It is likely...

- And, of course, since be is an auxiliary verb, it will move up to I.
- Notice that both [q]-roles are assigned to things that are in the same clause as the predicate that assigns the [q]-role.
- This is a general property of [q]-role assignment (to be further clarified): A [q]-role must be assigned locally (within the same clause).

Great. But now, consider:

- Mary is likely [to leave].
- We already know a lot about this sentence; we know that likely has one [q]-role to assign, which it assigns to the embedded clause, we know that leave has one [q]-role to assign, which it assigns to Mary.
- There are two apparent problems here:
  - The embedded clause seems to have no subject (*EPP)
  - The [q]-role assigned to Mary seems to be assigned outside of its clause.

Mary is likely [to leave]

- Concerning [q]-roles, it’s clear from the meaning that leave really does assign its [q]-role to Mary and not likely (Mary is leaving—she’s isn’t in any way likely).
- This is definitely not local—Mary is not in the same clause as leave.

And with respect to the EPP, we see that although the main clause IP has something in its specifier (Mary), the embedded clause seems to have nothing.

How can we reconcile this?
It is likely...

- Mary is likely [to leave]
- For \( \phi \)-role assignment to be local, Mary has to be in the same clause. \( \phi \)-role assignment takes place at the point of Merge, after which movement rules (like head-movement) apply.
- We can solve both problems at once by supposing that Mary moves from the embedded subject position to the main clause subject position.
  - Initially: — is likely [Mary to leave]
  - Becomes: Mary, is likely [\( t_i \) to leave]

It is likely...

- That is, we start out \((\text{Merge, Merge})\) with Mary in the embedded clause, in the specifier of IP, receiving its \( \phi \)-role locally.

It is likely...

- And in the last step, we \( \text{Move} \) the DP Mary up from the lower SpecIP to the higher SpecIP.
  - This is essentially like \text{Merge} except that we are Merging together an object with (a copy of) something from inside the object.

It is likely...

- This satisfies the EPP in both clauses. The main clause has Mary in SpecIP.
- The embedded clause has the trace in SpecIP.
- This type of movement is called A-movement ("argument").
  - Also "DP-movement" or "NP-movement"
- This specific instance of A-movement, where we move a subject from an embedded clause to a higher clause is generally called subject raising.

Further support for raising... from idioms

- For something to have an idiomatic interpretation (an interpretation not literally derivable from its component words), the pieces need to be very close together when initially Merged.
  - It is likely that the jig is up.
  - It is likely that the cat is out of the bag.
  - It is likely that the cat has your tongue.
Idioms

- It is ok if the pieces of the idiom move away after the original Merge, we can still get the idiomatic interpretation:
  - [The cat], is likely ti to have your tongue.
  - [The cat], is likely ti to be out of the bag.
  - [The jig], is likely ti to be up.
  - The important thing is that they be originally Merged together (the  role needs to be assigned by the predicate to the noun)

Other raising verbs

- So far, we’ve only talked about is likely, but there are a couple of other raising verbs as well.
  - [The cat], seems [TP ti to have your tongue].
  - [The cat], appears [TP ti to be out of the bag].
  - [The jig], proved [TP ti to be up].
  - [The cat], began [TP ti to get his tongue].
- What these verbs have in common is that they have no external  role and an internal Proposition  role.

Passive

- Now, let’s think about the passive. The passive morphology seems to directly affect the theta grid of a verb.
  - Bill ate the sandwich.
  - The sandwich was eaten.
  - Eat has two  roles to assign. By putting it in the passive, we seem to have transitive (two  role) verb into an intransitive (one  role) verb.

Passive

- Bill ate the sandwich.
  - Here, Bill is the Agent (gets the  role with Agent) and the sandwich is the Theme (gets the  role with Theme).
  - The sandwich was eaten (by Bill).
  - In the passive, the roles are the same but now the Theme is the subject and the Agent is in an optional by-phrase (a PP).

