Two Reconstruction Puzzles*

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1. Introduction

This paper is concerned with the ‘low’ reading of (1) (which has a superlative relative clause) and the ‘low’ reading of (2) (a which-interrogative).

(1) The longest book John said Tolstoy had written was Anna Karenina.

(Bhatt 2002)

‘Low’ reading: “Anna Karenina is the unique x such that John said that x is the longest book Tolstoy wrote”.

This reading is called ‘low’ because longest book is interpreted in the scope of say. The sentence has another reading, a ‘high’ reading, where longest book is interpreted outside the scope of say.

(2) John knows which book(s) Tolstoy wrote.

(based on similar examples from Groenendijk and Stokhof 1982, 1984)

‘Low’ reading: “For every x that is actually a book by Tolstoy, John knows that x is a book and Tolstoy wrote x”.

I call this reading ‘low’ because book is interpreted in the scope of know. The sentence has another reading, a ‘high’ reading, where book is not interpreted in the scope of know.

If we construct a which-interrogative on the basis of (1), we get (3a), which doesn’t have the ‘low’ reading in (3b), but may (at least for some speakers) have the reading in (3c).

(3) a. Which longest book did John say Tolstoy had written?
   b. “Which x is such that John said that x is the longest book Tolstoy wrote?”
   c. “Out of the set of entities such that each of them is the longest member in some set of books (e.g., {Book a (=longest member of set A), Book b (=longest member of set B), Book c (=longest member of set C)}), which entity is such that John said that Tolstoy wrote it?”

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The generalization seems to be that (3b) is predicted to be a possible reading of (3a) if the
generation of the ‘low’ reading of (1) and the generation of the ‘low’ reading of (2) involve the
same “degree” of reconstruction. In other words, our theory will predict (3b) to be a possible
interpretation of (3a) in one of three cases: \(^1\) (i) if we assume that both the ‘low’ reading of (1)
and the ‘low’ reading of (2) are obtained by “reconstructing” the relevant items (\(-est\) and \(long\)
book\) in the case of (1); \(book\) in the case of (2)) in their base positions or in intermediate
positions; (ii) if we assume that the ‘low’ reading of (1) is obtained without “reconstruction” of
the superlative morpheme \(-est\), but with “reconstruction” of \(long\) \(book\), and the ‘low’ reading of
(2) is obtained with “reconstruction” of \(book\); (iii) if we assume that neither one of the ‘low’
readings in (1) and (2) is obtained via “reconstruction”. The first option is illustrated by (1’), (2’)
and (3’), the second by (1’’), (2’’) and (3’’), and the third by (1’’’), (2’’’) and (3’’’). The
“reconstruction” method used here is the one that makes use of “copies”, as this term is used in
the Copy Theory of Movement (especially Fox 2002, according to which a copy contains a
variable bound by the phrase whose movement created the copy).

\(1’\) \([\text{the } [1 \text{ John said-w}_0 [2 \text{-est-e}_1 [5 [[\text{long-w}_2-d_5][6 \text{ Tolstoy wrote-w}_2 \text{ the book-w}_2 \text{ e}_6]]]]]]\] is Anna Karenina

\(1’’\) \([\text{the } 1 \text{-est-e}_1 [5 6 \text{ John said Tolstoy wrote a d}_5-\text{long book e}_6]]\) is Anna Karenina

\(1’’’\) \([\text{the } 1 \text{-est-e}_1 [5 [\text{long-d}_5 \text{ book}] [6 \text{ John said Tolstoy wrote e}_6]]]]\) is Anna Karenina

\(2’\) \([\text{John knows-w}_0 [\text{which } [1 \text{ C}_{\text{wh}} \text{ Tolstoy wrote the book e}_1]]\]

\(2’’\) \([\text{John knows-w}_0 [\text{which book } [1 \text{ C}_{\text{wh}} \text{ Tolstoy wrote e}_1]]\]

\(3’\) \([\text{which } [1 \text{ C}_{\text{wh}} \text{ John said-w}_0 [2 \text{-est-e}_1 [5 [[\text{long-w}_2-d_5][6 \text{ Tolstoy wrote-w}_2 \text{ the book-w}_2 \text{ e}_6]]]]]]\]

\(3’’\) \([\text{which } 1 \text{ C}_{\text{wh}} [\text{-est-e}_1 [5 6 \text{ John said Tolstoy wrote a d}_5-\text{long book e}_6]]]\)

\(3’’’\) \([\text{which longest book } 1 \text{ C}_{\text{wh}} \text{ John said Tolstoy wrote e}_1]]\]

If the generation of the ‘low’ reading of (1) and the generation of the ‘low’ reading of (2) involve
the same “degree” of reconstruction, it is hard to see what would block (3b) as a possible reading
of (3a). But if they do not involve the same “degree” of reconstruction, it is plausible to assume
that the grammar never generates an LF that yields (3b) as a possible reading of (3a). Therefore,

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\(^1\) There are probably more logical possibilities, but those that are considered here suffice to make the point.
to prevent (3b) from being a reading of (3a), the theory has to be such that the ‘low’ readings of (1) and (2) are not generated in a similar way.

I argue that the ‘low’ reading of (2) is obtained from (2’), and that there are fairly good reasons to believe that the ‘low’ reading of (1) is obtained from (1’). This means that the ‘low’ reading of (1) (i.e., of superlative relative clauses) is a reconstruction effect, but the ‘low’ reading of (2) (i.e., of which-interrogatives) is not. The grammar generates (1’’’), which yields the ‘high’ reading of (1), but it doesn’t generate (1”). The grammar also doesn’t generate (2’), which means that both the ‘high’ and the ‘low’ readings of (2) are “read off” (2”). In addition, neither (3’) nor (3”) are generated, though (3”’) (which yields only the interpretation in (3c)) is.

Given that our theory has to allow “reconstruction” in principle (in order to generate (1’)), the theoretical problem that emerges from this is that the grammar has to have a mechanism that blocks “reconstruction” in which-interrogatives. I do not offer a solution to this problem. The goal of this paper, rather, is to point out that any theory of reconstruction has to be formulated in such a way so as to block the undesired readings. This is as much a problem for semantic approaches to reconstruction as it is for syntactic approaches. For presentational purposes, I use the mechanism of the Copy Theory of Movement as my “reconstruction” mechanism, but it should be clear that everything I say holds also of a more semantic mechanism (i.e., one that either doesn’t assume a level of LF at all – or assumes a level of LF that is not very different from surface structure – and according to which the relevant predicates can be interpreted in ‘low’ positions by lambda-Conversion).

