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 extra-credit homework 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

## 1 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) $[\text{A man}]_i$ seems $[t_i$ to be dancing $]$.  

Similarly, 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) it has raised to the main clause subject position. This is sketched schematically in (7).

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

¹Inspiration 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.
2 A counterargument from idioms, which we will dismiss for now

The analysis of (1) in (7) is a pretty good starting point. However, there are various reasons to believe that it is not that simple. One such reason is the behavior of idioms.

When we were talking about raising verbs and control verbs, we observed that idioms like *the cat has his tongue* or *the cat is out of the bag* can survive with raising verbs but not with control verbs.

(8) The cat seemed to be out of the bag.
(9) The cat tried to be out of the bag.

This correlated with the fact that *the cat* raised from the lower clause in (8) but originates in the higher clause in (9).

(10) [The cat], seemed [t to be out of the bag].
(11) The cat tried [PRO to be out of the bag].

So, the conclusion was that to get the special idiomatic meaning, the parts of the idiom had to be all put together by Merge initially—*the cat be out of the bag* had to all start together, even if it is later pulled apart by movement.

One type of idiom (a very common type) combines a verb and an object—like *drop the ball*, or *kick the bucket*. Each of these has an idiosyncratic meaning not derived from the literal meaning (fail to act, die).

(12) John dropped the ball.
(13) John kicked the bucket.

We can certainly have these idiomatic VP readings in *it is easy* constructions, as illustrated by (14–15). In all of these cases, the idiomatic meaning is fine.

(14) It is easy to drop the ball.
(15) It is unpleasant to kick the bucket.

In my judgment, the idiomatic reading disappears in (16–17).

(16) The ball is easy to drop.
(17) The bucket is unpleasant to kick.
Task 1. Briefly explain why the fact that the idiomatic interpretation disappears in (16–17) could constitute an argument against an analysis like (7) for (1).

(1) Trees are easy to draw.

\[
(7) \text{Trees}_i \text{ are easy to draw } t_i.
\]

Although this is counterevidence of a sort, we are going to ignore it. Once the entire analysis is complete, we will be able to explain this fact (though I am not going to ask you to—that will be left to you to think about over the break if you wish). That is, we are going to assume that an analysis like (7) is (just about) correct.

3 Adjectives as main predicates

Before we try to tackle *is easy*, let’s start with something simpler, like (18) or (19). Notice that *be* comes before *not* in (19). This suggests that *be* here is acting like auxiliaries, moving to T over *not*.

(18) Trees are beautiful.

(19) Trees are not carnivorous.

Thinking about the meanings here, it seems like the main predicate in the sentence is the adjective. *Be* is just there to hold the sentence together, it’s not really doing much else. So, let’s accept that—the adjective in sentences like these is really acting more like a verb. In particular, it assigns a \( \theta \)-role to *trees* (more or less as if the sentence had been *the tree is beautiful*). For lack of a better name for this \( \theta \)-role, we can call it Theme. As for *be*, we’ll add it to our list of auxiliaries, and call it Pred (so, it is more or less like Perf, Prog, Pass, and M). Given all of that, we might start off supposing that we have something like the following:
The tree above in (20) is marked as “TO BE REVISED” because we are going to need to make it a little bit more complex, but it is at least a start toward a syntactic analysis.\(^2\)

4 Identifying the \(\theta\)-roles

With that much of the stage set, 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 \(\theta\)-roles we discover for one will be the same in the other.

(1) Trees are easy to draw.
(2) It is easy to draw trees.

**Task 2. What are the \(\theta\)-roles for draw?** This is not intended to be difficult. Somebody draws, something is drawn.

**Task 3. What \(\theta\)-role does trees have in (21)?** Again, simple, trivial even.

**Task 4. What about the other \(\theta\)-role for draw? 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)?

\(^2\)With respect to the use of beautiful in a sentence like *This is a beautiful tree*, there is a note at the very end about how we treat those. The assumption is going to be that the way we were drawing those before (with beautiful adjoined as a modifier to tree) is still correct.
Compare (2) with (21). In (21), it is now clear who is doing the drawing—it has to be me doing it.

(2) It is easy to draw trees.
(21) It is easy for me to draw trees.

So, now let’s think about what role me plays in (21). 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 (21) 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.

(22) It is pleasant for me to draw trees.
(23) It is difficult for me to draw trees.

So, let’s try to figure out the \( \theta \)-roles for easy (or pleasant or difficult).

**Task 5. What seem to be the two \( \theta \)-roles for easy in (21)?** Again, not difficult. Something is easy when true, and the ease is experienced by someone.

By now, you should see where this is going. Easy has two \( \theta \)-roles, one of them is going to me. Draw also has two \( \theta \)-roles, one of them also seems to be going to me. But that’s not possible, you can’t assign two \( \theta \)-roles to me.

