VARIETIES OF CLAUSAL COMPLEMENTATION

by

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ABSTRACT

This thesis argues that clausal arguments of mental-state predicates divide into two main types: those that express the *content*, or “subject matter” of the mental state, and those that express the *cause* of the mental state. The central theoretical claim is that this dichotomy corresponds to a difference in syntactic structure. I propose that these different structures derive from an operation of promotion to subject position that is constrained by two factors. First, it is constrained by syntactic category: DPs, but crucially not CPs, are eligible for promotion, and I argue that clauses in subject position are in fact DPs. Second, it is constrained by locality: even among DPs, only the highest DP is eligible for promotion. I explore a range of cases where this locality constraint is not met—i.e., cases of “argument intervention” in a variety of constructions. Finally, I discuss how these constraints interact to derive the realization of clausal arguments and the syntactic properties of the predicates that select them.

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Chapter 1: Argument Realization and the Linking Problem

1.1 Introduction: The Linking Problem

One goal of the mentalist approach to the study of language is to discover relationships between linguistic structure and the organization of non-linguistic mental categories. This thesis investigates one such relationship, in the domain of propositional-attitude predicates and their clausal arguments. The background for the investigation is, broadly, what is known as the ‘linking problem,’ and more narrowly, the aspects of the linking problem that involve predicates of mental states and ‘Experiencer’ arguments. I will begin with a brief overview of these issues.

Since the seminal work of Gruber (1965), Fillmore (1968), and Jackendoff (1972), syntactic theory has explored the correspondence between grammatical relations like ‘Subject’ and ‘Direct Object’, and conceptual relations such as ‘Causer,’ ‘Affectee,’ and ‘Instrument’. Conceptual relations in their linguistically relevant capacity are often called ‘semantic roles’ or ‘thematic roles,’ and a large body of subsequent work has concluded that the mapping of these roles onto syntactic structure, while not transparent, is nevertheless governed by systematic principles (Baker 1988, Dowty 1991, Jackendoff 1987, Perlmutter and Postal 1984, Speas 1990). The problem of discovering and formulating these principles is the “linking problem”.

Let me say a word on the nature of the two sets of “linked” categories. Grammatical relations are, of course, intrinsically linguistic notions, so we must look to linguistic theory for definitions. Most linguistic theories conceive of them either as primitive elements of syntactic representations (Perlmutter 1980, Bresnan 1982) or as derivative properties defined on syntactic representations (Chomsky 1981). This thesis takes the latter view.

Conceptual relations, by contrast, are not intrinsically linguistic. In principle, they could receive definitions according some other theory, but most authors have recognized the extreme difficulty in enumerating and defining them satisfactorily (see Croft 1991, Dowty 1991, Parsons 1995, Levin and Rappaport Hovav 2005). For the purpose of the argument in this thesis, I will simply assume that certain conceptual relations are primitive mental categories. To the extent that terms like ‘Agent’ and ‘Goal’ allow us to express true generalizations in an intuitive way, it is surely because these terms approximate members of what Fillmore (1968:46) called “a set of
universal, presumably innate concepts which identify certain types of judgments which human beings are capable of making on the events that are going on around them”.

Traditional solutions to the linking problem generally include a hierarchy of thematic roles, and a set of principles for linking these roles to syntactic representations. Examples of thematic hierarchies are given in (1), and examples of linking principles are given in (2).

(1) Examples of thematic hierarchies:
   a. Grimshaw (1990):
      Agent > Experiencer > Goal/Source/Location > Theme
      Agent > Benefactive > Recipient/Experiencer > Instrument / Theme/Patient > Locative

(2) Examples of linking principles:
   a. Levin & Rappaport Hovav (2005), inspired by Fillmore (1968):
      “The argument of a verb bearing the highest-ranked semantic role is its subject”
      “Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.”

1.2 Linking Experiencers

Experiencers are bearers of mental states. Experiencer arguments pose a classic challenge for linking theories, because they appear to vary in where they surface relative to arguments bearing other thematic roles. For example, the Experiencers in (3) are realized as subjects, while the Experiencers in (4) are realized as objects.
(3)  a.  **John** liked/fear/adored the painting.  **EXPERIENCER = Subject**  
b.  **John** worries about the economy.

(4)  a.  The painting pleased/scared/delighted **John**.  **EXPERIENCER = Object**  
b.  The economy worries **John**.

On the assumption that the painting and the economy bear the same thematic roles in (3) as they do in (4), these examples are a challenge to linking principles based on a thematic hierarchy. This assumption is rejected by Pesetsky (1995), who proposed that Experiencers co-occur with two distinct thematic roles: the CAUSER of the experience, and the SUBJECT MATTER of the experience.¹ Pesetsky proposed the Thematic Hierarchy shown in (5):

(5)  … CAUSER > EXPERIENCER > SUBJECT MATTER…

On this proposal, the predicates in (3) and (4) have different thematic structures, as illustrated in the table below. In the examples above, the painting is a SUBJECT MATTER in (3)a, but a CAUSER in (4)a. The thematic hierarchy in (5) straightforwardly determines the correct argument realization for both types of predicates.

Obj-Exp and Subj-Exp Predicates Have Different Thematic Structures:

<table>
<thead>
<tr>
<th>Predicates</th>
<th>Thematic Structure</th>
<th>Argument Realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>adore, fear, like, etc.</td>
<td>{EXPERIENCER, SUBJECT MATTER}</td>
<td>EXPERIENCER = subject</td>
</tr>
<tr>
<td>amuse, annoy, please, etc.</td>
<td>{EXPERIENCER, CAUSER}</td>
<td>CAUSER = subject</td>
</tr>
</tbody>
</table>

These predicates have some interpretive differences, as well. Consider the examples in (6):

(6)  a.  **John** fears/is afraid of the announcement.  {EXPERIENCER, SUBJECT MATTER}  
b.  The announcement scares/frightens **John**.  {EXPERIENCER, CAUSER}

¹ Actually, Pesetsky (1995) opposed CAUSER to a pair of similar roles, which he called “SUBJECT MATTER” and “TARGET”. I will use “SUBJECT MATTER” below.
In both (6)a, and (6)b, John’s experience is one of fear. The difference is that in (6)a, the fear is necessarily directed at the announcement, whereas in (6)b, the fear could be directed at something else, and merely brought on by the announcement.

There are even a few verbs with a flexible thematic structure—i.e., homophonous between \{EXPERIENCER, SUBJECT MATTER\} or \{EXPERIENCER, CAUSER\}\(^2\):

\[(7)\]
\begin{align*}
a. & \text{ John worried about the television set.} & \{EXPERIENCER, SUBJECT MATTER\} \\
b. & \text{The television set worried John.} & \{EXPERIENCER, CAUSER\}
\end{align*}

(Pesetsky 1995:57)

Here, too, there are subtle interpretive differences. In (7)a, John’s experience of worry necessarily involves thinking about the television set. John might worry that the television set will fall, that it was too expensive, that his wife will dislike it, that his children are spending too much time in front of it, etc. In (7)b, according to Pesetsky (1995:57), “It is sufficient that the television set causes John to experience worry, but the Subject Matter of his thoughts while experiencing worry could have nothing to do with the television set.”

I will adopt Pesetsky’s distinction between CAUSER and SUBJECT MATTER arguments, as well as the thematic hierarchy in (5); these will be central to the discussion in Chapters 2 and 5 below.

With this thematic hierarchy in mind, let me turn to the role of thematically-based linking principles. What is the place of linking principles in the overall grammatical architecture? Bresnan (1995) distinguishes two common views. In some theories, the linking principles effect a direct mapping between arguments and their surface syntactic realization, as shown in (8), based on Bresnan’s ex. 11. In other theories, arguments are first projected syntactically, resulting in a structure to which syntactic operations may apply. The output of these operations produces the surface realization of arguments, as shown in (9), based on Bresnan’s ex. 9:

\(^2\) In Pesetsky’s (1995) technical implementation, these are simply the few Obj-Exp verbs which do not obligatorily combine with a null causative affix.
Bresnan (1995:5) advocates the first view, maintaining that “the role of underlying syntactic trees in the linkage of lexical semantics to syntax should be eliminated.” In this thesis, I will adopt a particular version of the second view, on which the initial “syntactic projection” is identified with the vP domain, and the relevant “syntactic transformation” is movement to Spec,TP. I sketch this view in the next section.

1.3 A minimalist view of argument realization

On the view of argument realization I will adopt, the thematically-based linking principles do not alone determine the surface realization of arguments. Rather, they determine the projection of arguments within vP. Then, an inflectional head (T⁰) is merged and attracts one of those arguments to subject position (Spec,TP). Crucially, attraction by T⁰ is sensitive to two syntactic factors (Chomsky 1995). First, it is sensitive to syntactic category: T⁰ probes for a DP.³

³ One obvious question that arises is how to analyze apparent CP subjects, e.g.:

(i) [That the world is round] was discovered a long time ago.

An influential solution, due originally to Lees (1960), has been to assume that clauses in subject position have a hidden nominal structure. This is the solution I will defend in Chapter 3.
Second, it is sensitive to locality: $T^0$ attracts the highest DP in its domain. Together, these factors determine the surface realization of arguments.\(^4\)

Throughout this thesis, I will highlight three important predictions of this view of argument realization, illustrated in the configurations in (10) and explained below.

(10) Three predictions of the minimalist view of argument realization:

- **Configuration I:** *Standard*
  - $T^0$ attracts highest DP

- **Configuration II:** *Intervention*
  - $T^0$ cannot attract DP over closer DP

- **Configuration III:** *Bypassing*
  - $T^0$ can attract DP over CP.

Configuration I is the standard case. Attraction by $T^0$ preserves the order of arguments in the initial thematic projection. Configuration II is the case of “Intervention” – a lower DP cannot be attracted over a higher DP, so we predict ungrammaticality. Configuration III is a special case where a lower DP is attracted over a higher CP.\(^5\) CP does not act as an intervener, since $T^0$ is

---

\(^4\) Of course, the actual surface realization may be further altered by syntactic operations that move arguments around for other reasons. These include not only canonical ‘A-bar’ movements (wh-movement, relativization), but also a wide variety of poorly understood operations conditioned by information-structural, prosodic, or stylistic factors. In many well-studied languages (e.g., Russian, German, Japanese) such operations are rampant, and notoriously difficult to distinguish from argument promotion. In this sense, English is useful language to investigate, since these types of movements are relatively restricted, and relatively easy to identify and abstract away from.

\(^5\) Bypassing is thus one subcase of what McGinnis (1998) calls *skipping*, where a higher argument “lacks any feature that could check a feature of T.” See McGinnis (1998) for proposals about A-movement over anaphoric clitics, and potential cases of skipping over certain PP arguments.

Overall, cases of skipping are probably limited by the thematic tendencies of non-DP arguments. In general, VPs, APs, and PPs are not canonical external arguments (Agents/Causers); CPs may be Causers, and this is the case I start to investigate in Chapter 2—
looking for the highest DP. Here, attraction by $T^0$ changes the order of arguments in the thematic projection.

Configurations I and II are easily observable outside the Experiencer paradigm. For example, in simple \{AGENT, PATIENT\} transitives, the AGENT will be projected above the PATIENT. Configuration I will be the grammatical result when the AGENT is raised to subject position. Configuration II is the ungrammatical result if the PATIENT raises to subject position over the AGENT.

Configuration III, on the other hand, is not as familiar. It is reminiscent of unaccusative verbs (an internal argument is raised to subject position), but it differs in that the internal argument is raised over a external CP argument. I believe this is probably unique to the Experiencer paradigm, at least in English (though see Chapter 5, note 41). This rest of this thesis will explore how each of the three configurations plays out in the domain of Experiencer predicates and their arguments.

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specifically, the case of CPs that are Causers of mental states. Alternatively, we might consider higher oblique arguments (Experiencers/Goals). However, CPs, APs, and VPs are virtually never Experiencers or Goals; PPs are frequently Experiencers and Goals, but, as discussed in Chapter 4, PP oblique arguments are demonstrably transparent to c-command relations, so PP Experiencers and Goals will produce the “intervention” configuration. In this thesis, then, I will focus on higher CP arguments, and leave possible other cases for future investigation.
Chapter 2: Types of Clausal Arguments and the Predicates that Select Them

In the previous chapter, we were introduced to a thematic distinction among nominal arguments of experiencer predicates—Pesetsky’s (1995) division between CAUSERS and SUBJECT MATTERS. This chapter extends the distinction to clausal arguments of experiencer predicates: they, too, can be CAUSERS or SUBJECT MATTERS. By turning our attention to clausal arguments, we will uncover a new puzzle about argument realization. This puzzle, which will be central to the analysis in subsequent chapters, concerns the different argument realization patterns for clausal versus nominal co-arguments of experiencers. I will use this chapter to motivate an initial thematic distinction between these two types of clausal arguments, explore some of its preliminary syntactic consequences, and show how it leads to the puzzle.

The chapter is structured as follows. Section 2.1 introduces a dichotomy between two types of clause-subordinating predicates of mental states. Sections 2.2 and 2.3 provide two diagnostics that distinguish between the two types. Section 2.4 discusses a small but revealing set of predicates that are ambiguous between the two types. Section 2.5 takes stock of the observed generalizations, and highlights the aforementioned puzzle concerning argument realization.

2.1 Two types of clause-subordinating predicates

The main proposal of this chapter is that clause-subordinating experiencer predicates divide into two main types, depending on whether they subordinate a CAUSER or a SUBJECT MATTER. However, the various predicates I will be analyzing do not wear this dichotomy on their sleeve. In fact, I will be giving very different analyses to sentences that look on quite similar on the surface. Consider, for example, the following sets of sentences in (11) and (12):

(11)  a. John is aware that Mary left.
     b. John is certain that Mary left.
     c. John suspects that Mary left.
a. John is furious that Mary left.
b. John is relieved that Mary left.
c. John rejoices that Mary left.

The intuition I will pursue is that, for the sentences in (12), the embedded clause in some sense expresses the cause of John’s mental state, whereas for the sentences in (11), the embedded clause does not express the cause of John’s mental state.

Even if we grant these intuitive differences, a reasonable null hypothesis might be that they are not syntactic differences. They could merely reflect a set of unsystematic distinctions in the lexical semantics of propositional attitude predicates. On this view, e.g., aware and furious combine with their clausal arguments in exactly the same way, and any interpretive difference in the role of the clausal argument correlates only with the meaning of the predicate itself. In this chapter I will argue against this null hypothesis. I will propose instead that the intuitive difference in the role of the clausal arguments in (11) and (12) reflects a difference in the thematic structure and, ultimately, the syntactic structure of sentences like (11)- (12) above.

The thematic difference, in Pesetsky’s (1995) terminology, is that clausal arguments in (11) are Subject Matters, while those in (12) are Causers. I will use the term CP-SUBJECT MATTER predicates to refer to predicates like those in (11), and CP-CAUSER predicates to refer to predicates like those in (12). A far-from-exhaustive list of further examples is given in (13) and (14):

<table>
<thead>
<tr>
<th>CP is a Subject Matter:</th>
<th>CP is a Causer:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(13)</td>
<td>(14)</td>
</tr>
<tr>
<td><img src="image.png" alt="List of predicates" /></td>
<td><img src="image.png" alt="List of predicates" /></td>
</tr>
</tbody>
</table>

I (am) { confident aware sure certain remember forget know think believe suspect expect } that Mary left.

I (am) { happy sad excited surprised angry jealous relieved distressed devastated annoyed rejoice } that Mary left.
The CP-SUBJECT MATTER predicates include most of the classic propositional attitude predicates that have received attention in the semantic and philosophical literature. The CP-CAUSER predicates include mostly predicates of emotion.  

Recall from Chapter 1 that, with nominal arguments, distinguishing between Causers and Subject matters was simple, because argument realization transparently reflected thematic structure. If a co-argument of an Experiencer is a Causer, it is realized as the subject, as in (15). If it is a Subject Matter, it is realized as an object, as in (16).

(15) Music delights Mary.  \([Music is a DP Causer]\]
(16) Mary adores music. \([Music is a DP Subject Matter]\]

With clausal arguments, distinguishing between Causers and Subject Matters is not as simple, since the sentences in (13) and (14) above look very similar on the surface. In both (13) and (14), the Experiencer is the subject, and the clausal argument appears to the right of the predicate. In the two sections that follow, I will introduce two diagnostics that will help us to distinguish CP-SUBJECT MATTER and CP-CAUSER predicates.

2.2 Causative paraphrases act as a distinguishing diagnostic

Our first diagnostic is relatively straightforward: CP-CAUSER predicates allow, at least to a first approximation, paraphrases with causative constructions. (17)a is paraphrased both by (17)b, a clausal subject construction, and by (17)c, a related construction with an expletive subject and clausal associate.

---

6 I will remain neutral on whether the dichotomy I am drawing exhausts all clause-subordinating predicates of mental states, but I do not have any evidence to the contrary. Of course, there are many predicates that fit into the frames in (13)-(14) but are not predicates of mental states. Mostly these are *verba dicendi* (say, announce, declare) and their close kin (reveal, prove, pretend). A few odd adjectival predicates like lucky can take clausal complements and are not plausibly mental states. And there are many mental-state predicates that do not take clausal complements at all: tired, hungry, thirsty, etc.

7 These causative paraphrases are mentioned in Akatsuka (1972), which also contains an early proposal about the causative nature of predicates like furious, in a somewhat different theoretical framework.
(17) **CP-CAUSER** predicates are paraphrasable with a causative construction:

a. John is furious that Mary left.

b. That Mary left makes John furious.

c. It makes John furious that Mary left.

also: happy, sad, excited, relieved, surprised, impressed, angry, rejoice, grieve, despair...

**CP-SUBJECT** **MATTER** predicates, by contrast, are *not* paraphrasable in this way, as shown in (18):

(18) **CP-SUBJECT** **MATTER** predicates are not paraphrasable with a causative construction:

a. John is confident that Mary left.

b. #That Mary left makes John confident.

c. #It makes John confident that Mary left.

also: aware, sure, know, think, believe, suspect, expect, forget, doubt(ful), desire...

Of course, (18)b and (18)c have a meaning, but it is not a paraphrase of (18)a. (18)a means that John is confident of Mary’s past departure, while (18)b and (18)c mean that the fact of Mary’s past departure causes in John a general state of (self-)confidence. Additionally, (18)c has an independent meaning, where *it* is referential, and its referent makes John confident of Mary’s past departure.

Paraphrasability with a causative construction is thus our first diagnostic that distinguishes **CP-SUBJECT** **MATTER** and **CP-CAUSER** predicates.

2.2.1 A note on the causative paraphrases

Nevertheless, the paraphrasability of the **CP-CAUSER** sentences is not always exact. Angelika Kratzer (pers. comm.) has pointed out that there are scenarios where the periphrastic causative is appropriate, but the lexical causative is not. She imagines a scenario where Mary has secretly put a drug in John’s drink, which causes John to become happy. In this scenario, (19)a is appropriate, but (19)b is not.
(19)  a. That Mary drugged his drink made John happy.
    b. #John is happy that Mary drugged his drink.

It appears that (19)b, but not (19)a, requires the mental state to arise directly through the Experiencer’s awareness or perception of the Causer.\(^8\) Importantly, the same restriction applies to classic Object-Experiencer verbs. There are scenarios described by the periphrastic causative, for which the lexical causative is inappropriate. Thus, in a scenario akin to the one above, (20)a below is appropriate, but (20)b is not:\(^9\)

(20)  a. That Mary drugged his drink made John amazed/fascinated/angered/thrilled.
    b. #That Mary drugged his drink amazed/fascinated/angered/thrilled John.

The parallel between (19) and (20) suggests that, while there are indeed limitations on the paraphrasability of our CP-CAUSER predicates, these limitations are shared by more familiar causative experiencer predicates (Object Experiencer verbs).

To sum up what we have observed so far in this section: CP-CAUSER predicates, unlike CP-SUBJECT MATTER predicates, are usually paraphrasable with periphrastic causative constructions. There are rare and interesting cases where this paraphrasability fails—but these

\(^8\) We might wish to say that (19)b simply carries the additional truth-condition that John be aware that Mary drugged his drink. Upon closer reflection, however, it becomes clear that this condition is insufficient. The happiness must somehow be caused via this awareness. This requirement can be illustrated with the following scenario:

\textit{Scenario: Mary puts a drug in John’s drink. John finds out about this, and is angry about it. However, the (pharmacological) effect of the drug is that it causes John to be happy.}

In this case, it is true that John is aware of Mary’s drugging his drink. And it is true that Mary’s drugging his drink caused John to become happy. But it is still inappropriate to utter (i):

\begin{itemize}
  \item[(i)] #John is happy that Mary drugged his drink.
\end{itemize}

\(^9\) This observation appears, attributed to Anne Vainikka, in a footnote to an unpublished draft version of Pesetsky (1995). Vainikka’s example, which also involved a drug, led Pesetsky to generalize that “verbs like \textit{anger} describe only the causation of emotion by events that impinge on one's perceptions.” If my discussion in this section is correct, then the same is true of CP-Causer adjectives like \textit{angry}. 

---
cases actually *reinforce*, rather than undermine, the similarity between CP-Causer predicates and other lexical causatives in the experiencer paradigm.

In fact, there is suggestive evidence that (19) and (20) may reflect a more general contrast between lexical and periphrastic causatives—a contrast that extends beyond experiencer predicates. It has often been pointed out that lexical causatives, unlike periphrastic causatives, impose a requirement on the “directness” or “prototypicality” of the causation. Schaefer (2009:644), summarizing a generalization of long standing (Fodor 1970, Smith 1970, Shibatani 1976, McCawley 1978, Dowty 1979, Pinker 1989, Levin and Rappaport Hovav 1994) notes that, “[s]emantically, periphrastic causatives can express direct or indirect causation while lexical causatives typically express direct causation.” Schaefer illustrates with the following example:

(21) a. Floyd caused the glass to drop to the floor by tickling Sally, who was holding it.

b. Floyd dropped the glass to the floor (*by tickling Sally, who was holding it).

(Schaefer 2009, his (3a-b))

The sentences in (21), (20) and, by my hypothesis, (19) all illustrate the behavior of causative predicates. In each case, we see that the lexical causatives are semantically more constrained than the periphrastic causatives. These parallels, summarized in Table 1 below, further underscore the commonality between the CP-Causer predicates and other causative predicates.\(^{10}\)

---

\(^{10}\) The exact nature of the semantic constraint on lexical causatives is very difficult to define, even in the area of physical causation. Discussing this difficulty, Wolff (2003:3-4) emphasizes that “there is little value in characterizing direct causation as present whenever a causal chain can be described by a single-clause sentence or construed as a single event. Unfortunately, once we move beyond circular definitions, there is little consensus on precisely how this notion should be defined.” Wolff goes on to note that previous authors have appealed to such notions as *physical contact* (Wierzbicka 1975, Shibatani 1976); *(i)mmediacy* (Comrie 1985, Rappaport Hovav and Levin 1999); *intentionality* (Cary et al. 1995); and *temporal contiguity* (Fodor 1970, Goldberg 1995). Other proposals have described the constraint in terms of *conventionality* (Shibatani 1973), *stereotypicality* (McCawley 1978), or *prototypicality* (Lakoff and Johnson 1980) of the causation.

Though it is beyond the scope of this thesis, I do not think it is unreasonable to speculate that some generalized notion of *directness* or *prototypicality* might unify the restrictions in (19) through (21). For example, one could imagine that the lexical causatives in (19)and (20) are inappropriate because the “prototypical” mode of causation for externally-caused mental states
Table 1: Parallels between causative predicates in two domains:

<table>
<thead>
<tr>
<th></th>
<th>Physical Causation (21)</th>
<th>Mental Causation (19), (20)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lexical Causatives</strong></td>
<td>Patient’s change of state caused through interaction with Causer.</td>
<td>Experiencer’s mental state caused through perception/awareness of Causer.</td>
</tr>
<tr>
<td><strong>Periphrastic causatives</strong></td>
<td>Patient need not be in interaction with Causer.</td>
<td>Experiencer need not have perception/awareness of Causer.</td>
</tr>
</tbody>
</table>

In this section, we have seen that CP-CAUSER predicates can be distinguished from CP-SUBJECT MATTER predicates because the former allow for paraphrases with periphrastic causative constructions. We also explored some limitations on the paraphrasability of CP-CAUSER predicates, and saw that these limitations are common to other lexical causative experiencer predicates (and, possibly at certain level of abstraction, common to lexical causative predicates in general).