I begin by showing in section 2 that which-interrogatives do not involve “reconstruction” (i.e., that (2’) is never generated, though (2””) is). I then show in section 3 that superlative relative clauses probably do (i.e., that the grammar does generates (1’) and (1”’), but not (1”)). From this I conclude that neither (3’) nor (3”) are generated. In section 4 I briefly discuss the implications of these conclusions for the theory of reconstruction.

2. ‘Low’ readings of which-interrogatives

An analysis of the which-interrogative Which students left the room along the lines of Karttunen (1977) says that it denotes the set of true propositions of the form ‘that x left the room’ in (4b,c),
where possible values for $x$ are actual students (‘that $x$ left the room’ is shorthand for $\{w : x \text{ left the room in } w\}$, and ‘$p$ is true in $w$’ is shorthand for $w \in p$; where $x$ is an individual, $p$ a proposition – a set of worlds, and $w$ a world). This interpretation is obtained from an LF such as (4a), which doesn’t have any ‘low’ copies of the restrictor of which. Which students is an indefinite binding a variable inside the sister of the complementizer, and the complementizer introduces an equation of the proposition denoted by its sister and $p$ ($p$ itself is bound by a set-forming operator).

(4) a. \textbf{which students 1 $C_{\text{wh}} [e_1 \text{ left the room}]$}

b. $\{p : p$ is true in the actual world and there is a student $x$ in the actual world such that $p = \text{‘that } x \text{ left the room’}\}$

c. \{‘that Sally left the room’, ‘that Mary left the room’, ‘that Norma left the room’,…\}

Such an analysis correctly predicts that one cannot know which students left the room without believing the true answers to \textit{Which students left the room}. But as Groenendijk and Stokhof (1982, 1984) show, although this analysis accounts for the ‘high’ (or ‘de re’) inference of (5), it fails to account for its ‘low’ inference (which according to them comes from its ‘de dicto’ reading).

(5) John knows which students left the room.

‘High’ inference

“For every student $x$ who left the room, John knows that $x$ left the room.”

‘Low’ inference

“For every $x$, John knows whether it’s true that $x$ is a student and $x$ left the room.”

The problem is that according to (4), the propositions one believes when one knows which students left the room contain no information regarding the student status of the student leavers. Groenendijk and Stokhof further argue that (4) is too weak in one more respect: their intuition is that (5) is true only if John believes that the set of student leavers is the actual set of student leavers (as implied by the ‘low’ inference in (5)), and not if he merely believes about every actual student $x$ who left the room that $x$ left the room (as implied by Karttunen’s analysis).
To address these concerns, Heim (1994) suggests an analysis that combines ideas from both Groenendijk and Stokhof and from Karttunen. Accordingly, an interrogative denotes a set of propositions (as in Karttunen’s analysis), but to know a question, in the ‘strong’ sense, means to believe that the set of true answers to it equals the set of actual true answers to it. In other words, to know, in the ‘strong’ sense, which students left the room means to believe the proposition in (6) (which we refer to as the ‘strong’ ‘low’ answer to Which students left the room).

(6) \[ \{ w : \{ p : p \text{ is true in } w \text{ and there is a student } x \text{ in } w \text{ such that } p = \text{‘that } x \text{ left the room’} \} = \{ p : p \text{ is true in the actual world and there is a student } x \text{ in the actual world such that } p = \text{‘that } x \text{ left the room’} \} \} \]

This ‘strong’ analysis predicts that if you know which students left the room you have to know which individuals are student leavers and which individuals are not. Because the proposition in (6) has to be true in all the worlds compatible with the subject’s beliefs, it guarantees that the relevant leavers are students in those worlds, thus capturing the ‘low’ inference.² Heim suggests that this ‘strong’ reading is generated in addition to the ‘weak’, Karttunen-style, reading, according to which to know which students left the room is to believe the conjunction of the true propositions that comprise the question, which we refer to as the ‘weak’ answer to Which students left the room (cf. Beck and Rullmann 1999, Sharvit 2002).

But according to Rullmann and Beck (1998), although Heim’s solution addresses Groenendijk and Stokhof’s objections to Karttunen’s analysis, it fails to make the right connection between (5) and examples such as (7).

(7) John mistakenly believes that the cats in the backyard are unicorns, and he wants to play with some of them. Which unicorns does John want to play with?

The interrogative in (7) has a ‘low’ reading, because the individuals we are asking about are cats in the actual world, not unicorns. Accordingly, the set \( \{ p : p \text{ is true in the actual world and there is a unicorn } x \text{ in the actual world such that } p = \text{‘that John wants to play with } x \text{’} \} \) comes out empty, and the ‘low’ reading is not captured. For Rullmann and Beck, the ‘low’ reading of (5) and the

² (5) also has a ‘strong’ ‘high’ reading, where students is interpreted outside the scope of know. We ignore this reading here; what is crucial for our purposes is that according to the Heim/Groenendijk and Stokhof view, the ‘low’ inference comes from a ‘strong’ interpretation.
‘low’ reading of (7) have the same source. They propose to account for them by assuming a ‘low’ copy of the restrictor of which at LF, which, they suggest, has the form of a definite description (‘that the student x left the room’ is shorthand for \{w\in\{w’:there is a unique y such that y is a student in w’ and y=x\}:the unique y such that y is a student in w and y=x left the room in w\}).

(8)  
a. \textbf{which 1 C}_{\text{wh}} [\text{the student e}_1 \text{ left the room}]
   
b. \{p:p \text{ is true in the actual world and there is an x such that } p=’\text{that the student x left the room’}\}
   
c. \{’that the student Sally left the room’, ’that the student Mary left the room’,…\}

(9)  
a. \textbf{which 1 C}_{\text{wh}} [\text{John wants to play with the unicorn e}_1]
   
b. \{’that John wants to play with the unicorn Sam’, ’that John wants to play with the unicorn Fred’,…\}

Beck and Rullmann relate these examples to similar non-interrogative examples discussed in Karttunen 1974 and Heim 1992 (e.g., \textit{John mistakenly believes that there was a murder, and he wants the murderer to be caught}). The treatment of the copy of the restrictor of which as a definite description is consistent with the fact that the question in (7) presupposes that John believes the relevant individuals to be unicorns. These “presuppositional” copies have been adopted by some proponents of the Copy Theory of Movement (e.g., Fox 2002).

