of the intervention effect, rather it's a by-product of independent properties concerning the configuration in which intervention effects arise.

The problem with testing DIG I in the examples above, namely, subject-to-subject raising, is that these are predicates that have a restricted argument structure. With raising verbs, the only elements that are syntactically possible between the antecedent and the gap are attitude holders (*modulo* confounding cases of extraposition). We simply couldn't put anything else there; the verb doesn't license other kinds of arguments.

To test DIG I, we need to find a set of predicates that display a similar antecedent-gap chain, and in which we can place two kinds of intervening arguments: attitudinal arguments and non-attitudinal arguments. If we find a correlation between intervention effects and attitudes of the intervener, then we are in a position to conclude that the semantic nature of the intervener matters. This is where the family of *tough*-predicates becomes crucial. *tough*-predicates in general are—or can be—associated with a more variable argument structure, allowing us to probe precisely when intervention effects arise.

Still, the *tough*-construction comes with its own set of undefined characteristics and contro-

versial claims. Indeed, the literature on *tough* dwarfs that on defective intervention considerably, considering that debate on the subject goes back at least to the later '60s, whereas debate on defective intervention is bounded by the advent of Minimalist syntax in the mid-/late-90s.

In short, it may seem ambitious to attempt to explain both defective intervention and the *tough*-construction in a single work. But I claim that we should try nonetheless, because the explanations are related. The account of the *tough*-construction informs and explains many of the unexplained facets of defective intervention — and vice versa.

1.3.1 Properties of *Tough*-Constructions

Tough-predicates are predicates which allow the alternation between an expletive and non-subject gap in an embedded clause (Lees, 1960).

(1.45) a. It was difficult to read this book.

b. This book was difficult to read *e*.

The chain formed in (1.45b) has a baffling array of properties. Consider the fact that the subject is demonstrably sitting in an A-position in the higher clause, as suggested by the fact that it triggers agreement and can further A-raise.

(1.46) *Agreement*

These books are difficult to read *e*.

(1.47) *A-raising*

This book seems to be difficult to read *e*.

The puzzle is that although the subject appears for all purposes to be a syntactic argument of the main clause, it is thematically an argument of the non-finite verb. This is demonstrated by the fact that in out-of-the blue contexts, *tough*-adjectives cannot be independently predicated of *tough*-subjects (Lees, 1960; Comrie and Matthews, 1990; Heycock, 1994; Hicks, 2009)

(1.48) a. ?? This tree is easy.

b. ?? The desk was difficult.

c. ?? The bottle is simple.

To the extant that (1.48) are grammatical, they can only understood with respect to an implicit/elided verb like *cut down, lift, open*, respectively.

In this regard, the *tough*-construction is distinct from *pretty*-class adjectives, and *eager*-class adjectives. Both of these classes thematically license their subjects. *Pretty*-class adjectives differ from *tough*-adjectives in not permitting an expletive version, and *eager* class neither permit the expletive version, nor an object gap.

(1.49) a. Mary is pretty (to look at *e*)

b. * It is pretty to look at Mary.

(1.50) a. John is eager (to attend the party)

b. * The party is eager to attend *e*.

c. * It is eager to attend the party.

The observation that the *tough*-subject doesn't get a theta-role from the main clause is different from saying that the antecedent-gap is "athematic," completely lacking a theta-role. Williams (1983) observes that expletive raised objects cannot appear as the subject of a *tough*-construction. (See also Chomsky 1981:309 for similar data as well as data from idiom chunks.)

(1.51) a. * There is easy to want *e* to be a riot.

b. * It is easy to want *e* to be clear that Bill is here.

(1.52) a. * It was difficult to expect *e* to rain

b. cf, ? John is easy to want *e* to win (Williams, 1983:442)

Perhaps more puzzling than how the subject gets its theta-role is the fact that although the non-expletive subject is clearly sitting in an A-position in the higher clause, the chain connecting the antecedent and the gap bears properties of $\overline{\text{A}}$-movement.[17] For instance, it licenses parasitic gaps, it obeys island constraints, it creates islands, it can cross clause boundaries not otherwise crossable

[17]This is true of *pretty*-class predicate as well (Lasnik and Fiengo, 1974).

by A-movement, and it obeys constraints on $\overline{\text{A}}$-extraction such as an inability for a Goal argument in a Double Object Construction to be gapped (in English).[18]

(1.53) *Parasitic gaps*

This article was easy to file *e* after reading *pg*

(1.54) *Clause-unbounded*

a. It was important to persuade John to finish the letter.

b. The letter was important to persuade John to finish *e*

(1.55) *Creates* wh-*islands*[19]

a. Which violin is it hard to imagine (anyone) playing that sonata on t_{wh}

b. * Which violin is that sonata hard to imagine (anyone) playing *e* on t_{wh}

(Jacobson, 2000:9ff)

(1.56) *No Goal extraction out of DOC*

* Mary is difficult to read *e* the book

Likewise, Levine and Hukari (2006:352-353) observe that parasitic gaps are licensed in the subject position of the *for*-CP.

(1.57) a. These books proved tough [[for critics of *pg*] to praise *e* sincerely]

b. That hypothesis was easy [[for opponents of *pg*] to poke holes in *e*]

c. Certainly it's the kind of policy that would be logical [[for supporters of *pg*] to pretend to dislike *e*]

Thus, we appear to have a case of *improper movement*: two A-positions are connected through a step of $\overline{\text{A}}$-movement. This type of movement is otherwise banned (Abels, 2009) (among many others).

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[18]I leave out islandhood tests from these diagnostics because, given the fact discussed below that the gap is "semi-unbounded," the islandhood tests aren't very informative.

[19]Jacobson (2000) provides examples showng that Chomsky (1977)'s claim that there are no wh-island effects in *tough*-movement is premature. Crucially Jacobson observes the the island effects resurface when there are multiple nonfinite clauses.

Beyond these particular properties of the antecedent-gap chain, there are noted interpretive peculiarities associated with the *tough*-construction. Foremost, there are constraints on where the *tough*-subject can be interpreted for scope. In particular, *tough*-subejcts cannot be interpreted anywhere below their surface position (Postal, 1974; Epstein, 1989; Fleisher, 2013).[20]

(1.58) a. Many people are easy to talk to *e*.
≠ It is easy to talk to many people. (Epstein, 1989:651)

(1.59) a. It would be difficult for Jim to talk to few girls
≠ Few girls would be difficult for Jim to talk to *e*. (Postal, 1974:224)

This of course differentiates *tough*-constructions from other instances of gaps with A- or $\overline{\text{A}}$-movement, which generally allow scope reconstruction (*modulo* other constraints on scopal interpretation).

There is also reported to be a difference in overall meaning between the alternatives in (1.45). The variant with an antecedent-gap chain seems to be "about" the subject in a way that the expletive version is not. For instance, (1.60b) is reported to be commenting on some salient property of the mountain, while (1.60a) is commenting solely on the event of walking.

(1.60) a. It is difficult to walk up this mountain.
b. This mountain is difficult to walk up *e*. (Hicks, 2009:539)

Some have taken evidence like this to indicate that the *tough*-subject acts as the "cause" of the event (Bayer, 1990; Grover, 1995; Kim, 1995; Schachter, 1981), and thus actually does get a thematic role from the main clause, though it's debatable whether we should model this syntactically, semantically, or pragmatically (Goh, 2000; Hicks, 2009).[21]

Others have taken the interpretation of the *tough*-subject as evidence that they are topics, (Řezáč, 2008; Longenbaugh, 2016) (see also Hicks 2009 for a similar claim), since the constraints

[20] See also (Lasnik and Fiengo, 1974) for related discussion concerning the interpretation of indefinites and generics.

[21] Similarly, there are noted constraints on the "volitionality" of the infinitival clause (Dalrymple and King, 2000), though again Goh (2000) illustrates that this is most likely not a syntactic factor, but a semantic/pragmatic effect.

on indefinites and "aboutness" characterize topic-hood in general. This idea is supported by data like (1.61).

(1.61) *Sophie really loves her new roommates, especially because . . .*

a. # The kitchen is easy to clean *e* with them.

b. They are easy to clean the kitchen with *e*.

c. It's easy to clean the kitchen with them. (Longenbaugh, 2016:ex (86))

The *tough*-subject displays yet more interesting properties. Fleisher (2014) observes that *tough*-predicates can apparently be sensitive to a kind/type distinction in their subject. What he terms *rare*-class predicates "require their subjects to be kind-denoting" (p. 2).[22,23]

(1.62) a. # John is rare to see around the office.

b. # Most cats are rare to find in the wild.

c. # That group of students is rare for me to find in the library

(Fleisher, 2014:78)

(1.63) a. That kind of demeanor is rare to see in a young pitcher

b. I'm only 24 years old, but have to comment that that kind of self-candor is rare to find these days in a commercial medium.

c. Because of my location, that kind of thing is pretty uncommon for me to come across

(Fleisher, 2014:78)

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[22]Note that Fleisher eventually argues that this requirement isn't a selectional requirement on a thematic subject, rather, it is a consequence of the selectional requirement imposed on the *for*-CP. In other words, *rare*-class predicates do not contradict the generalization that *tough*-predicates do not thematically select a nominal subject.

[23]It's also reported that there's an interaction with respect to aspect

(i) John is being difficult to talk to

(ii) * It is being difficult to talk to John *e*.

This is most likely due to the fact that some *tough*-predicates are ambiguous between the "true" *tough*-predicates, and *pretty* class adjectives, which thematically select for a subject.

In terms of structure, the *tough*-predicate and the infinitival clause form a constituent — though there are some discrepancies discussed below.

(1.64) a. *Coordination*

It was [difficult to read this book] but [easy to watch the movie]

b. *Fragment*

Q: How was the book?

A: Difficult to read *e*.

One point of confusion is the function of the *for*-NP after the predicate. As noted by Lees (1960:214), there are different interpretations, which can be prosodically distinguished. In (1.65a), *for John* is a prepositional phrase in the main clause. In (1.65b), *for* is a complementizer and *John* the subject of the non-finite verb.

(1.65) a. It is good for John / to do that

b. It is good / for John to do that

While it's unclear whether the *for* functions as a complementizer or preposition, it's generally true that both cannot be present when there's an antecedent-gap chain.

(1.66) a. It's easy for the rich for the poor to do the hard work

b. * The hard work is easy for the rich for the poor to do *e*. (Chomsky, 1981)

(1.67) a. It would be good for Mary for her to learn karate.

b. * Karate would be good for Mary for her to learn *e*. (Bresnan, 1971:268)

I will take up this precise issue at length in subsection 1.4.2 as well as Chapter 2.

This largely exhausts the core properties of the *tough*-construction as reported in the literature, with some additional concerns addressed in the next sections. It should be clear that the *tough*-construction has a baffling array of properties: an $\overline{\text{A}}$-position is anteceded by an A-position; the $\overline{\text{A}}$-movement is "semi-"clause-bounded; the subject is not thematically licensed by the *tough*-predicate; the subject cannot be interpreted at the gap-site (but is still thematically associated with

the gap-site). It is because of this diverse and somewhat contradictory set of characteristics that theorists have been concerned with the *tough*-construction for the entire span of generative linguistics.

1.4 Review of previous analyses

The *tough*-construction has generated an enormous amount of literature, including (but not limited to) Lees (1960); Rosenbaum (1967); Akatsuka (1979); Chomsky (1973, 1977, 1981); Nanni (1978); Williams (1983); Browning (1987); Chung and Gamon (1996); Wilder (1991); Mulder and den Dikken (1992); Flickinger and Nerbonne (1992); Kim (1995); Hornstein (2001); Hartman (2011, 2012); Řezáč (2006); Hicks (2009); Fleisher (2014); Bruening (2014); Longenbaugh (2015, 2016); Keine and Poole (2017); Gluckman (2016b, 2018) among many others. It's the goal of this section to review some of the various syntactic proposals that have been put forth to explain the *tough*-construction.

In Chapter 3, I depart from the previous approaches by starting from the meaning of each piece, and composing the structure afterwards. That is, I will address the *tough*-construction as a semantic problem foremost, and derive the syntax from the compositional principles of semantics. The core idea for me is that the *tough*-construction is fundamentally about an event: *It's difficult to talk to Mary* says something about the event of talking to Mary, i.e., it's difficult (Pesetsky, 1987; Jones, 1991; Hartman, 2012). From this foundational observation, the meaning and syntax can be derived by established principles for how elements are mapped to events. Following Salzmann (2006, 2015) in spirit (but not formalism), I will show that we can treat *tough*-subjects as *proleptic arguments* which are related to distinct events across worlds. In this way, we derive the myriad complex patterns observed above. In particular, I attempt to answer the questions in (1.68).

(1.68) (a) How can there be a chain in which an A-position antecedes an $\overline{\text{A}}$-position?

(b) Why is the $\overline{\text{A}}$-step "weak," in that it cannot cross clause boundaries typically associated with other $\overline{\text{A}}$-movements?

(c) Why is head of the chain thematically licensed at the gap-site, but not interpreted

(scopally) there?

(d) Why is such a chain only found with certain predicates? Or more generally, What is the class of *tough*-predicates, and how do these differ from non-*tough*-predicates?

The proposal in this dissertation builds on the excellent and wide-ranging research on the *tough*-construction that has previously addressed (some) the questions in (1.68). Given the amount of work that has preceded, it simply isn't possible to give a complete recount of all of the previous proposals. As an organizing principle, I will concentrate on what I consider to be the two most highly debated factors in the literature on the *tough*-construction. This will allow me to discuss most of the major themes concerning the *tough*-construction — and the faults in the previous analyses. The first factor is whether the antecedent-gap chain is derived via movement or predication (subsection 1.4.1). The second factor concerns the size of the non-finite clause, in particular whether it consists of a CP layer or not (subsection 1.4.2).

The account proposed in Chapter 3 is firmly on the side of a predication+full CP account. This is what the empirical evidence establishes. I will argue that because both *tough*-predicates and *for*-CPs describe events, we can model the antecedent-gap chain as fundamentally a result of adding arguments to events, provided that we "preserve" certain relationships across modal worlds, i.e., *Preservation of Event Description* as proposed in Hacquard (2009).

Nota Bene: The reader is advised that this discussion is concerned almost entirely with English. I make no claims about the *tough*-construction in other languages. Indeed, there is good reason to believe that the "*tough*-construction" isn't a uniform construction across languages (Comrie and Matthews, 1990). There is interesting inter-language variation concerning the properties discussed above. I remark on some of these in Chapter 4. The proposal in this dissertation is meant to cover only the English "version" of the *tough*-construction, though I believe that it lays a foundation for examining the construction cross-linguistically as well.

1.4.1 Movement vs. Predication

The debate over whether the *tough*-subject is derived via movement out of the infinitival clause or whether it is generated in the main clause is the oldest, and probably most central debate with respect to the *tough*-construction. The movement analysis, argued for originally in Postal (1971); Postal and Ross (1971); Bresnan (1971) and subsequently taken up in Bayer (1990); Jacobson (1992); Brody (1993); Hicks (2009); Longenbaugh (2016); Hornstein (2001); Hartman (2011); Jacobson (1992) contends that the *tough*-subject starts in the lower clause and moves into its surface position (perhaps through an intermediate landing site along the way).[24]

(1.69) This book is difficult for John to read <this book>

The alternative analysis, predication, contends that the *tough*-subject starts in the higher clause, and the infinitive+adjective form a kind of complex predicate, which is predicated of the subject (Lasnik and Fiengo, 1974; Chomsky, 1973, 1977; Browning, 1987; Jones, 1991; Keine and Poole, 2017; Řezáč, 2006; Fleisher, 2013; Nanni, 1980; Mulder and den Dikken, 1992). The typical predication analysis involves an operator-gap chain in lower clause.

(1.70) This book is difficult [Op_x difficult to read x]

Despite the debate, the data seem quite clearly to indicate a solution to this issue: predication. There are two related problems with the movement analyses. The first is the lack of empirical support: There really is no good evidence that the subject has ever been in the lower clause. For instance, the subject cannot be interpreted for scope inside of the infinitival clause (Epstein, 1989; Fleisher, 2013).

[24]The earliest "movement" analysis is actually Lees (1960:217), who argues that the *for*-CP starts as a subject, and then a transformation applies that places the rest of the clause after the adjective. This idea won't work for a number of reasons, most notably, it would be extremely difficult to write a rule that controls *which* element inside of the infinitival clause gets to stay behind.

(i) [For John to keep a secret from Mary] was impossible.

(ii) a secret was impossible [for John to keep *e* from Mary]

(iii) Mary was impossible [for John to keep a secret from *e*]

(1.71) a. Few girls would be difficult for Jim to talk to *e*

≠ It would be difficult for Jim to talk to few girls. (Postal, 1974:224)

b. Many people are easy to talk to *e*

≠ It is easy to talk to many people. (Epstein, 1989:651)

c. How many students are easy to teach *e*?

≠ What number *n* is such that it is easy to teach *n*-many students?

(Fleisher, 2013:322)

Purported evidence to the contrary has been offered in Postal and Ross (1971); Hicks (2009); Sportiche (2006). Postal & Ross provide the following example, which they claim can only be derived by movement in order for *herself* to be bound by *Betsy*.

(1.72) Getting herself arrested on purpose is hard for me to imagine Betsy being willing to consider *e*. (Postal and Ross, 1971:545)

However, Akmajian (1972) immediately pointed out that this proved nothing, since structures like *too/enough* degree clauses, in which the subject could not be derived by movement, permitted the same surface order and crucially, licensed a reflexive pronoun.[25]

(1.73) Getting herself arrested on purpose is $\left\{ \begin{array}{l} \text{too crazy} \\ \text{just crazy enough} \end{array} \right\}$ for me to imagine Betsy being willing to consider.

Of course, with the benefit of many decades of further study, we can also note that Ross and Postal's original example is probably also confounded by the presence of some "perspectival" element. The other known examples of reconstruction are similarly confounded. Sportiche (2006); Hicks (2009) provides the following bound variable examples.[26]

(1.74) a. Pictures of his$_i$ friends are hard for every photorapher$_i$ to sell *e*.

[25]Though see (Brillman, 2014) for an analysis of *too/enough* using movement.

[26]Sportiche provides further evidence from licensing of subjunctive mood in French. Presumably, since subjunctive is similarly perspectival, it presents the same sort of confound as picture NPs.

b. Pictures of his$_j$ friends are easy to persuade every photographer$_j$ to sell *e*.

c. Pictures of each other would be hard for them sell *e*.

d. Pictures of each other would be easy to persuade them to sell *e*.

(Sportiche, 2006:8)

Of course, *picture*-NPs are notoriously flexible with respect to their binding possibilities in the *tough*-construction (Poole et al., 2017).[27] Controlling for this takes away the bound variable readings.

(1.75) a. It's difficult for no tree$_i$ to grow new leaves on its$_i$ branches

b. * New leaves on its$_i$ branches are difficult for no tree$_i$ to grow *e*

(1.76) a. It's easy for every teacup$_i$ to leak through the cracks on its$_i$ sides.

b. * The cracks on its$_i$ side are easy for every teacup$_i$ to leak through *e*

Moreover, as Poole et al. (2017) point out, the effects completely disappear when the binder is lower in the clause.

(1.77) a. It was hard for John to tell every farmer$_i$ [the bad news about her$_i$ goat]

b. * [The bad news about her$_i$ goat] was hard for John to tell every farmer$_i$ *e*

(Poole et al., 2017:2)

Likewise, if there is indeed movement, we should expect to see Condition C effects. But in fact, we do not, even with picture NPs.

(1.78) a. Pictures of John$_i$ are easy for him$_i$ to hang *e* on the wall.

b. Books about John$_i$'s life are difficult for him$_i$ to read *e*.

The lack of scope reconstruction and Condition C effects might be attributed to the *kind* of movement that the *tough*-construction exhibits, as argued in Hicks (2009); Fleisher (2013). Perhaps one of the special properties of this "improper movement" chain (however it is derived) is that

[27] Poole et al. attribute this observation to a blog post by Benjamin Bruening

it does not permit scope reconstruction. I find this solution unattractive for a few reasons. I don't see any reason to think that combining together an A- and an $\overline{\text{A}}$-movement should *a priori* result in anti-reconstruction and Condition C obviation. Both movements can in principle reconstruct for scope and Condition C, why would we expect anything else when we combine them? Indeed, when they are linked in the opposite configuration (A-movement followed by $\overline{\text{A}}$-movement), reconstruction is still possible:

(1.79) Which picture of himself$_i$/his$_i$ family seems to every boy$_i$ to be the nicest?

Moreover, even if improper movement were proposed to have these special properties, the hypothesis is untestable because improper movement *only* arises in these contexts.[28,29]

Thus, the movement analyses all suffer from a pervasive lack of empirical support.[30] This leads to the second problem with many movement analyses: Once we admit the availability of improper movement, then we need a way to constrain this movement.

For instance, what rules out *tough*-constructions with a finite clause?

(1.80) a. It is important that John read this book.

b. * This book is important that John read *e*.

(1.81) a. It's crucial that John go to Chicago.

b. * Chicago is crucial that John go to *e*.

---

[28]See Poole et al. (2017) for additional evidence against the proposal that the one of the special properties of improper movement is that it resists reconstruction.

[29]In general, the facts concerning the lack of a reconstructed reading for *tough*-subjects correspond with the inability to get idiomatic readings when the subject is part of an idiom chunk (i). However, Hicks (2009:23) points out a number of examples where the idiomatic reading is preserved. (Judgements are hers.)

(i) a. *The bucket was easy/hard (for them) to kick *e*.

b. *The fan was easy/hard for the shit to hit *e*

(ii) a. (?) The hatchet was easy/difficult (for us) to bury *e*

b. (?) Headway was easy/difficult (for us) to make *e* (Hicks, 2009:23-24)

It's not entirely clear what to make of the examples in (ii). Hicks uses them to argue that there is in fact an A-movement step out of the lower clause, although the data are also compatible with the well known fact that some idioms are "looser."

[30]I'll note again that I restrict the analysis here to English. There are diagnostics from case-preservation from other languages which suggest that movement is possible in those languages (Klingvall, 2018).

Since finite clauses can involve $\overline{\text{A}}$-movement, why couldn't we have a *tough*-construction which involves an $\overline{\text{A}}$-movement in the finite clause followed by an A-movement? Proposals to model the movement as smuggling (Hicks, 2009) or "pure" movement (Brody, 1993) all fail to capture (1.80).

While movement approaches are difficult to implement, predication approaches fair little better. The core problem for predication approaches is the thematic link between the *tough*-subject and the infinitive in the lower clause. If the subject is generated outside of the non-finite clause in (1.82), how do we understand the subject as thematically a PATIENT, THEME, CAUSE etc, without massively violating core principles of locality of theta-role assignment (or any equivalent principle).

(1.82) a. This book $_{Theme}$ was easy to read *e*.

b. This book$_{Patient}$ was easy to burn *e*

c. This book$_{Cause}$ was easy to love *e*.

There are two proposed solutions. The first is simply to argue that the *tough*-subject doesn't get its theta-role from the lower clause, it gets one from the main clause (Williams, 1983; Hornstein, 2001). This would explain the fact that *possible* cannot appear with a *tough*-subject (cf, Keine and Poole 2017). (There is considerable speaker variation as to the acceptability of such examples.)

(1.83) a. It is possible for John to go to Chicago.

b. % Chicago is possible for John to go to *e*.

Based on (1.83), many have concluded that *tough*-adjectives idiosyncratically select for a subject, and so thematically license the subject. But this doesn't account for the fact that the interpretation of the subject is entirely dependent on the availability of a lower clause. The examples in (1.84) are not interpretable independently of an elided/implicit non-finite clause.

(1.84) a. Chicago was impossible ??(to get to *e*)

b. This tree was easy ??(to cut down *e*).

c. The car is difficult ??(to lift *e*).

The second solution is to develop a more complex way of "passing" a theta-role to *tough*-subject. One early attempt at this kind of analysis is developed in Chomsky (1981:309ff). The analysis involved a number is independently suspect mechanisms, and so has not been particularly popular.[31] The central idea is that there is a process of reanalysis that happens after S-structure is built which gets rid of a number of functional elements, thereby changing the relationships between the various pieces, including COMP, PRO, the antecedent and the trace. COMP, containing the *wh*-operator (PRO in this theory) deletes and the clause forms a complex predicate with the main clause predicate.

(1.85) a. Step 1 : John is $[_{AP}\ [_{A}$ easy $[_{CP}$ PRO$_i$ $[_{TP}$ PRO$_{arb}$ to please t_i]]]]

b. Step 2 : John is $[_{AP}\ [_{A}$ easy to please] t_i]

The result of this reanalysis is that the trace no longer functions as a variable (because it isn't $\overline{\text{A}}$-bound); instead, it's an anaphor, whose antecedent is John. However, *before* reanalysis, because the John–PRO$_i$–t_i are in a chain, the trace is able to "transmit" its theta-role to the subject, just as in normal A/$\overline{\text{A}}$-movement.

Browning (1987) and later Heycock (1994) adopt a somewhat simpler solution, based on how the predication relation is established. In essence, whatever accounts for *the computer* getting a theta-role in the predication structure in (1.86a) accounts for *the computer* getting one in (1.86b) as well.

(1.86) a. This computer is [Op$_x$ for the students to use x]

b. This computer is difficult [Op$_x$ for the students to use x]

In Browning's story, the operator is allowed to move into the specifier of AP in the matrix clause, and so the AP essentially "inherits" the theta-role that is assigned to the operator. Observe that this can, at least at first blush, be extended to capture the fact that the *tough*-construction cannot be formed with a finite clause, since finite clauses cannot be similarly predicated of a nominal.

[31] As I understand it, Chomsky's discussion was primarily to point out the many problems that the *tough*-construction brought to bear in the framework of Government and Binding.

(1.87) a. * This computer was [Op_x that the students use x]

b. * This computer was difficult [Op_x that the students use x]

However, in fact the ungrammaticality of (1.87) and (1.80) do not actually come for free. It is generally agreed that finite clauses *can* be derived predicates. This is how Landau (2011) accounts for the topic-comment structures in (1.88).

(1.88) a. John, I like his style.

b. John [Op_x I like x's style]

Thus, in fact it is still mysterious as to why the *tough*-construction does not permit a similar possibility (even with a pronoun).[32]

This predication idea has been updated in a more recent Minimalist framework in Řezáč (2006). (See also Fleisher 2013, 2014.) On Režáč's approach, a complex agreement mechanism allows the subject, generated in spec-TP as a topic, to interact with the operator generated in the lower clause, in the same way that a predication relation works. Agree passes a referential feature down to the operator. Thus, by being linked to the operator in a syntactic chain, the subject "assumes" the theta-role assigned to the operator.

The first problem with this approach is the (lack of) intervention effects. Since Režáč models his mechanism as a version of copy-raising, we should expect intervention effects here as well.

(1.89) a. John seems like he is asleep.

b. John seems to me like he is asleep.

---

[32]Heycock (1994) essentially adopts Browning's idea, but argues predication isn't restricted to contexts where there is an operator-gap. For instance, she argues that the clauses in copy-raising structures are also predicates, predicated of the subject. (See also Landau 2011.)

(i) This book seems like it will sell well.

(ii) Laura sounds like she left in a hurry.

To rule out **This book is important for Mary to read it*, she argues that non-gapped clausal predicates must be case-marked, ruling out clauses that occur with *tough*-predicates because *tough*-predicates do not assign case to the clause. Note that the same objection wrt finite clauses holds for Heycock's analysis as well.

Moreover, there is a problem with ordering of operations. Consider the case when the intervener is preposed.[33]

(1.90) a. It is important to John to talk to Mary.

b. To John, it is important <to John> to talk to Mary.

c. To John, Mary is important <to John> to talk to *e*.

Unless Agree is countercyclic or evaluated late (neither or which Režáč assumes) then *John* is intervening at the point in the derivation when Agree links *Mary* with the gap. Moreover, even if we assumed that the prepositional phrase moved away, its copy is still present, and so should still be an intervener. (See related discussion in subsection 1.2.1.)

Longenbaugh (2016) presents an interesting proposal involving van Urk's (2015) notion of a *composite probe*. The idea is that the movement chain is *both* an A- and $\overline{\text{A}}$-movement chain because it moves for both A- and $\overline{\text{A}}$-features. (He must assume that the *tough*-construction involves a step of restructuring that deletes the CP layer. The chain passes through spec-vP of the higher clause.)

(1.91) This book was [<this book> difficult [to read <this book>
A-mov't — A/$\overline{\text{A}}$-mov't

However, as Keine and Poole (2017) point out, the predictions of such A/$\overline{\text{A}}$-movements are not entirely coherent. If A-movement is clause-bounded and $\overline{\text{A}}$-movement isn't, is A/$\overline{\text{A}}$-movement

[33]We might also consider whether there is movement here at all. That is, what if *to John* is generated *in situ* in the pre-sentential position? Řezáč (2006) offers (i) to suggest that reconstructed scope is possible, although I find the judgement here iffy.

(i) [For how many of their$_3$ acquaintances$_2$]$_1$ are most people$_3$ easy t_1 PRO$_2$ to exasperate e_3? (Řezáč, 2006:ex (7b))

I discuss more evidence for a reconstructed reading in Chapter 2. However, I consider it to suffice that – at least in English – there is clearly an selectional connection between the prepositional phrase and the *tough*-predicate, and I assume that this connection must be established locally. The preposition used to license the NP argument idiosyncratically covaries with the *tough*-predicate (Hartman, 2011).

(ii) To/??For John, it was important to read this book.

(iii) ??To/For John, it was difficult to read this book.

both clause-bounded *and* not clause-bounded? If A-movement can obviate Condition C, but $\overline{\text{A}}$-movement cannot, does A/$\overline{\text{A}}$-movement obviate and not obviate Condition C?[34]

In Keine and Poole's (2017) predication analysis, *tough*-predicates may come in two flavors: in one they are of type $\langle st, st\rangle$, combining with a propositional complement only. This is the expletive version. In another, they are of type $\langle\langle e, st\rangle, \langle e, st\rangle\rangle$, in which case they combine with a open proposition and then also select for an individual denoting subject.

Notice that this analysis still fails to capture why (1.80) are bad. Since finite clause are also propositional, and can be opened by abstracting over individuals, there's no reason to rule out *tough*-constructions with finite clauses. Moreover, we might note a certain arbitrariness in their analysis — though this could be said of all other analyses as well. Why do *tough*-predicates have this behavior? It's not enough to state that this is just an idiosyncracy of English (as Keine & Poole suggest), because in language after language, the *same* predicates participate in the *tough*-alternation.

Summing up, movement analyses are typically either outright stipulated, or are based on stipulated assumptions that fail to properly constrain the nature of the improper movement chain. Still, it may be that the particular type of movement that is found with the *tough*-construction is one which, a) allows an improper movement chain, and b) does not exhibit effects of reconstruction. But we have not yet established a feasible syntactic operation that can account for these two properties. In lieu of such an approach, we are left with the problem of giving the subject the theta-role of the object. Here too we don't have a reliable mechanism. But note that unlike the problem of reconstruction, the theta-role problem is theory-internal. That is, the empirical evidence favors a predication approach, but the theoretical arguments are equivocal. There are theoretical reasons to believe that movement is the only solution (theta-roles), just like there are theoretical reasons to believe that predication is the only solution (improper movement). Given the thorny theoretical landscape, we are forced to rely on the empirical observations: there is no movement.

[34]Though pre-dating Longebaugh's analysis, (Hartman, 2011) proposes a (possible) solution for this problem: the gap in the lower clause is only an A-movement. However, this is contradicted by a number diagnostics. See previous discussion in subsection 1.3.1.

1.4.2 Full vs. reduced clause

Cross-cutting the movement vs. predication debate is the debate concerning the size of the non-finite clause. On the one hand, there are those that argue that the non-finite clause is "small," say TP or VP (Bresnan, 1971; Lasnik and Fiengo, 1974; Nanni, 1980; Mulder and den Dikken, 1992; Longenbaugh, 2016; Jacobson, 1992). On the other hand, there are those that argue that the non-finite clause is a full S/CP clause (Bach and Horn, 1976; Chomsky, 1973, 1977; Browning, 1987; Jones, 1991; Keine and Poole, 2017; Řezáč, 2003; Hartman, 2011). So for people in the first camp, they would analyze (1.92) as (1.92a), while those in the second camp would analyze it as (1.92b).

(1.92) This book is difficult to read *e*.

a. This book is difficult [$_{VP}$ to read *e*]

b. This book is difficult [$_{CP}$ to read *e*]

While not as prominent as the movement vs. predication debate, the full vs. reduced clause debate has still inspired a large amount of research, with strong evidence on both sides. In recent years, the issue has become important as a proxy for the intervention effects observed in the *tough*-construction — that is, defective intervention discussed earlier. The main point of discussion (and confusion) is the status of the *for*+NP that occurs after the *tough*-predicate in (1.93). It's unclear how to parse this phrase (Rosenbaum, 1967:194). Is *for* a preposition which licenses the "experiencer" argument of the adjective? Or is it a complementizer, needed whenever the lower clause has a lexical subject?

(1.93) This book is difficult for John to read *e*.

a. This book is [difficult for John] to read *e*

b. This book is difficult [for John to read *e*]

What seems clear is that *both* a CP layer and the experiencer cannot be present at the same time (Bresnan, 1971; Chomsky, 1973, 1977, 1981)

(1.94) a. It's easy for the rich for the poor to do the hard work

b. * The hard work is easy for the rich for the poor to do *e*. (Chomsky, 1981:312)

(1.95) a. It would be good for Mary for her to learn karate.

b. * Karate would be good for Mary for her to learn *e*. (Bresnan, 1971:268)

Lasnik and Fiengo (1974) initially argue that the reduced clause parse is the only available parse, as the alternative would be a violation of the Specific Subject Constraint. That is, (1.93b) violates the same constraint that bars movement out of possessed nouns: *Who did John see (*Mary's) pictures of.*

However, Bach and Horn (1976) almost immediately observed that the syntactic status of the *for*+PP element seemed to indicate the opposite conclusion, i.e., that a full clause is possible. For instance, an adjective like *ready* doesn't permit a *for*+PP, so the only possible parse is that in (1.93b). Additional examples of "experiencer-less" *tough*-adjectives are *rare*, and *illegal*.[35,36]

(1.96) a. The house is ready for John to buy *e*.

b. * For John, the house is ready to buy *e*.

(1.97) a. Weed is illegal for John to sell *e*.

b. * For John, weed is illegal to sell *e*.

(1.98) a. This kind of cookie is rare for John find *e* in the US.

b. * For John, this kind of cookie is rare to find *e* in the US.

The same point is made when we expand the empirical domain to include the full class of *toug*-predicates. Gluckman (2018) illustrates that there are a number of *tough*-predicates which have the same exact same alternation as canonical *tough*-adjectives. Among them are the Take-TIME Construction and *cost*. Like *ready, rare, illegal*, these predicates simply do not permit a parse in which *for*+NP is inside of the main clause.

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[35] *Ready* has some unusual properties that are not found with the other *tough*-predicates. For one, it easily permits resumptive pronouns: *The house is ready for John to buy it.* Second, it alternates as an *eager*-class predicates: *John is ready to buy the house*. I provide more classic cases of *tough*-predicates to control for this.

[36] Grano (2012:p. 68ff) makes a similar point illustrating that the *tough*-construction cannot be a restructuring environment. Grano's point is slightly different in that he's accounting for partial control vs. exhaustive control with certain predicates that permit "Super-Equi." However, his diagnostics carry over to the present point as well.

(1.99) This book took an hour for John to read *e*.

a. * This book took [an hour for John] to read *e*

b. This book took an hour [for John to read *e*]

(1.100) This book costs $100 for John to ship to the US.

a. * This book costs [$100 for John] to ship *e* to the US.

b. This book costs $100 [for John to ship *e* to the US]

Moving beyond the debate concerning *for*+NP, there are other arguments that the clause must be less than a CP. For instance, Chomsky's (1981) proposal (p. 314), in which the clause reanalyzes with the adjective, requires that the small be smaller than CP. Since reanalysis composes two predicates, an intervening CP layer would block this. He is therefore committed to analyzing instances of *for*+NP as inside of the main clause and the non-finite clause is smaller than a VP.[37]

Nanni (1980) takes the most extreme view of the reanalysis approach, arguing that the adjective and infinitive can join together to become a "complex adjective," basically a re-lexification where the entire string is labelled an adjective. She first notes that in general, adjectives cannot appear with adjunct/complement phrases when occurring prenominally.

(1.101) a. The teacher was [concerned about her student]

b. * the [concerned about her student] teacher

(1.102) a. The man was [suspicious of his wife]

b. * the [suspicious of his wife] man adapted from (Nanni, 1980:573)

Nanni observes, however, that this is not true for infinitives of *easy*-class adjectives.

(1.103) a. This laxative is easy to take.

b. an easy to take laxative

[37] In truth, Chomsky (1981) has its cake and its it, too. Chomsky adopts the operator-gap approach from Chomsky (1977), but then adds this reanalysis rule *after* S-structure has been built, in essence deleting a number of functional projections that were "problematic." Reanalysis is not permitted to apply when there is lexical subject of the infinitive, thus blocking (1.94b). The utility and overall power of this analysis was probably too much to maintain in the Government and Binding framework, and the idea has not been widely popular.

(1.104) a. The boss is tough to please.

b. a tough to please boss

Based on this, she argues that *easy to please* can be, functionally, a word whose category is that of an adjective, and posits that the *tough*-construction proper, i.e., *John is easy to please* has two possible derivations, one in which *easy to please* is an adjective, and another in which *to please* is a full clause (daughter of VP). She argues that certain construction force the reanalysis parse. For instance the examples in (1.105) must all involve reanalysis, while in the examples in (1.106) must not involve reanalysis.

(1.105) a. How easy to tease is John?

b. How simple to fool were the men?

c. How difficult o avoid was the problem?

(1.106) a. How easy was the book to read?

b. How tough was the problem for Bill to solve?

c. How difficult was he to arrange to meet?

One problem for this account is that among the diagnostics that Nanni uses to differentiate between the two structures, the ones that supposedly pick out the complex adjective don't necessarily show that this the constituent has the label "adjective." For instance, synthetic comparatives can still be formed.[38]

(1.107) a. How much easier/*more easy to clean was this room (than that one)?

b. How much harder/*more hard to swallow are these pills (than those)?

While Nanni's diagnostics for constituency seem legitimate, her conclusion that this indicates a re-lexification is premature.

[38]Moreover, the theory Nanni was working in did not permit the movement of the adjective+clause exclusively, and so the only option was complex adjective formation. In the current framework, being able to displace a phrase does not tell us much about its internal structure.

Bresnan (1971) offers empirical evidence from prosodic phrasing that the *for*+NP must be in the main clause. She observes that primary stress falls on the lower infinitive, i.e., *That theorem is tough to **prove***. Based on independent proposals about how sentential stress is assigned, she argues that the *only* way such a contour could arise is if the lower clause were a VP. (Bolding indicates where primary stress falls in neutral declaratives.)[39]

(1.108) a. It it **tough** to prove that theorem

b. That theorem is tough to **prove**.

One of the arguments that Bresnan uses to motivate her conclusion involves expletive subjects. The facts have been repeated elsewhere as well (Lasnik and Fiengo, 1974; Longenbaugh, 2016). These authors observe that an expletive, which must be parsed as the subject of the lower verb, is incompatible with the antecedent-gap chain.

(1.109) a. * North Vietnam is easy for there to be bombing raids over *e*

b. * Max is impossible for there to be a book about *e*.

c. * The Pentagon would be amusing for there to be raid on *e*

(Lasnik and Fiengo, 1974:549)

This doesn't really tell us much though. The problem is that, on the non-reduced clause approach, then the assumption is that there is an operator-gap structure that targets spec-CP, which turns the CP into a predicate. However, note that unlike with referential subjects, expletive subjects simply aren't permitted in these contexts regardless of whether they exist in a *tough*-construction.

(1.110) a. Jungle gym is [Op_x for the children to play on *e*]

b. * The jungle gym is [Op_x for it to rain on *e*]

c. The Pentagon is [Op_x for the defense to house its staff in x]

[39]In general, the contour that must be derived is 2-3-1, where primary stress falls on the verb, secondary stress on the subject, and the main clause predicate is de-stressed. These stress assignments must be calculated with respect to each other, and so no clause boundaries can come between them. Thus, it must be that case that if the non-finite verb bears primary stress with respect to the other constituents, the verb cannot be in its own clause. In (1.108a), for example, *tough* bears primary stress, not *prove*, because here the lower verb is (or can be) in its own stress-assigning domain.

d. * The Pentagon is [Op_x for there to be a raid on x]

Thus, there's no reason to expect (1.109) to be good anyway, regardless of whether there's an expletive or not, simply because, for some reason, operator gaps are not allowed.[40]

The question about the size of the clause has a number of important implications. Notably, it matters for semantics. We should expect different meanings to arise based on whether the clause is "small" rather than "big." As Wurmbrand (2014) points out, such clauses pass tests for being "tensed" non-finite clauses, meaning that they have to be big enough to contain a tense phrase.[41] Also in terms of semantics, we should note that there is always an experiencer argument present, sometimes it is overtly realized, and sometimes it is implicit. (See discussion in Chapter 2.) So the presence or absence of the overt experiencer may not be so informative.

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[40] It's possible that such a constraint could be formulated as a result of the known fact that definite determiners cannot appear in an existential construction (Milsark, 1977). Assuming that traces are converted into definite descriptions (Fox, 2000), then the patterns with *there* could follow. That said, there are some interesting examples from (Levine and Hukari, 2006:341-342) showing that *too/enough* clauses permit expletive subjects in some contexts. (Their overall point is a refutation of Bresnan's argument from prosody.)

(i) The park you describe sounds too small for there to have been a riot in *e*.

(ii) Some bureaucrats are too stupid for there to be any hope for *e*.

(iii) This theorem is too tangential for there to be any point in proving *e*

In fact, *too/enough* are "exceptional" in other cases as well, including being much more lenient in permitting resumptive pronouns: *John was too angry to talk to (him)*. A possible solution to this problem (suggested by Roumi Pancheva, p.c.) is that in these cases the *for*-CP is able to combine with *too/enough* directly (Bhatt and Pancheva, 2004). We might then postulate that the presence of a gap or the availability of *there*-expletive correlates with whether the *for*-CP is "licensed" by *too/enough* or a *tough*-predicate. That is, given that both *too/enough* and *tough*-predicates permit *for*-CPs, it's possible to have two *for*-CPs present with *too/enough* clauses, one for each subjective predicate.

(iv) It is [too [important to get a college degree] to abandon your studies now] Roumi Pancheva (p.c.)

We might then suppose that the gapped version would only correlate with the presence of a *tough*-predicate. This isn't correct, though, since with a non-*tough*-predicate, gaps and pronouns are both permitted.

(v) * John is angry to talk to (him)

(vi) John is too angry to talk to (him)

The *for*-CP depends on *too* in (vi) but still permits both a gap and a pronoun. Thus it cannot be that the gap is dependent on a *tough*-predicate. There is much more to say about this alternation; I must put it aside here, though.

[41] I'll note that Nanni's evidence, some involving adverbial modification, is in line with there being a separate mechanism for forming adjective+verb phrases. This is probably correct, though it doesn't negate the fact there is also a separate mechanism for combining a *tough*-predicate and a full CP.

From a syntactic perspective, if the clause is small, then a predication analysis becomes difficult — though not impossible — to implement: there is no CP layer that can house the operator. The strategy in this case seems to be to adopt something like a parasitic gap analysis (Mulder and den Dikken, 1992). On the other hand, if there is a CP layer, then a movement analysis becomes difficult simply because in general only $\overline{\text{A}}$-movement is permitted out of CPs. This might suggest that there is a correlation between a movement analysis and reduced clauses analysis, and vice versa, but in fact all the logical possibilities have been explored. (The schematizations are not meant to be representative for any single proposal, but are simple illustrations of how the dependencies are formed.)

- **Reduced clause** + **movement:** (Bresnan, 1971; Jacobson, 1992; Longenbaugh, 2015, 2016)

  This book is difficult [$_{VP}$ to read <this book>]

- **Reduced clause** + **predication:** (Nanni, 1980; Mulder and den Dikken, 1992)

  This book is difficult [$_{VP}$ Op$_x$ to read x]

- **Full clause** + **movement:** (Postal, 1971; Hicks, 2003, 2009; Brody, 1993; Hartman, 2011, 2012; Hornstein, 2001)

  This book is difficult [$_{CP}$ to read <this book>]

- **Full clause** + **predication:** (Lasnik and Fiengo, 1974; Chomsky, 1977; Browning, 1987; Jones, 1991; Keine and Poole, 2017; Řezáč, 2006; Fleisher, 2014; Salzmann, 2006)

  This book is difficult [$_{CP}$ Op$_x$ to read x]

We should note that many authors are agnostic as to the composition when there is no antecedent-gap chain. That is, many authors do not take a stance on the size of the clause when the matrix subject is an expletive. But everyone seems to have an opinion about the size of the clause when there is an antecedent-gap chain.

1.4.3 Result: predication + full CP

The above discussion converges on an analysis in which there is a predication relation between the antecedent and the non-finite constituent, and the non-finite constituent is (or at least can be) a full clause. To recap that reasoning, we observed that empirically, the data suggest a predication approach given the lack of evidence for movement out of the lower clause. Theoretically, both predication and movement are equivocal, given that both involve theory-internal problems. Prediction has to deal with non-locality of theta-role assignment, and movement has to deal with constraints on improper movement.

