chapter 14

Raising, Control, and Empty Categories

0. INTRODUCTION

The following two sentences look remarkably alike:

1) a) Jean is likely to leave.
   b) Jean is reluctant to leave.

But these sentences are structurally very different. Sentence (1a) is a raising sentence like those we saw in chapter 10. Sentence (1b), however, is a different matter. This is what we call a ***control sentence***; it does not involve any DP movement. We will claim there is a special kind of null DP in the subject position of the embedded clause. Syntacticians call this special DP "PRO," which stands for "null pronoun." The differences between these two constructions are schematized below.

2) Jean_i is likely [t_i to leave]. *subject-to-subject raising*

3) Jean is reluctant [PRO to leave]. *(subject) control*

The bracketed diagram in (3) shows the DP raising construction we looked at in chapter 10. The structure in (4), which has no movement, is the control construction. The evidence for this kind of proposal will come from the thematic properties of the various predicates involved. In addition to contrasting the sentences in (1a&b), we'll also look at the differences between sentences like (4a&b):

4) a) Jean wants Brian to leave.
   b) Jean persuaded Brian to leave.

Again, on the surface these two sentences look very similar. But, again, once we look at these in more detail we'll see that they have quite different structures. We will claim that *Brian* in (4a) raises to the object position of the verb *wants*. This is called ***subject-to-object raising***, and was discussed in an exercise in the last chapter. The structure of the sentence in (4b) parallels the structure of the control sentence in (1b). Both *Jean* and *Brian* are arguments of the verb *persuade*, there is no raising, but there is a PRO in the subject position of the embedded clause.

5) Jean wants Brian$_i$ [t$_i$ to leave]. *subject-to-object raising*

6) Jean persuaded Brian [PRO to leave]. *object control*

The construction in (6) is called ***object control*** (because the object "controls" what the PRO refers to).

This chapter ends with a short discussion of the various kinds of empty elements we've looked at so far (null heads, PRO, traces, etc.), and introduces a new one which is found in languages like Spanish and Italian.

1. RAISING VS. CONTROL

1.1 Two Kinds of Theta Grids for Main Predicates

If you look at the following two sentences, you will see that the predicate *is likely* only takes one argument: a proposition.

7) a) [That Jean left] is likely. *clausal subject*
   b) It is likely [that Jean left]. *extraposition*

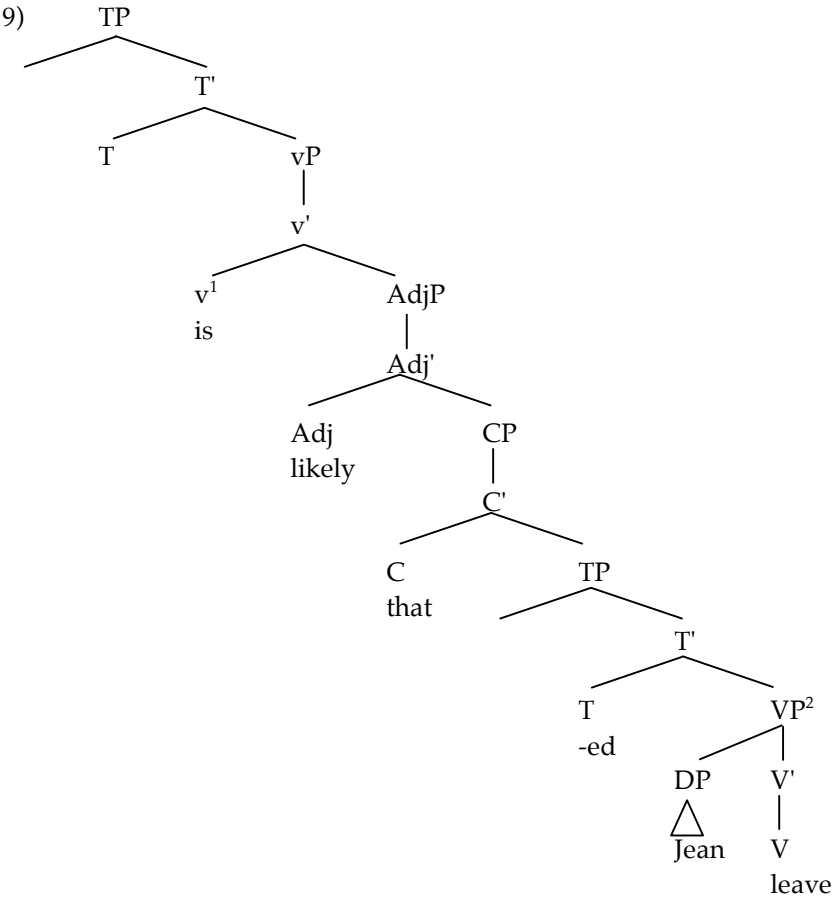
Sentence (7a) shows the proposition *that Jean left* functioning as the predicate's subject. Sentence (7b) has this embedded clause as a complement, and has an expletive in subject position. For reasons having to do with the history of generative grammar, but that need not concern us here, the first construction (7a) is often called a ***clausal subject*** construction, and the second (7b) an ***extraposition*** construction. The theta grid for the predicate is given in (8). As is standard (see chapter 8), expletives are not marked in the theta grid, as they don't get a theta role.

8) *is likely*

Proposition CP

We assume that the D-structures of the sentences given in (7) are identical. These sentences have the embedded clause as a complement to the predicate, and nothing in the subject position:

9)

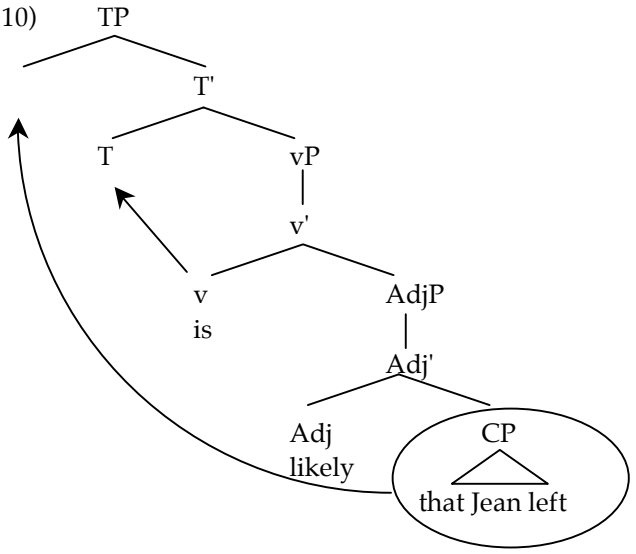


[1] This little v isn't CAUSE because it doesn't introduce an agent. It probably means something like "be in the state of…"

[2] To keep this tree down to a reasonable size, I'm abbreviating the vP-VP tree here simply as VP.