Passive

- Since optional thematic relations do not get included in the  grid, what we conclude about the passive is that it changes the  grid of the verb by removing the external  role.

\[
\begin{array}{c|c}
  	ext{eat} & \text{Agent} & \text{Theme} \\
  j & i \\
\end{array}
\]

\[
\begin{array}{c|c}
  	ext{eat+en} & \text{Agent} & \text{Theme} \\
  j & i \\
\end{array}
\]

Passive

- We also assume that passive verbs are formed in the lexicon. When you pull this verb out of the lexicon to put it on the workbench and Merge it into the structure, it was eaten (one  role) from the get-go.

\[
\begin{array}{c|c}
  	ext{eat} & \text{Agent} & \text{Theme} \\
  j & i \\
\end{array}
\]

\[
\begin{array}{c|c}
  	ext{eat+en} & \text{Agent} & \text{Theme} \\
  j & i \\
\end{array}
\]
Active

- Let’s start with the structure for the active sentence, Bill ate the sandwich.
- Here, the (internal) Theme -role is assigned to the object DP and the (external) Agent -role is assigned to the subject DP.
- Now, suppose that for the passive we simply eliminate the external -role...

Passive

- (The passive also requires the addition of the auxiliary verb be, but this is not relevant to the point at hand)
- We have changed the main verb to the passive form, thereby removing the external -role, leaving us with this structure for the sandwich was eaten.
- Now, what needs to happen?

Passive

- The sandwich was eaten.
- Now, what needs to happen?
- SpecIP must be filled (EPP).
- The word order needs to be altered from was eaten the sandwich to the sandwich was eaten.
- It should be clear where this is going—here, we posit another instance of A-movement, like with raising. In the passive, the object moves to SpecIP satisfying the EPP.

Passive

- The sandwich was eaten.
- So, to review, the idea is that the active and the passive have very similar underlying representations, except that the passive has had its external -role removed and thus no subject is generated in SpecIP (as required by the -Criterion). Then the object moves into SpecIP, satisfying the EPP.

Passive

- As for the optionally expressed Agent in the by-phrase, we take this to be like any optionally expressed adjoined phrase, a PP adjoined to VP.
- As expected, the by-phrase can be reordered with respect to other adjuncts.
- The sandwich was eaten...
- ...by Bill under the tree at noon.
- ...under the tree by Bill at noon.
- ...at noon under the tree by Bill.

Nagging questions

- Things have been working out well so far, but there are a couple of things that are still unexplained...
- If in the passive, movement of the object into subject position is done in order to satisfy the EPP, why couldn’t we instead insert it in SpecIP like we do in it rains or it is likely that...?
- Similarly, for raising, what is wrong with *It is likely John to leave?
- The answer to this will be Case—which we will turn to next.
The “Case Filter”

- Case Filter
  All DPs must have Case

- (That is, all DPs have a Case feature, which must subsequently be checked)

- Case is available (roughly)
  - To the specifier of a finite I (nominative)
  - To the sister of a V or a P (accusative, oblique)

Conditions for Case checking

- The thing which makes the analysis run is the supposition that only under certain situations can I or V check Case. In particular:

  - For I, only finite I checks Nom—a nonfinite I (to) does not check (nominative) Case.
  - For V, only transitive verbs check Obj—intransitive verbs and passive verbs do not check Case.

Back to raising...

- Let’s go back to Mary is likely to leave. Recall that this is the underlying structure.

  - In the embedded clause, Mary is in SpecIP, but nonfinite I cannot assign Case.

  - Unless the DP Mary moves, its Case feature will not be checked.

Back to raising...

- When the DP Mary moves up to the main clause SpecIP, its Nom Case feature can be checked.

  - So, this movement does two things: It satisfies the EPP and it checks the Case of the subject.

Back to raising...

- Notice that this explains why...
  - “It is likely Mary to leave

  - …is ungrammatical: Even though the sentence satisfies the EPP, it violates the Case Filter (Mary doesn’t get its Case feature checked).

Back to raising...

- When the embedded clause is finite...
  - It is likely that she left.

  - …everything is fine because she gets (nominative) Case from the embedded finite I.
Back to passives...

- We had a similar question about what was wrong with:
  - *It was eaten the sandwich*
  - …where it appears that even though the EPP could be satisfied by inserting the expletive *it*, the sentence is still ungrammatical.

Back to passives...

- What we can say here is that the addition of the passive morpheme -*en* to a transitive verb *not only* removes its external [فاعل]-role, but *also* revokes its ability to check Case.

