The Onliest NP: Non-definite Definites

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Onliest: Intensive form of “only”. Used to indicate that someone or something that is truly the “only”, or “only” in a special way.

Jesus is the onliest who can save you.

by erielhonan December 13, 2008
www.urbandictionary.com

1. Introduction

DPs such as the tallest boy, whose head noun is preceded by a superlative adjective – henceforth, the A-est NPs – and DPs such as the only boy, whose head noun is preceded by only – henceforth, the only NPs – are definite in the morpho-syntactic sense because their determiner is the (and not some indefinite determiner such as a or some). But as is well-known (at least since Higgins 1973), the A-est NPs and the only NPs are sometimes semantically non-definite. The following contrasts illustrate this:

Unlike the tall boy, the tallest boy need not imply existence of a unique boy who is taller than all the other boys; and unlike the boy, the only boy need not imply existence of a unique boy.

(1) a. John is not the tallest boy I talked to. I also talked to Bill, who is just as tall.
   b. John is not the tall boy I talked to. #I also talked to Bill, who is just as tall.

(2) a. John is not the only boy I talked to. I talked to three boys.
   b. John is not the boy I talked to. #I talked to three boys.

This is intriguing especially in view of the fact that (1a) does not have the same meaning as (3), and (2a) does not have the same meaning as (4), despite the naïve intuition that tallest boy and who is the tallest boy are (almost) equivalent, and only boy and who is the only boy are (almost) equivalent.

(3) John is not the child who is the tallest boy I talked to. #I also talked to Bill, who is just as tall.
(4) John is not the child who is the only boy I talked to. #I talked to three boys.

On such naïve assumptions, we would expect (1a) and (3) to be very close in meaning, and (2a) and (4) to be very close in meaning, but this is clearly not the case.

This paper accounts for the facts in (1)-(4) by adopting the movement analysis of superlatives proposed in Heim (1999), and by proposing that only and -est are phonetic realizations of the same abstract morpheme. The idea that only = -est has its roots in Bhatt (2002, 2006); this paper is an attempt to solidify Bhatt’s proposal and provide new evidence for it. Our rendition of Bhatt’s idea rests

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on the idea that nouns take degree arguments just like gradable adjectives do. The degree argument of a noun or an adjective may be bound by -est (phonetically realized as only in the former case). We show that the idea that only = -est receives further support from the fact that the non-definite flavor of the only/A-est NPs is not confined to predicate positions (e.g., the post-copular position); it is also found in non-predicate positions (of copular as well as non-copular sentences).

(5) a. The campus was almost empty. The only student we saw was Bill.
   b. The campus was almost empty. #The student we saw was Bill.

(6) a. I don’t know if they have any cheap clothes in this store, but the cheapest dress I bought here got good reviews.
   b. #I don’t know if they have any cheap clothes in this store, but the cheap dress I bought here got good reviews.

The paper has nothing new to say about why the in (1a) and (2a) cannot be replaced with a/some (for some relevant discussion, see Heim 1991, Herdan & Sharvit 2006, Coppock & Beaver 2012 and others). Also, the paper has very little to say about the semantic non-definiteness of role-DPs such as the president, which are morpho-syntactically definite (as in John is not the president; see Fodor 1970, Higgins 1973, Partee 1986, Coppock & Beaver 2012 and others).

2. Background: -est-Movement and the-Deletion

A well-known theory that provides a partially unified analysis of the only NPs and the A-est NPs is Bhatt’s (2002, 2006) rendition of Heim (1999, 2000) (itself inspired by Szabolcsi 1986). We adopt a slightly modified version of this theory, which we refer to as M-D (“Movement and Deletion”). In this section and in Section 3 we illustrate how M-D accounts for some of the properties that the A-est NPs and the only NPs have in common; in subsequent sections we propose an extension of M-D that provides a fully unified analysis of them.