In the clausal subject construction, the embedded CP moves to the specifier of TP, presumably to satisfy the EPP requirement that every clause have a subject: [3]

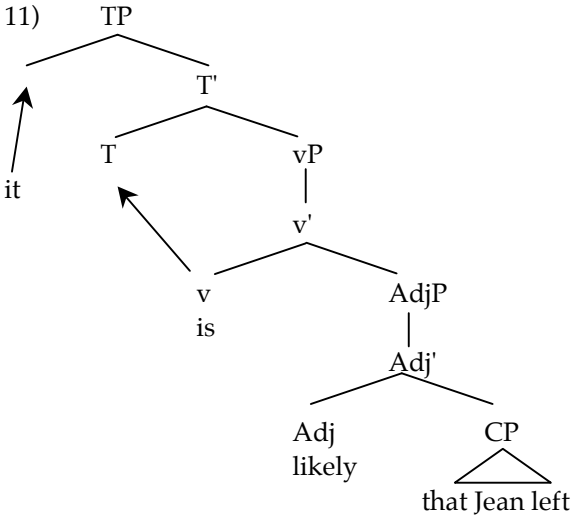
10)



(10) shows the SPELLOUT for sentence (7a). Sentence (7b) has a slightly different derivation, instead of moving the clause to satisfy the EPP, an expletive *it* is inserted into the specifier of TP as seen in the SPELLOUT in (11):

[3] We haven't discussed the possibility of moving CPs before. Since this is movement for the EPP, it may well be a variant of DP movement. This analysis of clausal subjects (involving movement) is not uncontroversial. Some researchers generate these CPs directly in the specifier of TP at D-structure. We move it from the complement position to ensure parsimony with the analysis of expletive and raising constructions discussed below. We should also note that not all raising verbs allow the clausal subject construction. For example, *seem* and *appear* do not **[[that Jean left] seems]*. I leave it as an exercise for you to figure out why this might be the case.

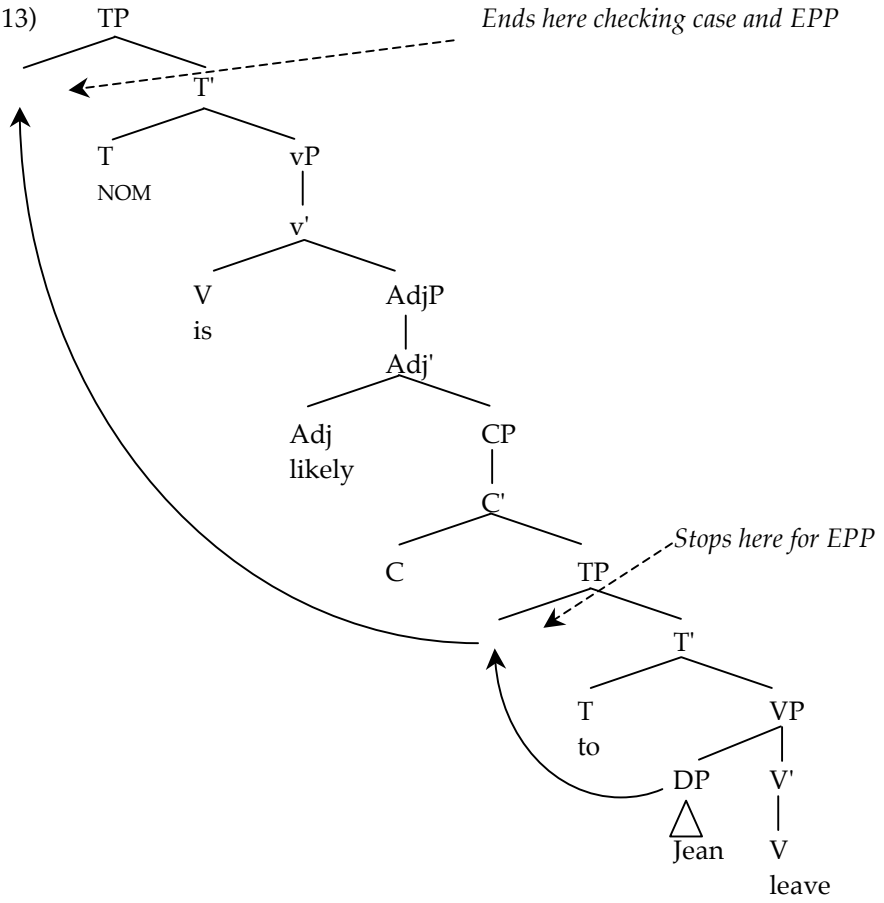
11)



Observe that the embedded clause is finite in both these sentences. This means that its subject gets nominative Case. As we saw in the chapter 10, if the embedded clause is non-finite (as in 12), then the subject must move to get Case. Fortunately, *is likely* does not have an external (subject) theta role, but does have a nominative Case feature to check. This means that the specifier of the higher TP is available for Case feature checking. This is a typical raising construction.

12) ____ is likely [Jean to leave].

13)



As we noted in chapter 10, the *Jean* in this sentence gets its theta role from *leave*. *Jean* is going *to leave*, she isn't *likely*. What *is likely* is the whole proposition of Jean leaving. With *is likely* then, there is only one theta role assigned (to the embedded clause). Three possible sentences emerge with this structure: clausal subject, extraposition and raising.

Let's contrast this with the predicate *is reluctant*. If you think carefully about it, you'll notice that this predicate takes two arguments. The person who is reluctant (the experiencer) and what they are reluctant about (the proposition):

14) *is reluctant*

Experiencer DP	Proposition CP

This means that, unlike *is likely*, *is reluctant* assigns a theta role to its subject. Because of this both clausal subject and extraposition (expletive) constructions are impossible. The specifier of TP of the main clause is already occupied by the experiencer (it moves there to get Case), so there is no need to insert an expletive or move the CP for EPP reasons. This explains why the following two sentences (an extraposition and a clausal subject example) are ill-formed with the predicate *is reluctant*:

15) a) *It is reluctant [that Jean left]. (where *it* is an expletive)
b) *[that Jean left] is reluctant.

Both of these sentences seem to be "missing" something. More precisely they are both missing the external experiencer role: the person who is reluctant. Consider now the control sentence we mentioned above in the introduction:

16) Jean is reluctant to leave.

Jean here is the experiencer, and the embedded clause is the proposition:

17) a) *is reluctant*

Experiencer DP	Proposition CP
i	k

b) Jean_{i} is reluctant $[\text{to leave}]_{k}$.