We also then observed that the *tough*-construction in English at least *can* involve a full clause. There may be other parses available as well, but one parse that must be accounted for is one in which there is a full CP layer housing the non-finite verb. This ruled out derivations which depend on restructuring/reanalysis of the non-finite verb with the main clause predicate. It is from this starting place that I will begin Chapter 3. In Chapter 2, I will assume a simplified version of the *tough*-construction, still assuming a predication and full-clause analysis. The goal of Chapter 2 is to derive defective intervention; Chapter 3 will tackle a more extensive study of the *tough*-construction.

CHAPTER 2

Attitudinal Intervention

2.1 Introduction

The goal of this chapter is to explain why (2.1b) is ungrammatical, while (2.1a) is fine.

(2.1) a. Mary was important to talk to *e*.

b. * Mary was important to John to talk to *e*.

Why do we judge (2.1b) bad when *to John* is added? The generalization I pursue is that something about the *meaning* of *to John* creates the problem. In particular, I argue here that because we attribute to John a belief in (2.1b), we can no longer interpret the syntactic object (= chain) consisting of *Mary* and the gap in the lower clause. The gap is understood as "Mary according to John" but the antecedent is understood as "Mary according to the speaker." A chain which consists of two extensionally "mismatched" elements is not possible. This, I claim, is a fundamental and universal constraint on antecedent-gap chains.

The importance of explaining (2.1b) has much broader implications for a theory of *defective intervention* (Chomsky, 2000, 2001). As I review in section 2.2, defective intervention is, fundamentally, "failed" intervention. In terms of Minimalist syntax, a defective intervener is an intervener that blocks something else from establishing a non-local dependency (i.e., movement), but it cannot itself enter into the same non-local dependency (i.e., it can't move). In Chapter 1, I provided evidence that such a model of defective intervention is at worst empirically incorrect and at best entirely stipulative. I repeat the core observations from that chapter below.

In this chapter, I make two novel generalizations concerning where defective intervention is found. The first generalization is that all defective intervenors are attitude holders. We'll come

to this conclusion by a close study of intervention effects in the *tough*-construction in section 2.3. Unlike subject-to-subject raising, *tough*-adjectives (and related *tough*-predicates) allow us to manipulate the semantic nature of the intervening element. When we do so, we discover that attitude holders — and only attitude holders — are defective interveners. Building on this generalization, I propose in section 2.5 a new uniformity condition on chains, *Intensional Chain Uniformity*, which requires that links in a chain be extensionally identical.

The second generalization I make in this chapter comes from looking more closely all the places the defective intervention arises. Building on a number of previous works, I illustrate in section 2.6 that the places where defective intervention arises are places where a syntactic chain connects two *thematic* positions across a clause boundary. That is, defective intervention *can* arise when such chains fail to obey Intensional Chain Uniformity. And they fail to do so precisely when there's an attitude holder intervening.

The results of the chapter allow us to view defective intervention not as a purely *syntactic* phenomenon, but as an interaction between a semantic constraint and a particular syntactic configuration. We will be able to correctly characterize *where* we defective intervention, and where we don't, as well as *why* we see defective intervention at all.

2.2 An overview of defective intervention

The status of defective intervention in Minimalist theory has generated an enormous amount of debate. It raises questions about the ordering of Agree-probes and the syntactic position of ϕ-features (Sigurðsson and Holmberg, 2008; Preminger, 2011); the relative "importance" of different kinds of features (such as Case vs. person/number, and inherent vs. structural case) (Chomsky, 2000; Boškoviċ, 2007); whether features can be rendered "inactive" (Nevins, 2004); how inactivity is encoded (Richards, 2004; Broekhuis, 2007; Řezáč, 2008); modularity and ordering of processes between syntax and morphology (Bobaljik, 2006); and internal structure of ϕ-features bundles (Řezáč, 2011).

I will concentrate discussion on cases of defective intervention as it applies to movement chains, putting aside defective intervention as it applies to transmission of ϕ-features. (See Richards

2004; Řezáč 2008; Preminger 2014 for discussion of these cases.) The following are the core cases of defective intervention (with respect to antecedent-gap chains) discussed in the literature.

(2.2) *Icelandic subject-to-subject raising*

a. Ólafur hefur virst [*t* vera gáfaður]
Olaf.NOM has seemed to.be intelligent
'Olaf seem to be intelligent.'

b. * Ólafur hefur virst mér [*t* vera gáfaður]
Olaf.NOM has seemed me.DAT to.be intelligent
[intended: 'Olaf seems to me to be intelligent.']

(Holmberg and Hróarsdóttir, 2003:154)

(2.3) *Spanish subject-to-subject raising*

a. Este taxista parece [*t* estar cansado]
this taxi.driver seem.PRES to.be tired
'This taxi driver seems to be tired.'

b. * Este taxista me parece [*t* estar cansado]
this taxi.driver me.DAT seem.PRES to.be tired
[intended: 'This taxi driver seems to me to be tired.'] (Torrego, 1996:106)

(2.4) *French subject-to-subject raising*

a. Jean semble [*t* avoir du talent]
Jean seem.PRES to.have of.the talent
'Jean seems to have talent.'

b. * Jean semble à Marie [*t* avoir du talent]
Jean seem.PRES to Marie to.have of.the talent
[intented: 'Jean seems to Marie to have talent.'] (McGinnis, 1998b:149)

(2.5) *Italian subject-to-subject raising*

a. Gianni sembra [*t* fare il suo dovere]
Gianni seem.PRES to.do the his duty
'Gianni seems to do his duty.'

b. * Gianni sembra a Piero [*t* fare il suo dovere]
Gianni seem.PRES to Piero to.do the his duty
[intended: 'Gianni seems to Piero to do his duty.'] (McGinnis, 1998b:151)

From an empirical perspective, defective intervention has largely been concerned with subject-to-subject raising, though there are additional examples from Hartman (2011, 2012) involving intervention in the *tough*-construction and Raising-to-Object/ECM.

(2.6) a. Cholesterol is important (*to Mary) to avoid *e* (Hartman, 2011:125)

b. Mary proved John (*to me) to be a liar (Hartman, 2011:127)

From a theoretical perspective, we might immediately observe that this discussion has been entirely concerned with modeling the correct formulation of the Minimal Link Condition, Relativized Minimality, Attract, Move, Agree, or some other method for connecting non-local positions in the syntax. That is, linguists have attempted to solve the problem by pinning the issues to the narrow syntax. This has led to a number of interesting syntactic proposals about how to model antecedent-gap chains. The debate has been rigorous, and on the whole it has advanced our understanding how non-local elements interact in the syntax.

Still, seeking an answer by looking purely at the syntax might not, in the end, prove fruitful. The problem is that it is very difficult to state what is and is not a defective intervener in terms of a natural class if we just look at the syntax. While it has been noted that in general only dative elements can be defective interveners, it's also true that not *all* datives intervene. This is very explicitly observed in Icelandic. While datives are defective interveners for subject-to-subject raising, they are not for the class of *symmetric* DAT-NOM verbs, as discussed in (Wood and Sigurðsson, 2014), nor are they for certain ditransitives (Zaenen et al., 1985; Thráinsson, 2007)[1]

(2.7) a. mér hefur aldrei hentað *t* etta
me.DAT has never suited this.NOM
'This has never suited me.'

b. etta hefur aldrei hentað mér *t*
this.NOM has never suited me.DAT
'This has never suited me.' (Wood and Sigurðsson, 2014:277)

[1]See Wood and Sigurðsson for discussion on the syntax of these constructions, in particular for evidence that the dative element c-commands the nominative one in the base structure, and that the subject in both cases is in an A-position.

(2.8) a. Koninginum voru gefnar *t* ambáttir
the-king.DAT were given maidservants.NOM
'The king was given female slaves.'

b. ambattín var gefin konunginum *t*
the-maidservant.NOM was given the-king.DAT
'The maidservant was given the king.' (Zaenen et al., 1985:460)

The examples in (2.7) and (2.8) are doubly troublesome for many syntactic solutions to defective intervention because they show that, a) dative elements don't block some movements, and b) datives *themselves* can move. Thus, a syntactic solution must be sophisticated enough to discriminate between different types of intervening elements, those which block movement, those which don't, and those which themselves move. We could of course simply stipulate that some datives are "different," but the more explicitly we stipulate the solution, the less theoretical plausible it becomes. (Note moreover that the datives retain their case when sitting in the subject position, thus they are still classified as inherently case marked McGinnis 2008.)

I would like in this chapter to explore the issue form a different perspective: What are the *semantic* properties of defective intervention? Such an approach is warranted because defective interveners can be stated in terms of a natural class.

(2.9) *Defective Intervention Generalization*
Defective interveners are attitude holders.

This is robustly attested. All the examples cited above involve attributing to the intervening an element, whether the predicate be a raising predicate, Raising-to-Object/ECM, *tough*-construction or otherwise. In all cases, defective intervention is found when an antecedent-gap chain crosses something to which we attribute a belief.[2] The generalization in (2.9) is unexplained on any account. And while we could of course formulate this in terms of a Agree, say by adding a feature like [+attitude holder], the account would lack explanatory power.[3] Why do attitude holders display

[2]I leave out other cases argued in Greek in Anagnostopoulou (2003) *et seq* to involve defective intervention. These are cases of intervention effects in ditransitives. I will leave open whether they can be included in the generalizations and analysis provided below, though nothing hinges are these facts.

[3]Though she does not make the generalization in (2.9), Torrego (2002) attempts an analysis that tries to capture this basic idea. See discussion in chapter 1.

this behavior and not, say, Instruments, or Agents?

Of course, if being attitudinal is a *necessary* condition for being a defective intervener, it is not a *sufficient* condition. There are many examples of attitude holders which do not defectively intervene, including well known cases like raising past "experiencers" (= attitude holders) in English. Indeed, in French and Italian, the version where the experiencer is cliticized is judged as perfectly natural.

(2.10) a. John seem to Mary to be tired.

b. *French subject-to-subject raising*

Jean lui semble avoir du talent
Jean her.DAT seem.PRES to.have of.the talent
'John seems to her to have talent.' (McGinnis, 1998b:149)

c. *Italian subject-to-subject raising*

Gianni gli sembra fare il suo dovere
Gianni him.DAT seem.PRES to.do the his duty
'Gianni seems to him to do his duty.' (McGinnis, 1998b:151)

Thus, one challenge for accounts of defective intervention is explaining why all defective interveners are attitude holders, and why not all attitude holders are defective interveners.

The present chapter will take up this challenge by considering a case-study of defective intervention in the *tough*-construction, as it manifests in (2.1b), repeated here.

(2.11) a. Mary was important to talk to *e*.

b. * Mary was important to John to talk to *e*.

Because the status of intervention in this construction has also been given a fair bit of attention, I will first illustrate that defective intervention in the *tough*-construction is consistent with the Defective Intervention Generalization in (2.9). The *tough*-construction is particularly informative on this point as many of the predicates which enter into the *tough*-construction employ a variety of argument structures, allowing us to control for semantic features of the intervening elements, in particular whether we attribute to it a belief. An inspection of the syntax and semantics of the

tough-construction (and similar) provides ample evidence that there are many arguments that can structurally sit between the antecedent and the gap in the *tough*-construction, but only those that are attitudinal lead to intervention effects. This leads me to posit a constraint that takes into consideration the fact that attitude holders — and only attitude holders — may be defective interveners. I call the constraint *Intensional Chain Uniformity.*

(2.12) *Intensional Chain Uniformity (ICU)* (informal version)

Every link in an antecedent-gap chain must refer to the same thing in the actual world.

I argue that cases of defective intervention are precisely where ICU is violated: the antecedent and gap map to different extensions.

However, even with ICU in hand, we still want to know what differentiates English subject-to-subject raising from Spanish subject-to-subject raising, etc. Again, I argue that the culprit can be traced to semantics. I observe that defective intervention arises in cases of *intensional islandhood*, which I define as configurations where a position is obligatorily evaluated relative to its local world binder. The generalization is that defective intervention effects arise when each link in the chain is locally bound in its world argument. Importantly, I will illustrate that this precise semantic configuration arises in a number of syntactic contexts, like Raising-to-Object/ECM and control of PRO (Chierchia, 1990).

In the end, I will postulate a second generalization about where defective intervention is found:

(2.13) *Defective Intervention Generalization II (DIG II)*

Defective intervention is found in chains in which the antecedent and the gap are thematically associated with two different predicates.

While DIG I is supported by looking at a particular construction, DIG II is substantiated by looking at the cross-linguistic facts. The configurations where intensional islandhood are observed are configurations which can include an antecedent-gap chain in which the antecedent and gap each get their own theta-role. For instance, looking closely at the intervention effects in Romance, we'll discover that the only arise in *control* structures (Torrego, 1996; Cuervo, 2003a; Haegeman, 2006) among others. When there is an attitude shift between the PRO and its controller, then we

observe defective intervention. DIG I and DIG II correctly account for the entire distribution of defective intervention.

Before starting, let me first note that this chapter puts aside an important issue concerning the *tough*-construction: the derivational nature of the antecedent-gap chain. Is this formed via movement? Is it formed via predication? I will assume without argument that the predication approach is correct — but this becomes the central topic of chapter 3. Nonetheless, I hope to show that *regardless* of whether we analyze the antecedent-gap chain as movement or predication, ICU explains the ungrammaticality of defective intervention. That is, ICU is theory-neutral in this regard.

2.3 What does *tough* mean?

The *tough*-construction is one instance among a fairly large class of constructions which license a certain type of antecedent-gap relation. The core descriptive characteristics of this chain is that it displays properties of an $\overline{\text{A}}$-step in an infinitival clause (a *for*-CP),[4] but the head of the chain is in a A-position in the main clause (Chomsky, 1977; Browning, 1987; Jones, 1991). The examples below are divided up into those which appear in "true" *tough*-constructions, i.e., the DP-subject alternatives with an expletive subject, and those which only allow the antecedent-gap version. The division is for expositional purposes only; the antecedent-gap chain is identical in all the cases in (2.14).

(2.14) a. Tough *gaps*

i.	Mary is important to talk to *e*.	*tough*-construction
ii.	This book is a pleasure to read *e*.	*tough*-nouns
iii.	This game feels good to play *e*.	Feel-ADJ
iv.	This book was worth it to read *e*	*worth it*
v.	This book makes sense to read *e*	*make sense*
vi.	War frightens me to think about *e*.	psych-verbs

[4]There is considerable debate about whether the clause is in fact a CP layer. See discussion in chapter 1.

vii. This book is illegal to read *e* — *illegal*

viii. This table costs $100 dollars to buy *e*. — *cost*

ix. This book took a week to read *e*. — Take-TIME

b. *Non*-tough *gaps*

i. This table is light enough to lift *e*. — *enough* Deg

ii. This table is too heavy to lift *e*. — *too* Deg

iii. Mary is pretty to look at *e*. — *pretty*-class adjs

The syntactic properties of many of these constructions have been well studied, but the meaning components have been generally ignored (though see Fleisher 2008b; Keine and Poole 2017 for an approach to *tough* and Maier 2003; Heim 2000; Bhatt and Pancheva 2004; Marques 2012 for *too/enough* degree clauses). What is the natural class that picks out precisely these predicates/constructions? Why for instance does *pretty* allow this gap but, say, *small* not?

One thing that seems to set at least most of the predicates in (2.14) apart is that they are all, to some extent, *subjective* (Gluckman, 2018). By subjective, I mean that the truth of the assertion is dependent on someone's — typically the speaker's — doxastic or epistemic state. There are two reliable diagnostics for identifying subjective elements. The most notable is *faultless disagreement*, where two people can be said to be speaking truthfully, even though they're saying contradictory things (Kölbel, 2004). (Indeed, this may be the defining characteristic of subjective elements.) Compare (2.15) and (2.16). In (2.15), either Mary or John has said something false. But this isn't necessarily so in (2.16).

(2.15) a. Mary: "This cake is vegan."

b. John: "No, this cake is not vegan."

(2.16) a. Mary: "This cake is tasty."

b. John: "No, this cake is not tasty."

We observe that *tough*-predicates similarly allow this "relativized" truth.

(2.17) a. Mary: "This book was {difficult/easy/tough/fun/important} to read."

b. John: “No, this book was not {difficult/easy/tough/fun/important} to read.”

The second diagnostic concerns embedding. Sæbø (2009); Kennedy (2012) observe that subjective predicates can be embedded in a small-clause under *find*, while non-subjective predicates cannot. Again, we find that *tough*-predicates pattern like subjective elements in this regard.

(2.18) a. ?? John finds the cake vegan.

b. John finds the cake tasty.

c. John finds the book {difficult/easy/tough/fun/important} to read *e*.

Most authors agree that subjective elements are *judge-dependent*. The truth is evaluated relative to a judge — someone who is in a position to determine the truth of the proposition. Putting aside theories of judge-dependence for the moment, note that a judge can be implicit or explicit. In the case of an implicit judge, there is a strong tendency to understand the utterance as *speaker-oriented* (Lasersohn, 2005; Moltmann, 2012). The speaker speaks truthfully if s/he believes the cake is tasty, or the book is difficult to read, etc. When the judge is overt, we attribute the belief to that argument.

(2.19) a. This cake is tasty

≈ “I think that this cake is tasty.”

b. This cake is tasty to John

≈ “John thinks that this cake is tasty.”

This is also true for *tough*-predicates, though an ambiguity arises when we include a judge: Is the post-adjectival noun the subject of the infinitive, or a judge (and binds a PRO subject) (Bresnan, 1971) among many others?

(2.20) It is difficult for John to hold the axe.

a. ≈ “John thinks it’s difficult for him to hold the axe.

b. ≈ “I think it’s difficult for John to hold the axe.

This turns out to be a non-trivial issue for a number of reasons. Most notably, as I detail in the next section, there is considerable debate about which element leads to intervention effects. Is it the judge (often called the experiencer, though I reserve this label for something else)? Or is it the presence of a CP layer, indicated by the presence of an infinitival subject?

Before getting there, let me address some concerns about whether it's correct to claim that *all* *tough*-predicates are subjective. As stated the generalization is not quite accurate. Among the list of items in (2.14), there are some things (e.g., *cost*) which are not obviously subjective. Even within the category of adjectives, there are a few which may not necessarily qualify as subjective *per se*, but still participate in the *tough*-alternation. (See also footnote 10 below.)

(2.21) a. It is illegal to smoke marijuana.

b. Marijuana is illegal to smoke *e*.

c. ?? I find it illegal to smoke marijuana.

(2.22) a. It's crucial to pass the tax-plan.

b. The tax-plan is crucial to pass *e*.

c. ?? I find it crucial to pass the tax-plan

While these may not be subjective, they certainly are *modal*. This in fact is true of *cost* and the Take-TIME Construction as well (Gluckman, 2018). Assuming that subjectivity is a kind of modality (Stephenson, 2007; Portner, 2009), then a natural class of *tough*-predicates can be stated.[5] Still, in this chapter, I use the subjective nature of certain *tough*-predicates to illustrate a point about when elements can intervene. For those adjectives which require a judge, when the judge is overtly expressed, it leads to intervention effects. If it's the case that some *tough*-predicates do not license a judge-argument, that does not in any way diminish the generalizations and analysis provided below, it simply illustrates that the class of *tough*-predicates is not correlated with subjectivity, rather it is correlated with modality in general, and subjectivity is a kind of modality.

[5]Roumi Pancheva (p.c.) points out that the distinction between predicates like *important, difficult* and *crucial, illegal* is reminiscent of the difference between *objective* and *subjective* (or perhaps *intersubjective*) modality. See Portner (2009) for useful discussion on this topic.

2.4 Diagnosing intervention

Our original example, repeated below, is a fairly clear-cut case of some kind of intervention. The presence of *John* is the cause of the degraded status of (2.23b).

(2.23) a. Mary is important to talk to *e*.

b. * Mary is important to John to talk to *e*.

However, there has been a great deal of debate in the literature about *why exactly* (2.23b) is bad. The problem is, for many *tough*-predicates, there's an ambiguity between two interpretations of the DP argument after the preposition (Postal, 1971). On one hand, it can be analyzed as the judge—formally an argument of the adjective (2.24a). On the other hand, it can be be analyzed as the subject of the *for*-CP (2.24b). (There's a third option, discussed in subsection 2.4.1, where the noun is understood as an "affected" argument of the adjective and not necessarily a judge.)

(2.24) This book was difficult for John to read *e*.

a. This book was [difficult for John] PRO to read *e*

b. This book was difficult [for John to read *e*]

Opinions are split about how to assign a structure to (2.24): does it correspond to (2.24a) or (2.24b)? Importantly, it's observed that when both an experiencer *and* an overt subject of the *for*-CP are present, an antecedent-gap chain is not possible (Bresnan, 1971; Chomsky, 1981).

(2.25) a. It's easy for the rich for the poor to do the hard work

b. * The hard work is easy for the rich for the poor to do *e*. (Chomsky, 1981:312)

(2.26) a. It would be good for Mary for her to learn karate.

b. * Karate would be good for Mary for her to learn *e*. (Bresnan, 1971:268)

Thus one of the parses in (2.24) appears to be ruled out. Some people believe it's the judge (often called the "experiencer" argument) (Hartman, 2011; Keine and Poole, 2017; Řezáč, 2006; Fleisher, 2013). Others believe that it's the presence of a CP layer that somehow prevents the

antecedent-gap chain from being formed (Bresnan, 1971; Lasnik and Fiengo, 1974; Longenbaugh, 2016).[6]

Hartman (2011, 2012) addresses the debate between the structures in (2.24) and establishes a number of diagnostics for differentiating between the two positions. The most notable diagnostic is that some *tough*-predicates license their Judge argument with idiosyncratic prepositions. Indeed, until now I've been tactfully using *tough*-predicates which license the Judge with *to*. (See (Stephenson, 2007:520) for an extensive list and discussion of which adjectives permit *to* and which *for*. There is considerable speaker variation on the point.)[7]

(2.27) a. It's [important/amusing/annoying/dumb/disgusting to John] PRO to read this book.
≈ "John thinks that it's important/amusing/annoying/dumb/disgusting to read this book"

b. It's important/amusing/annoying/dumb/disgusting [for John to read this book]
≈ "I thinks that it's important/amusing/annoying/dumb/disgusting for John to read this book"

The second diagnostic concerns partial binding. A judge argument can partially bind a PRO subject (Gluckman, 2016b; Keine and Poole, 2017).

(2.28) a. It's [easy for John$_i$] PRO$_{i+}$ to gather at the park.
cf, *John gathered at the park.

b. It's [fun for John$_i$] PRO$_{i+}$ to work as a team.
cf, *John worked as a team.

Since the infinitival verbs in (2.28) require plural subjects, the prepositional phrases in (2.28) must introduce judges which partially control a PRO subject co-indexed with *John* and some other

[6]Note that both of these can be—and have been—analyzed as intervention effects in the exact same way, i.e., as intervention for Agree.

[7]Longenbaugh (2015) claims that PPs introduced by *to* license experiencers, rather than judges. This doesn't seem to be quite right in all cases. The correct generalization is that elements introduced by *to* are ambiguous between having a judge vs. experiencer reading. I discuss this more in subsection 2.4.1.

participant.

Moreover, judges are animate, in fact, fully sentient.

(2.29) a. It's difficult [for a tree to grow leaves in winter]

b. It's annoying [for rain to seep through the roof]

The sentience requirement makes sense if judges are attitudinal. Only sentient things can have beliefs.

Once we control for ambiguity between the judge and *for*-CP subject, we see that the subject of the clause is not the culprit of the intervention effects.[8]

(2.30) a. *Preposition*

* This book is important to Mary to read *e*.

b. *Partial control*

i. * The park is easy for John to gather at *e*.

ii. * This project was fun for John to work as a team on *e*.

c. *Animacy*

New leaves are difficult for a tree to grow *e* in winter

Indeed, when we expand the empirical domain to include identical alternations beyond the class of *tough*-adjectives, we clearly see that the presence of a full CP layer is perfectly acceptable (Gluckman, 2018). This is true of the take-TIME construction, where parsing *for*+NP as a part of the main clause isn't possible, as seen by the a,b examples in (2.31). (I return to the take-TIME construction in subsection 2.4.3.)

(2.31) a. * It took [an hour for John] for Mary to read this article.

b. * For Mary to read this article took an hour for John

c. This article took an hour for Mary to read *e*.

[8]Hartman includes an argument from scope. The judgments are bit more complex than he gives credit. I discuss scope interactions in the next section.

An hour for John simply isn't a constituent in in (2.31).

Moreover, we see with psych-verbs that both arguments can be present at once. As I demonstrate in subsection 2.4.4, the nominal object of a psych-verb isn't (always) an attitude holder.

(2.32) a. It frightens John for his kids to play with guns.

b. Guns frightens John for his kids to play with *e*.

(2.33) a. It amuses Mary for the students to try to solve this problem.

b. This problem amuses Mary for the students to try to solve *e*.

Such examples clearly show that the presence of a infinitival CP layer doesn't lead to intervention effects. Furthermore, we have an indication from the psych-verb examples that not everything *outside* of the clause leads to intervention effects either. That is, while it's not the *for*-CP layer that leads to intervention effects, we don't want to just make a blanket generalization that everything outside of the CP *is* an intervener, as suggested in Bruening (2014).[9]

2.4.1 Experiencers and judges

The first case to consider is another ambiguity for the prepositional phrase following the *tough*-predicate. The argument of the preposition can be interpreted as an "affected" argument, rather than a judge. This reading can be easily brought out in (2.34b), where the infinitival clause is preposed, forcing the prepositional phrase to be an argument of the adjective. But here, the salient reading doesn't attribute a thought to the baby, rather, we understand the baby to "experience" difficulty.

(2.34) a. It was difficult for the baby to grip the bottle.

b. To grip the bottle was difficult for the baby.

[9]Note that the data from psych-verbs seems to contradict the central conclusion of Longenbaugh (2015), who argues that movement out of a "causer" infinitive is impossible. In his analysis of the intervention effects, when the infinitival clause causes a state in the experiencer, then the *tough*-predicate is a psych-verb; the infinitive starts in spec-vP c-commanding the experiencer object. Since for him, movement to spec-TP must be preceded by an agree relation with v, movement out of the infinitive is impossible since the infinitival clause isn't in the search domain of v. (v can only search downwards, not into its specifier.) However, since antecedent-gap chains are possible with psych-verbs, as observed in Pesetsky (1987) (*War frightens me to think about*), Longenbaugh's claim isn't empirically justified.

So we could paraphrase (2.34a) as "The baby has difficulty gripping the bottle." But it's not necessarily the case that the baby believe anything about gripping the bottle. I will refer to this reading as the *experiencer reading*. The following illustrate additional examples. Note that these experiencers are licensed by the preposition *to*, thus they cannot be licensed as the *for*-CP subject.

(2.35) a. It's harmful to the environment to burn plastic.

b. It would be damaging to the company to reveal the corruption.

c. It's important to our community to support this bill.

I take the experiencer argument to also be an argument of the adjective, but crucially, it is not (necessarily) a judge. Under the most prominent reading, *the baby* does not have a belief in (2.34), nor do *the environment, the company, our community* in the (2.35). In these cases, the judge (if there is one at all) is the speaker.[10]

Finally, we observe that experiencers are perfectly acceptable as interveners.

(2.36) a. The bottle is difficult for the baby to grip *e*.

b. Plastic is harmful to the environment to burn *e*.

c. The corruption would be damaging to the company to reveal *e*.

d. This bill is important to our community to support *e*.

---

[10] I will point out that it's arguable whether *harmful* and *damaging* are subjective predicates like the other *tough*-predicates. They don't seem to pass the *find* test very well, and I think we can objectively discover what is and is not harmful and damaging.

(i) ?? I find burning plastic harmful to plants.

(ii) ? I find the corruption damaging to the company.

However, it's possible that *harmful* and *damaging* are ambiguous between being merely vague and being evaluative, using Kennedy's terminology. The vague reading might simply be preferred over the evaluative for independent reasons. It seems to me that when the context is such that either adjective is evaluated less objectively, then it improves.

(iii) ? I find flights like that harmful to my health because I don't like being so close to so many people.

(iv) I find the rumors damaging to Mary's reputation.

Note that a predicate like *important* is ambiguous between having a judge and an experiencer argument.[11] The following contexts and minimal pairs illustrate that when we bias the intervener towards a judge interpretation, grammaticality degrades.

(2.37) *Senator Smith has proposed a bill that would greatly improve neighborhood safety. He thinks this bill is a necessary step in helping the community.*

a. This bill is important to the community to support *e*.

b. * This bill is important to Senator Smith to support *e*.

c. cf, It is important to the community/Senator Smith to support this bill.

(2.38) *Mary and John are in the same class. She's seen the final exam and knows (as we do) that it's going to be quite a hard exam, though John is (blissfully) unaware.*

a. The final is gonna be difficult for John to pass *e*.

b. ?? The final is gonna be difficult for Mary to pass *e*.

c. cf, It's gonna be difficult for John/Mary to pass the final.

The empirical observation is that an antecedent-gap chain in the *tough*-construction is sensitive to the semantic role of the intervening prepositional phrase. Experiencers are permitted, but judges are not. Note that it's possible for something to be both an experiencer and a judge (i.e., be affected, and have an opinion about it). So in the context in (2.38) *It will difficult for Mary to pass the exam* could, at the same time, attribute to Mary a belief about passing the exam, and describe what we take to be her "experiencer" in sitting the exam. But (2.38b) out of context only has one reading: "Mary will have difficulty taking the exam." It does not attribute to Mary a belief about her taking the exam.

It's worth mentioning that an additional set of facts from Longenbaugh (2015) is consistent with what is illustrated above. He observes that a universal quantifier after the preposition can

[11] Having both present sounds strange presumably for independent reasons, e.g., having multiple prepositional phrases after the adjective.

(i) ??? It's important to the mission to John to save Mary.

It could also be ruled out on the analysis proposed in Chapter 3 if there are "too many" proleptic elements in the main clause.

be ambiguous in taking low or high scope with respect to the matrix predicate. In his terms, on the reading where the DP is parsed in the matrix clause, the *tough*-predicate instantiates a relation between the experiencer and the event of the infinitive. On the other reading, the *tough*-predicate is "a monovalent propositional modifier, describing the likelihood that conditions will obtain to permit the event described in the infinitive."[12]

(2.39) It was hard for every lawyer to pass the bar exam.

a. = every lawyer had trouble passing the bar exam (matrix PP)

b. = it was unlikely to occur that every lawyer passed the bar exam (*for*-CP)

He observes that the first reading is preferred when there is an antecedent-gap.

(2.40) The bar exam is hard for every lawyer to pass *e*.

a. = For each individual lawyer, he or she has a hard time passing the bar exam (matrix PP)

b. ??= It is unlikely to come about that every lawyer passed the bar exam (*for*-CP)

Of course, his paraphrases are ones which attribute to the PP an experiencer, rather than a judge reading, and so the high scope reading of the quantifier is perfectly expected here. Using another predicate, one which more easily licenses a judge reading than *hard*, illustrates what happens when there is true judge intervention. In (2.41), the judge reading is pragmatically preferred.

(2.41) This year it will be difficult for the professors to pass upper division classes.

a. = This year, the professors believe that it will be difficult (for the students) to pass upper division classes. (judge)

b. = This year, I believe that the professors will have difficulty in passing upper division classes. (experiencer)

Crucially, even though it is pragmatically dispreferred, only the reading in which the professors are taking the classes is permitted when there's an antecedent-gap chain.

[12]Note that Hartman (2012:92) uses similar data to argue for a distinction between *for*-CP internal and external elements. Longenbaugh points out a potential confound with these data, so I set them aside here.

(2.42) This year, upper division classes will be difficult for the professors to pass *e*.

a. ≠ This year, the professors think that upper division classes will be difficult to pass.

b. = This year, the professors will have difficulty passing upper division classes.

That is, in the presence of an antecedent-gap chain, the judge reading is ruled out — even when the result forces a pragmatically odd reading.

2.4.2 An aside about the syntax of judge-dependence

Now, one response might be to make a syntactic distinction: experiencers do not *syntactically* intervene, and thus they wouldn't count as interveners for an antecedent-gap chain anyway. This reduces to a claim about c-command: experiencers do not c-command into the infinitival clause, and thus don't disrupt the relationship between the subject and the gap. I think that the evidence is equivocal on this front. On the one hand, experiencers do permit apparent Condition C violations, but on the other they can also bind variables in the lower clause and are interveners for *wh*-movement.[13]

(2.43) a. It's harmful to him$_i$ to give John$_i$ penicillin, because he's allergic. Condition C

b. It's damaging to no company$_i$ to reveal its$_i$ corruption. Variable binding

c. * What is it important to who to support? Superiority

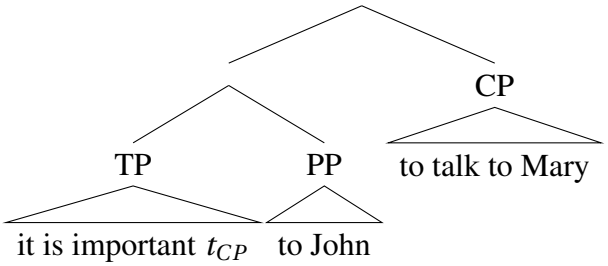
More importantly, it seems to me that if we tried to argue that experiencers don't c-command into the infinitival clause, and we explained away the data in (2.43b), (2.43c) by some other mechanism(s), then we could equally claim the same about judges, in which case we are still left with the problem of why the semantic role should matter for intervention effects.

[13]The binding data are also inconsistent with Longenbaugh's overall treatment where the infinitival clause starts higher than the experiencer, and then extraposes higher to linearize on the rightside. The experiencer *never* c-commands the infinitival clause. Note that the same facts hold with finite-CPs, controlling for the confound of a big PRO.

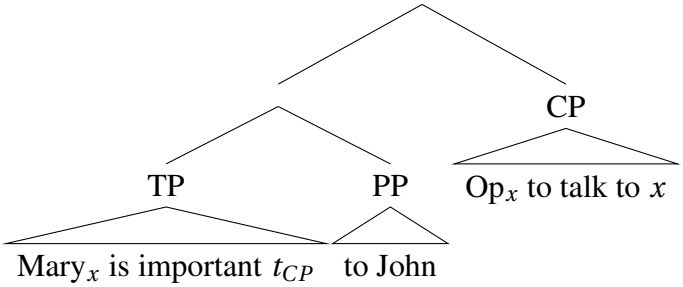
(i) It's important to no student$_i$ that his$_i$ professor schedule the exam at 8am.

Note that the evidence from Experiencers directly contradicts Bruening's (2014) proposal that the *for*-CP must be linearly adjacent to the *tough*-predicate.[14] However, Bruening also suggests that another solution might be plausible: the judge sits in a position around which the *for*-CP extraposes. This would invoke something like a classic ECP violation (however that is formalized in Minimalism), where the gap in the non-finite clause isn't bound (as argued in Moreno and Petersen 2017). For instance, if the judge composes high in clause, then the *for*-CP would have to extrapose to get around this element. When there's a gap in the lower clause, the gap is not bound, and so the derivation does not converge. [15]

(2.44) a.



b.



[14]As I discuss in chapter 1, Bruening's core claim is that (2.50b) is bad because it violates a basic condition on linearization, for the same reason that, say, verbs and their complements cannot be separated, e.g., **Mary saw yesterday John*. His linearization story is untenable for a number of reasons. First, many objects *can* be separated from their verbs (i). And second, there are ample examples of the *for*-CP being separated from its licensing head (ii).

(i) John saw yesterday the man he had been looking for for years.

(ii) This book is more important than that one to read *e*.

Bruening suggests at the end of his paper that extraposition my be at work in some cases, and this is at least a more empirically justifiable claim.

[15]For instance, Collins (2013) argues that the judge is not directly composed with the predicate. I do not find his arguments convincing, and so put them aside. But I concede that the issue is more complex than I have so far been assuming.

There are two problems with this idea. The first is that the structure in (2.44a) suggests that the judge doesn't c-command into the *for*-CP at surface structure. This doesn't fit the facts, however, as other variables inside of the non-finite clause can be bound by the judge. This is true of non-finite and finite clauses; including the finite clauses controls for the possible confound of PRO.

(2.45) a. It's important to no student$_i$ to skip his$_i$ finals.

b. It's inappropriate to no parent$_i$ to kiss their$_i$ child before school.

(2.46) a. It's important to no student$_i$ that his$_i$ professor show up to the final.

b. It's inappropriate to no parent$_i$ that their$_i$ child go to school on Saturday.

Note that if we argued that such binding is achieved by reconstructing the *for*-CP below the judge, then we should be able to repair the ECP violation in the same way.

The second problem is that the judge can be shown to sit below the subject, and so even if there is extraposition, there's no reason to believe that it targets a position above the subject. (In the following I provide examples for both "canonical" predicates of personal taste, as well as *tough*-predicates, although as the discussion above has hopefully illustrated, they are overlapping classes of predicates.)

For instance, we observe in (2.47), (2.48) that a subject of a subjective predicate can bind a variable on the judge.

(2.47) a. No meal$_i$ is tasty to its$_i$ chef.

b. No child$_i$ is ugly to her$_i$ mother.

(2.48) a. No flight$_i$ is important to its$_i$ pilot.

b. No circus$_i$ is fun to its$_i$ acrobats.

Thus, we have evidence that there is a position where the judge can be interpreted below the position of the subject. We also should observe that in terms of constituency, the judge and the adjective are grouped together:

(2.49) a. This cake is [tasty to Mary] but [disgusting to John]

b. The exam was [difficult for Mary] but [easy for John]

Finally, there is an issue of locality. As discussed above, not all adjectives license their judge argument using the same preposition. Some adjectives use *to* while others use *for*. Assuming that morphological choice requires (morpho-)syntactic locality, generating the judge high would sever the locality between the preposition and the adjective, and thus the idiosyncratic properties of the prepositional selection would be lost.

All of these factors suggest that the judge is in fact quite low in the clause, local to the adjective with which it is associated. Thus, an extraposition account of the intervention judge-intervention effects must be ruled out.

That said, there is reason to believe that an extraposition story is right in *some* cases. As Bruening points out, adjoined clauses also give rise to ungrammaticality.[16]

(2.50) a. It will be tough tomorrow to get an audience with the pope.

b. * The pope will be tough tomorrow to get an audience with *e*.

(Bruening, 2014:710)

But it's important to note that this is almost certainly a different kind of "intervention" – if we even want to call it that. Again, this is probably closer to a classic ECP violation, *tomorrow* adjoins higher in the clause than the adjective, and the *for*-CP must extrapose around this element (as proposed in Moreno and Petersen 2017).

[16]It's likely that this is also what's happening in cases where the preposition is *on*.

(i) This book was hard (*on John) to read *e*.

Richard Kayne (p.c.) notes that these have a reading close to that of an *ethical dative*, which are associated with a fairly high projection in the clause (Cuervo, 2003b). Note that Bruening additional claims that intervention effects go away when the experiencer is above the adjective. (For Bruening, these sentences do not need an intonational break to make them acceptable.)

(ii) The president is (to many people) annoying (*to many people) to listen to *e*. (Bruening, 2014:708).

I do not concur, and I think the judgments are murky at best. I'll put such examples aside.

2.4.3 The Take-TIME Construction

The preceding discussion has focused on the *tough*-construction proper. But expanding the range of predicates which permit a *tough*-like alternation is revealing. Consider the take-TIME construction (TTC). Like the *tough*-construction, the TTC exhibits an $\overline{\text{A}}$-gap in a *for*-CP, which is linked to an element in an A-position in the main clause, but the head of the chain is thematically associated with the lower verb (Gluckman, 2016b, 2017, 2018).[17]

(2.51) a. It took an hour to read this article.

b. This article took an hour to read e.

The TTC is important in the intervention debate because it permits what I call a *middle subject*—a descriptive term for the argument that occurs in the middle of the sentence and that is obligatorily construed as the subject of the infinitive.

(2.52) a. It took Mary an hour to read this article.

b. This article took Mary an hour to read *e*.

The first thing to note about middle subjects is that they are perfectly grammatical when there's an antecedent-gap chain. Moreover, middle subjects are unambiguously structural interveners. They syntactically sit between the subject and the gap, c-commanding into the infinitival clause. This is easily verified by any number of c-command tests—although some tests are confounded by the presence of PRO in the lower clause.[18]

(2.53) a. It took no student$_i$ an hour to finish his$_i$ homework..

b. * What did it take who an hour to read t_{wh}?

[17] See Chomsky (1981:319fn) for brief discussion of the TTC in the context of the *tough*-construction (examples credited to Tim Stowell).

[18] Of course, control of PRO is itself an argument for c-command here. This is *predicative* (as opposed to *logophoric*) control. Landau (2015) diagnoses the difference by the ability to assign partial control. Predicative control does not permit partial control.

(i) * It took Mary an hour to gather at the park.

According to Landau, predicative control has a strict c-command requirement.

Like the experiencer arguments discussed above, middle subjects are not attitudinal. We do not attribute a belief to them. Indeed, they don't even need to be sentient.

(2.54) a. It took John an hour to catch a unicorn.

b. It took the rock an hour to roll two feet.

The point here is simple: If we wish to claim that the judge in (2.55a) disrupts a syntactic relationship between the subject and the gap, then we need to explain why the middle subject in (2.55b) fails to trigger the exact same effect.

(2.55) a. * This book is important to John to read *e*.

b. This book took John an hour to read *e*.

Beyond just stipulating that some elements interact and others don't, a syntactic solution isn't immediately plausible.

Notice finally that the TTC isn't particularly exceptional in this regard. *Cost* works the same way:

(2.56) a. This coffee costs John a lot to ship *e* to the US.

b. The fence cost us $100 to paint *e*.

2.4.4 Psych-verbs

The same point can be made with a class of predicates for which the judgements are a bit murky: psych-verbs. Pesetsky (1987) points out that experiencer-object psych-verbs bear a striking resemblance to *tough*-predicates. Again, like *tough*-predicates. The antecedent for the gap in the infinitival clause is sitting in an A-position in the main clause while still being thematically associated with the lower clause.

(2.57) a. These pictures annoy John to have to look at *e*

b. Those stories pleased Mary to listen to *e*.

c. John's health worries Susan to talk about *e*.

d. War frightens Bill to think about *e*. adapted from (Pesetsky, 1987:128)

A remark should be made about the relative acceptability of such examples. Pesetsky writes (p. 128) that, "Some of these examples also initially received a mixed response from some informants. Nonetheless, ... they improve with exposure." I suspect that the difficult with these sentences stems from an ambiguity found with all psych-verbs. They can all thematically license a subject as a causer.

(2.58) a. These pictures annoy John.

b. These stories pleased Mary.

c. John's health worries Susan.

d. War frightens Bill.

That is in (2.58a) the prominent reading is that (a property of) the pictures caused John to become annoyed. This is different from (2.57a), in which the prominent reading is where looking at the pictures caused John to become annoyed. Similar in (2.58b), some aspect of these stories were pleasing to Mary, while in (2.57b), it's listening to the stories that pleases Mary, etc.

It seems reasonable then that the difficulty with (2.57) stems from our willingness to attribute the subject's thematic role to the psych-verb, rather than the infinitive. Recall that the *tough*-construction involves a chain in which the subject receives a theta-role in the lower clause. Thus, we might explain the degraded status of (2.57) is, in effect, a garden path phenomenon, where we attribute to the subject the wrong theta-role. To the extent that we do not attribute causation to the subject, then the sentences are more acceptable with an infinitival gap. I will return to this issue in Chapter 3, so I set it aside here.[19]

Whatever the reason for the degraded judgements, to the extent that (2.57) are good, they present a case of "failed" intervention. Note that it is trivial to show that the intervener, the expe-

[19]Note that Pesetsky eventually concludes that even in the case of (2.58), there is always an elided infinitive. I do not concur. In (2.58) we attribute to the subject a property that causes the experiencer object some emotion. This is not true of (2.57). There is a very different meaning for *War frightens Bill* and *War frightens Bill to think about*, although on Pesetsky's account they are truth-conditionally identical. However, his observation that there may be an elided infinitive stands; that is one *possible* reading of these sentences in (2.58).

riencer object, is a true syntactic intervener. We find Superiority effects as well as binding into the infinitival clause.

(2.59) a. * What does it frighten who to think about t_{wh}?

b. It disgusts no student$_i$ for his$_i$ parents to talk about their sex-life.

More importantly, for many of these verbs, the experiencer object is correctly identified as an experiencer, rather than a judge. Typically, we do not attribute a belief to the object of a psych-verb. For instance, we do not find *de re/de dicto* ambiguities with respect to the experiencer object's beliefs.[20]

(2.60) *John gets annoyed talking to Hillary Clinton, who he thinks is the current US president.*

a. It annoys John to talk to Hillary Clinton.

b. # It annoys John to talk to the president.

(2.61) *Mary likes playing basketball with Susan, who Mary falsely believes is her neighbor.*

a. It pleases Mary to play basketball with Susan.

b. # It pleases Mary to play basketball with her neighbor.

That said, the story is a bit more complicated. Some psych-verbs seem to permit an additional intensional reading. For instance, *frighten* allows a *de dicto* reading relative to the "experiencer"-object.[21]

(2.62) *John is afraid of talking to Hillary Clinton, who he thinks is the current US president.*

a. It frightens John to talk to Hillary Clinton

[20]The same is true for when the clause is finite. In the contexts above:

(i) It annoys John that #the president/Hillary Clinton talks to him.

(ii) It pleases Mary that #her neighbor/Susan plays basketball with her.

Note also that this is distinct from saying that the *for*-CP aren't intensional domains. We're merely showing here that the *for*-CP cannot be evaluated relative to the experiencer object's beliefs.

[21]Again, this is consistent across clause-type:

(i) It frightens John that the president/Hillary Clinton is talking to him.

b. It frightens John to talk to the president.