Starting with the A-est NPs, M-D consists of the following premises. Tall, boy, the and be have the meanings in (7); -est has the meaning in (8). (D_i = {True, False}, D_e is the domain of individuals, D_d is the domain of degrees, and g is a variable assignment.)

(7) a. For any d \in D_d and x \in D_e, \llbracket tall \rrbracket_g(d)(x) = True iff TALLNESS(x) ≥ d.
   b. For any x \in D_e, \llbracket boy \rrbracket_g(x) = True iff x is a boy.
   c. For any P \in D_{<e,t}^<e>, \llbracket the \rrbracket_g(P) is the unique relevant y \in D_e such that P(y) = True, if there is one (otherwise, \llbracket the \rrbracket_g(P) is undefined).
   d. For any P \in D_{<e,t}^<e>, \llbracket be \rrbracket_g(P) = P.

(8) For any REL ⊆ D_e, R \in D_{<d,<e,t>}, and x \in D_e, \llbracket -est \rrbracket_g(REL)(R)(x) is defined only if: (i) x \in REL; (ii) for all y \in REL, there is a d \in D_d such that R(d)(y) is defined; and (iii) there is a d \in D_d such that R(d)(x) = True.

When defined, \llbracket -est \rrbracket_g(REL)(R)(x) = True iff there is a d \in D_d such that \{y \in REL| R(d)(y) = True\} = \{x\}.

REL is a contextually-supplied comparison set. Accordingly, \llbracket -est \rrbracket_g(REL)(\llbracket tall \rrbracket_g)(John) = True if and only if John is tallest in the comparison set REL, but not necessarily tallest in D_e. Notice that only x is required by (8) to have some degree of R; we assume that a pragmatic principle – Avoid Vacuous Comparisons – guarantees that other individuals in REL have some degree of R (though see Heim 1999, Gajewski 2010 and Tomaszewicz 2015 for other approaches to the formation of REL).

Crucially, -est moves either DP-internally ((9(i))) or DP-externally ((9(ii))), and the may “delete” (i.e., may be replaced by an indefinite determiner, which has no meaning and is represented as the).

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1 Heim (1999) considers two versions of -est, a 3-place-predicate version and a 2-place-predicate version. We use the former here. For discussion of some considerations that may favor one version over the other, see Howard (2012), Pancheva & Tomaszewicz (2012) and Tomaszewicz (2015), among others.
Movement results in trace-binding by a movement-index, as in Heim & Kratzer (1998). The silent pronoun $C_5$, whose value is determined by the contextually-supplied variable assignment, denotes REL. For reasons not very well understood, the may delete only when the DP contains $-est$; see (10).

(9)  

(i) DP-internal movement:  
$$[DP \text{ the } […[\text{-est } C_5]…]] \rightarrow [DP \text{ the } [-est C_5] [1 […[d_1,…]]]]$$  
(ii) DP-external movement:  
$$[\alpha \beta \gamma \delta \varepsilon \zeta \theta \iota \kappa \lambda \mu \nu \xi \omega [\text{DP the } […[\text{-est } C_5]…]] \gamma] \rightarrow [\alpha \beta \theta \iota \kappa \lambda \mu \nu \xi \omega [\text{DP the } [-est C_5] [1 […[\text{DP the } […[d_1,…]]]]]] \gamma]$$

(10) An occurrence O of the is licensed only if there is an E such that: (i) E is an $-est$-chain, (ii) O commands some element of E, and (iii) every DP node that dominates the tail of E dominates O.

For reasons we do not discuss here, $-est$-movement is mandatory, and the-deletion is mandatory whenever $-est$ moves DP-externally (this is why $[\alpha \beta \gamma \delta \varepsilon \zeta \theta \iota \kappa \lambda \mu \nu \xi \omega […[\text{-est } C_5]…]]$ is missing from (9(ii))). Notice that (10) does not forbid $[\text{DP the } [-est C_5] [1 […[\text{DP the } […[d_1,…]]]]]]$, which is missing from (9(i)), but we do not exploit this option until Section 5.