So *Jean* is theta marked by *is reluctant*. Note, however, that this isn't the only predicate in this sentence. We also have the predicate *leave*, with the following theta grid:

18) *leave*

Agent DP
M

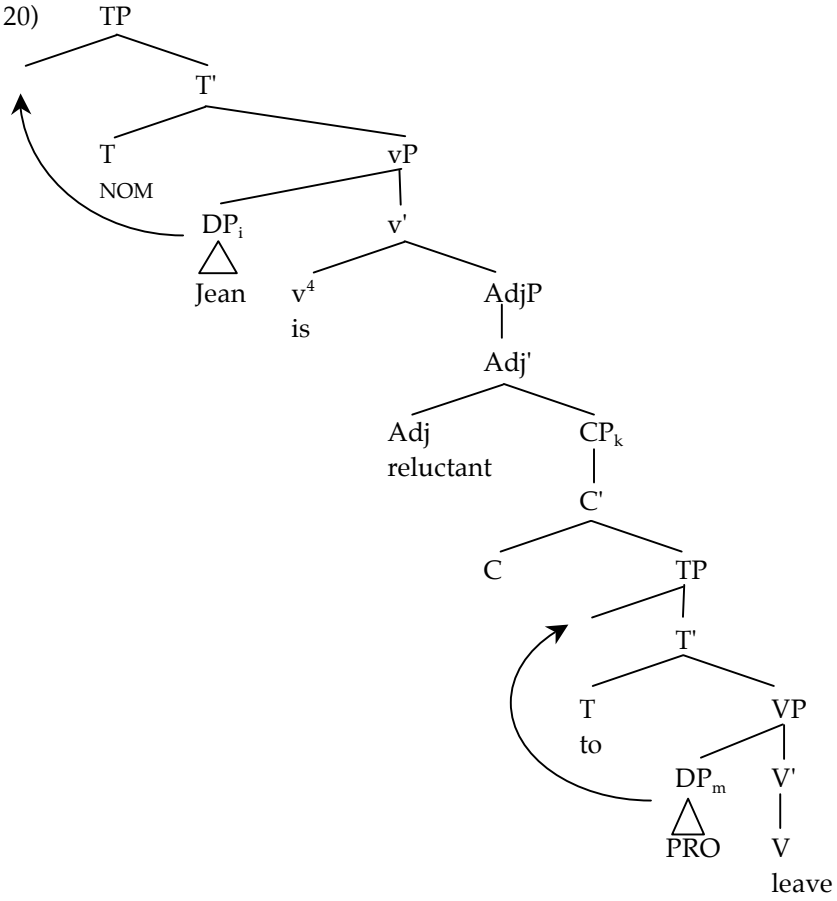
Who is this theta role assigned to? It also appears to be assigned to the DP *Jean*:

19) $\text{Jean}_{i/m}$ is reluctant $[\text{to leave}]_{k}$.

As we saw in chapter 8, the theta criterion only allows one theta role per DP. This sentence seems to be a violation of the theta criterion, as its subject DP gets two theta roles. How do we resolve this problem? The theta criterion says that there must be a one-to-one mapping between the number of theta roles and the number of arguments in a sentence. This sentence has three theta roles (agent, experiencer, and proposition), but only two arguments. The logical conclusion, if the theta criterion is right – and we have every rea-

son to believe it is, since it makes good predictions otherwise – is that there is actually a third DP here (getting the surplus agent theta role); you just can't hear it. This DP argument is called PRO (written in capital letters). PRO only appears in the subject positions of non-finite clauses. The structure of a control construction like (19) is given below. Indices mark the theta roles from the theta grids in (17) and (18):

20)



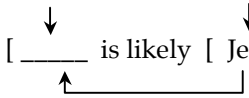
You'll notice that PRO is appearing in a position where no Case can be assigned. We return to this below, as well as to the question of why PRO must obligatorily refer to *Jean*.

Before looking at any more data it might be helpful to summarize the differences between control constructions and raising constructions. The main predicate in a raising construction does not assign an external theta

[4] Again this is not CAUSE, this little v probably means something like "perceive".

role (it has an empty specifier of TP at D-structure). The subject of the embedded clause is Caseless, and raises to this empty position for Case checking (and to satisfy the EPP). In control constructions, the main clause predicate *does* assign an external argument. There is no raising; the external theta role of the embedded predicate is assigned to a null Caseless PRO. This is summarized in the following bracketed diagrams:

21) a) *no θ role* *Agent*



[_____ is likely [Jean to leave]]. *raising*

b) *Experiencer* *Agent*

[Jean is reluctant [PRO to leave]]. *control*

1.2 Distinguishing Raising from Control

One of the trials of being a syntactician is learning to distinguish among constructions that are superficially similar, but actually quite different once we dig a little deeper. Control and raising constructions are a perfect example. There are, however, some clear tests we can use to distinguish them. First, note that whether you have a raising or control construction is entirely dependent upon the main clause predicate. Some main clause predicates require raising, others require control (and a few rare ones can require both). The tests for raising and control then, mostly have to do with the thematic properties of the main clause's predicate.

To see this we'll contrast our two predicates *is likely*, which is a raising predicate, and *is reluctant*, which takes a control construction.

The most reliable way to distinguish raising constructions from control constructions is to work out the theta grids associated with the matrix predicates. If the matrix predicate assigns an external theta role (the one that is underlined, the one that appears in subject position), then it is not a raising construction. Take for example:

22) a) Jean is likely to dance.
b) Jean is reluctant to dance.

Contrast the role of *Jean* in these two sentences (as we did above in section 1.1). In the second sentence *is reluctant* is a property we are attributing to *Jean*. In (22a), however, there is nothing about *Jean* that *is likely*. Instead, what *is likely* is Jean's dancing.

One nice test that works well to show this is the behavior of idioms. Let's take the idiom *the cat is out of the bag*. This construction only gets its idiomatic meaning ("the secret is widely known") when the expression is a whole. When it's broken up, it can only get a literal interpretation ("the feline is out of the sack"). You can see this by contrasting the meanings of the sentences in (23):

23) a) The cat is out of the bag.
b) The cat thinks that he is out of the bag.

Sentence (23b) does not have the meaning "the secret is widely known." Instead our first reading of this sentence produces a meaning where there is actual cat-releasing going on. The subject of an idiom must at some point be local to the rest of the idiom for the sentence to retain its idiosyncratic meaning. We can use this as a diagnostic for distinguishing raising from control. Recall that in the D-structure of a raising construction the surface subject of the main clause starts out in the specifier of the embedded TP. Therefore in raising constructions, at D-structure, the subject of an embedded sentence is local to its predicate:

24) [_____ is likely [Jean to dance]].

If D-structure is the level at which we interpret idiomatic meaning, then we should get idiomatic meanings with raising constructions.[5] With control constructions, on the other hand, the subject of the main clause is never in the embedded clause, so we don't expect to get idiomatic readings. This is borne out by the data.