With *frighten*, it seems that the nominal object is ambiguous between being a belief-holder or not. Crucially, we find that when we guarantee that the object is read as an attitude holder, then intervention effects resurface with psych-verbs — though the readings are understandably subtle.[22]

(2.63) *John is afraid of giving back-rubs to Hillary Clinton, who he thinks is the US president. Therefore,*

a. It frightens John to give back-rubs to the president.

b. #/* Back-rubs frighten John to give *e* to the president.

c. cf, Back-rubs frighten John to give *e* to Hillary Clinton.

While many find sentences psych-verbs in general to be mildly degraded, the same patterns are found when the verb is in its adjectival *-ing* form. Thus, though many people find (2.57) awkward, most people readily accept (2.64), when the psych-verbs appear in their adjectival form.

(2.64) a. These pictures are annoying (to John) to have to look at *e*

b. Those stories were pleasing (to Mary) to listen to *e*.

c. John's health is worrying (to Susan) to talk about *e*.

d. War is frightening (to Bill) to think about *e*.

This is consistent with the facts observed earlier that experiencers with adjectival *tough*-predicates are acceptable as interveners, when the experiencer is exactly that — an experiencer. But again, some verbs are ambiguous in permitting an attitudinal reading of the "experiencer" object.

(2.65) *John is afraid of talking to Hillary Clinton, who he thinks is the current US president.*

a. It's frightening to John to talk to Hillary Clinton

b. It's frightening to John to talk to the president.

[22]It's not clear to me whether examples like (2.63b) should be considered infelicitous (because *the president* has the wrong reference) or ungrammatical (because it's an instance of defective intervention. I leave the issue open by marking the sentences as #/*.

And like we observed earlier, guaranteeing that the intervener is an attitude holder by attributing to him/her a belief, makes the sentences infelicitous.

(2.66) *John is afraid of giving back-rubs to Hillary Clinton, who he thinks is the US president.*

a. It's frightening to John to give back-rubs to the president.

b. #/* Back-rubs are frightening to John to give *e* to the president.

c. cf, Back-rubs are frightening to John to give *e* to Hillary Clinton.

So whatever the reason for the degraded status of verbal psych-predicates, the fact that the same pattern exists for non-verbal psych-predicates suggests that the relevant distinction is the semantic role, not the syntactic status.

While the psych-verb data is subtle, it is informative. We find first that structural interveners are again permitted between the antecedent and the gap, confirming what we have already observed with experiencers in the *tough*-construction proper and the TTC. Moreover, by manipulating the semantic role of the intervener, we can make intervention effects reappear. Notably, this does not correspond with an obvious *syntactic* ambiguity. Whether an experiencer or an attitude holder, the nominal object of the psych-verb sits in the same syntactic position between the antecedent and the gap. But only one induces intervention effects: the attitude holder.

2.4.5 Generalized judge intervention

I illustrate in this section that judge-intervention is an entirely general process. Identical effects can be induced in all the other subjective elements in the list of *tough*-like constructions in (2.14). When we put a judge, that is, an attitude holder, between the antecedent and the gap, we observe intervention effects.

For instance, *tough*-nouns can have an overt judge which is not permitted when there's a gap.

(2.67) a. It was a pleasure (to John) to read this book.

b. This book was a pleasure (*to John) to read *e*.

The same effect occurs with subjective elements like *truly a sight*:

(2.68) a. It was truly a sight (to John) to behold the fireworks display.

b. * The fireworks display was truly a sight (*to John) to behold *e*.

And as observed in Keine and Poole (2017), judges intervene in *pretty*-class adjectives, which are distinguished from *tough*-predicates in not permitting the expletive subject version (i.e., **It is pretty to look at Mary*).

(2.69) a. Mary is pretty (*to John) to look at e.

b. These cakes are tasty (*to Bill) to eat e.

This is similarly observed for the Feel+ADJ construction, where an overt judge us permitted with an expletive subject, but is barred when there is movement.

(2.70) a. It feels good (to me) to play this game.

b. This game feels good (*to me) to play *e*.

Too/enough clauses act the same way. *For*-CPs with a gap are licit in the presence of *too/enough*, (2.71).

(2.71) a. John finds the book *(too) expensive to buy *e*.

b. John finds the table clean *(enough) to eat off of *e*.

c. John finds Mary *(too) angry to talk to *e*.

This is because *too/enough* also are inherently subjective, in effect making a non-subjective predicate subjective.

(2.72) a. The book was too expensive to John.

b. The table was clean enough to Mary.

c. ? Susan was too angry to Bill.

But they do not permit the antecedent-gap chain if there's an overt judge. Note that we can even have non-judge elements following the adjective (2.73c) (although I'll concede that it's arguable

whether we should consider these true syntactic interveners).[23]

(2.73) a. The book is too expensive (*to John) to buy *e*.

b. The table is clean enough (*to John) to eat off of *e*.

c. Mary was too angry (*to John) about the homework (*to John) to talk to *e*.

Indeed, as observed in Sæbø (2009); Kennedy (2012), non-subjective predicates can be made subjective (i.e., judge-dependent) simply by modification with a subjective adverb. In this case, judge intervention again appears.

(2.74) a. * This book was long to John

b. This book was surprisingly long to John

c. * This book was long to read *e*.

d. This book was surprisingly long (*to John) to read *e*.

The same facts apply to what Fleisher (2008a,b) calls *Clausal adjective-with-infinitives*.

(2.75) a. Bob is a good person to talk to *e*.

b. Bob is a good (*to John) person (*to John) to talk to *e*.

Consider next *make sense*, which can embed an attitude holder above the *for*-CP. Here again, intervention effects reappear.

(2.76) a. It made sense (to John) to cook the pasta first.

b. The pasta made sense (*to John) to cook first *e*.

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[23]It's been suggested to me that a resumptive pronoun in the lower clause (typically allowed with *too/enough*) fixes the sentences:

(i) ? The book is too expensive to John to buy it.

(ii) ? The table is clean enough to John to eat off of it.

(iii) ? Mary was too angry to John to talk to her.

I find the judgments here questionable myself, so I put aside examples such as these. In any event, the constraint postulated below is only concerned with antecedent-*gap* chains; I have no comment on resumptive pronouns. (See also footnote 40.)

This is in contrast to the TTC and more similar to (some of the) psych-verbs. But even with the TTC, we see similar effects when we use more subjective temporal elements. I'll note that there is considerable speaker variation here as to whether a judge is allowed.[24]

(2.77) a. % It took forever to John to finish the midterm.

b. % It took an eternity to Mary to hear from the board of admissions.

(2.78) a. * The midterm took forever to John to finish e.

b. * The board of admissions took an eternity to Mary to hear from e.

To the extent that the examples in (2.77) are good, then the corresponding examples in (2.78) are ungrammatical. The point here is that judges generally intervene, regardless of the structure.

With generalized judge intervention in mind, consider the generalization from Chapter 1 repeated in (2.79).

(2.79) *Defective Intervention Generalization (DIG)*

Defective interveners are all attitude holders.

This is what we've been observing over the past few sections by looking at what happens when we manipulate the semantic properties of the intervening element. Experiencers of *tough*-predicates and psych-verbs when they do not hold beliefs are not defective interveners. Middle Subjects in the Take-TIME Construction are not defective interveners. In fact, across a widely range of elements, judges give rise to defective intervention in the exact same way, but non-judges do not.

It was necessary to explore these facts in the *tough*-construction simply because (2.79) is trivially true for all of the "core" cases of defective intervention, i.e., subject-to-subject raising. Due to

[24]The point can actually be made by combining the TTC with something more clearly judge-dependent, like a *too*+adjective, though it's unclear whether this should be due to some property of the TTC or simply the facts noted above that judges are interveners with *too*.

(i) It took way too long to John to finish painting the house.

(ii) * The house took way too long to John to finish painting *e*

their selectional restrictions, raising verbs allow an attitude holder to be projected into the syntax between the subject and the gap.[25] No other kind of argument can come there. The foray into the *tough*-construction was necessary to see if (2.79) were a red herring. It is not.

2.4.6 An aside on *tough* intervention in Romance

The facts from Romance languages are revealing as well. In general, like in English, an antecedent-gap chain across a judge expressed in a prepositional phrase is ungrammatical in French, Italian, and Spanish.[26,27]

(2.80) *French*

a. Il est difficile pour Jean de lire ce livre
it is difficult for John of to.read this book
'It is difficult for John to read this book.'

b. * Ce livre est difficile pour Jean à lire
this book is difficult for John to to.read

(2.81) *Spanish*

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[25]And indeed, not *all* raising predicates allow an intervener: *likely* doesn't permit any sort of argument to be projected into the syntax.

(i) It is likely (*to John) that Mary will leave.

(ii) Mary is likely (*to John) to leave.

Note this is precisely the sort of lexical variation that we see with respect to *tough*-predicates: some easily admit explicit judges (*important, surprising*) while others resist them (*fun, crucial*). Thus strikes me as being purely lexically idiosyncratic, which is supported by cross-linguistic evidence. For instance, Roumi Pancheva points out to me that *pretty* in Bulgarian does not permit a judge argument, although it's perfectly possible in English. To be clear, the availability of a explicit judge does not negate the fact that such predicates are still judge-dependent. Even when they cannot appear with explicit judges, such predicates still pass tests for judge-dependence, e.g., faultless disagreement, embedding under *find*.

[26]Thanks to Chiara Bozzone and Iara Mantenudo for help with the Italian facts, Dominique Sportiche with French, and Victoria Mateu, Lydda Lopez, and Samaria Carias for Spanish. It should be noted that there are dialectal distinctions in both Spanish and Italian. According to my Italian consultants, there is a difference between Northern and Southern standard Italian with respect to the *tough*-construction. In general Southern varieties require a clitic pronoun in the place of the gap. I have nothing to say about such resumptive structures. Since English generally doesn't display defective intervention effects with respect to similar "bound" pronouns (e.g., copy-raising), it's possible we wouldn't find the same effects in the varieties of Italian that require resumptive pronouns. One notable exception is *too/enough* clauses, which do sometimes permit resumptive pronouns. See footnote 40.

[27]There is a well-known morphological alternation *de* vs. *à* whenever a non-finite clause contains an $\overline{\text{A}}$-trace in French. This is not a factor in the ungrammaticality of (2.178a).

a. Fué dificil para Juan leer este libro
was difficult for John to.read this book
'It was difficult for John to read this book.'

b. * Este libro fué dificil para Juan leer
this book was difficult for John to.read

(2.82) *Italian*

a. É difficile per Gianni cucinare la torta
is difficult for John to.cook the pie
'It is difficult for John to cook the pie.

b. * La torta é difficile per Gianni cucinare
the pie is difficult for John to.cook

However, in all the languages — at least for some speakers — an antecedent-gap chain can cross a clitic intervener. (See footnote 26 above for discussion of what I know about the variation.)

(2.83) *French*

a. Il lui est difficile de lire ce livre
it him.DAT is difficult of to.read this book
'It is difficult for him to read this book.'

b. Ce livre lui est difficile à lire
this book him.DAT is difficult to to.read
'This book is difficult for him to read.'

(2.84) *Spanish*

a. Le fue difícil leer este libro
him.DAT was difficult to.read this book
'It was difficult for him to read this book.'

b. Este libro le fue difícil leer
this book him.DAT was difficult to.read
'This book was difficult for him to read.'

(2.85) *Italian*

a. Gli è difficile cucinare la torta
him.DAT is difficult to.cook the pie
'It is difficult for him to cook the pie.'

b. La torta gli è difficile cucinare
the pie him.DAT is difficult to.cook
'The pie is difficult for him to cook.'

In French and Italian, this state of affairs might not be surprising, since we observed earlier that clitics are not interveners in subject-to-subject raising. But for Spanish, this is not what we observed in normal raising scenarios. Clitics *are* interveners in those contexts.

(2.86) * Este taxista me parece estar cansado
this taxi.driver me.DAT seem.PRES to.be tired
'This taxi driver seems to me to be tired.' (Torrego, 1996:106)

Thus, we have to account for the fact that clitics *sometimes* are interveners in Spanish, and sometimes they aren't.[28]

The relevant factor here is that, according to the speakers who permit an antecedent-gap chain across a clitic in the *tough*-construction, the only interpretation of the clitic is that of an *experiencer*, not a judge. For instance, we do not attribute a belief to the referent of the clitic argument in the *tough*-construction about mythical creatures.

(2.87) *French*

a. # Il lui est difficile de monter une licorne, mais les licornes n' existent pas.
it him is difficult of to.ride a unicorn, but the unicorns NEG exist NEG
≈ '#John has difficulty in riding a unicorn, but unicorns don't exist.'

does not mean : 'John finds it difficult to ride a unicorn.'

(2.88) *Italian*

[28]Torrego (2002) and Řezáč (2008) make the same point with respect to the difference between intervention in subject-to-subject raising, and raising across psych-verbs and passivization across dative clitics. Only in subject-to-subject case is the movement past the clitic ungrammatical.

(i) un juguete (a los niños) les gustó <un juguete>
a toy to the children them pleases <a toy>
'A toy pleases the children.' (Torrego, 2002:257)

(ii) Los libro le fueron entregado
the books her.DAT were.PL given
'She was given the books.' (Řezáč, 2008:86)

a. # Gli é difficile cavalcare un unicorno, ma gli unicorni non esistono
him is difficult to.ride a unicorn but the unicorns NEG exist
≈ '#John has difficulty in riding a unicorn, but unicorns don't exist.'
does not mean : 'John finds it difficult to ride a unicorn.'

(2.89) *Spanish*

a. # Le fue difícil montar en un unicornio, pero los unicornios no existan
him was difficult to.ride on a unicorn, but the unicorns NEG exist
≈ '#John has difficulty in riding a unicorn, but unicorns don't exist.'
does not mean : 'John finds it difficult to ride a unicorn.'

Finally, let me note that there is considerable speaker variation with respect to the *tough*-construction in Italian and Spanish (and English, for that matter). For some speakers, the clitic argument *can* have a judge interpretation. So for one of my Italian consultants, the translation of (2.88a) is closer to "He finds it difficult to cook the pie," and (2.88a) has a *de dicto* reading of *unicorni* which makes the sentence felicitous. For those speakers, when the clitic is understood as a belief-holder, it is not possible to create an antecedent-gap chain across the clitic.

The same point applies to the TTC construction in Spanish. As we observed in English, the middle subject of the TTC is not a belief holder. This true in Spanish as well, and consequently, the antecedent-gap chain can cross this argument. [29]

(2.90) a. Este libro le tomó una hora para leer
this book him.DAT took one hour for to.read
'This book took him an hour to read.'

b. ? Este libro le tomó a Juan una hora para leer
this book him.DAT took to Juan one hour for to.read
'This book took John an hour to read.'

[29] As stated earlier, there is not-insignificant variation across Spanish with respect this construction. Peninsular Spanish appears to lack *tomar*+time entirely; there is a dedicated verb *tardar* to express this concept and antecedent-gap chains are not permitted at all. In non-peninsular Spanish, three of my consultants agreed that the sentences in (2.90) are grammatical, although (2.90b) is slightly degraded. One speaker of Honduran Spanish only accepted (2.90b) with a resumptive pronoun in the lower clause. Crucially however, for those speakers who accepted (2.90), raising across an experiencer (clitic or lexical) as in (2.86) is not possible. In French, the TTC permits a clitic intervener, but this consistent with all other antecedent-gap chains in the language. Italian utilizes a different circumlocution for this structure involving the verb *vuolere*, 'to want.' It also does not permit an antecedent-gap chain.

Thus, we can conclude from these facts that whether a clitic is present or not in between the antecedent and the gap is not predictive of whether there are intervention effects — even within a single language. The semantic role that the clitic bears *is* predictive of intervention effects in these languages. Only when the clitic is understood as an attitude holder do intervention effects arise.

2.5 Intensional Chain Uniformity

The above data suggest that there is something "special" about interveners which are attitudinal. In the *tough*-construction, we observe intervention effects only in the presence of something that is a belief-holder. In the constructions similar to the *tough*-construction, the presence of a judge always correlates with intervention, while a non-judge (i.e., non-belief holder) is always permitted.

Here's the intuition I will pursue, limiting discussion for now to the *tough*-construction: In the *tough*-construction, it's bad to have an antecedent-gap dependency crossing an attitude holder because each gap gets interpreted relative to a different attitudinal perspective. The chain isn't uniform with respect to intensionality because the speaker and the judge each have a different "version" of the syntactic object.

(2.91) *Intensional Chain Uniformity (ICU)* (informal version)

Every link in an antecedent-gap chain must refer to the same thing in the actual world.

Note that, as stated in this informal version, the constraint is neutral with respect to the theory of attitude ascriptions we adopt, as well as syntactic assumptions about how the antecedent-gap chain is formed. Ideally, whatever (reasonable) theory of the *tough*-construction and intensionality we subscribe to, ICU can be made to fit. Still, a formal version is necessary as a testable hypothesis. Thus, I will lay out some basic assumptions about how such a constraint can be modelled.

2.5.1 Theoretical assumptions

First, how do we model judge-dependence? Lasersohn (2005) proposes that this kind of relative truth is evaluated relative to a judge parameter. The judge is the evaluator of truth. For Lasersohn, the truth conditions of a predicate of personal taste (PPT) are given in (2.92). (2.93) extends this

analysis *tough*-predicates.[30]

(2.92) ⟦This painting is ugly⟧^{w,j} = 1 iff According to j in w, this painting is ugly in w

(2.93) ⟦It is important to talk to Mary⟧^{w,j} = 1 iff According to j in w, talking to Mary is important in w

Pearson (2013a) takes a somewhat different approach. She adopts the idea from Stephenson (2007) that the judge is an argument of the PPT, and argues that the speaker orientation of judge-dependence is the result of abstractions in the left periphery binding an argument of the predicate. In matrix contexts, the abstractions are predicated of the actual world and speaker. Thus we get the effect that the judge has a default speaker-orientation.

(2.94) a. [$\lambda 1$ $\lambda 2$ This painting is [ugly-w_1 (to) x_2]]

b. ⟦(2.94a)⟧(w)(speaker) = 1 iff According to the speaker in w, this painting is ugly in w

(2.95) a. [$\lambda 1$ $\lambda 2$ It is [important-w_1 (to) x_2 [to talk to Mary]]]

b. ⟦(2.95a)⟧(w)(speaker) = 1 iff According to the speaker in w, talking to Mary is important in w

Note that a key property of Pearson's analysis is the idea that all clauses are functions from worlds to functions from individuals to truth, i.e., are "centered" (Lewis, 1971). Root clauses are predicated of a world and an individual. Thus, the "speaker-orientation" is result of predicating

[30]There is currently a sizable debate about how to model judge-dependence. On one hand, there are those who view judge-dependence as, at heart, a discourse phenomenon, whereby "judge-dependence" isn't syntactically encoded (Collins, 2013). On the other hand, there are those who think that there is a syntactic component of judge-dependence, generally arguing for (or assuming) that a judge-element is projected into the syntax (Stephenson, 2007; Lasersohn, 2005; Pearson, 2013a) a.o. I am of course almost entirely ignoring this debate. Not because it's not important, but because it's somewhat beside the point. That said, I find the arguments in favor of syntactically encoding a judge-argument to be compelling, and as I am ultimately concerned with a syntactic object (the antecedent-gap chain), I will assume that the judge-argument is projected into the syntax. (There is a further debate about whether this projection should be an argument or an adjunct. I assume it is an argument, but nothing hinges on this.) For an overview of this debate, see Collins (2013).

$\lambda w \lambda x$.`This cake is tasty` of the actual world and the speaker, and it's judged true just in case the speaker situates him/herself in a world where this cake is tasty.[31]

Of course, in the case of the explicit judge, it simply combines with the predicate locally. We ascribe the belief to this argument.[32]

(2.96) a. This painting is ugly to John.

b. It is important to John to talk to Mary.

In this case, the explicit judge is the evaluator of what is ugly, tasty, important, difficult, etc, and so saturates locally the PPT/*tough*-adjective.

(2.97) a. [$\lambda 1$ $\lambda 2$ This painting is [ugly-w_1 to John]]

b. $[\![(2.97a)]\!]$ = 1 iff According to the John in w, this painting is ugly in w

(2.98) a. [$\lambda 1$ $\lambda 2$ It is [important-w_1 to John [to talk to Mary]]]

b. $[\![(2.98a)]\!](w)$(speaker) = 1 iff According to the John in w, talking to Mary is important in w

It might be concerning that $\lambda 2$ is now a vacuous binder. This is, however, a consequence of assuming a centered worlds approach which syntactically encodes the coordinates as abstractions. As this is a general issue for this particular formalization, and not unique to the implementation here, I'll put it aside.[33]

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[31] In embedded clauses, the world and individual coordinates are locally bound, which Pearson uses as an argument for her proposal.

[32] There is interesting speaker variation as to whether all predicates of personal taste are allowed to combine with an explicit judge argument at all (Stephenson, 2007:520). Many speakers find a prepositional judges for *delicious* as degraded, preferring an embedded structure instead.

(i) ??This cake was delicious to John

(ii) John finds this cake delicious.

[33] The issue actually goes away if we assume that *John* comes with additional machinery that allows us to evaluate this individual in the actual world. I adopt later the idea that *concept-generators* (Percus and Sauerland, 2003) are one way to do this, and that these are anchored to attitude holders. If John is wrapped in a concept-generator associated with x_2, then the vacuous binding problem goes away. See Pearson (2013b) for an implementation of an ASSERT operator that does precisely this.

A key property of the judge argument is that it is, functionally, a *belief-holder*. When we use a judge-dependent element, we are conveying the beliefs of the judge, e.g., whether something is "ugly" or "tasty" according to the epistemic/doxastic state of an individual (Stephenson, 2007). This is why we find *de dicto* readings in the infinitival clause relative to the judge's beliefs.

(2.99) a. It's important to John to meet the president (but he doesn't want to meet Trump).

b. It's disgusting to John to ride a unicorn (although we all know unicorns don't exist).

c. It's inappropriate to John to marry Mary (although he doesn't even know her name).

Since judges are attitude holders, then the *tough*-construction looks like a more familiar beast: it's a relation between an attitude holder (the judge) and an embedded clause (the *for*-CP) mediated through a predicate (the *tough*-predicate). Seen in this light, the *tough*-construction is similar to, say, embedding a clause under *want*.

(2.100) a. John wants [to talk to Mary]
"In all of the worlds that satisfy John's desires, he talks to Mary."

b. It's important to John [to talk to Mary]
"In all of the worlds that are consistent with what is important to John, he talks to Mary."

We can view the differences between (2.100a) and (2.100b) as simply the syntactic differences between verbal and adjectival predicates (and the different modal bases invoked by the different predicates). But semantically, everything can be made to compose identically. In the Hintikkan tradition, we say that (2.100a) maps to true just in the case that John's *de se* self talked to Mary is true in all of John's WANT-worlds (the Bouletic alternatives), i.e., the worlds where he achieves his desires. The same analysis applies to the *tough*-construction merely by adjusting the worlds we're quantifying over. In (2.100b), it's no longer WANT-worlds, rather we're quantifying over worlds which consist of situations/events that are important to John. More formally, this is the denotation I assign to *important*, again assuming centered worlds (Lewis, 1971).

(2.101) $[\![\text{important}]\!] = \lambda P_{\langle s,et\rangle} \lambda w \lambda x_e.\ \forall < x', w' > \in \text{ACC}_{<x,w>},\ P(w')(x') = 1$, where $\text{ACC}_{<x,w>}$ is a subset of the x's centered doxastic alternatives in w.[34]

I will assume that ACC varies relative to the main-clause predicate accordingly.

With this meaning for *important*, and our assumptions concerning the syntactic representation of judge-dependence, we now have the following LF and meaning for the *tough*-construction. I've rearranged the pieces a bit to conform to a more typical syntax in which the predicate combines first with the clause, then the attitude holder. I will assume that (well-motivated) movements derive the correct word order.[35]

(2.102) It is important to talk to Mary.

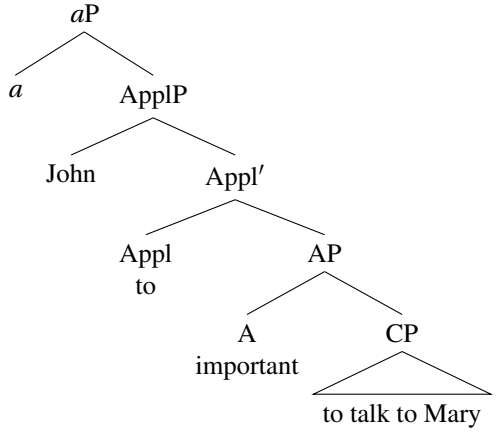
a. [$\lambda 1$ $\lambda 2$ it is [(to) x_2 important-w_1 [$_{CP}$ $\lambda 3$ $\lambda 4$ to talk-w_3 to Mary]]]

b. $[\![(2.102a)]\!](w)$(speaker) = 1 iff $\forall < x', w' > \in \text{ACC}_{<spkr,w>}$, x' talks to Mary in w'

That is, $[\![(2.102a)]\!]$ maps to True just in case in all of the speaker's (i.e., the judge's) IMPORTANT-worlds, he talks to Mary. Note that I adopt the centered worlds approach in part because it

[34]The meaning in (2.101) is consistent with what Fleisher (2008b) proposes for adjectives like *good* which can appear in constructions like *Bob is a good person to talk to*. There are a couple of additional complications that I put aside. I'll ignore Kratzer's (1991) ordering source, which ranks the worlds. And I leave out whether having the set of worlds be a subset of the doxastic alternatives is the correct choice. Grano (2015) suggests that these types of infinitival clauses all involve Portner's (2009) ROOT modality (vs. EPISTEMIC modality), in which case the relevant set of worlds might more accurately be described as a CIRCUMSTANTIAL modal base. Fleisher supposes that they are (or can be) evaluated relative to a BOULETIC modal base. These are important points to investigate, but are not directly relevant to the discussion below, so I will put them aside here.

[35]This is parallel to what is proposed in Keine and Poole (2017). The judge argument is for them an applied argument, which merges between the functional head *a* and the adjectival phrase AP.



A head-moves to *a*, and *John* and *to* switch places through a similar mechanism (perhaps Local Dislocation).

allows me to largely ignore issues of control and PRO. I will assume that there is a way to calculate PRO's referent by accessing the judge (Stephenson, 2010), or in some cases the experiencer. Whatever is individual maps to 4 will also bind PRO. The mechanism can be modeled syntactically Landau (2015) or semantically (Stephenson, 2010). This oversimplifies the debate of course, but the discussion is orthogonal to the main point here and will take us too far afield.

Whether the judge is explicit or implicit is irrelevant for composition. For instance, in (2.103b), the lower clause is interpreted relative to whoever the judge is — in this case, John.

(2.103) a. It's important to John to talk to Mary.

b. $\lambda 1\ \lambda 2$ it is [to John important [$\lambda 3\ \lambda 4$ to talk-w_3 to Mary]]

c. $[\![(2.103b)]\!](w)$(speaker) = 1 iff $\forall < x', w' > \in \text{ACC}_{<John,w>}$, x' talks to Mary in w'

So $[\![(2.103b)]\!]$ returns True just in case in all of John's relevant doxastic alternatives, he talks to Mary. At this point we've reached a tricky juncture in laying out the assumptions. How do we model the antecedent-gap chain created by the *tough*-subject? As I have illustrated in chapter 1, the evidence is in favor of treating this gap as created via predication, not movement, and the lower clause is a full CP. An operator-gap chain is created in the non-finite clause, and this is linked to the subject which is generated in the main clause. A simple way to achieve this configuration is laid out in (2.104). The subject binds a pronoun in the lower clause.[36] Since I return in chapter 3 to a more detailed investigation of the antecedent-gap chain, I will put aside the additional complications here.

(2.104) a. Mary is important to talk to e.

b. [$\lambda 1\ \lambda 2$ Mary $\lambda 3$ is [(to) x_2 important-w_1 [$\lambda 4\ \lambda 5$ to talk-w_4 to pro_3]]

c. $[\![(2.104b)]\!](w)$(speaker) = 1 iff Mary has the property such that $\forall < x', w' > \in$ $\text{ACC}_{<spkr,w>}$, x' talks to her in w'

This is of course an over-simplification of the antecedent-gap chain. The simplified set of assumptions and analysis proposed in (2.104b) is sufficient for the present purposes. Ultimately,

[36]This skips a step through the specifier of CP, but the truth conditions are not affected by this omission. The simplification is for legibility reasons only.

I wish to show that *however* we model the antecedent-gap chain, ICU applies. We will return to additional complications below, and a fully compositional syntax and semantics is provided at the end of chapter 3.

2.5.2 Formalization of ICU

Moving forward, I now want to talk about "versions" of individuals, and so I need to enrich my semantics to be able to handle how we think about individuals in belief worlds. To this effect, I will employ acquaintance-based concept generators (Percus and Sauerland, 2003; Anand, 2006; Charlow and Sharvit, 2014). Acquaintance-based concept generators are proposed as an alternative to *res*-movement for dealing with *de re* readings. Conceptually, every argument under an intensional operator comes wrapped in a function mapping the *res* to its "individual-concept," a definite description of the individual. The concept generator is assumed to be a pronoun bound by the intensional predicate. I assume the following denotation for a suitable concept generator from adapted from (Percus, 2013:7).

(2.105) *Acquaintance-Based Concept Generator*

A function G of type $<e,<s,<e,e>>>$ is an acquaintance-based concept generator for an attitude holder x in world w iff,

a. the domain of G is made up of individuals who x is acquainted with in w, and

b. for all y in the domain of G, $G(y)$ is a concept via which x represents y to himself in w — a function from centered-worlds to individuals.

For example, consider the case where John has a *de re* belief about Ortcutt. John is sitting in a café, and sees a suspicious looking character across the street in a trenchcoat and hat. John gets the impression that this person is a spy. We of course know him to be Ortcutt, though John doesn't know his name.

(2.106) John believes that Ortcutt is a spy.

In this context, for some concept-generator G and some belief world w' for John, $G(\text{Ortcutt})(w')(\text{John})$ returns the description "the man wearing a trenchcoat and hat," that is, the "version" of Ortcutt in

John's belief worlds.

A crucial component of the concept generator is that individual-concepts, i.e., definite descriptions of individuals, are acquaintance-based (as in Lewis 1979). As this will be important below, let me take a moment to explicate this further. The Quinean view of belief-reports is that there's a relation between an attitude holder and the individual(s) that the attitude holder has a belief about. In *John believes that Mary left*, John has some way of describing Mary to himself such that he believes of the referent that this description picks out that she left. Thus, this sentence is judged true even when John describes Mary as "the woman I saw in the red dress at the party," and John doesn't even know Mary's name.

Concept-generators are one way of formalizing this relationship between attitude holders and *res* arguments. They map an attitude holder to an individual-concept in a world for a particular *res*. For some concept generator G for John in world w, $G(\text{Mary})(w')(\text{John})$ returns a definite description of Mary in w' according to the John-as-attitude-holder accessible from w — in particular, the description that John has for Mary in w', say, "the woman I saw in the red dress at the party," or "the girl that I hear singing every morning," or any other way that John might know Mary. Importantly, the relations are acquaintance-based because John must have, fundamentally, learned the description somehow, say, through seeing Mary, or hearing her, or reading about her, etc.

Adding acquaintance-based concept generators to the denotation for a *tough*-predicate gives us (3.139).

(2.107) $[\![\text{important}]\!] = \lambda P_{\langle\langle e,\langle s\langle e,e\rangle\rangle\rangle,\langle s,\langle e,t\rangle\rangle}\lambda w.\lambda x.$There's an acquaintance-based concept generator G for x in w such that $\forall < x', w' > \in \text{ACC}_{<x,w>}$, $P(G)(w')(x') = 1$

This revised version of *tough*-predicates now yields the LF and derivation in (2.108b-2.108e).

(2.108) a. It's important to talk to Mary.

b. $\lambda 1\ \lambda 2$ It is $[_{AP}$ (to) x_2 important-w_1 $[_{CP}\ \lambda 3\ \lambda 4\ \lambda 5$ to talk$-w_4$ to $G_3(\text{Mary})(w_4)(x_5)$]]

c. $[\![\text{CP}]\!] = \lambda G_{\langle e,\langle s,ee\rangle\rangle}\lambda w\lambda x.$ x talks-w to $G(\text{Mary})(w)(x)$

d. $[\![\text{AP}]\!]^g = \lambda w$. There's an acquaintance-based concept generator G for g(2) in w such that $\forall < x', w' > \in \text{ACC}_{<g(2),w>}$, x' talks to $G(\text{Mary})(w')(x')$

e. $[\![(2.108b)]\!](w)(\text{speaker}) = 1$ iff There's an acquaintance-based concept generator G for the speaker in w such that $\forall < x', w' > \in \text{ACC}_{<spkr,w>}$, x' talks to $G(\text{Mary})(w')(x')$

What are the truth conditions of (2.108b)? It maps to true just in the case that, for the speaker to talk to the person he thinks is Mary is important to the speaker. In the presence of an overt judge, things are only minimally different. Instead of the speaker, we are now considering John's doxastic alternatives.

(2.109) a. It's important to John to talk to Mary.

b. $\lambda 1\ \lambda 2$ It is [to John important-w_1 [$\lambda 3\ \lambda 4\ \lambda 5$ to talk-w_4 to $G_3(\text{Mary})(w_4)(x_5)$]]

c. $[\![\text{CP}]\!] = \lambda G_{\langle e,se\rangle} \lambda w \lambda x.\ x$ talks-w to $G(\text{Mary})(w)(x)$

d. $[\![\text{AP}]\!]^g = \lambda w$. There's an acquaintance-based concept generator G for **John** in w such that $\forall < x', w' > \in \text{IMP}_{<\textbf{John},w>}$, x' talks to $G(\text{Mary})(w')(x') = 1$

e. $[\![(2.111b)]\!](w)(\text{speaker}) = 1$ iff There's an acquaintance-based concept generator G for **John** in w such that $\forall < x', w' > \in \text{IMP}_{<\textbf{John},w>}$, x' talks to $G(\text{Mary})(w')(x')$

What are the truth conditions of (2.109b)? This maps to true just in the case that, talking to the person John thinks is Mary is important to John. In this way we can build *de re* semantics into the account of tough-predicates outlined earlier. Note that this parallels what we do with any intensional predicate, e.g., *believe, want*, etc. Since our semantics of *tough*-predicates is parallel to that of other intensional predicates, we are adopting straightforwardly the theoretical addition of concept generators.

With these assumptions in place, let me formally state the intuition from earlier. The formal version of *Intensional Chain Uniformity* proposes that every link in a chain must evaluate to the same extension, given a general notion of an assignment function. It bans intensionally "mixed"

chains.[37]

(2.110) *Intensional Chain Uniformity (ICU)* (formal version)

Every link in an antecedent-gap chain must be *intensionally referentially equivalent*, where intensional referential equivalence is defined as,

a. Intensional Referential Equivalence

For any antecedent α and gap β where β is of the form $[[[G_1\ \text{pro}_2]w_3]x_4]$, α and β are referentially equivalent relative to an assignment function g iff, for all $< x', w' >$ in an attitude holder's doxastic alternatives accessible from the actual world via an intensional predicate,

$[\![\alpha]\!]^g = [\![\beta]\!]^{g[1\rightarrow G, 2\rightarrow [\![\alpha]\!]^g, 3\rightarrow w', 4\rightarrow x']}$

ICU is a constraint on a syntactic object, that is, a syntactic entity that may consist of several links in a chain. Fundamentally, it simply says that none of the links can "mismatch" in their extension, that is, they must be *referentially equivalent*. To see the effect of ICU, first consider the LF of an example which does not produce an intervention effect, (2.111).

(2.111) a. Mary was important to talk to e.

b. [$\lambda 1$ $\lambda 2$ Mary $\lambda 3$ is [(to) x_2 important-w_1 [$\lambda 4$ $\lambda 5$ $\lambda 6$ to talk-w_5 to $G_4(\text{pro}_3)(w_5)(x_6)$]]]

c. $[\![$(2.111b)$]\!](w)$(speaker) = 1 iff Mary has the property such that there's an acquaintance -based concept generator G for the speaker in w such that $\forall < x', w' > \in \text{ACC}_{<spkr,w>}$, x' talks to G(Mary)$(w')(x')$

The truth conditions of (2.111b) ask us to consider the syntactic object consisting of actual-world Mary and belief-world Mary. (2.111b) maps to true just in the case that actual-world Mary has the property such that for the speaker to talk to his individual-concept of Mary is important to

[37]ICU is a direct descendent of Anand's (2006) *Referential Equivalence* (p. 53). Anand proposes a notion of referential equivalence which essentially compares the *de re* readings of two positions, an antecedent and a bound (pronominal) variable. Though formulated slightly differently than what is proposed in (2.110), the intuitions are the same: two elements α and β are referentially equivalent relative to a world/context w/i iff the concept for α in w/i is the same as the concept for β in w/i. As far as I can tell, *modulo* formal differences, the two ideas about referential equivalence are interchangeable.

the speaker. In this case, the syntactic object formed out of the links ⟦Mary⟧ and ⟦G(Mary)(w')(x')⟧ are intensionally referentially equivalent. This is because the alternative worlds where we're considering candidates for Mary are the speaker's (*de se*) worlds. More explicitly, suppose Bill says (2.111a), and Bill is acquainted with Mary as "the woman I hear singing next door." In all of Bill's doxastic alternatives, the concept returned for G(Mary)(w')(x') will be "Mary, the woman I hear singing next door." This is who Bill believes Mary to be, in the actual world and his belief worlds.

(2.112) In (2.111b), for some G for the speaker in w and $\forall < x', w' > \in$ IMP$_{<spkr,w>}$,
⟦Mary⟧ = ⟦G(Mary)(w')(x')⟧

But now consider what happens when there's an explicit attitude holder that intervenes.

(2.113) a. * Mary was important to John to talk to e.

b. [λ1 λ2 Mary λ3 is [to John important-w_1 [λ4 λ5 λ6 to talk to G_4(pro$_3$)(w_5)(x_6)]]]

c. ⟦(2.113b)⟧ = 1 iff Mary has the property such that there's an acquaintance-based concept generator G for John in w such that $\forall < x', w' > \in$ ACC$_{<John,w>}$, x' talks to G(Mary)(w')(x')

In this case, the syntactic object we are considering consists of two individual(-concepts). On the one hand, there's actual-world Mary, who, in Bill's scenario above is "Mary, the woman I hear singing next door." But then there's the Mary that John knows. Suppose that John lives on the other side of Mary and has also been hearing her sing. But he's under the impression that it's not Mary who is singing, rather, it's Mary's husband Scott! So in John's belief worlds ⟦G(Mary)(w')(x')⟧ picks out "Scott, the person I$_{John}$ hear singing next door." In this scenario, the syntactic object created is not intensionally uniform; it consists of actual-world Mary and actual-world Scott.

(2.114) In (2.113b), for some G for John in w and $\forall < x', w' > \in$ IMP$_{<John,w>}$,
⟦Mary⟧ $\neq$ ⟦G(Mary)(w')(x')⟧

Actual-world Mary and John's Mary are extensionally different individuals. This is an ICU violation, and thus the sentence is ill-formed.

However, isn't it possible that Mary in the actual world—call this the "speaker's version of Mary"—is the same as John's version of Mary? Actually, no—at least not entirely. Suppose again that Bill and John live on either side of Mary. Both of them hear her singing and have a desire to speak to her. When Bill utters (2.111a), in all of his doxastic alternatives $G(\text{Mary})(w')(x')$ is Mary. He wouldn't have been able to say "Mary" otherwise. But if Bill utters (2.113a), how does he know what John believes? That is, Bill's own belief-state is compatible with John having beliefs in which "the woman singing next door" isn't Mary. In other words, there is at least one world among John's belief worlds *according to Bill* in which "the woman singing next door" isn't Mary. This is sufficient to constitute a violation of ICU.

In fact, the idea that a member of the actual world could be included in someone else's belief worlds has been independently argued against. Percus (2013) proposes the following principle.

(2.115) *Doxastic Privacy* (Percus, 2013:12)

> When we describe a person's candidates for the actual world, we avoid explicitly situating individuals from other worlds among those candidates. (Or explicitly excluding them.)

What doxastic privacy says, is, when considering the set of candidates that John has for Mary in his belief worlds, we resist making reference to individuals we know to inhabit other worlds. Percus' reasoning is that on the Quinean view of attitude ascription, intensional predicates like *think* require us to find relations between an attitude holder and a (or any) *res* element. Percus observes that there doesn't appear to be a predicate (in any language) which lacks this relational property linking attitude holders to elements in the clause which is quantified over. In effect, if doxastic privacy is correct, then it bars us from not having a concept generator around the pronoun, as this would entail that actual-world Mary is a member of John's belief worlds. (Note that it also bars us from selecting a concept generator for John such that the individual-concepts of Mary that this G returns all map to Mary in the actual world.)[38]

[38]While Doxastic Privacy suggests that ICU is violated in totality, that is, all of John's versions of Mary do not match Bill's version of Mary, it seems to me that a weaker version of ICU is compatible as well, in that it suffices that only one $G(\text{Mary})(w')(x')$ mismatch with Bill's version. That is, it suffices that only one world have a "different" Mary. This would suffice to constitute a violation of ICU. It's not immediately clear to me whether we can tell the difference between a strong or weak version of ICU – or whether it matters.

There are a number of empirical consequences of ICU. The first result is that chains which cross non-attitude holders, like the middle subject in the TTC, or experiencer arguments of tough-predicates, are predicted to be fine. ICU has nothing to say about such chains (which may be subject to other constraints on chain-formation, say Superiority).

The second result is a bit more subtle. ICU predicts that we will observe intervention effects when there is an attitude "shift" between the matrix and embedded clauses. However, if it's possible that an antecedent-gap chain stretches from matrix to embedded clause across an attitude holder *and there is no attitude shift*, then intervention effects will be obviated absent. Indeed, this is the reason why having an implicit judge is grammatical with an antecedent-gap chain. Syntactically, there is no difference between the implicit and explicit judge versions. In either case, there's a judge. In one case it's explicit and the other its implicit — but no less "real." The difference between the explicit and implicit judge on this theory is that there has not been an attitude shift between the matrix and embedded clause.

Stated slightly differently, on any analysis which supposes that a judge argument is *always* projected into the syntax, whether implicit or explicit, then there is no syntactic explanation for why a covert pronoun does not participate in the intervention effects. Syntactically, what's the difference between whether the judge is pronounced or not? Either way there's an element projected between the antecedent and the gap.

(2.116) Mary is [(to) $\boxed{x/\text{John}}$ important [to talk to e]]
??

In fact, this neatly explains the case when the judge-argument is preposed:

(2.117) To John, Mary is important ~~<to John>~~ to talk to *e*

If we assume that in this case, the judge scopes high in the clause, over the subject, then the grammaticality is explained on the assumption that both links in the antecedent-gap chain are evaluated relative to the judge.[39] No additional stipulation is needed about whether $\overline{\text{A}}$-traces are

[39]Note that this is a case of preposing, and not base-generation, given that the preposition still displays predicate specific realization, i.e., *to* vs. *for*.

inactive from Agree, etc. The grammaticality of prepositioning the judge follows from the idea that both links in the chain are in the judges attitude domain.

This is confirmed by observing that when we force the judge to scope below the subject, the intervention effects return.

(2.118) a. * To his$_i$ child, every father$_i$ is important to impress e

b. * To her$_i$ professor, no student$_i$ is inappropriate to talk to e.

Note that the problem isn't having the judge reconstruct for scope under the subject:

(2.119) To his$_i$ mother every child$_i$ is beautiful t

The problem with (2.118) is that there's an antecedent-gap chain.

The data in (2.118) are difficult to explain in a syntactic account. What prevents the intervention effect from applying to the copy of the moved element? The typical solution is to stipulate that $\overline{\text{A}}$-traces are "invisible" are some point during the derivation. Beyond the stipulation, this assumption runs into its own problems (see Chapter 1).

Notice finally that under the account proposed here, there is nothing wrong *syntactically* with forming an antecedent-gap chain across the judge. That is, however such a chain is formed (via predication or movement), the syntax can generate the structure (cf Torrego 2002). The problem comes when we try to interpret the result of this operation. ICU provides a principled and consistent way to avoid all the issues concerning cyclicity and activity noted in Chapter 1. That said, there are a number of remaining issues and questions, which I turn to next.

2.5.3 The importance of identifying yourself

The analysis I've proposed so far for the meaning of the *tough*-construction is naive, and the proposal as is should be viewed merely as a proof-of-concept. In this section, I'll expand on the semantics to incorporate a more comprehensive analysis of *tough*-predicates that adopts some important observations concerning predicates of personal taste.

As originally proposed in Gluckman (2016a), we expect to find that an overt 1st person judge

should not lead to intervention effects. So (2.120b) should be grammatical under ICU, because in the semantics worked out so far, there is no difference between an implicit and explicit first person judge; (2.120a) and (2.120b) are truth-conditionally equivalent in the semantic model laid out so far.

(2.120) a. This book is important to read *e*.

b. * This book is important to me to read *e*.

Responding to Gluckman (2016a), Keine and Poole (2017) argue that a constraint like ICU cannot be correct because it would predict that (2.120b) is grammatical. And they're right, if we continue to assume the naive semantics I've proposed above. But the fallacy here is the assumption that an overt judge and an implicit judge are semantically identical. As the literature on predicates of personal taste goes to lengths to explain, (2.120a) and (2.120b) do not mean the same thing. For instance, we can subjectively disagree with an implicit judge, but not with an explicit judge.

(2.121) a. Mary: How was the party?

b. Sam: It was fun.

c. Sue: Nuh-uh, it wasn't fun at all!