Thus, John is not the tallest boy has the identity LF in (11a) and the predicative LF in (11b). IDENT in (11a) denotes the type-lifting operator $[\lambda y \lambda x. y = x]$ from Partee (1986). (Every binary-branching node is interpreted by Functional Application, Intensional Functional Application, Predicate Modification or Predicate Abstraction; see, for example, Heim & Kratzer 1998.)

(11) John is not the tallest boy. (Bill is just as tall / #There are no boys.)

a. Identity LF  
$$\text{not John be [IDENT the } [-est C_5] [1 [([\text{tall } d_1] \text{ boy})]]]$$  
John $\neq$ (the $x$ such that there is a $d$ such that $\{y \in \text{REL} | y \in \text{an at least } d\text{-tall boy} \} = \{x\})$

(Presupposition: there is a $<x, d>$ such that $\{y \in \text{REL} | y \in \text{an at least } d\text{-tall boy} \} = \{x\}$)

More simply: Some boy is taller than any other boy, but that boy is not John

b. Predicative LF  
$$\text{not John } [-est C_5] [1 [\text{be [DP the } ([\text{tall } d_1] \text{ boy})]]]$$  
For all degrees $d$, $\{y \in \text{REL} | y \in \text{an at least } d\text{-tall boy} \} \neq \{\text{John}\}$

(Presupposition: John is a boy in REL with some degree of tallness)

More simply: John is a boy, but some other boy is at least as tall as John

Note that in (11a) (unlike (11b)), John is not required to be in REL, but if it is known that John is not in REL, (11a) is uninformative.

The contrasts in (1) and (3) are accounted for because, by (10), only (1a) has an LF that is purely predicative (where all occurrences of the are deleted); (1b) and (3) do not. (The value of the free degree variable in (12) is determined, by convention, as the contextually-relevant “tallness” standard.)

(12) John is not the tall boy. (#Bill is just as tall / #There are no boys.)

a. not John be [IDENT the [([tall $d_1$] boy)]]

b. *not John be the [([tall $d_1$] boy)]

(13) John is not the child who is the tallest boy. (#Bill is just as tall / #There are no boys.)

a. not John be [IDENT the child [who $2 [t_2$ be [IDENT the $[-est C_3] [1 [([\text{tall } d_1] \text{ boy})]]]]]]]

b. not John be [IDENT the child [who $2 [t_2$ [-est $C_3$] [1 [be [DP the $([\text{tall } d_1] \text{ boy})]]]]]]

c. *not John be the child [who $2 [t_2$ be [IDENT [DP the $[-est C_3] [1 [([\text{tall } d_1] \text{ boy})]]]]]]

d. *not John be the child [who $2 [t_2$ [-est $C_3$] [1 [be [DP the $([\text{tall } d_1] \text{ boy})]]]]]

e. *not John [-est $C_3$] [1 [be the child [who $2 [t_2$ be [DP the $([\text{tall } d_1] \text{ boy})]]]]]

M-D also accounts straightforwardly for the distinction between absolute and comparative readings of the $A$-est NPs in object position (observed in Ross 1964 and Szabolcsi 1986). On the comparative reading of John didn’t climb the highest mountain (= ‘John is not the best mountain-

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2 This somewhat simplistic treatment of “bare” gradable adjectives will suffice for current purposes.
climber’), existence of a highest mountain is not presupposed (see also Coppock & Beaver 2014), though existence of some mountain climbed by John is, or seems to be, presupposed.