In the next section, I discuss another diagnostic that distinguishes CP-CAUSER predicates from CP-SUBJECT MATTER predicates, and I show how this difference follows from a larger generalization.

---

involves conscious perception or awareness, rather than, in this case, pharmacological action. Or, generalizing the notion of physical contact to the mental domain, we might say that the lexical causatives in (19) and (20) do not satisfy the directness condition, because for an Experiencer to have direct “mental contact” with something is for him to cognize it—to perceive or be aware of it. In this respect, it is revealing that the restriction on mental causation discussed above in fn. 6 (viz., that awareness of the causer cannot simply accompany the causation, it must be the mode of causation) is paralleled for physical causation. One can construct analogous scenarios showing that direct action cannot simply accompany the causation, it must be the mode of causation. E.g.,

_Scenario: John is on top of a ladder with a bucket of paint, and Mary is on the roof of the house, just above him. John is holding and stirring bucket of paint. With his other hand he decides to tickle Mary’s foot, which causes Mary to spill the bucket of paint with her leg._

In this case, it is true that John acted directly (with physical contact, intentionality, temporal contiguity, etc.) upon the paint, by stirring it. And it is true that John caused the paint to spill. But it is still inappropriate to utter (i):

(i) John spilled the paint.
2.3 CP-CAUSER predicates resist nominalization

A longstanding generalization in the syntactic literature is that predicates with CAUSER arguments resist nominalization. Chomsky (1970) observed that, for verbs that are homophonous between a causative and an inchoative version, the inchoative version allows nominalization, as shown in (22), while the causative version resists it (23):

(22) Inchoative grow permits nominalization:
   a. The tomatoes grow.
   b. The tomatoes’ growth/The growth of the tomatoes.

(23) Causative grow resists nominalization:
   a. John grows the tomatoes
   b. ??John’s growth of the tomatoes

Importantly, this phenomenon extends to CAUSER arguments of experiencer predicates (see Lakoff 1970 originally, Belletti and Rizzi 1988, Grimshaw 1990, Pesetsky 1995, and Alexiadou and Iordachioaia (to appear) for some qualifications and cross-linguistic discussion.) In examples (24) through (27) below, the (a) examples show the Object-Experiencer (CAUSER-subject) predicate. The (b) examples show that nominalizations of the Object-Experiencer predicates are degraded. The (c) examples show that nominalization is possible with a Subject-Experiencer meaning (no CAUSER argument).

(24) a. The dance amused Mary.
   b. ??The dance’s amusement of Mary.
   c. Mary’s amusement at the dance.

(25) a. The request annoyed Bill.
   b. *The request’s annoyance of Bill.
   c. Bill’s annoyance at the request.
2.3.1 Testing the nominalization prediction

In many languages, this prediction is borne out straightforwardly. In (28) through (31), I give examples from German and Russian.

**Nominalization is acceptable with CP-SUBJECT MATTER predicates:**

(28) mein(e) Verdacht / Glaube / Angst, dass Maria gegangen ist. [German]
    my suspicion / belief / fear that Maria left is.
    my suspicion/belief/fear that Mary has left

(29) moë podozrenie, čto Daša ušla. [Russian]
    my.NEUT suspicion that Dasha left.
    my suspicion that Dasha left
Nominalization is *unacceptable* with CP-CAUSER predicates:

(30) *mein(e) Ärger / Scham / Freude, dass Maria gegangen ist [German]
    my anger / shame / joy that Maria left is
    my anger/shame/joy that Mary has left.

(31) ??moja radost’, čto Daša ušla [Russian]
    my gladness that Dasha left.
    my gladness that Dasha left

In English, judgments are more variable, but a contrast is clear. Many speakers find that the difference between CP-CAUSER and CP-SUBJECT MATTER predicates is sharpest in the more limited domain of non-finite clausal complements. This is illustrated in (32) through (35) (cf. similar observations, with a different explanation, in Pesetsky & Torrego (2006).)

Nominalization is *acceptable* with CP-SUBJECT MATTER predicates:

(32) a. I am willing to leave.       (33) a. My willingness to leave.
    b. I desire to win.
    c. I am reluctant to leave.
    d. I expect to win.
    e. I am eager to learn.

(33) a. My willingness to leave.
    b. My desire to win.
    c. My reluctance to leave.
    d. *My expectation to win.
    e. *My eagerness to learn.

Nominalization is *degraded* with CP-CAUSER predicates:

(34) a. I am happy to leave.       (35) a. ??my happiness to leave.
    b. I am ashamed to have lied.
    c. I am excited to go.
    d. I am proud to be an American
    e. I am devastated to hear that.
    f. I am sad to have lost

(35) a. *my shame to have lied.
    b. *my excitement to be here.
    c. *my pride to be an American.
    d. *my devastation to hear that.
    e. *my sadness to have lost.

With finite clausal complements in English, speaker variation is higher. Nevertheless, speakers judge nominalizations of CP-CAUSER predicates as generally much worse than nominalizations
of CP-SUBJECT MATTER predicates. This is illustrated in (36) and (37) below. A judgment study of 60 native English speakers run on Amazon Mechanical Turk confirms a significant interaction between Nominalization and Causer vs. SM (see Appendix 1 for results.)

(36) **Nominalization is acceptable with CP-SUBJECT MATTER predicates:**
    a. my knowledge that he was there.
    b. my confidence that she had left.
    c. my belief that she had betrayed me.
    d. my awareness that she had betrayed me.
    e. my suspicion that she had betrayed me.
    f. my fear that she had betrayed me

(37) **Nominalization is variably degraded with CP-CAUSER predicates:**
    a. my happiness that I won
    b. my excitement that you play golf.
    c. my anger/*fury that you are late.
    d. my sadness/depression that I lost.
    e. my pride that I participated.
    f. my shame that you cheated on me.
    g. my gladness/joy that you came.
    h. *my annoyance that you are late.
    i. *my amusement that you were dancing.

In summary, we have seen that CP-CAUSER predicates differ from CP-SUBJECT MATTER predicates in their potential for nominalization. Crucially, on the thematic structure I am assuming, this difference is predicted as part of a larger generalization.

In the last two sections, I have put forth two tests that distinguish CP-CAUSER predicates from CP-SUBJECT MATTER predicates. The findings are summarized in the table below:
Table 2: Diagnostics

<table>
<thead>
<tr>
<th></th>
<th>Causative Paraphrase?</th>
<th>Nominalizations?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP-SUBJECT MATTER</td>
<td>NO</td>
<td>Good</td>
</tr>
<tr>
<td>CP-CAUSER</td>
<td>YES</td>
<td>Degraded</td>
</tr>
</tbody>
</table>

2.4 Ambiguous predicates:

This section discusses a small but revealing set of predicates that are homophonic between CP-SUBJECT MATTER and CP-CAUSER forms. These include concerned and worried. Clausal arguments of these predicates can be ambiguous. E.g., (38) below can be paraphrased as (38)a or (38)b:

(38) I’m concerned that Mary’s drinking again.
    a. ‘Mary’s drinking again, and that concerns me.’
    b. ‘I’m concerned about the prospect that Mary’s drinking again.’

On my hypothesis, the ambiguity with concerned reflects the two possible thematic roles for the clausal argument. If the CP is a CAUSER, we will get the paraphrase in (38)a. If the CP is a SUBJECT MATTER, we will get the paraphrase in (38)b.

If this hypothesis is correct, two predictions follow. First, since we’ve seen that periphrastic causative constructions diagnose the CP-CAUSER predicates, periphrastic causatives should disambiguate the sentences with concerned. Specifically, in the periphrastic causative construction we should lose the CP-SUBJECT MATTER reading. This prediction is borne out, as illustrated in (39):

(39) a. I’m concerned that Mary’s drinking again.
    ✓ CAUSE reading: ‘Mary’s drinking again, and that concerns me.’
    ✓ SM reading: ‘I’m concerned about the prospect that Mary’s drinking again.’
b. That Mary’s drinking again {makes me concerned / concerns me}.

✓ CAUSE reading: ‘Mary’s drinking again, and that concerns me.’
✗ SM reading: ‘I’m concerned about the prospect that Mary’s drinking again.’

c. It {makes me concerned / concerns me} that Mary’s drinking again.

✓ CAUSE reading: ‘Mary’s drinking again, and that concerns me.’
✗ SM reading: ‘I’m concerned about the prospect that Mary’s drinking again.’

We also make a prediction regarding the ambiguous predicates and nominalizations. Since nominalization ability diagnoses the CP-SUBJECT MATTER predicates, the nominalized versions of worried and concerned should disambiguate in the opposite direction. Specifically, with nominalized versions we should lose the CP-CAUSER reading. This prediction, too, is confirmed, as illustrated in (41):

(40) I am worried/concerned that Mary’s drinking again.

✓ CAUSE reading: ‘Mary’s drinking again, and that worries/concerns me.’
✓ SM reading: ‘I’m worried/concerned about the prospect that Mary’s drinking again.’

(41) My worry/concern that Mary’s drinking again

✗ CAUSE reading: ‘Mary’s drinking again, and that worries/concerns me.’
✓ SM reading: ‘I’m worried/concerned about the prospect that Mary’s drinking again.’

The nuanced behavior of predicates like concerned and worried, then, provides a revealing window onto the thematic structure of CP-subordinating experiencer predicates, as well as a striking confirmation of the diagnostics introduced in sections 2.2 and 2.3.

2.5 Conclusion and puzzle

In this chapter we have seen that, just as with nominal arguments, experiencer predicates subordinate clausal arguments in one of two ways: as SUBJECT MATTERS of the experience or as CAUSERS of the experience. Across both nominal and clausal arguments, we have some
predicates that specify for \{EXPERIENCER, SUBJECT MATTER\}, some predicates that specify for \{EXPERIENCER, CAUSER\}, and some very few that can be either, with revealing results.

This overall parallelism between clausal and nominal arguments allows us to focus on an interesting *asymmetry* between the two. The asymmetry is illustrated Table 3 below. For experiencer predicates with two nominal arguments, the argument realization transparently reflects the thematic hierarchy repeated in (42). For experiencer predicates with a *clausal* argument, however, the experiencer can be realized as the subject regardless of the thematic role of the clausal argument.

(42) \[ \ldots \text{CAUSER} > \text{EXPERIENCER} > \text{SUBJECT MATTER} \ldots \]

Table 3: An asymmetry in argument realization between clausal and nominal arguments:

<table>
<thead>
<tr>
<th>Predicates</th>
<th>Thematic Structure</th>
<th>Argument Realization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>With two nominal arguments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>adore, fear, like, etc.</td>
<td>{EXPERIENCER, SUBJECT MATTER}</td>
<td>EXPERIENCER = subject</td>
</tr>
<tr>
<td>annoy, delight, amuse, etc.</td>
<td>{EXPERIENCER, CAUSER}</td>
<td>CAUSER = subject</td>
</tr>
<tr>
<td><strong>With one clausal argument</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>confident, believe, aware, etc.</td>
<td>{EXPERIENCER, SUBJECT MATTER}</td>
<td>EXPERIENCER = subject</td>
</tr>
<tr>
<td>furious, sad, puzzled etc.</td>
<td>{EXPERIENCER, CAUSER}</td>
<td>EXPERIENCER = subject</td>
</tr>
</tbody>
</table>

The puzzle is localized in the boxed cell above: if the thematic hierarchy is as given in (42), then why do we get the Experiencer surfacing as the subject with CP-CAUSERS? In the next and last section of this chapter, I will outline my solution to this puzzle in its general form. Then, before returning to this solution in more detail in Chapter 5, I will use Chapters 3 and 4 to offer extended defenses of the underlying assumptions.

2.6 Preview of the solution

In Chapter 1, I introduced the minimalist view of argument realization that I will employ: the thematic hierarchy alone does not determine the surface realization of arguments. Rather, the thematic hierarchy determines the projection of arguments within vP. Then, an inflectional head
(T₀) is merged and attracts one of those arguments to subject position (Spec,TP). Crucially, attraction by T₀ is sensitive to two syntactic factors. First, it is sensitive to syntactic category: T₀ probes for a DP, so only DPs can be promoted to subject position. Second, it is sensitive to locality: T₀ can only attract the highest DP in its domain (vP). Together, these factors determine which argument is promoted to subject position.

Recall that this view of argument realization made three important predictions, repeated below in (43):

(43) Three predictions of this minimalist view of argument realization:

<table>
<thead>
<tr>
<th>Configuration I: Standard</th>
<th>Configuration II: Intervention</th>
<th>Configuration III: Bypassing</th>
</tr>
</thead>
</table>

- T attracts highest DP
- T cannot attract DP over closer DP
- T can attract DP over CP.

Configuration I is the standard case: attraction by T₀ preserves the order of arguments in the initial thematic projection. Configuration II is the case of “Intervention”: a lower DP cannot be attracted over a higher DP, so we predict ungrammaticality. Configuration III is the special case where a lower DP is attracted over a higher CP. In this case, attraction by T₀ changes the order of arguments in the thematic projection. Recall that CP does not act as an intervener, since T₀ is looking for the highest DP.

Returning to Table 3 above, we can see that the argument realizations of nominal arguments are straightforwardly instances of the standard configuration. Attraction by T₀ simply preserves the original thematic projection, as illustrated in (44) and (45).
(44) Mary adores music.

(45) Music delights Mary.

EXPERIENCER is projected above SM. CAUSER is projected above EXPERIENCER. 
$T^0$ probes for highest DP, finds Mary. $T^0$ probes for highest DP, finds Music.

Argument realization for the CP-SUBJECT MATTER predicates is also an instance of the Standard configuration, as shown in (46) below. The DP Experiencer is projected above the CP Subject Matter, $T^0$ probes for the closest DP argument, and the Experiencer moves to subject position. The order of the original thematic projection is preserved.

(46) John is aware that Mary left. (CP-SUBJECT MATTER Predicate)

Argument realization in CP-CAUSER predicates, on the other hand, instantiates the Bypassing configuration, where a lower DP is attracted over a higher CP. This is illustrated in (47):
In (47), the CP Causer is projected above the DP Experiencer. $T^0$ probes for the closest DP argument, so the CP Causer is not an intervener, and the DP Experiencer moves subject position, over the CP Causer. Importantly, the original thematic projection is altered: a lower argument is promoted over a higher one, resulting in the appearance of a counter-hierarchical projection. Essentially, this is an unaccusative-style syntax for the CP-Causer predicates: an *internal* argument is promoted to subject position.

Our final chapter will present this analysis (in a slightly revised form) in further detail. First, though, I will examine and defend the two core assumptions behind the view of argument realization that underlies it. Chapter 3 is devoted to the issue of syntactic category: $T^0$ probes for a DP, so DPs but not CPs can be promoted to subject position. Chapter 4 is devoted to locality: $T^0$ must attract the *highest* DP in its domain.
Chapter 3: Clausal subjects are DPs

In the preceding chapters, I outlined a view of argument realization that centered on two claims. The first claim is that DPs, but not CPs, are eligible for promotion to subject position. The second claim is that, even among DPs, only the closest DP is eligible for promotion. This chapter is devoted to defending the first claim. Let us call this claim the *DP Subject Requirement*; it is given in (48)\(^\text{11}\):

(48) **DP Subject Requirement:**

DPs, but not CPs, can be promoted to subject position.

By *DPs*, I mean essentially “nominal categories”, abstracting away from the DP/NP distinction. By *promoted to subject position*, I mean raised to Spec,TP—see section 3.4 for evidence that subjects in lower positions may indeed be CPs.

Versions of the DP Subject Requirement have a long history in the syntactic literature. In early work on phrase structure (Chomsky 1965, Rosenbaum 1967, Emonds 1970), a categorial restriction on subjects was built into the “base” component of the grammar. We find phrase-structure rules like (49), from Chomsky (1965:106):

(49) \(
\) S \( \rightarrow \) NP Pred-Phrase

The requirement that subjects be nominal was accepted implicitly in much subsequent work (Emonds 1972, Chomsky 1973, Koster 1978, Stowell 1981, Grimshaw 1982). Most recently, it has been explicitly endorsed in a series of papers by William Davies and Stanley Dubinsky (1998 et seq.).

Observationally, the generalization expressed by (48) has considerable appeal, since subjects are canonically DPs in many well-studied languages. Nevertheless, it is not clear that

\(^{11}\) This is the weakest version of the claim that my analysis of argument realization commits me to. Directly below, I consider a stronger (and simpler) version: that only DPs can be promoted to subject position. I suspect this stronger version is true, but I will stand behind (48) officially.
the generalization is true. A *prima facie* challenge to the DP Subject Requirement comes from examples like (50), where it looks like the subject is a CP:

(50)  
   a. [That the earth is round] was discovered a long time ago.  
   b. [That John won] surprised me.  
   c. [That Mary left] is unimportant.

The main purpose of this chapter is to defend the DP Subject Requirement in the face of apparent counterexamples like these. To be sure, a stronger version of the DP Subject Requirement (“only DPs can be promoted to subject position”) would face a wider range of apparent counterexamples, in which subjects appear to be not just CPs, but PPs, APs, and VPs:

(51)  
   a. [Under the bed] is a good place to hide.  
   b. [In August] is too late to have the party.  
   c. [Cheat on my wife] is something I would never do.  
   d. [Strong] is how I like my coffee.  
   e. [Afraid of spiders] is what you are!

Since this thesis deals with the realization of clausal arguments, I will focus on the challenge posed by apparent CP subjects, like those in (50). Strictly speaking, my analysis only commits me to the claim that CPs cannot become subjects. Nevertheless, I think the solution I give for (50) might extend to the examples in (51). See Davies and Dubinsky (1998) for arguments to this effect.

Even under the stronger DP Subject Requirement, there is a reason for considering the challenge of clausal subjects more seriously: PP, AP, and VP subjects are much more limited in their distribution. These categories can generally only be subjects of *be* and similar copular verbs. PP subjects are marginally acceptable with other predicates, and AP and VP subjects are essentially only compatible as subjects of pseudocleft constructions:

(52)  
   a. ??[Under the bed] frightens me.  
   b. ??[In August] is very hot / reminds me of summer camp.
c. *[Cheat on my wife] would horrify me.

d. *[Learn to swim] is fairly easy.

d. *[Afraid of spiders] is common / girlish.

In contrast, clausal subjects are compatible with a much fuller range of predicates, including predicates of personal taste, epistemic evaluation and justification, direct and indirect causation, as well as passivized propositional attitude verbs and passivized *verba dicendi*:

(53) a. [That Mary left] is nice / sad / funny / a relief.
b. [That Mary left] is obvious / false / possible / unlikely.
c. [That Mary left] shows / means / proves / suggests that she was bored.
d. [That Mary left] caused an outrage / made me angry / convinced me to leave.
e. [That Mary left] prevented me from seeing her / helped me forget her.
f. [That Mary left] was realized immediately / announced yesterday.

Clausal subjects, then, pose both a more direct and a more systematic challenge to my analysis of argument realization. For these reasons, I will focus on examples like (50) and (53) in the remainder of this chapter.

The challenge posed by these examples is based on the conjunction of two independent claims: that the bracketed phrases are CPs, and that they are subjects. If both of these claims are correct, examples like those in (50) and (53) constitute a problem for the DP Subject Requirement. Historically, syntactic analyses of these sentences have denied one of these two claims, allowing the DP Subject Requirement to emerge unscathed.

I will begin by outlining two alternative views of clausal subjects\(^\text{12}\)—one of which denies that they are truly CPs, and one of which denies that they are truly subjects. Either one would allow us to preserve the DP Subject Requirement (and the two are not even incompatible), but in what follows I will endorse a particular version of the first approach and present my reasons for doing so.

\(^{12}\) I will use “clausal subject” as an analytically neutral term for the bracketed phrases in sentences like (50) and (53), without prejudice to their syntactic category or syntactic position.
3.1 Lay of the land

One approach to clausal subjects, dating to Lees (1960) and Rosenbaum (1967), and defended more recently by Davies and Dubinsky (1998 et seq.) and Han (2005), claims that clausal subjects are not truly CPs. Instead, they are CPs embedded in a (possibly null) ‘DP shell’, as illustrated in (54):

(54) DP shell analysis:

\[TP[DP[CP\text{that Mary left}]]_T \text{ will } [VP \text{ surprise everyone.}]\]

Another approach, originated by Koster (1978) and revived by Adger (2002), Alrenga (2005) and Moulton (2009, to appear), proposes that clausal subjects are not truly subjects. Rather, they are topic phrases linked to a DP null subject. Alrenga’s modernized version of Koster’s analysis, according to which the topic phrase is base-generated in Spec,CP, is illustrated in (55):

(55) Topic phrase analysis:

\[CP[CP\text{that Mary left}]_i[CP[DP \text{ e}]_i[TP[DP \text{ t}]_i[T' \text{ will } [VP \text{ surprise everyone.}]_i]]]\n
Of course, the two ideas illustrated in (54) and (55) are logically independent. It is possible that neither is correct: i.e., clausal subjects could be true CPs and true subjects, in which case the DP Subject Requirement would need to be abandoned. Holmberg (2000) and Bailyn (2004) have pursued this abandonment, proposing that phrases of any syntactic category are in principle eligible for subjecthood.

A fourth logical possibility is that both claims are correct. Perhaps clausal subjects are indeed base-generated topics, as Koster (1978) proposed, but they also have the DP structure proposed by Rosenbaum (1967), etc. I am not aware of any such proposal in the syntactic literature, but it is worth keeping in mind when we consider the landscape of supporting evidence.

The four hypotheses under consideration, then, are illustrated in Table 4:
As mentioned above, I will eventually endorse the claim that clausal subjects are actually DPs. As for whether they are also topics, my analysis does not commit me in either direction. However, I will weigh the evidence and conclude a topic-phrase analysis is best rejected. In sum, then, I am casting my lot with Rosenbaum (1967): clausal subjects are not true CPs, but they are probably true subjects. The rest of the chapter reviews some of the evidence for these claims.

In section 3.2, I provide cross-linguistic evidence for the DP-shell analysis of clausal subjects. In particular, I show that components of this DP shell are visible in the clausal subjects of many languages. After reviewing a range of direct and indirect evidence for nominal structure in clausal subjects, I conclude that clausal subjects are uniformly embedded in a DP shell—a shell that is partially overt in many languages, but covert in others, including English.

In section 3.3, I present converging evidence from two additional properties that distinguish clausal subjects from clauses in non-subject position: the ability to license thematic pro and the ability to control agreement. Extending an analysis of Iatridou and Embick (1997), I argue that both of these abilities are tied to the presence of features borne by DPs, but not CPs. Again, the conclusion is that clauses in the Spec,TP subject position are DPs.

Section 3.4 examines three cases of subjects that are arguably not in Spec,TP position, and shows that they do not show DP properties. Section 3.5 discussion the issue of DP-shelled CPs in object positions. In section 3.6, I consider two proposals about the internal structure of the DP shell: one where the D head selects a CP directly, and one where there is a null noun that embeds the CP as its complement. I present some evidence from Uyghur (Turkic) that might favor the null-noun hypothesis.

In section 3.7, I consider whether Koster’s (1978) topic-phrase analysis of clausal subjects is correct. I review some empirical arguments for and against it, and I conclude that the
weight of the evidence argues against it. Section 3.8 summarizes the argumentation in the chapter, and concludes.

3.2 Cross-linguistic evidence for the DP shell

Across languages, clausal arguments frequently look different in subject and non-subject position. In this section, I review a series of such differences; in each case, clauses in subject position show evidence of obligatory nominal structure—evidence that includes overt determiners, case morphology, and possessor agreement.

I will begin with perhaps the most striking evidence for a DP shell: the overt presence of a Determiner head itself. In many languages, clauses in subject position obligatorily combine with an element drawn from the determiner system—an element that is crucially not required (either optional or disallowed) for clauses in complement position. This cross-linguistic pattern, illustrated in subsections 3.2.1, 3.2.2, and 3.2.3, supports the claim that clausal subjects, but not clausal complements, must be DPs.

3.2.1 Persian

In Persian, clausal subjects are obligatorily introduced with a morpheme in, which is homophonous with the determiner ‘this’. Clausal complements do not permit the morpheme in. The following data come from Maziar Toosarvandani (pers. comm.):

(56) in ketab
     this book
     ‘this book’

(57) In/*Ø ke Maryam raft ma’alum-e
     this that Maryam left.3sg clear-is
     ‘That Maryam left is clear.’
(58) Ma’alum- e (*in) ke Maryam raft.
   clear- is this that Maryam left.3sg
   ‘It is clear that Maryam left.’