(2.122) a. Mary: How was the party?

b. Sam: It was fun for me

c. Sue: # Nuh-uh, it wasn't fun at all! (Stephenson, 2007:492)

Moreover, we see a difference when embedded under an attitude predicate. An overt judge is degraded when embedded under a co-referential attitude perspective (and the pronoun is read *de se*). An implicit judge, on the other hand, is fine—and in fact obligatorily shifts. (I return to this contrast in subsection 2.5.5.)

(2.123) a. * John$_i$ believes that the cake is tasty to him$_i$

b. * I believe that the cake is tasty to me.

(2.124) a. John believes that the cake is tasty.

b. I believe that that cake is tasty.

If there were no difference between the overt and implicit judges, we wouldn't expect a difference between (2.123a) and (2.124a).

Finally, Pearson (2013a) notes that (2.125a) is, intuitively, false, while (2.125b) might be true, under the assumption that the speaker speaks truthfully.

(2.125) a. Soapy dishwater is tasty.

b. Soapy dishwater is tasty to me. (Pearson, 2013a:136))

Pearson ascribes the difference to a mistake of, in her terms, 'Presupposition of Commonality.' (2.125a) is false because the speaker, in trying to speak generally, has over-reached in assuming that people share her taste. Under normal circumstances, there is no group of people that the speaker can identify with where soapy dishwater is tasty.

So how do we explain the difference? Well, it depends on the formalization we adopt, but the basic idea stems from the idea that predicates of personal taste statements are not made in a vacuum. They are part of a discourse. When the speaker says *This cake is tasty*, s/he is adding something to the discourse for an addressee to evaluate. Adopting terminology from Lasersohn's (2005) Kaplan-inspired account: predicates of personal may have identical *characters*, but different *contents*. The character (a function from contexts/indices to content) of *This cake is tasty*, is constant for each individual, but the content depends on who gets to evaluate *tasty*.

More formally, keeping with our assumptions above, *This cake is tasty* denotes a function from worlds to individuals to truth. This meaning is predicated of the actual world and, crucially, each participant in the discourse, so that it will potentially yield different truth values (or different contents) depending on who saturates the individual coordinate. Whereas the speaker commits himself to the belief that this cake is tasty, i.e., situates himself in such a world, the addressee may not in fact situate himself in a similar world. when s/he predicates the statement of himself. (This is one (among a few) analyses of faultless disagreement.)

For example, suppose the following discourse takes place. John asserts (2.126), and Bill disagrees (2.126b). That is, John adds (2.126c) to the discourse for Bill to evaluate.

(2.126) a. John: "Mary is important to talk to."

b. Bill: "No, she's not.

c. [$\lambda 1$ $\lambda 2$ Mary $\lambda 3$ is [(to) x_2 important-w_1 [to talk to y_3]]]

In (2.126), John successfully situates himself in a world in which talking to Mary is important. Bill, on the other, cannot similarly situate *himself* (i.e. Bill) in a world in which talking to Mary is important, and so disagrees. The judge is essentially a sloppy bound-variable. When (2.126c) is predicated of the speaker (and actual world), the speaker is the judge. When predicated of the addressee (and actual world), the addressee is the judge.

Now consider a hypothetical discourse in which there is an explicit pronoun.

(2.127) a. John: "Mary is important to me to talk to."

b. Bill: "No, she's not.

c. [$\lambda 1$ $\lambda 2$ Mary $\lambda 3$ is [(to) x_{John} important-w_1 [to talk to y_3]]]

With a sentence with an overt judge, the character *and the content* are fixed. The reference of the judge is like a strict bound-variable in that it always refers to John, even when the sentence is predicated of Bill in (2.127b). As a discourse participant, Bill needs to evaluate whether or not Mary has the property such that talking to John's version of her is important to *John*. But this is an ICU violation!

In effect, while it may be possible to utter *Mary is important to me to talk to*, it's not possible for anyone else to evaluate such an utterance without violating ICU. Since *me* will only ever refer to the speaker, and not the addressee, when the addressee evaluates this LF s/he will have to calculate the speaker's beliefs, and in so doing violate ICU.[40]

Note that the problem is not fixed by using a 1st person inclusive pronoun.[41] Suppose that *us* in (2.128) refers to the speaker and the addressee

[40]A similar reasoning would hold for questions. Assuming interrogative flip, if John asks *Is Mary important to you to talk to?* the addressee may be able to evaluate such an expression, but the speaker cannot without violating ICU.

[41]Thanks to Roumi Pancheva for bringing up this possibility.

(2.128) * Mary is important to us to talk to *e*.

Here, because *us* picks out two people, the speaker and the addressee, the speaker is forced to consider the addressee's version of Mary. And conversely, the addressee is forced to consider the speaker's version of Mary. These will both constitute ICU violations.[42]

The discussion above leaves open some pertinent questions regarding further noted meaningful differences between implicit and explicit judges with predicates of personal taste. Foremost, it's observed that the implicit judge isn't solely speaker-oriented, it is *generically* speaker oriented (Moltmann, 2006; Pearson, 2013a). *This cake is pretty* seems to assert something like "For the group of people who I associate with, this cake is considered tasty." If this is correct, then it suggests that even in the presence of an implicit judge, we are thinking about other people's beliefs, namely, those of a typical person.

I don't have a complete answer here, but one possible response is that we might think of such situations as the speaker associating with a "typical person," that is, a construct wholly invented by the speaker. The speaker knows everything about such a typical person — or least all the relevant things. In particular, the speaker knows what a typical person thinks. This would be in direct conflict with doxastic privacy, but I don't think that's a problem, considering that, again, there is no actual typical person to whom we attribute beliefs; there is only the individual (or set of individuals) that I postulate to represent "typicality."[43]

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[42]Dominique Sportiche and Tim Stowell point out another possible solution to the problem of the implicit judge vs. the explicit judge. They suggest that, since judges in general can prepose in front of the sentence, we might imagine that the grammaticality of the implicit judge comes from the implicit judge moving to a pre-sentential position.

(i) To me Mary is important <to me> to talk to *e*

(ii) (to) *x* Mary is important <(to) *x*> to talk to *e*.

The question that such a derivation raises is whether implicit arguments can move. In general, this isn't possible. For instance, the implicit subject in a passive isn't accessible to syntactic processes like $\overline{\text{A}}$-movement. Still, it may be that there are different "kinds" of implicit arguments, in which case ((ii)) is a possible derivation. It's not clear to me how to demonstrate empirically such a movement, so I leave this option open for future work.

[43]Another issue that Yael Sharvit points out to me is tense. Consider: *Mary was important to talk to e*. With a past tense, it's possible that I am mistaken about who I was in the past. This would be enough to instantiate an ICU violation. I do not have a solution for this scenario, but it's possible that, again, we might rely on the idea of a "typical" person. It's also possible that this could be covered by whatever accounts for exocentric readings. I must leave the issue open, unfortunately.

2.5.4 Exocentric readings

Another concern we should explore is that judge-dependent terms are known to have *exocentric* interpretations. It has been observed that predicates of personal taste can be given a reading which shifts the judging away from a first-person orientation.

(2.129) The cat food must be tasty (but of course, I wouldn't like it) (Pearson, 2013b:56).

The same is true for the *tough*-construction.

(2.130) a. It must be fun to play with that ball of string (but of course, I wouldn't like it).

b. It must be difficult to play that violin concerto (but I wouldn't know because I can't play violin).

Interestingly, exocentric interpretations are permitted in the *tough*-construction—even when there's an antecedent-gap chain.

(2.131) a. That ball of string must be fun to play with *e* (but of course, I wouldn't like it).

b. That violin concerto must be difficult to perform *e* (but I wouldn't know because I can't play violin).

At first blush, this may seem like a surprising result. Shouldn't these be ungrammatical due to the fact that the judge is now someone else, i.e., a cat and a violin player, respectively? The answer here is dependent on what exactly the "exocentric shift" is doing. Is it an attitudinal shift? Or is it something else? As predicted by ICU, if there is no attitudinal shift, then the chains are fine.

In fact, there is fairly clear evidence that the exocentric interpretation isn't arrived at by an attitude shift. Consider a scenario where we attribute a belief to the judge that differs from the speaker's belief, and then reason exocentrically.

(2.132) *My niece has just come to visit. She found my children's toys and is playing with them. However, she mistakenly thinks that the doll she's playing with is my son Adam's toy, when in fact it's my son Bill's.* [Motioning to Susie,]

a. It must be fun for Susie to play with Adam's toy

b. # It must be fun to play with Adam's toy

Granting an exocentric interpretation for (2.132b), the sentence sounds strange in this context. (2.132a) is fine, since in Susie's mind, the toy is indeed Adam's. But if (2.132b) did involve a real shift from the speaker's perspective to the reporters', then the two sentences should be interchangeable *ceteris paribus*. I repeat the contrasts in the following contexts and examples.

(2.133) *Every week, I always see a huge group of students outside of Prof. Smith's office. I've overheard them talking, and they all seem to have pressing business with her, but they are all also under the impression that her name is Mary, when it's actually Susan*. [Motioning to the students,]

a. It must be important to the students to talk to Mary.

b. # It must be important to talk to Mary

(2.134) *Mary and Susan just raced each other in the 100 yard dash. I was watching the race with my reporter friends, who let me know that they needed to interview Mary after the race. Just as the race was finishing, they all looked down at their phones, and so none of them saw who won! Nonetheless, they somehow got the impression that Mary was the winner, when in fact Susan won. After the race, the reporters went chasing after Mary to get their interview. Watching them run off, I remark,*

a. It must be important to the reporters to talk to the winner.

b. # It must be important to talk to the winner.

(2.135) *Aliens have landed on earth! In their brief time here, they've managed to pick up a bit of the English language and to become familiar with our culture. They have become fond of breakfast foods, but are a bit confused about what the different items are. For instance, they think that all gluten-based breakfast products, including scones, are muffins. Right now, in fact, they're trying to eat some scones, which they apparently find revolting.*

a. It must be disgusting to the aliens to eat muffins.

b. # It must be disgusting to eat muffins.

What this tells us is that the exocentric interpretation doesn't involve an attitudinal shift, and so exocentric interpretations do not affect the antecedent-gap chain created in the *tough*-construction, according to ICU.

Formally, I think it is still an open question how exocentric interpretations arise. Moltmann (2012:173) suggests that such readings arise when the speaker "project[s] himself onto a particular other person and make[s] adjustments to adopt the other person's point of view." But the data above suggests this isn't phrased quite right. I think a more appropriate description comes from Pearson, who posits that when we exocentrically shift, we are shifting an "empathic" perspective, rather than an "attitudinal" perspective. I can empathize with the point-of-view of a cat—but I don't adopt the cat's thoughts *as my own*.[44]

There is obviously a great deal more that should be said on this point. In truth, I don't know what distinguishes *empathy* and *attitude* perspectives, though there has been some interesting work on the topic in recent years (Sells, 1987; Kuno, 1987; Charnavel, 2010). Still, the definition of empathy is besides the point of the exocentric reading as needed here. I've shown above that this particular reading doesn't involve a belief shift, and so doesn't interact with ICU.

2.5.5 Embedding in attitude environments

Given the discussion about attitude shifts above, we might expect to find that recursively embedding a judge inside of an attitude domain might alleviate some of the issues. But in general, this does not conform with our judgments. The (b) examples below are just as bad as the (a) examples.

[44]Roumi Pancheva points out another possible solution. Anticipating a great deal of discussion later, as I illustrate in subsection 2.6.1, the *tough*-construction is an intensional island in that it isn't possible to evaluate (some) things in the lower in the actual world. It may be, though, that such intensional islandhood only appears in the presence of an explicit judge. We might hypothesize then that when the judge is implicit (whether there's been an exocentric shift or not), then the islandhood effects go away. Empirically, this would mean that since both links in the chain can be evaluated in the same worlds, there should be no ICU violation. However, I do not think this fits the facts. It seems to me that *de re* readings are still blocked for elements in the lower clause, whether there's an implicit or explicit judge.

(i) It's important to marry a plumber. ✗*de re* / ✓ *de dicto*

(ii) It's difficult to meet the president. ✗*de re* / ✓ *de dicto*

(2.136) a. * This book is important to John to read e.

b. * John$_i$ thinks that this book is important to him$_i$ to read *e*.

(2.137) a. * This book is fun to John to read *e*.

b. * John$_i$ believes that this book is fun to him$_i$ to read *e*.

(2.138) a. * The play was amusing to John to watch *e*.

b. * John$_i$ believes that the play was amusing to him$_i$ to watch.

The problem here, however, is independent of the *tough*-construction. In fact, even without a gap, embedding a judge under an attitude verb with the same attitude holder is generally bad, as (2.139) illustrate. This applies to all judges of subjective elements, (2.140).

(2.139) a. * John$_i$ believes that it's inappropriate to him$_i$ to read this book.

b. * John$_i$ thinks it is important to him$_i$ to read this book.

(2.140) a. * John$_i$ believes Mary is pretty to him$_i$

b. * John$_i$ believes this cake is tasty to him$_i$

There seems to be a general constraint on embedding an attitude center under the same attitude center, i.e., recursive attitude holders.[45] As support for this general principle, consider the strangeness of (2.141), with *he* read *de se*.

(2.141) a. # John$_i$ believes that he$_i$ thinks that Mary is smart.

b. # John$_i$ thinks that he$_i$ believes that Mary is smart.

c. # Mary$_i$ imagined that she$_i$ wanted a cupcake.

This leads us to the general constraint in (2.142).

(2.142) *Constraint on embedded attitude holders*

An overt embedded attitude holder cannot be interpreted *de se*.

[45]This is similar to, but slightly distinct from Charnavel and Mateu's (2015) constraint on *antilogophoricity*. The difference is that C&M are concerned with embedding different kinds of perspectival centers, while I am concerned with embedding identical attitude holders.

Note that (2.142) only concerns *overt* attitude holders, thus PRO (and *pro*) are not subject to the constraint.

Turning back to embedded judges of subjective predicates, since the judge is an attitude holder, then it cannot be in the attitudinal domain of a co-referential attitude holder. Note that when *him* has reference other than *John* in (2.139a), the sentence is fine. Moreover, if *him* is read non-*de se*, it's also fine. This is precisely as we expect. But in no case will (2.136b) be salvageable. If him is read *de se*, then the ban on recursive attitude holders will apply. And if him is read non-*de se*, then ICU will rule out the sentence, since John will be considering the alternatives of someone other than himself.

As a broad generalization (2.142) seems correct, but it also isn't fine-grained enough. Some recursive attitude holders are acceptable.

(2.143) a. John$_i$ believes he$_i$'s knows who the killer is.

b. John$_i$ thinks he$_i$ needs to find a plumber.

This suggests that the type of modality involved in the lower clause matters, too, something along the lines of, "recursive identical modal bases are not allowed." Whatever the final version of (2.142) turns out to be, it's sufficient here that judges of predicates of personal taste falls under this generalization: they cannot be recursively embedded, ruling out cases like (2.136b).

2.5.6 The *de se* addendum

A final problem for ICU concerns PRO. Consider,

(2.144) John wants PRO to leave

This should be an ICU violation: *John* is evaluated in the actual world, but PRO is obligatorily *de se*, i.e., evaluated in John's belief worlds (Chierchia, 1990). Why isn't this ungrammatical?

We are forced to add an addendum to ICU.

(2.145) *The de se addendum*

If the antecedent has a *de se* belief about the gap, ICU is lifted.

The intuition behind the *de se* addendum is that we "trust" other people to be able to identify themselves in their own belief worlds. Recall the initial motivation behind ICU: in **Mary is important to John to talk to <Mary>*, we don't agree on who Mary is. I have a version, and you have a version, and those versions might be different, for all the speaker knows.

But if I say *John wants to leave*, I'm attributing to John a belief *about himself*. The *de se* addendum proposes that it doesn't matter if I don't know who you take yourself to be; I simply trust that you have some idea about it.

It is unfortunate that such a stipulation is required — but it is not surprising. PRO has always been a problem, both syntactically and semantically. The fact that it requires an extra clause for ICU is perfectly consistent with our knowledge of PRO and control. With a more detailed understanding of PRO's syntax and semantics, I am hopeful that the *de se* addendum can be derived from independent principles.

2.6 When do attitude holders intervene?

The above discussion has shown that defective intervention occurs when there is an attitude holder intervening between an antecedent and a gap. However, while having an intervening attitude holder is a *necessary* condition for defective intervention, it isn't a *sufficient* condition. Even within English, attitude holders don't always lead to defective intervention.

(2.146) Mary seems to John <Mary> to be asleep.

We still need a way to differentiate between "failed" and "successful" interveners. This is a problem for English, as it is for cross-linguistic parameterization. As we've seen in chapter 1 and section 2.2, some languages ban the (apparent) equivalent to (2.146).

(2.147) a. *Icelandic subject-to-subject raising*

Ólafur hefur virst (*mér) [*t* vera gáfaður]
Olaf.NOM has seemed me.DAT to.be intelligent
'I have found Olaf intelligent.' (Holmberg and Hróarsdóttir, 2003:154)

b. *Spanish subject-to-subject raising*

Este taxista (*me) parece [*t* estar cansado]
this taxi.driver me.DAT seem.PRES to.be tired

'This taxi driver seems (to me) to be tired.' (Torrego, 1996:106)

c. *French subject-to-subject raising*

Jean semble (*à Marie) avoir du talent
Jean seem.PRES to Marie to.have of.the talent

'Jean seems to Marie to have talent.' (McGinnis, 1998b:149)

d. *Italian subject-to-subject raising*

Gianni sembra (*a Piero) fare il suo dovere
Gianni seem.PRES to Piero to.do the his duty

'Gianni seems to Piero to do his duty.' (McGinnis, 1998b:151)

What differentiates Icelandic et al from English with respect to subject-to-subject raising? And what differentiates the *tough*-construction from subject-to-subject raising in English?

In the next sections, I will look more closely at the places where defective-intervention arises, concluding that they are found in contexts of *intensional islandhood*. By this I mean that each link in the chain is obligatorily evaluated with respect to its local world binder. For instance, it arises in the *tough*-construction because the gap is obligatorily evaluated *de dicto*, and the subject is obligatorily evaluated *de re*. This is what differentiates *tough* from *seem* in English. For the latter, the links in the chain are not similarly locally bounded.

Intensional islandhood is found in all the core cases of defective intervention. For the intervention in Romance, I adopt a fairly widely held *lexical ambiguity* hypothesis concerning raising verbs: Raising verbs in Romance languages are ambiguous between raising and control predicates (Torrego, 1996; Baschung, 1998; Ausín and Depiante, 2000; Cuervo, 2003a; Haegeman, 2006; Pujalte and Saab, 2011). When they're raising verbs, no intervention effects are found, but when they're control verbs, then intervention effects re-surface. Importantly, control structures involve intensional islandhood in that PRO is obligatorily *de se* (Chierchia, 1990), and the controller or PRO cannot be bound by the same world binder. This is precisely the configuration where ICU is expected to apply — and it does, deriving defective intervention in Spanish, French, and Italian.

The analysis of Icelandic will be more superficial. I do not have the relevant semantic facts for the language in order to conclude whether ICU is indeed a factor in defective intervention. However, I will sketch an analysis by analogy to English Raising-to-Object/ECM, which is also known to display the same "clause-boundedness" (Chierchia, 1990; Lasnik, 2001).

Finally, I will bookend this chapter by asserting another generalization concerning defective intervention:

(2.148) *Defective Intervention Generalization II (DIG II)*

Defective intervention is found in chains in which the antecedent and the gap are thematically associated with two different predicates.

DIG II observes that only chains which appear to have this dual theta-role property can have defective interveners. As we review the other cases of defective intervention, I believe that DIG II will come into focus: The *tough*-construction is well-known to display this mixed-chain property. Similarly control structures instantiates precisely this configuration, where the subject is thematically associated with the higher clause controls a PRO subject thematically associated with the lower clause. Raising-to-Object/ECM also famously bears this property as well. In such chains, when there is an attitudinal intervention, defective intervention occurs. I will leave speculation as to the reason for DIG II until chapter 3.

2.6.1 *Tough* is an intensional island

Empirically, the relevant generalization is given in (2.149).

(2.149) Tough-*islandhood generalization*

The *tough*-construction is an intensional island.

(2.149) is true in two sense: Elements inside of the infinitival clause resist being interpreted outside of it, that is, in the actual world, and elements outside of the infinitival clause resist being interpreted (back) inside of it. Thus, the *tough*-constuction (and related *tough*-predicates) force each link of the chain to be interpreted in its local domain. We can't simply evaluate one single link of

the chain, say the top copy, rather we have to evaluate all of them, and make sure they're actually the same thing.

Compare for instance (2.150a) and (2.150b).

(2.150) a. John wants to marry a plumber. ✓*de re*, ✓*de dicto*

b. It's important to John to marry a plumber ✗*de re*, ✓*de dicto*

In (2.150a) we observe that classic *de re/de dicto* ambiguity. *A plumber* can be read *de re*, in which case we are talking about a particular person, and it's not necessary that John knows that this person is in fact a plumber. And then *a plumber* can be read *de dicto*, in which case John's desire is to marry someone — anyone — whose profession is that of a plumber.

The same ambiguity is not found in (2.150b). In particular, while the *de dicto* reading is perfectly acceptable, we cannot understand *the plumber* to refer to a particular individual in the actual world. I repeat the contrasts in (2.151) and (2.152).

(2.151) a. Yesterday, John wanted to talk to a clown. ✓*de re*, ✓*de dicto*

b. Yesterday, it was fun for John to talk to a clown. ✗*de re*, ✓*de dicto*

(2.152) a. John wanted to meet a policeman. ✓*de re*, ✓*de dicto*

b. Yesterday, it was surprising to John to meet a policeman. ✓*de re*, ✓*de dicto*

The point is, the *tough*-construction is an intensional island — at least when it comes to the arguments of the infinitive. They must be evaluated in the modal worlds. A more complex example is presented in (2.153) showing the same thing with a definite description.

(2.153) *John has just woken up from a coma. He thinks Hillary Clinton has won the presidency, and Donald Trump is just a real estate magnate in NYC. John has some pressing business and so needs his assistant to make an appointment with Donald Trump.*

a. It's important to John for his secretary to make an appointment with Donald Trump.

b. # It's important to John for his secretary to make an appointment with the president.

Inside of the infinitival clause, we cannot describe Donald Trump in a way that John doesn't know him, i.e., how he is in the actual world. Note that we can readily attribute to John a false belief, thus it's not the case that we must interpret *the president* extensionally.

(2.154) *John has just woken up from a coma. He thinks Hillary Clinton has won the presidency, and Donald Trump is just a real estate magnate in NYC. John has some pressing business at the White House, and so needs his assistant to make an appointment with Hillary Clinton.*

a. It's important to John for his secretary to make an appointment with Hillary Clinton.

b. It's important to John for his secretary to make an appointment with the president.

I repeat the contrasts in (3.14a) and (2.156).

(2.155) *John works for the local newspaper, and was given his first major assignment — interviewing the Democratic candidate for mayor. He knows that her name is Mary, but he's completely unaware that they live next to each other!*

a. It's important to John to interview Mary.

b. # It's important to John to interview his neighbor.

(2.156) *At a party, Mary ran into her neighbor and co-coworker Bill. Unbeknownst to Mary, Bill just received a promotion and is now Mary's boss.*

a. It was surprising to Mary to see her neighbor at the party.

b. # It was surprising to Mary to see her boss at the party.

Conversely, a referential subject cannot be interpreted at the gap site (cf Poole et al. 2017). Consider an expanded context of (2.153). (Note that a minimal pair with (2.153) is not possible as it would require crossing a judge. I've included an intensional verb in the infinitival clause to fix this issue.)[46]

[46]There is a minor complication here due to the fact that there is sometimes an additional level of modal quantification associated with a generic operator in the main clause. The subject can scope under this generic operator, and so

(2.157) *John has just woken up from a coma. He thinks Hillary Clinton has won the presidency, and Donald Trump is just a real estate magnate in NYC. John has some pressing business at the White House, and so needs to make an appointment with the president.*

a. Donald Trump is important for John to try to make an appointment with *e*.

b. # Hillary Clinton is important for John to try to make an appointment with *e*

Again, I repeat the contrasts in (2.158) and (2.159).

(2.158) *John works for the local newspaper, and was given his first major assignment — interviewing the Democratic candidate for mayor. He knows that her name is Mary, and that they're neighbors, but he mistakenly thinks that Mary lives on his right, when in fact she lives on his left.*

a. # It is important to John to try to interview the neighbor on his left.

b. It is important to John to try to interview the neighbor on his right.

c. The neighbor on his left is important for John to try to interview to *e*.

d. # The neighbor on his right is important for John to try to interview to *e*.

(2.159) *Mary has been given an assignment to follow a spy. Having observed the spy from a distance, she is under the impression that the spy is Russian, when in fact he's French.*

a. # It's important to Mary to follow the French spy.

b. It's important to Mary to follow the Russian spy.

c. The French spy is important for Mary to look for *e*.

d. # The Russian spy is important for Mary to look for *e*.

What these facts suggest is that the antecedent-gap chain formed in the *tough*-construction requires both links in the chain to be interpreted in their respective clauses. As schematized in (2.160), in the *tough*-construction, the subject is evaluated relative to its local world abstraction, and the gap is evaluated relative to *its* local world abstraction.

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there is a *de dicto* reading. However, this reading is *de dicto* relative to the speaker, not the judge. That is, elements in the lower clause in (2.157) can be understood *de dicto* relative to the speaker's beliefs, but not relative to John's beliefs.

(2.160) $\lambda w \ldots \text{DP}(w) \ldots [\ \lambda w' \ldots\ e_{DP}(w')\ ]$

This is why we detect ICU in the *tough*-construction. All the links of the chain must be interpreted independently, then they must be "matched" later.

And again, this is precisely where the *tough*-construction and "normal" antecedent-gap chains differ. With embedding under an attitude verb, it is an empirical fact that elements inside of the clause can take "scope" out of the lower clause (however this is modeled), and elements can reconstruct back into it if they've been displaced out.[47]

(2.161) a. John needs to interview his neighbor. ✓ neighbor > need, ✓ need > neighbor

b. Which neighbor does John need to interview?
✓ neighbor > need, ✓ need > neighbor

The facts about where we are permitted to evaluate the intension of a syntactic object in the *tough*-construction conform with what has been reported for quantificational scope (Postal, 1974; Epstein, 1989; Fleisher, 2013).

(2.162) a. Many students are easy to teach *e*.
≠ It's easy to teach many students.

b. Few books are difficult to read *e*.
≠ It's difficult to read few books

And again, compare this with simple *wh*-extraction, where the lower reading is acceptable (and in fact, required).

(2.163) How many books is it difficult to read *t*?

a. *can mean* : What is the number of books such that it is difficult to read that number.

[47] Indeed, normal $\overline{\text{A}}$-movement out of the lower clause is also perfectly acceptable, given that we can reconstruct back inside of the clause.

(i) Which neighbor is it important to John to interview <which neighbor>?
✓ important > neighbor, * neighbor > important

b. *cannot mean* : What is the number of books such that each of these books is difficult to read.

The scope facts can plausibly be explained by appealing to the fact that there is clausal boundary above any quantifiers in the non-finite clause. But this isn't generally a problem for *de re* readings, which can easily "escape" clausal boundaries. As yet, it's not entirely clear why *de re* readings are blocked in these contexts, though I will suggest a reason later. Still, it is sufficient for the present purposes simply to observe that ICU violations arise in this configuration because we must evaluate both links in the chain.

2.6.2 Raising in Spanish

Looking beyond the *tough*-construction, it's helpful to start the discussion with Spanish, where the facts are clearest, before coming back to English. Recall that in Spanish, subject-raising across *parecer* is possible, but not if there is an overt experiencer, either a clitic or a DP (Torrego, 1996; McGinnis, 1998b; Haegeman, 2006).[48]

(2.164) a. Este taxista (*me) parece [*t* estar cansado]
this taxi.driver me.DAT seem.PRES to.be tired
'This taxi driver seems (to me) to be tired.' (Torrego, 1996)

Now, one explanation is simply that dative elements are generally interveners. This account fails on empirical grounds. As we've already seen, an antecedent-gap chain across *some* dative clitics is perfectly acceptable for some speakers (who also do not permit raising across interveners).

(2.165) a. Los libros le fueron entregado <los libros>
the books her.DAT were.PL given
'She was given the books.' (Řezáč, 2008:86)

b. Un juguete les gustó (a los ninõs) <un juguete>
a toy them.DAT liked (to the children)
'The children liked a toy.' adapted from (Torrego, 2002)

[48]Lexical experiencers are obligatorily clitic-doubled, a fact I put aside here.

c. Juan me gusta [*t* con traje]
Juan me.DAT like.PRES with suit
'I like Juan in a suit.' (Ausín and Depiante, 2000:21)

To explain these facts, (Torrego, 1996; Ausín and Depiante, 2000; Torrego, 2002; Cuervo, 2003a) show that *parecer* alone and *parecer*+experiencer are functionally different verbs. They illustrate the difference using a number of different diagnostics. For instance, only *parecer* can be in the preterite tense when an experiencer is present.

(2.166) a. Parece/parecia que Juan estaba malo
seems.PRES/seems.IMP that Juan was sick.
'It seems that John was sick.'

b. * Parecio que Juan estaba malo
seem.PRET that Juan was sick.

c. Nos parecio que Juan estaba malo
us seem.PRET that Juan was sick
'It seems to us that Juan was sick.' (Torrego, 1996:102)

Moreover, only *parecer* alone permits subjunctive mood in the lower clause.

(2.167) a. Parece que lloviera
seem.PRES that rain.SUBJ
'It seems that it rained.'

b. * Me parece que lloviera
me seem.PRES that rain.SUBJ
'It seems to me that it rained.' (Torrego, 1996:102)

Crucially, with an explicit experiencer, *parecer* can act like a control verb. In (2.168) the controller of PRO is a dative clitic, which doesn't trigger agreement on the verb.[49]

(2.168) a. Le parece [PRO haber resuelto todas las dificultades]
her.DAT seems PRO to.have solved all the difficulties
'It seems to her that she has solved all the difficulties' (Torrego, 1996:113)

[49]Haegeman (2006) observes that intervention effects are also found with clitic-climbing in raising-to-subject as well. This is, again, consistent with what we expect under ICU.

b. A Emilio le parece [PRO haber jugado bien]
to Emilio him.DAT seem.PRES PRO to.have played well
'Emilio seems to himself to have played well.' (Cuervo, 2003a:8)

Thus, we see a need to differentiate the *parecer* with and without an experiencer. Torrego (1996); Ausín and Depiante (2000); Cuervo (2003a) come to the same conclusion: There are two distinct verbs *parecer*. The raising verb does not occur with an experiencer, and the experiencer verb is a control verb (when it occurs with a non-finite clause). When *parecer* is a raising verb, then it patterns like English: there is no intervention, simply because there is no experiencer.[50]

Now, when we turn to "canonical" control verbs in Spanish, we find that identical intervention effects arise (Pujalte and Saab, 2011).

(2.169) a. Juan afirma trabajar mucho
Juan claim.PRES to.work a.lot
'Juan claims to work a lot.'

b. * Juan me afirma trabajar mucho
Juan me claim.PRES to.work a.lot
'*Juan claims to me to work a lot.'

c. Juan me afirma que trabaja mucho
Juan me claim.PRES that work.PRES a.lot
'Juan claims to me that he works a lot.'

(Pujalte and Saab, 2011:ex (7)) (glosses my own)

The defective intervention facts in Spanish are now categorized as intervention in *control* structures, rather than raising structures. There are of course a number of different analyses for intervention in control (cf Landau 2013). We could simply postulate that the putative examples of defective intervention in Spanish raising are simply Minimal Link Condition (MLC) (or equivalent) violations, in that there's a closer controller of PRO.

However, there are some reasons to believe that this is not enough. Most notably, it actually predicts the Spanish sentences to be *grammatical*, though with a different meaning, namely, with

[50]Torrego assumes that the difference between *parecer* and *parecer*+experiencer is that the former is an (epistemic) *modal* element. This is possible as well; indeed we might make a similar claim about *seem* in English (cf Pearson 2013b).

the dative intervener construed as the subject of the non-finite verb. So in the presence of *me*, (2.164a) should have a meaning like "This taxi driver seems to me like I'm tired."[51] That is, typically the result of "intervention" in control structures is *control shift*, where the lower argument controls PRO. But this isn't what we observed in Spanish — or in fact in English, with a certain class of control verbs.

(2.170) a. John {claimed, confessed, admitted, . . . } to like/liking sushi.

b. * John {claimed, confessed, admitted, . . . } to me to like/liking sushi.

c. John {claimed, confessed, admitted, . . . } to me that he likes sushi.

Notice that and (2.169b) and (2.170b) are cases of defective intervention. The antecedent-gap chain connecting the subject and PRO is blocked by something that cannot itself enter into the came dependency, the dative element. This argument cannot not control PRO in the lower clause (whether by leaving out the higher subject or by control "shift").[52]

(2.171) * Me afirma trabajar mucho
me.DAT claim.PRES to.work a.lot
[Intended: 'I claim to work a lot.']

(2.172) a. * It's claimed to me to like/liking sushi

b. * It's confessed to John to like/liking sushi.

c. * It's admitted to John to like/liking sushi.

Thus, the infelicity of (2.169b) and (2.170b) does not follow directly from the MLC, without further stipulation — see in particular the account in (Pujalte and Saab, 2011), who invoke an analysis that relies on articulated features and additional projections. And this recapitulates the stipulativity of accounts of defective intervention to begin with, as discussed in chapter 1.

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[51] Of course, there may be pragmatic reasons to rule out such an example. But even in a context where, say, the taxi-driver is driving is being quite attentive because he observes that I'm feeling sleepy, (2.164a) is still out.

[52] Notice also that $\overline{\text{A}}$-moving the intervener out of the way restores grammaticality.

(i) To me, John claimed/confessed/admitted <to me> to like/liking sushi.

(ii) To whom did John claim/confess/admit <to who> to like/liking sushi.

This is consistent with the overall pattern of defective intervention observed earlier.

However, this might be something of a straw-man. I believe that it is fairly well established that semantics plays some non-trivial factor in determining how control of PRO is established (Grano, 2012; Landau, 2013), and so I don't think an account based purely on the MLC would be viable in any case. It will not be possible for me to give a detailed account of intervention effects in control structures here. But I do think it's worth exploring whether ICU can be extended to the cases of defective intervention in control. I believe they shed some light on what's going on.

Observe first that the introduced datives in (2.170c) are attitudinal. If John claims/confesses/ admits to me that he likes sushi, then I have a belief about whether or not John likes sushi. Thus, these are attitude holders. In this case, the attitude shift created by the dative creates two distinct attitude domains: the beliefs of the dative inside of the non-finite clause, and then the beliefs of the speaker. Since the antecedent-gap chain for control is not created by movement, each link in the chain is evaluated in its local intensional domain; PRO is a locally bound element (it's a *de se* element), and the antecedent can only be bound in the actual world. This is precisely the configuration where we expect ICU to be invoked: the links in the antecedent-gap chain must be evaluated in different intensional domains.[53]

One piece of data that such an account handles easily is that if we get rid of the lower clause, that is, get rid of the obligatorily *de se* PRO, then raising across an experiencer should be fine. This prediction is borne out in Spanish, as raising out of a small clause is perfectly natural across an experiencer.[54]

(2.173) Este chico me parece *t* inteligente
this boy me.DAT seem.PRES *t* intelligent
'This boy appears to be intelligent.' (Ausín and Depiante, 2000)

This is entirely unpredicted on an account that posits the ungrammaticality to stem from some "defectiveness" of the intervener. The clitic element is, syntactically, identical in the ungrammati-

[53]We might be concerned that this falls under the *de se* addendum, but it doesn't. The antecedent for the gap is not the attitude holder.

[54]Ausín and Depiante (2000) further observe that raising out of a Small Clause is only possible with individual level predicates, not stage level predicates. There appears to be a general constraint that only individual predicates are possible in small clauses in Spanish (Torrego, 2002).

cal (2.164a) as it is in (2.173). The data follow if the problem is the *interpretation* rather than the *syntax*.[55]

There is another prediction that the above account suggests, though the results are more problematic: subject control across a lower argument should only be possible when the lower argument is not an attitude holder.

(2.174) a. John$_i$ asked Mary PRO$_i$ to leave.

b. John$_i$ begged Mary PRO$_i$ to leave.

c. John$_i$ promised Mary PRO$_i$ to leave.

In general this prediction is borne out. When used as subject control verbs, *ask* and *beg* do not attribute beliefs to the dative element, i.e., Mary in (2.174). The perennial problem with control is *promise* (and also *threaten*), which I think does involve attribution of a belief to Mary in (2.174c). This of course simply suggests that control of PRO involves a complex algorithm — an obvious understatement. To truly test this prediction, we would need to undertake a more thorough investigation of the correlation between control shift and attitude attribution. I leave this for future work.

2.6.3 Raising in English

Seen in the light of the Spanish facts, the lack of intervention in English makes more sense: *seem*(+Experiencer) is never a control verb. Raising predicates, whether they appear with an experiencer or not, have properties characteristic of a modal or evidential category. For instance, they are aren't compatible with perfect or progressive aspect, nor are they compatible with embedding in modal-resistant clauses, like under deontic modals (Torrego, 1996; Haegeman, 2006).[56]

[55]Another benefit of the analysis is that we can easily model the noted variation with respect to intervention in Spanish raising to subject. For Moreno and Petersen (2016) and the speakers they consult, raising across an experiencer in Spanish is perfectly acceptable. This makes sense if we imagine that these Spanish speakers may have acquired a more English-like *parecer*. That is, for these speakers, *parecer* isn't (always) a Control verb. Still, this idea is consistent with any account that assumes a lexical ambiguity hypothesis for *parecer*. Any analysis that supposes that *parecer* is ambiguous can model the inter-speaker variation in the same way.

[56]Note that the same facts hold for *strike, appear,* and *likely*.

(2.175) a. * Mary has seemed to be asleep.

b. * Mary is seeming to be asleep.

c. ?? Mary has to seem to be asleep.

More importantly, unlike in Spanish, an experiencer argument of a raising predicate cannot control PRO in the nonfinite clause.

(2.176) * It $\left\{ \begin{array}{c} \text{seems} \\ \text{is likely} \\ \text{appears} \end{array} \right\}$ to John$_i$ PRO$_i$ to be asleep

Thus, we do not expect ICU to apply here, since there is no element like PRO that is obligatorily *de se*.

2.6.4 Raising in Italian and French

Italian and French are bit more complex. Generally, subject-to-subject raising across a *clitic* experiencer is acceptable, but across a *lexical* (i.e., non-clitic) experiencer it is not.

(2.177) a. * Gianni sembra a Maria essere stanco
Gianni seems.PRES to Maria to.be tired
'Gianni seems to Maria to be tired.'

b. Gianni gli sembra essere stanco
Gianni him.DAT seems.PRES to.be tired
'Gianni seems to him to be tired.'

(2.178) a. * Ce conducteur semble á Jean être fatigué
this conductor seem.PRES to Jean to.be tired
'This conductor seems Jean to be tired.'

(i) Mary strikes Bill as being smart.

(ii) *Mary has struck Bill as being smart.

(iii) *Mary is striking Bill as being smart.

(iv) ??Mary has to strike Bill as being smart.

(v) ??I regret that John strikes Bill as being smart.

b. Ce conducteur me semble être fatigué
this conductor me.DAT seem.PRES to.be tired
'This conductor seems to me to be tired.' (Torrego, 2002:253)

However, the same analysis given for Spanish will extend to both of these languages. In short, raising verbs in Italian and French are also ambiguous between raising and control structures.

In Italian, Rizzi (1982:34) observes that *sembrare*, 'to seem' has both control and restructuring [=raising] uses, and these correlate with the kind of complementizer chosen for the non-finite clause. (See also Kayne 1984:ch 5.) In general, if *di* is present, then the sentence involves a control structure, with *di* the head of the clause containing PRO.

(2.179) a. Mi sembrava (di) essere molto stanco
me.DAT seemed of to.be very tired
'It seemed to me$_i$ PRO$_i$ to be very tired.'
≈ 'I thought I was very tired.'

b. A Vicki sembra (di) avere giocato bene
to Vicki seems of to.have played well
'Vicki seems (to herself) to have played well.
≈ 'Vicki thought she played well.' (Cuervo, 2003a:8)

However, *di* is typically optional. When the experiencer appears in front of *sembrare*, *di* can be pronounced or not, with no obvious change in meaning. This is true whether the experiencer is a clitic or a prepositional phrase. However, if the prepositional phrase appears after *sembrare*, then *di* is not optional. (The clitic is not permitted in this position.)

(2.180) a. Sembra a Maria *(di) avere giocato bene
seems to Maria of to.have played well
'Mary thinks she played well. (Iara Mantenudo, p.c.)

b. * Sembra mi (di) avere giocato bene
seems me.DAT of to.have played well

Because *di* is an indicator of a control structure, and *di* is obligatory in the presence of a lexical experiencer, then the intervention effects here are explained on analogy with Spanish: Whatever accounts for intervention in control extends to these contexts as well.

Things are fairly straightforward when there's a clitic. Here, if *di* is present, then raising is ruled out. Without *di*, the antecedent-gap chain is acceptable.

(2.181) a. * Gianni mi sembra di avere giocato bene
Gianni me.DAT seems of to.have played well

b. Gianni me sembra avere giocato bene
Gianni me.DAT seem.PRES to.have played well.
'Gianni seems to me to have played well.' (Iara Mantenudo, p.c.)

Assuming again that *di* indicates the presence of a clausal layer, and that this clausal layer indicates a control structure, then the facts are consistent again with the idea that *sembrare* is ambiguous between a raising and a control verb. When it's raising, it looks just like English raising (no intervention). When it's control, it also looks just like English control (intervention). Italian differs from Spanish simply in the fact that a a "true" raising verb can have an experiencer in Italian, while in Spanish, it cannot.

The French data are a bit more complex because, unlike in Italian, there is no clear indicator of a control structure. Indeed, the facts for French are particularly murky for other reasons as well: There appears to be a not-insignificant amount of speaker variation as to whether (2.178a) actually is ungrammatical, as noted in (Hartman, 2011:fn 4). Rouveret and Vergnaud (1980) in fact cite the following example as grammatical.

(2.182) Paul semble à Marie avoir résolu toutes les difficultés
Paul seem.PRES to Marie to.have solved all the difficulties
'Paul seems to Marie to have solved all the difficulties.'

As before, let's assume that for those speakers who find such examples grammatical, they have acquired an "English-like" *sembler*. However, for many speakers *sembler* is also ambiguous between a control and raising structure (Baschung, 1991, 1998). This ambiguity appears to always be true in the presence of a clitic, and more restricted in the presence of the lexical experiencer.

(2.183) a. Il semble à Jean y être allé déjà
it seem.PRES to Jean there to.be gone already
'It seems to John (that he) has gone there already.'

b. Il me semble y être allé déjà
it me.DAR seem there to.be gone already
'It seems to me (that I) have gone there already.

(Kayne, 1984:ch 5 fn 7, citing (Gross, 1968))

c. Il semble à Marie devoir démissioner
it seem.PRES to Marie should to.resign
It seems to Mary (that she) should resign.'

d. Il me semble devoir démissioner
it me.DAT seem.PRES should to.resign
'It seems to me (that I) should resign.' (Baschung, 1998:18)

However, such constructions are not always possible. In the presence of a lexical experiencer, certain infinitival clauses are banned.

(2.184) * Il semble à Pierre avoir résolu toutes les difficultés
it seem.PRES to Pierre to.have solved all the difficulties

(Torrego, 2002:260)

The way I propose to understand these facts is that *sembler* is ambiguous between a raising verb and a psych-verb. When it's a psych-verb, *sembler* has the meaning closer to "feel." So (2.183a) and (2.184) are closer in meaning to the English examples in (2.185).

(2.185) a. John feels like he's been there before. = (2.183a)

b. ?? John feels like he's solved all the problems. = (2.184)

Just like in English, there are (mysterious) restrictions on what sort of clause is acceptable after *feel*. (2.185b) is worse that (2.185a).[57] Importantly, in French, the psych-verb use is *always* present when there's a lexical experiencer. This reading is available in the presence of a clitic as well. So (2.183b) and (2.183d have the meanings "I feel like I've been there before" and "I feel like I should resign," respectively.

[57]It seems to me that the infinitive must be "modal" in some way, though this is merely an intuition. This may be related to the fact that certain verbs like *find* only embed subjective elements (Sæbø, 2009; Kennedy, 2012).

Crucially though, with the clitic, *sembler* doesn't *have* to have this meaning. *Sembler*+clitic can have the psych-verb reading, or it can simply have the epistemic reading, i.e., the reading that is obligatory when there's no experiencer at all.

(2.186) a. Il me semble que Jean est malade
it me.DAT seem.PRES that Jean is sick
psych-verb : 'I feel like John is sick.'
epistemic verb : 'It seems to me that John is sick.'

Thus, we might postulate that French is like Italian: when there's a lexical experiencer, *sembler* is a psych-verb and thus a control verb, and so raising is ruled out on independent grounds. When there's a clitic, raising is possible, as long as *sembler* is not a psych-verb. The prediction is that when there's raising, *sembler* cannot have the psych-verb meaning.

(2.187) Jean me semble être malade
Jean me.DAT seem.PRES to.be sick
psych-verb : *'Jean feels to me to be sick.'
epistemic verb : 'Jean seems to me to be sick.'