But it seems to me that it is misleading to say that (5) and (7) are instances of one and the same phenomenon (as indeed predicted by the assumption that both their LFs have a presuppositional ‘low’ copy of the restrictor of which), because (5) and (7) do not behave in the same way. For convenience, I call the ‘low’ reading of (5), triggered by the question-embedding verb know, an “external” ‘low’ reading; and the ‘low’ reading of the interrogative in (7), triggered by the propositional attitude verb want, which is part of the question itself, an “internal” ‘low’ reading. It seems to me that neither the “external” nor the “internal” ‘low’ reading is a reconstruction effect. The former is best captured by the Heim/Groenendijk and Stokhof semantics, while the latter requires a completely different analysis. Let us elaborate on this point.
The problem with the presuppositional copies that Rullmann and Beck posit, at least for “external” ‘low’ readings, is that they do not make the right predictions regarding some data involving quantificational variability effects (QVE; see Berman 1991 and Lahiri 1991, 2002). A basic example of QVE is given in (10a), where the main clause is preceded by an adverb of quantification. The sentence receives the interpretation in (10b).

(10)  
a. For the most part, Mary knows who cried.  
b. There are more individuals who cried such that Mary knows that they cried than there are individuals who cried such that Mary doesn’t know that they cried.

Notice that (10b) is a ‘weak’ reading (i.e., it talks only about Mary’s knowledge regarding those who cried, not her knowledge regarding those who didn’t cry). We will temporarily treat this as the only reading, but later we will consider the possibility that a ‘strong’ reading is available too.

Regarding the ‘weak’ reading of (10a) (that is to say, (10b)), the most influential analysis is due to Lahiri. According to that analysis, (10a) has the LF in (11a), where the embedded question is raised and becomes an argument of for the most part, and the trace left behind is interpreted as a variable over propositions (with the result that know is interpreted as a proposition-taking predicate, not a question-taking predicate). For the most part quantifies over the propositions that comprise the “raised” question.

(11)  
a. [for the most part [who cried]] [1 Mary knows\(^p\) e\(_1\)]  
b. MOST p ∈ \{q: q is true in the actual world and there is an x such that q=‘that x cried’\}, Mary knows p in the actual world

The fact that for the most part quantifies over true propositions only is consistent with the factivity of know: Mary cannot know a proposition unless it’s true.

Notice that when the embedded interrogative is a which-interrogative (as in (12a), where the adverb is with no exceptions), Rullmann and Beck’s analysis ((12b), with a presuppositional ‘low’ copy) makes a different prediction compared to an analysis that doesn’t involve copies (as in (12c)). Since Mary cannot know (or even merely believe) a proposition unless she believes its presuppositions, we have to accommodate any such presuppositions into the restriction of with no exceptions.

(12)  
a. With no exceptions, Mary knows which children cried.
b. For all \( p \in \{ q : q \text{ is true in the actual world and there is an } x \text{ such that } q = \text{‘that the child } x \text{ cried’} \} \) such that Mary believes in the actual world the presuppositions of \( p \) (namely, that \( x \) is a child), Mary knows \( p \) in the actual world.

c. For all \( p \in \{ q : q \text{ is true in the actual world and there is a child } x \text{ in the actual world such that } q = \text{‘that } x \text{ cried’} \} \), Mary knows \( p \) in the actual world.

The different predictions are illustrated by the scenario described in (13), in which (12a) is intuitively false. (12b), where the propositions quantified over by *with no exceptions* contain a presuppositional copy, predicts (12a) to have a true reading in this state of affairs. (12c) does not.

(13) Dan and Sam are the children who cried. Mary believes that Dan is a child, but that Sam is not. She knows that Dan cried, but not that Sam did.

These predictions clearly favor (12c) over (12b).

Is it possible that LFs of *which*-interrogatives have copies but not presuppositional ones (as suggested in Hamblin 1973 and Beck and Rullmann 1999)? This proposal would yield (14) as the truth conditions of (12a), correctly predicting it to be false in scenario (13).

(14) For all \( p \in \{ q : q \text{ is true in the actual world and there is an } x \text{ such that } q = \text{‘that } x \text{ is a child and } x \text{ cried’} \} \), Mary knows \( p \) in the actual world.

The answer is that such an analysis is notoriously problematic. As Reinhart 1992 shows, a problem (sometimes referred to as the Donald Duck problem) arises when the question contains a downward entailing operator, as in (15). The non-presuppositional copies and the presuppositional copies yield interpretations that are illustrated in (16) and (17) respectively.

(15) Which philosophers didn’t come to the party?

(16) Non-presuppositional copies yield (true) propositions of the form:

‘NOT [x is a philosopher and x came to the party]’

(17) Presuppositional copies yield (true) propositions of the form:

‘NOT [the philosopher x came to the party]’

(16) predicts that any non-philosopher (e.g., Donald Duck) qualifies as a suitable value for \( x \). (17) doesn’t have this problem, because the only possible values for \( x \) are “real” philosophers.

In addition, a non-presuppositional rendition of copies runs into problems when we consider data with *surprise*, such as (18).
Although Mary had expected Sam and Dan – the students who left – to leave, it still surprised her which students left because she had expected them not to be students.

The oddity of (18) comes, presumably, from the fact that in order for *It surprised Mary which students left* to be true, Mary has to have had wrong expectations about the “leaver” status of the student leavers, not wrong expectations about their student status. This is predicted by both Rullmann and Beck’s analysis ((19)) and by Heim’s ((20)), but not by the assumption that the restrictor of *which* has a non-presuppositional copy ((21)), which predicts (18) to be perfect.  

(19) Mary actually expected NOT \(\cap\{p:p \text{ is true in the actual world and there is an } x \text{ such that } p='\text{that the student } x \text{ left'}\}\)

\[\implies \text{ For all worlds } w \text{ compatible with Mary’s actual expectations, at least one actual student } x \text{ who actually left is a student in } w \text{ but didn’t leave in } w.\]

(20) Mary actually expected NOT \(\cap\{p:p \text{ is true in the actual world and there is a student } x \text{ in the actual world such that } p='\text{that } x \text{ left'}\}\)

\[\implies \text{ For all worlds } w \text{ compatible with Mary’s actual expectations, at least one actual student } x \text{ who actually left didn’t leave in } w.\]

(21) Mary actually expected NOT \(\cap\{p:p \text{ is true in the actual world and } p='\text{that } x \text{ is a student and } x \text{ left'}\}\)

\[\implies \text{ For all worlds } w \text{ compatible with Mary’s actual expectations, at least one actual student } x \text{ who actually left is such that either } x \text{ is not a student in } w \text{ or } x \text{ didn’t leave in } w.\]

3 I’m assuming Lahiri’s (1991) semantics for *surprise*, according to which to be surprised by a question (in the weak sense) is to expect the negation of the conjunction of its true answers, and I’m considering only the weak reading of (18), because there is evidence that suggests that *surprise*, unlike *know*, is inherently weak (Heim 1994, Sharvit 2002, Sharvit and Guerzoni 2003). This is illustrated by the following contrast.