3.2.2 Russian

In Russian, clausal subjects are obligatorily introduced with the morpheme to, which is homophonous with the singular neuter form of the determiner ‘that’. Clausal complements with to are strongly degraded.\(^\text{13}\) The following data come from Liudmila Nikolaeva (pers. comm.):

(59) to okno
   that.N.3SG window
   ‘that window’

(60) To/*ø čto Daša ušla izvestno vsem
   that.N.SG that Dasha left.F.3SG known.N everyone.DAT
   ‘That Dasha left is known to everyone.’

(61) Vsem izvestno (??to) čto Daša ušla.
    everyone.DAT known.N that.N.SG that Dasha left.F.3SG.
    ‘Everyone knows that Dasha left.’

(62) Vse znajut (??to) čto Daša ušla.
    everyone.nom know.3PL that.N.SG that Dasha left.F.3SG.
    ‘Everyone knows that Dasha left.’

To is also allowed, but not required, in the complement position of certain predicates that assign oblique case, as shown in (63). I will return to the significance of this fact in Chapter 5.

\(^{13}\) Although there is apparently a very informal register favored by younger speakers where sentences like (61) and (62) are more acceptable.
(63) a. Ja dovolen (tem) čto Daša ušla.
I.NOM satisfied that.INSTR that Dasha left.F.3SG
‘I am satisfied that Dasha left.’

b. Ja radujus’ (tomu) čto Daša ušla.
I.NOM glad.1SG.REFL that.DAT that Dasha left.F.3SG
‘I am glad that Dasha left.’

3.2.3 Modern Greek

In Modern Greek, clausal subjects are obligatorily introduced with the morpheme to, which is homophonous with the singular neuter form of the determiner ‘the’. There is no such requirement for clauses in complement position.

(64) to vivlio
the.NOM book
‘the book’

(65) To/*ø oti lei psemata apodhiknii tin enohi tis.
the that tell.3SG lies-ACC prove.3SG the.ACC guilt her
‘That she tells lies proves her guilt.’

(66) Ksero (*to) oti efighe.
know.1SG the that left.3SG
‘I know that he left.’

(Roussou 1991:87,93)

In (66) I have used an example from Roussou (1991) where to is disallowed in complement position. Roussou notes that to becomes optional, but not obligatory, when the complement clause is topicalized, and that to is required on clausal complements of prepositions or verbs that
select for DPs. What is relevant for our purposes, though, is that there is no general requirement that to be present in complement clauses, as there is for subject clauses.

3.2.4 Korean

The three preceding subsections have offered evidence for the DP status of clausal subjects, from overt determiner morphemes. In other languages, the morphological giveaway is not a determiner head, but rather the overt case-marking that is characteristic of DPs. Korean is such a language, as noted by Han (2005). Clausal subjects appear with the nominative case-marker ka/-i, as shown in (67):

    what-ACC eat- FUT- COMP- NOM problem be- DECL

‘What to eat is the problem’

Han (2005)

It might be objected that the nominative case-marking in examples like (67) is not necessarily indicative of a DP shell. If Koster’s (1978) topic-phrase analysis is correct, and the clausal constituent is a CP in topic position, then it could be that the case-marker is actually on the null DP subject, as in (68):

(68) Topic phrase analysis:
    [CP [CP Muess-ul mek-ul-kka] [CP [DP e]-ka [TP [DP t] [T manje-i-ta]]]]

However, as Han (2005) shows, the nominative case-marker in Korean generally cannot appear on null subjects:

(69) a. Ø Sasil- i- ta.
    Ø true- be- DECL

‘(That) is true.’
b. *Ø-i sasil-i-ta.
Ø-NOM true-be-DECL

‘(That) is true.’

The unacceptability of Han’s (2005) example in (69)b might be attributable to the morphophonological requirements of the case suffix; perhaps the suffix must be attached some overt phonological material, or perhaps it simply cannot begin a sentence. The following examples, provided by Daeyoung Sohn (pers. comm.), might alleviate this concern. Example (70)b shows that the nominative case-marker cannot appear on a null subject, even when preceded by overt phonological material to which it could attach:

(70)  Encey Con-i ttena-ss-ni?
when John-NOM leave-PAST-Q

‘When did John leave?’

a. Onul Ø ttena-ss-e.
today Ø leave-PAST-DECL

‘(He) left today.’

b. *Onul Ø-i ttena-ss-e.
today Ø-NOM leave-PAST-DECL

‘(He) left today.’

These fact suggest that the structure is (68) above is not a viable analysis for the Korean sentence in (67), and that nominative case-marking indeed diagnoses a DP shell for clausal subjects in Korean. This is Han’s (2005) conclusion as well.

3.2.5 Uyghur

Uyghur, a Turkic language of Western China, has two types of clausal arguments: DP-shelled CPs (“nominalized clauses” in the traditional Turkic literature) are distinguished from bare CPs
by a number of properties, including overt nominal morphology (possessor agreement and case-marking), genitive subjects (argued in Asarina and Hartman (2012) to be licensed by the D head), a different complementizer (\textit{liq} vs. \textit{dep}), and different tense and aspect possibilities. See Asarina (2011) and Asarina and Hartman (2012) for discussion.

Crucially for our purposes, \textit{only the DP-shelled CPs can appear in subject position.} Complement clauses can be either DP-shelled CPs or bare CPs, as illustrated below:

\begin{enumerate}
  
  \item[(71)] \textit{Bare CP complement clause:}
  \begin{itemize}
  \item Men \[Aygül \text{ leave- } \text{ pst-3s } C \text{ CP} \] bilimen.
  \item I \[Aygül \text{ know.1sg} \] \text{ know.1sg}
  \end{itemize}
  
  \text{‘I know that Aygül left.’}

  \item[(72)] \textit{DP-shelled complement clause:}
  \begin{itemize}
  \item Men \[[Aygül-\text{ ni\textbar} ket-ken- \text{ liq CP]} \text{ CP} \text{ i-ni} \text{ bilimen.}\]
  \item I \[[Aygül-\text{ GEN} \text{ leave-asp- C CP} \text{ CP} \text{ 3sg.POSS-ACC know.1sg} \]
  \end{itemize}
  
  \text{‘I know that Aygül left.’}

\end{enumerate}

In subject position, only the DP-shelled clause is allowed, as shown below:

\begin{enumerate}
  
  \item[(73)] \textit{Bare CP subject clause:}
  \begin{itemize}
  \item *[Aygül \text{ leave- } \text{ pst-3s } C \text{ CP}] \text{ CP} \text{ muhim.}
  \item [Aygül \text{ important}]
  \end{itemize}
  
  \text{‘That Aygül left is important.’}

  \item[(74)] \textit{DP-shelled subject clause:}
  \begin{itemize}
  \item [Aygül-\text{ ni\textbar} ket-ken- \text{ liq CP]} \text{ CP} \text{ i} \text{ muhim.}
  \item [Aygül-\text{ GEN} \text{ leave-ASP- C CP} \text{ CP} \text{ 3sg.POSS important}]
  \end{itemize}
  
  \text{‘That Aygül left is important.’}

\end{enumerate}

This pattern in Uyghur is exactly what is expected if DPs, but not CPs, are eligible for promotion to subjecthood.
3.2.6 Emphatic reflexives.

Davies and Dubinsky (1998) offer an interesting argument that clausal subjects are in fact DPs. The argument comes from the licensing of emphatic reflexives. These authors note that clauses in subject position license emphatic reflexives, while clauses in complement position or extraposed position do not:

(75)  
\begin{align*}
    \text{a.} & \quad \text{That Leslie arrived drunk itself put Kelly in a foul mood.} \\
    \text{b.} & \quad \text{Kelly was angry that Leslie arrived drunk (*itself).}
\end{align*}

(Davies and Dubinsky 1998)

(76)  
\begin{align*}
    \text{a.} & \quad \text{That Mary won is itself important.} \\
    \text{b.} & \quad \text{It is important that Mary won (*itself).}
\end{align*}

(77)  
\begin{align*}
    \text{a.} & \quad \text{That you're retiring itself was only recently announced.} \\
    \text{b.} & \quad \text{They only recently announced that you’re retiring (*itself).}
\end{align*}

This is not just a subject/complement asymmetry, since DPs license emphatic reflexives in both subject and complement position:

(78)  
\begin{align*}
    \text{a.} & \quad \text{John himself bought the original manuscript.} \\
    \text{b.} & \quad \text{John bought the original manuscript itself.}
\end{align*}

Davies and Dubinsky’s account is that only DPs license emphatic reflexives, and clausal subjects license them because clausal subjects are DPs.\(^{14}\)

\(^{14}\) Not all speakers agree with Davies and Dubinsky’s judgments. David Pesetsky (pers. comm.) reports that *itself* in association with a clausal argument is only acceptable when it is ‘floated’ as in (76)a, and suggests that this restriction might account for its unacceptability when attached to clauses in complement position. I will need to leave this for further research.
3.2.7 Subject clauses’ need for structural case

One final argument that clauses in subject position are in fact DPs comes from the fact that they apparently need structural Case. This argument is due originally to Delahunty (1983). Clausal arguments in complement position do not need Case; they can appear as complements of passivized verbs, as shown in (79). In this respect, they contrast with DPs, as shown in (80).

(79)  a. It was announced \([CP\text{ that John had won}]\).
    b. It was once believed \([CP\text{ that the world was flat}]\).

(80)  a. *It was announced \([DP\text{ John’s victory}]\).
    b. *It was once believed \([DP\text{ this falsehood}]\).

In subject position, on the other hand, clausal arguments and nominal arguments both appear to be in need of case. As subjects of non-finite clauses, clausal subjects obligatorily raise, just like DPs:

(81)  a. *It appears \([TP\text{ that Mary is sick}]\) to be the best explanation.
    b. *It seems \([TP\text{ that John left}]\) to have surprised everyone.

(82)  a. [That Mary is sick] appears to be the best explanation.
    b. [That John left] seems to have surprised everyone.

(83)  a. *It appears \([TP\text{ Mary’s illness}]\) to be the best explanation.
    b. *It seems \([TP\text{ John’s departure}]\) to have surprised everyone.

(84)  a. [Mary’s illness] appears to be the best explanation.
    b. [John’s departure] seems to have surprised everyone.
It appears, then, that structural Case is yet another way in which clausal arguments behave like DPs in subject position but not complement position. Again, this now-familiar pattern is expected if clausal subjects, but not clausal complements, must be DPs.

3.3 Φ-features and clausal subjects

This section explores two further ways that clausal subjects differ from clauses in non-subject position. First, clauses in subject position can serve as antecedents for thematic pro, while clauses in non-subject positions cannot. Second, clauses in subject position can control agreement, while clauses in non-subject positions cannot (even in expletive-associate configurations where agreement is possible with nominal arguments). Extending a proposal of Iatridou and Embick (1997), I will maintain that both of these properties rely on the presence of φ-features, and that DPs, but not CPs, have φ-features. We will see, as we did in the previous section, that the reason clausal subjects behave differently from other clauses is that clausal subjects are actually DPs.

Following a common terminology, I am using “φ-features” to refer to features that trigger argument-predicate agreement. These are “typically person, number and gender” (Adger and Harbour 2008), although more exotic agreement triggers are not uncommon.15 I will be particularly concerned with number agreement, for reasons that will become clear below.

3.3.1 The licensing of pro

Iatridou and Embick (1997) argue that clausal constituents (CPs and IPs) lack phi-features, based on an empirical generalization that clauses cannot serve as antecedents for thematic pro.16 Here are three of their examples, from Modern Greek, Bulgarian, and Catalan. (Note that overt pronouns can take clausal antecedents, as shown by the English translations and the Catalan pronoun aixo, ‘it’, in (87).)

15 Some less common triggers of argument-predicate agreement include definiteness, honorificity, and morphological case (see Corbett 2006).

16 Iatridou and Embick distinguish thematic pro from expletive pro, which does not require an antecedent.
Iatridou and Embick (1997) take these facts to indicate that CPs/ IPs do not bear φ-features. Their account of the behavior of thematic pro is that it is licensed by the φ-features of its linguistic antecedent; the reason it cannot take a CP as its antecedent is because CPs do not have φ-features.

However, Iatridou and Embick’s generalization has been challenged (Picallo 2002, Quer 2008, Zamparelli 2008), on the basis of counterexamples from Spanish, Italian, and Catalan.
Zamparelli (2008) shows that many of Picallo’s and Quer’s counterexamples can be neutralized, but the ones that remain are instances of clausal arguments in subject position:

(88)  *Clausal subject can antecede pro:*

[Que Bill y Nancy hubieran cometido perjurio,] favorecía a los republicanos
[that Bill and Nancy had committed perjury,] favored the Republicans
porque  pro/i, perjudicaba a los demócratas.
because  pro/i, damaged the Democrats.
‘That Bill and Nancy committed perjury favored the Republicans because it damaged the Democrats’

(Picallo 2002)

(89)  a.  *Clausal subject can antecede pro:*

[Che non si trovi un colpevole,] sarebbe disastroso, perché
[that not one finds a culprit,] would-be disastrous, since
pro/i, metterebbe in luce l’ inefficienza della polizia.
pro/i, would-put under light the inefficiency of the police
‘That a culprit may not be found would be disastrous, since it would spotlight the inefficiency of the police’

b.  *Non-subject clause cannot antecede pro:*

*Se [non si trovasse un colpevole],  pro/i, metterebbe in luce
If [not one finds a culprit],  pro/i, would-put under light
l’ inefficienza della polizia.]
the inefficiency of the police
‘If a culprit could not be found, it would spotlight the inefficiency of the police’

(Zamparelli 2008)

These examples suggest that Iatridou and Embick’s original generalization needs to be refined. The correct generalization appears to be that clauses cannot serve as antecedents for *pro*, unless they are *clauses in subject position*. On the examples in (88) and (89), Zamparelli (2008:121)
remarks that:

“a fairly intuitive story for what is happening in these cases can be told. Suppose, in agreement with Iatridou and Embick’s system, that when a CP functions as a subject, V takes the default singular/masculine form. Now, being in an agreement relation with a verb with valued features, CP ‘acquires’ (in a sense to be made precise) [-PLU,+MASC, …], and is now in a position to identify the coindexed pro in the subordinate clause. When CP is an object, […], CP cannot receive features or license pro.”

Although this proposal might succeed in capturing the facts, I think the DP-shell analysis of clausal subjects provides a simpler and more straightforward account of the difference between clausal subjects and other clauses—an account which does not require tweaking Iatridou and Embick’s basic assumptions. That is, we can maintain that thematic pro requires its antecedent to have φ-features, we can maintain that CPs cannot not bear φ-features (or ‘acquire’ them in Zamparelli’s sense), and we can still explain why clausal subjects license pro: it is because clausal subjects are not CPs, and they do have φ-features. The reason clausal subjects behave like DPs is that they are DPs.

In fact, Iatridou and Embick themselves note in a footnote that Greek pro can take a to-marked clausal subject as an antecedent. This fact, illustrated in (90), is unsurprising, given that we have already reviewed morphological evidence in section 3.2.3 for the DP status of clausal subjects in Modern Greek:

(90) An [to oti o Kostas paratise to sxolio], pisi tin Maria

If the that the Kostas abandoned the school convinces the Maria

oti ðen ine sovaros, proi ða pisi ke tin Dina.

that not is serious pro fut convince and the Dina.

‘If that Kostas quit school convinces Mary that he’s not serious, it will also convince Dina.’

(Iatridou and Embick 1997:fn. 13)
If my DP-shell account of pro-licensing by clausal subjects is correct, the Romance examples in (88) and (89) are no more surprising than the Greek example in (90). The examples differ only superficially: the head of the DP shell is visible in Greek, but null in the Romance examples.

To sum up: Iatridou and Embick (1997) generalized that clauses cannot serve as antecedents for thematic pro, and theorized that this was because clausal categories lack φ-features. Examples from Romance show that Iatridou and Embick’s generalization was too strong, and that clauses in subject position are an exception. On the DP-shell analysis of clausal subjects, this exception is explained in a way that allows us to retain Iatridou and Embick’s overall conclusion: CPs indeed lack φ-features, but clausal subjects do have φ-features, because they are not CPs, but DPs.

3.3.2 The licensing of agreement.

Iatridou and Embick’s conclusion about φ-features is relevant to our discussion of the categorial status of clausal subjects in another respect. If φ-features are responsible for subject-predicate agreement, and if Iatridou and Embick are correct that CPs do not have φ-features, then CPs should not be able to trigger subject-predicate agreement. If clausal subjects do trigger agreement, then by we can reason by contraposition that clausal subjects are not CPs.

Crucially, McCloskey (1991) has shown that, under the right conditions, conjoined clausal subjects can indeed trigger plural agreement on the predicate.17 His examples are given in (91) through (93) below; I have added the bracketing and emphasized the plural agreement on the predicate.

(91) [That the president will be reelected] and [that he will be impeached] are equally likely at this point.

(92) [That the march should go ahead] and [that it should be canceled] have been argued by the same people at different times.

17 These conditions involve subtle semantic factors, and when they are not met, singular agreement is often possible. This phenomenon is discussed in section 3.3.
(93) [That he’ll resign] and [that he’ll stay in office] seem at this point equally possible.  
\hspace{1cm} (McCloskey 1991:564)

Important, conjoined clausal subjects contrast with conjoined clausal arguments in associate position, which do not trigger plural agreement, as McCloskey shows:

(94) It is/*are equally likely at this point [that the president will be reelected] and [that he will be impeached.]

(95) It has/*have been argued by the same people at different times [that the march should go ahead] and [that it should be canceled].

(96) It seems/*seem at this point equally possible [that he’ll resign] and [that he’ll stay in office]  
\hspace{1cm} (McCloskey 1991:565)

If we accept Iatridou and Embick’s (1997) conclusion that CPs lack φ-features, then the possibility of plural agreement in examples like (91)-(93) supports the hypothesis that clausal subjects are not CPs, but DPs.

It is worth noting that the theoretical conclusion McCloskey (1991) originally drew from the contrast between (91)-(93) and (94)-(96) was somewhat different. He took the difference between clausal arguments in subject and associate position to illustrate:

“a crucial difference […] between constructions that contain a there pleonastic and those that contain an it pleonastic. Expletive-NP chains headed by there regularly exhibit agreement between the verb and the postverbal argument; expletive it never exhibits such agreement. […] It seems, then, that one of the principal reasons for assuming a syntactic link between expletive there and its associated argument fails to hold of the relation between expletive it and the clausal complement of the verb to which it is the subject.”  
\hspace{1cm} (McCloskey 1991:565)
In other words, McCloskey took clausal subjects to be the control case, showing that CPs can in principle control agreement. He reasoned: CPs can agree normally, so the fact that they don’t agree in (94)-(96) requires further explanation. By contrast, I am taking the CPs in associate position to be the control case, showing that CPs cannot normally control agreement. On my analysis, the absence of agreement in these cases is expected, since CPs don’t have φ-features, and the fact that clauses can agree in subject position argues that clausal subjects do have φ-features.

Unfortunately, McCloskey’s original facts, while strongly suggestive, do not allow me to make the best possible form of the above argument. This is because it-expletive constructions do not show agreement even with DP associates. Recall that at the beginning of this section, I promised to show that “clauses in subject position can control agreement, while clauses in non-subject positions cannot (even in expletive-associate configurations where agreement is possible with nominal arguments).” Such minimal pairs for (94)-(96) are impossible, because it-expletives never permit agreement, even with DP associates. DPs in these constructions are simply disallowed, presumably for Case reasons:

(97)  It-expletives disallow DP associates:

a. *It was discovered [Mary’s betrayal].

b. *It was/were announced on the same day [Mary’s retirement] and [her award].

Therefore, we need to look at a construction where (DP) associates can in principle control agreement, and see whether CP associates are any different. One such test case is there-expletives. As McCloskey notes, there-expletives show agreement with DP associates. And indeed, clausal arguments cannot be associates of there-expletives, as noted by Postal (2003):

(98)  a. On the door there was written [a message].

b. On the door there were written [two messages].

c. *On the door there was written [that Mary was away].
The second construction where we see this effect is locative inversion. The relevant contrast is cited in Bresnan (1993) and attributed to David Pesetsky. Clausal arguments cannot occupy the post-verbal position in the locative inversion construction:

(99) Pesetsky’s fact:
   a. In this room, ladies and gentlemen, was discovered [the cure for cancer].
   b. In this room, ladies and gentlemen, were discovered [many different cures].
   c. *In this room, ladies and gentlemen, was discovered [that cancer is caused by tomatoes].

Several authors (Postal 2003, Kim 2006, Bruening 2011) have noted the connection between (98) and (99), and suggested that, if locative inversion involves a null expletive subject with the same properties as there, they might be reduced to the same factor. I believe this factor is that CPs do not have φ-features.

I assume an analysis of locative inversion where the subject position is occupied by a null expletive pro (see Kuno 1971, Postal 1977, Coopmans 1989, Postal 2003, Kim 2006, Bruening 2011) and T₀ is valued by the φ-features of the postverbal associate. If CPs do not have φ-features, this analysis explains Pesetsky’s fact and its relation to the there-expletive cases. In (98)a,b and (99)a,b, the postverbal associate has φ-features, and we see them control agreement on the predicate. In (98)c and (99)c, the postverbal associate is a CP and lacks φ-features, so T₀ remains unvalued and the derivation crashes.

One question remains: why do we get ungrammaticality in these examples, instead of default agreement, as in the it-expletive examples in (94)-(96)? Here I adopt a proposal by Bruening (2011): English has two kinds of expletives: it and there/pro. It has 3sg φ-features, while there/pro has no φ-features of its own. This proposal derives the interaction between expletives and clausal arguments: in (94)-(96), agreement with the CP is impossible and the expletive it is inserted. It has 3sg features, and we see so we see 3sg (default) agreement on T₀. In (98) and (99), agreement with the CP is also impossible, but the expletive pro is inserted. Since pro has no φ-features of its own, T₀ finds nothing to agree with and the derivation crashes.
3.3.3 Accounting for optionality in agreement with clausal arguments

As mentioned above, the empirical picture is complicated by McCloskey’s (1991) observation that, in many cases, conjoined clausal subjects seem to prefer singular agreement on the predicate. His examples, with his judgments, are given in (100)-(102):

(100) [That UNO will be elected] and [that sanctions will be lifted] is/??are now likely.

(101) [That the position will be funded] and [that Mary will be hired] now seems/??seem likely.

(102) [That the shares are overvalued] and [that a decline is in order] is/??are widely believed on Wall St.

Describing these examples, McCloskey writes that “[t]he semantic condition governing such agreement seems to be that plural agreement is possible just in case the conjoined propositions are contradictory or incompatible, or more generally, when they specify a plurality of distinct states of affairs or situation-types. When the coordinated clauses denote compatible propositions (that is, when they denote two or more propositions that jointly specify a single complex state of affairs or situation-type) then singular agreement is preferred or required.” My own judgment is that singular and plural agreement are nearly equally acceptable in (100)-(102), but there is still a clear contrast with the conjoined clausal subjects in (91)-(93), where plural agreement is the only option.

If conjoined clausal subjects are in fact conjoined DPs, then plural agreement in examples like (91)-(93) is straightforwardly accounted for. But we still need to say what structure accounts for the availability of (and in many speakers, the preference for) singular agreement in examples like (100)-(102).

The DP-shell analysis provides just the right machinery to allow for a structural ambiguity in conjoined clausal subjects that will account for the variability in agreement. My proposal is that plural agreement in (91)-(93) results from the structure in (103), where two separate DP shells are conjoined, creating a subject that is φ-featurally plural. The singular
agreement option in (100)-(102) results from the structure in (104), where the subject consists of a single DP shell containing two conjoined CPs. In this case, the subject (i.e., the whole DP) is $\varphi$-featurally singular.

(103) $[\text{DP } [\text{CP That Mary’s on her way}]]$ and $[\text{DP } [\text{CP that she hasn’t left yet}]]$ are equally likely.

(104) $[\text{DP } [\text{CP That Mary’s on her way}]]$ and $[\text{CP that she’ll be here any minute}]$ is very likely.