A further prediction made with respect to raising in French is that non-referential subjects should be able to raise out of the lower clause. This prediction is borne out.[58]

(2.188) a. Il semble au général être arrivé deux soldats en ville.
there seems to.the general to.be arrived two soldiers in town.
'There seem to the general to have arrived two soldiers in town.'

b. Il semble au général y avoir deux soldats manquants à la caserne
there seems to.the general to.have two soldiers missing at the barracks
'There seem to the general to be two soldiers missing from the barracks.'

(Preminger, 2011:135)/(Boškovič, 2007:603)

[58]Boškovič (2007); Preminger (2014) takes such examples to indicate that the subject can remain post-verbally *in situ.* This isn't quite correct, since not all post-verbal elements can stay low. The data are more compatible with the observation that *il* has raised to subject position. Note that this is difficult to test in Spanish/Italian due to their null expletive subjects.

The reason these are fine is that ICU only cares about referential things. Since expletive subjects are non-referential, they are not constrained by ICU.[59]

Summing up the Romance facts: defective intervention correlates with whether the main-clause predicate is a control predicate. When it's a "true" raising verb, then all the languages simply look like English raising: there is no intervention. And when the main-clause predicate acts as a control predicate, then all the languages also look just like English: there's intervention. The variation comes in a) whether the canonical raising verb also functions as a control verb, and b) what "triggers" the variation, i.e., the type of experiencer argument. A summary of the Romance facts is provided in Table 2.1.

	Spanish	**Italian**	**French**
verb	raising	raising	raising
verb+complementizer	NA	control	NA
verb+lexical exp	control	control	control
verb+clitic	control	raising	raising

Table 2.1: Distribution of raising and control with "*seem*" across three Romance languages

As illustrated above, the defective intervention facts can be subsumed by some theory of intervention in control structures — but the results do not come for free. Stipulations are necessary because even in control structures, we find defective intervention, i.e., cases where the intervener does not control PRO in the lower clause. Importantly, these facts were shown to be consistent with the observation that defective intervention arises in syntactic chains in which the antecedent and the gap are both intensionally clause-bound. In these cases, when there is an attitude shift between the subject and the gap, then ICU is violated.

[59] Although there might be other constraints on expletives. See the discussion of expletive-chains in the *tough*-construction in chapter 3.

2.6.5 Raising-to-Object/ECM

As I documented in Chapter 1, Hartman (2011) identifies a number of other constructions that qualify as instances of defective intervention. Raising-to-Object/ECM is one such configuration.[60] It isn't possible to express the RtoO/ECM'ed object in front of a dative argument.[61]

(2.189) a. I declared (to the audience) that the competition was over.

b. * I declared the competition to the audience to be over.

(2.190) a. Mary demonstrated (to Bill) that the hypothesis was false.

b. * Mary demonstrated the hypothesis to Bill to be false. (Hartman, 2011:127)

Again, consistent with other cases of defective intervention, $\overline{\text{A}}$-movement of the dative allows RtoO/ECM in these contexts.

(2.191) a. To whom did John declare the competition to be over?

b. To whom did Mary demonstrate the hypothesis to be false?

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[60] I do not take a theoretical stance on whether this is true raising or base-generation. The point of the section is to establish the (well known) fact there are interpretive constraints on the chain formed in this construction. To reflect my agnosticism, I will use the unwieldy term "RtoO/ECM" in reference to this construction.

[61] Bruening (2014:fn. 2) claims, *contra* Hartman, that intervention in RtoO/ECM doesn't exist. He cites the following data as evidence, noting that these and similar can be found online.

(i) The Siu Long Bao was said to me to be the best in London, ...

(ii) I can prove him to any jury to be a con man.

These are not grammatical in my English. Moreover, while he may indeed have found these sentences or similar online at one point, they no longer exist there. A Google search does not return any matches for these sentences or similar (except of course from Bruening's paper). Searches of the corpora at `www.corpus.byu.edu` return exactly zero hits for the search string resembling Bruening's examples. (See below for a list of the corpora searched.) But even granting Bruening's judgments concerning these two sentences, it is not sound to then conclude that intervention effects in RtoO/ECM don't exist. *Some* arguments intervene in RtoO/ECM for *some* people, and so we should want an explanation in any case.

[Corpora searched: COCA, 520 million words of US English, 1990-2015; COHA 400 million words of US English, 1810s-2000s; NOW, 5.1 billion of international Web-basedEnglish news, 2010-Sept. 30, 2017; GloWbE, 1.9 billion words of international Web-based English; Wikipedia, 1.9 billion words; BYU-BNC, 100 million words of British English, 1980s-1993; TIME 100 millions words of US English, 1923-2006; SOAP, 100 million words of US English, 1990s-2000s; Strathy, 50 million words of Canadian English; CORE, 53 million words.]

More importantly, the intervener in (2.189) and (2.190) is attitudinal, i.e., we attribute to the audience/Bill a belief about the non-finite clause. Indeed, observe that the same effects fail to arise when there is non-attitudinal intervening material.

(2.192) a. Mary proved John yesterday to be liar. (Hartman, 2011:127)

b. Mary made John out to be a liar. (Lasnik, 2001:112)

Lasnik (2001) observes that such constructions are sometimes ambiguous. Thus, for the particle verb *make out*, the "object shift" is optional (for many speakers). So (2.193) is also grammatical for many people.

(2.193) Mary made out [John to be a fool] (Lasnik, 2001:112).

This implies that in the absence of a particle, the structure is ambiguous.

(2.194) Mary proved John to be a fool.

a. Mary proved John [*e* to be a fool]

b. Mary proved [John to be a fool]

In one case, the complement of *prove* includes an antecedent-gap chain in which the head of the chain is outside of the infinitival clause (2.194a) (cf Bruening 2001). In the other case, the "object" remains inside of the clause (2.194b). Since the intervener is an argument of the main clause, the intervention effects seen in (2.189) and (2.190) must correspond to the structure in (2.194a).

So now we should be curious as to whether there are interpretive constraints on either link in this chain. Can *John* be interpreted at the gap site in (2.194a), that is lower than its surface position? And can *John* be interpreted outside of the infinitival clause when there is no gap in (2.194b), that is higher than its surface position? In other words, is this another construction where each position is locally bound in its world arguments?

In fact, it's well documented that these two positions are *scopally* distinct (Postal, 1974; Hartman, 2011; Lasnik, 2001; Nevins, 2004; Runner, 2006). Consider Lasnik's examples with *make out*.

(2.195) a. The DA made no defense witnesses out to be credible.

b. The DA made out no defense witnesses to be credible. (Lasnik, 2001:115)

c. cf, The DA made out that no defense witnesses were credible.

(2.195a) has the pragmatically odd reading where the DA seems to be trying to find a credible witness for the defense, but hasn't managed to do it. It doesn't have the reading available in (2.195c), where the DA has tried to demonstrate that all the defense's witnesses are not credible. Crucially, the interpretation found in (2.195c) is readily available in (2.195b). In other words, the positions of the object inside and outside of the infinitival clause appear to scopally contrast.

The contrasts are repeated in (2.196).

(2.196) John made two students out to have cheated.

a. = John claimed about two students that they cheated.

b. ≠ John claimed that two (possibly anonymous) students cheated.

(2.197) John made out two students to have cheated.

a. ≠ John claimed about two students that they cheated.

b. = John claimed that two (possibly anonymous) students cheated.

With verbs like *prove* however, where there is no verb particle to mark the position of the RtoO/ECM'ed object, this test is a bit more complicated. The preference is to have a high scope reading (Lasnik, 2001; Hartman, 2011).[62]

(2.198) a. I proved someone to have stolen the art.

i. someone > proved

ii. * proved > someone

b. I declared two boys to be guilty

i. two boys > declared

[62]See also Kayne (1984:33):

(i) John believes/suspects/acknowledges not a single linguist to be on the committee

ii. * declared > two boys (Hartman, 2011:138)

c. I demonstrated a few politicians to be corrupt.

i. a few > demonstrated

ii. * demonstrated > a few

This suggests that, given the opportunity, we prefer to "shift" the object into the main clause. However, a low scope reading can be forced when we place a strict NPI in the infinitival clause. Consider (2.199).[63]

(2.199) a. John proved no student to have been to Europe in years.

b. Mary declared no boys to have been convicted of a crime in years.

c. Mary demonstrated no politician to have taken a bribe in years

If (2.199) are grammatical, then it must be because the negatively quantified expression is in the same clause as *in years*. The validity of the diagnostic is demonstrated in (2.200).

(2.200) a. * John made no student out to have gone to Europe in years.

b. John made out no student to have gone to Europe in years.

If *no student* were able to be understood inside of the infinitival clause (i.e., Quantifier Lowering), the (2.200a) would be fine. On the other hand, the grammaticality of (2.200b) proves that *no student* is inside of the clause. Now compare (2.199) with its correspondent in (2.201)–(2.203), which have finite clauses.

(2.201) John proved that no student had gone to Europe in years.

a. = John proved that there is no student such that that student had gone to Europe in years.

b. ≠ There is no student such that John proved that that student had gone to Europe in a long time.

[63]Thanks to Yael Sharvit for help with this test.

(2.202) Mary declared that no boys have been convicted of a crime.

- = Mary declared that there is no boy such that that boy has been convicted of a crime in years.
- ≠ There is no boy such that Mary declared that that boy has been convicted of a crime.

(2.203) Mary demonstrated that no politician has taken a bribe in years.

a. = Mary demonstrated that there is no politician such that that politician has taken a bribe in years.

b. ≠ There is no policitician such that Mary demonstrated that that politician has taken a bribe.

What we see here is that when there is an NPI present, the subject with an negative element must be interpreted low, in the same position as the subject of a finite clause. Finally, notice that the b. readings are available, and in fact highly favored, when we get rid of the NPI.

(2.204) John proved no student to have gone to Europe.

a. ≠ John proved that there is no student such that that student had gone to Europe

b. = There is no student such that John proved that that student had gone to Europe.

(2.205) Mary declared no boys to have been convicted of a crime.

a. ≠ Mary declared that there is no boy such that that boy has been convicted of a crime.

b. = There are no boys such that Mary declared that that boy has been convicted of a crime.

(2.206) Mary demonstrated no politician to have taken a bribe.

a. ≠ Mary demonstrated that there is no politician such that that politician has taken a bribe.

b. = There is no politician such that Mary demonstrated that that politician has taken a bribe.

The point in this discussion is to set up a parallel with what was demonstrated in the *tough*-construction and Control structures: there are interpretive constraints on the positions in the chain created in RtoO/ECM. If (2.207a) is mapped to the structure in (2.207b), then each link in the chain has quantificational constraints.

(2.207) a. * Mary proved John to me to be a liar

b. * Mary proved John to me [*e* to be a liar]

We now would like to know if the same quantificational constraints also map to intensional interpretation. That is, we've observed that each position has quantificational constraints such they are scopally distinct positions, but is each position also *intensionally* distinct?

In fact, they are. Consider the contrast in (2.208).

(2.208) a. John made the president out to be a liar.

b. John made out the president to be a liar.

In (2.208a), we can only understand this to be about the actual world president. John claims (in 2018) that Donald Trump is a liar. Note that John need not believe that Donald Trump is the president. This is the *de re* reading, where *the president* is evaluated in the actual world. Observe further that the *de dicto* (non *de re*) reading is not possible. (2.208a) cannot be used to describe a situation in which John makes Hillary Clinton out to be a liar because John believes that Hillary Clinton is the president.

But (2.208b) is fine with *the president de dicto*. In (2.208b), the reading is that John claims that the person he thinks is the president is a liar. This sentence is infelicitous if John claims that Donald Trump is a liar, but John doesn't know that Donald Trump is the president. Importantly, observe that there is no ambiguity with *make out*. (2.208a) does not appear to have an additional *de dicto* reading, and (2.208b) does not appear to have an additional purely *de re* reading.

(2.209) a. John made the president out to be a liar (# but not Donald Trump).

b. (John thinks Hillary Clinton is the president and a liar),
John made out the president to be a liar

The same facts can be demonstrated to apply with the ambiguous verbs like *prove, believe* as well, though the judgments are understandably subtle. Consider the contrasts below.

(2.210) a. John proved no student to have gone to Europe.

b. John proved no student to have gone to Europe in years.

(2.211) a. Mary demonstrated no politician to have taken a bribe.

b. Mary demonstrated no politician to have taken a bribe in years.

(2.212) a. Mary declared no boy to have been guilty.

b. Mary declared no boy to have been guilty in years.

In (2.210a), the reading is that there is no student x such that John proved that x had gone to Europe. John need not be aware that the individuals he's talking about are students. (This is the "low scope" *de re* reading, where *student* is evaluated in the actual world, while *no* scopes under *prove* (Charlow and Sharvit, 2014).) This is in contrast to (2.210b), where the reading must be *de dicto*. John proved that there are no students x such that x has gone to Europe in years. In principle, the low scope *de re* reading should be available, but it seems to be absent.

Thus, the same contrasts that are observed for quantificational scope are observed for intensions. The subject position inside of a RtoO/ECM clause is restricted to being locally world-bound, while the position outside of the clause can only be bound by *its* local world-binder, which is the actual world (in non-embedded contexts).

This is precisely the configuration where we expect ICU to apply. If there's an attitude shift between the antecedent and the gap, then ICU will kick in because each link is locally world-bound.

(2.213) [RtoO/ECM-Verb DP_i (*attitude holder) [e_i to Verb]]

And of course this is precisely what happens in Hartman's cases of defective intervention, repeated below.

(2.214) a. * Mary proved the defendant in the judge's opinion to be guilty.

b. Mary proved the defendant yesterday to be guilty.

(2.215) a. I declared to the audience that the competition was over.

b. * I declared the competition to the audience to be over.

(2.216) a. Mary demonstrated to Bill that the hypothesis was false.

b. * Mary demonstrated the hypothesis to Bill to be false. (Hartman, 2011:127)

The fact that this position is intensionally restricted has already been observed by Chierchia (1990:17), who notes that an anaphor in the subject position can only be understood *de se* with respect to the surface subject.[64]

(2.217) John believes himself to be in danger. (Chierchia, 1990:17)

In general then, the RtoO/ECM facts are consistent with the observation that defective intervention arises in a specific semantic configuration. Note, however, that it's not obvious *why* this should be. In general, things inside of embedded clauses are *not* locally world-bound. For instance, there is a *de re* reading of something in a finite embedded clause, e.g., *John thinks that Ortcutt is a spy*. I will speculate about this at the end of chapter 3, but I consider this to an open question at this point.

2.6.6 Passivization out of finite clauses

The account extends directly to another set of intervention facts noted by Hartman, what he calls "passivization out of finite complements."

(2.218) a. It was claimed (to me) that John had stolen the art

b. John was claimed (*to me) to have stolen the art.

[64]Moulton (2009:chapter IV) has interesting and relevant discussion on what he calls *Accusative-cum-Infinitivus* constructions (ECM/Raising-to-Object). His point is that such constructions report a *de re* belief about a state, in particular, the state of the non-finite clause. However, it's not clear to me whether he commits to the stronger claim that they *must* be evaluated with respect to the attitude holder's beliefs, or whether elements inside of the clause can be interpreted *de re* (non *de dicto*). Still, it's remarkable that in Pesetsky's (1992) ranking of verbs which are more and less acceptable with ECM/Raising-to-Object, whether a verb accepts a non-finite embedded clause correlates with whether the verb imparts a belief to someone (*whisper, say, affirm, anounce, ...* = worse with ECM) and whether the verb reflects the subjects own belief (*believe, hold, consider, find, imagine* = fine with ECM). These facts make sense if indeed, the worse verbs are precisely those which require a chain to be formed across an attitude holder.

(2.219) a. It will be demonstrated (to the jury) that the defendant is guilty

b. The defendant will be demonstrated (*to the jury) to be guilty.

(2.220) a. It has been proven/reported (to us) that the defendant won the prize.

b. John has been proved/reported (*to us) to have won prize.

(Hartman, 2011:126)

Notice that these are precisely the verbs that also permit Raising-to-Object/ECM.[65]

(2.221) a. Mary claimed John to have stolen the art.

b. Mary demonstrated the defendant to be guilty

c. Mary proved/reported John to have won the race.

Given this, it seems reasonable to conclude that these "raising" verbs (the b. examples in (2.218) – (2.220)) are simply passivized RtoO/ECM structures.

(2.222) John was claimed <John> [*e* to have stolen the art]

This analysis is supported by the fact that the subject in such constructions displays fixed-scope properties, just like we observed with RtoO/ECM. The subject cannot be interpreted inside of the lower clause.[66]

(2.223) a. Two boys were loudly declared to be guilty

i. two boys > declared

[65]One possible exception is *say*, allows a "passive" version, but not an RtoO/ECM version.

(i) It was said to me that John had stolen the art.

(ii) *Mary said John to have stolen the art.

[66]The adverbial phrases in the following sentences are to control for the possibility that the main-clause verbs are just raising predicates, in which they will pattern like *seem*. Note that in their use as raising-use, they do permit reconstructed readings.

(i) A solution was declared to be necessary *necessary > a solution*

(ii) A solution was loudly declared to be necessary **necessary > a solution*

ii. ??/* declared > two boys

b. A student was repeatedly said to be injured

i. a student > said

ii. ??/* said > a student

c. Someone was claimed to have cheated by John

i. Someone > claimed

ii. ??/* claimed > someone

d. One of the linguists was shown to be a fraud by Bill

i. one of the linguists > shown

ii. ??/* shown > one of the linguists (Hartman, 2011:138-139)

On the assumption that (2.222) is the right analysis, nothing more needs to be said here. The same analysis that explains RtoO/ECM will apply for passivization out of finite clauses.

2.6.7 Raising in Icelandic

Finally, we turn to the well-known cases of Icelandic intervention. I will provide a sketch of a possible analysis, though as the previous discussion should indicate, we would need to examine the semantics of these constructions more fully to test whether ICU applies in these cases.

As documented extensively, *quirky subjects* of psych-verbs in Icelandic may block raising to subject of an NP from a lower clause.[67]

[67]The majority of the Icelandic discussion has concerned not overt movement, but rather the ϕ-features reflected on raising verb. I will not address this issue. As (Holmberg and Hróarsdóttir, 2003) document, there is good evidence to suggest that ϕ-agreement and movement are disassociated in Icelandic, and should not be grouped under the same constraint. "[R]aising and Agree are both blocked by an intervening overt dative NP, but while Agree is blocked also by an intervening *wh*-trace, raising seems not to be (p. 658)."

(i) Hverjum hafa hestarnir virst t_{wh} [t_{NP} vera seinir]
who.DAT has the.horses.NOM seemed to.be slow

'Who has found Olaf intelligent.'
lit: 'To whom has Olaf seemed to be intelligent.'

(ii) Hvaða manni veist þú að virðist/*virðast t_{wh} [hestarnir vera seinir]
which man.DAT know you that seems/seem the.horses.NOM to.be slow

'To which man do you know that the horses seem to be slow?' (p. 652)

(2.224) a. Ólafur virðist [*t* vera gáfaður]
Olaf.NOM seem.3SG to.be intelligent
'Olaf seems to be intelligent.'

b. Ólafur hefur virst [*t* vera gáfaður]
Olaf.NOM has seemed to.be intelligent
'Olaf has seemed to be intelligent.'

(2.225) a. Stúlkan flyker [*t* vera falleg]
the.girl.NOM think.3SG to.be beautiful
'The girl is thought to be beautiful.'

b. Stúlkan hefur flótt [*t* vera falleg]
the.girl.NOM has thought to.be beautiful
'The girl has been thought to be beautiful.'

(2.226) a. * Ólafur virðist mér [*t* vera gáfaður]
Olaf.NOM seem.3SG me.DAT to.be intelligent
'I find Olaf intelligent.'[68]

b. * Ólafur hefur virst mér [*t* vera gáfaður]
Olaf.NOM has seemed me.DAT to.be intelligent
'I have found Olaf intelligent.'

(2.227) a. * Stúlkan flyker mér [*t* vera falleg]
the.girl.NOM think.3SG me.DAT to.be beautiful
'I find the girl beautiful.'

b. * Stúlkan hefur flótt mér [*t* vera falleg]
the.girl.NOM has thought me.DAT to.be beautiful
'I have found the girl beautiful.'

Generally linguists have differentiated between *Nominative-with-Infinitive* and *Accusative-with-Infinitive* constructions (and the latter case includes any case that is lexically assigned by the lower verb) (Thráinsson, 2007). The former is used when the subject of the main-clause predicate is a quirky subject. The relevant point here is that these verbs take non-finite clausal arguments.

[68]It's worth noting that H&H translate the raising verbs with overt experiencers using "find." To the extent that we can rely on direct translations from another language, then this supports the idea that there verbs are more lexical than functional.

(2.228) Nominative with Infinitive

a. Henni virtist [hesturinn hafa týnt knapanum]
her.DAT seemed horse-the.NOM have lost jockey-the]
'It seem to her that the horse had lost its jockey.'

b. Þeim sýndist [bíllin vera í lagi]
them.DAT looked car-theNOM be in order
'It seems to them that the car was in order.' (Thráinsson, 2007:415)

(2.229) Accusative with Infinitive

a. við teljum [frambjóðendurna vera frambærilega]
we.NOM believe candidates-the.ACC be pretty.good
'We believe the candidates to be pretty good.'

b. ég tel [stelpunum vera kalt]
I.NOM believe girls-the.DAT be cold
'I believe the girls to be cold.' (Thráinsson, 2007:414)

What makes this pattern different from the Romance languages, is that these raising verbs do not embed control infinitives. Instead, they embed ECM/RtoO configurations (Cuervo, 2003a; Thráinsson, 2007). This is clearly indicated by the fact that they are the *one* non-finite clause that cannot occur with any sort of overt complementizer (Thráinsson, 2007) and they can be separated from the non-finite clause by material in the main clause.

(2.230) Ég taldu Guðúnu í barnaskap mínum [*t* sakna Haraldar]
I believed Gudrun.ACC in foolishness my to.miss Harold.GEN
'I believed Gudrun in my foolishness to miss Harold. (Zaenen et al., 1985:100)

All the raising verbs in Icelandic have functions as RtoO/ECM verbs (Valfells, 1970; Andrews, 1990; Wood, 2015).[69]

- *sýnd-* : 'to show/seem'
- *heyra* : 'hear/is heard'
- *sjá-* : 'see/is seen'
- *taldi-* : 'believe/is believed

[69]Note that not all RtoO/ECM verbs have raising counterparts (Wood, 2015:291). Note further that the morphosyntactic relationship between the RtoO/ECM verb and the raising variant is not like English. Icelandic allows such verbs to be intransitivized using the suffix *-st*, which is arguably a middle or reflexive marker (Wood, 2015).

- *reyn-* : 'to prove/prove'
- *þykja-* : 'to consider/be found'
- *virð-* : 'to find/seem'

As an ECM/RtoO Configuration, the intervention data is now explained on par with passivization out of finite-clauses discussed in subsection 2.6.5. The explanation is independent of whether the subject is assigned quirky case or not, though clearly additional work is needed to establish if Icelandic too is subject to the same intensional constraints observed in English.

Observe now that the *lack* of defective intervention in the *symmetric* DAT-NOM verbs and passives is immediately explained. These aren't attitude holders, and so are not subject to ICU.

(2.231) a. Mér hafa alltaf nægt *t* tevnnir skór
me.DAT have always sufficed two.pairs shoes.NOM

b. Tevnnir skór hafa alltaf nægt mér *t*
two.pairs shoes.NOM have always sufficed me.DAT
'i have always made do with two pairs of shoes.'

(2.232) a. mér hefur aldrei hentað *t* etta
me.DAT has never suited this.NOM
'This has never suited me.'

b. etta hefur aldrei hentað mér *t*
this.NOM has never suited me.DAT
'This has never suited me.' (Wood and Sigurðsson, 2014:277)

On accounts which attribute defective intervention (for movement) in Icelandic to some feature properties projected into the syntax, then the contrasts with symmetric DAT-NOM verbs is only explained by stipulation. On the present account, the antecedent-gap chains across all dative experiencers in Icelandic are *syntactically* possible: either argument can raise to spec-TP. However, some antecedent-gap chains will be ruled out due to ICU, i.e., at LF.

2.7 Conclusion

In this last section, let me take a step back and consider the problem from a different perspective. We've been concerned with constructions where defective intervention arises, but what about the

other places? What about places where defective intervention *fails* to arise? For instance, consider *wh*-movement, "true" subject-to-subject raising, and copy-raising.

(2.233) a. Which animal is John looking for <which animal>?

b. John seem to Mary <John> to be sleepy.

c. John seems to Mary like he's sleepy.

If we never find defective intervention in these structures, does ICU apply? How would we know? While it seems true that these cannot involve extensionally "mixed" chains, it's also not clear whether any theory *predicts* such a possibility. What would would it mean for any of the chains in (2.233) to have mixed intensions? What does it even mean for them to have "the same" intension?

Let me try to address these questions, though the discussion here will be speculative. First, consider again the places where defective intervention arises, in comparison to the examples in (2.233).

(2.234) a. *Constructions where defective intervention arises*:
the *tough*-construction, control, Raising-to-Object/ECM

b. *Constructions where defective intervention doesn't arise*:
subject-to-subject raising, $\overline{\text{A}}$-movement, copy-raising, ...

The first group in (2.234a) arguably involves chains in which the antecedent and the gap are both in *thematic* positions. That is, these are antecedent-gap chains in which the syntactic object formed from the links consists of at least two theta-roles (according to some theories). The second group in (2.234b) uniformly does not display this property, either because the higher position isn't a position in which the link gets a theta-role (subject-to-subject raising, $\overline{\text{A}}$-movement) or because the chain doesn't contain a gap (copy-raising).

From this perspective, we can state a second generalization about where defective intervention is found:

(2.235) *Defective Intervention Generalization II (DIG II)*

Defective intervention is found in chains in which the antecedent and the gap are thematically associated with two different predicates.

That is, all of the cases where defective intervention is found are cases where the antecedent appears to be thematically associated with the higher predicate, but the gap is thematically associated with the lower predicate. When such a chain is formed, an attitudinal intervener is a defective intervener.

If DIG II is correct, then it suggests that there's a connection between thematic relations and extensional evaluation. That is, we might postulate the following hypothesis.

(2.236) *Thematic Interpretation Hypothesis*

Thematic positions are extensionally evaluated.

The intuition behind the Thematic Interpretation Hypothesis is that every position which relates an argument to an event must "looked at." That is, every time something gets mapped to an event, we have to check who or what the thing is that bears the event-relation.

If such a hypothesis is correct, then it would straightforwardly explain why the examples in (2.233) never violate ICU: they are chains which only consist of a single thematic relation. We evaluate the argument as it relates to the event, and things are fine; nothing goes wrong because nothing *could* go wrong. The Thematic Interpretation Hypothesis predicts that the only places where we would see a violation of ICU are places where some chain consists of more than one thematic relation. The reasoning is that in these cases, because we are forced to evaluate the syntactic object more than once, that is, once for each time the object is mapped to an event, we need to be sure that result is intensionally uniform. This is where ICU applies.

Notice that this leaves two questions still addressed: First, why is the *tough*-construction an intensional island? Nothing we've said so far explains why *de re/non de-dicto* readings are not allowed inside of the *for*-CP connected to the *tough*-predicates. Unfortunately, I will not be able to answer this question in this dissertation. I do not know what the *tough*-construction is an intensional island. For that matter, I don't know why PRO is obligatorily *de se*, either. We will have to leave these topics for future work.

The second question is manageable: Do all the constructions that exhibit defective intervention actually involve an antecedent-gap chain that exhibits two theta-roles? I take it as uncontroversial that control of PRO involves such a chain. I also believe that this debate is largely settled with respect to RtoO/ECM (Lasnik, 2001; Bruening, 2001; Runner, 2006): the object position is a thematic position in the main clause, while the gap is also a thematic position in the non-finite clause. With respect to the *tough*-construction, I believe that the facts are much murkier. Does the subject in the *tough*-construction have a thematic role? This is a contentious issue; it has been debated fiercely in the literature over the past half century. I address this question in the next chapter, illustrating that the *tough*-subject is indeed thematically related to the event of the main clause — though not in an obvious way. Thus, we will take the next chapter as support that DIG II is on the right track.

Finally, I would like to wrap up this chapter by noting that the account posited for defective intervention makes no claims about Agree, or generally, *how antecedent-gap chains are formed*. We could have assumed a movement analysis for the *tough*-construction (ignoring the many issues that a movement analysis of the *tough*-construction involves) and we would have found the same result.

Moreover, it's perfectly reasonable to believe that there is a syntactic process that instantiates a probe-goal relation, mitigated by activity of features. That is, I see no reason to deny the existence of Agree based on the fact that defective intervention isn't explained by Agree. Indeed, the analysis above assumes (based on empirical evidence) that the syntax *does* generate antecedent-gap chains in the places where we see defective intervention. I assume that Agree accomplishes this (or at least plays a factor). From the perspective of ICU, the problem isn't forming the chain, the problem is trying to interpret the result.

Some might see this as an over-complication: now we have multiple ways for a derivation to produce the same result, i.e., "intervention effects." However, I don't see this as a problem, I see it as a consequence of a modular view of syntax. Given that syntax and semantics are autonomous at least at some level, then it's a natural consequence that things can go wrong in either (or both) modules. It seems reasonable, and it indeed empirically warranted, that "syntactic intervention" exists. These are the cases of pure intervention like passivization over a goal argument. If Richards

(2004); Sigurðsson and Holmberg (2008); Preminger (2014) are correct, then this is also found in cases where ϕ-features fail to be transferred. But it is not the right analysis for defective intervention as it applies to antecedent-gap chains. Such trees are legitimate syntax objects, but illegitimate semantic objects.

CHAPTER 3

The syntax and semantics of the *Tough*-Construction

3.1 Overview of the chapter

The nature of the alternation in (3.2) has generated decades of fruitful debate.

(3.1) a. It was easy to read this book.

b. This book was easy to read *e*.

A consensus remains elusive however, in part because there is little agreement on the syntactic status of the *tough*-subject. Is it derived via movement out of the non-finite clause? Or is it generated in the main-clause as an "athematic" subject? Because the implications of either analysis would have profound consequences on the nature of antecedent-gap chains and argument licensing, it is not an easy to choice to make. The issue has further been muddied by a number of empirical claims about the interpretation of the subject in (3.2b), claims which purport to show definitively that, a) the subject displays properties of having been generated in the lower clause or, b) that the subject displays properties that suggest it *cannot* have been generated anywhere below its surface position.

One aspect of this debate that has received relatively little attention is the meaning of the individual constituents in the *tough*-construction. In this chapter, I will explore what a close semantic investigation can reveal about the structure. I will demonstrate that the meaning and structure of the *tough*-subject follows naturally from a close study of how the individual pieces of the *tough*-construction relate to each other, syntactically and semantically. Indeed, I want to demonstrate that the antecedent-gap chain created in the *tough*-construction is highly dependent on semantic constraints. As we've already seen in chapter 2, the antecedent-gap chain is "fragile" in that it is

"mitigated" in a sense by the beliefs of the individuals in the discourse. This chapter makes explicit why this fragility holds.

The analysis builds on and lends support to two proposals which are currently being debated in the field. The first is the idea that events can be associated with propositional content (Pietroski, 2000; Hacquard, 2006, 2010, 2011). This idea proposes that in decomposing an intensional predicate into its neo-Davidonian pieces, we include the beliefs that an individual holds during an event (in a world). This idea plays an important role in the *tough*-construction in connection with the second proposal, which is that attitude verbs are "disassociated" from their intensional semantics (Kratzer, 2006; Moulton, 2009, 2015; Bogal-Albritten, 2016). On this view, it's the complementizer (e.g., *that*), not the attitude report verb (e.g., *believe*) that is responsible for the modal quantification. An important aspect of this analysis is that CPs are not selected by their respective predicate, rather they modify it. Krazter/Moulton's analysis is built on data concerning finite CPs (*that*-CPs). In the analysis below, I will adapt this idea to a different class of clause: *for*-CPs. Together with the idea that there are "contentful" events, we will be able to give a compositional syntax and semantics for the *tough*-construction.

As the introduction above suggests, *events* (or *eventualities*) will play a large role in the analysis below. In a sense, this is the defining characteristic of *tough*-predicates: they describe events of importance, difficulty, easiness, toughness etc. More interestingly, we'll also see that the same is true of *for*-CPs. We'll also see that standard assumptions about how arguments can be added to events provides an elegant solution to how we model the antecedent-gap chain: *This book was difficult to read* __. One of the key takeaways from this chapter is that the antecedent-gap chain established in (3.2b) is "mitigated" by how each element is tied to the event(-structure). In essence, we will define a mapping that relates — and restricts — how the syntactic object consisting of the antecedent and the gap is associated with the event-structure of the *tough*-construction.

Needless to say, there will be outstanding issues. While the discussion below suggests that a unified approach to clausal "complementation" (which we'll analyze as adjunction) may be possible, I will not pursue this here. I will however, include a brief comparison of *for*-CPs and *that*-CPs in subsubsection 3.2.5.2, in part to provide evidence for my analysis, but also as a roadmap for future studies. (See for instance Grano 2015 for more discussion on this topic.) This chapter will

also put aside until section 3.4 the complex semantic machinery posited in the previous chapter. This is for simplicity of exposition. Likewise, because I dedicated time and space in chapters 1 and 2 to the various argument structures associated with the *tough*-construction, I will not recapitulate that here.

The chapter is organized in the following way. In subsection 3.1.1 I will first give a brief recap of what I think are the key properties that must be explained. This will not be an exhaustive list; the interested reader is referred to Chapter 1 for a complete dissection of properties of the *tough*-construction, and proposed solutions to the many issues that the *tough*-construction raises.[1]

Following this, we'll explore how events factor into each piece of the *tough*-construction, starting with the *tough*-predicates themselves, and then considering *for*-CPs. A compositional syntax is proposed in subsection 3.2.3, after which I give a more precise meaning for *for*-CPs mean. Many of the core pieces of the analysis are introduced in this section, in particular the idea that there are event-counterparts in worlds. At this point, we'll recap a bit and I'll discuss some more general factors like how to define the class of *tough*-predicates and how we distinguish finite and non-finite clausal complements.

In the second half of the chapter, starting in section 3.3, I'll address how the gap is formed. Here I'll introduce the idea of a *proleptic argument*, and using the tools provided in the first half, expand on how arguments are related to events. This will allow us to capture some outstanding properties of the antecedent-gap chain in the *tough*-construction. Finally in section 3.4, I will return to the analysis of defective intervention from the previous chapter, putting together all of the pieces. Wrapping up in section 3.5, I speculate on some final unresolved issues.

3.1.1 Recap of properties and analyses

Research on the *tough*-construction largely focuses on the alternation exemplified in (3.2). It is assumed that the sentences are derivationally related, but how?[2]

[1] Similarly, I will not, except as asides here and there, discuss previously proposed solutions to these problems, with the exception of Salzmann (2006, 2015), whose work is related to the core proposal below. Again, the reader is referred to Chapter 1 for more discussion.

[2] However, see Jacobson (1992) for arguments that these should not be viewed as derivationally related.

(3.2) a. It was easy to read this book.

b. This book was easy to read *e*.

Notably, the chain that connects the antecedent and the gap in (3.2b) displays properties of being an $\overline{\text{A}}$-chain *and* an A-chain. We observe $\overline{\text{A}}$-properties in the fact that it licenses parasitic gaps (3.3); resists gapping an indirect object (3.4); and can cross clause boundaries not permitted under A-movement (3.5).[3]

(3.3) a. The book was difficult to file *e* after reading pg.

b. The article was fun to read *e* after writing pg.

(3.4) a. * John was difficult to read *e* the book.

b. * Mary was easy to send *e* the package.

(3.5) a. This book was difficult to start to read *e*.

b. This article was easy to manage to read *e*.

This last property is undoubtedly the most mysterious simply because, in fact, the movement isn't entirely unbounded like "normal" $\overline{\text{A}}$-dependencies.

(3.6) a. * The book was difficult to say that John read *e*.

b. * This book was easy to realize that Mary read *e*.

Such boundedness is at odds with the other $\overline{\text{A}}$-diagnostics, which show clear evidence for an $\overline{\text{A}}$-dependency. And yet, the antecedent of the $\overline{\text{A}}$-step is undoubtedly in an A-position. It triggers agreement on the main verb (3.7), and can further A-raise (3.8).

(3.7) a. These books are difficult to read *e*.

b. These students were easy to talk to *e*.

(3.8) a. This book appears to be easy to read *e*.

b. The tree is likely to be easy to chop down *e*.

[3]Note that I omit standard $\overline{\text{A}}$-diagnostics like whether these chains are subject to island constraints. They are (Chomsky, 1977), but given that the chains are also "semi-"clause unbounded, it's not clear whether such movement tests are helpful diagnostics.

Still, while the referential subject is *syntactically* an argument of the main clause, it is *thematically* an argument of the infinitival clause. For instance, in the core cases, the following entailments do not go through.

(3.9) a. The mountain was difficult to climb $e \not\Rightarrow$?? The mountain was difficult.

b. The tree was easy to chop down $e \not\Rightarrow$?? The tree was easy.

c. The guitar is fun to play $e \not\Rightarrow$?? The guitar is fun.

To the extent that the sentences after the arrow in (3.9) are acceptable, they can only be understood in reference to an (implied or elided) event like "The mountain was difficult (to climb/paint/descend)" or "The tree was easy to chop (down/climb/strip/)." This suggests that the subject is thematically licensed by the infinitive. And this contrasts with the related *pretty*-class adjectives, *eager*, or *too/enough* clauses, etc, where the subject appears so bear the property described by the main clause predicate.

(3.10) a. Mary is pretty to look at $e \Rightarrow$ Mary is pretty.[4]

b. The rock is heavy to lift $e \Rightarrow$ The rock is heavy.

c. John is too angry to talk to e. $\Rightarrow$ John is angry.

That said, it is also clear that the *tough*-subject isn't able to be *interpreted* inside of the infinitival clause (Postal, 1974; Epstein, 1989; Fleisher, 2013; Poole et al., 2017).[5]

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[4]In fact, the judgements for *pretty* are not so clear to me. I believe that there is a subsective reading of *pretty* that does not entail Mary's prettiness. Nonetheless, the fact stands that *pretty* is not a predicate of events; that is the point I wish to make below.

[5]It is sporadically noted that the *tough*-construction displays certain reconstruction effects involving bound variables (Sportiche, 2006; Hicks, 2009; Salzmann, 2006).

(i) Pictures of his$_i$ family are hard for no photographer$_i$ to sell e

(ii) Pictures of his$_i$ friends are easy to persuade every photographer$_i$ to sell e. (Sportiche, 2006:8)

(iii) Pictures of himself$_i$ nude are tough for me to think that any man$_i$ would like e. (Salzmann, 2006:262)

As illustrated convincingly in Poole et al. (2016), all known instances of such binding involves "logophoric" NPs like *picture*. For this reason, I find these cases unconvincing. It's not clear to me how such binding can be accomplished, but since we do not observe the same effects when the antecedent is in a non-subject position, there must be something "extra" going on here.

(iv) *The bad news about her$_i$ goat was hard for John to tell every farmer$_i$ e (Poole et al., 2016:2)

(3.11) a. Many books are important to read *e*.
cannot mean It is important to read many books.

b. A few children are easy to teach *e*.
cannot mean It is easy to teach a few children.

This of course is a distinct result from typical cases of A-movement as well as $\overline{\text{A}}$-movement, both of which display scopal ambiguities with respect to quantificational elements in an antecedent-gap chain (Fleisher, 2013).

(3.12) a. Many books are likely to be sold.
can mean It is likely that many books will be sold.

b. A few children seem to be sick.
can mean It seems that a few children are sick.

These interpretative constraints are consistent with the fact that the subject behaves syntactically as an argument of the higher clause.

These are the main properties I wish to explain — but of course it does not exhaust all the properties of the *tough*-construction (again, see Chapter 1). I think that the core issue can be stated as follows: The referential subject is thematically an argument of the infinitive, but syntactically an argument of the main clause. This is what I will try to explain below, and along the way offer explanations for the other properties outlined above.

Additional arguments against reconstruction are provided in (Poole et al., 2016). Note that the same binding effects are found in structures which uncontroversially do not involve movement.

(v) Pictures of his$_i$ family are too ugly for every photographer$_i$ to sell *e*.

See further discussion in Chapter 1.

3.2 Events and the *tough*-construction

3.2.1 Events and *Tough*-predicates

It has been obliquely or explicitly noted in a number of works that a shared property of all *tough*-predicates is that they all are "eventive" in some way (Pesetsky, 1987; Jones, 1991; Hartman, 2012; Pearson, 2013a; Collins, 2013; Longenbaugh, 2015). They describe the action, process, or state of the infinitival verb.

(3.13) a. It was difficult to read this book ≈ "Reading this book was difficult."

b. it's difficult to climb this mountain ≈ "Climbing this mountain is fun."

c. It is fun to be a student ≈ "Being a student is fun."

The generalization is simply that *tough*-predicates are event-predicates: the describe properties of events. For instance, they can occur with event-denoting subjects, but not individual-denoting subjects.

(3.14) a. Running the race was difficult/easy/impossible.

b. Building the house was difficult/easy/impossible.

c. The destruction of the city was difficult/easy/impossible.

(3.15) a. * John was difficult/easy/impossible.

b. * The car was difficult/easy/impossible.

c. * The tree was difficult/easy/impossible.

The following *tough*-predicates all permit event subjects (list adapted from Lasnik and Fiengo 1974).[6]

(3.16) *easy, impossible, difficult, difficult, hard, simple, tough, unhealthy, stimulating, boring, interesting, entertaining, amusing, gratifying, important, harmful, damaging, %possible, %legal, illegal, crucial, %necessary*

[6]For now, I will only be concerned with *adjectival tough*-predicates. For discussion of other classes (verb phrases and nouns), see Gluckman (2018).

There are also further partitions among this class. For instance, *rare*-class *tough*-predicates only permit kind-denoting subjects, including kind-denoting events (Fleisher, 2014).[7] Finally, some *tough*-predicates are not *always* properties of events.

(3.17) a. John is unhealthy.

b. John is (being) difficult.

c. John is (being) annoying.

That is, some *tough*-predicates are ambiguous between describing an individual and describing an event. But some aren't. Events can be "easy," but individuals cannot. The unifying factor for all *tough*-predicates is that they can describe events (Gluckman, 2018); this is a necessary condition for being a *tough*-predicate. Note that this is not the same as saying that all predicates that describe events are *tough*-predicates. I return in subsubsection 3.2.5.1 to why some event-predicates are not *tough*-predicates.

We start with a meaning for *tough*-predicates as in (3.18).

(3.18) $[\![\text{difficult}]\!] = \lambda e \lambda w.\ e$ is difficult in w.

The meaning of a sentence with an event-denoting subject is given in (3.19b), putting aside some additional complications for the moment.

(3.19) a. The race is difficult

b. $\lambda 1$ [The race] $\lambda 2$ was t_2 difficult-w_1

c. $[\![(3.19b)]\!](w) = 1$ iff $\iota e.[e$ is a race] is difficult in w

[7] As pointed out to me by Tim Stowell, there is another class of adjectives that have a particular behavior with respect to the *tough*-construction. *Kind, mean, brave* all describe events as well, but do not readily form a *tough*-construction.

(i) It was kind to shake hands with Mary ~ * Mary was kind to shake hands with e

(ii) It was mean to kick John ~ * John was mean to kick e

(iii) it was brave to fight the battle ~ * The battle was brave to fight e.

See subsubsection 3.3.5.1 for a possible approach to such alternations.

As noted above, we admit that some *tough*-predicates are ambiguous between being predicates of events and predicates of individuals. We therefore postulate a second lexical entry for those adjectives in which the meaning is that of an property of individuals; I will not provide a more detailed discussion of this meaning.

(3.20) a. John is being difficult

b. $\lambda 1$ John $\lambda 2$ is being t_2 difficult-w_1

c. $[\![(3.20b)]\!](w) = 1$ iff John is causing difficulty in w.

I return to this use in subsubsection 3.3.5.1, but put it aside for now.

3.2.2 Events and *for*-CPs

The *tough*-construction, cross-linguistically, only ever occurs with a non-finite clause. That is, there is no alternation like in (3.21), where the antecedent-gap chain crosses a finite clause boundary (Gluckman, 2018).

(3.21) a. It is schmifficult that John talk to Mary.

b. * Mary is schmifficult that John talk to *e*.

As a rule, the gap in the antecedent-gap chain in the *tough*-construction is always in a non-finite clause — a *for*-CP. (See chapter 1 for justification that these are full clauses.) The correlation between *tough*-predicates and *for*-CPs deserves an explanation.

Semantically, *for*-CPs are typically grouped together with *that*-CPs in that they both describe "state of affairs" or (modal) propositions (Chierchia, 1984; Bhatt, 1999; Portner, 1997). But in terms of syntactic distribution *for*-CPs tend to pattern together with gerunds in that they distribute like event-denoting entities (Faraci, 1974; Duffley, 2003).

For instance, *for*-CPs can be the causing event that brings about a psychological state. This is not possible with *that*-CPs.[8]

[8]As pointed out to me by Tim Stowell, (3.22) are best with a modal element. This is not accidental. As I make explicit later, *for*-CPs are strongly connected to modal elements (like subjective predicates).

(3.22) a. { (For John) to open the door / *That John opened the door } would startled me.

b. { (For the magician) to make the rabbit vanish / *That the magician made the rabbit vanish } would amaze me.

c. { (For the Cubs) to win / *That the cubs might win } would excite John.