25) a) The cat is likely to be out of the bag. *(idiomatic meaning)*
b) The cat is eager to be out of the bag. *(non-idiomatic meaning)*

We can thus use idiom chunks like *the cat* in (25) to test for raising versus control. If you get an idiomatic reading with a predicate, then you know raising is involved.

Another test you can use to distinguish between raising and control constructions is to see if they allow the extraposition construction. Extraposition involves an expletive *it*. Expletives are only allowed in non-thematic positions, which are the hallmark of raising:

26) a) It is likely that Jean will dance.

---

[5] This is not an implausible hypothesis. Idioms have the feel of lexical items (that is, their meaning must be idiosyncratically memorized, just like the meanings of words). Remember that the lexicon is the source of the material at D-structure, so it makes sense that D-structure is when idiomatic meanings are inserted.

b) *It is reluctant that Jean will dance.

At the end of this chapter, there is an exercise where you are asked to determine for a list of predicates whether or not they involve raising or control. You'll need to apply the tests discussed in this section to do that exercise.

1.3 What is PRO?

You may have noticed a fairly major contradiction in the story we've been presenting. In chapter 10, we claimed that DPs always need Case. However, in this section we've proposed that PRO can appear in the specifier of non-finite TP. This is not a Case position, so why are we allowed to have PRO here? Shouldn't PRO get Case too? It is, after all, a DP. Chomsky (1981) claims that the reason PRO is null and silent is precisely *because* it appears in a Caseless position. In otherwords PRO is a very special kind of DP, it is a Caseless DP, which explains why it can show up in Caseless positions, like the specifier of non-finite TP.

Why do we need PRO? If we didn't have PRO, then we would have violations of the theta criterion. Notice that what we are doing here is proposing a null element to account for an apparent hole in our theory (a violation of either the theta criterion or the Case filter). There is good reason to be suspicious of this: It seems like a technical solution to a technical problem that is raised only by our particular formulation of the constraints. Nonetheless, it does have a good deal of descriptive power. It can account for most of the data having to do with embedded infinitival clauses. Until a better theory comes along, the PRO hypothesis wins because it can explain so much data.

You now have enough information to try General Problem Set 1

2. TWO KINDS OF RAISING, TWO KINDS OF CONTROL

2.1 Two Kinds of Raising

Up to this point we have been primarily looking at raising from the subject of an infinitive complement clause to the specifier of a main clause TP. This raising happens so the DP can get Case. However, raising doesn't have to target the specifier of TP; there are other instances of DP raising where the DP ends up in other positions. Consider the verb *want*. *Want* can take an accusatively marked DP:

27) a) I want cookies.
b) Jean wants Robert.
c) Jean wants him.

Want can also take an infinitive CP complement (sentence (28) is an instance of a control construction.)

28) I_i want [PRO_i to leave].

This flexible verb can also show up with both an accusatively marked DP and an infinitive complement:

28) I_i want [$Jean_j$ to dance]$_k$.

Think carefully about the theta grids of the verbs here. *Jean* is the agent of *dance*, *I* is the experiencer of *want*, and the proposition *Jean to dance* takes up the second theta role of *want*.

29) a) *dance*

Agent DP
J

b) *want*

Experiencer DP	Proposition CP
i	k

Notice that *Jean* does not get a theta role from *want*; it only gets one from *dance*. This means that this is not a control construction. You can see this if we apply our idiom test to the sentence: [6]

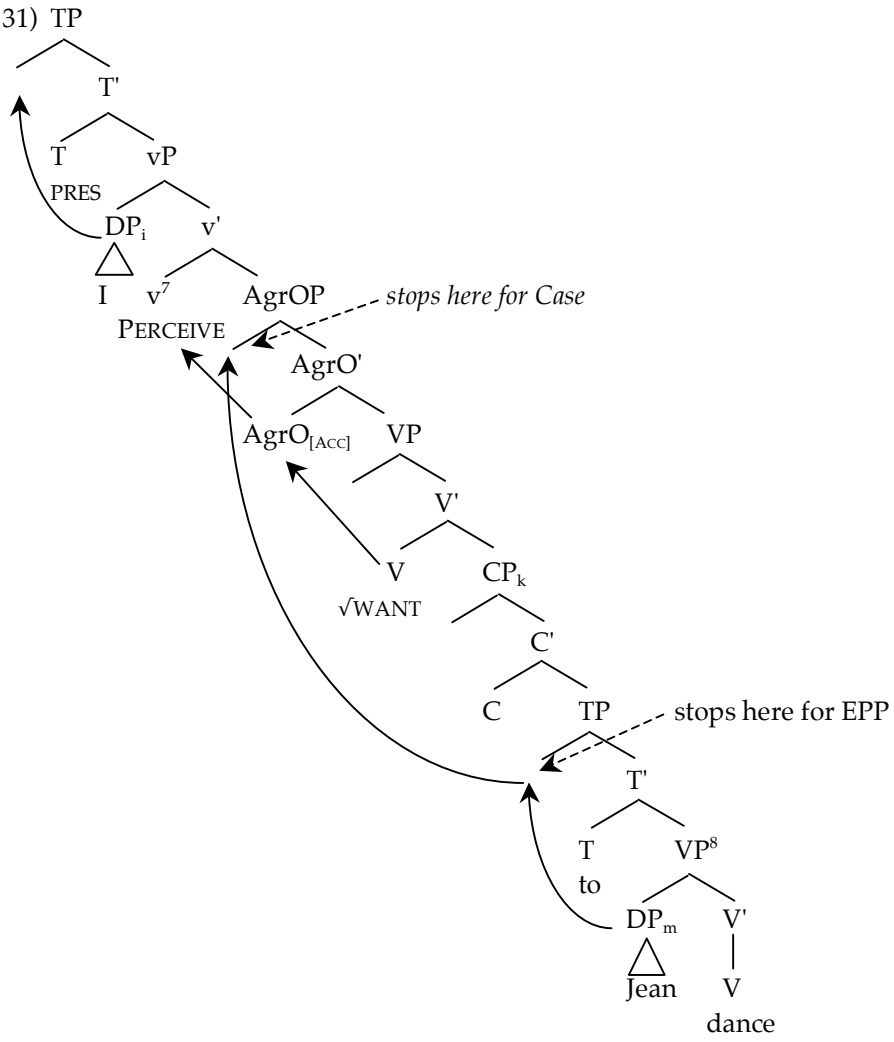
30) I want the cat to be let out of the bag.

Although the judgment isn't as clear here, it is possible to get the idiomatic reading of *the cat to be let out of the bag*.

Since this isn't a control construction, then how does the DP *Jean* get Case? The embedded TP is non-finite, so its specifier is not a Case position. The answer to this puzzle is the DP raises to the object position of *want*, where it can get accusative Case.