(i) Although Mary knows that Dan and Sam – the students who left the room – left the room, she still doesn’t know which students left (at least not completely), because she doesn’t know that Ann didn’t leave.

(ii) #Although Mary expected Dan and Sam – the students who left – to leave, it still surprised her which students left because she also expected Ann, who didn’t leave, to leave.

Notice that because both (19) and (20) predict (18) to be unacceptable, we cannot use (18) to argue against presuppositional copies. QVE data with *surprise* would be relevant here, but the judgments are further complicated by the non-distributive nature of *surprise*.

4 Some of the speakers I consulted accept (18). Although I do not have an explanation for this variation among speakers, notice that it is as problematic for the presuppositional-copy account as it is for the “copy”-less account (i.e., for both (19) and (20)), which predict (18) to be unacceptable. (21) would still be problematic, given the Donald Duck problem, as shown by (15)-(17).
The conclusion is that if moved $<e,t>$-type predicates such as book, student, philosopher, etc. have copies at all, these copies are presuppositional.

Nevertheless, we still have to ask ourselves whether (12a) has the reading in (14), which should come out false in a situation where Mary is misinformed about the child status of the children who cried (though she may be fully informed about their crying). This reading should be compared to the ‘low’ reading of Mary knows which children cried (without an adverb of quantification), which comes out false in such a situation (as predicted by Heim’s semantics, cf. the ‘strong’ answer to Which students left in (6) above: knowing this answer requires being fully informed about the student status of the students who left). It is not so clear whether this reading is as robust for (12a) (with with no exceptions) as it is for its “adverb-less” counterpart, but it certainly seems to exist (at least for some speakers). How can we account for it, then, given that we cannot use non-presuppositional copies?5

As mentioned above, Lahiri’s analysis of QVE captures only the ‘weak’ reading of (12a). It is argued in Beck and Sharvit (2002) that sentences involving QVE have ‘strong’ readings as well. A possible strong reading of (12a) is the one paraphrased in (22), which entails (14).

(22) For all p of the form ‘that x is a child and x cried’, Mary knows in the actual world whether p is true.

This reading is not captured by Lahiri’s account. One reason for this is that in that account, know is proposition-taking rather than question-taking. An analysis that can quite easily capture such readings is the one advocated in Beck and Sharvit, according to which QV effects are not the result of quantification over answers (or answer-parts) to the “raised” question (as in Lahiri’s system), but rather over parts of that “raised” question that together comprise either a ‘weak’ or a ‘strong’ answer to the question. To illustrate, those question-parts whose (true) answers together comprise the ‘weak’ answer to Which children cried (which is the following Karttunen-style proposition: $\cap \{p:p \text{ is true in the actual world and there is a child } x \text{ in the actual world such that } p=\text{‘that } x \text{ cried’}\}$; cf. (4)) are Yes/No questions that have the form ‘did x cry?’ (where x ranges

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5 One possibility which can be easily discarded is that we do have presuppositional copies after all, but the presupposition of the copy is locally accommodated into the nuclear scope of the adverb. It would be hard to see how we could restrict the accommodation options to this one only, given that we have to accommodate “p is true”, without allowing accommodation into the restriction as an alternative option.
over actual children). Those question-parts whose (true) answers together comprise the ‘strong’ ‘low’ answer to *Which children cried* (which is the following Heim-style proposition: \( \{w: \{p: p \text{ is true in } w \text{ and there is a child } x \text{ in } w \text{ such that } p=\text{‘that } x \text{ cried’} \} = \{p: p \text{ is true in the actual world and there is a child } x \text{ in the actual world such that } p=\text{‘that } x \text{ cried’} \} \); cf. (6)), are Yes/No questions that have the form ‘is it true that x is a child and x cried?’ (where x ranges over all the individuals). Accordingly, one possible reading of (12a) would be (23).

(23) For every question-part Q of *Which children cried* such that the actual answer to Q is entailed by the ‘strong’ ‘low’ answer of *Which children cried* (i.e., for every Q of the form ‘is it true that x is a child and x cried’), Mary knows in the actual world the actual answer to Q.

This reading doesn’t make use of any copies, presuppositional or not. Because it doesn’t rely on presuppositional copies, it doesn’t run into the problem of accommodating undesirable presuppositions into the restriction of the adverb. Because it doesn’t rely on non-presuppositional copies either, it doesn’t run into the Donald Duck problem (crucially, question-parts whose answers together comprise the ‘weak’ answer to *Which philosophers didn’t come to the party* have the form ‘did x not come to the party?’, and question-parts whose answers together comprise the ‘strong’ ‘low’ answer have the form ‘is it true that x is a philosopher and x didn’t come to the party?’ where ‘philosopher’ is outside the scope of negation, cf. (16)). The ‘low’ inference, according to this view of QVE, is a semantic effect, just like the ‘low’ inference of “adverb-less” sentences with embedded questions in Heim’s system is a semantic effect (and not a copy effect). What this analysis requires is a definition of ‘question-part’ according to which ‘is it true that x is a child and that x cried’ qualifies as a question-part of *Which children cried*, as discussed above. The reader is referred to Beck and Sharvit for a formal definition that has this consequence, and for a detailed discussion of the notion of ‘question part’ that is required independently to account for a wide variety of QVE. To sum up, even if a reading such as (14) (or one that entails (14)) exists, we can, and should, account for it without assuming copies at LF.

Interestingly, Beck and Sharvit’s analysis offers a simple account of QVE with *agree*. Suppose no one is a student, and John and Bill believe that Fred and Sam are the only students
who left. As for Mary, John believes she is a student who didn’t leave, and Bill believes she is a non-student who left. The analysis correctly predicts (24) to be true.

(24) With no exceptions, John and Bill agree on which students left.