(14) John didn’t climb the highest mountain.
   a. Absolute: not John climbed the [-est \( C_3 \) [1 [[high \( d_1 \) mountain]]]]
      (cf. (11a))
      Some mountain in REL is higher than all the other mountains in REL, but John didn’t climb that mountain.
   b. Comparative: not John [-est \( C_3 \) [1 [[INC climb] \([DP \ the \ [[high \( d_1 \) mountain]]]\)]]]
      (cf. (11b))
      John climbed some mountain, but there is no degree \( d \) such that \{\( y \in \text{REL} \mid y \text{ climbed some } d\text{-high mountain}\} = \{\text{John}\}.\footnote{INC denotes the “incorporation” operation }\lambda Q \in D_{<e, c>, t}. \lambda P \in D_{<e, c>}. \lambda x \in D_c. \{y \in D_e \mid Q(y)(x) \land P(y)\} \neq \emptyset.

Similarly, M-D accounts straightforwardly for non-definite readings of the \( A\)-est NPs in complement position of relational \textit{have} (see Szabolcsi 1986), readings that a (A) NPs have but the (A) NPs lack.

(15) a. (i) John doesn’t have the tallest sister; many people have a sister taller than any of John’s sisters.
      not John [-est \( C_3 \) [1 [have \([DP \ the \ [[tall \( d_1 \) sister]]]\)]]]
      ‘John has a sister but someone else has a sister at least as tall as some sister of John’s’
   (ii) John doesn’t have a tall sister; but many people do.
      * not John doesn’t have the tall sister; but many people do.
      (cf. (12))

Like other cases of movement, -est-movement obeys island constraints. Consequently, (16b) is not generated; more generally, there are no comparative readings of the \( A\)-est NPs in adjunct position.

(16) a. Anna didn’t cry after giving the best talk.
   b. * Anna [-est \( C_3 \) [2 [... [[\( \lambda_{a:p} \ldots [[INC giving] \ the \ [[good \( d_2 \) talk]]]]\)]]]
      ‘Anna cried after giving a talk, but someone else cried after giving at least as good a talk’

The strongest argument for -est-movement seems to come from Split Scope cases; i.e., cases where -est itself – and not the DP that contains it – scopes above an intensional operator (while the rest of the DP scopes below it). This is illustrated by the \( A\)-est NPs in intensional environments as in (17) (see Szabolcsi 1986 and others).

(17) John needs to climb the highest mountain.
    Trainer, to John: “If you want to participate in the competition, you have to climb a 6000 ft mountain.”
    Trainer, to Bill: “If you want to participate in the competition, you have to climb a 5000 ft mountain.”
    Trainer, to Jeff: “If you want to participate in the competition, you have to climb a 4000 ft mountain.”

In the scenario described in (17), the relevant reading of \textit{John needs to climb the highest mountain} is neither the ‘de re’ reading where \textit{the highest mountain} scopes above \textit{need} (as there is no particular mountain that John needs to climb), nor the pure ‘de dicto’ reading where \textit{the highest mountain} scopes below \textit{need} (as John’s needs can be satisfied even if the others climb higher mountains). An adequate paraphrase of the relevant reading is something along the lines of ‘John’s mountain-climbing needs are the most demanding’. It is straightforwardly accounted for within M-D, as (18) shows.

(18) \textit{John -est \( C_3 \) [1 [need to [INC climb] \([DP \ the \ [[high \( d_1 \) mountain]]]\)]]]}
     (cf. (14b))
     There is a degree \( d \) such that \{\( y \in \text{REL} \mid \text{the needs of } y \text{ are satisfied only if } y \text{ climbs some } d\text{-high mountain}\} = \{\text{John}\}.

\footnote{INC denotes the “incorporation” operation }\lambda Q \in D_{<e, c>, t}. \lambda P \in D_{<e, c>}. \lambda x \in D_c. \{y \in D_e \mid Q(y)(x) \land P(y)\} \neq \emptyset.$
In addition, if M-D is enriched with principles of ellipsis resolution, the ambiguity in (19), where \textit{spy} is preceded by \textit{possible} (see Larson 2000, Schwarz 2005, and Romero 2011, 2013), is accounted for as in (20). The regular modifier reading comes from an absolute LF (and maybe also a comparative LF). In the modal superlative LF \textit{-est} and \textit{possible} move DP-externally, \textit{possible}-movement (with ellipsis resolution) provides the comparison set REL, and ‘\( \exists \)' (defined in (21)) is inserted above \textit{-est}.