[6] The extraposition test will not work here. Remember expletives are usually only found in subject position (because of the EPP). *Jean* here is found in object position, so extraposition can't apply.

31)



The verb root raises through AgrO into v. The DP *Jean* moves first to the specifier of the embedded TP for EPP reasons, then moves on to the specifier of AgrOP where it gets accusative case.

We can see that this is the right analysis of these facts by looking at the Case-marking a pronoun would get in these constructions. Since the DP shows up as the specifier of AgrOP with an [ACC] Case feature, we predict it will take accusative Case. This is correct:

---

[7] This v is not CAUSE, as there is no agent role here. This v probably means something like perceive.

[8] Again this VP is an abbreviation for vP and VP.

32) a) I want *her* to dance.
b) *I want *she* to dance.

Binding theory also provides us with a test for seeing where the DP is. Recall the fundamental difference between a pronoun and an anaphor. In the binding theory we developed in chapter 5, an anaphor must be bound within its clause, whereas a pronoun must be free. What clause a DP is in determines whether it is an anaphor or a pronoun. We can use this as a test for seeing where a DP appears in the tree structure. We are considering two hypotheses: (33a) has the DP in the object position of *want* (just as in (31)), whereas (33b) has the DP in the subject position of the non-finite TP.

33) a) I want Jean$_i$ [t$_i$ to dance].
b) I want [Jean to dance].

If we can have a bound anaphor, instead of *Jean*, then we know that the pronoun must be in a different clause from its antecedent, since pronouns cannot be bound within their own clause. Similarly we predict that if an anaphor is OK, then the DP is within the same clause as its antecedent. The data supports (33a).

34) a) *Jean$_i$ wants her$_i$ to be appointed president.
b) Jean$_i$ wants her$_j$ to be appointed president.
b) ?Jean$_i$ wants herself$_i$ to be appointed president.

These forms exhibit a second kind of raising, which we might call ***subject-to-object raising***.

Subject-to-object Raising = Exceptional Case Marking (ECM)

In the early work on Generative Grammar, in the 1960s and 1970s, the construction we have been looking at here was treated in a very similar manner to the analysis presented here. It was also called subject-to-object raising. In the 1980s and early 1990s (in what was called GB theory), there was period of time when these constructions got a different analysis. Instead of raising the infinitival subject to object position, the subject was left inside the embedded clause (in the specifier of TP), and the verb was allowed to "exceptionally" Case mark into the embedded clause. Thus for that period of time, these constructions were called ***Exceptional Case Marking*** (or ***ECM***) constructions. Today, we have gone back to the original subject-to-object raising analysis. Can you think of some way that we can distinguish the ECM from subject-to-object raising analyses?

You now have enough information to try General Problem Sets 2 & 3

2.2 Two Kinds of Control

In section 1, we contrasted sentences like (35a) and (35b). These sentences differed in terms of their argument structure and in what movement if any applies. (35a) is a raising construction, where *Jean* gets its theta role only from *to leave*, and raises for Case reasons to the specifier of the main clause TP. In (35b), *Jean* gets a theta role from *is reluctant*, and there is no movement. Instead there is a null Caseless PRO in the specifier of the tenseless clause.

35) a) Jean_i is likely [t_i to leave].
b) Jean_i is reluctant [PRO_i to leave].

In this subsection, we'll make a similar claim about the structures in (36).

36) a) Jean wants Robert_i [t_i to leave].
b) Jean persuaded Robert_i [PRO_i to leave].

Sentence (36a) is an instance of subject-to-object raising. Sentence (36b), while on the surface very similar to (6a), is actually also a control construction. There are two major kinds of control constructions. To see this I'll put the two (b) sentences side by side in (37). (37a) is what we call ***subject control***, because the subject DP of the main clause is co-referential with PRO. (37b) is ***object control***, where the main clause object is co-referential with PRO.

37) a) (=35b) Jean_i is reluctant [PRO_i to leave]. *subject control*
b) (=36b) Jean persuaded Robert_i [PRO_i to leave]. *object control*

Consider first the thematic properties of the raising construction:

38) Jean_i wants Robert_j [t_j to leave]$_k$.

We are now well familiar with the theta grid for *to leave*, which takes a single agent argument. The theta grid for the subject-to-object raising verb *want* is repeated below:

39) a) *leave*

Agent DP
i

b) *want*

Experiencer DP	Proposition CP
i	k

Robert is the agent of *leave*, but is not an argument of *want*. In section 2.1 above, we used the idiom test to show that this is the case. Now, contrast this situation with the object control verb *persuade*:

40) Jean_{i} persuaded Robert_{m} $[\text{PRO}_{j}$ to leave$]_{k}$.[9]

The DP *Robert* in this sentence *is* theta marked by *persuade*. So in order not to violate the theta criterion we have to propose a null PRO to take the agent theta role of *leave*.

41) a) *leave*

Agent DP
j

b) *persuade*

Agent DP	Theme DP	Proposition CP
i	m	k

We can see this again by comparing the idiomatic readings of subject-to-object raising vs. object control.

42) a) Jean wants the cat to get his/Bill's tongue.
b) #Jean persuaded the cat to get his/Bill's tongue.

Sentence (42a) is slightly odd, but it does allow the idiomatic reading, but (42b) only takes the literal (non-idiomatic) meaning.

Control = Equi

In early versions of Generative Grammar – in particular, the ones before the invention of theta roles – the phenomenon we are calling control was called ***Equi-NP Deletion*** or ***Equi*** for short. This is just another name for the same phenomenon.

2.3 Summary of Predicate Types

In this section we've argued for four distinct types of embedded nonfinite constructions: subject-to-subject raising, subject-to-object raising, subject control and object control. Which construction you get seems to be dependent upon what the main clause predicate is. For example, *is likely* requires a sub-

[9] The indices on this sentence mark theta roles (as marked in the grid in (41)). They do not mark coindexing. In this sentence, the index $_{m} = _{j}$ (m and j are the same index).

ject-to-subject raising construction whereas *is reluctant* requires a subject control construction. It should be noted that some verbs allow more than one type of construction. For example, the verb *want* allows either subject control, or subject-to-object raising:

43) a) $Jean_i$ wants [PRO_i to leave]. *subject control*
b) Jean wants $Bill_i$ [t_i to leave]. *subject-to-object raising.*

An example of these types is given in (44) and a summary of their properties in (45):

44) a) Jean is likely to leave. *subject-to-subject raising*
b) Jean wants Robert to leave. *subject-to-object raising*
c) Jean is reluctant to leave. *subject control*
d) Jean persuaded Robert to leave. *object control*