This is not to say that finite-CPs cannot be causers (Hartman, 2012). Rather, the point here is that the *for*-CP refers to a causing *event*; the finite-CP does not. The two can be distinguished by the fact that the *for*-CPs in (3.22) can be anaphorically referred to using a nominal like *event*, and not, say, *fact*, which can also be used anaphorically to refer to propositional content (Moulton, 2009).

(3.23) a. Yes, that event/*fact would startle me, too.

b. Yes, that event/*fact would amaze me, too.

c. Yes, that event/*fact would excite Mary, too.

Even when used as causer subjects, finite clauses cannot be referred to with *event*.

(3.24) a. That the magician made the rabbit vanish amazed me.

b. Yes that *event/fact amazed me, too

(3.25) a. That the cubs won excited me.

b. Yes that *event/fact excited me, too

In the same way, we can iterate the events that *for*-CPs describe, just like we can with gerunds. This is not possible with finite CPs (3.28)

(3.26) a. (For John) to skip school was a frequent occurrence.

b. (For the magician) to make the rabbit vanish was a one-time occurrence.

c. (For the Cubs) to win was not a frequent occurrence.

(3.27) a. John's skipping school was a frequent occurrence.

b. The magician's making the rabbit disappear was a one-time occurrence.

c. The Cubs winning was not a frequent occurrence.

(3.28) a. * That John skipped school was a frequent occurrence.

b. * That the magician made the rabbit disappear was a one-time occurrence.

c. * That the cubs win is not a frequent occurrence.

They can also serve as the subject of the Take-TIME Construction, which strictly requires an eventive subject (Gluckman, 2018).

(3.29) a. For John to paint the fence/*the fence took a day.

b. For the lumberjack to cut the tree/*the tree took an hour.

c. For the students to read the book/*the book took two hours.

Similarly, as we have already established that *tough*-predicates need eventive subjects, the fact that *tough*-adjectives can be predicated of a *for*-CP is consistent with the overall distribution and meaning of *for*-CPs as event-denoting elements.

(3.30) a. (For John) to read this book was difficult/easy/impossible.

b. (For the tree) to grow new leaves was difficult/easy/impossible.

c. (For the Cubs) to win the World Series was difficult/easy/impossible.

We've seen evidence that *for*-CPs can denote events, but they can also denote properties of events. In (3.32), they are being used predicatively with a purposive meaning. The *for*-CP is "about" the event-denoting subject.

(3.31) a. The examination of the students was [for the teacher to assess their potential]

b. The battle was [for the country to determine its next ruler]

c. The demonstration was [for the protestors to demonstrate their solidarity]

This is similarly true when the *for*-CP is *equated* with an event nominal (Grimshaw, 1990:99)

(3.32) a. Their decision was [to leave at six]

b. The arrangement was [for them to leave at six] (Grimshaw, 1990:99)

c. The plan was [for everyone to meet at the park]

This use of the *for*-CP is restricted: It can't be used predicatively (or equated with) a non-eventive nominal.

(3.33) a. * The rumor was for John to leave early.

b. * The myth was for Mary to a Capricorn.

c. * The story was for the students to hate the exam.

These facts suggest that *for*-CPs can sometimes describe properties of events, and sometimes can simply denote an event proper. The simplest way to handle such ambiguity is to assume that *for*-CPs are at base properties of events, which can be type-shifted into event-denoting entities, as we generally assume in the nominal domain. Thus, as a starting place, I assign *for*-CPs the following meaning (to be revised shortly).

(3.34) $[\![[_{CP}\text{ for P }]]\!] = \lambda e \lambda w.\text{P}(e)(w)$

(3.35) a. The plan was for everyone to meet at the park

b. $\lambda 1$ the plan $\lambda 2$ was t_2 [for everyone to meet at the park]-w_1

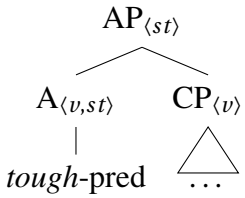
c. $[\![(3.35\text{b})]\!](w) = 1$ iff [$\iota e.$ e is a plan] is for everyone to meet at the park in w

Note that this doesn't quite capture the meaning that we want for *for*-CPs. We started the section by observing that *for*-CP are semantically grouped together with proposition-denoting elements, and this is not present in the current meaning we ascribed to them in (3.34). This meaning will be fleshed out in subsubsection 3.2.4.1, where I illustrate how *for*-CPs can be both "eventive" and "propositional" at the same time. The claim I make below is that *for*-CPs describe particular kinds of events, namely *contentful events*, which are events "associated with" propositional content.

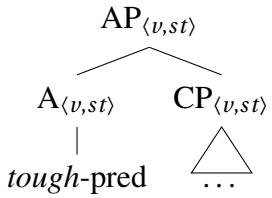
3.2.3 *For*-CPs are modifiers, not arguments

If *tough*-predicates describe events, and *for*-CPs describe events, how do these constituents combine? I will consider two options. Either the *for*-CP is an *argument* of the *tough*-predicate, saturating its event argument, or the *for*-CP restricts the event described by the *tough*-predicate, that is, it's a *modifier* (as suggested in Nanni 1980; Bayer 1990; Heycock 1994). These two options are sketched in (3.36).

(3.36) a. *For*-CP as argument



b. *For*-CP as modifier



(3.36b) would be derived by an application predicate modification, intersecting the meanings of the adjective and the *for*-CP (Heim and Kratzer, 1998). But how would (3.36a) come about? Let's assume for the sake of argument that there is a way to type-shift a property of events into a definite description of events, $\langle v, st\rangle \rightarrow \langle v\rangle$, in parallel to the nominal domain. Applied to a *for*-CP like *for John to read this book*, it converts this from a description of an event of John reading this book into a definite description of an event e which is a John-reading-this-book event. Clearly a more articulated semantics can be formulated for this mechanism; I will put it aside here for clarity of the following sections.

Notice there is one option that I am not considering, which is that *tough*-predicates are ambiguous: they describe properties of events (*the test was difficult*) *or* they are functions that take as their first argument the *for*-CP, and relate that to a property of events, e.g., $\langle\langle v, st\rangle, \langle v, st\rangle\rangle$ or $\langle v, \langle v, st\rangle\rangle$. This sort of idea is proposed in Keine and Poole (2017), who argue that *tough*-predicates simply start as a different type when they combine with a clause.

I see two issues with this approach. The first is that, according to the evidence presented shortly, *for*-CPs do not pattern like selected elements. For the relevant diagnostics, *for*-CPs pattern like *modifiers*. The second issue is that it makes it completely coincidental that both *tough*-

predicates and *for*-CPs are eventive elements. It's simply a matter of chance that they both have similar denotations. Why does a *tough*-predicate take as its first argument an event-related element, and not, say, a proposition? Or an open propostion? We would like to know *why for*-CPs and *tough*-predicates share this event-related characteristic. Both options in (3.36) make explicit the connection between the two types of elements.

Since I believe that the meaning of both pieces tells us something deeper about the connection between the *tough*-predicate and the *for*-CP, I will adopt the assumption that *tough*-predicates always have the same denotation. They are always $\langle v, st \rangle$. The *for*-CP, as we've discovered, does not appear to have an invariant denotation, and so we postulate the two possibilities in (3.36), corresponding to the two meanings for *for*-CPs.

The general (mostly implicit) assumption is that the *tough*-predicate selects for the *for*-CP in some way (Wurmbrand, 2001), and thus the *for*-CP is an argument of the adjective.[9] This idea is supported by, i) the obvious parallel between *for*-CPs and finite CPs (3.37a),[10] and, ii) the inability for there to be iterated *for*-CP clauses (3.37b). The latter fact follows if the *for*-CP is selected by the adjective.

(3.37) a. John thinks [that Mary lied]

b. * It was difficult [for John to leave] [for Mary to arrive]

These observations suggest that (3.36a) is on the right track. However, I will argue instead that (3.36b) is in fact correct: the *for*-CP is a modifier.

---

[9]Jones (1991) treats *for*-CPs as adjoined relative clauses. There are two issues with this analysis. First, it requires the head NP to raise to matrix subject position. However, there is no evidence for this raising (Postal, 1974; Fleisher, 2013). *Tough*-subjects do not reconstruct inside of the CP. Moreover, it treats *tough*-"movement" as an instance of an infinitival relative clause. However, as pointed our by Jones himself, infinitival relative clauses are not permitted with pronouns or referential expressions as the head of the relative. The *tough*-construction permits both of these.

(i) I met [someone/*him/*John to talk to *e*] infinitival relative clause

(ii) Someone/he/John is difficult to talk to *e*. *tough*-movement.

[10]This is perhaps motivated by an appeal to architectural economy. We would like the theory that covers finite CPs to extend to non-finite CPs (and *vice versa*). I whole-heartedly endorse this type of argumentation, and in fact will appeal to it later, though I take the facts to indicate a different conclusion.

3.2.3.1 Ellipsis

The first argument concerns ellipsis. As I discuss in Chapter 2, some *tough*-predicates can take true (non-judge) internal arguments.

(3.38) a. It's harmful to the environment to use bleach.

b. It's important to the mission to help Agent Smith.

c. It's damaging to my skin to be out in the sun.

Now, we observe that we can elide the adjective plus its internal argument, but leave the *for*-CP.

(3.39) a. It's harmful to the environment to use bleach, as it is <harmful to the environment> to leave the lights on.

b. It's important to the mission to help Agent Smith, as it is <important to the mission> to save Agent Banks.

c. It's damaging to my skin to be out in the sun, as it is <damaging to my skin> to use a loofah.

This is unexpected if the *for*-CP were considered an argument of the adjective, but follows naturally if it's a modifier.

Similarly, as noted in Bayer (1990) non-finite clauses as arguments of, say, raising verbs cannot normally be omitted. As we've just seen, this is not the case for the *for*-CP.

(3.40) a. * That girl is quite likely to finish the exam, but her sister is almost sure.

b. This story is easy to translate, but the other one is difficult. (Bayer, 1990:33)

Indeed, in general as long as the event of the *for*-CP is salient enough, it need not be expressed.

(3.41) a. "Did you finished reading the articles for class?"

b. "No, it was tough (to read them) / they were tough (to read)."

This strongly conrtrasts with true arguments, which cannot be cannot be omitted even when salient.

(3.42) a. "Did you talk to John today?"

b. "No I didn't see *(him)"

(3.43) a. "Do you want to talk to Mary?"

b. "No, I don't want *(to talk to him)"

3.2.3.2 Genericity

A further argument comes from generic interpretations of *tough*-constructions. *Tough*-predicates may receive a generic interpretation in the right circumstances (cf, Poole et al. 2017) (whether there is an antecedent-gap chain or not).

(3.44) a. It is difficult to read Tolstoy/Tolstoy is difficult to read *e*.

b. It is hard to find a cheap apartment in NYC/A cheap apartment is hard to find *e* in NYC (Postal, 1971)

c. It is hard to kill a beaver/A beaver is hard to kill *e*.

(Lasnik and Fiengo, 1974:546).

Generic interpretations introduce a problem for (3.36a) because on this analysis, the clause denotes a definite descriptions, and so it shouldn't be possible to give them a generic reading, like, "all generic events of reading Tolstoy are difficult events." This should only have the reading "The unique event of reading Tolstoy is a difficult event." The tree in (3.36b) correctly predicts the availability of interpreting the *for*-CP as involving a generic event. Note that this is specifically an argument against the tree in (3.36a), and thus an indirect argument against the *for*-CP as an argument.

3.2.3.3 Event nominalizations

Consider the fact that nominalized *tough*-predicates may appear with event-denoting nouns, but not individual-denoting nouns, nor *for*-CPs.

(3.45) a. the difficulty of the exam/*the book/*for the students to take the exam.

b. the simplicity of the plan/*the map/*for John to fix the car

c. the ease of at-home check-in/*the airport/*for us to check-in at home

The fact that event nominals appear with nominalized *tough*-predicates follows if the nouns are saturating the event argument of the nominalized *tough*-predicate, just like Grimshaw (1990) observes for internal arguments of event nominalizations. Thus, just like an internal argument of a ("passive") event nominal, which can appear as a possessor or in a prepositional phrase, the nominal argument of a *tough*-predicate has the same distribution. These are arguments.

(3.46) a. The man's murder → The murder of the man

b. The exam's difficulty → the difficulty of the exam

But *for*-CPs do not similarly distribute. They cannot be possessors (3.47), nor can they occur after the noun (3.45).

(3.47) a. * for the students to take the exam's difficulty

b. * for John to fix the car's simplicity

c. * for us to check in at home's ease

This distributional difference makes sense if we understand that *for*-CPs combine with *tough*-predicates in a different way than "true" arguments. But this is not predicted if the *for*-CP simply saturates the event variable of the *tough*-predicate. Why shouldn't it be treated like an argument in that case, like *exam*?

Note that it doesn't work to make a blanket statement like, "*for*-CPs just can't occur within nominalizations," because they readily occur with other nominalized predicates (Stowell, 1981; Grimshaw, 1990).[11]

(3.48) a. the plan for everyone to meet at the park

b. the wait for the train to arrrive

[11] See also Pesetsky (1992) for some related discussion.

Thus, if we assume that *for*-CPs compose with *tough*-predicates in the same manner as nominal arguments, then we have no explanation for how the same composition fails to occur with nominalized *tough*-predicates.[12]

3.2.3.4 Operators and types

Finally, here's a more theory-internal argument which cannot be fully explored yet as it assumes some ideas to be developed in a bit. But here's the sum of the argument:

Suppose, as is widely believed, the $\overline{\text{A}}$-step in the *for*-CP is locally anteceded by an operator in the left periphery of the *for*-CP. This operator abstracts over individuals, and so it turns the *for*-CP into a function from individuals to τ, where τ stands for any (complex) type:

(3.49) [Op_x for John to read x] : $\langle e, \tau \rangle$

The question is, what is τ? Well, it's whatever the *for*-CP normally is when it combines with the adjective. If it's the case that the *for*-CP is an argument, then τ is of type $\langle v \rangle$ and (3.49) is of type $\langle e, v \rangle$. But how would this merge into the main clause? There is no node that denotes as type $\langle e, v \rangle$, nor indeed could we plausibly derive such a node via movement, etc. Without purely stipulating that *tough*-predicates come in two "flavors" (the explanation adopted in Fleisher 2008b; Keine and Poole 2017), this is not a workable solution.

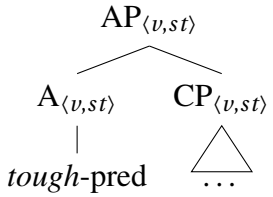
On the other hand, suppose that we kept τ as a property of events such that (3.49) denoted a relation between individuals and events: $\langle e, \langle v, st \rangle \rangle$. Now we have a type that occurs freely in the grammar. This describes a function mapping an individual to a property of events. (I will explain later how this applies to the *tough*-predicate; it involves applications of Event Identification Kratzer 1996.) Moreover, since we've adopted a modification analysis, we would not need to postulate two "flavors" of *tough*-predicate.

[12]Notice that this seems to suggests that even when the *for*-CP is a subject (*for John to leave is difficult*) it doesn't get to saturate the *tough*-predicate. This is consistent with the idea that CPs aren't "true" subjects (Stowell, 1981). This is an interesting empirical result, which I will not explore here.

3.2.4 Two problems: modal-quantification and counting events

In general, the evidence is in favor of treating the *for*-CP as a modifier of the *tough*-predicate, not a complement. This then suggests that (3.36b), repeated below, is the correct structure.

(3.50)



However, while such a structure is syntactically motivated, there are some core pieces of the meaning that it seems to leave out. The first problem is straightforward: *tough*-predicates are intensional. They involve quantification over worlds, similar to, say, embedding under a verb like *want*. (See extensive discussion in chapter 2.)

(3.51) a. It's important to John for Bill to marry a Norwegian.
≈ "In the worlds which are consistent with what John takes to be important, Bill marries a Norwegian."

b. John wants Bill to marry a Norwegian
≈ "In the worlds which are consistent with John's desires, Bill marries a Norwegian."

That both constructions involve modal quantification is shown by the availability of a *de dicto* reading for *a Norwegian*. It need not extensionally refer to a particular human in either case. And that the modal quantification is (at least partly) dependent on the *tough*-predicate can be seen when we change the *tough*-predicate: the modal base (+ ordering source) changes as well.

(3.52) a. It's difficult for John for Bill to marry a Norwegian
≈ "In the worlds which are consistent with what John takes to be **difficult**, Bill marries a Norwegian."

b. It's fun for John for Bill to marry a Norwegian.
≈ "In the worlds which are consistent with what John takes to be **fun**, Bill marries a Norwegian."

c. It's surprising to John for Bill to marry a Norwegian.
≈ "In the worlds which are consistent with what John takes to be **suprising**, Bill marries a Norwegian."

Such a parallel suggests that *tough*-predicates are modal quantifiers, like other intensional verbs. I will call this the *modal-quantification problem*. It's a problem because I've pursued the hypothesis that *tough*-predicates always mean the same thing, whether combining with a clause or an event-nominal. But we've just established that nominals and *for*-CPs combine with *tough*-predicates in distinct ways. One saturates while the other modifies. It's a non-trivial issue to define the *tough*-predicate in such a way as allow modal quantification over *for*-CP modifiers, but to also compose "normally" with event-denoting subjects like *the exam*.

A bigger problem that surfaces in (3.36b) is that this tree (and associated meaning) seems to under-generate the number of events we can count in a *tough*-construction. The structure in (3.36b) posits that when the event variable is saturated — presumably by Event Closure — the *same event* saturates the *tough*-predicate and the infinitive. That is, we expect the neo-Davidsonian breakdown of (3.53a) to be (3.53b).[13]

(3.53) a. It was difficult for John to read this book.

b. $\exists e$ in w such that read$(e)(w)$ & Theme(e)(this article) & Agent(e)(John) & difficult$(e)(w)$

(3.53b) says is that the event of difficulty and the event of reading are the same event. But this isn't right. Consider the ambiguity of *again* modification; the adverb can target the difficult event, or the event in the infinitive.

(3.54) It was difficult for John to climb the mountain again.

a. "There was a second difficulty in John's climbing the mountain."
(In John's climbing the mountain once, there are two difficulties.)

[13]Note that this problem is not solved by resorting to the structure in (3.36a). In either case, there is just a single event.

b. "There was a difficulty in John's climbing the mountain for a second time." (On the second occurrence of John climbing the mountain, there is a single difficult.)

A similar point can be made with manner adverbial modification. In (3.55a), the event of solving the problem was quick, but the difficult event is not necessarily so. This can clearly be observed in (3.55b), where the higher adverb would be incompatible with the lower adverb is they were modifying the same event.

(3.55) a. It was difficult to solve the problem quickly.

b. It slowly became difficult to solve the problem quickly.

The interpretation that we want to derive is that there is an event associated with the main-clause predicate, and an event associated with the infinitival clause, and these events are related in some way. This is not possible in the tree (3.36a), where the event that (eventually) saturates *difficult*'s first argument also saturates *read*'s event slot.[14]

In fact, the problem is more profound than this. While we have to account for the fact that there's a difficult event and a reading event in (3.53a) — two distinct events — we still need to recognize that the reading event is *also* a difficult event. When we assert *It's difficult for John to read this book*, we're saying that there's an event of difficulty e_1, and there's an event of John

[14]Grimshaw (1990) (building on Stowell 1981) observes that that the semantic relationship between the noun and the clause in (i) is different that that in (ii).

(i) the attempt to leave early.

(ii) the decision to leave early.

A noun like *attempt* denotes the event of "attempting," and so its associated clause appears to be more closely semantically linked; it's a true complement, like *John* in *John's murder*. (i) answers the question, *the attempt of what*? But this doesn't appear to be true for *decision*. This sort of noun doesn't denote an act of "deciding," rather it denotes the result of a deciding event. The associated proposition identifies *what was decided*, that is, the "content" of the decision. In this way, *tough*-predicates pattern closer to *decision*+clause. The content of the *tough*-predicate is identified as the proposition denoted by the nonfinite clause. But the event of the infinitival clause is not identified as the event of difficulty; it's the content of such an event. Note that Grimshaw argues that the relationship between the clause and the noun in (ii) is one of modification. This is consistent with what I have argued above. That said, we should be wary of drawing too close a connection between *tough*-predicates and *decision*. There are some non-trivial differences, like that fact that clausal modifiers can be predicated of the nominalized *decision*, but not of the nominalized *tough*-predicate. I leave this for future work.

reading this article e_2, and e_2 shares with the e_1 the property of being difficult. I will call this the *event-relation problem*.

3.2.4.1 A solution to the modal-quantification problem

Let's start with the modal-quantification problem. The basis of the solution here builds on the noted fact that *for*-CPs in general involve modal quantification, even outside of the *tough*-construction (Bhatt, 1999; Hackl and Nissenbaum, 2012). Or more broadly, as we noted at the beginning of subsection 3.2.2, *for*-CPs are often grouped together with proposition-denoting elements, like finite clauses. Thus, we have a reason to believe that whatever modal quantification we observe in the *tough*-construction may, at least in part, come from the *for*-CP itself.

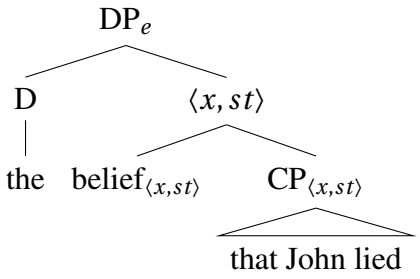
This is what I will propose: the complementizer C_{for} (which has allomorphs *for* and $\emptyset$) provides the modal quantification because it describes a property that has propositional content, and equates the event with the proposition. To formalize this idea this I will adopt a recent line of work that explores *contentful events* (Pietroski, 2000; Hacquard, 2006, 2009, 2011). Contentful events are proposed to be "modalized" events, in that they are associated with a set of beliefs.

The solution also adopts a recent line of inquiry from Kratzer (2006)/(Moulton, 2009) and Bogal-Albritten (2016). They pursue the idea that (most of) intensional semantics comes from the embedded clause itself, not the predicate. Their idea is to treat finite CP complements as instantiating *contentful individuals*. So, *that John lied* denotes an individual, whose "content" is the set of worlds such that John lied is True in those worlds. The CONTENT function maps an individual to an associated propositional content.

(3.56) $[\![$ that John lied $]\!] = \lambda x \lambda w.\ \text{CONTENT}(x)(w) = \{\ w' : \text{John lied-}w'\ \}$

What sort of individual does this describe? Well, it's a noun like *belief, story, rumor*: *the belief that John lied* denotes the unique individual x such that x is a belief, and x consists of the proposition "John lied."

(3.57) a.



b. $[\![(3.57a)]\!]^w = \iota x.\ \text{belief}(x)(w)\ \&\ \text{CONTENT}(x)(w) = \{\ w' : \text{John lied-}w'\ \}$

(adapted from Moulton 2015:9)

This approach shifts the majority of the modal quantification onto the embedded clause, specifically the complementizer.[15] While Moulton considers contentful individuals,[16] The distinction between *for*-CP Hacquard discusses *contentful events.* Hacquard asks us to consider quantification over worlds from a quasi-Davidsonian perspective, where the event is the "glue" that links all the pieces together. In her terms,

> "[I]f *John believes it rained*, the *object* of his belief is the proposition that it rained, while the *content* is the set of all propositions that John believes; the intersection of these is the set of worlds compatible with what he believes, his doxastic alternatives. Now we can render the verb *believe* as an event predicate in terms of the experiencer, object, and content of the event, as in [(3.58)]…" (Hacquard, 2010:35, italics in original)

(3.58) $[\![\text{believe}]\!] = \lambda e \lambda p \lambda x \lambda w.\ \text{Exp}(e, x)\ \&\ \text{belief}(e, w)\ \&\ \forall w' \in \cap\text{CONTENT}(e),\ p(w') = 1,$
where $\cap\text{CONTENT}(e) = \text{DOX}(\iota x\ \text{Exp}(e, x), w)$

The crucial insight here is that we can "recover" the belief state of an individual simply by looking at the event—provided it's the right kind of event, namely, a *contentful event.* Note that

[15] Note that it doesn't shift *all* of the work to the clause. The nominal/verb that the clause combines with plays a role in defining the modal base, i.e., it "anchors" the modality.

[16] Kratzer (2006, 2013) in fact argues that *that*-CPs should be properties of *situations*, which then suggests that we should collapse any distinction between an individual-denoting CP and an event-denoting CP. In truth, I have no qualm with this, as long as we can still define an "individual/event" distinction. The distributional differences between *for*-CPs and *that*-CP necessitate that such a dichotomy exist.

Hacquard and Moulton are using slightly different versions of the CONTENT function. For Moulton, CONTENT identifies an individual with propositional content. For Hacquard, CONTENT is a function that identifies that propositions that are believed at an event.[17]

My proposal is to meld a notion of a contentful event with the idea that CPs can denote as properties of primitives like individuals. Here's the formal proposal: C_{for} is a complementizer (with allomorphs *for* and ∅) which is a predicated of contentful events.

(3.59) $[\![C_{for}]\!] = \lambda P_{v,st} \lambda e \lambda w.$ CONTENT$(e)(w) = \{ w' \mid \exists e'$ in w' such that $P(e')(w') = 1 \}$
"For some property P, event e, world w, the content (i.e., object of belief) of e in w is the set of worlds in which there is an event e' that makes P true in w'."

The complementizer returns a predicate of events, thus the *for*-CP combines with the matrix clause in the same way as illustrated above, and it equates the content of this event with the proposition denoted by the non-finite clause (after its open event variable has been closed). Note that this is closer to Moulton's rather than Hacquard's view of the CONTENT function — but it in no way argues against Hacquard's proposal, which is perfectly compatible with what is proposed in (3.59).

The solution to the modal-quantification problem thus generalizes a theory of embedded clauses: they are all *contentful* elements. Finite clauses are contentful individuals and *for*-CPs are contentful events. We've also managed to maintain the analysis from the previous section which treated *for*-CPs as modifiers. The output of [for P] is simply a predicate of events, which combines as illustrated previously.

One immediate effect of this new way of describing *for*-CPs is that it prevents "stacked" *for*-CPs like (3.60), which we might expect to be possible under the idea that they are modifiers of the event (see Moulton 2015:fn 10).

(3.60) * It was difficult [to read this book] [to talk to Mary]

[17]We might note that under Moulton's analysis, there doesn't appear to be modal quantification in intensional contexts anymore. The way Kratzer gets around this is to specify different "kinds" of CONTENT functions, depending on the selecting predicate. Alternatively, we might utilize Hacquard's CONTENT function *in addition to* his CONTENT function. In this way, there is a way of identifying a set of alternatives (doxastic, circumstantial, etc) (Hacquard's CONTENT), and then there is way of asserting that the object of the belief is among those worlds (Moulton's CONTENT).

This is ruled out as it equates the event with two (distinct) objects of belief.[18]

3.2.4.2 Relating events across worlds

The solution to the modal-quantification problem also partially solves the event-relation problem. A *for*-CP introduces another event inside of the modal worlds, and so now there are two events: there's the matrix event, i.e., the event with content. And then there's the event which describes the action of the infinitive, i.e., e' in (3.59).

While this may seem like a convenient stipulation, it actually follows from a couple of independent observations/proposals. First, Grano (2015) observes that *for*-CPs only ever occur in contexts that involve ROOT modality. That is, *for*-CPs do not combine with *believe, think, know*, which utilize doxastic modal bases. *For*-CPs only combine with things like *want, plan, important*, which involve bouletic or circumstantial modal bases. These are grouped together in Portner (2009) as members of the class of root modals.

Taking an idea from Arregui (2007), Kratzer (2013) proposes that root modals (i.e., non-epistemic modality) use a specific kind of CONTENT function, namely a *factuality* content function, which serves to provide circumstantial and bouletic modal bases. Since these modal bases are linked to the actual world more tightly than epistemic modal bases, the factuality content function is defined to make reference to counterparts for entities (of any kind) in the actual world:[19]

(3.61) For any entity a and any world w,

$\text{CONTENT}_{factuality}(a)(w) = \{\ w' : \text{there is a counterpart } a' \text{ of } a \text{ and } a' \text{ is part of } w'\ \}$

Thus, under the assumptions that, a) *for*-CPs always describe root modality (Grano, 2015), and b) root modality is associated with the factuality content function (Kratzer, 2013), then the existential quantification over events in the modal worlds associated with C_{for} comes as a result.

[18]However, as pointed out by Yael Sharvit (p.c.), *equating* events with propositional content raises a new issue: we expect the negation of the (3.60) to be acceptable. In more traditional theories this is accounted for because the relationship isn't equation, it's subsethood (and the predicate selects for the clause). I'm not sure how to solve this issue in the framework adopting here.

[19]Thanks to Maayan Abenina-Adar for pointing this out to me and helpful discussion.

Notice that CONTENT$_{factuality}$ establishes a counterpart relation between the event in the actual world and the event in the modal world. It's important to note that independent of whether we adopt the proposals in Grano (2015); Kratzer (2013), we would need to establish this "link" anyway. Consider (3.62).[20]

(3.62) *John finds himself suddenly among a group of running people. He assumes that this must be the LA marathon, and John decides on the spot to join in the race, not knowing that in fact everyone is running from a monster attacking the city. Nevertheless, John runs under the impression that everyone is racing. Since he's out of shape, John finds running the race quite difficult.*

It was difficult for John to finish the race.

In (3.62), John understands the infinitival event *de dicto*: he thinks of the running-from-the-monster event that it's a running the LA-marathon event.[21]

We need a theory of *de re* ascription, and so counterpart theory, or equivalent, is required. Assuming that events are world-bound entities (on par with individuals), and further that there is a counterpart relation for events defined under similarity, then e' is a counterpart of event e iff e and e' are sufficiently similar.[22] I assume, for better and for worse, all the typical things about counterparts (Lewis, 1968, 1971, 1983): counterparts are functionally similarity relations via some acquaintance relation.[23] So e' must be a counterpart for e for some individual who is acquainted

[20]I have put aside a non-trivial question about the status of an "event" in the ontology. What is an event? Is it a primitive, like an individual? Are they slices of spatio-temporal information — a situation? The syntactically-minded (like myself) might be content with noting that events share many properties with individuals, i.e., they can be given definite and indefinite descriptions, they can be counted, etc. Thus, we might conclude that they are primitives just as individuals are. The philosophically minded will of course (correctly) protest that this is an oversimplification (Bennett and Bennett, 1988). I will not answer any deep questions about the ontological status of events. It suffices here to illustrate that the judge of the *tough*-predicate has a *de re* belief about the event inside of the *for*-CP.

[21]See also Hacquard (2006:60) for discussion of the following example, attributed to Kai von Fintel.

(i) Bill mistakenly thought that Mary's wedding was a funeral.

[22]This is an adoption of Santorio (2012:13), substituting events for individuals.

[23]In Lewis' terms, "The counterpart relation is a relation of similarity. So it is problematic in the way all relations of similarity are: it is the resultant of similarities and dissimilarities in a multitude of respects, weighted by the importances of the various respects and by the degrees of the similarities." (Lewis, 1968:115).

with the e, say, by being an event-participant in e.

Still, saying that e has a counterpart e' isn't quite enough. Notice in (3.62) that John can have a false belief about the event being a running-race-event, but he cannot have a false belief about the *difficulty* of the event. In John's belief worlds, whatever else he believes about the event, he still believes that it's a difficult event. So something "survives" across worlds even in false-belief scenarios.

Hacquard (2006, 2009) confronts this same problem under a slightly different guise. Hacquard (2009:298) proposes the following constraint, which I've slightly modified by adding in explicit reference to the counterpart relation.

(3.63) *Preservation of Event Description*[24]

For events e_1 in w_1 and e_2 in w_2 where e_2 is a counterpart of e_1, if e_1 is a P-event in w_1, then e_2 is a P-event in w_2.

That is, if e has the property P in w, then for any w' accessible from w in which there is a counterpart e' for e, e' has the property P as well. Such a requirement is necessary in Hacquard's system because of her analysis of the following sentences involving actuality entailments with aspectual morphology in French.

(3.64) Jane a pu s'enfuie, #mais elle ne s'est pas enfuie.

Jane could-PFV escape, but she didn't escape. (Hacquard, 2009:297)

In Hacquard's system, the actuality entailment holds because the event of Jane's escaping occurs in all of the worlds quantified over in the modal base *as well as* in the actual world. Thus, it must be that case Jane escaped in all relevant worlds (including the actual world), explaining the infelicity of the continuation. However, such a system is only possible if we have something like

[24]This is an update of her Event Description Across Worlds in (Hacquard, 2006). It's worth pointing out that Hacquard (2009:fn 15) entertains (crediting an anonymous reviewer) encoding this idea into the modal auxiliary itself.

(i) $[\![\text{can}]\!] = \lambda P_{\langle s,\epsilon t\rangle}\lambda e.P(w)(e)$ & $\exists w'$ compatible with the circumstances in w such that $P(w)(e) = 1$.

This in effect looks very similar to the account I've put forth for C_{for}, *mutatis mutandi.* See further discussion in section 3.4.

Preservation of Event Description, which enforces that the events in the modal worlds are all Jane escaping events.

Importantly, Hacquard points out that this preservation is "unidirectional" in that whatever property holds of the event in the actual world will be preserved in the modal worlds, but it's not the case that properties which are associated with the event in the modal worlds must be associated with the event in the actual world. That is, consider the following pair of sentences.

(3.65) a. Jane a pu s'enfuir. Elle s'est enfuie par la fenêtre
Jane could-PFV escape. She escaped through the window.

b. Jane a pu s'enfuir par la fenêtre. #Elle s'est enfuie par la porte.
Jane could-PFV escape through the window. She escaped through the door.

(Hacquard, 2009:298)

(3.65a) and (3.65b) illustrate that as long as the properties of the original event hold across all worlds, then things are fine—even if the event is further specified in some worlds. It cannot be the case, though, that a property of the event holds in the actual world which doesn't hold in the modal worlds. As it will be important later, I'll point out that this is true for thematic relations as well. If the original event has the property of Jane being an Agent, then this would also have to be true all of the modally quantified worlds as well.

Clearly, we need something like Preservation of Event Description in the *tough*-construction, too. We need to define a counterpart relation for the events, but without Preservation of Event Description, there is no guarantee that those events will bear the same properties across worlds. With Preservation of Event Description in hand, a counterpart e' for an event e will have in w' the same properties ascribed to e in w. Empirically, Preservation of Event Description is needed in order to guarantee that in all of John's belief worlds in (3.62), the event he is participating in (i.e., running the race) is a difficult event.

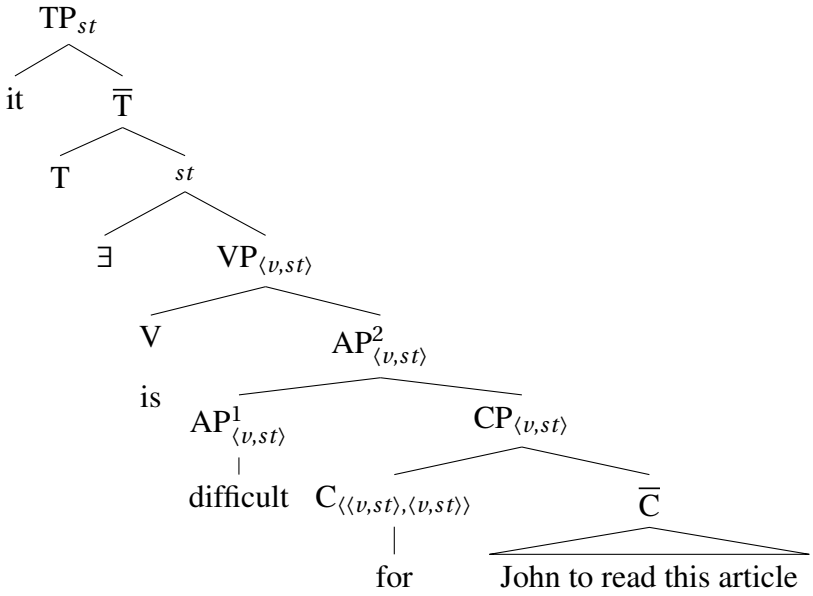
At this point, we are able to give a full derivation for at least one half of the *tough*-construction, when there is no antecedent-gap chain. Assume that the event of the main clause is provided via Event Closure, defined in (3.66). $(e)(w)\copyright(e')(w')$ indicates the counterpart relation such that, "e' in w' is a counterpart of e in w."

(3.66) *Event Closure* (Moulton, 2015:25)

$[\![\exists]\!] = \lambda p_{\langle v,st\rangle} \lambda w.\ \exists e$ such that $p(e)(w) = 1$

(3.67) a. It's difficult for John to read this book

b.



c. $[\![\text{CP}]\!] = \lambda e \lambda w.$ CONTENT$(e)(w) = \{\ w' \mid \exists e'$ in w' such that $(e)(w)©(e')(w')$ & John reads-e' this article in $w'\ \}$

d. $[\![\text{AP}^2]\!] = \lambda e \lambda w.$ difficult$(e)(w)$ & CONTENT$(e)(w) = \{\ w' \mid \exists e'$ in w' such that $(e)(w)©(e')(w')$ & **difficult**$(e')(w')$ & John reads-e' this article in $w'\ \}$

e. $[\![3.67b]\!](w) = 1$ iff $\exists e$ such that e is difficult in w and CONTENT$(e)(w) = \{\ w' \mid \exists e'$ in w' such that $(e)(w)©(e')(w')$ & **difficult**$(e')(w')$ & John reads-e' this article in $w'\}$

f. (3.67b) is True iff there's an event in the actual world that the speaker judges to be difficult, and the content of this event is the proposition that John reads this book.

Preservation of Event Description is doing important work, and I have bolded its contribution above. Since e is a difficult event, then any counterpart of e with also be a difficult event, in addition to whatever else it is predicated of. Thus, in the modal worlds, John reading this article is difficult.

Preservation of Event Description also accounts for a noted issue with respect to "selection." It has been observed that *tough*-predicates tend to prefer "volitional" verbs in the lower clause (Dalrymple and King, 2000; Nanni, 1978)

(3.68) a. ?? It was tough for John to lack money.

b. ?? It was easy for Mary to want that expensive dress.

c. ?? It was hard for the teacher to prefer the hardcover edition.

adapted from (Dalrymple and King, 2000:14)

This follows from Preservation of Event Description. The event in the lower clause must necessarily bear the property ascribed to it by the matrix predicate. But how can John lack money in a tough way? Or Mary want that expensive dress easily? Or the teacher prefer the hardcover edition in a hard way? *Tough*-constructions are overall felicitous when the event of the *for*-CP is felicitous with the *tough*-predicate as a modifier.

(3.69) a. It was difficult for John to read this book
≈ 'John read this book and this event was difficult.'

b. It was easy for Mary to visit Scotland
≈ 'Mary visits Scotland and this event was easy.'

c. It was surprising for Tim to wear shorts to work.
≈ 'Tim wore shorts and this event was surprising.'

Of course, while Preservation of Event Description is itself a stipulation, there is a very real need for something that achieves this same effect, no matter what theory of intensionality is adopted.[25] Simply put, there needs to be a way of ensuring that the property ascribed to the event in the actual world carries over to the event in the modal worlds. The additional matters, e.g., how

[25]It is also independent of whether we adopt trans-world events or not. In a theory which permits trans-worlds events, we would still need Hacquard's Event Preservation. I will continue to use world-bound events simply because there is a need for multiple events, as the data in (3.54) demonstrate. We could also formulate this by expanding on the idea of an event having sub-events, which would be consistent with Hacquard's proposal. I see no strong reason to prefer one option over the other, so I will stick with what I believe is the simpler theory.

intensionality is encoded, and where (on the matrix predicate, C_{for}, or a silent modal WOLL as in Wurmbrand 2014), are largely orthogonal to the syntax of the *tough*-construction discussed here.

However, this is not to say that the choices are arbitrary. As the above discussion has hopefully illustrated, the individual choices are empirically and theoretically motivated. Still, the null hypothesis is that *for*-CPs always have the same denotation everywhere. This is an empirical question that rests outside of the scope of this dissertation, but I think that the empirical landscape looks promising. For instance, it has been observed that *for*-CPs have a distributional restriction: they must occur in the presence of a modal operator (Pesetsky, 1992; Portner, 1997).

(3.70) a. ?? John loved for Mary to visit Chicago. (ok on generic reading)

b. John would love for Mary to visit Chicago.

This follows directly from the fact that the *for*-CP's *content* functions must be "anchored" to a contentful event (Gluckman, 2018).

Likewise, *for*-CPs have been proposed to be "modal" on their own, i.e., in their use in infinitival relative clauses (Bhatt, 1999). *A book to read* involves modality independent of how the predicate it combines with. Importantly, infinitival relatives with subject gaps (*A man to fix the sink is here*) do not appear to involve modality. This would follow is such clauses lack a C_{for}.[26]

These distributional facts follow from the analysis above: *for*-CPs quantify over worlds, but they need to combine with a contentful event, i.e., an event with associated beliefs. Assuming that modal operators can provide such an event, then these distributional facts are neatly captured.

3.2.5 Taking stock

It's worth reviewing the reasoning behind the steps taken so far.

i. We first observed that events were the factor that *tough*-predicates and *for*-CPs shared.

ii. We then observed that the relationship between the *tough*-CP and the *tough*-predicate was one of modification.

[26]Thanks to Roumi Pancheva for pointing out these facts to me.

iii. Following Kratzer/Moulton, we proposed to house the semantic "weight" (i.e., intensionality) on the complementizer. This was motivated by an appeal to a uniform meaning for *tough*-predicates, but also by the environment that *for*-CPs appear in and their overall meaning.

iv. Finally, following Hacquard, we defined a way to relate the event of the main clause to the event of the infinitive. This was a obligatory step in accounting for the semantic relationship between the matrix and embedded clauses.

I'll note that the step in iii. is, as far as I can tell, a move that is motivated largely by theory internal considerations. Kratzer's (2006) original proposal concerning attitude report verbs and finite complements is an attempt to reconcile, in part, the fact that many attitude report verbs optionally appear with a clausal complement.

(3.71) a. John screamed.

b. John screamed that Mary left.

Instead of listing two versions for every verb in this class, she considers whether it would be feasible to construct a system in which there is only one version. Following her reasoning through, she concludes that we can, but only if we relocate the semantics originally associated with the verbs onto the complementizer.[27] It should be clear that the original impetus here is a theory which prioritizes simplicity in the lexicon; as far as I'm aware, there is no unequivocal empirical motivation for this shift.[28] That said, I find the theory they advocate for compelling, and

[27]Kratzer/Moulton cite other arguments as well, including embedded modals which "match" the embedding verb (i), and correlation between the size/type of embedded clause and the attitude reported, i.e., the epistemic vs. factive difference between (ii) and (iii).

(i) John advised that Mary should leave.

(ii) John saw it to be raining

(iii) John saw that it was raining

To me, these are all making the same point: we don't want to posit a large number of homophonous lexical entries with different meanings.

[28]This is true of Bogal-Albritten's (2016) work on Navajo as well.

so I have adopted the same goal of prioritizing a simple lexicon. On the analysis of the *tough*-construction proposed above, *tough*-predicates are always the same, but they may interact with the syntax in different ways. The event might be saturated by an event-denoting noun, or the event might be equated with propositional content, in which case it is event closure that saturates the event argument.

Still, at the risk of undermining the previous discussion, nothing in what follows crucially hinges on the modification analysis. In particular, the most important aspect of the analysis so far is the idea that the events in the actual world and the modal worlds are in a similarity relation. Whether it turns out that *for*-CPs are in fact selected by their associated *tough*-predicate does not bear on the event-counterpart relation at all nor on Preservation of Event Description. Independent of the syntax required, we still need a way to equate events across worlds, and this is what I will leverage in explaining the antecedent-gap chain.

3.2.5.1 The class of *tough*-predicates

One benefit is that we are now in a position to better understand the class of *tough*-predicates.[29] First, we now know that only predicates of events can be "true" *tough*-predicates, occurring with an expletive subject. But not just any eventive adjective will work. So far, it's still not clear why some adjectives which can be used to describe events, like *frequent, constant*, do not participate in the *tough*-construction.

(3.72) a. * It's frequent to listen to the rain.

b. * It's constant to read this book.

If I can describe events as *frequent* and *constant*, then, in terms of types, we should predict that they combine with *for*-CPs. However, C_{for} is required to combine with an event with propositional content (recall that *for*-CPs are only licensed in the presence of a modal operator). This means that in addition to being eventive, *tough*-predicates need to be *model* in some way as well.

[29] A lot of this section is reported in Gluckman (2018). Here I present a brief overview of the observations reported there.

For the majority of *tough*-predicates, this requirement is met by *judge-dependence*. As I discuss at length in chapter 2, the attitude holder of the *tough*-construction is identified as the *judge* of the *tough*-predicate, i.e., the person who holds a belief about whether the event is difficult, important, fun, etc.

(3.73) a. It's important to John to talk to Mary.
≈ "John thinks is important to talk to Mary."

b. It's surprising to Bill for the Jets to lose all the time.
≈ "Bill thinks it's surprising for the Jets to lose all the time."

c. It's fun for Susan to ride the rollercoaster.
≈ "Susan thinks it's fun to ride the rollercoaster."

Thus, any predicate that describes a property of events and is subjective is a *tough*-predicate. All others are not. Just being one, i.e., judge-dependent or an event-predicate is insufficient. Judge-dependent predicates that describe individuals (*pretty, ugly, tasty*) do not permit the expletive version. They license a *for*-CP, because their modal in the right sense, but if so, then they require a gap — for reasons to be explained in subsubsection 3.3.5.1. Event predicates that aren't judge-dependent (*frequent, constant, quiet*) do not license *for*-CPs because they aren't subjective.

That said, it's also true that there are predicates which are not subjective in the sense intended above, but which are still *tough*-dependent.

