1   The structure of this exercise

Sentences like (1) have had a long history of being pains in the neck. Let's see why, and then come up with a possible analysis.

   (1)   Trees are easy to draw.

    This assignment is basically like a little paper, where you are going to fill in some of the steps of the argument. Ultimately, there is a proposal for what the structure of *Trees are easy to draw* is, based on the evidence that we build up along the way.[1]

    In doing this, you'll need to draw on, or be reminded of, a number of things we've looked at in the recent past over the semester. It does include a little bit about *wh*-movement, phases, and *wh*-islands, which we only discussed in the last couple of classes.

2   Two ways to satisfy the EPP

To start, let's consider a different version of (1). The sentence in (2) is basically synonymous with (1), but has an expletive *it* as the subject. This is the same *it* that we have in (3). That is, we will assume that the expletive *it* there is solely to satisfy the EPP (the [uD*] feature of T), something that *trees* does in (1).

   (2)   It is easy to draw trees.

   (3)   It snowed.

    The idea we'll pursue here is that (2) is related to (1) in much the same way that (4) is related to (5): In (4), *there* satisfies the EPP and the Agent *a man* remains in the embedded clause, whereas in (5), *a man* raises to satisfy the EPP itself. The structure of (5) is sketched schematically in (6), where "t_i" represents *a man* in its original position, before being moved into the main clause SpecTP (subject) position.

   (4)   There seems to be a man dancing.

   (5)   A man seems to be dancing.

   (6)   [A man]$_i$ seems [t_i to be dancing].

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[1]Inspiration for the approach pursued here was drawn from Hicks (2009). Once you've gone through this homework, you'll probably be able to read that paper, although don't expect the answers to the problems here to all be in there. I might encourage you to take a look at that paper afterwards, just to see what syntax articles look like, in a domain you'll have become familiar with through doing this homework.

We will suppose that (1) is related to (2) the same way: In (2), *it* is satisfying the EPP and *trees* stays in the embedded clause, whereas in (1) *trees* has raised to the main clause subject position. This is sketched schematically in (7).

(7)   Trees$_i$ are easy to draw t$_i$.

3   Adjectives as main predicates

Before we try to tackle *is easy*, let's start with something simpler, like (8) or (9). These are sentences with a subject, the verb *be*, and an adjective. In these cases, the adjective is playing the role that the verb usually plays—the adjective is the main predicate of the sentence. The verb *be* isn't doing much, meaning-wise; it is there basically just to hold the sentence together.

(8)   Trees are beautiful.

(9)   Trees are not carnivorous.

We are going to analyze (8) as being fairly similar to the progressive sentence in (10). So, in preparation for that, let's focus on (10) for a little bit.

(10)   Trees are falling.

(11)   Trees are not falling.

Task 1. [1] What θ-role does *trees* get in (10)?

Task 2. [2] Draw the structure for (10). Draw out the whole DP structure for *trees* as well, and draw the tree all the way up to CP. Putting in the features is not necessary, just draw the tree like on the last homework assignment.

Task 3. [1] What is the evidence that the auxiliary *be* (Prog) moves to T in (10)? Compare it to (11) in order to make the case.

Back to the adjective *beautiful* now. As mentioned, we are going to suppose that the structure of (10) is a lot like the structure for (8). Specifically, we are going to assume that *beautiful* is an A, and that *be* in (8) is an auxiliary (one we haven't seen before— we'll call this one Pred). For reasons that will become clear later, we will also assume that there is a *a*P above AP as well, just like there is a *v*P above VP in (10). As with *v* and *n*, we'll assume A moves up to *a*.

> **Task 4. [1] Draw the structure for (8).** This time, you can use a triangle for the DP. All you are doing here really is redrawing the tree from Task 2, but replacing V with A, *v* with *a*, and Prog with Pred.