**Task 6. What’s the conclusion? What is the subject of the infinitive clause?** It’s not me. What could it be?

**Task 7. 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?

5 Accommodating the \( \theta \)-roles in the tree

Now that we have included the for me in (21), it reveals a problem with the structure for predicate adjectives that was proposed in (20). In (24) I give the tree the the discussion so far would suggest is the structure for (21), except this can’t be the actual structure.
The structure in (24) accounts for the \( \theta \)-roles of \textit{easy}, but it gets the word order wrong.

\textbf{Task 8.} What is the word order that (24) predicts?

However, there is a pretty simple and familiar way to fix this. The problem we have here is very similar to the problem that we had with ditransitive verbs like \textit{give}, and with ditransitive deverbal nouns like \textit{gift}. Even though \textit{easy} is not actually ditransitive, the word order facts lead us to propose a very similar solution. Specifically: The way that \textit{easy} winds up to the left of \textit{for me} is by moving there, and the place it will move is to a “little a” that is just above the AP (just like little v and little n).

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

\begin{align*}
(25) & \quad \text{a. PP daughter of AP is } \underline{\text{}}. \\
& \quad \text{b. CP sister of A is } \underline{\text{}}.
\end{align*}

\textbf{Task 9. Fill in the blanks in (25) for the additional \( \theta \)-roles.} This is basically just reiterating what you did in a previous task.
In the tree in (26), I’ve shown what this would look like.

(26)

Task 10. Finish drawing the tree in (26)—that is, draw the whole tree, and fill in the details of the lower CP.

Task 11. For each DP in the tree you drew for Task 3, draw an arrow indicating how case is assigned to each DP. (Like in the previous homeworks; e.g., draw an arrow from the finite T to the DP it, and label the arrow “NOM.”)

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\textsubscript{i} are easy to draw \text{t}_i.

Task 12. What \(\theta\)-role does trees get in (1)—and from which verb?
Great, but here’s a puzzle. What about the sentence in (27)? What θ-role is trees getting there? And from what? Notice, though, that (27) could mean a bunch of different things. It could mean (1), or it could mean (28), or (29). It just depends on what you were talking about previously before you said (27).

(27) Trees are easy.
(28) Trees are easy to describe.
(29) 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 vP unpronounced in “VP-ellipsis” cases, like (30). The sentence in (30) which is understood to mean (31), with the strikethrough representing the unpronounced part.

(30) John would never read Grisham novels, but Mary would.
(31) 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 (27) 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\textsubscript{i} are easy to draw \textsubscript{t\textsubscript{i}}.

Consider (32–34). In my judgment, (32) is grammatical, whereas (33–34) don’t allow Mary and her to refer to the same person. This should remind you of the last homework assignment from class.

(32) Pictures of himself are easy for John to draw.
(33) Pictures of her are easy for Mary to draw.
(34) Pictures of Mary are easy for her to draw.
The question is: How does *himself* in (32) satisfy Principle A? Clearly here *himself* refers to *John*. So, for Principle A to be satisfied, we need *himself* to be locally c-commanded by an antecedent. What you looked at in the last homework assignment from class can give us a way to understand how we can consider *himself* to be in a lower position in the structure than *for John* is—this is the basis for using (32) as an argument for an analysis like (7).

However, there is still a problem. Given the structure that we had in (26), *for John* is still too far away (not to mention the fact that *John* doesn’t actually seem to c-command the embedded clause). However, this connects to something we talked about in class—it relates to the question of how *himself* satisfies Principle A in (35). 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.

(35) John tried to promote himself.

| Task 13. Complete the argument. How does *himself* in (32) satisfy Principle A? |
| That is, how does the grammaticality of (32) support the analysis in (7)? |

| Task 14. Briefly explain why *her* and *Mary* can’t refer to the same person in (33) and (34). Of course, the reason is basically the same as what you said for the previous task. But identify what specifically goes wrong—it’s not Principle A, because Principle A doesn’t apply there. What is it then, in each of these cases? |

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 (36).

(36) It is easy to see me.

| Task 15. What case does *me* get in (36) and from where? This shouldn’t be difficult. |

Now, consider (37). The analysis we had been entertaining above is that the structure of (37) is schematically like (38), where the first person pronoun has raised to SpecTP from the embedded object position.

(37) I am easy to see.

(38) $i^1$ am easy to see $i^1$. 

9
**Task 16. What case does I get in (37) and from where?**  This should also not be difficult.

By hypothesis, (37) and (36) 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 (36), we Merge it. In (37), we move the pronoun instead.

**Task 17. Why might we have expected (37) to be ungrammatical?**  This one is only slightly trickier. Given your previous two answers, it seems like there should have been a feature left unchecked in (37)—which one?

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 (37), 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.

We’re going to leave this problem unsolved for the moment, and turn to something else, which might be able to help give us an idea of how to fix this.

### 9 Islands, sonatas, and violins

Consider (39), which is not relevantly different from (2). It has an expletive it, and the object of play (this sonata) is still in the lower clause. We can turn (39) into a question by replacing this sonata with which sonata and moving it to the front, as in (40). So far, so good.

(2) It is easy to draw trees.

