1 Long distance movement in relative clauses

A well-known syntactic fact about *wh*-movement in relative clauses is that the relative *wh*-word can move quite far: as shown by (1a-d), an indefinite number of intervening CP (= "complementizer phrase") boundaries can separate *which* from its base position (indicated by _).

(1)   a. the book [$_{CP}$ which Kim likes _]
        b. the book [$_{CP}$ which I think [$_{CP}$ that Kim likes _]]
        c. the book [$_{CP}$ which I think [$_{CP}$ that Lee said [$_{CP}$ that Kim likes _]]]
        d. the book [$_{CP}$ which I think [$_{CP}$ that Lee said [$_{CP}$ that Pat believes [$_{CP}$ that Kim likes _]]]]

Research in syntax has convincingly shown that *wh*-movement is cyclic: when a *wh*-word moves out of a clause, as in the examples above, it must first stop in the specifier of CP. Syntactic theory also tells us that each instance of movement should leave a trace behind, which means that the structure of e.g. (1c) is something like (3) on the next page; to keep things as simple as possible, I am only providing category labels for the CP and S (= TP) nodes.
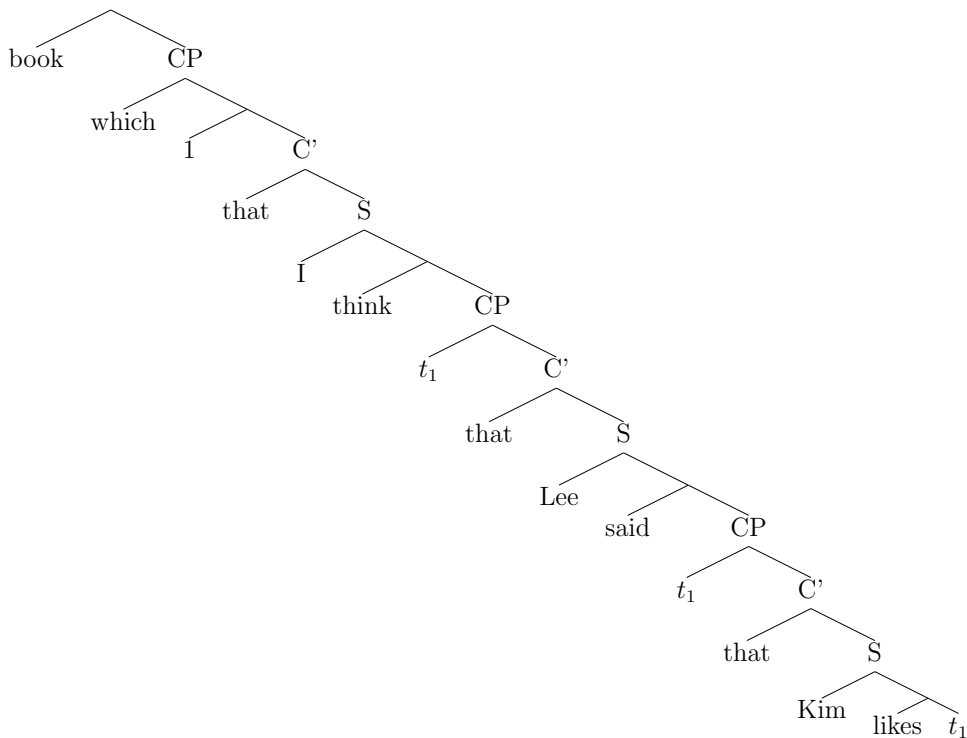
1. Show that our system as it stands will fail to derive an interpretation for the relative clause structure in (3). Explain in clear and precise terms what goes wrong, showing exactly where the semantic derivation crashes. Feel free to keep things simple: you should be able to make your point without going through an entire compositional derivation.

2. Propose a solution to this problem, and explain how it allows us to derive the correct denotation for the relative clause in (3). Your solution may be either syntactic or semantic, but you should address any consequences of your proposal for the set of hypotheses about the syntax-semantics interface that we have built up so far.

For the purpose of this assignment, assume that *which* is semanticaly vacuous: it's "job" is to create a complex type $\langle e, t \rangle$ modifier through movement (since our semantics for movement invokes Predicate Abstraction), but it doesn't contribute any meaning of its own. Assume also that sentence embedding verbs like *say*, *think*, etc. are type $\langle t, \langle e, t \rangle \rangle$, with denotations along the lines of (2).

(2)   [$\lambda p \in D_t.[\lambda x \in D_e.x$ says/thinks that $p = 1$]]

This assumption is actually fundamentally wrong! But for the purpose of this assignment, it is close enough to right to get us off the ground. If you see why it's wrong, feel free to say so and suggest an alternative.

(3)

2 Only

Assume the denotation of the English word *only* in (4).[1]

(4) $[\![only]\!]^g = [\lambda x_e[\lambda f_{\langle e,t\rangle}.\text{for all } y \neq x, f(y) = 0]]$

Show how this analysis provides intuitively correct truth conditions for (5) (where the two occurrences of *Newt* are meant to refer to the same individual — ignore the fact that we usually don't repeat names in this way). You will have to say something about how possessive constructions are interpreted in order to analyze this sentence.

(5)   Only Newt promotes Newt's books.

Now assume that pronouns, like traces, are variables, and are interpreted as follows:

(6)   For any pronoun pro_i, $[\![pro_i]\!]^g = g(i)$

Show how these assumptions account for the fact that (7) is ambiguous between the reading in (7a), which is equivalent to (5), and the one in (7b). (There are also other readings, in which the pronoun is linked to an arbitrary individual; you can ignore these.)

(7)   Only Newt promotes his books.
    a.   No one other than Newt promotes Newt's books.
    b.   No one other than Newt promotes his own books.

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[1]For the purpose of this exercise, I only want you to consider uses of *only* in which it composes with an individual-denoting expression. Do not worry about other uses of only, such as my own in the previous sentence. If you notice anything funny about (4) as an analysis of *only e* constructions, though, feel free to comment on it.