- Burzio’s Generalization
  A verb which does not assign an external [فاعل]-role cannot check accusative Case.

Active again...

- Let’s review the structure for the active sentence, *Bill ate the sandwich*.

- Here, *eat* assigns two [فاعل]-roles, the internal [فاعل]-role (Theme) to the DP *the sandwich*, and the external [فاعل]-role (Agent) to the DP *Bill*.

- Since it assigns an external [فاعل]-role, *eat* is also a Case-checker.

Active again...

- After the movement, *Bill checks Case with I*, and *the sandwich* checks (accusative) Case with the *V*.

- The sandwich checks Case with *V*.

- Finite *I* checks nom. Case

Passive again...

- The sandwich was eaten.

- Now, let’s look at the passive sentence.

- The external [فاعل]-role was removed from *ate* and thus *V* can no longer check Case (Burzio’s Generalization).

- Unless the DP *the sandwich* moves to a place where it can get Case, it will end up with a Case feature unchecked.

Passive again...

- By moving the DP *the sandwich* to SpecIP we satisfy both the Case checking requirements and the EPP.

- Simply satisfying the EPP by using *it* in SpecIP wouldn’t solve the problem of checking Case on *the sandwich*, hence the ungrammaticality of *“It was eaten the sandwich.”*
Flavors of intransitives...

- Let’s think for a moment about intransitive verbs. These are verbs have a theta grid with a single \[ \] -role to assign. Like
  - walk: Agent
  - Now, think about the passive of a transitive verb; this is a verb with only a single internal \[ \] -role.
  - Eat: Agent Theme
  - Eaten: Theme
  - Taken together, it might occur to us to wonder whether there might be intransitive verbs that inherently (like eaten) have only a single internal \[ \] -role to assign…

Unaccusatives

- And it turns out that, yes, such verbs do exist. For example:
  - Fall: Theme.
  - Fall is an “inherently passive” verb, an unaccusative verb. It has only one \[ \] -role to assign, and that \[ \] -role is an internal \[ \] -role. Because it has no external \[ \] -role, by Burzio’s Generalization, it also cannot assign accusative Case.

Unaccusatives vs. unergatives

- There are many reasons to think that verbs like fall have only an internal argument.
  - First, the subject is really a Theme as far as thematic relations go, it is affected, not an agent. Themes are always objects.
  - Another suggestive piece of evidence comes from Romance languages like French, where passives and verbs like fall act similarly, and differently from other (truly agentive) intransitive verbs.
    - Jean est tombé. ‘John fell.’ (past unaccusative)
    - Le fromage a été mangé. ‘The cheese was eaten.’ (passive)
    - Jean a marché. ‘John walked.’ (past unergative)

Unaccusatives vs. unergatives

- The point is really that we can distinguish two types of single-argument (intransitive) verbs in terms of their theta grid with respect to whether they have an external \[ \] -role to assign or not. Their (highly unintuitive) names, for the record, are:
  - Unaccusatives: Have one, internal \[ \] -role.
  - (Sometimes called “ergative” too)
  - Unergatives: Have one, external \[ \] -role.

Bill fell

- Of course, nothing keeps us from piling raising verbs one atop the other:
  - [The cat], seems \[ \] likely \[ \] to get his tongue].
  - [The jig], began \[ \] to seem \[ \] likely \[ \] to be \[ \]

- In these cases, the subject moves from SpecIP to SpecIP, only receiving Case at the last stop, satisfying the EPP at each IP.
Back to raising

- Raising verbs will cause anything in a complement IP that isn’t getting Case to move up to their SpecIP.
- Passive arguments:
  - [The sandwich], seems [t to have been [eaten t]]
- Even expletive it:
  - It, began [t to rain]
  - It, began [t to seem [t[likely [t to rain]]]]
- Here, it was inserted to satisfy the EPP in the most embedded IP, but then raised from SpecIP to SpecIP to satisfy the rest of their EPP conditions.

A-movement in sum

- Raising: Bill, is likely [t to win the race].
- Passive: [The sandwich], was eaten t.
- Unaccusatives: Bill, fell t.
- A-movement occurs either to allow Case features to be checked or to satisfy the EPP.