24.902: Adventures in Wh-movement

Let's start by unifying the picture for Case assignment a little bit. We had a picture in which Case is assigned:

(1)  
   a. to the specifier of TP
   b. to the complement of V (oh, except not really; ECM, plus the discovery of v)
   c. to the complement of P ...

This was before we knew about (i) vP, or (ii) the Internal Subject Hypothesis. Now we can have a new picture, which goes:

(2)  
   a. Case is assigned via Agree relations, which connect certain heads (tensed T, transitivie v, P) to DPs that they c-command. We'll refer to the heads in these relations as the Probes, and the phrases as the Goals.
   b. A head is a Probe if it has an uninterpretable feature on it. For example, T comes into the derivation with $\phi$-features (person, number, gender), and since these don't make any contribution to the interpretation of Tense, they're uninterpretable, and must participate in Agree (which links them to interpretable $\phi$-features on a DP, thereby defusing them). We'll annotate uninterpretable and interpretable $\phi$-features as $[u\phi]$ and $[i\phi]$.
   c. A head may also have the feature [EPP], which basically just says that it needs a specifier. T, for example has the EPP feature (something we've been saying for a while), but we can now say, for example, that...
   d. …the English C that appears in (ordinary) wh-questions also has the EPP feature, which triggers wh-movement to itself. To generalize the technology developed above for A-movement, we'll want to say that interrogative C also has a $[uwh]$ feature, and that wh-phrases have a $[iwh]$ feature. C will then be a Probe, which finds wh-phrases as its Goals.

   e. Agreement by $[u\phi]$ assigns Case (also associated with morphological agreement; T agrees morphologically with the subject in English, among many other languages)
Conditions on Wh-movement, Mad Libs style

(3)  a. Which shelf did Mary say that she should put the book on __ ?
    b. * Which shelf did Mary ask whether she should put the book on __ ?
    c. *Which shelf did Mary ask which book she should put on __ ?

Wh-Island Condition: A(n) **interrogative** clause is an island for extraction

("island"="thing from which extraction is impossible". Imagine that wh-phrases cannot swim)

(4)  a. What did they [eat __ ]?
    b. * What did they [eat __ ] and [drink milk]?
    c. What did they [eat __ ] and [drink __ ]?

Coordinate Structure Constraint: When two XPs are coordinated, extraction can take place from both (across-the-board movement), or neither, but not just one.

(5)  a. Who did you buy [a picture of __ ]?
    b. * Who did [a picture of __ ] fall off the wall?
    c. *Who did [a picture of __ ] land on your head?

(6)  a. Who do you think that [we should hire __ ]?
    b. * Who does [that we hired __ ] surprise you?
    c. ?Who do you think that [if we hire __ ], we'll get rich?

Condition on Extraction Domains (CED): DPs and CPs which are **complements** can be extracted from; DPs and CPs which are **subjects or adjuncts** cannot be.

(7)  a. Who __ bought what?
    b. * What did who buy __ ?

(8)  a. What did you give __ to whom?
    b. * Who did you give what to ____ ?

Superiority: when there are multiple wh-phrases, move the highest one.
Irina had an interesting comment about Superiority; if I'm remembering it right, she was saying that for her, both examples in (8) are okay, and the difference has to do with whether you want complete information about 'what' or about 'who'. That idea resembles a notion of 'sorting key' that's found in some of the literature on the semantics of these questions; basically, the idea is that whichever wh-phrase is first is the one for which you want an answer for every member of the relevant set. An example that illustrates this: imagine that there's a game of musical chairs going on, and at this point in the game, there are four chairs and three children playing. You could ask:

(i) Which child is going to sit in which chair?

…in which case you want to know, for each child, which chair they're going to sit in—but you don't care about the fact that there's a chair that no child will sit in. If the situation were different—say, if there were four children playing and three chairs to sit in—then the sentence would be odd, because there aren't enough chairs for each child to sit in one, and assuming that you can't have multiple children in a chair, it's not possible to give a correct answer for every child. So it doesn't matter if there are chairs left over (four chairs and three children is okay), but it does matter if there are children left over (four children and three chairs is odd). In other words, the answers have to exhaust the set of children, but don't have to exhaust the set of chairs.

(9)  a. What do you believe [that John bought ___]?
    b. *What do you believe [Mary's claim that John bought ___]?
    c. *What did Mary resent [our claim that John had bought ___]?

Complex NP Constraint: A(n) **CP dominated by an NP** is an island.

Some other relevant things:

(10) a. Has Mary ___ put the book on the shelf?
    b. *Put Mary has ___ the book on the shelf?

(11) a. I baked Mary a cake.
    b. Mary was baked ___ a cake.
    c. *A cake was baked Mary ___.

Shortest Move **(covers Head Movement Constraint and Superiority):**

Let the length of a movement path be the set of nodes n such that n is c-commanded by the landing site of the movement and dominates the origin point of the movement. Given a choice between two movement paths, pick the one with the smaller length.

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2 This example is apparently okay in Britain. We will ignore Britain.
[where smaller could be defined either as being a set of smaller cardinality or, equivalently for all the cases we'll talking about, being an actual subset (that is, all of our cases will involve paths of which one has a length which is a subset of the other's length)]