(39) It is easy to play this sonata on John’s violin.

(40) Which sonata is it easy to play on John’s violin?

However, if we use the form of easy without the expletive it, like (1), where (perhaps) the object of the embedded clause moves to the main clause subject position, trouble arises. (41) is fine, but if we try to make a question out of it (42), the result is ungrammatical.

(1) Trees are easy to draw.

(41) John’s violin is easy to play this sonata on.

(42) *Which sonata is John’s violin easy to play on?
What could the problem be? At this point, we have a fairly limited number of ways that we know about that can make a *wh*-question like this ungrammatical. The primary problem that arises with *wh*-questions is when you try to move a *wh*-word out of an island. So, perhaps what makes (42) ungrammatical is that we have tried to move *which sonata* out of an island. But what could the island be? We’ve seen three kinds of islands: adjunct islands, complex noun phrase islands, and *wh*-islands. The most likely of those three to be at issue in (42) is the last one, *wh*-islands. So, first, a quick reminder about what goes wrong in *wh*-islands.

**Task 18. Briefly explain what makes (44) bad.** That is, what makes (44) a “*wh*-island” violation?

1. (43) John wondered when Mary bought this violin.
2. (44) *Which violin did John wonder when Mary bought.*

If the ungrammaticality of (42) is to be explained as a *wh*-island violation, it must be that in order for *which sonata* in (42) to get to the main clause SpecCP, it has to pass through an embedded SpecCP. And it must be that the embedded SpecCP is already occupied in (41–42), but not in (39–40). So, movement of *this sonata* from the embedded object position in 41 to the main clause subject position must involve stopping in the embedded SpecCP. And this provides further evidence that movement is involved. It’s got to be movement like *wh*-movement.

1. (45) Trees$_i$ are easy [t$_i$ to draw t$_i$.]
2. (46) [Which sonata]$_i$ is [John’s violin]$_j$ easy [t$_j$ to play t$_i$ on t$_i$.]

**Task 19. Briefly explain what makes (46) bad.** That is, what makes (46) a “*wh*-island” violation? The answer here is basically the same as the previous answer, but this time in reference to (46).
10 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.

**Wh-islands:** We have evidence that the movement up to the main clause subject must pass through the embedded SpecCP.

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.

**Task 20.** Draw the DP structure for John’s book. Don’t forget the PossP.

**Task 21.** Draw an arrow indicating how John’s gets its Genitive case.

11 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, θ_ID, that is like θ_GEN except without a [u-case:gen] feature. (We would also assume that it has a [u-D*] feature to make a DP raise into SpecDP.)
- There is an IdentP (like a PossP) that assigns an Identity θ-role.
**Task 22.** 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 $\theta$-role when Merged into the tree, but only one $\theta$-role is needed. We seem to be well on our way to solving the problem.

Now, let’s consider phases. CP is a phase, which means that if we’re going to move something out of the lower clause into the higher clause, it will need to get to the edge of CP. In order to account for successive-cyclic movement of *wh*-words (the fact that *wh*-words have to stop off in every SpecCP on the way up in a *wh*-question), Adger proposes that C can optionally have a $[uwh^*]$ feature. We’ll need to make use of that here, too—it needs to be possible for the DP to reach the SpecCP so that it can be “seen” from the main clause. So, we need to add one more feature to $\emptyset_{\text{ID}}$: $[\text{wh}]$.

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 (47): 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 (47) 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.

(47) The students have all solved the problem.

(1) Trees are easy to draw.

In the derivation of (1), we’re supposing that this completed DP (*trees* $\emptyset_{\text{ID}}$ SELF) moves to SpecCP in the embedded clause. 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 are equally close, just as *the students* and *all the students* were in (47). 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 23.** Draw the tree for (1).
12 Postscript: A digression on attributive adjectives

One thing that we kind of ignored is that adjectives can also be simple modifiers, as in (48). This is how we’ve been thinking about them up to now. So, the DP in (48) would probably look like (49).

(48) This is a beautiful tree.

(49)

\[
\begin{array}{c}
\text{DP} \\
\text{D} \\
\text{a} \\
\text{AdjP} \\
\text{beautiful} \\
\text{nP} \\
\text{NP} \\
\text{N} \\
\text{tree}
\end{array}
\]

It would seem from the structure above in (49) that we would not want to suppose that \textit{beautiful} is assigning \(\theta\)-roles, since \(\theta\)-roles normally go with a Merged (non-adjoined) relationship between nodes in the tree. I justify dismissing this complication as unproblematic on the following grounds: verbs that we \textit{do} already believe assign \(\theta\)-roles can appear in similar constructions. So, for example:

(50) This is a painted tree.
(51) This is a floating tree.

Whatever is going on in (50) and (51) is presumably the same thing that is happening in (48). We’ll just assume that when an adjective is used like a modifier (in the way we have been treating them in class), something connects the \(\theta\)-role that the adjective assigns to the thing being modified, but we will assume that the structure in (49) is still correct.

References