(19) John met the smartest possible spy.
   a. Regular modifier reading: John met the smartest among the possible spies.
   b. Modal superlative reading: John met as smart a spy as was possible for him to meet.

(20) a. (i) John \textit{meet the} \=[-est C] \{1 [[\textit{smart d1} \textit{possible spy}]] \} \quad (\text{cf. (14a))}
    (ii) John \=[-est C] \{1 [[\textit{INC meet} \textit{the} \textit{smart d1} \textit{possible spy}]] \} \quad (\text{cf. (14b))}
   b. \( \exists \) \[-est [3 \text{ \textit{possible John meet t3}}]] \{2 [[\textit{INC the} \textit{smart d2} \textit{spy}][3 \text{ \textit{John meet t3}}]]\} \quad (\text{cf. (14b))}

There is a \( <x, d> \) such that \( \{y \in \text{REL} | y \text{ is an at least d-smart spy and John met y} \} = \{x\} \) (where REL \( \subseteq \{y | \text{it is possible for John to meet y}\})

(21) For any \( X \in D_{e<t}, [\exists X]X \) is defined only if \( \{y | X(y) \text{ is defined}\} \neq \emptyset \).

When defined, \( [\exists X]X = \text{True iff there is a } z \in \{y | X(y) \text{ is defined} \} \text{ such that } X(z) = \text{True.} \)

The idea that adjectival \textit{only} may undergo movement accounts for many similarities between the \textit{only} NPs and the \textit{A-est} NPs, as we now show.

3. \textit{Only}-movement and \textit{the}-Deletion

Adopting the idea (Bhatt 2002, 2006) that adjectival \textit{only} may undergo movement accompanied by \textit{the}-deletion, together with the assumption (Bhatt 2002, Sharvit 2011, Coppock & Beaver 2012 and others) that \textit{only} and \textit{-est} have similar meanings as implied by (22) – and the assumption that \textit{the} deletes in similar circumstances – (2a) is also accounted for within M-D.

(22) For any REL \( \subseteq D_e, P \in D_{e<t} \) and \( x \in D_e, \{\text{only} \} (P)(x) \) is defined only if: (i) \( x \in \text{REL}; \)
    (ii) for all \( y \in \text{REL}, P(y) \) is defined; and (iii) \( P(x) = \text{True} \).

When defined, \( [\text{only} \} (P)(x) = \text{True iff } \{y \in \text{REL} | P(y) = \text{True} \} = \{x\} \).

(23) John is not the only boy. (There are three boys / #There are no boys.)

   a. Identity LF
      \quad \text{not John be [IDENT the [only C3] boy]}
      \quad \text{John \# \{x such that } \{y \in \text{REL} | y \text{ is a boy} \} = \{x\} \}
      \quad \text{(Presupposition: there is a unique boy in REL)}
   b. Predicative LF
      \quad \text{not John [only C3] [be the boy]}
      \quad \{y \in \text{REL} | y \text{ is a boy} \} \neq \{\text{John}\}
      \quad \text{(Presupposition: John is a boy in REL)}

It is also correctly predicted that the \textit{only} NPs in object position support “comparative” readings (see Sharvit 2011 and Coppock & Beaver 2012 among others), and that the \textit{only} NPs have non-definite readings in the complement position of relational have.

(24) a. Anna didn’t give the only good talk at SALT; many people gave good talks. (cf. (14b))
    b. \quad \text{not Anna [only C3] [[INC give the [good d3] talk at SALT]}
\text{‘Not only Anna gave a good talk at SALT’}

\footnote{\( (20b) \) is massively simplified. For a more detailed and rigorous analysis, see Romero (2011, 2013).
\footnote{Note that we also make the seemingly unwelcome prediction that when Anna gives two good talks, \textit{Anna gave the only good talk} may be felicitous and true. We come back to this issue in Section 5.}
(25) a. (i) John doesn’t have the only sister; many people here have sisters.  
   not John [only C] [have the sister]  
   ‘Not only John has a female sibling’  
   (ii) John doesn’t have a sister, but many people here do.  
   b. *John doesn’t have the sister, but many people here do.  
   (cf. (15b))

Since only-movement obeys island constraints, there are no “comparative” readings of the only NPs in adjuncts.