4 Identifying the θ-roles

Now, let's get back to the main task—figuring out what is going on with *easy*. Let's start with (2), and then we'll return to (1) afterwards. They mean pretty much the same thing, and so we'll presume that the θ-roles we discover for one will be the same in the other, since *it* is not getting a θ-role in (2).

(1) Trees are easy to draw.

(2) It is easy to draw trees.

> **Task 5. [1] What are the θ-roles for *draw* in (2)?** This is not intended to be difficult. Somebody draws, something is drawn.

> **Task 6. [1] What θ-role does *trees* have in (2)?** Again, simple.

> **Task 7. [1] What about the other θ-role for *draw* in (2)? Who is doing the drawing?** This one is less easy. What does the sentence mean? Is it me doing the drawing? You? What are we saying when we say (2)?

Compare (2) with (12). In (12), it is now explicit who is doing the drawing—it has to be *me* doing it.

(2) It is easy to draw trees.

(12) It is easy for me to draw trees.

So, now let's think about what role *me* plays in (12). I'm the one doing the drawing, for one thing. But I'm also the one experiencing the easiness. The sentence seems to mean something vaguely like 'I don't have to experience much mental effort for the sentence "I draw trees" to be true.' Intuitively, it seems like the "effort" part of the meaning in (12) relates to the meaning of *easy*. This is reinforced by the fact that if we change the adjective to *pleasant*, or to *difficult*, the experience attributed to *me* changes. In each case, I'm still drawing the trees, but the effect on me differs.

(13) It is pleasant for me to draw trees.

(14) It is difficult for me to draw trees.

So, let's try to figure out what the θ-roles for *easy* (or *pleasant* or *difficult*) are.

Task 8. [1] What seem to be the two θ-roles for *easy* in (12)? Again, not difficult. Something is easy when true, and the ease is experienced by someone.

By now, you can probably see where this is going. *Easy* has two θ-roles, one of them is going to *me*. *Draw* also has two θ-roles, one of them *also* seems to be going to *me*. But that's not possible, you can't assign two θ-roles to *me*.

Task 9 [1]. What's the conclusion? What is the subject of the infinitive clause in (12) ? It's not *me*. What could it be?

Task 10. [1] If *easy* had been a verb, what kind of verb would it be? That is, it's a bit like *tell* in *Pat told me to draw trees*. Would it be an ECM verb, a subject-control verb, an object-control verb, a raising verb?