One prediction of this proposal is that, in languages where we can see an overt D head, we should see two overt D heads in plural agreement contexts. This prediction is borne out in Greek, as shown by the following examples, provided by Sabine Iatridou (pers. comm.). We see in (105) that, with plural agreement on the predicate, a second D head is obligatory. With singular agreement on the predicate, a second D head is not possible, as shown in (106).

(105) Plural agreement on predicate; two D heads:

$\text{To na efiye i Maria ke *(to) na ine akomi edho ine ekisisu pithana}$

$\text{D PRT left.3SG Maria and D PRT be still here be equally likely.PL}$

‘That Maria left and that she is still here are equally likely’

(106) Singular agreement on predicate; one D head:

$\text{To na efiye i Maria ke *(to) na ine akomi thimomeni ine pithano.}$

$\text{D PRT left.3SG Maria and D PRT be still angry be likely.SG}$

‘That Maria left and that she is still angry is likely’

Note that the “shell-internal” coordination structure in (104) is independently plausible; it is clear that bare CPs can be conjoined within nominal structures in cases like (107) below, where conjoined CPs are subordinated to a single head noun. (In fact, in section 3.6, I will discuss a possible analysis that assimilates DP-shell structures to complex NP-structures like (107).)

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18 Unfortunately, the prediction is not testable for Russian, because the speakers I have consulted do not accept plural agreement with clausal arguments in subject position, with any combination of DP-shelled and non-DP-shelled clauses.
(107)  a. The rumor that Mary left and that she drove to California...
       b. …a state that I love and that I’ve visited many times.

A final question now arises: if the shell-internal coordination structure in (104) is generally available, why don’t we see conjoined DP subjects freely triggering singular agreement everywhere we look? That is, why don’t we see things like (108), resulting from the structure in (109)?

(108) *The president and vice-president was at the meeting.

(109) \[DP \text{ The } [\text{NP president}] \text{ and } [\text{NP vice-president}]\] was at the meeting.

The unacceptability of (108) suggests that conjoined subject DPs obligatorily trigger plural agreement. However, this conclusion is not entirely correct. Singular agreement with conjoined subject DPs is sometimes possible, in cases like (110) and (111) below—note the meaning difference between singular and plural agreement in (110).

(110) Gin and orange juice  a. \{is/are a terrible combination\}
       b. \{tastes/taste terrible\}

(111) Your arrogance and dismissiveness is/are infuriating.
       (cf. *‘Your brother and sister is infuriating’)

Intuitively, singular agreement is available when a conjoined DP subject denotes a complex entity resulting from a combination of the two conjuncts—this is probably the analog of McCloskey’s (1991) condition that singular agreement is preferred when conjoined clausal subjects “jointly specify a single complex state of affairs or situation-type”. Indeed, Heycock and Zamparelli (2005) suggest that similar factors condition what they call the “joint reading” for conjoined nominal subjects, exhibited cases like (112), where the conjunction-containing subject “refers to a single individual who has both the property of being a friend and the property of being a colleague.”
My friend and colleague is writing a paper. (Heycock and Zamparelli 2005:204)

It is not clear, though, whether this “joint reading” would account for singular agreement in examples like (110) above, unless we maintain that the mixture of gin and orange juice has the property of being gin, and the property of being orange juice. This is an issue that I must leave for future consideration.

In sum, McCloskey’s (1991) observations about plural agreement with clausal subjects, taken together with Iatridou and Embick’s (1997) argument that CPs lack φ-features, have provided us with further support for the idea that clausal subjects are not simple CPs, but are embedded in a DP shell.

3.3.4 Summary

In this subsection we have seen a range of evidence from English and other languages, showing that clausal arguments look and behave differently different in subject and non-subject position. In each case, clauses in subject position show evidence of nominal structure, while clauses in non-subject position do not. The table below summarizes the evidence we have seen:

Table 5: Properties of clauses in subject vs. non-subject positions

<table>
<thead>
<tr>
<th></th>
<th>Clauses in Subject Position</th>
<th>Clauses in non-subject position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overt D head?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Can control agreement?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Can license pro?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Emphatic Reflexives?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Need Case?</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>
3.4 Clausal subjects in postverbal position

Throughout this chapter, I have been assuming that the DP-Subject Requirement is a structural one—i.e., the requirement holds of arguments in a particular position (Spec,TP), rather than of arguments that are “subjects” in the functional sense of Perlmutter (1980) and Bresnan (1982). As noted in Chapter 1, the theories originated by these authors take “subject” as a primitive notion, associated with a range of general and language-specific grammatical functions (e.g., subjects are targets of raising constructions, controllees in control constructions, addressees of imperatives, the most prominent arguments in the eyes of the binding conditions, the easiest arguments to relativize or extract; see Keenan 1976, Keenan and Comrie 1977, Andrews 1985, Falk 2006). Though many of these properties are difficult to establish for clausal subjects, it is certainly plausible that the DP Requirement holds of “subjects” in this functional sense and not of phrases in Spec,TP. Moreover, our evidence so far has offered little chance to distinguish these two conceptions.

We’ve examined clauses in Spec,TP, and seen that they show DP properties. We’ve examined a variety of non-subject clauses that are not in Spec,TP (e.g., root clauses, if-clauses, clausal complements) and seen that these clauses do not show DP properties. But we have not examined cases that would allow us to separate a clausal argument’s grammatical function from its structural position: e.g., cases of clausal subjects that are not in Spec,TP. The closest we have come is English expletive configurations, where an argument in postverbal ‘associate’ position fills the argument role usually filled by subjects. And indeed, clausal arguments in these English post-verbal positions did not show DP properties, in terms of φ-agreement and need for structural Case. Nevertheless, these clausal ‘associates’ in English are probably not functional subjects either. In such constructions, it is the expletive itself that fulfills subject functions (expletives are targets of raising, invert with auxiliaries, are repeated in tag questions). Even for locative inversion, grammatical-functional analyses (e.g., Bresnan 1994) have maintained, perhaps counterintuitively, that the locative phrase, not the postverbal argument, is the functional (“f-structure”) subject.

Therefore, we want to identify postverbal arguments that, unlike English expletive-associates, are functional subjects. Then we want to see whether clausal arguments in those positions show DP properties. Luckily, many languages have true postverbal subjects, either as a
default word order or as a marked option. This section reviews three such cases, and shows that in each case, clausal subjects in post-verbal position do not show DP properties.

3.4.1 Malagasy

Davies and Dubinsky (2001) note that postverbal subjects in the V-initial language Malagasy do not show certain DP properties. For example, plural subjects in Malagasy can license the pre-predicate modifier *samy* ‘each/both’, as shown in (113). Clausal subjects are possible, but crucially do not license *samy* (114), unless they are nominalized (115). Regarding the latter, Davies and Dubinsky (2001:270) note that, in addition to the overt determiners, the Malagasy nominalized clauses in (115) are “indicated by the [SV] word order”:

(113) *Simple DP subjects license* *samy*:

\[
\text{Samy mamy ny siramamy sy ny tantely.} \\
\text{both sweet DET sugar and DET honey.} \\
\text{‘Both honey and sugar are sweet.’}
\]

(114) *CP clausal subjects do not license* *samy*:\(^{19}\)

\[
\text{Ø/*Samy mahasosotra an’i Soa fa nihira mafy i Bozy ary} \\
\text{both annoy ACC Soa COMP PST.sing hard DET Bozy and} \\
\text{(*fa) nitabataba i Be].} \\
\text{COMP PST.make.noise DET Be} \\
\text{‘Both that Bozy sang loudly and that Be made a lot of noise annoyed Soa’}
\]

\(^{19}\) I present Davies and Dubinsky’s (2001) argument as given, but the impossibility of the complementizer *fa* in the second clause of (114) is suspicious. It suggests the coordination may be at the TP level—in which case (114) might well be an instance of shell-internal coordination, and we would not expect *samy* to be licensed by a single DP. Thus, unless an independent reason can be given for the unavailability of the second *fa*, the argument from (114) loses its force.
Nominalized clausal subjects do license samy

Samy mahasosotra an’i Soa i Bozy nihira mafy sy
both annoy ACC Soa DET Bozy PST.sing hard and
i Be nitabataba.

DET Be PST.make.noise

‘Both Bozy singing loudly and Be making a lot of noise annoyed Soa’

(Davies and Dubinsky 2001:269-270)

Additionally, Davies and Dubinsky (2001) observe that Malagasy uses different items to coordinate sentential constituents and phrasal constituents. As seen in (113)-(115) above, sy is used to coordinate nominal constituents, while ary is used to coordinate clauses (CPs and IPs). Davies and Dubinsky argue that, since clausal subjects use ary, we have evidence that they are CPs. Note in (115) above that the nominalized version of the clausal subject takes sy, not ary—this confirms that the relevant factor is truly syntactic category, rather than, say phrasal length or semantic content.

Thus, two independent pieces of evidence suggest that clausal subjects in Malagasy are not DPs. If the DP-Subject Requirement is a requirement of the Spec,TP position, and if postverbal subjects in Malagasy are vP-internal (Costa 2001, see also Massam and Smallwood 1997 for related Niuean), and then we can explain this fact. Malagasy subjects do not appear in Spec,TP, so the DP-Subject Requirement does not apply to them.

3.4.2 Spanish

Let us look next at Spanish, where postverbal subjects are an option. In section 3.3.1, we saw for Spanish that clausal subjects in preverbal (Spec,TP) position showed DP properties: they have φ-features, and can thus license thematic pro. If I am correct that the DP-Subject Requirement is a requirement of Spec,TP, and if Spanish post-verbal subjects are v/VP-internal or v/VP-adjoined (Torrego 1984, Suñer 1994, Ordóñez 1998; see also Rizzi 1982 for related Italian), then Spanish clausal subjects in postverbal position should not show DP properties.

In the domain of agreement, prediction appears to be correct. Quer (2008:106-107) provides the contrast in (116) below, to show that “if possible at all, plural agreement on the verb
with conjoined clausal subjects is only an option if the conjoined constituent is in preverbal position (for English, McCloskey, 1991): if the conjoined subject appears postverbally, plural on the verb becomes actually marginal”.

(116) a. Agreement possible with preverbal clausal subjects:

\[
\text{Que perdié a y que fuera reelegido tenían la misma importancia para él.}
\]

‘To lose and to be reelected were equally important to him.’

b. Agreement impossible with postverbal clausal subjects:

\[
\text{?*Tenían la misma importancia para él que perdié y que fuera reelegido.}
\]

‘It was equally important to him to lose and to be reelected.’

Quer’s suggested connection to McCloskey’s facts is right on the mark. In both English and Spanish, clausal subjects in Spec,TP show DP properties, while clausal subjects in postverbal position do not. (In fact, if postverbal subjects in Spanish involve a null expletive pro in Spec,TP, as argued for Italian by Rizzi (1982) and Burzio (1986), then the Spanish facts in (116) may be completely analogous to the English expletive-associate clauses.

3.4.3 Russian

Russian allows postverbal subjects in so-called ‘inversion’ constructions, as illustrated in (117):

(117) Basic word order: preverbal subject

a. Radio razbudilo Vanju,

Radio.NOM woke.N.SG Vanya.ACC

‘The radio woke Vanya’
Inversion produces post-verbal subject:

b. Vanju razbudilo radio
Vanya.ACC woke.N.SG radio.NOM
‘The radio woke Vanya’

Lavine and Freidin (2002), Bailyn (2004), and Nikolaeva (2011) have argued that Russian postverbal subjects do not raise to Spec,TP; they are vP-internal. If this is true, I predict that postverbal subjects should not show DP properties. In fact, we have already seen an instance of this prediction in (61) above, repeated as (118) below. In (119) and (120), I offer a more minimal pair, showing that the DP-shell head to is required for preverbal clausal subjects, but unavailable for post-verbal clausal subjects:

(118) Vsem izvestno (??to) čto Daša ušla.
everyone.DAT known.N that.N.SG that Dasha left.F.3SG.
‘Everyone knows that Dasha left.’

(119) Preverbal clausal subject is DP-shelled:
To/*Ø čto Nadju uvolili udivilo Vanya.
that.N.SG that Nadya.ACC fired.3PL surprised.N.SG Vanya.ACC
‘That they fired Nadya surprised Vanya.’

(120) Postverbal clausal subject is not DP-shelled.
Vanju udivilo (??to) čto Nadju uvolili.
Vanya.ACC surprised.N.SG that.N.SG that Nadya.ACC fired.3pl
‘That they fired Nadya surprised Vanya.’

An alternative analysis proposed by Slioussar (2007) holds that postverbal subjects do raise to the same Spec,TP position as preverbal subjects; inversion constructions then feature verb movement to C0, and remnant movement of any other fronted material to Spec,CP. It seems to me that this analysis would offer no straightforward account for the difference in (119) and (120).
In sum, Russian subjects in Spec,TP position show the DP shell, while subjects in vP-internal position do not. As with Malagasy and Spanish, the divergent behavior of these low subjects is predicted by the structural view of the DP-Subject Requirement.

3.5 What rules out DP-shells in other positions?

The previous sections have shown us that DP shells are required of clauses in Spec,TP position, but are mostly disallowed (with some exceptions) for clausal arguments in other positions. In this section, I discuss the principles that might account for this pattern. Before I begin, let me emphasize that the issues discussed in this section are logically independent of my main claim in this chapter. My goal was to show that clauses in Spec,TP position are always DPs, and this is what the previous sections have confirmed. Whether clausal arguments in other positions can or cannot be DPs is an important question, but its answer will not affect my main claim. Furthermore, the empirical puzzles discussed below exist independently of my (or any) analysis of clausal subjects. Even if I had claimed nothing about a DP-requirement on Spec,TP, we would still be faced with the questions discussed below—why, e.g., Russian and Greek generally do not allow overt D heads on complement clauses, or why English complement clauses cannot show DP properties.

3.5.1 When DP shells are prohibited in object positions

With this disclaimer out of the way, let us address the following question: if DP-shelled clauses are in principle available, what prevents them from being available in non-subject positions more generally? For example, what rules out the Russian DP-shelled clause in (121)b, given that DPs are generally available in this position ((121)c)?

(121) a. To/*ø čto Daša ušla izvestno vsem
   that.N.SG that Dasha left.F.3SG known.N everyone.DAT
   ‘That Dasha left is known to everyone.’
b. Ja znaju (?to) čto Daša ušla.
I know that Dasha left.
‘I know that Dasha left’

c. Ja znaju ètot fakt.
I know this fact.
‘I know this fact’

Or, to use one of the diagnostics we’ve seen for covert DP shells in English: if a covert DP shell enables the emphatic reflexive in (122)a, what rules out a covert DP shell in (122)b, given that DPs are generally available in this position ((122)c)?

(122) a. That you're retiring (itself) was only recently announced.
b. They only recently announced that you’re retiring (*itself).
c. They only recently announced your retirement (itself).

Patterns such as these suggest that DP-shelled clauses may not be a generally available option, but rather a structure whose availability is governed by considerations of “last resort”. Let us suppose, then, that DP-shelled clauses are available when they are necessary to satisfy the DP-Requirement on Spec,TP position. This “last-resort” condition is stated in (123), and explicated below.

(123) A DP-shell may be inserted to allow a clausal argument to raise to Spec,TP.

Specifically, I will assume that a D head may attach post-cyclically to a clausal argument, allowing it to raise to Spec,TP, as illustrated in (124).

(124) a. \[T^0 [v_P \ldots [_{CP} \ldots ]] \]
   Bare CP argument cannot raise.
b. \[T^0 [v_P \ldots [_{DP} D [_{CP}] \ldots ] \]
   DP shell inserted.
c. \([_{TP} [_{DP} D [_{CP}] [ T^0 [v_P \ldots \, t_i \ldots ]]]] \]
   DP-shelled clause raises to Spec,TP.
Note that, on this proposal, the DP-shell is tied specifically to raising, not to φ-agreement. We predict that a DP-shell can be inserted to allow a clausal argument to raise to Spec,TP, but not simply to allow a stationary clausal argument to agree with \( T^0 \). In fact, we have already seen data that confirm this prediction. For English, it is confirmed by the facts concerning locative inversion and there-associates, repeated below in (125) and (126). Recall that in section 3.3.2, we derived the patterns in (125) and (126) from the assumptions that \( T^0 \) must agree with a category with φ-features, and that DPs but not CPs bear φ-features. One might ask, however, why the clausal argument in the (c) examples is necessarily a CP—why it couldn’t have a covert DP shell, and thus be able to agree with \( T^0 \)? By our condition in (123), the DP shell is only available to allow a clausal argument to raise to Spec,TP, and since the clauses in (125) and (126) do not raise, this condition is not met.

(125) a. On the door there was written [a message].
    b. On the door there were written [two messages].
    c. *On the door there was written [that Mary was away].

(126) Pesetsky’s fact:
    a. In this room, ladies and gentlemen, was discovered [the cure for cancer].
    b. In this room, ladies and gentlemen, were discovered [many different cures].
    c. *In this room, ladies and gentlemen, was discovered [that cancer is caused by tomatoes].

The same conclusion can be reached on the basis of overt DP-shells from the Russian inversion facts, repeated below. Recall that we observed in section 3.4.3 that the D head is obligatory on preverbal subjects (127), but unavailable on post-verbal subjects (128). But we might ask why the D head to is not even an option in (128): what rules out a DP shell here? The answer is that, by our last-resort condition in (123), the D head cannot be attached in this case, because it does not allow the clausal argument to raise to Spec,TP.
(127)  
\textit{Preverbal clausal subject is DP-shelled:}
\begin{align*}
\text{To/*ø} & \quad \text{če} \quad \text{Nadju} \quad \text{uvolili} \quad \text{udivilo} \quad \text{Vanju.} \\
\text{that.N.SG} & \quad \text{that} \quad \text{Nadya.ACC} \quad \text{fired.3PL} \quad \text{surprised.N.SG} \quad \text{Vanya.ACC}
\end{align*}

‘That they fired Nadya surprised Vanya.’

(128)  
\textit{Postverbal clausal subject is not DP-shelled.}
\begin{align*}
\text{Vanju} & \quad \text{udivilo} \quad (??\text{to}) \quad \text{če} \quad \text{Nadju} \quad \text{uvolili.} \\
\text{Vanya.ACC} & \quad \text{surprised.N.SG} \quad \text{that.N.SG} \quad \text{that} \quad \text{Nadya.ACC} \quad \text{fired.3pl}
\end{align*}

‘That they fired Nadya surprised Vanya.’

Again, this suggests that the DP shell is available in order to allow the clausal argument to move to Spec,TP, but it is \textit{not} available just to give $T^0$ something with $\varphi$-features to agree with.\footnote{Note that in (128), $T^0$ simply displays default (N.SG) agreement, which happens to look the same as the agreement triggered by raised DP-shelled clause in (127), since to is N.SG} My overall conclusion is that the DP shell in English and Russian is not generally available, but is available as a last-resort option to satisfy the DP requirement of Spec,TP.

3.5.2  
\textbf{When DP shells are allowed in object positions: the case of obliques}

We can also ask: is the DP-requirement of Spec,TP the only trigger for the DP shell? If the DP-requirement of $T^0$ were the only trigger for the DP shell, we would predict that DP-shelled clauses should be uniformly unavailable in object positions. In English, this appears to be true. Clauses in object positions cannot be DP-shelled, as our diagnostics (emphatic reflexives, $\varphi$-agreement in associate position and in locative inversion) have shown. In Russian and Greek, this prediction is mostly true, but there are certain exceptions, as mentioned in section 3.2 above.\footnote{In Uyghur and other Altaic languages, DP-shelled (‘nominalized’) clauses are available in object positions generally. This appears to a major parameter of cross-linguistic variation (see Kornfilt 2003, Miyagawa 2008), and unfortunately, I will not be able to extend my discussion to the Altaic pattern.} In this section I will address one exception that seems similar in both languages. In Russian, the DP-shell is available in oblique case positions, and in Greek, the DP shell is available for clausal objects of prepositions. In English, on the other hand, there is evidence that...
the invisible DP shell is unavailable even when the selecting category is a preposition. The evidence comes from Stowell’s (1981) observation that clauses cannot be objects of prepositions in English, as illustrated in (129):

(129) a. *We talked about that Mary was retiring.
    b. *I was surprised at that Mary is retiring.
    c. *Is this related to that Mary is retiring?
    d. *You can count on that Mary is retiring.

(cf. We talked about the fact that Mary was retiring, etc.)

If the clauses in these positions could take a covert DP shell, then, all else being equal, we would not expect to see the restriction in (129). An outstanding question, then, is: what allows the DP shell in these oblique positions in Russian and Greek, but not English? I cannot provide a fully satisfactory answer here, but one possibility worth pursuing is that the DP shell is recruited to allow the expression of morphological case. Perhaps the DP-shell is available when it would allow a clause to express some lexical case assigned by a verb, adjective, or preposition. In English, where morphological case is never expressed on determiners, DP-shells in object positions are never available. In Russian and Greek, morphological case is realized on determiners, and so the DP-shell is available when lexical case needs to be expressed.

In this section I have suggested that DP-shelled clauses (at least in English and related languages) are subject to a “last resort” condition that would explain their general absence from object positions. Additionally, I have speculated on another condition that would explain why DP-shelled clauses appear in oblique object positions in Russian and Greek.

In the larger picture, there appear to be many reasons that clauses can be forced to be DPs. This chapter focuses on one particular reason—namely, the requirements of Spec,TP subject position—because it is directly relevant to my main argument, and because it appears to be consistent across the languages I have investigated. To be sure, the full range of conditions under which languages prohibit, allow, or require DP-shelled clauses deserves much further study, but this is ultimately beyond the scope of this chapter. See Roussou (1991), Moulton (2009), and Takahashi (2010) for discussion of other environments that permit or require DP-shelled clauses.
3.6 How much nominal structure? Null nouns versus direct selection

We have seen in the preceding sections that there is substantial evidence that clausal subjects have some nominal structure—in many languages parts of this structure are visible overtly, while in others, like English, it can be detected by various syntactic diagnostics. But just how much nominal structure do clausal subjects have? Does the DP shell consist only of a functional (DP) layer, or is there a hidden lexical head as well?

In this section, I will review two hypotheses about the internal structure of the DP shells. On one hypothesis, they are essentially complex NPs whose head noun is phonologically null. On the other hypothesis, the determiner head selects a CP directly. These structures are illustrated in (130):

(130) a. Null noun: \[D [\emptyset_N [CP]]\]
    b. Direct selection: \[D [CP]\]

The null noun approach has a long history. It has been proposed by Lees (1965) and Aygen (2002) for Turkish, Warburton-Philippaki and Papafili (1988) for Greek, and Maki and Uchibori (2008) for Japanese. The direct selection approach has its proponents as well: Davies and Dubinsky (1998) endorse this structure for English and other languages. See also Caponigro (2002) for a similar proposal about the structure of free relatives.

On theoretical grounds, there are advantages to both approaches. The direct selection approach is more parsimonious, in that it assumes less hidden structure. The null noun approach is appealing because the distribution and interpretation of clausal subjects is often very similar to that of complex NPs, these similarities are captured with no additional assumptions, if clausal subjects are complex NPs.

On empirical grounds, it is difficult to come up with evidence that conclusively favors one structure over the other. In favor of the null noun approach, it is true that the null noun can often be made overt, as illustrated for Modern Greek in (131) and for Uyghur in (132):
(131) a.  **DP-shelled subject clause with null noun:**

\[
[D_P \text{ to } [N_P N_x \ oti \ efighe ]] \ m' \ \text{enoxlise}
\]

\[
[D_P \ \text{the } [N_P N_x \ \text{that } \ \text{left.3sg}]] \ m' \ \text{bothered}
\]

‘That he left bothers me’

b.  **Null noun made overt (=complex NP subject):**

\[
[D_P \text{ to } [N_P \text{ gheghonos } \ oti \ efighe ]] \ m' \ \text{enoxlise}
\]

\[
[D_P \ \text{the } [N_P \text{ fact } \ \text{that } \ \text{left.3sg}]] \ m' \ \text{bothered}
\]

‘That fact that he left bothers me’

(Adapted from Roussou 1991)

(132) a.  **DP-shelled subject clause with null noun:**

\[
[Aygül-\text{ni} \ \text{ket-ken- liq}_{CP} \ N_x_{NP} \ [D_P]-i] \ \text{muhim.}
\]

\[
[Aygül-\text{GEN} \ \text{leave-ASP- C}_{CP} \ N_x_{NP} \ [D_P]-3sg_{POSS}] \ \text{important}
\]

‘That Aygül left is important.’

b.  **Null noun made overt (=complex NP subject):**

\[
[Aygül-\text{ni} \ \text{ket-ken- liq}_{CP} \ \text{heqiqet}_{NP}] \ [D_P]-i \ \text{muhim.}
\]

\[
[Aygül-\text{GEN} \ \text{leave-ASP- C}_{CP} \ \text{fact}_{NP} \ [D_P]-3sg_{POSS}] \ \text{important}
\]

‘The fact that Aygül left is important.’