(3.74) a. It's crucial/illegal/impossible to brew your own beer.

b. Your own beer are crucial/illegal/impossible to brew *e*

While these may not be subjective, they certainly are *modal*. In general then, *modality*, of which subjectivity is a sub-type, is the crucial factor for *tough*-predicates.[30]

[30]Roumi Pancheva (p.c.) points out that the distinction between predicates like *important, difficult* and *crucial, illegal* is reminiscent of the difference between *objective* and *subjective* (or perhaps *intersubjective*) modality (Portner, 2009).

3.2.5.2 *For*-CPs vs. *that*-CPs

Of course, not all modal adjective are going to be *tough*-predicates. The other property that is required to be a *tough*-predicate is that it must describe an event. But we could also ask whether there are modal adjectives that describe individuals, are more precisely *contentful individuals* in the sense of Kratzer/Moulton. Indeed, there are such predicates.[31] Consider the alternations in (3.75) and (3.76)

(3.75) a. This fact/story/belief is obvious/evident/clear.

b. * Running/the examination of the students is obvious/evident/clear.

(3.76) a. It's obvious/evident/clear that John went to Sacramento.

b. * It's obvious/evident/clear for John to go to Sacramento.

In (3.75a), we see that adjectives like *obvious/evident/clear* can take nouns describing propositional content as subjects, but not event-denoting nouns. And precisely the same class of verbs co-occurs with finite CPs, not *for*-CPs.

At the same time, there are predicates which can only occur with an event-denoting subject. These are precisely the predicates that occur with a *for*-CP, but not a *that*-CP. (They're the *tough*-predicates.)

(3.77) a. Running the race/the examination of the students was difficult/easy/hard

b. * The fact/story/belief was difficult/easy/hard

(3.78) a. It's difficult/easy/fun for John to go to Denver.

b. * It's difficult/easy/hard that John {go/went} to Denver.

In some cases, the class of *tough*-predicates intersects the class of *obvious*-predicates. As expected, these predicates can occur with either event-denoting subjects or individual-denoting subjects, just like they can occur with *that*-CPs and *for*-CPs.

[31] They seem to be the class of factives (Kiparsky and Kiparsky, 1971). There is likely something deeper to be said about this, but I will put it aside for future work.

(3.79) a. Running the race/the examination of the students was important/interesting/amusing.

b. The fact/story/belief is important/interesting/amusing.

(3.80) a. It's important/interesting/amusing for John to go to Denver.

b. It's important/interesting/amusing that John {go/went} to Denver.

Here we see independent support for the dichotomy between *that*-CPs and *for*-CPs as properties of individuals and properties of event, respectively. Notice, though, that now it becomes mysterious as to why **Sacramento is obvious that John went to* is ungrammatical. I address this question in the next section.

3.3 The *tough*-subject

We now turn to the variant of the *tough*-construction that includes a gap.

(3.81) This book is difficult to read *e*.

Ideally, we'd like to find a solution that avoids stipulating multiple versions of *tough*-predicates, and also one that is consistent with the meaning and structure we've elaborated above. Given what we've already discovered, it seems unlikely that a movement analysis for (3.81) will work. Not only would this be improper movement, but it would be (A-)movement out of an adjunct. Moreover, as detailed in chapter 1, the empirical evidence strongly favors an analysis in which the subject is generated in the main-clause. The main thrust of the argument comes from the fact that there is no systematic evidence for a reconstructed reading of the *tough*-subject (Epstein, 1989; Fleisher, 2013; Poole et al., 2017)

There are number of predication approaches that have been proposed (Nanni, 1980; Lasnik and Fiengo, 1974; Chomsky, 1973; Browning, 1987; Jones, 1991; Řezáč, 2008; Salzmann, 2006). (See discussion in chapter 1.) These ideas all take for granted or argue explicitly that the non-expletive subject is a true argument of the *tough*-predicate. Putting aside any specific formulation, we might immediately note that a predication analysis has an important consequence with respect to Preservation of Event Descriptions postulated earlier. Remember that the properties we ascribe to the

event in the actual world will also be ascribed to the events in the modal worlds. Thus, if we add that the *tough*-subject bears relation R to the actual-world event, it will also bear relation R (or something than entails R) to the modal-world events. This is an unavoidable consequence of relating events across worlds and Preservation of Event Description, which are necessary components of any analysis of the *tough*-construction.

The issue, though, is what "R" actually is. We don't want to say that the *tough*-subject is a "true" thematic argument of the *tough*-predicate given the data cited earlier, repeated in (3.90). If the subject were an argument of the adjective, then the following entailments should go through.

(3.82) a. The mountain was difficult to climb $e \not\Rightarrow$?? The mountain was difficult.

b. The tree was easy to chop down $e \not\Rightarrow$?? The tree was easy.

c. The guitar is fun to play $e \not\Rightarrow$?? The guitar is fun.

The idea that I entertain below is that the relation between the *tough*-subject and its event is "underspecified." All that's asserted is that the *tough*-subject is *involved* in the actual-world event. In fleshing out this idea, I'll make the connection to what is called *prolepsis*. I'll show that *tough*-subjects are thematically similar to proleptic objects, i.e., prepositional arguments of a matrix predicate which form an "aboutness" relation with an embedded CP, e.g., *John believes of Mary that she lied* (Quine, 1956; Davies, 2005; Salzmann, 2006; Landau, 2011). This idea concurs with Salzmann (2006, 2015) in that it treats the relation between the *tough*-subject and the *for*-CP as fundamentally proleptic, but where Salzmann syntactizes this relation, I will show that we can "semanticize" it using the principles we've already established. The benefit of this way of thinking of the antecedent-gap chain is that it captures a range of peculiarities associated with the *tough*-construction that are otherwise unexplained on a purely syntactic account.

3.3.1 Thematic underspecification

We start with the observation that nominals can be added to the main clause of the *tough*-construction in *with*-PPs. In this case, there is a strong tendency for there to be a "bound" pronoun in the lower

clause.[32] ("Bound" in the sense that it's obligatorily coreferential; as I illustrate later, I do not commit to binding in a syntactic sense.)

(3.83) a. It's difficult with Ortcutt for the Russians to track him down.

b. It's inappropriate with toddlers to show them horror movies.

c. It's important with students to discipline them properly.

d. It's annoying with this car for the radio to barely work.

Adopting terminology from the literature on *prolepsis*, we say that the nominal forms an "aboutness" relation with the embedded clause. In some way, the *for*-CP is "about" the element in the *with*-PP. Given the similarity to more well-studied cases of prolepsis, I will refer to the nominal in the *with*-PP as a *proleptic object*.

Proleptic objects in the *tough*-construction are syntactically in the main clause, and generally have a "correspondent" in the lower clause to the proleptic object in the form of a pronoun. However, a pronoun is not required in the lower clause (3.84a), as long as there is an implied "presence" of the argument. (3.84a) can only mean that the speaker is getting lost in the article, and not, say, the woods. If the *for*-CP doesn't involve the *with*-PP at all, then the sentence is ungrammatical (3.84b).

(3.84) a. It's easy with this article to get lost completely.

b. * It's difficult with Ortcutt for Mary to go to New Jersey.

I should stress that the *with*-PPs are syntactically part of the main clause. They unambiguously form a constituent with the adjective. However, thematically, proleptic objects are best understood

[32] Of course, *with*-PPs can also occur without a clause constituent.

(i) (a) Picnicking at the park was difficult with Mary

(b) A good education is important with kids

(c) Running is easy with these shoes

(d) The classwork is annoying with this professor

I'll put aside the exact meaning here, but note that this provides evidence that *with*-PPs are syntactically introduced in the main clause, and do not arise via, say, promotion out of the *for*-CP, as is sometimes argued for prolepsis (cf Salzmann 2006).

as being interpreted inside of the *for*-CP. That is, their thematic interpretation is dependent in some way on the lower clause. For instance, without a *for*-CP, the sentences are borderline ungrammatical.

(3.85) a. ?? It's difficult with this article.

b. ?? It's easy with Mary.

c. ?? It's important with kids.

For (3.85) to make sense, there must be some highly salient event implicit event like reading, talking to or disciplining. That is, the *with*-PP does not on its own provide an adequate thematic relation between the event and the noun. Without some further specification for the thematic role of the proleptic argument, the sentences don't make sense.

Since the prepositional phrases cannot have moved from inside of the lower clause to their present position, they must be licensed *in situ*, i.e., as modifiers of the main clause predicate. But if they are modifiers of the main clause, what are they contributing to the main clause? What thematic role do they bear?

I propose to understand their thematic relation as *underspecification*, where I understand underspecification to mean simply "is involved in the event." Thus, (3.85a) have the meaning, "There's an event e such that this article is involved in e and e is difficult." Similarly, (3.85b) and (3.85c) mean "There's an event e such that Mary is involved in e and e is easy," and "There's an event e such that e involves kids and e is important," respectively.

Now we can see the effect of Preservation of Event Description. Recall that anything we add to the main-clause event will be duplicated on relevant events in the modal worlds because of Preservation of Event Description. More explicitly: the main clause of (3.83a) asserts that there is an event e of difficulty involving Ortcutt. In the modal worlds, the event-counterpart relation will pick out events e' in w' which are also difficult events *involving Ortcutt* (or his counterpart in w'), and assert that these are tracking down events. Notice that this directly accounts for the fact that the lower clause must be "about" the proleptic object in some way. Indeed, this why we have the impression that the proleptic argument bears a thematic role from the lower clause. This is a predicted outcome of the necessary ingredients involved in relating events across worlds,

i.e., Preservation of Event Description. In truth *Ortcutt* bears two thematic roles: one of merely "event-involvement" and the other of Patient.

Of course, it's perfectly acceptable that in the modal worlds the thematic role that Ortcutt bears is a more specific than just "involvement," since the counterpart relation is uni-directional. That is, being a Patient of the tracking-down event entails involvement in the event, thus Preservation of Event Description is satisfied. Moreover, it's also perfectly acceptable that there is no pronoun in the lower clause, as long as there is some implicit argument that is viewed as sufficiently involved in the event.

A striking consequence of the system being built here is that Preservation of Event Description will restrict which pronouns can be "bound" by the *with*-PP. In particular, pronouns which aren't involved in the event which is in the counterpart relation with the actual-world event are going to be infelicitous. For instance, crossing clausal boundaries is strange (3.86).

(3.86) a. * It was difficult with this book to claim to have read it

b. * It was surprising with this mountain to decide to climb it.

c. * It was easy with Mary to plan to talk to her

What goes wrong here is that we cannot plausibly construe the proleptic object as being a participant of the highest event in the *for*-CP. For instance, in (3.86a), Preservation of Event Description requires that *this book* be a participant of the claiming event, rather than the reading event, because the claiming event is the counterpart of the difficult-event. The claim is difficult, not the reading. But the intended meaning of (3.86a) is that *this book* is a participant in the reading event. It is *not* a participant in the claiming event. This is why (3.86a) sounds strange: *this book* is being associated with the wrong event.

Similarly, in (3.86b) and (3.86c), *this mountain* and *Mary* are participants of the deciding and planning events, respectively. But this is not how we understand the meaning of *decide* and *plan*. In each case, Preservation of Event Description is forcing the proleptic object to associate with the "wrong" event.

Of course, crossing some clausal boundaries will be fine when we can construe the events as more closely linked in some way, for instance, if we use restructuring predicates in the lower clause. Here, if we understand one aspect of restructuring as "event-sharing" (Wurmbrand, 2001; Cinque, 2006; Grano, 2012) then it follows that the proleptic object will be able to target a position which is syntactically a little further away.

(3.87) a. It was difficult with this book to manage to read it

b. It was important with Mary to try to talk to her.

c. It was easy with this mountain to start to climb it.

(3.87) are felicitous because *this book* is a participant in the manage-to-read event, which is the counterpart of the difficult event; *Mary* is a participant in the try-to-talk event; and *this mountain* is a participant in the start-to-climb event.

Even within the highest clause of the *for*-CP, the sentences can be bad if the proleptic object isn't sufficiently involved in the event. Consider (3.88).

(3.88) a. ??? It's difficult with Ortcutt$_i$ to talk to Mary next to him$_i$

b. ??? It's easy with this book$_i$ to describe its$_i$ author

c. ??? It's important with kids$_i$ for their$_i$ parents to come home early.

In these cases, the proleptic object is in a relationship with an argument of the lower clause that cannot plausibly be construed as being a participant in the event of the infinitive. Note that there is nothing generally bad about prolepsis targeting a possessor, or being inside of a prepositional phrase. But in the cases in (3.89), it's plausible to construe the proleptic object as being a participant in the event of the infinitive.

(3.89) a. It's difficult with Ortcutt to talk to Mary next to him$_i$ while he's interrupting us.

b. It's easy with this book$_i$ to describe its$_i$ plot.

c. It's important with kids$_i$ for their$_i$ parents to put them$_i$ to bed early.

d. It's frustrating with this car$_i$ for its$_i$ radio to barely work.

Preservation of Event Description explains concisely the availability and distribution of a pronominal correspondent in the lower clause.

3.3.2 *Tough*-subjects are proleptic objects

I wish now to set up a parallelism between proleptic objects and *tough*-subjects. The point of the discussion on prolepsis is to show that the same sorts of restrictions found for proleptic objects are present for *tough*-subjects:[33]

1. They are syntactically in the main clause, but thematically associated with the lower clause.

2. They are restricted in their chain-formation by their relation to the event of the lower clause.

As discussed earlier in subsection 3.1.1 and in chapter 1, *tough*-subjects are syntactically part of the higher clause, but thematically part of the lower clause. This explains the lack of entailment in (3.90), repeated from (3.9).

(3.90) a. The mountain was difficult to climb $e \not\Rightarrow$?? The mountain was difficult.

b. The tree was easy to chop down $e \not\Rightarrow$?? The tree was easy.

c. The guitar is fun to play $e \not\Rightarrow$?? The guitar is fun.

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[33]It is sometimes argued that the *tough*-subject must be selected by the adjective because of alternations like in (i)-(iv).

(i) it is possible/legal/feasible to discipline the kids.

(ii) It is impossible/illegal/infeasible to discipline the kids..

(iii) * The kids are possible/legal/feasible to discipline *e*.

(iv) The kids are impossible/illegal/infeasible to discipline *e*.

Putting aside the fact that there is a great deal of speaker variation as to the ungrammaticality of (iii), there are two things to note about such data. First, they are directly paralleled by the availability for proleptic prepositional phrase.

(v) *It is possible/legal/feasible with kids to discipline them properly.

(vi) It is impossible/illegal/infeasible with kids to discipline them properly.

Second, there is a pattern: for certain modal adjectives, the negatively prefixed form permits the *tough*-alternation. The pattern suggests that the constraint isn't lexical, rather it has something to do with the meaning that arises from combining the negative prefix and the adjective. While this is certain interesting, it does not suggest that the subjects in this case are idiosyncratically selected for. Rather, their availability is contingent on the combined semantics of the parts of the adjectives.

The data in (3.90) parallel what was observed for proleptic objects in (3.85). Indeed, without a *for*-CP, the sentences feel wrong in precisely the same way: we get the sense that both examples in (3.91) are missing the same thing, namely *in what way* the tree is easy (e.g., *chopping it down*), etc.

(3.91) a. ?? It was easy with this tree.

b. ?? This tree was easy.

(3.92) a. ?? It's difficult with Mary.

b. ?? Mary is difficult.

(3.93) a. ?? It's important with kids.

b. ?? Kids are important.[34]

It has been further observed that the $\overline{\text{A}}$-step in the lower clause is "weak" in that it can cross some clausal boundaries, but not all (Dalrymple and King, 2000) a.o.

(3.94) a. This book was difficult to start to write *e*.

b. This article was easy to manage to read *e*.

(3.95) a. * This book was difficult to think that Mary read *e*.

b. * Mary was easy to believe that John talk to *e*.

In fact, this $\overline{\text{A}}$-step is constrained in precisely the same way that the relationship between the proleptic object and a pronoun is constrained. For instance, in (3.96), we find with a certain class of non-finite embedders, namely non-restructuring verbs, gaps are barred in the lowest clause.

(3.96) a. * This book was difficult to claim to have read *e*.

b. * This mountain was surprising to decide to climb *e*.

c. * Mary was easy to prepare to talk to *e*.

[34]There is an acceptable reading of (3.92b) and (3.93b) which treats that adjectives as properties of individuals, i.e., *pretty*-class adjectives. Please ignore this for the present purposes.

Conversely, we observe in (3.97) that with another class of non-finite embedders, namely restructuring verbs, gaps are possible in the lowest clause.

(3.97) a. This book was difficult to manage to read *e*.

b. Mary was important to try to talk to *e*.

c. This mountain was easy to start to climb *e*.

As we observed with prolepsis, this difference correlates with whether the lower clause contains a restructuring predicate.[35]

It's worth noting that Kayne (1989:250) and Rizzi (1982:26) observe a similar effect for Italian and French.

(3.98) a. * Questo libro è difficile da convincere Mario a finire *e* prima di lunèdi
this book is difficult of to.convince Mario to to.finish first of Monday
[Intended: 'This book is difficult to convince Mario to finish by Monday']

b. ? Mario è difficile da poter convincere *e*
Mario is difficult of to.be.able to.convince
'Mario is difficult to be able to convince.'

(3.99) a. Questa canzone è facile da cominciare a cantare
this song is easy of to.begin to to.sing
'This song is easy to begin to sing.'

b. * Questo lavoro è facile da promettere di finire per domani
this work is easy of to.promise of to.finish by tomorrow.'

(3.100) a. ? (Pour moi), ce livre serait impossible à commencer à lire aujourd'hui
for me, this book would.be impossible to to.begin to to.read today
'For me this book would be impossible to begin to read today.'

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[35]It seems to me that this might be a slightly oversimplification. It's noted that sometimes *tough*-subjects are licit across truly finite CPs.

(i) ? This book was difficult to believe that Mary read *e*.

(ii) It was difficult with this book to believe <u>about it</u> that Mary read it

I think such sentences are acceptable as long as the *tough*-subject can be construed as the proleptic argument *of the highest infinitive*, as in (ii). This would then be enough to satisfy the event-counterpart relation.

b. * Ce genre de livre est facile à promettre de lire
this kind of book is easy to to.promise of to.read

Kayne concludes: "In both Italian and French, the 'easy-to-please' construction is possible with two levels of embedding only if the highest infinitive is of the class of verbs compatible with a CP complement having an empty head bound from without [=a restructuring predicate] (p. 251)." Thus, we find independent support for the necessity of a closer event relation in non-finite clause when there's a gap.[36]

Now, some gaps will be ruled for out independent reasons. For instance, English does not permit possessor gaps at all, so it is not be possible to form relations like (3.101b), despite the fact that the equivalent proleptic structures are grammatical.

(3.101) a. It was difficult with this book to describe its plot.

b. * This book was difficult to describe *e*'s plot.

Still, the explanation provides a simple explanation for the contrast in (3.102). (3.102a) is strange unless we can construe a suitable context in which *Mary* is a participant in the talking event, say, by interrupting (3.102b).

(3.102) a. ?? Mary was difficult to talk to John next to *e*.

b. Because she was always interrupting, Mary was difficult to talk to John next to *e*.

Unless Mary is a participant in the talking event, say by interrupting our conversation, (3.102a) does not make sense. Thus we can see the effects of Preservation of Event Description at work in constraining the $\overline{\text{A}}$-dependency.

In general, we should find a direct parallel between what can appear as a proleptic object, and what can appear a *tough*-subject. For instance, expletive arguments should not be able to be *tough*-subjects because they cannot be an proleptic argument. We cannot form an aboutness relation with a non-referential entity. This is empirically correct (Williams, 1983).[37]

[36]Of course, there may be other factors that differentiate *tough*-constructions in Romance and English.

[37]One potential problem is with negatively quantified elements.

(3.103) a. * There is easy to want *e* to be a riot.

b. * It is easy to want *e* to be clear that Bill is here. (Williams, 1983:442)

(3.104) a. * It was difficult to expect *e* to rain

b. cf, ? John is easy to want *e* to win (Williams, 1983:442)

(3.105) a. It's hard with young animals to watch them die.

b. Young animals are hard to watch *e* die[38]

(3.106) a. * It's hard with it to watch it rain.

b. * It's hard to watch *e* rain.

The idea that *tough*-subjects are "proleptic" isn't new; Salzmann (2006, 2015) similarly claims that *tough*-subjects are proleptic (in the "standard" sense of the prolepsis). Under his proposal, the prolepsis in the *tough*-construction operates under a sort of Matching Analysis, where there is a movement of the DP in the lower clause, and the lower copy is deleted under identity with the DP in the main clause.[39]

(3.107) $[_{TP}$ This book is tough $[_{CP}$ ~~this book~~$_i$ to read t_i]]

Predication; $\overline{\text{A}}$-mov't

Technicalities aside, whereas Salzmann "syntactizes" the prolepsis relationship, I have "semanticized" it. The semantic account provides a concise and natural explanation for the quasi-unboundedness of the $\overline{\text{A}}$-movement in the lower clause. It's a direct consequence of Preservation of Event Description, which is a necessary component in the semantics of the *tough*-construction. I do not see how a purely syntactic approach can achieve this same effect. In particular, how does the syntactic account constrain the $\overline{\text{A}}$-step in the lower clause such that it is "weakly" unbounded?

(i) * It's difficult with nothing to lift it.

(ii) Nothing is difficult to lift *e*.

It's not immediately clear to me how to solve this problem, so I'll have to put it aside.

[38]Thanks to Carson Schütze for this example.

[39]See also (Landau, 2011) for a similar treatment of copy-raising.

More troublingly, if all prolepsis involves an operator movement, and hence a gap, in the lower clause, how do we account for the following sort of example.

(3.108) It was easy with this article to get lost.

It is unlikely that Salzmann would want to extend operator-gaps to implicit arguments — indeed, this would create an enormous theoretical problem. However, I should state that the (3.109a) turns out to be problematic for my solution as well. I will address this issue in the next section.

Before that, I want to emphasize that the consequences of the above analysis should not be overstated. It may be that the prolepsis that the authors cited above discuss is different. (Both Landau and Salzmann are mainly concerned with prolepsis with finite clauses.) It is outside the scope of this project to explore whether a semantic analysis of prolepsis can be extended to "classic" cases of prolepsis. It may be that such examples involve an entirely different dependency than what we observe in the *tough*-construction, and so I will leave this for future work.

Still, it should be clear that a syntactic approach for prolepsis in the *tough*-construction isn't *required*. Given the independent need for some way to relate events across worlds (whether defined as Preservation of Event Description or otherwise), then the relationship between the *tough*-subject and the gap can be made to follow—*modulo* the argument/adjunct asymmetry discussed in the next section.

3.3.3 The argument/adjunct distinction

We might object to the proposal above on the grounds that it predicts that (3.109b) should be grammatical, on par with (3.109a).[40]

[40]Despite reports to the contrary, the embedded clause is "true" proleptic structures with finite clauses need not involve a bound pronominal element as noted in Moulton (2013:fn 16).

(i) Mary believes about Europeans that the Germans eat more meat than any other nation.

(ii) John said of/about macaroni and cheese that Chef Boyardee perfected the art of pasta-in-a-can.

(iii) It's required of new employees that all hiring paperwork be finished before July 1st.

(iv) April discovered about her ex-husband that the divorce had never been finalized.

(v) Bradley hates about his car that the radio only works when the heat is on.

(3.109) a. It was easy with this article to get lost.

b. * This article was easy to get lost.

This is the reasoning: I have proposed that the crucial link between the main clause and *for*-CP event is in a similarity relationship. It's possible to construe *this article* as being involved in both events, and so what would rule out (3.109b)? Broadly, we might expect that there need not be an associated gap in the in *for*-CP as long as we can understand the *tough*-subject to be involved in the event of the lower verb.

The flaw in this reasoning is that we have assumed that arguments introduced in a *with*-PP bear the exact same relationship to the event as arguments introduced in an argument position. This is not a new issue. Indeed, it recapitulates a well studied question as to what differentiates identical thematic relations that are introduced in an argument vs. adjunct position (cf Landman 1996). For example, what differentiates the underlined arguments in the instrumental alternation (3.110), the double object/complement distinction (3.111), spray/load alternations (3.112), among manner others? (See Levin 1993 for an overview of such alternations.)

(3.110) a. John lifted the box with a crane.

b. The crane lifted a box. (cf, Nilsen 1973)

(3.111) a. John sent a package to Mary.

b. John sent Mary a package. (cf, Levin 1993)

(3.112) a. John sprayed the wall with paint.

b. John sprayed paint on the wall. (cf, Levin 1993)

The general consensus here is that the difference between arguments and adjuncts is how they are incorporated into the event. For instance, consider the instrumental alternation. It's well known that some instruments are licit as subjects, while others aren't (Nilsen, 1973; Schlesinger, 1989; Alexiadou and Schäfer, 2006).

Note that the distinction isn't whether there is some implicit argument in the lower clause — there crucially must be in order to form the aboutness relation. The relevant fact that this isn't an explicit pronoun.

(3.113) a. John lifted the metal ball with a magnet.

b. John lifted with metal ball with a spoon.

(3.114) a. The magnet lifted the metal ball.

b. ?? The spoon lifted the metal ball.

The observation is that for an instrument to be licit subject, it must have some internal property that can be bring about the event of the predicate in some way. Thus, something about the subject position imposes an additional restriction on how the noun relates to the event.

In Minimalist syntax, the argument adjunct distinction is difficult — if not impossible — to formalize. But this doesn't make it any less real. The idea has played a central role in other frameworks, e.g., Role and Reference Grammar (Foley and Van Valin Jr., 1984) *et seq.*

I do not believe that we can syntactically encode the distinction, but we can semantically differentiate core and peripheral arguments. Suppose we encode it as two different relations. R_{PER} is the relation between an event and an "peripheral" event participant bearing thematic role θ, and R_{COR} is the relation between an event and an "core" event participant bearing thematic role θ. R_{PER} and R_{COR} differ in how they integrate the nominal into the event, following the basic assumption that core arguments are more integrated than peripheral arguments. It now follows that if the event in the actual world bears relation R_{COR} to the *tough*-subject, then the events in w' will also have to bear R_{COR} (or something that entails this relation) to the *tough*-subject (or its counterpart in w'). This in effect restricts *tough*-subjects to targeting argument positions — though in principle there is nothing wrong with targeting an adjunct, as long as it is sufficiently integrated into the event. Nominals bearing the relation R_{PER} will be able to target more peripheral positions, like say implied arguments, though there's nothing wrong with targeting a core position, assuming that it entails peripheral involvement.

Explicitly, in (3.109a) *this article* bears relation R_{PER} to the event of easiness e in the actual world. In the modal worlds it will bear a similar—or more specific—relation to the counterpart e' of e. In (3.109b), *this article* bears relation R_{COR} to e, and so in the modal worlds, the counterpart e' will also need to be predicated of the property R_{COR}. In this way we ensure that DPs in an argument position are linked to DPS in an argument position.

Keep in mind that R_{COR} and R_{PER} are notational shorthands for "is a core argument of the event" and "is a peripheral argument of the event." I have not addressed how to distinguish such categories — though I take it as given that such a distinction exists. Granted a set of criteria for differentiating core vs. non-core arguments of an event, the prediction is that they should correlate with what can, and cannot, be in an antecedent-gap chain in the *tough*-construction.

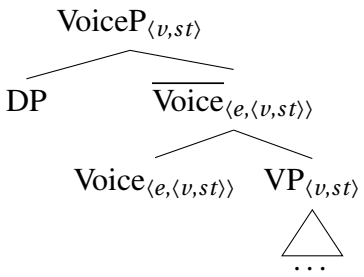
3.3.4 Formalization

To map the semantics above to a syntax, I'll make use of two independently required mechanisms. First, I'll illustrate that *tough*-subjects can be added simply as arguments of the event using standard ideas about how subjects are added to properties of events, e.g., Event Identification (Kratzer, 1996). Second, with the availability of the process of turning a *for*-CP into a derived predicate (Williams, 1980; Heycock, 1994; Landau, 2009), I'll show how the pieces fit together again.

Addressing the first point, it is now widely accepted that there is a process which takes a predicate of events, and adds an argument to it, creating a function from individuals to properties of events. This is the analysis of Voice/$\text{Appl}_{\text{HIGH}}$ proposed in Kratzer (1996); Pylkkänen (2008). Voice, of type $\langle e, \langle v, st\rangle\rangle$, targets a predicate of events, "identifies" the event, and adds an external argument to the event.

(3.115) a. *Event Identification* (Pylkkänen, 2002)

$\langle e\langle v, st\rangle\rangle\ \langle v, st\rangle \rightarrow \langle e\langle v, st\rangle\rangle$

b. 

It's assumed that Voice comes in many different "flavors" depending on the thematic role of the subject. We add to this list an "underspecified" $\text{Voice}_{\emptyset}$, that is, that Voice asserts simply that the subject is related to the event as an argument, but leaves underspecified the exact θ-role.

(3.116) a. $[\![\text{Voice}_A]\!] = \lambda x \lambda e \lambda w.\ \text{Agent}(e)(w)(x)\ \&\ \text{R}_{\text{COR}}(e)(w)(x)$

b. $[\![\text{Voice}_C]\!] = \lambda x \lambda e \lambda w.\ \text{Causer}(e)(w) = (x)\ \&\ \text{R}_{\text{COR}}(e)(w)(x)$

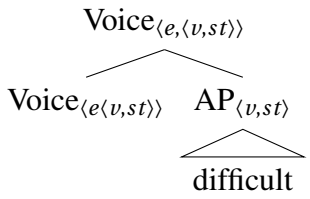
c. $[\![\text{Voice}_I]\!] = \lambda x \lambda e \lambda w.\ \text{Instrument}(e)(w) = (x)\ \&\ \text{R}_{\text{COR}}(e)(w)(x)$

d. $[\![\text{Voice}_E]\!] = \lambda x \lambda e \lambda w.\ \text{Experiencer}(e)(w) = (x)\ \&\ \text{R}_{\text{COR}}(e)(w)(x)$

e. $[\![\text{Voice}_\emptyset]\!] = \lambda x \lambda e \lambda w.\ \text{R}_{\text{COR}}(e)(w)(x)$

Any given predicate will be lexically specified as to which versions of Voice it can appear with. A verb like *murder* selects only for Voice_A, while *kill* selects for Voice_A,Voice_C, or Voice_I (*John/the storm/the gun killed John*). This must be part of the information listed with the predicate. It follows then that the core set of *tough*-predicates only select for $\text{Voice}_\emptyset$. As predicates of events, $\text{Voice}_\emptyset$ is added like any other subject

(3.117)



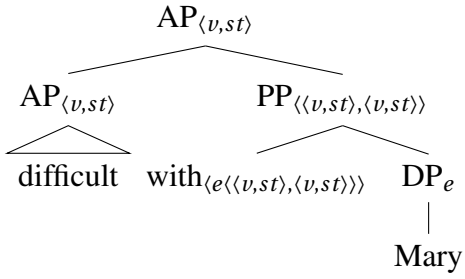
Alternatively, the nominal can be introduced as an adjunct in a prepositional phrase. Again, we add to the list of available *with*'s one that is underspecified for thematic role.

(3.118) a. $[\![with_I]\!] = \lambda x \lambda P_{\langle v,st\rangle} \lambda e \lambda w.\ P(e)(w)\ \&\ \text{Instrument}(e)(w)(x)\ \&\ \text{R}_{\text{PER}}(e)(w)(x)$

b. $[\![with_C]\!] = \lambda x \lambda P_{\langle v,st\rangle} \lambda e \lambda w.\ P(e)(w)\ \&\ \text{Comitative}(e)(w)(x)\ \&\ \text{R}_{\text{PER}}(e)(w)(x)$

c. $[\![with_\emptyset]\!] = \lambda x \lambda P_{\langle v,st\rangle} \lambda e \lambda w.\ P(e)(w)\ \&\ \text{R}_{\text{PER}}(e)(w)(x)$

(3.119)



When Voice is used, the result is a type-shift: the phrase now describes a relation between individuals and events. When *with* is used, the result is simply a predicate of events.

While this is a fairly standard analysis for *with*, it's a slightly abnormal use for Voice and Event Identification: these are typically reserved for adding arguments to verb phrases. But this is merely because verb phrases are "canonical" predicate of events. Once we admit that there can be other things like adjectives that can describe properties of event, then we must admit that Voice can be added to these as well. (Note that Event Identification does not make reference to syntactic category.)[41]

Now we turn to the *for*-CP. Again, we know independently that there's a mechanism for type-lifting a *for*-CP into a function whose first argument is an individual by introducing a bound variable gap. (Indeed, this is one prominent analysis of the *tough*-construction (Chomsky, 1977; Browning, 1987).)

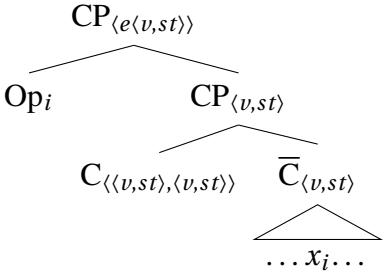
(3.120) a. The pie on the windowsill is [Op_x for John to eat x at his party]

b. The box in the hallway is [Op_x for the students to put their homework in x]

c. The computer is only [Op_x for professors to use x]

There must be a way to merge an operator with a *for*-CP such that it binds a variable. Of course, this operation is known to bear characteristics of an $\overline{\text{A}}$-dependency (Chomsky, 1977), which is consistent with the facts illustrated in Chapter 1 and above.

(3.121)

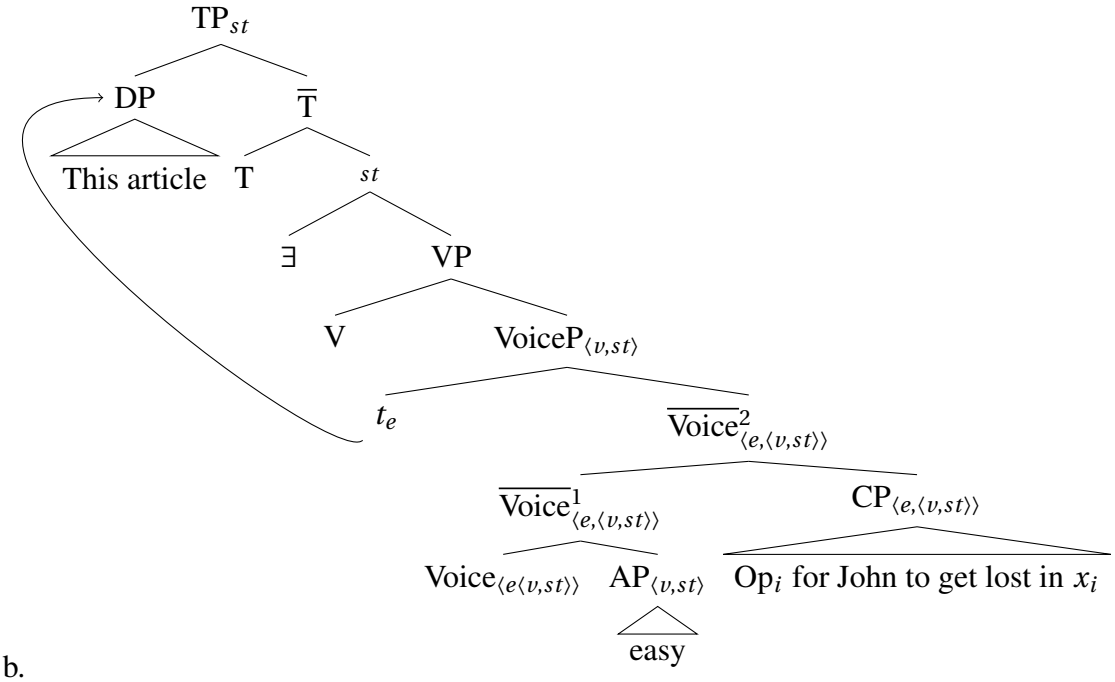


Since the main clause predicate and the *for*-CP can both be type-lifted, composition works as before: The *for*-CP, now a predicate of individuals, modifies the main clause as before. This

[41] One question we could ask is, Is there morphological evidence for adding a Voice projection? Not as far as I'm aware, but English is not the ideal place to look since there is little morphological evidence for Voice anyway. There is a prediction, though, that in languages where such syntactic relations are always overtly realized we should see evidence for it in the *tough*-construction (provided that the languages have this structure to begin with). Note also that I'm using the term "Voice" to represent this head, but this is also an arbitrary choice. Any head that relates an individual to an event is compatible with the analysis.

combined structure is now predicated of a subject, which interacts with the syntax normally. (I simplify the semantics of the movement operation.)

(3.122) a. This article was easy for John to get lost in e.



b.

c. $[\![\text{CP}]\!] = \lambda x \lambda e \lambda w.\ \textsc{content}(e)(w) = \{\ w' \mid \exists e'$ in w' such that $(e)(w)\copyright(e')(w')$ & John gets-lost-e' in x in $w\ \}$

d. $[\![\overline{\text{Voice}}^1]\!] = \lambda x \lambda e \lambda w.$ easy(e) in w & $\text{R}_{\text{COR}}(e)(x)$ in w

e. $[\![\overline{\text{Voice}}^2]\!] = \lambda x \lambda e \lambda w.$ [easy(e) in w & $\text{R}_{\text{COR}}(e)(x)$ in w] & [$\textsc{content}(e)(w) = \{\ w' \mid \exists e'$ in w' such that $(e)(w)\copyright(e')(w')$ & **easy**(e') **in** w' & $\mathbf{R_{COR}}(e')(x)(w')$ & John gets lost-e' in x in $w\ \}$]

f. $[\![(3.122)]\!](w) = 1$ iff There exists an event e in w such that
[difficult(e) in w & R_{COR}(this article)(e) in w] & [$\textsc{content}(e)(w) = \{\ w' \mid \exists e'$ in w' such that $(e)(w)\copyright(e')(w')$ & **easy**(e') **in** w' & $\mathbf{R_{COR}}(e')$(**this article**)(w') & John gets-lost-e' in this article in $w\ \}$

That is, the denotation of (3.122) will map to True just in the case that there's an event of "easiness" involving this article, and the contents of this event is the proposition in which there are events of "easiness" involving this article which are also events of John getting lost in this article.

Notice what Preservation of Event Description is doing. It makes sure that the event e' in the modal worlds is also an easy-event and an event which involves *this article* as a core argument.

The tree in (3.122) adopts two independently needed mechanisms (Voice+Event Identification and Op merger/movement), applies them, and combines the pieces. Notice that for there to be a gap, the non-finite clause must be able to host an operator. This explains the contrasts in (3.123), (3.124).

(3.123) a. It's difficult reading this book.

b. * This book is difficult reading e

(3.124) a. It's fun playing this symphony.

b. * This symphony is fun playing e.

The unavailability for an antecedent-gap chain when there's a verbal gerund is reduced to the fact that, in general, such verbal forms cannot host operators.

(3.125) a. * This book is [Op_x reading x]

b. cf This book is (for John) to read e

c. * This symphony is [Op_x playing x]

d. cf This symphony is (for the musicians) to play e.

Similarly, the unavailability for the *tough*-construction to involve a finite clause also follows naturally.

(3.126) a. * This book is important that John read e.

b. * This tree is exciting that you cut e down.

c. * John is annoying that you like e.

We can attribute this to a simple type-mismatch. *That*-CPs do not describe events. (They describe individuals, if Moulton 2009 et seq is right.) So even if we can make the *that*-CP into an open proposition by abstracting over individuals, it still would be of the wrong type to combine with the *tough*-predicate.

We also observe that introducing an argument in Voice essentially forces there to be a gap in the lower clause because of Preservation of Event Description. As we've seen, if the added nominal is related to the event in the actual world as an argument, then it must be related to the counterpart event as an argument as well. The only way to accomplish this is either with a gap or a pronoun. Here we might expect a principle like "say less" to be at work. Given the choice between a gap and pronoun, choose the structure with a gap.[42]

(3.127) a. * This article was difficult for John to read it

b. This article was difficult for John to read *e*.

As this principle is assumed in any theory where only one position in an antecedent-gap chain is pronounced (i.e., the copy-theory of movement), it seems safe to assume that it is at play in the *tough*-construction as well.

In the case when the proleptic object is added in a *with*-PP, having a gap is entirely ruled out, since, again, this would be a type-mismatch: the *for*-CP is a function from individuals to events ($\langle e\langle v, st\rangle\rangle$) but there is no phrase that denotes a function from individuals to events on the spine of the tree. And because of Preservation of Event Description, the lower event must bear R_{COR} as a consequence of of adding the proleptic object to the main clause.

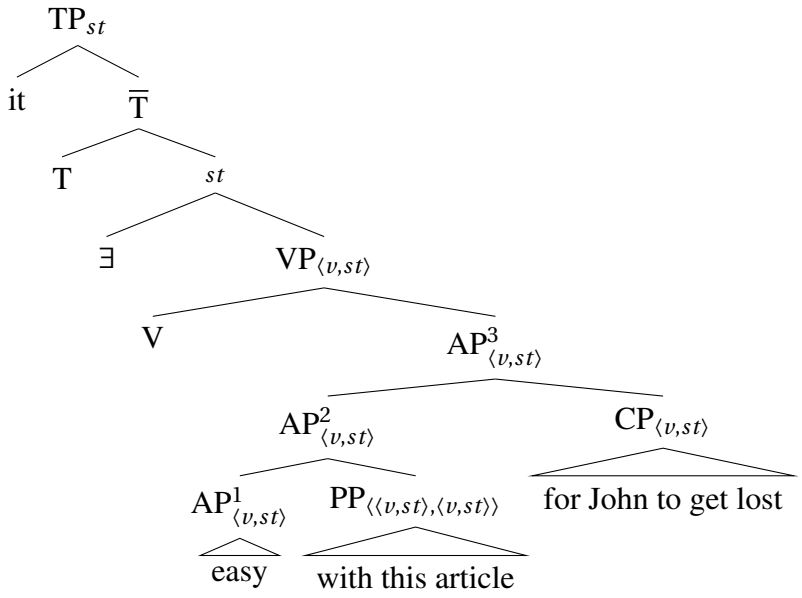
(3.128) a. It was easy with this article for John to get lost.

b.

[42]One complication concerns the availability of resumptive pronouns in the related *too/enough* clauses.

(i) John was too angry to talk to (him).

I don't have an answer for this set of data, but it seems plausible that the added semantics of *too/enough* might account for the resumptive variability here. Note that we should expect cross-linguistic variation on this front, depending on whether a language utilizes resumptives pronouns in trace-positions. Anecdotally, this appears to be correct. (See discussion of *tough*-constructions in chapter 2.)



c. $[\![\text{CP}]\!] = \lambda e \lambda w.$ CONTENT$(e)(w)$ = { w' | $\exists e'$ in w' such that $(e)(w)©(e')(w')$ & John gets lost-e' in w }

d. $[\![\text{AP}^2]\!] = \lambda e \lambda w.$ easy(e) in w & $\text{R}_{\text{PER}}(e)$(this article)(w)

e. $[\![\text{AP}^3]\!] = \lambda e \lambda w.$ [easy(e) in w & $\text{R}_{\text{PER}}(e)$(this article)(w)] & [CONTENT$(e)(w)$ = { w' | $\exists e'$ in w' such that $(e)(w)©(e')(w')$ & **easy**(e') **in** w' & $\mathbf{R_{PER}}(e')$(**this article**)(w') & John gets-lost-e' in w' }

f. $[\![(3.122)]\!](w) = 1$ iff There exists an event e in w such that
[easy(e) in w & $\text{R}_{\text{PER}}(e)$(this article)(w)] & [CONTENT$(e)(w)$ = { w' | $\exists e'$ in w' such that $(e)(w)©(e')(w')$ & **easy**(e') **in** w' & $\mathbf{R_{PER}}(e')$(**this article**)(w') & John gets-lost-e' in w' }

So the denotation of (3.128) will map to True just in the case that there's an event of "easiness' involving this article, and the contents of this event are propositions in which there are events of "easiness" involving this article which are also events of John getting lost.

Preservation of Event Description is doing extremely important work here. Since it forces the event of the lower clause to involve this article, the "getting lost" must involve the article in some fashion. Notice that the exact relation between *this article* and the event of getting lost is not specified. So we should be able to pragmatically alter how *this article* relates to the event based on the context. For instance, suppose that this particular article gives extremely convoluted

directions through the woods. Then it's possible to utter (3.128), meaning that "Using this article, it's easy to get lost in the woods." This is precisely what the system predicts. (3.122) couldn't have this meaning because the semantics and syntax require that the *tough*-subject correspond to an argument position, which will have a defined thematic role that cannot be contextually adjusted.

3.3.5 Taking stock, again

Let me recap the key proposals above. Starting from the conclusions of the first part this chapter, where we saw the importance of events and how they are related across worlds, we explored what happens when we add elements to the main clause. We noted a parallel between *proleptic objects* and *tough*-subjects, observing that, i) they are syntactically in the main clause, but thematically licensed in the non-finite clause, and ii) they are both constrained in their distribution by how they are related to the event of the non-finite clause. I proposed to capture these facts by positing an underspecified thematic role. Given independent assumptions about how events are related across worlds, i.e., Preservation of Event Description.

Formally, I adopted well-motivated processes from syntax (Voice + Event Identification and operator-gap chains) to cash out the parallelism between proleptic objects and *tough*-subjects. The analysis captures a number of ill-understood properties, including the thematic properties of the *tough*-chain and the "weak" boundedness of the $\overline{\text{A}}$-gap in the lower clause.