Task 11. [1] Where in the structure could we put *for me* in (12)? There are not many possibilities here. Assume that it gets into the structure using Merge, not Adjoin (we're assuming that it gets a θ-role, after all). Look at the tree you drew for Task 4. That tree doesn't have an embedded clause (since it has *beautiful* in it, rather than *easy*), but the basic Pred–*a*P–AP part of the structure would be the same with *easy*. Make sure that the resulting word order you would get after putting in *for me* matches the order you see in (12). Incidentally, this should show you why we needed to have a "little *a*" in the Task 4 tree.
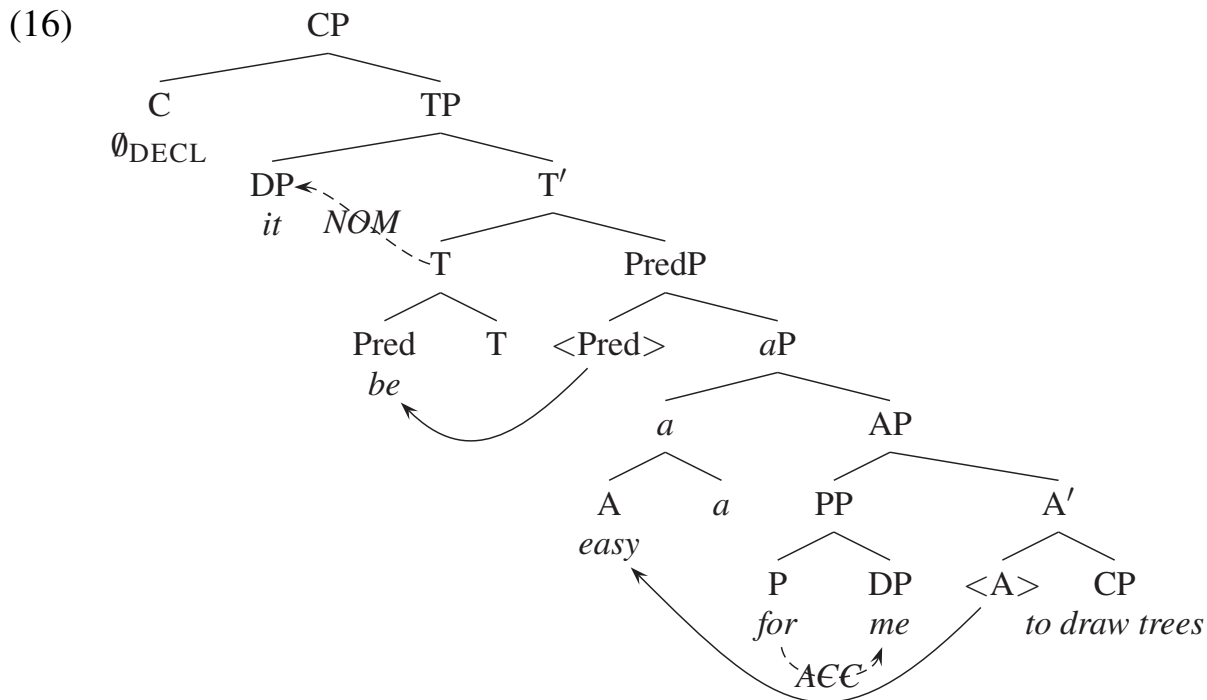
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5 Accommodating the θ-roles in the tree

We will also need to add a couple of additional statements to the UTAH (since we don't have any existing rules to cover θ-roles within adjectives).

(15) a. PP daughter of AP is _____ .
      b. CP sister of A is _____ .

Task 12. [1] Fill in the blanks in (15) for the additional θ-roles. This is basically just reiterating what you did in Task 8.

In the tree in (16), I've shown what (12) would look like.[2]

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[2]And, yes, by giving you this tree I'm also kind of giving away a point. If what you see in this tree doesn't match your answer for Task 11, feel free to go back and change your answer.

(16)