(Adapted from Asarina and Hartman 2012)

However, the fact that an overt noun is insertable is not necessarily unexpected on the direct selection approach. Even if a determiner head can select a CP directly, there is no reason it couldn’t also select an NP, given that complex NP constructions are independently possible. So while patterns like (131) and (132) are suggestive, they are not knock-down evidence for the null-noun approach.

In favor of the direct selection approach, it has been noted that there are cases where the null noun has no plausible overt counterpart. For instance, Roussou (1991) argues that certain interrogative clausal subjects in Greek, like (133)a should not be assigned the null-noun structure shown, precisely because there is no overt counterpart to the null noun that is insertable  (133)b:
a. *DP-shelled subject clause with null noun:*
\[
[\text{DP} \text{ to } [\text{NP} \mathbf{N}_x \text{ poso kōstise }]] \text{ m’ enoxlise.}
\]
\[
[\text{DP} \text{ the } [\text{NP} \mathbf{N}_x \text{ how.much cost.3sg}]] \text{ me bothered}
\]
‘How much it cost bothered me.’

b. *Null noun made overt (=complex NP subject):*
\[
*[\text{DP} \text{ to } [\text{NP} \text{ gheghonos poso kōstise }]] \text{ m’ enoxlise.}
\]
\[
[\text{DP} \text{ the } [\text{NP} \text{ fact how.much costs.3sg}]] \text{ me bothered}
\]
‘That fact of how much it cost bothered me.’

(Adapted from Roussou 1991, ex. 13)

Nevertheless, this does not seem to me to be decisive evidence against the null noun approach, since it could be that null nouns have much freer selectional restrictions than their overt counterparts, or even that there are multiple null nouns in the lexicon, all unpronounced, but with different interpretive and selectional properties.

3.6.1 Null nouns: evidence from Uyghur

In this subsection I will present evidence from Uyghur that bears on the choice between the null noun analysis and the direct selection analysis of the DP-shell structure. I will argue that an otherwise unexplained generalization is accounted for if 1) DP-shells contain null nouns, and 2) those nouns share certain properties of their overt counterparts—namely, restrictions on the presence of an complementizer in the embedded clause.

First, recall from section 3.2.5 that Uyghur allows DP-shelled clauses in both subject and complement position. The argument in this section comes from DP-shelled clauses in complement position, specifically DP-shelled clauses that are complements to postpositions. What I will argue is that a generalization about the form of these clauses is explainable in terms how the clause is subordinated to a null head noun (as a relative clause or a complement clause).

Asarina and Hartman (2011) observe that the Uyghur complementizer -liq is optionally present in noun complements, as shown in (134), but incompatible with relative clauses, as shown in (135):
Men-iŋ ket-ken-(liq) heqiqet-im muhim
I-GEN leave-RAN-LIQ fact-1sg.poss important
‘The fact that I left is important.’

Ötkür-niŋ oqu-ghan-(*liq) kitav-i uzun
Ötkür-GEN read-RAN-LIQ book-3sg.poss long
‘The book that Ötkür read is long.’

Additionally, Asarina and Hartman note that this complementizer –liq shows a puzzling distribution in postpositional complements. It is allowed in clauses embedded by certain postpositions, but not others. For instance, clausal complements of učun, ‘because’, allow –liq, whereas clausal complements of kijin, ‘after’, do not allow –liq:

(136) -liq possible:
[Sen-iŋ ket-ken-(lik)-iŋ ] učun, men tamaq ji-d-im
‘Because you left, I ate.’

(137) -liq impossible:
[Sen ket-ken-(*liq)-tin ] kijin, men tamaq ji-d-im
[You leave-RAN-LIQ-ABL] after, I food eat-past-1sg
‘After you left, I ate.’

(Asarina and Hartman 2011)

If there is no null noun, the contrasts between such cases would need to be due to an idiosyncratic property of different postpositions. However, if there is a null noun, the possibility of –liq is actually predictable from whether the noun heads a complement clause or a relative clause. That is, the contrast between (136) and (137) above is reducible to the contrast between (138) and (139) below.
From these data, I conclude that in at least some languages, the null-noun analysis of the DP shell is empirically supported because null nouns impose observable properties on the clauses they subordinate.

3.7 Evaluating the topic-phrase analysis

I began this chapter with two questions: Are clausal subjects true CPs? And are they true subjects? In the preceding three sections, we saw ample evidence that the answer to the first question is ‘no’: clausal subjects show the distribution, the syntactic behavior, and in many languages the morphological shape, of DPs.

In this section, I consider the second question. Let us begin by recalling Koster’s (1978) topic-phrase analysis of clausal-subjects, repeated in (140). The sentential constituent is a CP, but it is linked to a null DP subject that has been moved to an operator position.

(140) Topic phrase analysis:

\[
[CP [CP that Mary left]]; [CP [DP \epsilon]]; [TP [DP \ell]]; [T’ will [VP surprise everyone.]]]
\]

Now, if the DP-shell analysis of clausal subjects is correct, Koster’s (1978) proposal cannot be entirely accurate, since it holds that the topic-phrase is a CP. But, as emphasized at the start of
this chapter, two components of Koster’s analysis are logically separable. Thus, we might consider a modified version of the topic-phrase analysis, on which the topic phrase is a DP:

(141) Modified topic phrase analysis:

$$[\text{CP} \left[\text{DP} [\text{CP} \text{ that Mary left}]] \right] \left[\text{CP} \left[\text{DP} e\right]ight] \left[\text{TP} \left[\text{DP} t\right]\right] \left[\text{T'} \text{ will} \left[\text{VP} \text{ surprise everyone.}\right]\right]]$$

The analysis in (141) would complete our 2 x 2 table of possibilities, repeated below:

<table>
<thead>
<tr>
<th></th>
<th>True CPs</th>
<th>Actually DPs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actually Topics</strong></td>
<td>Koster (1978), Alrenga (2005)</td>
<td>(141)</td>
</tr>
</tbody>
</table>

But what would be the appeal of the analysis in (141)? As soon as we have accepted the DP-shell hypothesis, the original challenge to DP Subject Requirement has been neutralized, so the theoretical motivation for the topic-phrase analysis disappears. However, many authors have sought to motivate the topic-phrase analysis on empirical grounds, so it is worth considering whether such grounds might support the structure in (141). The empirical arguments are a mixed bag, but I believe that ultimately the empirical problems for the topic-phrase analysis outweigh the empirical arguments in its favor. In the remainder of this section, I will first consider the data put forth in support of the topic-phrase analysis, and then I will outline my reasons to be skeptical of it.

3.7.1 Arguments for the topic analysis

The empirical motivation for the topic-phrase analysis originates in a set of observations first made by Ross (1967:57-59), and discussed later by Emonds (1970, 1972), Hooper and Thompson (1973) and Kuno (1973), among others. Building on these observations, Koster (1978) noted that clausal subjects are degraded in a variety of contexts where garden-variety
nominal subjects are allowed. These contexts include topicalization and subject-auxiliary inversion in root clauses (142)-(143), as well as most embedded environments (144). The examples in (144) through (147) are taken from Alrenga (2005).

(142)  **Clausal subjects degraded:**
   a.  *Mary, that Bill is always drinking really worries.*
   b.  *Does that Bill is always drinking worry Mary?*
   c.  *Why does that Bill is always drinking worry Mary?*

(143)  **Nominal subjects acceptable:**
   a.  Mary, Bill’s constant drinking really worries.
   b.  Does Bill’s constant drinking worry Mary?
   c.  Why does Bill’s constant drinking worry Mary?

(144)  **Clausal subjects degraded:**
   a.  *Mary is unhappy because for her to travel to Tahiti is no longer necessary.*
   b.  *Although that the house is empty depresses you, it pleases me.*
   c.  *Jim raised the possibility that for the house to be destroyed would upset you.*
   d.  *That for us to smoke would bother her, I didn’t expect.*
   e.  *That for us to smoke bothers her is quite obvious.*

   (Alrenga 2005:178)

(145)  **Nominal subjects acceptable:**
   a.  Mary is unhappy because her trip to Tahiti is no longer necessary.
   b.  Although the house’s emptiness depresses you, it pleases me.
   c.  Jim raised the possibility that the house’s destruction would upset you.
   d.  That our smoking would bother her, I didn’t expect.
   e.  That our smoking bothers her is quite obvious.

   (Alrenga 2005:178)

Strikingly, topicalized phrases are prohibited in the same range of environments:
Topicalized phrases degraded:

a. *John, the book, I gave to.
b. *Did John, the article really bother?

Topicalized phrases degraded:

a. *Mary is unhappy because her trip to Tahiti, I’ve had to cancel.
b. ?*Although Mary, this may depress, it pleases me.
c. *John raised the possibility that Mary, your antics would upset.
d. *That Mary, our antics would upset, I didn’t expect.
e. *That Mary, your antics will upset is obvious.

(Alrenga 2005:179)

As Alrenga’s and my own markings indicate, the clausal subjects are not as fully degraded as the topic phrases in these environments (see section 3.7.2.2 below). Nevertheless, the clear distributional parallels have been taken as empirical evidence that clausal subjects are topic phrases.

3.7.2 Arguments against the topic-phrase analysis

3.7.2.1 Clausal subjects do not show properties of topic phrases

The most problematic fact for the topic-phrase analysis is that clausal subjects do not exhibit any of the properties normally associated with topic phrases. Clausal subjects lack the information-structural properties that characterize topic phrases by definition, and they also lack the prosodic properties associated with topic phrases. For instance, uncontroversial topic phrases are felicitous only in certain contexts, where the topic has already mentioned in the discourse, as in (148). If this discourse requirement is not met, topicalization is infelicitous, as shown in (149).

A: Have you ever been to Paris?
B: Paris, I visited last year.
(149) A: What did you do last year?
    B: #Paris, I visited last year.

In contrast, clausal subjects have no such requirements. They can occur as focused answers to questions (150), in null contexts, or in broad-focus contexts (151):

(150) A: What’s bothering you?
    B: That John’s not here is bothering me!

(151) A: What happened? (Why are you here?)
    B: That Mary left convinced me to stay.

Additionally, topic phrases in English have an intonational contour characteristic of background information (Jackendoff 1972, Büring 1997). In the ToBI system, this is usually notated as an L+H* pitch accent, followed by a L-H% boundary (152):

(152) A: What do you think of Mary?
    B: Mary, I like.
    L+H* L-H%

This intonation does not obligatorily characterize clausal subjects, and most speakers judge it infelicitous unless the discourse is continued in a way that provides for a for ‘contrastive topic’ interpretation:

(153) [That you drink so much] worries me.
    # L+H* L-H%

In fact, based on this intonational diagnostic, it is questionable whether topics can ever be associated with a root subject position:
The stiltedness of (154) suggests that topicalization may not even be an option for root subjects. As David Pesetsky (pers. comm.) points out, this same conclusion is reached on independent, syntactic grounds by Lasnik and Saito (1992). They propose that topicalization of root subjects is ruled out as a consequence of Chomsky’s (1981, 1986) Empty Category Principle, and offer as evidence the following contrast:23

(155) a. *John thinks that Mary likes himself.
b. John thinks that himself, Mary likes.

(156) a. *John thinks that himself likes Mary.
b. *John thinks that himself, likes Mary.

(Lasnik and Saito 1992:110-111)

Their reasoning is that in (155), topicalization brings the object out of the lower binding domain, and into a position where the anaphor can be licensed by the matrix subject. In (156), (string-vacuous) topicalization of the subject, if it is possible, should be able to achieve the same effect. Based on the contrast between (155), and (156), Lasnik and Saito conclude that topicalization of root subjects is in principle unavailable. If this conclusion is correct, it casts even further doubt on the topic-phrase analysis of clausal subjects.

In sum, we have seen that English clausal subjects show neither the information-structural nor the intonational properties of English topic phrases, and furthermore, that there are independent reasons to be skeptical that topic phrases can be associated with root subjects in the first place.

If we were intent on salvaging some version of the modified topic-phrase analysis in (141), we might concede that it is not even essential for the peripherally-generated DP to be a
topic phrase. Perhaps clausal subjects represent a type of peripheral generation that is *sui generis*—a type that shares none of the trademark properties of other left-peripheral phrases. This proposal would amount to the claim that, although clausal subjects are not true subjects, they are categorically and featurally identical to an unpronounced true subject, and furthermore they are generated in a position that is a) conveniently adjacent to this unpronounced subject, and b) not identifiable with any similar position attested in other constructions. To my mind, this reduces Koster’s (1978) proposal to an unfalsifiable variant of the “true subject” analysis.

3.7.2.2 Status of the supporting data

Many researchers have questioned the strength and source of the distributional restrictions on clausal subjects. Indeed, since the earliest discussion of such restrictions, authors have indicated the gradient acceptability of sentences like those in section 3.7.1, noting that many examples of the restriction on clausal subjects are not entirely unacceptable, and minimal pairs with nominal subjects are often not perfect themselves. For instance, Ross (1967:57) includes the following sentences, with the acceptability markings given (I have added the bracketings):

(157) a.  ?* [That [that John showed up] pleased her] was obvious
        b.  ? [That [the fact that John showed up] pleased her] was obvious.
        c.  [That it pleased her [that John showed up]] was obvious

[Ross (1967:57)]

Hooper and Thompson (1973) and Kuno (1973) discuss certain counterexamples to the generalization that clausal subjects are limited to root clauses. Delahunty (1983) and Davies and Dubinsky (2010) discuss counterexamples to the claim that clausal subjects are incompatible with auxiliary inversion. Delahunty gives the examples in (158), which he marks as acceptable; Davies and Dubinsky give the examples in (159), which they mark as acceptable; I have added further examples in (160) that seem quite acceptable.

(158) a.  To what extent did [that Fred failed to show up] anger those of his devoted fans who had waited by the stage door since dawn of the previous day?
b. Why does [that Fred wants to marry her] so upset Mary’s mother, father, brother, sisters, and four grandparents that they haven’t ceased to harangue her about it since they discovered the proposal?

(Delahunty 1983:382-383)

(159) a. To whom is [that pigs can fly] most surprising?
b. Is [that I am done with this homework] really amazing?

(Davies and Dubinsky 2010)

(160) a. ?Does [that your brother earns more than you] bother you?
b. ?Is [that I like you] so obvious?
c. ?When did [that I earn more than you] become an issue?

Note that examples analogous to (160) appear to be unavailable with true topic phrases, which are utterly incompatible with inverted auxiliaries, as shown in (161):24

(161) a. *Do Mary, you really like?
b. *Has Steve, Bill invited to the party?
c. *How does those noises, John put up with?
d. *Am that woman, I supposed to go out with?

The variability in the data has led many researchers to suggest that extra-grammatical factors may be responsible for the degradation of clausal subjects in certain contexts. Grosu and Thompson (1977) and Dryer (1980) suggest that clause-internal CPs (i.e., CPs that are not at the right or left edge of their clause) cause processing difficulties. In very rough outline, the idea is that the processing of sentences proceeds in clause-based units (Fodor et al. 1974), and that clause-internal CPs interrupt processing of the containing clause, in a way that clause-initial CPs

24 It is true, as David Pesetsky (pers. comm.) points out, that the examples in (161) also violate a more general constraint requiring adjacency between inverted auxiliaries and subjects (*Has, do you think, Steve invited Bill?; cf. a suggestion in Johnson 1991:579, fn. 2). But recall that on Koster’s proposed structure, the examples in (160) would violate this constraint equally, since the base-generated topic phrase intervenes between the auxiliary and the null subject.
and clause-final CPs do not. Auxiliary inversion brings clausal subjects into a clause-internal position, and thus incurs a greater processing cost. Dryer (1980) notes further that clause-internal CPs are typologically marked. Most languages disprefer such structures and some go to lengths to avoid them: e.g., many otherwise OV languages position clausal complements to the right of the verb.

Delahunty (1983) argues that the phrasal weight of the clausal subject compared to the predicate plays a role. The longer the predicate, and the shorter the clausal, the more acceptable the sentence sounds. A corpus study by Erdmann (1988) confirmed an effect of phrasal weight. The study found that the lighter the predicate is, the greater the preference for extraposition. Wasow (1997) arrived at a similar but more nuanced conclusion, proposing that the preference for extraposition is driven by the weight ratio between the clausal argument and the predicate.

Davies and Dubinsky (2010) propose that in many of the examples, a misparsing may contribute to unacceptability. They suggest that in examples like (160), the complementizer that may be initially analyzed as a demonstrative, forcing the parser to backtrack and reanalyze. This reanalysis is presumably more costly clause-internally, leading to increased unacceptability over instances of clausal subjects in initial position.

Evaluating the details of these individual accounts is beyond the scope of this chapter, but the results suggest that the distribution of clausal subjects may be largely explained—and is, at the very least, heavily confounded—by non-grammatical factors.

3.7.3 Verdict

Analyzing clausal subjects as DPs freed us of the theoretical motivation for relegating them to topic position. This section evaluated whether the empirical motivation alone is strong enough to accept the topic-phrase analysis, and my overall judgment it is not. Topic phrases are restricted to certain discourse contexts; clausal subjects show no such restrictions. Topic phrases have easily observable intonational properties; clausal subjects do not show these properties. Topic phrases have been argued not to associate with root subject positions; sentential subjects occur almost exclusively in root subject positions. The one real point of similarity is that clausal subjects are degraded in many of the same structural environments as topic phrases. But unlike with topic phrases, such degradation is partial, alleviated and exacerbated by non-structural
factors, and amenable to a variety of extra-grammatical explanations. I conclude that clausal subjects are indeed true subjects.

3.8 Chapter conclusion

This chapter has argued that clauses in subject position are in fact DPs. We have seen a wide variety of direct and indirect evidence for this categorial status.

Section 3.2 illustrated that elements of this DP structure are overt in the clausal subjects of many languages. These elements included a range of nominal morphology including overt determiner heads, morphological case-markers, and possessor agreement markers. We also saw that clausal subjects are distinguished from clauses in non-subject position by two additional DP properties: the need for structural Case, and the ability to license emphatic reflexives.

Section 3.3 added two more properties that distinguish clausal subjects from clauses in non-subject position: the ability to license of thematic pro and the ability to control agreement. Based on an analysis of Iatridou and Embick (1997), I argued that both of these abilities are tied to the presence of φ-features, which are borne by DPs, but not CPs.

Section 3.4 examined clausal subjects in postverbal position, and showed that they do not have DP properties. Section 3.5 addressed the issue of why DP-shelled clauses are not generally available in object positions.

Section 3.6 discussed two proposals about the internal structure of the DP shell: one where the D head selects a CP directly, and one where there is a null noun that embeds the CP as its complement. I presented evidence from Uyghur suggesting that the null-noun hypothesis is correct at least for some languages.

Section 3.7 considered the merits of an alternative proposal, according to which clausal subjects are actually topic-phrases. I examined some empirical arguments for and against it, and I concluded that on balance the evidence argues against it.

The overall conclusion, then, is that clausal subjects are true subjects, but that their syntactic category is DP. With this conclusion, I have defended the first of the two premises underlying my analysis of argument realization in CP-Causer predicates—the premise that DPs,
but not CPs, can be promoted to subject position. In the next chapter, I will lay out the evidence in defense of the second premise: that even among DPs, only the closest DP can be promoted.
Chapter 4: Argument Intervention: Case Studies

In Chapter 2, I discussed how two of our three argument-realization configurations, repeated below in (162), are instantiated within the Experiencer paradigm in English. CP-SUBJECT MATTER predicates produce the Standard Configuration: the experiencer is the higher argument, and it is promoted to subject position straightforwardly. CP-CAUSER predicates instantiate the Bypassing Configuration: the experiencer is the lower argument, but gets promoted over a higher CP argument for categorial reasons. In this chapter, I will discuss instantiations of the remaining case, the Intervention Configuration, where a lower DP argument is promoted over a higher DP argument, and ungrammaticality results.

(162) Three predictions of the minimalist view of argument realization:

<table>
<thead>
<tr>
<th>Configuration I: Standard</th>
<th>Configuration II: Intervention</th>
<th>Configuration III: Bypassing</th>
</tr>
</thead>
<tbody>
<tr>
<td>T⁰ vP</td>
<td>T⁰ vP</td>
<td>T⁰ vP</td>
</tr>
<tr>
<td>DP₁</td>
<td>CP</td>
<td></td>
</tr>
<tr>
<td>v₀ vP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . . DP₂ . . .</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The chapter is structured as follows. Section 4.1 provides a background for the intervention configuration in subject-to-subject raising. Section 4.2 discusses intervention effects in tough-constructions in Romance and English, and argues that the presence of intervention favors a derived-subjects analysis of tough-constructions. Section 4.3 provides evidence for intervention effects in several additional environments, including raising-to-object constructions and passivization out of clausal complements. Section 4.4 summarizes, and discusses prospects for further work. Finally, section 4.5 presents the results of a magnitude-estimation study of the intervention effects.
4.1 Intervention: background

Intervention by experiencer arguments has been discussed since Rizzi (1986), who observed that, in Romance, a matrix-clause experiencer can block the raising of an embedded subject to the subject position of the matrix clause. The examples below show that the experiencer is possible in the expletive construction ((163), (164)), but not the raising construction ((163), (164)).

(163)  

a. Il semble (au garçon) qu’elle a du talent.  
expl. seems to the boy that-she has of the talent.  
‘It seems to the boy that she has talent.’

b. Elle semble (*au garçon) avoir du talent.  
She seems to the boy to have of the talent.  
‘She seems to the boy to have talent.’

(slightly modified from McGinnis 2003)

(164)  

a. Sembra (a Maria) che Gianni è stanco.  
seems to Maria that Gianni is tired  
‘It seems to Maria that Gianni is tired.’

b. Gianni sembra (*a Maria) essere stanco  
Gianni seems to Maria to be tired.  
‘Gianni seems to Maria to be tired.’

(Boeckx 2008; see originally Rizzi 1986)

However, it is well known that English is cross-linguistically exceptional in allowing constructions like (165), where subject-to-subject raising proceeds across an overt, full-DP experiencer:
John seems to Mary to be happy.

This point has been the subject of much discussion (Kitahara 1997, McGinnis 1998, Boeckx 1999, Chomsky 2000, Collins 2005).

The effect in (163) and (164), in which subject-to-subject raising is blocked by an intervening experiencer, is cross-linguistically common. Similar facts have been observed for subject-to-subject raising in many other languages, including Spanish (Torrego 1996), Icelandic (Holmberg and Hróarsdóttir 2004), and Greek (Anagnostopoulou 2003). This blocking effect is what Chomsky (2000) has termed ‘defective intervention’—a constraint on the ‘Agree’ relation that is formalized below:

(166) Defective Intervention Configuration:
\[\alpha > \beta > \gamma, \text{ "where } > \text{ is c-command, } \beta \text{ and } \gamma \text{ match the probe } \alpha, \text{ but } \beta \text{ is inactive so that the effects of matching } [\text{between } \alpha \text{ and } \gamma] \text{ are blocked."}

(Chomsky 2000:123)

In the examples above, the matrix T° head is a probe and the experiencer DP is a “matching goal”. However, the experiencer DP is inactive, having already Agreed (checked its Case) with its selecting preposition. It thus blocks the Agree relation between the matrix T° and the embedded subject DP. Since Agree in Chomsky’s (2000) framework is assumed to be a prerequisite for movement, it follows that subject-to-subject raising cannot proceed over a matrix experiencer.