45) a) *subject-to-subject raising*
- Main clause predicate has one theta role (to the proposition), and no external (subject) theta role
- DP movement of embedded subject to the specifier of TP for EPP and Case
- Allows idiomatic readings
- Allows extraposition

b) *subject-to-object raising*
- Main clause predicate assigns two theta roles (an external agent or experiencer and a proposition)
- Main clause predicate has an [ACC] Case feature
- DP movement of the embedded clause subject to the specifier of AgroP for Case reasons
- Allows idiomatic readings

c) *subject control*
- Main clause predicate assigns two theta roles (external agent or experiencer and proposition)
- Caseless PRO in embedded clause
- No DP movement for Case
- Does not allow idiomatic readings or extraposition

d) *object control*
- Main clause predicate assigns three theta roles (external agent or experiencer, an internal theme and a proposition)
- Caseless PRO in embedded clause
- No DP movement for Case
- Does not allow idiomatic readings or extraposition

You now have enough information to try General Problem Sets 4 & 5, and Challenge Problem Set 1

3. CONTROL THEORY

In chapter 5, we developed a set of noun types (anaphors, pronouns, R-expressions) that have different properties with respect to how they get their meanings. R-expressions get their meaning from the discourse or context and can never be bound; anaphors are bound by antecedents within their clauses; and pronouns can either be bound by antecedents outside their clause or be free. In this section, we consider the troubling question of what kind of DP PRO is. Unfortunately, we are going to get a bit of a mixed answer.

Let us start by defining some terminology. This terminology is subtly similar to that of the binding theory, but it is different. If PRO gets its meaning from another DP, then PRO is said to be ***controlled***. This is identical to the notion ***coreferent*** and very similar to the notion ***bound*** (we will make this distinction clearer below). The DP that serves as PRO's antecedent is called its ***controller***.

We are going to contrast two different kinds of PRO. The first kind is called ***arbitrary PRO*** (or $\boldsymbol{PRO_{arb}}$). The meaning of this pronoun is essentially "someone":

46) [PRO_{arb} to find a new mate], go to a dating service.

Arbitrary PRO is not controlled by anything. Arbitrary PRO is a bit like an R-expression or a pronoun, in that it can get its meaning from outside the sentence.

Non-arbitrary PRO (henceforth simply PRO) also comes in two different varieties. On one hand we have what is called ***obligatory control***. Consider the sentence in (47). Here, PRO must refer to *Jean*. It can't refer to anyone else.

47) $Jean_i$ tried $PRO_{i/*j}$ to behave.

There are other circumstances where PRO does not have to be (but can be) controlled. This is called ***optional control***, and is seen in (48):

48) $Robert_i$ knows that it is essential [$PRO_{i/j}$ to be well-behaved].

PRO here can mean two different things. It can either refer to Robert or it can have an arbitrary PRO_{arb} reading (indicated in (48) with the subscript $_j$). You can see this by looking at the binding of the following two extensions of this sentence:

49) a) Robert$_i$ knows that it is essential [PRO$_i$ to be well-behaved on his$_i$ birthday].
b) Robert$_i$ knows that it is essential [PRO$_j$ to be well-behaved on one's$_j$ birthday].

(49a) has the controlled meaning (as seen by the binding of *his*), (49b) has the arbitrary reading (as seen by the presence of *one's*).

With this in mind let's return to the central question of this section. Is PRO an anaphor, a pronoun, or an R-expression? We can dismiss the R-expression option right out of hand. R-expressions must always be free. PRO is only sometimes free (= not controlled). This makes it seem more like a pronoun; pronouns can be both free or bound. The data in (48) seems to support this, PRO is behaving very much like a pronoun. Compare (48) to the pronoun in (50).

50) Robert$_i$ knows it is essential [that he$_{i/j}$ is well-behaved].

You'll notice that the indexing on (50) which has a pronoun, is identical to the indexing on PRO in (48). We might hypothesize then that PRO is a pronoun. This can't be right, however. Recall that we also have situations where PRO must be bound (= controlled) as in the obligatory control sentence *Jean$_i$ tried PRO$_{i/*j}$ to behave.* This makes PRO look like an anaphor, since anaphors are obligatorily bound. Williams (1980) suggests that in obligatory control constructions PRO must be c-commanded by its controller, just as an anaphor must be c-commanded by its antecedent. However, as should be obvious, this can't be right either. First, as noted above, we have situations where PRO is free (as in 52); anaphors can never be free. Second, if we take the binding theory we developed in chapter 4 literally, PRO and its controller *Jean*, are in different binding domains, violating Principle A.[10] We thus have a conundrum: PRO doesn't seem to be an R-expression, a pronoun, or an anaphor. It seems to be a beast of an altogether different color.

Since the distribution of PRO does not lend itself to the binding theory, an entirely different module of the grammar has been proposed to account for PRO. This is called ***control theory***. Control theory is the bane of professional theoreticians and students alike. It is, quite simply, the least elegant part of syntactic theory. We'll have a brief look at it here, but will come to no satisfying conclusions.

---

[10] Recall from chapter 5, that our definition of binding domain as a clause is probably wrong. One might even hypothesize on the basis of data like *Jean is likely to behave herself* that the definition of binding domain requires some kind of tensed clause, rather than just any kind of clause. I leave as an exercise the implications of such a move.

First let's observe that some parts of control are sensitive to syntactic structure. Consider what can control PRO in (51):

51) [Jean$_i$'s father]$_j$ is reluctant PRO$_{j/*i}$ to leave.

If you draw the tree for (55), you'll see that while the whole DP *Jean's father* c-commands PRO, *Jean* by itself does not. The fact that *Jean* cannot control PRO strongly suggests that there is a c-command requirement on obligatory control, as argued by Williams (1980). This said, the structure of the sentence doesn't seem to be the only thing that comes into play with control. Compare now a subject control sentence to an object control one:

52) a) Robert$_i$ is reluctant [PRO$_i$ to behave]. *subject control*
b) Susan$_j$ ordered Robert$_i$ [PRO$_{i/*j}$ to behave]. *object control*

In both these sentences PRO must be controlled by *Robert*. PRO in (52b) cannot refer to *Susan*. This would seem to suggest that the closest DP that c-commands PRO must control it. In (52a), *Robert* is the only possible controller, so it controls PRO. In (52b), there are two possible controllers: *Susan* and *Robert*. But only *Robert*, which is structurally closer to PRO, can control it. This hypothesis works well in most cases, but the following example shows it must be wrong:

53) Jean$_i$ promised Susan$_j$ [PRO$_{i/*j}$ to behave]. *subject control*

In this sentence it is *Jean* doing the behaving, not *Susan*. PRO must be controlled by *Jean,* even though *Susan* is structurally closer. So structure doesn't seem to be the only thing determining which DP does the controlling.