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                    CP
            ┌────────┴────────┐
            C                 TP
          Ø_DECL        ┌──────┴──────┐
                       DP←            T'
                       it   NOM ┌──────┴──────┐
                              T              PredP
                         ┌────┴────┐    ┌──────┴──────┐
                       Pred   T   <Pred>            aP
                        be                    ┌──────┴──────┐
                                              a             AP
                                         ┌────┴────┐   ┌─────┴─────┐
                                         A    a   PP          A'
                                       easy      ┌──┴──┐   ┌───┴───┐
                                                 P    DP  <A>    CP
                                                for   me      to draw trees
                                                      ACC
```

Task 13. [2] Tree. Finish drawing the tree in (16)—that is, fill in the details of the lower CP labeled *to draw trees*.

Task 14. [1] Case. For each DP in the tree you drew for Task 13, draw an arrow indicating how case is assigned to each DP. (Like in the previous homeworks and in the trees above; e.g., draw an arrow from the finite T to the DP *it*, and label the arrow "NOM.")

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6 Digression: When the embedded clause goes missing

Now, let's get back to (1) again. Remember that (2) and (1) mean the same thing, and remember the analysis we're focused on is one something like (7).

(1)   Trees are easy to draw.

(2)   It is easy to draw trees.

(7)   Trees$_i$ are easy to draw t$_i$.

Task 15. [1] What θ-role does *trees* get in (1)—and from which verb? This isn't *exactly* the same question as the one you were asked in Task 6; that was about (12), this is about (1). But (1) and (12) don't really differ in meaning or in the way in which *trees* participates in the event.

Great, but here's a puzzle. What about the sentence in (17)? What θ-role is *trees* getting there? And from what? Notice, though, that (17) could mean a bunch of different things. It could mean (1), or it could mean (18), or (19). It just depends on what you were talking about previously before you said (17).

(17) Trees are easy.

(18) Trees are easy to describe.

(19) Trees are easy to read.

We're going to take this fact to mean that, sometimes, with sentences like this, you are allowed to leave the embedded clause unpronounced. This might be the same kind of thing as leaving the *v*P unpronounced in "VP-ellipsis" cases, like (20). The sentence in (20) which is understood to mean (21), with the strikethrough representing the unpronounced part.

(20) John would never read Grisham novels, but Mary would.

(21) John would never read Grisham novels, but Mary would ~~read Grisham novels~~.

That is to say, sentences with *is easy* always have, abstractly, an embedded clause. Sometimes it can be unpronounced, but it's always there in the syntax. And, really, it *had* to be there if *trees* in (17) has moved out of the embedded clause.

7 An additional argument for something like (7)

Now that we have a place in the structure for things like *for me*, we can also look at an additional argument for an analysis of (1) that involves moving *trees* from the embedded clause (7).

(1) Trees are easy to draw.

(7) Trees$_i$ are easy to draw t$_i$.

Consider (22–24). In my judgment, (22) is grammatical, whereas (23–24) don't allow *Mary* and *her* to refer to the same person.

(22) Pictures of himself are easy for John to draw.

(23) Pictures of her are easy for Mary to draw.

(24) Pictures of Mary are easy for her to draw.

Clearly, *himself* in (22) satisfies Principle A. I say "clearly" because it *must* be true—the sentence is grammatical. If it violated Principle A, the sentence would be ungrammatical. But it is not immediately obvious *how* the sentence satisfies Principle A.

We can use this fact as an argument for an analysis like (7), but the argument requires a couple of steps. Let's approach this by considering (24) instead. The sentence in (24) is ungrammatical when *her* and *Mary* are interpreted as the same person. Let me just tell you: This is a Principle C violation. (Not a Principle B violation—Principle B is satisfied in (24), because *Mary* does not c-command *her*.) One additional technical note here: strictly speaking, for the upcoming arguments to work, we have to assume that *for* in *for Mary* is not really considered for the purposes of computing c-command. That is, in the tree back in (16), we need to assume that *me* c-commands the *to draw trees* CP.

> **Task 16. [2] Explain briefly how (24) winds up having a Principle C violation, and why this supports the analysis in (7).** That is, how could we use this as evidence that *Pictures of X* has moved in (22)–(24)?

There is a still a wrinkle, though. (22) satisfies Principle A, and we're partway to an explanation of how this happens, based on your answer to Task 16. But we're not quite there yet, because *for John* is still too far away to license *himself*. The explanation of how Principle A is satisfied in (22) relates to something that was discussed briefly in class, namely how *himself* satisfies Principle A in (25). It also relates to the conclusion we reached about what the subject of the embedded clause is. That's all I'm going to give you as hints, but I think it should be enough to bring you to the answer I had in mind.

(25)   John tried to promote himself.