It's important to note that the above analysis extends some already well-motivated lines of research. I've adopted proposals from (Moulton, 2009) and (Hacquard, 2010) for the account of nonfinite CP clauses and how they combine with *tough*-predicates. I've also adopted the idea that arguments can be introduced to predicates of events (Kratzer, 1996) and that *for*-CPs can be made into predicates via merge/movement of an operator (Chomsky, 1977; Browning, 1987). The combination of these tools provides an elegant account of the *tough*-construction that captures both syntactic and semantic properties. The proposal is firmly on the side of a predication, rather than a movement, analysis of the *tough*-construction. This is consistent with the empirical data. *Tough*-subjects cannot be interpreted in the infinitival clause, but they also have properties of being thematically "licensed" by the infinitival verb clause. Finally, we derived why the gap in the lower

clause is clause-bounded in a way that other $\overline{\text{A}}$-dependencies are not.

The biggest takeaway from the above discussion concerns the nature of the antecedent-gap chain. It is not a movement chain, rather it's a predication chain. But the chain is mitigated by being "passed through" an intensional operator. One part of the chain, the antecedent, is in the main clause, and then another part of the chain is in the *for*-CP. Importantly, both links of this chain are thematically licensed in both clauses. Though the thematic role that the main clause subject receives is underspecified, it is no less real. The *tough*-subject is involved in the event of the main-clause. The subsequent chain that is created is a syntactic chain in which one link is in some belief worlds, and another link is in different belief worlds. It is precisely this "spanning" across worlds that I intuitively capitalized on in the chapter 2 and will explore in full in section 3.4.

3.3.5.1 Classes of predicates

Before turning to defective intervention, I would like in this last section to give a brief overview of other types of predicates, showing how the present system fairs at capturing the diversity of possibilities with adjectival predicates, clauses, and gaps. I believe that we are in a position to begin some of the various distributional facts concerning the variation. Before starting, let me point out one other final empirical observation: With *for*-CPs, PRO always corresponds to the center of the belief worlds (Stephenson, 2010). That is, when PRO is present, it is co-indexed with whoever is the attitude holder of that particular clause. I have been assuming that there is a method for ensuring this, and will continue to do so in this sketch of the adjective classes that can co-occur with a *for*-CP.

With this fact in mind, let's explore some of the other predicates that can appear with *for*-CPs.

We'll start with *pretty*-class predicates, which differ from *tough*-predicates in not permitting an expletive version.

(3.129) a. Mary is pretty to look at *e*.

b. * It is pretty to look at Mary.

(3.130) a. This painting is ugly to look at *e*.

b. * It is ugly to look at this painting.

(3.131) a. This cake is tasty to eat *e*.

b. * It is tasty to eat this cake.[43]

There are a couple of questions. First, why is a *for*-CP permitted with such predicates? The answer is because *pretty*-class predicates are subjective, just like *tough*-predicates. The truth of their assertion is evaluated relative to someone's epistemic state. This is confirmed by any number of tests, most prominently by the fact that an overt judge is licensed with these predicates.[44]

(3.132) a. Mary is pretty to John.

b. This painting is ugly to John.

c. This cake is tasty to John.

The presence of a *for*-CP is predicted assuming that there is some event/state of the judge evaluating the prettiness/ugliness/tastiness.

The second question is more interesting: Why *must* there be a gap when there's a *for*-CP present with *pretty*-class predicates?

(3.133) a. * Mary is pretty to look at Sue.

b. * This painting is ugly to look at the Rembrandt.

c. * This cake is tasty to eat the crust.

Assuming that the difference between *tough*-predicates and *pretty*-predicates is that the latter syntactically select for a subject, then the only way the *for*-CP could combine with this predicate is if the *for*-CP were also a predicate of individuals. That is, it *must* be opened up, or there would be a type-mismatch. More explicitly, assume that *pretty* has the denotation in (3.134a).

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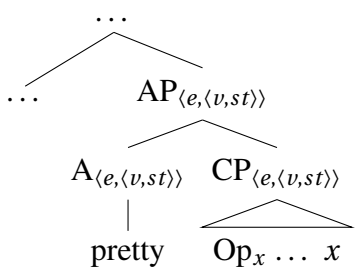
[43]Actually, there is quite a bit of speaker variation with respect to *tasty*. Many find this to be a *tough*-predicate. I will assume it is not.

[44]Roumi Pancheva points out that this isn't true cross-linguistically. In Bulgarian, for instance, clitic judges are not permitted with *pretty*. Note that this doesn't negate the fact that *pretty* is judge-dependent. As Stephenson (2007) shows, predicates can be judge-dependent without ever manifesting an explicit judge argument.

(3.134) a. $[\![\text{pretty}]\!] = \lambda x \lambda e \lambda w.\ \text{pretty}(x)(e)(w) = 1$

"x is pretty during e in w" or "e is an event of x's prettiness in w"

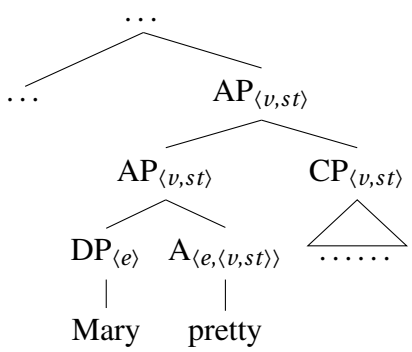
b.



The other configuration, where the *for*-CP simply describes an event, would not be able to merge with the predicate directly. Of course, it could do so *after* the subject has been introduced. But in this case, given preservation of event description, we'd have to find an argument position in the lower clause with a gap. Since PRO will be correspond to the judge of the prettiness, etc, then there is no other position that would satisfy Preservation of Event Description.

(3.135) a. * Mary is pretty to look at Sue.

b.



Such a tree is permissable syntactically and in terms of types, but given that all properties of the event must be represented in the lower clause, then it violates the requirement that all arguments of the event in the actual world be arguments of the event in the modal worlds. Crucially, PRO isn't available because the subject of *pretty* isn't the judge of what is pretty.

What would happen if the subject of the main clause were the attitude holder? Then we'd predict subject control, which is of course what we observe. This is the class of *eager*-predicates.

(3.136) a. John is eager to please (*Mary).

b. John is happy to please (*Mary)

c. John is excited to please (*Mary)

What distinguishes these predicates from *tough* and *pretty* is that they are not judge-dependent — or at least, they aren't judge-dependent in the same way as *important, difficult, pretty* etc. *Eager* et al are psych-predicates: *eager/happy/excited* express something about the mental state of the subject. As such, since these are going to be attitude holder of the lower clause, they are necessarily going to be coindexed with PRO.

A third class of predicates are the *kind*-class of adjectives, which permit an Agent to be licensed in a *of*-phrase or as the subject.[45]

(3.137) a. John was kind/rude/mean/nice to talk to Mary.

b. It was kind/rude/mean/nice of John to talk to Mary.

Here, because the nominal in the main-clause is assigned an Agent theta-role, then this must be represented in the lower clause as well. In (3.137a), the only possible position is that of the subject position, because the relation is R_{COR}. (3.137b) are problematic cases, since we might expect a peripheral position to be available: **It was kind of John for Mary to be talked to by him*. Still, it may be that the R_{COR} and R_{PER} distinction is not reflected in the alternation between Voice and the preposition *of*. It's not clear to me what the semantic distinction is between the alternation in (3.137) — if there is one at all. Note that in this case, the requirements of Preservation of Event Description appear to supersede the requirements about what PRO is co-indexed with. *John* is not the attitude holder for the *for*-CP in either example in (3.137). Again, it's not clear to me how to derive this difference, or whether this is a good outcome.

Still, given the principles proposed above concerning the type of *for*-CPs, where they are licensed, and how events are related across worlds, we can begin to explain the distribution of various classes of predicates that combine with *for*-CPs. A clearer picture emerges as to why some predicates optionally allow a non-subject gap (*tough*), some require a non-subject gap (*pretty*), and some only permit a PRO "gap" in the non-finite clause. The variation is dependent on clause-type

[45]Thanks to Tim Stowell for pointing out this class to me. The discussion here is extremely superficial. Much more can be said about this class.

(whether it's a predicate of individuals or events) and whether Preservation of Event Description is satisfied. Taken together with the results from subsubsection 3.2.5.2, where we explored the difference between adjectives that combine with finite clauses, a typology of adjectives comes into focus.

I. Adjectives which aren't modal/subjective cannot appear with any clause.

II. Adjectives that describe contentful individuals may appear with finite-clauses, but do not license non-subject gaps. (*obvious, evident, clear*)

III. Adjectives that describe contentful events may appear with non-finite clauses, and can license object-gaps under some circumstances:

(a) If the adjective does not license a thematic argument, it's a *tough*-predicate. (*difficult, easy, important*)

(b) If the adjective lexically selects a subject which is non-attitudinal, then there must be an object gap. (*pretty, tasty, ugly*)

(c) If adjective lexically selects a subject which is an attitude holder, then it's subject control. (*eager, excited, happy*)

(d) If the adjective lexically selects an Agent thematic argument, then it's also subject control. (*kind, mean, nice*)

I do not mean to suggest that the topic is closed. There are a number of additional concerns that should be addressed. In particular, the account of *eager*-class predicates seems insufficient, as they don't *need* to control PRO: *John is excited for the parade to pass his house.* It does seem to me though that the lower clause must involve in the subject in some way, like having a pronoun in the lower clause. This is consistent with the spirit of the above analysis — though I do not fully understand the details of *eager*-class predicates. I believe, though, that it is good first start. A closer investigation of the lexical semantics of these classes will, I hope, shed more light on the patterns sketched above. Given the syntax and semantics of *for*-CPs and event-relations across

worlds, I believe that we can begin to understand *why* certain classes of adjectives exist. A more in-depth examination of these classes will have to be left for future work.

3.4 Defective intervention revisited

I will turn now to intervention effects in the *tough*-construction.

(3.138) a. Mary is important to talk to *e*.

b. * Mary is important to John to talk to *e*.

This part of the chapter presents a break from what I have been concerned with in previous sections of this chapter, and I suspect it will not be understood without having read chapter 2. That said, let me give a brief recap of the central conclusions of that chapter.

One important point that I focused on in chapter 2 was that *tough*-predicates are by and large, *judge-dependent*, in that they are evaluated relative to someone's beliefs. Building on this, I was able to treat *tough*-predicates as modal quantifiers on par with other intensional verbs, like *want*. As part of the meaning of the verb, we included a mechanism for calculating *de re* belief. This was accomplished by adopted the idea of a Concept Generator into our modal semantics (Percus and Sauerland, 2003). This was the meaning we ascribed to *important* in the previous chapter.

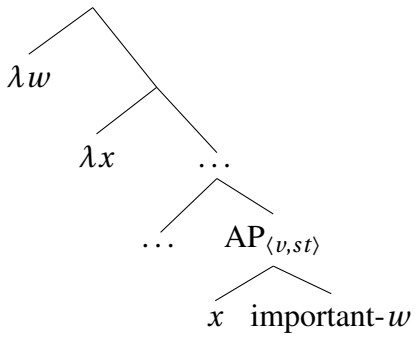
(3.139) $[\![\text{important}]\!] = \lambda P \lambda x . \lambda w$ There's an acquaintance-based concept generator G for x in w such that $\forall < x', w' > \in \text{ACC}_{<x,w>}$, $P(G)(w')(x') = 1$ where,
$\text{ACC}_{<x,w>}$ is a subset of the x's centered doxastic alternatives in w

In this chapter, we've relocated the brunt of the modal meaning onto the complementizer C_{for}, and so the denotation in (3.139) is no longer adequate. Now, the meaning in (3.139) is spread out over two heads. The first is simply the *tough*-predicate, which is now defined relative to a judge.[46]

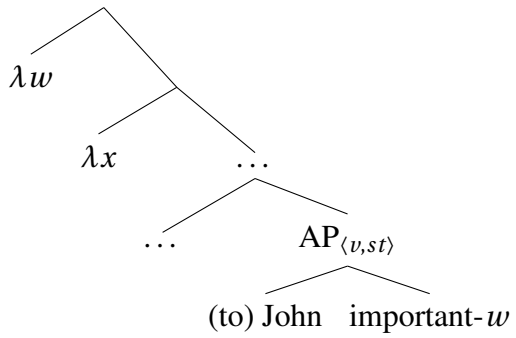
(3.140) a. $[\![\text{important}]\!] = \lambda x \lambda e \lambda w$. e is important to x in w.

[46]The vacuous quantification in (3.140c) goes away if we understand *John* to be housed in a concept generator as well. I put aside this complication. See Pearson (2013b) for discussion.

b.



c.



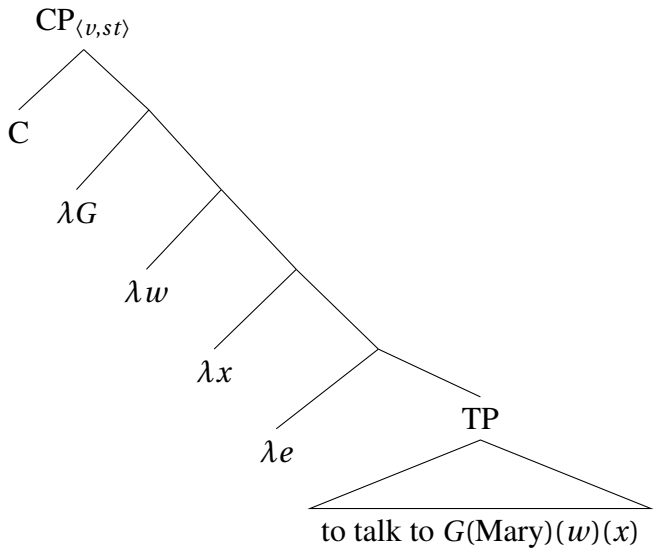
The judge argument can be locally saturated by an explicit judge *to John*, (3.140c) or if not, then it is given a first-person orientation because it is bound by an abstraction in the left periphery — the center of the centered-world, (3.140b)

The second head is C_{for}; this is what houses the modal quantification as well as the concept generator. Note, however, that we also need to make reference to the attitude holder of the event when we evaluate G. We can do this easily by "recovering" the attitude holder of the event: Judge(e) is the judge of e (Hacquard, 2006). The CONTENT function now equates the event with a set of centered worlds $< x', w' >$ such that x' is who Judge(e) takes him/herself to be in w'.

(3.141) a. $[\![C_{for}]\!] = \lambda P \lambda e \lambda w$. There exists a G for **Judge**(e) in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who Judge(e) takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') and $P(e')(G)(w')(x') = 1$] }

b. for John to talk to Mary

c.



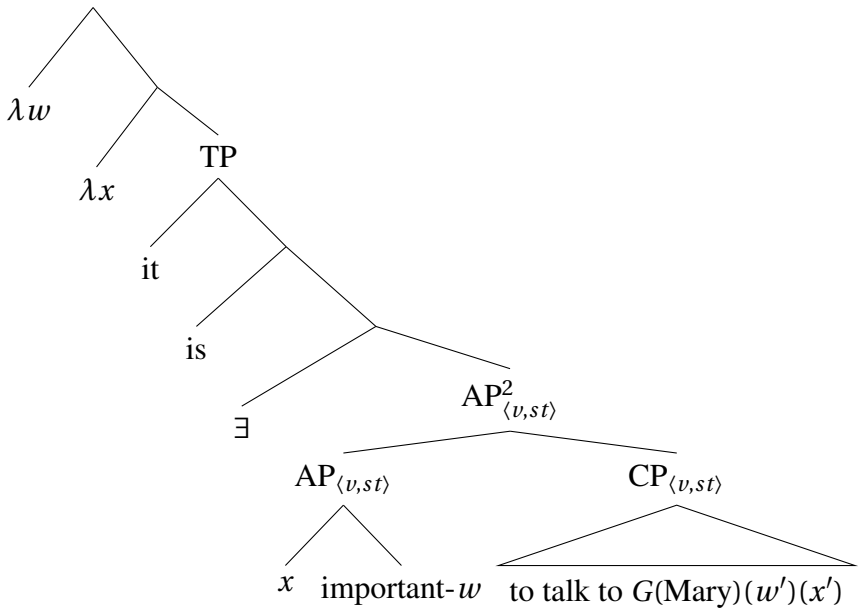
d. $[\![(3.141c)]\!] = \lambda e \lambda w$. There exists a G for Judge(e) in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who Judge(e) takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') & x' talks$-e'$ to G(Mary)(w')(x') }

Before turning to the explicit formalization for defective intervention, let be briefly explain in a less formal way what happens. When the speaker asserts (3.138b), s/he asserts something about Mary and her relation to the event of importance in the actual world. At the same time, the speaker is asserting that John has a belief about *Mary* as well, in particular that John's version of Mary is related to the counterpart of the event of importance. The problem is that John's version of Mary and the speaker's version aren't the same. John has some way of viewing Mary, and the speaker does too, and these don't match.

More formally, let's start with the base case: there is no antecedent-gap chain, and there is no explicit judge. In this case, things work simply, with the addition of the added semantics. (For space reasons, I do not spell out the CP. The tree in (**??**) is the full structure under the triangle in (3.142a).)

(3.142) It's important to talk to Mary

a.



b. ⟦CP⟧ = $\lambda e \lambda w$. There exists a concept generator G for Judge(e) in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who Judge(e) takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') and x' talks$-e'$ to G(Mary)(w')(x') in w'] }

c. ⟦AP^2⟧ = $\lambda e \lambda w$. [e is important to x in w] & [There exists a concept generator G for x in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who x takes him/herself to be in w' & [$\exists e'$ in w' such that (e)(w)©(e')(w') & e' is important in w' & x' talks$-e'$ to G(Mary)(w')(x') in w'] }]

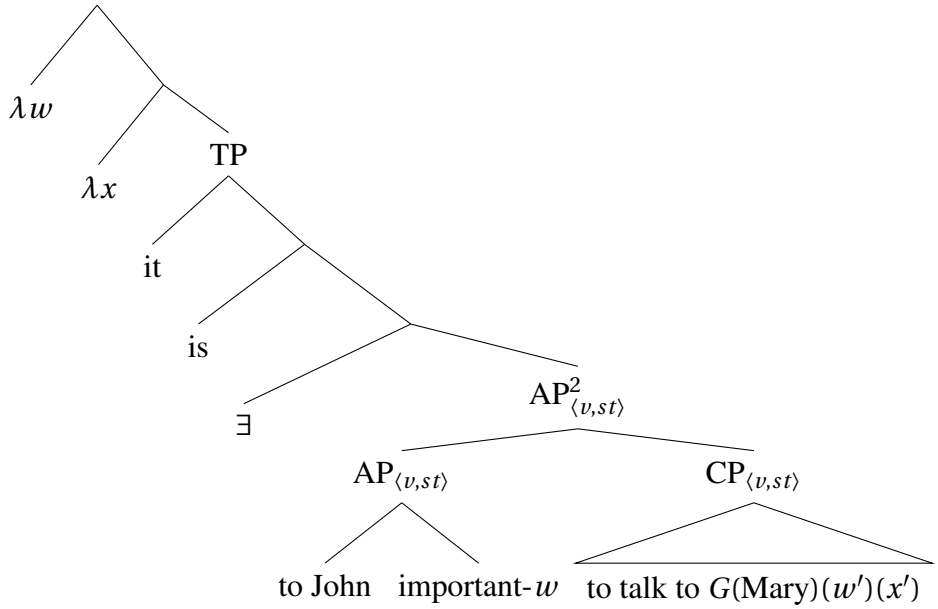
d. ⟦(3.142a)⟧(spkr)(w) = 1 iff There exists an event e in w such that [important(e) to the speaker in w] & [There exists a concept generator G for the speaker in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who the speaker takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') & e' is important in w' & x' talks$-e'$ to G(Mary)(w')(x') in w'] }]

The truth conditions are identical to what was postulated in the previous chapter. (3.142a) maps to True just in the case that the speaker believes it's important to talk to the person that the speaker thinks is Mary.

In the case of an overt judges, things are minimally different.

(3.143) It's important to John to talk to Mary

a.



b. ⟦CP⟧ = $\lambda e \lambda w$. There exists a concept generator G for Judge(e) in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who Judge(e) takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') and x' talks−e' to G(Mary)(w')(x') in w'] }

c. ⟦AP²⟧ = $\lambda e \lambda w$. [e is important to **John** in w] & [There exists a concept generator G for **John** in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who **John** takes himself to be in w' & [$\exists e'$ in w' such that (e)(w)©(e')(w') & e' is important in w' & x' talks−e' to G(Mary)(w')(x') in w'] }]

d. ⟦(3.142a)⟧(spkr)(w) = 1 iff There exists an event e in w such that [e is important to **John** in w] and [There exists a concept generator G for **John** in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who **John** takes himself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') & e' is important in w' & x' talks−e' to G(Mary)(w')(x') in w'] }]

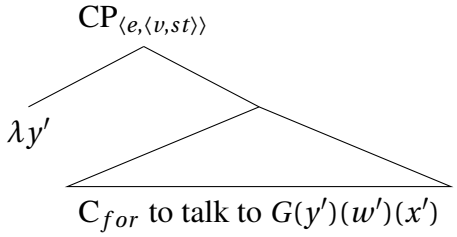
This has the following truth conditions: It is judged True just in the case that John believes that it's important to talk to the person who he thinks is Mary. This is precisely the same truth conditions we had in chapter 2. We've merely re-arranged some of the pieces to conform with

what we now know about the syntax and semantics of the *tough*-construction.

We can now add in the antecedent-gap chain, which involves an abstraction in the lower clause, so that the *for*-CP will look like (3.144b).

(3.144) a. for John to talk to e

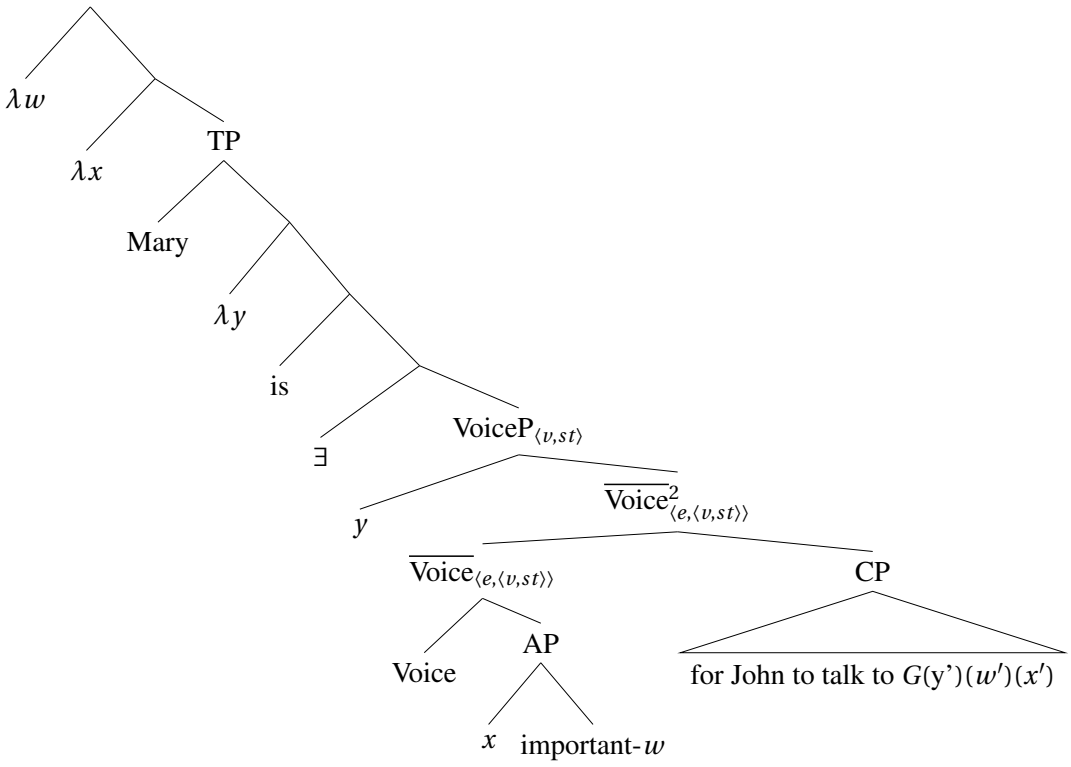
b.



The full structure includes a Voice projection which introduces the subject and maps the subject to the main-clause event with R_{COR}, and underspecified thematic relation that asserts event involvement, nothing more.

(3.145) Mary is important to talk to e

a.



b. $[\![\text{CP}]\!] = \lambda y' \lambda e \lambda w$. There exists a concept generator G for the Judge(e) in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who Judge(e) takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') and John talks−e' to $G(y')(w')(x')$ in w'] }

c. $[\![\overline{\text{Voice}^2}]\!] = \lambda y \lambda e \lambda w$. e is important to x in w and **$\mathbf{R_{COR}}$(y)(e) in w** and There exists a concept generator G for x in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who x takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') & **$\mathbf{R_{COR}}$(G(y)(w')(x'))(e') in w'** & e' is important in w' & x' talks−e' to $G(y)(w')(x')$ in w'] }

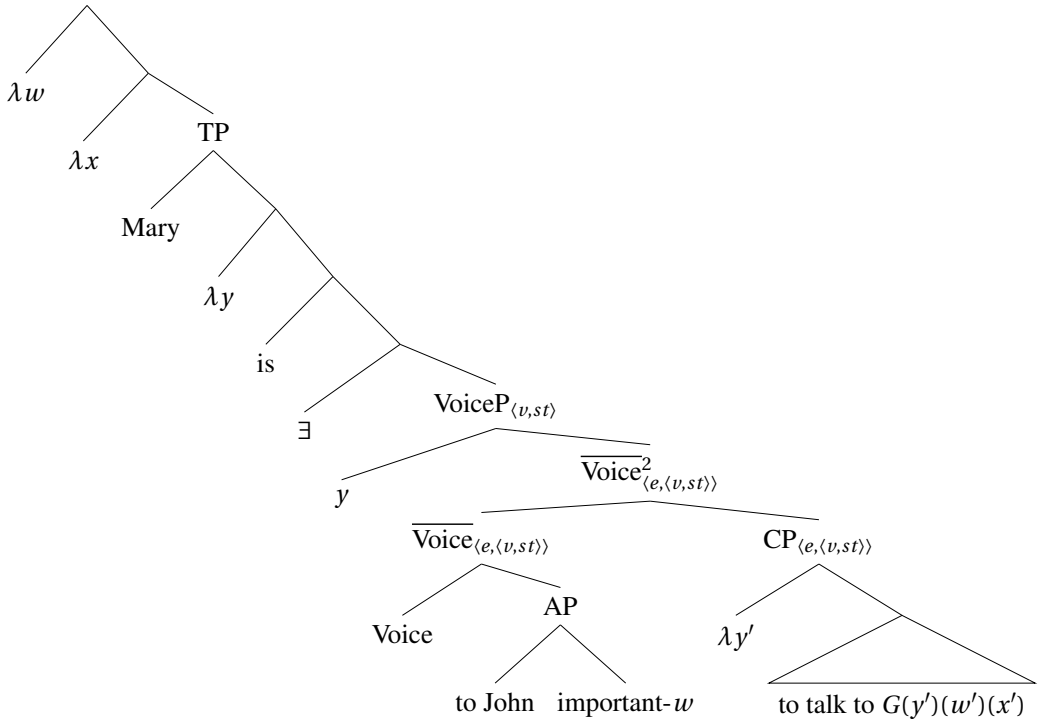
d. $[\![(3.146a)]\!](\text{spkr})(w) = 1$ iff There exists an event e in w such that [e is important to the speaker in w and **$\mathbf{R_{COR}}$(Mary)(e) in w**] and [There exists a concept generator G for the speaker in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who the speaker takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') & **$\mathbf{R_{COR}}$(G(Mary)(w')(x'))(e') in w'** & e' is important in w' & x' talks−e' to G(Mary)(w')(x') in w'] }]

(3.146a) maps to True just in the case that the individual the speaker knows as Mary is involved in an event which has the property of being important, and the speaker thinks that the important event is an event of talking to whoever the speaker thinks is Mary.

Finally, now let's consider the case of defective intervention. In chapter 2, I claimed that a constraint on "intensional" chains was violated. Intensional Chain Uniformity (ICU) states that a chain involved two links which do not map to the same extension is banned. Let's see now how this constraint fits with the new syntax and semantics postulated in this chapter.

(3.146) * Mary is important to John to talk to e

a.



b. ⟦CP⟧ = $\lambda y' \lambda e \lambda w$. There exists a concept generator G for Judge(e) in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who Judge(e) takes him/herself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') and John talks$-e'$ to $G(y')(w')(x')$ in w'] }

c. $[\![\overline{\text{Voice}^2}]\!]$ = $\lambda y \lambda e \lambda w$. e is important to John in w and R_{COR}(y)(e) in w and There exists a concept generator G for John in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who John takes himself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') & R_{COR}(G(y)(w')(x'))(e') in w' & e' is important in w' & x' talks$-e'$ to $G(y)(w')(x')$ in w'] }

d. ⟦(3.146a)⟧(spkr)(w) = 1 iff There exists an event e in w such that [e is important to John in w and R_{COR}(Mary)(e) in w] and [There exists a concept generator G for John in w such that CONTENT(e)(w) = { $< x', w' >$ | x' is who John takes himself to be in w' and [$\exists e'$ in w' such that (e)(w)©(e')(w') & R_{COR}(G(y)(w')(x'))(e') in w' & e' is important in w' & x' talks$-e'$ to $G(y)(w')(x')$ in w'] }]

Deciphering (3.146d): The speaker's version of Mary has the property such that John thinks it's important to talk to John's version of Mary. And of course this is a violation of ICU. Actual world Mary is linked to John's version of Mary in an antecedent-gap chain. Note that although *Mary* is an argument of the event *e* which is important to John in the actual world, she is in the "scope" of the speaker's beliefs, not John's. Only the gap in this chain is evaluated relative to John's beliefs.

Finally, observe the problem is not that the speaker and John has different beliefs about the *event* in the actual and modal worlds. When there is no gap, e.g., *It is important to John to talk to Mary*, we are able to relate an event in the actual world with an event in John's modal worlds. The problem is the antecedent-gap chain, which requires us to construct a syntactic object from distinct syntactic links. This is where ICU is invoked.

3.5 Another look at raising predicates

Having postulated why exactly defective intervention is found in the *tough*-construction, we are now in a position to speculate about what differentiates subject-to-subject raising in English and the *tough*-construction. In the former case, there is no intervention effect, while in the latter, there is.

(3.147) a. Mary seems to John to like Bill.

b. * Mary is important to John to like *e*.

I would like to address in this section, a) the syntactic differences between (3.147a) and (3.147b) and, b) why only (3.147b) gives rise to defective intervention. The two points have a related explanation.

Consider again the proposal above: the complementizer C_{for} is associated with intensional semantics. Of course, *seem* and C_{for} are in complementary distribution in English. Raising verbs, famously, do not embed full clausal complements. But there is still modality. If it isn't coming from C_{for}, where else could it come from? The obvious answer is that *seem* is a modal quantifier, which is what we typically believe (Pearson, 2013b). That is, we can define *seem* in precisely the same way as we define C_{for}. (Here I'll use a simplified version for exposition's sake. We might

assume that *seem*'s content function corresponds to Kratzer's (2013) epistemic content function.)

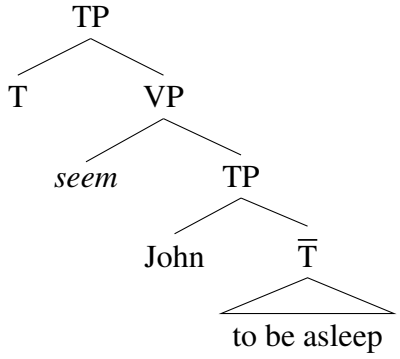
(3.148) a. $[\![\mathrm{C}_{for}]\!] = \lambda P \lambda e \lambda w.\ \textsc{Content}(e)(w) = \{\ w' \mid P(w') = 1\ \}$

b. $[\![\text{seem}]\!] = \lambda P \lambda e \lambda w.\ \textsc{Content}(e)(w) = \{\ w' \mid P(w') = 1\ \}$

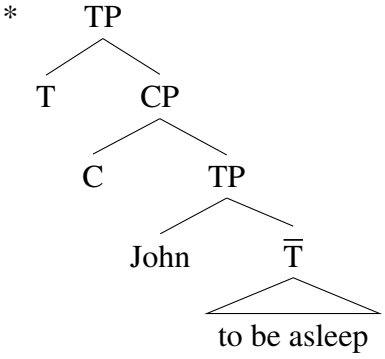
Once we think of *seem* and C_{for} as basically providing the same function, i.e., quantification over worlds, then their complementary distribution is a natural consequence.

More importantly, *seem* and C_{for} are *categorially* distinct. *Seem* is a verb and C_{for} is a complementizer. As a verb, *seem* merges directly onto the spine. Thus, if there is no other argument to move to spec-TP, then the highest argument will raise; subject-to-subject raising.

(3.149) a.



b. *



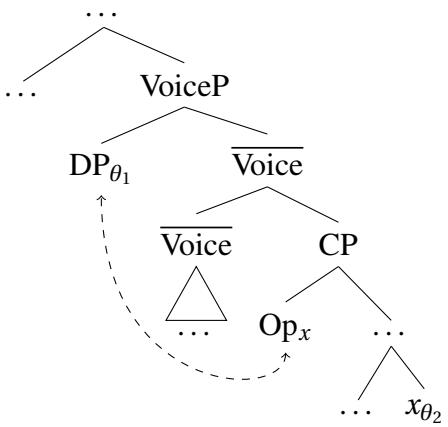
C_{for} of course doesn't have this option. It can't be selected by T. Indeed, the only way to "escape" a CP (whether finite or non-finite) is by opening up the proposition and abstracting over individuals. This is perhaps due to the fact that CPs are bounding nodes or strong phases (Chomsky, 2001), or any equivalent notion. Whatever the reason, *for*-CPs simply cannot enter into the same syntactic configuration as raising verbs.

So how to things get "out" of *for*-CPs? Well, one way to get things out is simply to $\overline{\text{A}}$-move into the higher clause, e.g., *Which book is it easy to read* t_{wh}. In this case there's nothing particularly interesting to say in the present discussion.[47]

[47] There's a question about composition with the main clause — but this question arises whenever we have extraction out of an embedded clause: *Who did John think [that Mary saw* t_{who} *].* If the lower CP involves an abstraction that opens up this lower clause, then how does it compose with the predicate *think*? I believe that the implicit assumption is that embedding verbs are always ambiguous in that they select for two different kinds of clauses. Thanks to Yael Sharvit for helpful discussion on this point.

However, another way is to abstract over individuals, turning the *for*-CP into a predicate (Chomsky, 1977; Williams, 1980; Browning, 1987; Landau, 2011)). In this case, we have the option of linking this gap to something in an A-position in the higher clause. This was the analysis of the *tough*-construction provided earlier.

(3.150)



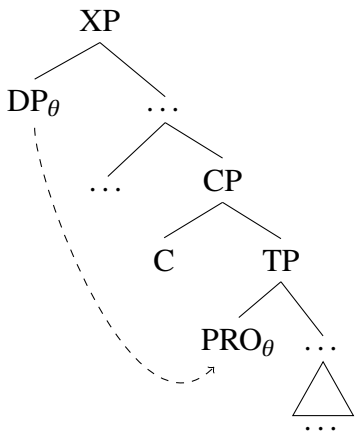
In this case, the chain is going to have an antecedent which is thematically related to the main clause, and a gap which is thematically related to the lower clause. Of course, this sort of configuration just isn't possible with a raising verb like *seem*. Empirically, *seem* cannot be turned into a predicate by abstracting over individuals. A raising verb will never be able to link multiple thematic positions.

(3.151) a. This computer is [Op$_x$ for the students to use]

b. * This computer is [Op$_x$ seem John to like *e*]

Another possibility for *for*-CPs in particular is that the subject position can be PRO, which receives a theta-role from the lower clause predicate. Again the controller for PRO will be something in an A-position. (I do not take a particular view of control of PRO here.)

(3.152)



This configuration is not permitted for *seem* in English, since by definition, it's a raising verb. (But in Romance this is a more complex issue, as discussed in section 2.6 of chapter 2.) Notice also that the particular properties of *for*-CPs and *tough*-predicates permit these configurations. What makes the system work is that because *tough*-predicates are predicates of (contentful) events, we can add an argument to them. In contrast, while we could abstract over individuals with a finite clause, [Op$_x$ that John talk to x], it would not be possible to merge this phrase with something in the main clause in a *thematic* position because *that*-CP don't describe events. Whatever type they are, they cannot merge in the same position as a *for*-CP, which because of this particular type, can combine with the things that assign thematic structure.

(3.153) a. It's important that John talk to Mary.

b. * Mary is important that John talk to *e*

Thus, in general, defective intervention is found when the antecedent-gap chain connects two thematic positions, and this sort of configuration occurs with *for*-CPs and not *seem* because of *for*-CPs have the right syntactic (and semantic) properties. This recapitulates the second generalization posited at the end of chapter 2.

(3.154) *Defective Intervention Generalization II (DIG II)*

Defective intervention is found in chains in which the antecedent and the gap are thematically associated with two predicates.

Of course, as noted above, there's nothing *wrong* with linking the gap in the lower clause with something in an $\overline{\text{A}}$-position in the main clause, in which case, there is no defective intervention.

(3.155) Which professor is it important to John to talk to t_{wh}.

This is entirely consistent with DIG II, and explained on the present analysis.

3.6 Conclusion

The majority of this chapter has been an exploration of the *tough*-construction. We've observed that a close examination of the semantic properties allows a principled explanation for the many divergent properties of the construction. Most importantly, we've observed that the antecedent-gap chain created in the *tough*-construction involves a complex semantic process of which requires connecting the antecedent and the gap across modal worlds. Doing so creates a "fragile" chain. It's fragile because it depends what we belief about each link. There is an inherent relationship between the *tough*-subject and the contentful event. Because of independent requirements concerning how we relate events across worlds, we guarantee the semantic presence of the *tough*-subject in the lower clause. This is what leads to defective intervention: because the syntactic object consisting of the *tough*-subject and its gap is thematically associated with two different predicates, we must evaluate whether the object is extensionally uniform. If it isn't, then it's a violation of ICU.

One point that remains mysterious at present is why the *tough*-construction (and RtoO/ECM, PRO) are intensional islands. That is, why can we not interpret the gap position in these cases in the actual world?

(3.156) a. John wants to marry a plumber. ✓*de re*, ✓*de dicto*

b. It's important to John to marry a plumber. ✗*de re*, ✓*de dicto*

In (3.156b), as we observed in chapter 2, in the modals worlds, the marrying event is also a difficult event. But this is not true of the example in (3.156a). The marrying event isn't a "wanting" event in the modals worlds. It's simply an event in worlds that are compatible with what John desires. Understanding this difference, I believe, will be crucial in understanding lack of a *de re*

reading in (3.156b) — and the presence of the ambiguity in (3.156a). It must remain unanswered for now.

CHAPTER 4

Speculations about variation

I repeat here the two generalizations concerning defective intervention observed in chapter 1.

(4.1) *Defective Intervention Generalization I (DIG I)*
Defective interveners are attitude holders.

(4.2) *Defective Intervention Generalization II (DIG II)*
Defective intervention is found in chains in which the antecedent and the gap are thematically associated with two different predicates.

These two properties characterize all instances of defective intervention. Cross-linguistically, defective interveners are belief-holders. And we observe defective intervention when a belief holder is syntactically situated between an antecedent and a gap of a chain that links to thematic-positions.

I have attempted to illustrate how we can cash out DIG I and DIG II theoretically, but the generalizations raise many interesting questions, about the relationship between syntax and semantics. First, **What is the connection between a theta-position and intensionality?** At the end of chapter 2, I suggested that every argument position must be intensionally evaluated. Or more intuitively, we are required to "check" a nominal any time it is related to an event. This could plausibly made to fit into a theory in which events are the "glue" that hold everything together (Hacquard, 2006). The difficulty though is that in any utterance, there is typically more than one event: the speech event and then the event of the predicate (which may itself consist of many events), and we can imagine that objects can be "related" to any of these events. This is particularly true if thematic underspecification is possible, as I suggest in chapter 3. What would stop us from relating an underspecified argument to the speech event? Moreover, how many arguments are we allowed to

relate to an event?

Another question that comes to mind is, **What sort of variation do we expect to find with defective intervention?** Well, phrased in terms of the DIG I and DIG II, the answer is "none." The supposed variation would simply be a mis-analysis of structures. For instance, in Romance we identified defective intervention in "raising" to simply be intervention in control, which is cross-linguistically robust.

Still, plausibly every language has control structures, but it might not be the case that every language has the types of predicates that permit attitudinal interveners to be structurally positioned between the antecedent and PRO (e.g., like *claim*). In such a language, we wouldn't find defective intervention (in control) simply because it's never the case that right configuration of properties are met.

Similarly, not all languages have a *tough*-construction (see below), nor Raising-to-Object/ECM, thus these languages would also fail to display defective intervention. Not because they are exceptions to DIG I and DIG II, but simply because the right configuration is not found in that language.

It's also possible that some languages characterize ICU is slightly different terms. I've stated it in terms of beliefs. But I could imagine that a language could have intervention in terms of some other perspectival property, say, empathy or deixis (Sells, 1987; Charnavel, 2015).

Still, if there are other antecedent-gap chains which connect two theta-positions, then we should expect to observe defective intervention there, provided they permit an attitudinal intervener. One possible candidate is parasitic gaps, in which there is a chain that involves two gaps in different theta-positions.

(4.3) Which book did John file without *e* reading pg?

To test whether we see "intervention" effects here, I have not been able to construct an appropriate example that controls for the many confounds that can arise with parasitic gaps, but I'm hopeful that such examples can be found.

Another question we might entertain is, **What permits an antecedent-gap chain to link two theta-positions?** This seems to be a marked type of chain. In chapter 3, I addressed this ques-

tion with respect to the *tough*-construction, illustrating that independently needed mechanisms for relating events across worlds can explain this strange property (among others) of the *tough*-construction. But I do not make a claim about Raising-to-Object/ECM or control of PRO. It's not clear to me whether what I've said can be extended to account for these cases. I'm hopeful for Raising-to-Object/ECM, but I would be surprised if control of PRO could be captured under a similar story.

In terms of Intensional Chain Uniformity, a pertinent question is, **Does ICU constraint *every* antecedent gap chain?** For instance, is it doing any work in normal *wh*-movement? Well, if DIG II is on the right track, then no, it's not relevant. But this isn't quite the same as saying that it's not doing work. It may very well be that ICU is universal constraint on antecedent-gap chains, but its effects only arise in particular situations. This is precisely what I've tried to argue above: we observe ICU only in the places where ICU can be violated.

However, it may the case that DIG II is off the mark, or that it's a red herring. In that case we'd want to know whether $\overline{\text{A}}$-chains, or normal subject-to-subject raising obeys ICU. It's not entirely clear what this question is asking. The problem is that it's not clear what it would *mean* for those antecedent-gap chains to be interpreted in two different positions. Is there a theory/derivation that predicts that they are? I don't know. Nonetheless, ICU doesn't seem to be doing any harm in these contexts.

Turning to the *tough*-construction, there are a number of possible points of variation — which is good, since in general, we find a wide variety of behavior with the *tough*-construction across languages. Turkish appears to entirely lack an antecedent-gap chain with *tough*-predicates (Sözen Özkan, p.c.). On the other hand, Japanese, Korean, and Scandinavian languages all seem to have a larger variety of *tough*-like constructions (Inoue, 1978, 2004; Song, 1988; Lee, 2003; Klingvall, 2018). Indeed, even in a language like Italian which appears to have an English-like *tough*-construction, the language does not permit all types of *tough*-constructions that English does. For instance Italian does not permit an antecedent-gap with the Take-TIME construction (Iara Mantenudo, p.c.).

There is one particular point of universality: if a language has a *tough*-construction, then the predicates corresponding to *easy, difficult, tough, important* are *tough*-predicates (Comrie and Matthews, 1990). This seems to be robustly attested. This is consistent with the analysis above which suggests that there is something particular about the meaning of such predicates that allow them to be *tough*-predicates: they describe *contentful events*, in that they are events associated with someone's beliefs.

Still, it's also possible that a language might make different choices about what does, and does not, describe an event. For instance, English speakers generally agree that *long* doesn't describe an event (**Biking to school was long*), but I see no reason to expect that this is true cross-linguistically. It seems perfectly reasonable that we might find a language in which events can be long.

One factor which might account for some of the variance is the type of non-finite clauses that are permitted in the language. In English, C_{for} is a crucially defined such that it can participate in the *tough*-construction. In particular, it can be a predicate.

(4.4) This computer is [Op_x for the students to use x]

If a language lacks the mechanism for making this kind of clause, i.e., an operator-gap chain, then English-like *tough*-constructions are not expected to be found in that language.

However, given that there may be other ways to semantically compose two predicates (Nanni, 1980), this leaves open the possibility that other "kinds" of *tough*-constructions might be found. Thus, we'd need to investigate not only the types of non-finite clauses, but the available mechanisms for semantic composition in the language. This seems to be the way to derive Germanic *modal passives*, which demonstrably involve something "smaller" than a full CP clause (Wurmbrand, 2001). Crucially, such modal passives appear to be correlated with the availability of such small constituents, like what is necessary in long passives.

We should also expect to find variation with respect to the argument/adjunct distinction that turned out to be critical in English. Some languages are more fluid about this distinction, and so we might expect to find *tough*-subjects that do not necessarily correspond to a gap in the lower clause. This appears to be the case for Japanese (Heycock, 1994), which Heycock links to the availability

of Major Subjects, i.e., grammatical subjects that do not correspond to a thematic position in the clause.

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