One hypothesis is that the particular main clause predicate determines which DP does the controlling. That is, the theta grid specifies what kind of control is involved. There are various ways we could encode this. One is to mark a particular theta role as the controller:

54) a) *is reluctant*

Experiencer DP *controller*	Proposition CP

b) *persuade*

Agent DP	Theme DP *controller*	Proposition CP

c) *promise*

Agent DP *controller*	Theme DP	Proposition CP

In this view of things, control is a thematic property. But a very careful look at the data shows that this can't be the whole story either. The sentences in (55) all use the verb *beg*, which is traditionally viewed as an object control verb, as seen by the pair of sentences in (55a&b), where the (b) sentence shows an embedded tense clause paraphrase.

55) a) Louis begged Kate$_i$ [PRO$_i$ to leave her job].
b) Louis begged Kate that she leave her job.
c) Louis$_i$ begged Kate [PRO$_i$ to be allowed [PRO$_i$ to shave himself]].
d) Louis$_i$ begged Kate that he be allowed to shave himself.

Sentences (55c&d), however, show subject control. The PROs in (c) must be controlled by the subject *Louis*. The difference between the (a) and the (b) sentence seems to be in the nature of the *embedded* clause. This is mysterious at best. Examples like these might be used to argue that control is not entirely syntactic or thematic, but may also rely on our knowledge of the way the world works. This kind of knowledge, often referred to as ***pragmatic*** knowledge,[11] lies outside the syntactic system we're developing. The study of the interaction between pragmatics, semantics and syntax is one that is being vigorously pursued right now, but lies beyond the scope of this book. See the further reading section below for some places you can go to examine questions like this in more detail.

You now have enough information to try Challenge Problem Set 2

4. ANOTHER KIND OF NULL SUBJECT: "LITTLE" *pro*

In chapter 8, we made the claim that all sentences require subjects, and encoded this into the EPP. However, many languages appear to violate this constraint. Take, for example, these perfectly acceptable sentences of Italian:

56) a) Parlo.
speak.1SG
"I speak."

[11] See for example Landau's (1999) dissertation.

b) Parli.
speak.2SG
"You speak."

The subject DP in these sentences seems to be missing. But there is no ambiguity here. We know exactly who is doing the talking. This is because the verbs are inflected with endings that tell us who the subject is. This phenomenon is called either ***pro-drop*** or ***null subjects***. Ideally, we would like to claim that a strong constraint like the EPP is universal, but Italian (and many other languages) seem to be exceptions. One technical solution to this issue is to posit that sentences in (56) actually do have DPs which satisfy the EPP. Notice again that this is merely a technical solution to a formal problem.

You might think that the obvious candidate for this empty DP would be PRO. But in fact, PRO could not appear in this position. Remember PRO only appears in Caseless positions. We know that Italian subject position is a Case position, because you can have an overt DP like *io* in (57).

57) Io parlo.
I speak.1SG
"I speak."

So linguists have proposed the category ***pro*** (written in lower-case letters). *pro* (called ***little pro*** or ***baby pro***) appears in Case positions; PRO (called ***big PRO***) is Caseless.

English doesn't have *pro*. This presumably is due to the fact that English doesn't have a rich agreement system in its verbal morphology:

58) a) I speak.
b) You speak.
c) He/she/it speaks.
d) We speak.
e) They speak.

In English, only third person forms of verbs take any special endings. One of the conditions on *pro* seems to be that it often appears in languages with rich agreement morphology.[12] The means we use to encode variation among languages should now be familiar: parameters. We use this device here again in the ***null subject parameter***, which governs whether or not a language allows *pro*. Italian has this switch turned on. English has it set in the off position.

You now have enough information to try General Problem Set 6

[12] This not a universally true statement. Many Asian languages allow *pro*-drop even though they don't have rich agreement systems. For discussion, see Huang (1989).

5. SUMMARY

We started this chapter with the observation that certain sentences, even though they look alike on the surface, can actually have very different syntactic trees. We compared subject-to-subject raising constructions to subject control constructions, and subject-to-object raising constructions to object control constructions. You can test for these various construction types by working out their argument structure, and using the idiom test. Next under consideration was the issue of what kind of DP PRO is. We claimed that it only showed up in Caseless positions. We also saw that it didn't meet any of the binding conditions, and suggested it is subject, instead, to control theory. Control theory is a bit of a mystery, but may involve syntactic, thematic, and pragmatic features. We closed the chapter by comparing two different kinds of null subject categories: PRO and *pro*. PRO is Caseless and is subject to the theory of control. On the other hand, *pro* takes Case and is often "licensed" by rich agreement morphology on the verb.

IDEAS, RULES, AND CONSTRAINTS INTRODUCED IN THIS CHAPTER

i) ***PRO (big PRO):*** A null (silent) DP found in Caseless positions (the specifier of non-finite TP).

ii) ***pro (Little pro or Baby pro)***: A null (silent) DP often found in languages with "rich" agreement. *pro* does get Case.

iii) ***Clausal Subject Construction***: A sentence where a clause appears in the specifier of TP. E.g., *[That Jean danced the rumba] is likely.*

iv) ***Extraposition***: A sentence (often an alternate of a clausal subject construction) where there is an expletive in the subject position and a clausal complement. E.g., *It is likely that Jean danced the rumba.*

v) ***Subject-to-subject Raising***: A kind of DP movement where the subject of an embedded non-finite clause moves to the specifier of TP of the main clause to get nominative Case. E.g., *Jean$_i$ is likely* t$_i$ *to dance.*

vi) ***Subject-to-object Raising*** *(also called* ***Exceptional Case Marking*** *or* ***ECM***): A kind of DP movement where the subject of an embedded non-finite clause moves to the complement of the verb in the main clause to get accusative Case. E.g., *Jean wants Bill$_i$[*t$_i$ *to dance].*

vii) ***Control Theory***: The theory that governs how PRO gets its meaning. There appear to be syntactic factors (the controller must c-command PRO), thematic factors (what DP does the controlling is dependent upon what main clause predicate is present), and pragmatic factors involved.

viii) ***Pragmatics***: The science that looks at how language and knowledge of the world interact.

ix) ***Subject Control*** *(also called* ***Equi***): A sentence where there is a PRO in the embedded non-finite clause that is controlled by the subject argument of the main clause. E.g., *$John_i$ is reluctant PRO_i to leave.*

x) ***Object Control:*** A sentence where there is a PRO in the embedded non-finite clause that is controlled by the object argument of the main clause. E.g., *John persuaded $Bill_i$ PRO_i to leave.*

xi) ***Obligatory vs. Optional Control***: Obligatory control is when the PRO must be controlled: *$Jean_i$ is reluctant PRO_i to leave.* Optional control is when the DP can be controlled or not: *$Robert_i$ knows that it is essential [$PRO_{i/j}$ to be well behaved].*

xii) ***PRO_{arb}***: Uncontrolled PRO takes an "arbitrary" reference. That is, it means something like *someone*.

xiii) ***Null Subject Parameter***: The parameter switch that distinguishes languages like English, which require an overt subject, from languages like Italian that don't, and allow *pro*.