> **Task 17. [1] How does *himself* in (25) satisfy Principle A?** Notice that *John* is not in the same clause as *himself*, and there is no relevant movement. *John* is not in the binding domain for *himself*. So why is (25) ok?

> **Task 18. [1] Now, complete the argument we were in the middle of. How does *himself* in (22) satisfy Principle A?** How does this support the conclusion you reached in Task 9, and how does it support the analysis in (7)?

8   The problem with Case

So far, things seem to have been going pretty smoothly. However, there is a problem, and it has to do with case. Consider the sentence in (26).

(26)   It is easy to see me.

Now, consider (27). The analysis we had been entertaining above is that the structure of (27) is schematically like (28), where the first person pronoun has raised to SpecTP from the embedded object position.

(27)   I am easy to see.

(28) I_i am easy to see t_i .

By hypothesis, (27) and (26) are exactly the same all the way until we've built the T′ of the upper clause—at which point, there are two options. In (26), we Merge *it*. In (27), we move the pronoun instead.

Clearly, something must be done. It seems like we need to have two different DPs to get the two different cases that need to be assigned in (27), but there only seems to be one DP. Is there something there we can't see? This is kind of the reverse problem from the one we faced with control verbs. Here, we have only one θ-role for the pronoun (from *see*), but yet we need two different DPs to accommodate the case assignment properties.

9   Interim summary and a reminder about possessors.

So, here's a summary of where we are so far, with respect to (1).

Case: Two DPs are required, one for the embedded verb to assign accusative case to, and one for the main clause T to assign nominative case to.

θ-roles: One θ-role is available, from *draw*; *easy* does not have a θ-role to assign to *trees*.

Binding theory: We have evidence that the main clause subject was once in the embedded clause.

The first two points are the biggest point of contradiction—the first says that we need two DPs, and the second says that we only have room for one. Drastic measures are needed.

To solve the problem, we're going to generate a new θ-role, by analogy to the Possessor θ-role one finds in possession structures such as *John's book*. To get started, let's just remind ourselves of how possessors work.

Task 22. [1] Draw the DP structure for *John's book*. Don't forget the PossP.

Task 23. [1] Draw an arrow in the structure you just drew indicating how *John's* gets its Genitive case.

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10   A proposal that adds a DP (for case) by adding a θ-role

The proposal we're going to make here is that *trees* in (1) is really structurally relatively similar to something like *tree's self*. Specifically, the idea is to reconcile the case and θ-role conflict by adding one more θ-role, but not adding any more case-assigners. To make this work we need to posit the following things:

- There is a silent NP, SELF, meaning "self."

- There is a silent D, $\emptyset_{\text{ID}}$, that is like $\emptyset_{\text{GEN}}$ except *without* a [$u$case:gen] feature. (We would also assume that it has a [uD*] feature to make a DP raise into SpecDP.)

- There is an IdentP (like a PossP) that assigns an Identity θ-role.

Task 24. [1] Draw a DP for *trees* in (1) with the components above.   It should look like *John's book* except that instead of $\emptyset_{\text{GEN}}$, you have $\emptyset_{\text{ID}}$, and instead of PossP you have IdentP, and instead of *book*, you have the silent SELF.

In the DP you just drew, there are two cases left to assign—one to *trees* in SpecDP, and one to the DP as a whole. The whole thing should get a θ-role when Merged into the tree, but only one θ-role is needed. We seem to be well on our way to solving the problem.

We're just about there now. There's one more thing I want to highlight before we get to the main event. Remember the discussion of sentences like (29): What happens here is that *all the students* is a DP, but with a DP inside of it (*all* is a D that takes *the students* as a complement). The reason (29) was supposed to be possible is that, as far as the main clause T is concerned, *all the students* and *the students* are equally close, because neither c-commands the other.

(29) The students have all solved the problem.

(1) Trees are easy to draw.

In the derivation of (1), we're supposing that this complex DP (*trees* $\emptyset_{\text{ID}}$ SELF, that you just drew in task 24) moves to SpecCP in the embedded clause. The reason we're assuming this is that movement cannot go further than that in one step, this was the part that related to locality and islands at the very end of the class. Anything that is going to move out of a CP has to first stop in the specifier of that CP. But when we continue building the structure up to T and then need to check the [uD*] ("EPP") feature of T by moving a DP into SpecTP, notice that either *trees* or the whole complex DP (at that point in the specifier of the lower CP) are equally close, just as *the students* and *all the students* were in (29). Of course, nothing would be solved by moving the whole complex DP—it already has case, and the DP inside it doesn't. But moving the DP inside it should be possible, valuing its case feature as nominative.

And, so, the grand finale:

Task 25. [2] Draw the tree for (1).

References

Hicks, Glyn. 2009. *Tough* constructions and their derivation. *Linguistic Inquiry* 40(4): 535–556.