*With no exceptions* quantifies over questions of the form ‘is it true that x is a student and x left?’ (which John and Bill would answer with a No when x is Mary, and with a Yes when x is Fred or Sam). The view that says that *which students* has a presuppositional copy derives a true reading only if ‘John and Bill believe that x is a student’ is accommodated into the adverb’s restriction (because Bill cannot agree or disagree with anyone on ‘that the student Mary left’ or ‘did the student Mary leave?’). This conflicts with a suggestion due to Danny Fox (p.c.) to attribute the badness of (12a) in the scenario in (13) to a presupposition failure. Fox’s solution requires that there be no possibility of accommodating presuppositions about the subject’s beliefs into the adverb’s restriction.

All this is true of “external” ‘low’ readings of *which*-interrogatives. As for “internal” ‘low’ readings (that it to say, those that are triggered by a propositional attitude verb which is part of the question itself), notice that (7) seems to require a ‘scare quote’ intonation. This, in turn, suggests that the analysis of (7) is more complex, and that the ‘low’ effect is a scare quote effect rather than a reconstruction effect. In addition, notice that the presuppositional copy analysis doesn’t work in the following case (where the second question is uttered with a scare quote intonation on the *which*-phrase and) where the “internal” verb is the factive *know*.

(25) John mistakenly believes that the cats in the backyard are unicorns, and he knows that some of them have stripes. Which unicorns does John know have stripes?

In this scenario, asking *Which unicorns does John know have stripes*, with a scare quote intonation on the *which*-phrase, is tantamount to asking *Which cats does John know have stripes* (with a “normal” intonation) on it’s ‘high’ (or ‘de re’) reading. If we analyze the former along the lines of Rullmann and Beck’s analysis, we will not predict this, because the true answers to *Which unicorns does John know have stripes* are of the form ‘John knows that the unicorn x has stripes’, and since *know* is factive, the propositions John knows have to be true. But there are no unicorns in the actual world, so there are no true propositions for John to know. In addition, the first sentence in (25) could be continued with *and he knows which unicorns have stripes* (again,
with a ‘scare quote’ intonation on unicorns). Once again, the presuppositional copy analysis will not predict the right reading, because John has to believe true propositions of the form ‘the unicorn x has stripes’. This reinforces the claim that what is involved in (25) (and in (7)) is some form of quotation, and a theory of quotation is needed to handle such cases. My conclusion is that ‘low’ copies are not involved in the generation of “external” ‘low’ readings of which-interrogatives, and probably also not in their “internal” ‘low’ readings.

We have just concluded that the ‘low’ reading of (2) is indeed not a reconstruction effect (i.e., the grammar generates (2’), but not (2’')). This conclusion is compatible with “functional” approaches to questions with quantifiers (e.g., Which relative of his does every man hate?) advocated by Groenendijk and Stokhof (1984), Engdahl (1986), and others. We now have to investigate the origin of the ‘low’ reading of (1). We will conclude in section 3 that this reading is probably read off the LF in (1’), not (1’’) or (1’’’). Therefore, the grammar never generates (3’) or (3’’). These conclusions jointly rule out “which x is such that John said that x is the longest book Tolstoy wrote” as a possible interpretation of Which longest book did John say Tolstoy wrote?.

3. ‘Low’ readings of superlative relative clauses

Bhatt (2002) observes that (1), repeated below as (26), is ambiguous in the way indicated below.

(26) The longest book John said Tolstoy had written was Anna Karenina.

   a. ‘High’ reading (longest book >> say):
      John said about a bunch of books that they were written by Tolstoy. Of these books, Anna Karenina is the longest.
   b. ‘Low’ reading (say >> longest book):
      John said that Anna Karenina is the longest book written by Tolstoy.

A scenario where the ‘high’ reading comes out true is this. John said: “Tolstoy wrote Huckleberry Finn, Anna Karenina, and Tom Sawyer. Tom Sawyer is the longest.” In this scenario, the ‘low’ reading is obviously false because according to John, Tom Sawyer, not Anna Karenina, is the longest in \{Anna Karenina, Tom Sawyer, Huckleberry Finn\}, but in actual fact Anna Karenina is longest in that bunch. A scenario where the ‘low’ reading comes out true is
John said: “Anna Karenina is the longest book Tolstoy wrote. He also wrote War and Peace and some other shorter books”. The ‘high’ reading is obviously false here because according to John, War and Peace is shorter than Anna Karenina, contrary to fact.

One way to account for this ambiguity is by adopting Heim’s (1999) semantics for the superlative operator, and the assumption that –est, long and book may have ‘low’ copies along the lines suggested by Hulsey and Sauerland (2006). The assumption underlying Heim’s semantics in (27) is that the <d,<e,t>>-argument of the superlative is downward monotonic (i.e., that gradable adjectives such as long denote downward monotonic relations between degrees and individuals so that, for example, John is four feet tall entails John is three feet tall).

(27) For any (downward monotonic) <d,<e,t>,-function R and any individual y, [[est]](y)(R) is defined only if for all relevant x there is a degree d such that R(d)(x)=True. Whenever defined, [[est]](y)(R) = True iff there is a degree d such that \{z:R(d)(z)=True\} = \{y\}.

This semantics derives the truth conditions of (the absolute reading of) Tolstoy wrote the longest book from the following LF.6

(28) Tolstoy wrote [the 1 est-e₁ [long book]] (where [[long book]] = [λd . λx . x is a book and x’s length is at least d]), and [[the 1 est-e₁ [long book] ]] is the unique book that is longest in the set of books (if there is such a book).

Accordingly, Tolstoy wrote the longest book, on its absolute reading, presupposes that there is one book that is longer than any other book, and Tolstoy wrote it.

Assuming indeed that –est, long and book can have ‘low’ (base or intermediate) copies, we obtain the following as the ‘high’ and ‘low’ readings of the longest book John said Tolstoy wrote was Anna Karenina.

(29) ‘High’: the 1 est-e₁ [long-w₀ book-w₀ that John said-w₀ Tolstoy wrote] is AK

“Anna Karenina is the unique x such that x is longest in the actual world among \{y: y is a book in the actual world and in all worlds w compatible with what John said in the actual world, Tolstoy wrote y in w\}.”