Before we proceed, there is an important question to get out of the way: why should the experiencer even count as an intervener, if it’s inside a PP? If closeness to T° is defined in terms of c-command, as the definition in (166) above (see also Chomsky 1995:299,358), we might expect that an experiencer embedded in a PP is too low to c-
command the embedded subject, and hence doesn’t intervene on it. However, there is good independent evidence from binding that nominals inside PPs do in fact c-command into the embedded clause (see Kitahara 1997, Boeckx 1999). The following examples illustrate:

(167)  

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>They seem to him to like John.*</td>
</tr>
<tr>
<td>b.</td>
<td>[Pictures of himself] seem to John to be ugly.</td>
</tr>
</tbody>
</table>

(167)a shows a Principle C effect, where the Experiencer in the PP binds the name inside the embedded clause. (167)b shows a Principle A effect, where the Experiencer in the PP has c-commanded the anaphor that was inside the embedded clause. Thus, we can observe independently that PPs are transparent to c-command relations in these constructions.

In any case, the English pattern in (165), in which raising proceeds across the experiencer, is a much-studied exception. One of the goals of this chapter is to investigate the extent of this exception. Does English simply lack the defective intervention effect, or is there something special about subject-to-subject raising? In other words, is the exception due to a general property of English, or a specific property of the construction in (165) in English? I will argue for the latter answer. I present novel data showing that English does in fact display intervention in a variety of other argument-raising constructions. In other words, I demonstrate that examples like (165) are the exception even within English: in several similar environments, the cross-linguistically typical effect is revealed.

4.2 Intervention in *Tough*-Constructions

The alternation in (168) poses several well-known questions for syntactic theory. One set of questions concerns the relation between the matrix subject of the *tough* construction and the object gap in the embedded clause. Is the matrix subject derived? If so, what are the steps in this derivation? I discuss new data that point toward an
affirmative answer to the first question and a narrowed range of plausible answers to the second.

(168)  

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

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

4.2.1 Tough Constructions and For-Phrases

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

(169)  

a. It is easy (for Mary) to please John.  
b. John is easy (for Mary) to please.

(170)  

a. It will be hard (for the students) to fail the test.  
b. The test will be hard (for the students) to fail.

Both the expletive construction and the tough construction may optionally take a for-DP sequence, but this sequence (the “for-phrase”) is potentially ambiguous between a PP experiencer in the matrix clause (171) and a complementizer-subject sequence in the embedded clause (172).
(171)  
   a. It is [AP easy [PP for Mary₁] [PROᵢ to talk to John]]
   b. John is [AP easy [PP for Mary₁] [PROᵢ to talk to ___]]

(172)  
   a. It is easy [CP for Mary to talk to John]
   b. John is easy [CP for Mary to talk to ___]

If the matrix subject is derived by movement, the structure in (171) constitutes an environment for defective intervention by the experiencer. However, any intervention effect would be impossible to detect from the simple examples above, since the offending structure in (171) is surface-identical to the benign structure in (172). Fortunately, however, there are cases that can be used to resolve the ambiguity in favor of the structure in (171). The predictions for such cases are clear. If tough constructions involve a derived subject, then we should uncover a defective intervention effect wherever we can disambiguate in favor of the offending structure. (Concretely, the expletive construction should be grammatical and the tough construction should be ungrammatical.) On the other hand, if tough constructions involve a matrix subject that is base-generated, then no intervention effect should be uncovered. (Concretely, both the expletive construction and the tough construction should be grammatical.) In the following sections, I examine four disambiguating cases, and show that an intervention effect is revealed in each one.

4.2.2 Evidence from Other Prepositions in English

The structural ambiguity addressed in the previous section arises only because the English preposition commonly used to introduce experiencers is homophonous with the complementizer for. Less frequently, however, other prepositions may be used to introduce experiencers:

26 The question of why the embedded subject should not act as a potential intervener even in the structure in (172) is explained in Section 4.2.6 below.
(173) a. It is important to John to avoid cholesterol.
   b. It is annoying to the girls to make small-talk.
   c. It was tough on me to lose my wife.

Since these prepositions are *not* homophonous with complementizers, a *to*-DP or *on*-DP sequence with one of the predicates in (173) is unambiguously a PP. By introducing an experiencer with one of these prepositions, we provide a confound-free testing ground for defective intervention. The result of the test is that the intervention effects are in fact observed: experiencers introduced by these prepositions are compatible with the expletive construction (a examples below) but incompatible with the *tough* construction (b examples).

(174) a. It is important (to Mary) to avoid cholesterol.
   b. Cholesterol is important (*to Mary) to avoid.

(175) a. It is enjoyable (to John) to eat strawberries.
   b. Strawberries are enjoyable (*to John) to eat.

(176) a. It is annoying (to those boys) to talk to John.
   b. John is annoying (*to those boys) to talk to.

(177) a. It was very hard (on me) to give up sugar.
   b. Sugar was very hard (*on me) to give up.

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

4.2.3 Evidence from Romance

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

(178)  

a. Il est difficile (pour les chiens) de voir cette couleur.  
It is difficult for the dogs DE see this color  
‘It is difficult for dogs to see this color’

b. Cette couleur est difficile (*pour les chiens) à voir.  
This color is difficult for the dogs A see.  
‘This color is difficult for dogs to see.’

(179)  

a. Il est difficile (pour les étudiants) de comprendre le problème.  
It is difficult for the students DE understand the problem  
‘It is difficult for the students to understand the problem.’

b. Le problème est difficile (*pour les étudiants) à comprendre.  
The problem is difficult for the students A understand.  
‘The problem is difficult for the students to understand.’

(180)  

a. È difficile (per i cani) vedere questi colori.  
Is difficult for the dogs see these colors.  
‘It is difficult for dogs to see these colors.’

b. Questi colori sono difficili (*per i cani) da vedere.  
These colors are difficult for the dogs DA see.  
‘These colors are difficult for dogs to see.’
(181) a. È impossibile (per gli studenti) capire questi problemi.
   It is impossible for the students to understand these problems.
   ‘It is impossible for the students to understand these problems.’

b. Questi problemi sono impossibili (*per gli studenti) da capire
   These problems are impossible for the students to understand
   ‘These problems are impossible for the students to understand.’

As shown in (182), the tough-construction allows an experiencer as long as it is
topicalized to (or perhaps adjoined in) a non-intervening position. This parallels an
identical effect for raising, as shown in (183):

(182) a. (Per i cani), questi colori sono difficili da vedere.
   (Pour les chiens), cette couleur est difficile a voir.

(183) (A Piero), Gianni sembra fare il suo dovere.
   ‘To Piero, Gianni seems to do his duty;

   (McGinnis 1998:92)

Note, too, that topicalizing the experiencer in English results in acceptability, as shown in
(184). Again, this parallels the same effect for raising and tough-movement in Romance,
suggesting that we are looking at the same phenomenon.27

27 Topicalization of the on-phrase in examples like (177) seems to be independently
   prohibited in both the expletive construction and the tough-construction. As for the clitic
   amelioration effect, it is less obviously testable in English. If we take the reduced version
   of them as clitic, examples like (ib) might show that the intervention effect in English
   obtains even when the experiencer is a clitic pronoun:

(i) a. It was very hard (on ‘em) to give up sugar.
     Sugar was very hard (*on ‘em) to give up.

The absence of improvement tells us that English patterns with Icelandic and Spanish,
rather than with French, Greek, and Italian. We also predict that, in any other
(184) To Mary, cholesterol is important to avoid.

Furthermore, the intervention effect in tough-movement is ameliorated when the experiencer is realized as a clitic pronoun, as shown in (185). This, too, parallels the situation for raising (186), strongly suggesting that we are dealing with the same basic effect in both constructions.

(185) a. Ce problème m’est difficile à comprendre. [French]
This problem me-is difficult A understand
‘This problem is difficult for me to understand.’

b. Cette opinion lui a été difficile à accepter.
This opinion him has been difficult A accept
‘This opinion was difficult for him to accept.’

(186) Jean lui semble avoir du talent. [French]
J. him seems to have of talent
‘Jean seems to him to have talent’

(McGinnis 1998:149)

Again, if the matrix subject of the tough construction is derived by movement, this paradigm is readily explained as the effect of defective intervention. If the matrix subject is base-generated, an independent explanation must be sought.

constructions where we can uncover intervention effects in English, the effect should not be ameliorated by clitic experiencers, either. This prediction appears to hold for the data in the next section.
4.2.4 Evidence from Quantification

A third way of resolving the structural ambiguity of the *for*-phrase involves quantifier scope. Universal quantifiers within the *for*-phrase provide the following diagnostic: If the *for*-phrase is a PP in the matrix clause, we expect a universal quantifier contained in it to be able to scope above the matrix predicate, as in (187). (The preposition *to* and the clausal subject construction are used to show that the *for*-phrase is truly a matrix PP.)

(187)  
  a. It is [AP important [PP to everyone] [PRO to arrive on time]].  
  b. [PRO To arrive on time] is [AP important [PP for everyone]].  
      * Important > Everyone  
      OK Everyone > Important

If the *for*-phrase is a complementizer-subject sequence in the embedded clause, we expect a universal quantifier contained in it to be unable to scope over the matrix predicate, as in (188).  

(188)  
  a. It is disappointing to me [CP for everyone to arrive late].  
  b. [CP For everyone to arrive late] is disappointing to me.  
      OK Disappointing > Everyone  
      * Everyone > Disappointing

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

28 It is possible to produce a marginal wide scope reading by focusing the QP, e.g.:  
   (i) -- Is it disappointing to you for me to arrive late?  
       -- ?Not just you. It’s disappointing to me for EVERYONE to arrive late.  
This is true of a wide scope reading of (188) as well:  
   (ii) -- This test is impossible for Bill to fail.  
       -- ?This test is impossible for EVERY student to fail.
(189) It is impossible for every student to fail this test.
   OK  Impossible > Every student
   OK  Every student > Impossible

(190) This test is impossible for every student to fail.
   OK  Impossible > Every student
   *   Every student > Impossible

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

4.2.5 Evidence from Two For-Phrases

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

(191) It is easy for the rich for the poor to do the work.

   (Chomsky 1973)

   Crucially, though, one of the two for-phrases must be analyzed as a matrix PP, and this will provide an environment for defective intervention. We thus predict that the expletive construction, but not the tough construction, should be compatible with two for-phrases. This is in fact the case, as noted originally by Chomsky (1973, 1977):
(192) a. It is [AP easy [PP for the rich] [CP for the poor to do the work]].
    b. *The work is [AP easy [PP for the rich] [CP for the poor to do ___]]

(193) a. It is [AP convenient [PP for John] [CP for Mary to bring the wine]].
    b. *The wine is [AP convenient [PP for John] [CP for Mary to bring ___]].

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

4.2.6 Implications for Existing Analyses

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

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

How does the defective intervention effect bear on these four classes of analyses?
The analyses that base-generate the matrix subject in the highest clause leave the
intervention facts unexplained. This is because the intervention effect implicates
movement to the matrix subject position, and these analyses deny such movement. On the
object deletion analyses, there is no movement at all. On the classic null-operator analysis
of Chomsky (1977, 1981) there is movement, but it does not cross the matrix experiencer,
and in any case it is of the wrong type (A’- rather than A-) to produce an intervention
effect—i.e., even if the experiencer were in an intervening position, it would not be a
matching goal for a probe that seeks a [wh] feature.

The family of derived-subject analyses is able to predict the intervention effects.
However, those analyses that derive the subject by one-fell-swoop A-movement
(Rosenbaum 1967, Postal 1971) actually suffer from over-prediction. Consider an
updated version of the one-step movement analysis: the matrix T₀ will probe for a
matching goal, but the inactive subject of the embedded clause should always be a
defective intervener, blocking movement of the lower object. Thus, one-step movement
predicts intervention effects even in the absence of a matrix experiencer. (Concretely,
tough constructions are predicted never to allow for-phrases, counter to fact.) To be sure,
this deficiency is tied up with a larger problem, namely that one-step movement analyses
are incompatible with otherwise supported proposals about the locality of A-movement.
In view of these issues, an updated one-step movement analysis will turn out to be a non-
starter for a variety of reasons.²⁹

This leaves us with two-step movement analyses (Brody 1993, Hornstein 2000,
Hicks 2003). On these analyses, the embedded object undergoes A’-movement to the

²⁹ For example, I have assumed for argument’s sake that the lower object could in
principle be an active matching goal for the matrix T₀ probe, even though it is far from
clear how this is so, since its Case feature is already valued by its selecting V or P. (This
is just a Minimalist statement of the observation that tough movement does not seem to
be Case-motivated in the way that canonical instances of A-movement (passives,
unaccusatives, subject-to-subject raising) are.
edge of the embedded clause, followed by A'-movement to the subject position of the highest clause. If there is more than one embedded clause, A’ movement proceeds successive-cyclically until the edge of the next-to-highest clause. Crucially, the movement “responsible” for the intervention effect (A'-movement) crosses only the highest clause, so the false predictions of the one-step movement analysis are avoided. On the two-step analysis, an embedded subject is correctly predicted not to intervene, since it is not a matching goal for a probe seeking a [wh] or other A’ feature. At the same time, the A’ component of the two-step analysis preserves the insights of Chomsky (1977) regarding the trademark A’ properties of tough movement (it can apply across indefinitely many embedded clauses, and it is subject to island constraints).

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

(194) a. It is impossible for it to be important to Mary to avoid cholesterol.
    b. Cholesterol is impossible for it to be important to Mary to avoid.
        (...because we all know she's perfectly healthy.)

(195) a. It is important to Mary for it to be easy to avoid cholesterol.
    b. *Cholesterol is important to Mary for it to be easy to avoid.
        (...because she’s on a diet and doesn’t want temptations.)

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

31 I make no claim about exact nature of this A’ feature. Previous authors have taken a similarly noncommittal stance. For example, Hornstein (2000:110) notes that “[i]t is plausible that some sort of A’/WH features are required to permit movement through Spec CP,” and suggests that “WH features of the ‘relative’ variety can append to an expression to provide it an exit from its containing clause via Spec CP” (see also Hornstein 2000:118-19). Hicks (2003), explicitly proposes a feature he calls “\(i\text{wh}\varphi\)”. Below, I refer to the relevant feature simply as the A’ feature.
The expletive construction provides the control case, showing that when no movement occurs, an experiencer is allowed in an intermediate clause (194)a and in the matrix clause (195)a. The contrast between the tough constructions shows that when movement occurs, an experiencer in the intermediate clause is allowed (194)b but an experiencer in the matrix clause triggers an intervention effect (195)b.

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

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

4.2.7 Conclusion

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

What we have seen in this chapter so far is that English shows intervention effects with experiencers in tough-movement, but not in subject-to-subject raising. At this point, we might ask: within English, is tough-movement the rule and raising the exception, or vice versa? In the next section I present data showing that the intervention effect can be found in three additional contexts. I will conclude that the exception in English is limited to a single construction.

4.3 Beyond tough constructions

The raising and tough-movement cases have established a recognizable ‘signature’ for defective intervention effects, given in (196):

(196) a. No movement: experiencer optional
       b. Movement: experiencer disallowed

Although we saw in the previous section that English lacks intervention in subject-to-subject raising, this section presents new data from English, showing that we can indeed uncover the signature for intervention in three other environments beyond tough-constructions: passivization out of clausal complements, raising to object, and subject-to-subject raising with DP experiencers. I take these up in turn.

4.3.1 Passivization out of clausal complements

Consider passivization out of the clausal complement of an ECM or wager-class verb, to the matrix subject position, as illustrated in (197):

(197) John was claimed \[_{TP} <John>\) to have stolen the art\].
When the matrix verb can take an experiencer/goal argument, we have a test for intervention. The prediction is that in the unraised version (with expletive subject and finite complement), the experiencer/goal will be available. In raised version, the experiencer/goal should be unavailable. This prediction is borne out, as illustrated in (198) through (200) below. The (a) examples show that when there is no movement to the matrix subject position, an experiencer/goal of the matrix verb is optional. In the (b) examples, we see that when movement occurs, the same argument is disallowed.\(^{32}\)

(198) a. It was claimed (to Bill) that John had stolen the art.
   b. John was claimed (*to Bill) to have stolen the art.

(199) a. It was said to me that John is guilty.
   b. John was said (*to me) to be a guilty.

(200) 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.

Note also that (199) is showing that, consistent with English tough-movement, the intervention effect is not ameliorated when the experiencer is a pronoun.

\(^{32}\) A note on speaker variation and the badness of these examples: it is true that one can find attested instances of these constructions, and that some speakers find the intervention less bad than others. The same is true of canonical examples of experiencer intervention, viz. the Romance raising facts. E.g., the ‘bad’ French examples are marked as “?*” in Anagnostopoulou 2003, “*” in Chomsky 1995, “??” in Boeckx 1999, and as \textit{acceptable} in the earliest reference I am aware of, Rouveret & Vergnaud 1980:146. McGinnis 1998 marks them as “???” but cautions that “Speakers disagree on the grammaticality of examples like [these]. My own consultants are divided on this point.” For the English phenomena, it is no surprise to find similar speaker variation in the strength of the effect. For the sake of clarity and consistency, I have used “*” to mark the intervention effect throughout this chapter, though this is obviously an idealization, and further work would be necessary to quantify the variable acceptability of these constructions across speakers.
4.3.2 Raising to object

Next we consider intervention in external-case-marking (ECM) constructions. For the purposes of this argument, I assume the raising-to-object analysis of ECM (Lasnik and Saito 1992, Lasnik 1999, Runner 1995; see originally Rosenbaum 1967 and Postal 1974, and Runner 2006 for discussion.) On this analysis, the subject of the embedded infinitival clause raises to the object position of the matrix verb, as shown in (201):

(201) Mary proved John \[_{TP} <John> \text{ to be a liar.}\]

Among the motivations for the raising-to-object analysis is the fact that the logical subject of the embedded clause can precede main-clause elements such as adverbials and particles, as (202) illustrates:

(202) a. Mary proved John yesterday to be a liar.
    b. Mary made John out to be a liar.

Thus, with ECM verbs that can take an experiencer/goal argument, we have another test for intervention. Our prediction is that when raising to object has not occurred (when there is a finite clausal complement), an experiencer/goal of the matrix verb will be possible. When raising to object has occurred, the same experiencer/goal should be unavailable.

This is exactly what we observe. In (203) through (205) below, the (a) examples show that when there is no raising to object, the matrix verb may optionally take an experiencer/goal. In the (b) examples, we see that when raising to object occurs, the intervening argument is disallowed.33

33 A similar effect is given passing reference in Rooryck (2000:47,fn.1), who notes that: “It is unclear why the internal dative Experiencer, which can be expressed with tensed complements (I showed/proved to Bill that Rousseau was wrong) is completely impossible in an ECM context (I showed/proved (* to Bill) Rousseau to be wrong).” Rooryck’s example is probably independently ruled out by a linear adjacency requirement on ECM in English (cf. I showed/proved (*yesterday) Rousseau to be
(203) a. Mary proved (to me) that John was a liar.
b. Mary proved John (*to me) to be a liar.

(204) a. I declared (to the audience) that the competition was over.
b. I declared the competition (*to the audience) to be over.

(205) a. Mary demonstrated (to Bill) that the hypothesis was false.
b. Mary demonstrated the hypothesis (*to Bill) to be false.

Again, note that, like English tough-movement and passivization from a clausal complement, the intervention effect is not ameliorated when the experiencer is a pronoun.

4.3.3 The raising verbs promise and threaten

A third case of intervening experiencers in English comes from raising verbs with DP experiencers. As has been previously observed (Zubizarreta 1982; see also Perlmutter 1970), the verbs promise and threaten have both a control version (206) and a raising version (207):

(206) a. John promises to pay me the money.
b. Mary threatened to withhold my salary.

(207) a. This book promises to become a best-seller.
b. The floods threatened to destroy the village.
c. There promises to be a lively debate.
d. There threatens to be a revolt.

wrong). The true test is whether the object can appear before the experiencer, as tested in examples (203)-(205).
Our prediction is that with the control versions of these verbs, which involve no movement, an experiencer of the matrix verb will be possible. In the raising versions, the same experiencer should be unavailable.

This is in fact what we observe. For most English speakers, the control versions allow an experiencer/goal:

(208)  
   a. John promised (the students) to attend the concert.  
   b. %John threatened (me) to come to my house.

The raising versions, on the other hand, do not allow this argument for any speakers:

(209)  
   a. John’s performance promised (*the students) to be the best of the concert.  
   b. The hurricane threatened (*me) to destroy my house.

Thus, it appears that even in subject-to-subject raising, English displays the experiencer-intervention effect with certain verbs.34

4.4 Summary and discussion

In this chapter, I have provided a range of novel evidence for the intervention configuration in English and other languages. Moving past the old observation that English apparently lacks intervention effects in with raising verbs like seem and appear, I documented intervention effects in a variety of other NP-raising constructions, including tough-movement, raising-to-object, passivization from a clausal complement, and raising with predicates like promise, threaten, and required. I conclude that intervention is alive

34 It would also be possible to account for the difference between (208) and (209) by saying that the control and raising versions of promise and threaten just happen to have different argument structures—the raising version does not allow an experiencer argument. While the difference could indeed be stated in this way, my point is that the intervention analysis predicts this difference, whereas the post-hoc analysis attributes it to lexical chance; it might very well have been the control version which did not allow the experiencer argument.
and well in English, rounding out the evidence for the three configurations of argument-realization that began this thesis.

I suspect we could expand the cross-constructional picture even further, finding other places in English where the signature of defective intervention can be uncovered. One promising case might be modal adjectives that allows for an “obligee” argument in an expletive construction (210)a, but not in the raising construction (210)b:

(210) a. It is required (of John) that the books remain on the shelf.
    b. The books are required (*of John) to remain on the shelf.

Nevertheless, there remains the question of why English should be exceptional with *seems* and *appear*. Taking stock of the data we have seen so far, we have many cases where English reveals the cross-linguistically familiar prohibition against raising over experiencers. Yet we still have one case (subject-to-subject raising with verbs like *seem* and *appear*) where English apparently violates this prohibition.

What should we make of this newly expanded paradigm? In one sense, the new data are reassuring: English, now exhibiting signs of cross-linguistic normalcy, is not a rogue language after all—it merely harbors one rogue construction. On the other hand, the task of explaining this rogue construction is now much more delicate. As Hartman (2012) notes, the expanded paradigm drastically “narrows the goalposts” for possible explanations: whatever allows raising across an experiencer in subject-to-subject raising must fail to allow it in our four other English environments. It should also fail when applied to French, Italian, Spanish, Greek, Icelandic, etc.

In other words, we are faced with two related questions. First, what accounts for the cross-constructional variation within English—i.e., why does English allow raising across an experiencer in one case but not the other four? Second, what accounts for the cross-linguistic variation—why does this exception obtain in English, but not French, Italian, Greek, Icelandic, etc.? It seems that any explanation should include at least two ingredients: something specific to the syntax of raising verbs like *seem* and *appear*, and something specific to English. While I will not attempt to give a solution to this question
here, Hartman (2012) explores these questions in more detail, and offers a unified account (albeit one that is not altogether compatible with the proposals in this thesis.)

4.5 A quantitative study of the intervention effects

This section presents the results of a judgment study of the intervention effects discussed in the preceding sections of this chapter. In particular, I focus on the intervention effect in raising-to-object (211), and passivization out of a clausal complement (212):

(211) a. I proved that John was a liar.
    b. I proved to Bill that John was a liar.
    c. I proved John to be a liar.
    d. *I proved John to Bill to be a liar.

(212) a. It was declared that John was a liar.
    b. It was declared to Bill that John was a liar.
    c. John was declared to be a liar.
    d. *John was declared to Bill to be a liar.

In addition to providing a quantitative measure of these effects, the results of the study address a recent challenge (Bruening, 2012) to my claim that these contrasts in acceptability reflect a particular grammatical constraint, defective intervention.

The (c) and (d) examples above illustrate the robust contrast between argument-movement with and without an intervening argument. But the defective intervention account entails a stronger claim: the sentence-type in (d) should contrast not only with (c), but with similar sentences where the intervening element is not an argument (say, an adverbial).

It is less obvious that this latter claim is valid, and in fact it has been challenged in

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The material in this section is based joint work with Peter Graff, though all errors are my own.
recent work by Bruening (2012). Bruening claims that sentences like (211) and (212), where an argument intervenes between the first and second clauses, are no more degraded than sentences like (213) and (214), where the intervening element is an adverbial.\(^{36}\)

(213)  
\begin{enumerate}[a.]  
\item I proved that John was a liar.  
\item I proved yesterday that John was a liar.  
\item I proved John to be a liar.  
\item ?I proved John yesterday to be a liar.  
\end{enumerate}

(214)  
\begin{enumerate}[a.]  
\item It was declared that John was a liar.  
\item It was declared yesterday that John was a liar.  
\item John was declared to be a liar.  
\item ?John was declared yesterday to be a liar.  
\end{enumerate}

If Bruening’s empirical claim is correct, then the defective intervention constraint cannot be held up as an account for the effect in (211) and (212). The present study evaluates whether Bruening’s claim is valid, i.e., whether or not arguments are in fact stronger interveners than adverbials, as my defective intervention account predicts.