FURTHER READING

Brame, Michael (1976) *Conjectures and Refutations in Syntax and Semantics.* Amsterdam: Elsevier.

Bresnan, Joan (1972) Theory of Complementation in English. Ph.D. dissertation. MIT.

Chomsky, Noam (1965) *Aspects of the Theory of Syntax*. Cambridge: MIT Press.

Chomsky, Noam (1981) *Lectures on Government and Binding*. Dordrecht: Foris.

Hornstein, Norbert (1999) Movement and control. *Linguistic Inquiry* 30, 69–96.

Hyams, Nina (1986) *Language Acquisition and the Theory of Parameters.* Dordrecht: D. Reidel Publishing Company.

Jaeggli, Osvaldo and Kenneth Safir (eds.) (1989) *The Null Subject Parameter*. Dordrecht: Kluwer Academic Publishers.

Landau, Idan (1999) Elements of Control. Ph.D. dissertation. MIT.

Manzini, Maria Rita (1983) On control and control theory. *Linguistic Inquiry* 14, 421–46.

Petter, Marga (1998) *Getting PRO under Control*. The Hague: Holland Academic Graphics.

Postal, Paul (1974) *On Raising*. Cambridge: MIT Press.

Rizzi, Luigi (1982) *Issues in Italian Syntax*. Dordrecht: Foris.

Rosenbaum, P. S. (1967) *The Grammar of English Predicate Complement Constructions*. Cambridge: MIT Press.

Williams, Edwin (1980) Predication. *Linguistic Inquiry* 11, 203–38.

GENERAL PROBLEM SETS

1. THE EXISTENCE OF PRO

[Critical thinking; Intermediate]

How does the following sentence provide support for the existence of PRO in the subject position of the non-finite clause?

a) [To behave oneself in public] is expected.

Consider now the following sentence. Does it provide support for the existence of PRO? How?

b) Robert$_i$ knew [$_{CP}$ that it was necessary [$_{CP}$ PRO$_i$ to behave himself$_i$]].

2. RAISING TO OBJECT

[Critical thinking; Intermediate]

We claimed that subject-to-object raising targets the specifier of AgrOP as the landing site of the movement for Case. Consider the following sentences, keeping in mind that *out* and *incorrectly* modify the main verb. How do these sentence support the idea that subject to object raising lands in AgrOP? Draw the tree for sentence (ii)

i) She made Jerry out to be famous
ii) Mike expected Greg incorrectly to take out the trash

3. ICELANDIC PRO AND QUIRKY CASE

[Data Analysis, Critical Thinking; Intermediate/Advanced]

Background. In order to do this question it will be helpful to have reviewed the discussion of floating quantifiers in chapter 10, and to have done the question on Icelandic quirky Case in chapter 10.

As discussed in chapter 10, in English, it is possible to "float" quantifiers (words like *all*) that modify subject arguments:

a) The boys don't all want to leave.

Icelandic also allows floating quantifiers, but with a twist. The quantifier takes endings indicating that it has the same Case as the DP it modifies. Recall from the last chapter that certain verbs in Icelandic assign irregular or "quirky" Cases to their subjects. The verb *leiddist* 'bored' is one of these. In sentence (b), the subject is marked with its quirky dative Case. The floating quantifier *öllum* 'all' is also marked with dative. (Data from Sigurðsson 1991)

b) Strákunum leiddist öllum í skóla.
boys.DAT bored all.DAT in school
"The boys were all bored in school."

We might hypothesize then, that floated quantifiers must agree with the noun they modify in terms of Case.

The question. Now consider the following control sentence. What problems does the following sentence hold for our claim that PRO does not get Case? Can you relate your solution to the problem of Icelandic passives discussed in the problem sets of the previous chapter? Note that the noun in the main clause here is marked with nominative rather than dative Case.

c) Strákarnir vonast til að PRO leiðast ekki öllum í skóla.
boys.NOM hope for to bore not all.DAT in school
"The boys hope not to be bored in school."

4. ENGLISH PREDICATES

[Application of Skills; Intermediate]

Using your knowledge of theta theory and the tests of extraposition and idioms determine if the predicates listed below are subject-to-subject raising (SSR), subject-to-object raising, (SOR), subject control (SC), or object control (OC). ***Some predicates fit into more than one category***. (The idea for this problem set comes from a similar question in Soames and Perlmutter 1979)

is eager	is believed	seems	is ready
persuaded	urged	requested	hoped
expect	force	tell	advise
ask	assure	imagine	promise
want	is likely	consent	imagine
encouraged	intended		

5. TREES AND DERIVATIONS

[Application of Skills; Intermediate to Advanced]

Draw trees for the following sentences, annotate your trees with arrows so that they show all the movements, and write in all PROs with appropriate coindexing indicating control. You may wish to do this problem set *after* you have completed the problem set 4.

a) Jean wants Bill to do the Macarena.
b) Robert is eager to do his homework.
c) Jean seems to be in a good mood.
d) Rosemary tried to get a new car.
e) Susan begged Bill to let her sing in the concert.
f) Susan begged to be allowed to sing in the concert.
g) Christina is ready to leave.
h) Fred was believed to have wanted to try to dance.
i) Susan consented to try to seem to have been kissed.

6. IRISH *pro*

[Data analysis; Advanced]

Irish is a null subject language.

a) Rinceamar.
Dance.3PL.PAST
"We danced."

Consider the following Irish sentences and discuss how Irish *pro*-drop differs from that found in Italian (pg 273):

b) Tá mé.
Am I
"I am."

c) Táim.
Am.1SG
"I am."

d) *Táim mé.
Am.1SG I
"I am."

CHALLENGE PROBLEM SETS

CHALLENGE PROBLEM SET 1. IS EASY

[Critical Thinking; Challenge]

Consider the following sentences:

a) This book is easy to read.
b) John is easy to please.

Is *is easy* a raising or a control predicate or both? If it is a raising predicate, which argument is raised? If it is a control predicate, where is the PRO? What kind of PRO is it?

CHALLENGE PROBLEM SET 2. **CONTROLLERS**
[Critical Thinking; Challenge]
Williams (1980) claimed that obligatorily controlled PRO requires a c-commanding controller. What problem do the following sentences hold for that hypothesis?

a) To improve myself is a goal for next year.
b) To improve yourself would be a good idea.
c) To improve himself, Bruce should consider therapy.
d) To improve herself, Jane went to a health spa.