---

6 The absolute reading is the one according to which Tolstoy wrote the unique book which is longer than any of the other books. The sentence might have another reading, the comparative reading (to which we come back later).
The two readings seem to be captured correctly, and the ‘low’ reading, in this analysis, is a reconstruction effect.7

However, Heycock (2005) observes that not all verbs support ‘low’ readings. This observation suggests that we should reconsider the claim that ‘low’ readings are the result of reconstruction. One verb that doesn’t support ‘low’ readings is know, as shown by (31) when judged against the scenario in (32) (cf. Bhatt and Sharvit, 2005).

(31) The longest book John knows Tolstoy had written was War and Peace.

(32) Scenario: John believes that War and Peace is the longest book Tolstoy wrote. He also believes Tolstoy wrote other books, but he can’t mention them or point at them.

Speakers reject (31) in this state of affairs. Since a ‘high’ reading is pragmatically odd in such a scenario (given that the set of books that John said Tolstoy wrote is a singleton and given that superlatives usually require comparison sets that have more than one member), the reason speakers reject (31) must be due to the unavailability of a ‘low’ reading.

Can we account for ‘low’ readings without reconstruction? The first possibility to consider is that –est, long and book do not have ‘low’ copies. This is probably impossible, since under the ‘low’ reading John may say false things about the lengths of the relevant books, but the sentence as a whole can still be true.8 The only reading we can derive from such a structure is the one captured in (29). What we can still try to do, to derive the ‘low’ reading from a structure different from (30), is interpret –est above say (without a ‘low’ copy), but long and book below say.

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7 Notice that the copy of long is not part of a definite description, only the copy of book is. It is not so clear to me what rules out a representation where the copy of long is within a definite description, giving rise to some undesirable presuppositions (though see Hulsey and Sauerland for discussion). However, this point is not directly relevant to our discussion.

8 See Bhatt (2002) and Hulsey and Sauerland (2006) for discussion of the ‘scare quote’ interpretation/intonation of book in case John doesn’t know which things are books.
This analysis is problematic for the following reason. One of the assumptions underlying Heim’s proposal is that the \langle d,<e,t>\rangle-argument of \textit{–est} is downward monotonic. Heim adopts this assumption in order to account for the comparative reading of \textit{Tolstoy wrote the longest book} ((34a); cf. Ross 1964 and Szabolcsi 1986), and the (comparative) split-scope reading of \textit{Tolstoy needs to write the longest book} ((34b). She proposes that \textit{–est} can scope out of the noun phrase in which it originates, and occupy a position above the main verb.

\begin{enumerate}
\item Out of the set of relevant writers, Tolstoy is the one who wrote at least one book that is longer than any of the books written by the others.

This reading is obtained from: \textit{Tolstoy 1 est-e₁ [2 3 e₃ wrote a d₂-long book]}, where \textit{–est} has moved above \textit{write} (leaving behind a degree-denoting trace), the definite article has been replaced by an indefinite, yielding \textit{[2 3 e₃ wrote a d₂-long book]} = \textit{[λd . λx . x wrote a book whose length is at least d]}. Because of the Monotonicity assumption, \textit{Tolstoy wrote the longest book} comes out true if and only if Tolstoy wrote at least one book that is longer than any book written by anyone else (but he could have written two equally long books that are longer than the books written by the other writers).

\item Out of the set of relevant writers who have book-writing needs, John is the neediest (e.g., he won’t make it in the literary scene unless he writes at least one book of 1000 pages or more, but the others have to write at least one book of 900 or more).

This reading is obtained from: \textit{[Tolstoy 1 est-e₁ [2 3 e₃ needs PRO write a d₂-long book]]}, where \textit{–est} has moved above \textit{need}, and where the definite determiner has been replaced by an indefinite to yield \textit{[2 3 e₃ need PRO write a d₂-long}
book] = [\lambda d . \lambda x . x needs to write a book whose length is at least d]. Because of the Monotonicity assumption, Tolstoy needs to write the longest book comes out true if and only if in all the worlds where Tolstoy’s needs are satisfied, he writes at least one book whose length is at least 1000, but for the other writers this isn’t true (i.e., their needs are less demanding).

Indeed, the truth conditions of both the comparative reading of Tolstoy wrote the longest book and the (comparative) split scope reading of Tolstoy needs to write the longest book are captured, but the analysis won’t work for the ‘low’ reading of (26), which according to (33) (an LF that mimics the one in (34b)) is predicted to be true in a situation where John says: “Tolstoy wrote Anna Karenina and War and Peace. Anna Karenina is 1500 pages long or longer, and War and Peace is 1000 pages long or longer”. This goes against the intuitions people report about (26): it is judged unacceptable in such circumstances. Another problem is that (33) is too “extensional”: it predicts that John has to have made a commitment about a particular length. This is not a requirement of (26), which is good even if John just says: “Anna Karenina is the longest book Tolstoy wrote, but I have no idea how long it is”.

On the other hand, as pointed out by Hulsey and Sauerland, sometimes (33) does make the right predictions, namely, when the embedding verb is a NEG-raising verb (and provided we adopt a particular analysis of NEG-raising verbs). To see this, consider (35), the LF of The longest book John believed Tolstoy wrote was Anna Karenina, with the NEG-raising believe, and assume an analysis of believe along the lines of (36) (first suggested by Bartsch 1973).

\begin{align*}
(35) & \quad \text{[the 1 est-e}_1 \ [2 \ 3 \ \text{John believed Tolstoy wrote a d}_2\text{-long book e}_3]] \text{ is Anna Karenina} \\
(36) & \quad \text{‘x believes p’ has a truth value (i.e., it is either true or false) only if x believes p or x believes NOT p.}
\end{align*}

Because of the Monotonicity assumption and the special presupposition of believe, the sentence comes out true only when there is a degree d such that Anna Karenina is d-long in all the worlds compatible with John’s beliefs, and the other relevant books are not d-long (i.e., their lengths are smaller than d) in those worlds. This is exactly the interpretation we are after.

As it turns out, Heycock argues that the verbs that support ‘low’ readings of superlative relative clauses are NEG-raising verbs. Even if this were the case, we would still have to ask
why the non-NEG-raisers (e.g., *know*) don’t give rise to what would be a perfectly plausible interpretation.

(37)  

\[
\text{the 1 est-e} [2 3 \text{John knew Tolstoy wrote a d}_{2}\text{-long book e}_{3}] \text{ is War and Peace}
\]

“War and Peace is the only x such that there is a degree d such that John knows that x is a book whose length is at least d, and for all the z’s distinct for x, John doesn’t know that z is a book whose length is at least d”

According to (37), *The longest book John knew Tolstoy had written is War and Peace* should be acceptable if, for example, there are three books of the same length as War and Peace, but John only knows the length of War and Peace, he is wrong about the others. But it is not acceptable in such circumstances.