4.5.1 Design and materials

The study consisted of two experiments, investigating raising-to-object and passivization. Both experiments had a 2 x 2 design, crossing the presence of raising (raising/no raising) with the type of intervener (argument/adverbial).

4.5.1.1 Raising-to-object experiment:

Materials consisted of 32 sentence quadruples, for a total of 128 items. Each quadruple

\(^{36}\) I include the notation “?” (vs. “*”) for clarity of exposition. Of course, the actual relative acceptability of the sentence-types in (211)-(214) is what the judgment study seeks to establish empirically.
instantiated the 2 x 2 design, containing one sentence with no movement and an argument, one sentence with movement and an argument, one sentence with no movement and an adverbial, and one sentence with movement and an adverbial. Four verbs were used for the raising-to-object construction (declare, demonstrate, proclaim, prove)

Sample quadruplet (raising-to-object)

I will demonstrate tonight that Kyle is a fool. (adverbial, no mvt.)
I will demonstrate Kyle tonight to be a fool. (adverbial, mvt.)
I will demonstrate to Mike that Kyle is a fool. (argument, no mvt.)
I will demonstrate Kyle to Mike to be a fool. (argument, mvt.)

4.5.1.2 Passivization experiment:

Materials consisted of 36 sentence quadruples, for a total of 144 items. Each quadruple instantiated the 2 x 2 design, containing one sentence with no movement and an argument, one sentence with movement and an argument, one sentence with no movement and an adverbial, and one sentence with movement and an adverbial. Nine verbs were used in the passivization out of a clausal complement construction (allege, announce, claim, declare, demonstrate, imply, prove, say, show)

Sample quadruplet (passivization from a clausal complement)

It was proven in court that Oscar was the murderer. (adverbial, no mvt.)
Oscar was proven in court to be the murderer. (adverbial, mvt.)
It was proven to Fred that Oscar was the murderer. (argument, no mvt.)
Oscar was proven to Fred to be the murderer. (argument, mvt.)
Thus, overall stimuli consisted of 68 sentence quadruples, for a total of 272 sentences. Stimuli were split into four lists of 68 items each through a Latin Square. Participants were randomly assigned to one of the four lists.

4.5.2 Participants and procedure

80 workers with US IP addresses were recruited through Amazon’s Mechanical Turk crowdsourcing platform. Two participants were excluded from the analysis because they did not self-identify as native speakers of English, leaving data from 78 participants for analysis. Participants were compensated with $0.50. Participants were asked to read each of the 68 sentences out loud to themselves and rate its naturalness on a Likert scale from 1-7. Order of presentation was randomized within participants.

4.5.3 Results (raising-to-object)

Ratings for each participant were z-transformed (mean and standard deviation estimated within participants for raising-to-object sentences). Z-transformed judgments were analyzed using a linear mixed effects model with a sum coded predictor for Movement (2 levels; movement, no movement), a sum coded predictor for intervener (2 levels; adverb, adjunct), and their interaction (fixed effects) as well as random intercepts for participant, verb, and item and random slopes for movement, intervener and their interaction each grouped by participant, verb, and item (random effects). To assess significance we choose model comparison ($\chi^2$-model likelihood ratio test) leaving the full random effects structure intact in all models compared.

We observe a main effect of movement ($\beta=-1.32$, $t=-11.91$, $\chi^2(1)=8.62$, $p(\chi^2)<.005$), such that sentences with movement are generally rated lower than sentences without movement. We further observe a main effect of intervener ($\beta=-0.41$, $t=-5.96$, $\chi^2(1)=5.2$, $p(\chi^2)<.05$), such that sentences with argument interveners are generally rated lower than sentences with adverb interveners. Finally, we observe the predicted interaction of movement and intervener ($\beta=-0.44$, $t=-4.15$, $\chi^2(1)=7.75$, $p(\chi^2)<.01$), such that the difference between sentences with movement and sentences without movement is greater for argument interveners than for adverb interveners.
Figure 1 depicts mean z-judgments in the four experimental conditions. Error bars indicate 95% confidence intervals.

![Figure 1: Mean z-judgments for sentences involving raising-to-object. Error bars indicate 95% confidence intervals.](image)

4.5.4 Results (passivization)

Ratings for each participant were z-transformed (mean and standard deviation estimated within participants for raising-to-object sentences). Z-transformed judgments were analyzed using a linear mixed effects model with a sum coded predictor for Movement (2 levels; movement, no movement), a sum coded predictor for intervener (2 levels; adverb, argument), and their interaction (fixed effects) as well as random intercepts for participant, verb, and item and random slopes for movement, intervener and their interaction each grouped by participant, verb, and item (random effects). To assess significance, we again choose model comparison ($\chi^2$-model likelihood ratio test) leaving the full random effects structure intact in all models compared.
We again observe a main effect of movement ($\beta=-1$, $t=-8.72$, $\chi^2(1)=18.46$, $p(\chi^2)<.00001$), such that sentences with movement are generally rated lower than sentences without movement. We also observe a main effect of intervener ($\beta=-0.57$, $t=-7.19$, $\chi^2(1)=15.34$, $p(\chi^2)<.00001$), such that sentences with argument interveners are generally rated lower than sentences with adverb interveners. Finally, we again observe the predicted interaction of movement and intervener ($\beta=-0.27$, $t=-2.91$, $\chi^2(1)=6.74$, $p(\chi^2)<.01$), such that the difference between sentences with movement and sentences without movement is greater for argument interveners than for adverb interveners.

Figure 2 depicts mean z-judgments in the four experimental conditions. Error bars indicate 95% confidence intervals.

Figure 2: Mean z-judgments for sentences involving passivization. Error bars indicate 95% confidence intervals.
4.5.5 Discussion

The results of both studies confirm a strong interaction between movement and intervener type, as predicted by my intervention account. Furthermore, the interaction holds for each of the individual verbs tested in both constructions, as illustrated below:

Figure 3: Verb-specific patterns for sentences involving raising-to-object.

Figure 4: Verb-specific patterns for sentences involving passivization.

My intervention account also holds that the passivization and raising-to-object effects are due to the same grammatical mechanism. If this is true, we might expect to find a correlation within subjects between the strength of the two effects.
To assess whether intervention effects in raising-to-object constructions and passive constructions are indeed caused by the same grammatical mechanism, we fit a regression predicting z-judgments from intervener, movement and their interaction for each participant, once for sentences involving raising to object, and once for sentences involving passivization. We observe a significant correlation between the coefficient of the interaction of movement and intervener in the participant-specific regression for sentences involving raising to object, and the coefficient of the same interaction in the participant-specific regression for sentences involving passivization (r=0.29, n=77, p<.01). This correlation of coefficients is illustrated in Figure 5.
Figure 5: Coefficient of the interaction of movement and intervener in a participant-specific regression for sentences involving raising to object (y-axis) against coefficient of the same interaction in a participant-specific regression for sentences involving passivization (x-axis). The solid black line indicates a linear fit.

Chapter 5: The Realization of Clausal Arguments

In this chapter, I return to the analysis of argument realization in CP-Causer and CP-Subject Matter predicates. On the picture that we have developed so far, the realization of arguments is the result of two ordered processes. First, the arguments are projected within the vP in accordance with the thematic hierarchy. Then, T0 probes for the highest DP and raises it to Spec,TP. Let us see then, how these processes derive the correct realization of arguments in CP-Causer and CP-Subject Matter predicates.

The chapter is structured as follows. Section 5.1 presents some background assumptions about the initial projection of arguments. Section 5.2 gives derivations for CP-Causer and CP-Subject Matter predicates. Sections 5.3 and 5.4 discuss some additional issues raised by the analysis. Section 5.5 explores an intriguing consequence of the analysis, concerning the syntactic realization of the predicates themselves. Finally, section 5.6 briefly discusses the applicability of this consequence as a bootstrapping mechanism.

5.1 The initial projection of arguments

Let me begin by laying out my assumptions about how arguments are initially introduced. I will adopt a general framework whereby argument structures result from the combined properties of lexical roots and functional heads (see Hale and Keyser 1993; Marantz 1993, 1997, 2005; Borer 1994, 2005; Harley 1995; Pesetsky 1995; Kratzer 1996;
Baker 1997; Miyagawa 1998; Pylkkänen 2002, 2008; Alexiadou et al. to appear, a.o.).

To be sure, even within this framework, the essence of my analysis is consistent with many technical implementations; I have chosen one that incorporates some core features of recent minimalist work on vP structure. My goal is simply to build reasonably familiar-looking derivations for the structures I have been considering, without committing myself to many extraneous claims. The caveats are that certain details not directly relevant to the analysis will be left unspecified, and other details that are relevant may be easily replaceable under alternative assumptions.

5.1.1 Functional heads

On the system I am adopting, the initial projection consists of a category-neutral root and a layer of functional heads. The category-determining heads are drawn from the “little” series of heads (v, n, a…; see Marantz 1997). I will be mainly concerned here with v and a. In this system, these heads serve several purposes. First, they can act as derivational affixes, incorporating to the root and endowing it with categorial features (and sometimes overt morphological structure). Second, they can introduce arguments that are not arguments of the root. Third, depending on their featural specifications, they can play a role in case-licensing internal arguments. The structure in (215) below illustrates all three of these functions in a simple derivation. The root \( \sqrt{\text{buy}} \) takes flowers as its internal argument, and projects \( \sqrt{\text{P}} \). The functional head v merges, and introduces the external argument John into its specifier. \( \sqrt{\text{buy}} \) affixes to v and acquires its verbal status. Additionally, the complex \( v+\sqrt{\text{buy}} \) assigns accusative case to flowers.

\[\text{In versions of framework, the thematic hierarchy is partially or totally credited to the semantic properties of argument-introducing heads, and the regulative linking principles discussed in Chapter 1 (e.g., UTAH) are perhaps better conceived as “generalizations over observed correspondences between argument positions and their interpretations” (Pylkkänen 2002:12).} \]

\[\text{This is the notation used by Pesetsky (1995) and Marantz (1997) for lexical roots.} \]
(215) John buys flowers.

If the predicate is adjectival, it will be the little $a$ head that it combines with, as in (216):

(216) John is tall.

I will assume that the head $a$ never assigns structural case, while $v$ comes in both case-assigning and non-case-assigning (‘unaccusative’) flavors. To notate unaccusative $v$, I will write $^{\text{-ACC}}v$.

In addition to categorial variation ($v/a$) and case-assignment variation ($v/^{\text{-ACC}}v$), I assume that $v$ and $a$ come in causative and non-causative varieties; causative $a$ is an innovation of my proposal. The causative heads add a causative meaning to an otherwise non-causative root, and can specifically introduce Causer arguments. The non-causative heads can introduce a wider range of external arguments whose exact relation to the event is determined by the meaning of the root (these can be agents, non-agentive causers, experiencers, recipients, or just bearers of individual-level properties; cf. Dowty’s (1991) flexible criteria for the notion of “proto-agent”). I will use the subscript $^{\text{CAUS}}$ to notate causative heads. Thus, I am making use of the inventory of functional heads shown in Table 6 below. For each head, I give its case-assigning properties and some common realizations, if any.
Table 6: Categorizing functional heads

<table>
<thead>
<tr>
<th>Case-assigning?</th>
<th>v</th>
<th>(v_{\text{CAUS}})</th>
<th>(\langle\text{acc}\rangle v)</th>
<th>(\langle\text{acc}\rangle v_{\text{CAUS}})</th>
<th>a</th>
<th>(a_{\text{CAUS}})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Spelled out as: \(\emptyset, -\text{ate}\), \(\emptyset, -\text{en}, -\text{en-}, -\text{ize}, -\text{ate}, -\text{ify}...\)

\(\emptyset\)

\(\emptyset, -\text{ed}, -\text{y}, -\text{al}, -\text{ar}, -\text{ic}, -\text{ful}...\)

\(\emptyset, -\text{ed}, -\text{y}\)

Note that, \(v_{\text{CAUS}}\) is Case-assigning, but \(a_{\text{CAUS}}\) and \(\langle\text{acc}\rangle v_{\text{CAUS}}\) are not (see also Pylkkänen 2002 for discussion unaccusative causative constructions in Japanese and Finnish.)

The final piece of the picture is that there are listed combinatory restrictions on which roots can combine with which functional heads. Roots can be choosy about their syntactic category, about their causativization potential, and about their case-assignment potential. Of course, such restrictions are a necessary part of any theory. Any theory must list which roots can causativize (e.g., \(\text{shorten, blacken, *tallen, *blue-en}\)), or derive it from non-syntactic properties. Any theory must list which verbs can assign accusative case, and which are unaccusative, or derive it from non-syntactic properties. And any system must list categorial restrictions on lexical roots, e.g. that \(\sqrt{\text{father}}, \sqrt{\text{water}}\) and \(\sqrt{\text{brown}}\) can become verbs, while \(\sqrt{\text{uncle}}, \sqrt{\text{coffee}}\) and \(\sqrt{\text{purple}}\) cannot, or derive them from non-syntactic properties.

To summarize, derivations proceed in the following way. First, a root combines with its argument(s)—if the root projects more than one argument, they are merged in ascending order of thematic prominence—and projects the \(\sqrt{\text{P}}\). The \(\sqrt{\text{P}}\) is then merged with a categorizing functional head, which may or may not introduce an external argument, and may or may not assign Case.

5.1.2 The Experiencer arguments

My analysis retains a central aspect of Pesetsky’s (1995) proposal: experiencers are external arguments to some predicates, and internal arguments to other predicates. Applied to my cases, the experiencer is an external argument of CP-Subject Matter predicates (like \emph{aware}) but an internal argument of CP-Causer predicates (like \emph{sad}).
the terms of the system outlined above, this means that CP-Subject Matter predicates have their experiencers introduced by the root-external categorial head, while in CP-Causer predicates the experiencer argument is introduced by the root itself.  

In section 5.4, I will suggest that this distinction is truly a property of roots—i.e., the roots that create CP-Causer predicates always project their Experiencers as internal arguments, even when a Causer argument is absent, as in I am glad or I am glad about the news. The larger dichotomy, then, is between roots that take Experiencers as arguments, and roots that do not. In section 5.5 I show how this dichotomy predicts an important generalization about Case-assignment properties.

But first let us turn to our attention to our central issue, and see how CP-CAUSER and CP-SUBJECT MATTER predicates are derived in the system sketched above.

5.2 The derivation of CP-CAUSER and CP-SUBJECT MATTER predicates

This section gives my analysis of sentences with CP-CAUSER and CP-SUBJECT MATTER predicates. As previewed in Chapter 2, the surface similarity of these sentences masks different syntactic derivations. With the CP-SUBJECT MATTER predicates, the highest argument is promoted to subject position. With the CP-CAUSER predicates, we can realize our “Bypassing” configuration, where a lower DP argument is attracted over a higher CP argument. (Section 5.3.3 below will the range of other possible derivations involving the CP-CAUSER predicates, but the Bypassing derivation will be the focus of this section.)

5.2.1 CP-subject matter predicates

Let us see the derivation of a sentence like (217):

[Note that this is by no means an abandonment of the thematic hierarchy. In every case, Experiencers are still projected above Subject Matters and below Causers. The only difference is the nature of the head that introduces them, and the syntactic properties this yields.]
(217) John is aware that Mary left. \hspace{1cm} \textbf{(CP-SUBJECT MATTER Predicate)}

First, the CP Subject Matter is introduced as the argument of the root, projecting $\sqrt{P}$. Next, $\sqrt{P}$ merges with (noncausative) $a$, and $a$ introduces the DP Experiencer into its specifier, projecting $aP$. Next, $T^0$ is merged, probes for the closest DP argument, and finds the Experiencer. The Experiencer moves to Spec,TP. The order of the original thematic projection is preserved.

For the CP-Subject Matter \textit{verbs}, like \textit{believe} the derivation is the same, except that $\sqrt{P}$ is selected by $v$ rather than $a$, as shown in (218) below:

(218) John believes that Mary left. \hspace{1cm} \textbf{(CP-Subject Matter Predicate)}
5.2.2 CP-Causer predicates

Now let us examine the derivation for a sentence like (219):

(219) John is upset that Mary left.  (CP-CAUSER Predicate)

Here, the DP Experiencer is introduced as an argument of the root. Next, \(\sqrt{P}\) merges with \(a_{CAUS}\), and \(a_{CAUS}\) introduces the CP Causer into its specifier, projecting \(aP\). \(T^0\) is then merged and probes for the closest DP argument. It finds the DP Experiencer, and the DP Experiencer moves to Spec,TP over the CP Causer. The original thematic projection is altered: a lower argument is promoted over a higher one, resulting in the appearance of a counter-hierarchical projection.

For the rare CP-Causer verbs like *rejoice*, the CP Causer is introduced by the unaccusative causative \(v\) head, \(-{\text{ACC}}v_{CAUS}\), as shown in (220):
For both the verbal and adjectival CP-CAUSER predicates, then, the internal argument is promoted to subject position. Some preliminary evidence for this unaccusative analysis comes from the fact that the few verbs in the CP-CAUSER class do not passivize, as shown in (222):

(221) a. We believed/suspected/fear that John had left.
    b. It was believed/suspected/fear that John had left.

(222) a. We rejoiced/grieved/despaired that John had left.
    b. *It was rejoiced/grieved/despaired that John had left.

It is well known that unaccusative verbs do not passivize (Perlmutter & Postal 1984). If CP-CAUSER predicates have an unaccusative syntax, the contrast in (221)-(222) is explained.
5.3 Further issues and discussion

5.3.1 The position of the CP Causer

One remaining issue is why the CP appears linearly to the right of the predicate in the CP-Causer sentences. That is, why don’t we pronounce the tree in (219), repeated below as (223), as *John is that Mary left upset?

(223) John is upset that Mary left.

I believe that the linear order of the clausal argument here reflects a general phenomenon of PF-right-extraposition for clausal arguments in adjectival phrases. Similar assumptions are made for clausal arguments of degree heads (von Stechow 1993, Heim 2000, Meier 2003). E.g., on Meier’s (2003) analysis of result clauses, the clausal argument is generated and interpreted as an argument of a degree head, as shown in (224)a but obligatorily pronounced in an extraposed position, as shown in (224)b.

(224) a. [TP Mary is [AP [DegP so [CP that she can reach the ceiling]] tall]]
b. *Obligatory extraposition of CP:*

\[
[\text{T} \text{P Mary is } [\text{AP } \text{DegP so } t_{\text{CP}} \text{ tall}] \ldots [\text{CP that she can reach the ceiling}]
\]

A similar phenomenon occurs with clausal arguments in verbal phrases, as illustrated in (225) and (226) below. The additional example in (227) suggests that this effect is probably related to general pressures for ‘heavy XP shift’, but the robust contrast between (226)b and (227)b makes clear the role of syntactic category.

(225)  
a. I told Mary [the story].  
b. I told [the story] to Mary.

(226)  
a. I told Mary [that Bill had left].  
b. *I told [that Bill had left] to Mary.

(227)  
a. I told Mary [the story that I heard last night].  
b. *I told [the story that I heard last night] to Mary.

I propose, then, that the linear order of the CP argument in the CP-Causer constructions is derived as in (228) below:
5.3.2 Burzio’s generalization

My analysis of CP-Causer predicates has invoked $a_{CAUS}$ and $\lambda_{ACC_{CAUS}}$, heads that introduce external Causer arguments, but do not assign accusative case. This combination is unusual, and runs up against a well known generalization due originally to Burzio (1986), and given (229):

(229) Burzio’s Generalization:

“All and only the verbs that assign a theta role to the subject can assign accusative Case to an object” (Burzio 1986:176)

“Subject” in Burzio’s wording has generally been taken to mean “external argument”. Although both components of this biconditional have been challenged empirically (see
Woolford 2003)\textsuperscript{40}, a correlation between external arguments and accusative Case has been a focus of much subsequent research (see Reuland 2000 and references therein).

Within the ‘little’ head framework that I outlined and adopted in section 5.1, many authors (Chomsky 1995, Kratzer 1996, a.o.) have suggested that this correlation arises because there is a single head (\(v\) in Chomsky’s version and mine, \textit{Voice} in Kratzer’s) that fulfills both of these functions, introducing the external argument and assigning accusative Case. The accompanying assumption is that the unaccusative version of this head cannot fulfill either function. But if I am correct, there is one version of this unaccusative head, \(-\text{ACC}^{\text{vCAUS}}\), that that \textit{does} introduce an external argument.

Let me suggest a possible account for why the “only” part of Burzio’s generalization (i.e., the implication ‘if external argument, then accusative Case’) is generally correct, and why the exceptional \(-\text{ACC}^{\text{vCAUS}}\) should be able to exist with CP-Causer predicates. The idea is that Burzio’s implication holds if we consider only external \textit{DP} arguments. It \textit{is} true that verbs when they take \textit{DP} arguments must be able to assign accusative case to their objects, but this is due to the threat of intervention.

The reasoning is as follows. If a verb fails to assign Case to its object, the object must to raise to get case in Spec,TP. When there is no external argument, this raising proceeds successfully, as in standard unaccusatives. However, if the non-accusative-assigning verb were to introduce an external argument, and that argument were a \textit{DP}, the object could \textit{not} raise, since it is no longer the closest \textit{DP} to \(T^0\). Thus, in the presence of an external \textit{DP} argument, the internal argument of an unaccusative verb cannot get Case from \(T^0\), and it cannot get Case from \(v\), so ungrammaticality results.

External \textit{CP} arguments, on the other hand, do not create this problem. In the presence of an external \textit{CP} argument, the internal argument of an unaccusative verb will still be the closest \textit{DP} to \(T^0\). Since the \textit{CP} does not act as an intervener, the internal argument \textit{can} raise to get Case, and the derivation can converge, as we saw in section 5.2. If this reasoning is correct, then the implication ‘if external argument, then case’ is not

\textsuperscript{40} The most obvious challenge, posed by simple unergative verbs (which do have external arguments, but don’t seem to assign Case), is usually met with the observation that unergatives can assign Case to so-called ‘cognate objects’ (\textit{She smiled a pretty smile}), in contrast to unaccusatives (*\textit{She arrived a prompt arrival})—see Levin and Rappaport Hovav (1995).
quite accurate. The correct implication should be ‘if external DP argument, then case’, and the CP-Causer predicates are the instances that confirm this.\footnote{One question posed by this analysis is whether we might ever find CP Causers in unaccusative constructions outside the Experiencer paradigm. It does not look promising, but the best test cases are fairly confounded. For example, the unaccusative with an extraposed CP causer in (i) is not acceptable, but the clausal-subject version in (ii) seems quite bad as well. Indeed, most clausal Causers of physical events will run afoul of the ‘directness’ requirement on lexical causatives discussed in Chapter 2, section 2.2.1.}

This reasoning also predicts that if we \textit{do} have a DP as an external argument with these predicates, ungrammaticality should result. The external argument will raise, since it's the closest DP, but the internal argument will still not receive Case. Recall that I argued in Chapter 3 that clausal arguments can take null DP shells in English, in order to raise to Spec,TP. If so, we might wonder why can’t the clausal Causer argument in examples like (228) above be realized as a DP, to produce something like (230)?

(230) That Mary left is sad John.

By our reasoning above, the problem with this derivation is that the internal argument, \textit{John} does not receive Case.

5.3.3 A review of derivational possibilities

In the system developed above, the syntactic properties of causative predicates and Causer arguments vary in two important ways. First, many CP-Causer roots, like $\sqrt{\text{sad}}$,
can combine either with $a_{caus}$ or $v_{caus}$, producing either a case-assigning or a non-case-assigning predicate. Second, the clausal arguments to such predicates can either be bare CPs, or they can be outfitted with DP shells to enable them to raise to Spec,TP. This subsection illustrates the ways in which these two choices interact to yield convergent and non-convergent derivations. As an example, let us consider the possible derivations that would allow the root $\sqrt{sad}$ to combine with an Experiencer argument ($John$), and a clausal Causer argument ($that Mary left$).

The first step in the derivation will always be to merge the root with its argument (in this case the Experiencer) to project $\sqrt{P}$, as shown in (231):

(231)  \[ [\sqrt{P} \ John \ \sqrt{sad}] \]

The next step is to merge $\sqrt{P}$ with a categorizing head, either $a_{caus}$ or $v_{caus}$, as illustrated in (232). If $\sqrt{P}$ is merged to $v_{caus}$, $\sqrt{sad} + v_{caus}$ will be spelled out as $sadden$, and will assign case to $John$. If $\sqrt{P}$ is merged with $a_{caus}$, $\sqrt{sad} + a_{caus}$ will be spelled out as $sad$, and will not assign Case to $John$.

(232)  a.  \[ [\sqrt{sad} + v_{caus} \ [\sqrt{P} \ John \ t_{\sqrt{sad}}]] \]

b.  \[ [\sqrt{sad} + a_{caus} \ [\sqrt{P} \ John \ t_{\sqrt{sad}}]] \]

Let us turn first to the $a_{caus}$ option. After the Causer argument and the $T^0$ head are merged, the derivation can proceed as in (233):

(233)  i)  \[ T^0 \ [aP \ [CP \ that \ Mary \ left] \ [\sqrt{sad} + a_{caus} \ [\sqrt{P} \ John \ t_{\sqrt{sad}}]]] \]

$John$ raises to Spec,TP

ii)  \[ [TP \ John \ T^0 \ [aP \ [CP \ that \ Mary \ left] \ [\sqrt{sad} + a_{caus} \ [\sqrt{P} \ John \ t_{\sqrt{sad}}]]]] \]

CP extraposes

iii)  \[ [TP \ John \ T^0 \ [aP \ [\sqrt{sad} + a_{caus} \ [\sqrt{P} \ John \ t_{\sqrt{sad}}]] \ [CP \ that \ Mary \ left]] \]

= $John$ is sad that $Mary$ left.
This again is our “bypassing” derivation discussed in section 5.2 above. It relies on the non-DP-shelled version of the CP Causer argument. If we try to use a DP-shelled CP Causer, we could raise the Causer to Spec,TP, but then the Experiencer John will be left without case, as discussed in section 5.3.2. Ungrammaticality results, as shown in (234).

(234)  
\[
T^0 [aP [CP that Mary left] [\sqrt{sad+a_{caus}} [vP John t_{\sqrt{sad}}]]] \\
\text{D head attached to CP, to allow it to raise}
\]

ii) \[
T^0 [aP [DP D [CP that Mary left]] [\sqrt{sad+a_{caus}} [vP John t_{\sqrt{sad}}]]] \\
\text{DP-shelled CP raises to Spec,TP, John is left without Case.}
\]

iii) \[
[TP [DP D [CP that Mary left]] T^0 [aP t_{DP} [\sqrt{sad+a_{caus}} [vP John t_{\sqrt{sad}}]]]] \\
= *That Mary left is sad John.
\]

Since John is left without Case, this derivation crashes.\(^{42}\)

Now let us consider the possibilities if we merge \(\sqrt{P}\) with \(v_{caus}\) instead of \(a_{caus}\). Recall that in this case, the Experiencer John is assigned Case by \(\sqrt{sad+v_{caus}} (= \text{sadden})\). Here, using a DP-shelled CP will allow a convergent derivation, as illustrated below. After the Causer and the \(T^0\) head are merged, the derivation can proceed as in (235):

(235)  
\[
T^0 [vP [CP that Mary left] [\sqrt{sad+v_{caus}} [\sqrt{P} John t_{\sqrt{sad}}]]] \\
\text{D head attached to CP}
\]

ii) \[
T^0 [vP [DP D [CP that Mary left]] [\sqrt{sad+v_{caus}} [\sqrt{P} John t_{\sqrt{sad}}]]] \\
\text{DP-shelled CP raises to Spec,TP, John has Case.}
\]

iii) \[
[TP [DP D [CP that Mary left]] T^0 [vP t_{DP} [\sqrt{sad+v_{caus}} [\sqrt{P} John t_{\sqrt{sad}}]]]] \\
= That Mary left saddens John.
\]

\(^{42}\) The use of a DP-shelled CP in (234) might also be ruled out by a stricter version of the “last resort” condition given in Chapter 3, such as (i) below (italicized portion added):

(i) \text{A DP-shell may be inserted to allow a clausal argument to raise to Spec,TP only if there is no active DP argument available to raise.}

If this is the condition on DP-shelled CPs, then the DP shell is unavailable in (234) because there is an active DP argument (John) that could raise instead.
If we fail to create a DP-shelled CP, and instead try to raise John, as in (236) below, we will be unsuccessful, since John has already been assigned Case by sadden. Here I adopt the common assumption that raising of an already case-licensed DP is illicit in English. This can be seen as a consequence of Chomsky’s (2000, 2001) Activity Condition, and/or a ban on multiple case-assignment (Nevins 2004).

\[
(236) \begin{align*}
&i) \quad T^0 \left[ vP \left[ CP \text{ that Mary left} \right] \left[ \sqrt{sad^{+}}v_{caus} \left[ \sqrt{P} \text{ John} t_{\sqrt{sad}} \right] \right] \right] \\
&\text{John cannot raise to Spec,TP; it is inactive.}
\quad \\
&ii) \quad [TP \text{ John } T^0 \left[ vP \left[ CP \text{ that Mary left} \right] \left[ \sqrt{sad^{+}}v_{caus} \left[ \sqrt{P} \text{ John} t_{\sqrt{sad}} \right] \right] \right] ] \\
&= \ast \text{John saddens that Mary left.}
\end{align*}
\]

If the clausal argument is not given a DP shell so that it can raise, the only way to create a convergent derivation would be to insert an expletive subject, as shown in (237):

\[
(237) \begin{align*}
&T^0 \left[ vP \left[ CP \text{ that Mary left} \right] \left[ \sqrt{sad^{+}}v_{caus} \left[ \sqrt{P} \text{ John} t_{\sqrt{sad}} \right] \right] \right] \\
&\text{Expletive it inserted} \\
&[TP \text{ It } T^0 \left[ vP \left[ CP \text{ that Mary left} \right] \left[ \sqrt{sad^{+}}v_{caus} \left[ \sqrt{P} \text{ John} t_{\sqrt{sad}} \right] \right] \right] ] \\
&\text{CP extraposes} \\
&[TP \text{ It } T^0 \left[ vP \text{ it } CP \left[ \sqrt{sad^{+}}v_{caus} \left[ \sqrt{P} \text{ John} t_{\sqrt{sad}} \right] \right] \right] \left[ CP \text{ that Mary left} \right] ] \\
&= \text{It saddens John that Mary left.}
\end{align*}
\]

To conclude: while our system in principle allows a range of derivational possibilities, we have seen that independent factors (namely, the Case filter and the Activity Condition) rule out all but the attested derivations.

5.4 CP-Causer predicates in their SM uses

In the previous sections, I argued that the roots of CP-Causer predicates, like \( \sqrt{surprise} \) and \( \sqrt{glad} \), take Experiencers as internal arguments. But what should we make of these same roots when they do not take Causer arguments—e.g., when they appear with PP-
subject matter arguments as in (238), or just with stand-alone Experiencer arguments, as in (239)?

(238)  
  a. I am glad about the news.  
  b. I am surprised at her appearance.

(239)  
  a. I am glad.  
  b. I am surprised.

Recall that on my analysis, these roots take two arguments: the Subject Matter and the Experiencer. And in the system I am assuming, to be an argument of the root is to be an internal argument. This entails that these predicates always project their Experiencers as internal arguments, even in cases like (238)-(239) when a Causer argument is absent.

Pesetsky (1995) made a similar proposal for roots like \(\sqrt{\text{surprise}}\), whose Subj-Exp forms are adjectival passives. His claim was that these roots are “inherent reflexives”—a suggestion supported by their reflexive translations in many languages. On Pesetsky’s account, the Experiencer argument of these Subj-Exp verbs is internal; the external argument is an “A-(mbient) Causer,” but a conspiracy of factors ensures that this argument is always suppressed (for details and discussion, see Pesetsky 1995:102-121).

However, Pesetsky’s proposal did not extend to roots like \(\sqrt{\text{glad}}\), whose Subj-Exp forms are ‘pure’ adjectives. The position I will take is that both roots like \(\sqrt{\text{glad}}\) and roots like \(\sqrt{\text{surprise}}\)—indeed, all roots that create (CP)-Causer predicates—project their Experiencers as internal arguments. In the next section, I support this position by investigating a generalization about Case-assignment that encompasses all roots of (CP)-Causer predicates.

\(^{43}\) The well-known problem of why the Subject Matter argument cannot co-occur with an external Causer argument in these predicates (Pesetsky’s (1995) “T/SM Restriction”) remains. For competing accounts, see Pesetsky (1995), Bouchard (1995), McGinnis (2000, 2001), and Maezawa (2010). While I will not attempt to propose a solution here, see Appendix 2 for an exploration of certain issues that arise specifically with CP Causers.
5.5 Some syntactic consequences for the realization of the predicates themselves

The previous sections presented the unaccusative analysis I have given to CP-causer predicates. This section explores an important prediction made by this analysis: due to their unaccusative syntax, CP-Causer predicates should not be realized as structural case assigners. The reason for this is suggested by the logic of section 5.3.2: if these predicates were structural case assigners, their internal Experiencer argument would not be eligible to raise to Sepc,TP position.

This leads us to a prediction about the Case-assignment properties of CP-Causer predicates. Since their internal arguments need to raise, these predicates should not be realized as structural Case-assigners.

(240) Case-assignment generalization:

CP-Causer predicates are not structural case assigners

In the rest of this section, I present evidence in favor of this prediction. We will see evidence suggesting that, cross-linguistically, there is a strong tendency for CP-Causer predicates not to be realized as structural case-assigners. Languages manifest this tendency in various ways.

I will use CP-Causer predicates in the examples, but as noted above, the majority of CP-Causer predicates are also PP-Subject Matter predicates (I am glad about the news), and the predicted generalization extends to the same predicates in their PP-Subject Matter uses as well.

5.5.1 Syntactic Category: Verbs vs. Adjectives in English

The first piece of evidence for our conjecture above concerns syntactic category in English. Verbs in English are generally structural Case-assigners, but adjectives are not. Our conjecture thus predicts that CP-Causer predicates should be limited to adjectives or the rare verbs that do not assign structural case, whereas CP-Subject Matter predicates should have no such restriction.
This prediction appears to be borne out. CP-Subject Matter predicates comprise many adjectives (241), and many (case-assigning) verbs (242):

(241) \textit{CP-Subject Matter Adjectives:}
Sure, certain, confident, skeptical, aware, reluctant, eager, doubtful, suspicious, etc.

(242) \textit{CP-Subject Matter Verbs:}
Know, believe, fear, hope, think, imagine, want, suspect, discover, expect, etc.

CP-Causer predicates, on the other hand, are virtually all adjectives (243). We find a crucial dearth of CP-causer verbs—either verbs that would have the meaning of the adjectives in (243), or verbs formed from existing roots as in (244). (The verbs in (244) \textit{do} exist, but they are only Obj-Exp predicates.)

(243) \textit{CP-Causer Adjectives:}
Happy, angry, ecstatic, livid, glad, sad, furious, bitter, nervous, jealous, etc.

(244) \textit{Nonexistent CP-Causer Verbs:}
a. *I excite that Mary is coming.
b. *I distress that Mary is coming.
c. *I surprise that Mary is coming.
d. *I anger that Mary is coming

Of course, we will still need to specify that roots like √surprise, √excite, and √angr- are not among the few roots like √rejoice and √despair that can combine with unaccusative v. But, as emphasized above, these sorts of restrictions are necessary across the board.

Revealingly, the rare CP-causer predicates that \textit{are} verbs (e.g., rejoice) are \textit{not} structural case-assigners:
(245)  a.  I rejoice/despair that John left.
     b.  *I rejoice/despair John’s departure.
     c.  *I rejoice/despair that.

5.5.2 Active vs. (adjectival) passive forms:

Our second, related instantiation of our case-assignment prediction involves adjectival passive forms. English has a very large and productive class of adjectival passive forms that are CP-CAUSER predicates, as shown in (246).44 Since these forms are also not structural Case-assigners, this corroborates our conjecture above.

(246)  alarmed, amazed, annoyed, amused, astounded, bewildered, charmed, comforted, concerned, confused, depressed, devastated, disappointed, disgusted, disheartened, dismayed, distressed, disturbed, embarrassed, encouraged, enchanted, entertained, enthralled, excited, fascinated, flattered, frightened, frustrated, gratified, horrified, humiliated, insulted, intrigued, irritated, mortified, moved, mystified, pleased, puzzled, relieved, satisfied, shocked, surprised, touched, thrilled, troubled…

Revealingly, for the rare verbs (e.g., worry) that have both adjectival passive forms and Subj-Exp active verb forms, the active form loses the CAUSER reading, and becomes a CP-Subject Matter predicate. This is shown below:

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44 I find this related observation in the literature on the philosophy of emotion (Gordon 1987:112):

“Grammatical evidence suggests that the “passivity” of states such as fear, anger, and jealousy is not an invention of philosophers or psychologists. That the so-called emotions belong to the category of “passions” or states produced by one’s being acted on in certain ways, is suggested by the fact that the great majority of adjectives designating emotions are derived from participles. […] Some others such as, ‘afraid’ and ‘sad’ can only claim participial ancestors: for instance, ‘afraid’ was originally a participle of the verb ‘affray,’ and ‘sad’ descends from the etymological forbear [sic] of ‘sated’.”
(247) I am worried that Mary’s drinking again.

✓ Cause reading: ‘Mary’s drinking again, and that worries me.’
✓ SM reading: ‘I’m concerned about the prospect that Mary’s drinking again.’

(248) I worry that Mary’s drinking again.

✗ Cause Paraphrase: ‘Mary’s drinking again, and that worries me.’
✓ SM Paraphrase: ‘I’m concerned about the prospect that Mary’s drinking again.’

5.5.3 Reflexive verbs

A third way that languages realize the restriction against CP-Causer predicates as case-assigners is through reflexive verbs. Pesetsky (1995:97-99) observes that many Subj-Exp predicates in French and Russian are realized as reflexive verbs. The sentences in (249) and (250) give further examples of reflexive CP-Causer verbs in Spanish and German.

(249) Juan se {alegra / enoja / sorprende} que hayas venido. [Spanish]
Juan refl gladden.3s anger.3s surprise.3s that have.2ssubj come
‘Juan is happy/angry/surprised that you came.’

(250) Ich {ärgere / schäme / freue} mich, dass Maria gegangen ist. [German]
I anger.1s shame.1s gladden.1s refl that Maria left is.
I am angry/ashamed/happy that Mary left.

Reflexive verbs are also not case-assigners, as shown in (251):

(251) Juan se {alegra / enoja / sorprende} *(de) eso. [Spanish]
Juan refl gladden.3s anger.3s surprise.3s of that.
‘Juan is happy/angry/surprised that you came.’
5.5.4 Lexical case assigners

A final way to manifest the restriction on structural case-assignment is through lexical case-assignment. In Russian, for example, CP-Causer predicates can be case assigners, but they assign an oblique lexical case, as illustrated in (252) and (253) below.

(252) On raduetsja ètomu.
   he.NOM glad.3SG.REFL this.DAT
   ‘He is glad about this’

(253) On dovolen etim.
   he.NOM satisfied this.INSTR
   ‘He is satisfied with this’

This may shed light on the phenomenon noted in Chapter 3, section 3.2.2, ex. (63) and repeated below as (254), where the D head to, in an appropriate oblique form, can optionally appear on clausal arguments of these predicates.

(254) a. Ja dovolen (tem) čto Daša ušla.
   I.NOM satisfied that.INSTR that Dasha left.F.3SG
   ‘I am satisfied that Dasha left.’

   b. Ja radujus’ (tomu) čto Daša ušla.
    I.NOM glad.1SG.REFL that.DAT that Dasha left.F.3SG
    ‘I am glad that Dasha left.’

A conceivable analysis of this optionality is that the versions of these sentences with to are the result of the predicate taking a DP-shelled Subject Matter argument as a complement, and hence assigning it lexical case. The versions without to are the result of the CP-Causer derivation, with the CP argument originating as an external argument and then extraposing—in this case it should not receive lexical case from the predicate.
In this section, we have found a range of suggestive evidence to support the generalization that CP-CAUSER predicates are not realized as structural Case-assigners. Languages manifest this restriction in various ways. These predicates are realized as adjectives, as adjectival passives, as reflexive verbs, and as lexical case assigners. On the analysis proposed in this chapter, this generalization is not accidental; it is a consequence of the syntax of CP-Causer predicates.

5.6 The structural case-assignment generalization as a bootstrapping mechanism?

If the generalization proposed in the preceding is true, it represents a regular correspondence between the thematic and syntactic properties of predicates. Such regularities have been argued to play an important role in language acquisition (Gleitman 1990, Gropen et al. 1989, 1991; Pinker 1989). If the syntactic properties of predicates can be predicted from their thematic structure, or vice versa, the language learner could use this information to facilitate learning in both directions.

Let me suggest a speculative account of how the language learner could use the correlation discussed above to arrive at the thematic structure of experiencer predicates with clausal arguments. The learner is faced with the following question. In the frame “EXPERIENCER – Predicate – CP”, does the CP express a SUBJECT MATTER or a CAUSER? Perhaps language learners know the following rule:

(255) If the predicate is a structural Case assigner, then the CP is a Subject Matter argument.

Thus, if the predicate is of a category that the learner knows assigns structural Case (say, because it has been heard in the frame “EXPERIENCER – Predicate – DP.ACC”) then the learner will conclude, correctly, that the CP must be a Subject Matter. Note that the correlation is only one-way: the learner should not conclude anything if the predicate is not a structural case assigner.

This would be an instance of “syntactic bootstrapping” (Gleitman 1990), a mechanism where language learners make use of syntactic information to learn semantic
properties of particular predicates. On previous proposals, syntactic bootstrapping in the learning of predicate meanings relies on information outside the predicate itself ("syntactic frames"; see Naigles 1990, Naigles, Gleitman & Gleitman 1993, Fisher 1994, Lidz et al. 2001.) Here, we have a novel and different case, where children can use the syntactic properties of the predicate itself to arrive at conclusions about its thematic structure.
References


Marantz, A. 1993. Implications of Asymmetries in Double Object Constructions. In Sam


Torrego, E. 1996. “Experienceers and raising verbs”. Current Issues in Comparative
Appendix 1: Judgment Study: Nominalizations of CP-Causer vs. CP-Subject Matter Predicates

The study had a 2 x 2 design, crossing the type of predicate (CP-Subject Matter vs. CP-Causer), with the presence or absence of nominalization. Materials consisted of 26 sentence pairs (13 from each predicate type), for a total of 52 items. Each pair consisted of one nominalized and one non-nominalized version of same predicate with the same clausal argument. Since subjects are prone to reject bare NPs on the grounds that they are “not complete sentences,” the nominalizations were embedded in ‘carrier’ sentences.

Sample pairs (CP-Subject Matter predicates)

*No nominalization:* I assumed that you didn’t like me.

*Nominalization:* My assumption that you didn’t like me turned out to be incorrect.

*No nominalization:* I am certain that God exists.

*Nominalization:* The only thing that sustains me is my certainty that God exists.

*No nominalization:* Linda expects that Matt will be the winner.

*Nominalization:* I share Linda’s expectation that Matt will be the winner.

Sample pairs (CP-Causer predicates)

*No nominalization:* I was furious that Tom had lied.

*Nominalization:* My fury that Tom had lied made me yell at him.

*No nominalization:* Bob was sad that Mary moved away.

*Nominalization:* I tried to ease Bob’s sadness that Mary moved away.

*No nominalization:* Sam is angry that I never call him.

*Nominalization:* Sam told me about his anger that I never call him.
Results

60 workers with US IP addresses were recruited through Amazon’s Mechanical Turk crowdsourcing platform. One subject was excluded because s/he indicated Mandarin as a native language, leaving data from 59 subjects for analysis. Subjects rated 26 sentences each in random order. Ratings (1-7) were transformed into z-scores with means and standard deviations estimated within subjects. Z-scores were analyzed in a linear mixed effects model with fixed effects for Nominalization and Causer vs. SM as well as random intercepts for subject and item and random slopes for both fixed effects (and their interaction) grouped by subject and item. There is a main effect of Nominalization: nominalized predicates receive significantly lower ratings ($\beta=1.07$, $t=14.04$, $p_{X}^2<.00001$), no main effect of Causer vs. SM ($\beta=0.57$, $t=4.79$, $p_{X}^2=.11$) and crucially the predicted interaction: nominalized Causer predicates are by far the most degraded ($\beta=-0.75$, $t=-5$, $p_{X}^2<.00001$). On average, they receive ratings about 1 standard deviation lower than the subject's mean rating.

The figure below depicts mean z-judgments in the four experimental conditions. Error bars indicate 95% confidence intervals.
Appendix 2: A note on CP-Causer predicates and the T/SM restriction

This appendix explores the behavior of CP-Cusers with regard to Pesetsky’s (1995) “T/SM Restriction”. Pesetsky observes that in most cases, the Causer and Target/Subject Matter cannot co-occur, as shown in (256):

(256) a. *The article in the Times angered Bill at the government.
b. *The Chinese dinner satisfied Bill with his trip to Beijing
c. *The distant rumbling frightened Mary of another storm

[Pesetsky 1995:60]

Of course, in a sense this is a problem created by Pesetsky’s analysis. If Causer and T/SM are in fact one thematic role, then it is natural that it cannot be expressed twice. Nevertheless, given the general success of Pesetsky’s distinction between Causers and T/SM arguments elsewhere, the restriction in illustrated in (256) should be considered seriously, and several competing accounts of the T/SM restriction exist (Pesetsky 1995; Bouchard 1995; McGinnis 2000, 2001; Maezawa 2010). One line of inquiry opened up by the proposal in this thesis is whether and how this restriction applies CP-Cusers. I cannot offer any firm answers here, but I will offer a brief exposition of relevant data, for future work.

The overall evidence is mixed. On the one hand, many CP-Causer predicates disallow the co-occurrence of a Causer and a T/SM, as shown in (257):

(257) a. *I am afraid of Bill that he threatened me.
b. *I am satisfied with John that he did a good job.
c. *I am amused at your hat that it’s so big.
d. *I am sad about the war that it has dragged on.
e. ??I am thrilled with my new car that it has power steering.
f. ??I am pleased with Mary that she has done a good job.
g. *I am disgusted at you that you ate that.
However, there are also cases where CP-Causer predicates appear to be able to avoid the T/SM restriction, as illustrated in (258):

(258) a. I am mad at you that you didn’t call.
b. I am proud of you that you won the race.
c. I am surprised at John that he showed up.
d. I am jealous of you that you were invited.
e. I am disappointed in John that he didn’t show up.

Furthermore, the same predicate can show the T/SM restriction or not, depending on the preposition used to introduce the T/SM argument, as shown in (259):

(259) a. I am happy for Mary that she got the promotion.
b. *I am happy with Mary that she is a good advisor.

Finally, the good examples like (258) appear to be constrained by an “aboutness” requirement. They are most natural when the CP contains a pronoun (preferably the subject of the CP), that is co-referential with the T/SM argument. If this requirement is not met, such examples become much less acceptable, as shown in (260):

(260) a. ??I am mad at you that there are dishes in the sink.
b. ??I am surprised at John that the class was cancelled.
c. ??I am proud of Mary that a lot of people showed up.
d. ??I am disappointed in John that the policy was changed.

Interestingly, the restriction illustrated above is reminiscent of similar restrictions on prolepsis and “copy-raising” and constructions, shown in (261) and (262) below (see Williams 1994 and Landau 2011 for discussion).

(261) a. I believe/said of John that { he’s a genius / people admire him}
b. ??I believe/said of John that beggars can’t be choosers / nobody’s perfect.
(262)  a. John seems/looks like he’s sick.
      b. *John seems/looks like there’s a virus going around.

In sum, the behavior of Causers with respect to the T/SM restriction raises a variety of empirical issues that are ripe for further research. What accounts for the variability of the examples in (257) and (258)? What accounts for the “aboutness” restriction? Is there any relation between the examples in (258) and the prolepsis construction in (261)? Are the examples in (258) true examples of CP Causers co-occurring with T/SM arguments, and if so, why are they exceptions to the generalization? These are questions that I must leave for future work.