In addition, as observed by Bhatt and Sharvit (2005), it is not the case that only NEG-raising verbs support ‘low’ readings of superlative relative clauses. In addition to *say*, there is *agree* (see Bhatt and Sharvit for discussion of other predicates that are problematic for Heycock’s account).

(38)  

The longest book John and Mary agree Tolstoy wrote is Anna Karenina.

For (38) to be true it has to be the case that John and Mary independently think that Anna Karenina is Tolstoy’s longest book. But *John and Mary do not agree that Mary left* doesn’t imply that they agree Mary didn’t leave (any more than *John didn’t say that Mary left* implies that John said that Mary didn’t leave). Therefore, I disagree with Hulsey and Sauerland that (33) is a possible LF of (26).

Notice that the undesirable predictions we made concerning NEG-raising verbs come from the particular semantics assumed for *-est*. We should now ask whether a non-reconstruction analysis of (26) is still possible, but with a different semantics for *-est* (one that would predict NEG-raising verbs and non-NEG-raising verbs to behave in the same way in superlative relative clauses). I think it is, but only if we abandon Heim’s assumption that the <d,<e,t>>-argument of

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9 See Bhatt and Sharvit (2005) for a suggestion regarding why the ‘low’ reading is sometimes unavailable (e.g., when the main verb is *know*).
the superlative morpheme is monotonic (i.e., if we assume that, for example, \( x \) is \( d \)-long means ‘\( x \)’s length is exactly \( d \)’), and adopt a “non-monotonic” analysis of \(--est\). Here is a suggestion.\(^{10}\)

\[
[\text{EST}](x)(R) \text{ is defined only if for all relevant } y \text{ there is a unique degree } d \text{ such that } R(d)(y) = \text{True. Let } d_x \text{ be the unique degree } d \text{ such that } R(d)(y) = \text{True, for every relevant } y. \text{ Then, whenever defined, } [\text{EST}](x)(R) = \text{True iff for all relevant } x' \neq x, d_{x'} < d_x.
\]

This semantics will work well if we replace (33) with (40).

\[
[\text{the 1 \text{EST-e}_1 [2 3 \text{John said 4 Tolstoy wrote-w}_4 \text{ a d}_2\text{-long book e}_3]] \text{ is Anna Karenina}]
\]

“The Anna Karenina is the unique \( x \) such that for all relevant \( x' \neq x, d_{x'} < d_x \) (where for all \( x' \), \( d_{x'} \) is the unique degree \( d \) such that for all worlds \( w \) compatible with what John said in the actual world Tolstoy wrote \( x' \) in \( w \) and \( x' \) is a book in \( w \) and the length of \( x' \) is exactly \( d \) in \( w \)).”

The analysis guarantees that Anna Karenina is longer than the other books throughout the worlds compatible with what John said.

But the analysis in (40) also raises some difficult questions. First, if we adopt it, we lose Heim’s account of (comparative) split-scope readings (see (34)). Without going into any deep debate over the advantages and disadvantages of the “monotonic” and the “non-monotonic” approach to gradable adjectives, it is important to note that the advantage of Heim’s “monotonic” semantics of the superlative is precisely the fact that it accounts very nicely for split-scope readings.\(^{11}\) Another problem is related to Bhatt’s (2002) observation that (26) can be disambiguated by NPI placement, as shown in (41). (41a), where \textit{ever} appears above \textit{say} has only a ‘high’ reading, and (41b), where \textit{ever} appears below \textit{say}, has only a ‘low’ reading.

\[
(41) \quad \begin{align*}
\text{a. } & \text{The longest book John ever said Tolstoy had written was Anna Karenina.} \\
\text{b. } & \text{The longest book John said Tolstoy had ever written was Anna Karenina.}
\end{align*}
\]

\(^{10}\) This suggestion still doesn’t solve the extensionality problem alluded to above. We would have to adopt an intensionalized version of (39) in order to address that problem.

\(^{11}\) See Sharvit and Stateva (2002) for arguments against Heim’s movement analysis of split scope readings of superlative constructions. But Stateva (2002) has argued that split scope readings of comparative constructions (e.g., \textit{John needs to climb a higher mountain than Bill}) do require a movement analysis (and therefore the Monotonicity assumption cannot be abandoned).
If we assume that the ‘low’ reading requires a ‘low’ copy of –est, we have an explanation for why this reading is missing from (41a): the NPI is not c-commanded by its licensor – the superlative – at LF (see Bhatt and Sharvit, 2005, for an explanation of why the ‘high’ reading is missing from (41b)). If we assume that –est is never reconstructed, we lose this explanation. In short, even if there is no conclusive evidence that the ‘low’ reading of (26) is a reconstruction effect, there doesn’t seem to be sufficient evidence in favor of the view that it is not (see Appendix for the reason why the reconstruction analysis must assume a copy of –est in an intermediate position as in (1’), and not in any other position).

Therefore, I take the position that the explanation for the fact that Which longest book did John say Tolstoy had written doesn’t mean “which x is such that John said that x is the longest book Tolstoy wrote” is that the ‘low’ reading of a superlative relative clause is a reconstruction effect, but which-interrogatives are never generated from an LF that has a ‘low’ copy of the restrictor of which. It is then plausible to assume that the only possible LF of Which longest book did John say Tolstoy had written is (3’’) (repeated below as (42)), where [longest book] denotes the <e,t>-function [λx . there is a set X such that x is longest in X]^{12} (and not the <d,<e,t>> function [λd . λx . x is a d-long book]).

(42) which longest book 1 C_{wh} [John said Tolstoy wrote e_{1}]

“Which x that is the longest member in some set of books, is such that John said that Tolstoy wrote x”.

Our theory, then, has to do the following: (i) in superlative relative clauses, it has to allow the interpretation of –est above the main verb only when long and book are interpreted there as well (with a resulting ‘high’ reading); and (ii) in constructions where the superlative appears in a ‘low’ surface position, it has to allow movement of –est above the main verb (as in Heim’s analysis of Tolstoy needs to write the longest book, assuming we indeed adopt this analysis for split scope readings). These are somewhat conflicting demands, which the theory has to reconcile.

4. Summary and discussion

^{12} See Herdan and Sharvit (to appear) for an analysis of indefinite superlatives which permits such an interpretation.
Can current theories of reconstruction predict this difference between *which*-interrogatives and superlative relative clauses? It seems to me that the answer is No. The Copy Theory of Movement assumes that *wh*-movement leaves behind copies, without predicting this not to be possible in some cases. Semantic approaches to “reconstruction” have a similar problem. In section 2 I argued that *which*-interrogatives do not involve reconstruction of the restrictor of *which*, but I don’t think this holds for all *wh*-interrogatives. *How many*-questions, for example, seem to support “genuine” ‘low’ readings (i.e., ‘low’ readings that are reconstruction effects; see Kroch 1989, Heycock 1995).

(43) How many books that will sell well does Tolstoy want to read?
   a. ‘High’ reading: “Which number is such that there is a set of books *x* that will sell well, whose cardinality is *n*, such that Tolstoy wants to read *x*?”
   b. ‘Low’ reading: “Which number *n* is such that Tolstoy wants it to be the case that there is a set of books *x* that will sell well, whose cardinality is *n*, such that he reads *x*”

The ‘low’ reading is, presumably, obtained from the following LF:

(44) **how 1 C_w Tolstoy wants to read d_1-many books that will sell well**

So the ban on reconstruction seems to be specific to *which*-questions. If this is indeed the case, this ban doesn’t seem to follow independently from anything we know about such interrogatives.

Much of the debate surrounding reconstruction effects (Jacobson 1994; von Stechow 1995; Heycock 1995; Sharvit 1997, 1998; Romero 1998; Fox 1999; and others), including the discussion in this volume (Romero; Caponigro and Heller), focuses on whether syntactic reconstruction approaches (those involving copies at LF) have any advantage over semantic approaches (those that do not assume a level of LF at all, or do not assume that copies are present at LF). My goal here is different: I think that before we try to decide (hopefully, based on empirical grounds) whether “reconstruction” is done in the semantics or in the syntax, we should first have a clearer understanding of what reconstruction is, and why it doesn’t always happen. I suspect that the semantic approach to reconstruction has a better chance of answering this question, because clearly, it is the semantics of the construction (*which*-interrogative vs. *how* for *how*-questions).
many-interrogative) which seems to determine whether reconstruction is possible at all. However, I leave this question open for the time being.

Appendix

We concluded above that the ‘low’ reading of The longest book John said Tolstoy had written is Anna Karenina is a reconstruction effect. We now briefly discuss (and discard) alternative reconstruction analyses of this ‘low’ reading.

Hulsey and Sauerland (2006) explain why this reading is not derived from the following LF, where [the longest book e₁] is interpreted as “the unique y such that y=x and y is longest among the relevant books”.

(i)  the [1 John said-w₀ [2 Tolstoy wrote-w₂ the longest book-w₂ e₁]]

The implication is that John said that Tolstoy wrote the longest of all the books. This is not the ‘low’ reading, and furthermore, the sentence doesn’t have this reading at all. Hulsey and Sauerland invoke a pragmatic constraint to rule (i) out.

Another analysis to consider is the following (from Bhatt 2002), based on the following “monotonic” semantics for the superlative operator (from Heim 1999).

(ii) For any (downward monotonic) <d,t>-function P and any set of <d,t> functions C, [[Est]](C)(P) is defined only if P∈C and for all P’∈C, there is a degree d such that P’(d)=True.

Whenever defined, [[Est]](C)(P) = True iff there is a degree d such that {P’∈C:P’(d)=True} = {P}.

This analysis is designed primarily to account for comparative readings of sentences with a superlative expression in object position, where the subject is focused, as in the following example:

(iii) TOLSTOY wrote the longest book (==> all the other authors wrote shorter books).

The proposed LF for this sentence is this.

(iv)  Est-C [[1 [Tolstoy wrote a d₁-long book]]~C]
According to Rooth’s (1992) theory of Association with Focus, the squiggle operator (~) imposes the following restriction on the value of the focus anaphor C (which is coreferential with the pronominal restrictor of the superlative morpheme): \([C] \subseteq \{\lambda d'. \text{Tolstoy wrote a book whose length is at least } d', \lambda d'. \text{Dostoevsky wrote a book whose length is at least } d', \lambda d'. \text{Shakespeare wrote a book whose length is at least } d'\} \ldots \}. \) As a result, (4) receives the following interpretation: “there is a degree d such that Tolstoy wrote a d-long book, and for every other relevant author y, y didn’t write a d-long book.” Bhatt suggests that the ‘low’ reading of The longest book John said Tolstoy had written was Anna Karenina is a comparative reading, obtained by having a copy of longest book below say, and moving the superlative morpheme to a position above Tolstoy but below say. Here, -est has a copy in an intermediate position, but it is not the same intermediate position as it has in (1’). The variable embedded inside the ‘low’ copy is focused.

(v) \text{ the 2 John said Est-C } [[1 [\text{Tolstoy wrote a } d_1\text{-long book } [2]_F]\text{-}C] \text{ was Anna Karenina}

“Anna Karenina is the unique x such that John said that there is a degree d such that Tolstoy wrote a/the d-long book x, and such that no member P of \([C] \subseteq \{\lambda d'. \text{Tolstoy wrote a/the book War and Peace whose length is } d', \lambda d'. \text{Tolstoy wrote a/the book Anna Karenina whose length is } d'\} \ldots \} \)."

This interpretation is indeed the one we are after, but the following problem comes to mind. We expect the same surface string to have another ‘low’ reading, resulting from an LF where Tolstoy is focused too. But that surface string doesn’t have such a reading.

(vi) \text{ the 2 John said Est-C } [[1 [\text{Tolstoy}_F \text{ wrote a } d_1\text{-long book } [2]_F]\text{-}C] \text{ was Anna Karenina}

“Anna Karenina is the unique x such that John said that there is a degree d such that Tolstoy wrote a/the d-long book x, and such that no member P of \([C] \subseteq \{\lambda d'. \text{Tolstoy wrote a/the book Anna Karenina whose length is } d'\} \ldots \} \)."
wrote a/the book Crime and Punishment whose length is d’], [λ.d’ . Mark Twain wrote a/the book Tom Sawyer whose length is d’], …})”.

The surface string in (vi) does have the following reading: “Anna Karenina is the longest book John said Tolstoy wrote, and not the longest book John said some other author wrote.” But this reading is obtained by attaching ~C to a higher position, not to the ‘low’ position it is occupying in the LF in (vi).
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