(26) a. Anna didn’t cry after giving the only good talk.  
   (cf. (16))  
   b. *not Anna [only C] [INCP ... [INC giving the good d] talk]  
   ‘Not only Anna cried after giving a good talk’

Since the strongest argument for M-D comes from Split Scope, we expect the only NPs to demonstrate it too (if M-D is indeed the right analysis of the only NPs). However, John needs to climb the only mountain does not have the expected reading, paraphrased “Only John needs to climb some mountain or other”. This suggests that only cannot move in all environments in which -est moves.

Interestingly, though, Split Scope of the only NPs is possible with some intensional DP-taking verbs, such as require and recommend. Notice, first, that such readings are available with the A-est NPs.

(27) Prof. Smith recommended the longest book.  
   Prof. Smith: Why don’t you read a 600 pg long book.  
   Prof. Jones: Why don’t you read a 500 pg long book  
   Prof. Charles: Why don’t you read a 300 pg long book

The relevant reading of (27) is neither the ‘de re’ reading (as there need not be a specific book longer than the other books, which Prof. Smith wants his students to read), nor the pure ‘de dicto’ reading (as Prof. Smith need not care whether his students end up reading a book that is longer than any other book, whatever the length of such a book might be). In addition, the relevant reading is not available in the absence of -est.

   b. Prof. Smith didn’t recommend the long book. Prof. Jones recommended it / #Prof. Jones recommended an equally long book.

Now consider (29)-(30), with the only NPs and the intensional require and recommend.

(29) Prof. Smith requires the only term paper.  
   Prof. Smith’s requirements: at least one term paper and one class presentation.  
   Prof. Jones’s requirements: at least one class presentation.  
   Prof. Charles’s requirements: at least one class presentation and 50 hours of fieldwork.

(30) Mary recommended the only book.  
   Mary: “The best way for you to learn about the topic is by reading a book.”  
   Sally: “The best way for you to learn about the topic is by interviewing an expert.”  
   Fred: “The best way for you to learn about the topic is by watching TV.”

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7 Another contrast that makes the same point is between (i) and (ii). (i) implies that I look fatter in all the other jeans; but (ii) does not imply that I don’t look like a dork in the other jeans.  
   (i) These jeans make me look the skinniest.  
   (ii) These jeans make me look like the only dork.

8 For discussion of the intensionality of certain DP-taking verbs, see Zimmermann (1993), Moltmann (2008), Bervoets (2012) and others.
Under negation, the Split Scope reading seems even easier to process.

(31) a. Mary didn’t imagine the only ghost. John imagined one too.
    => Not only Mary imagined a ghost.
    b. Prof. Smith didn’t suggest the only make-up exam. Prof. Jones suggested one too.
    => Not only Prof. Smith suggested a make-up exam.

And, not unexpectedly, this reading is not available without the presence of only/-est.

(32) a. John didn’t imagine the ghost. Mary imagined it / #Mary imagined one too.
    b. Sally didn’t recommend the book. Fred recommended it / #Fred recommended one too.

These facts are predicted within M-D, both for the A-est NPs and the only NPs.9

(33) a. Prof. Smith recommended the longest book
    Prof. Smith -est C₅ [recommend the [long d₁] book]
    b. Prof. Smith recommended the only book.
    Prof. Smith only C₅ [recommend the book]

Finally, as predicted by M-D, modal superlative readings are also possible with only.

(34) John met the only possible spy.
    a. Regular modifier reading: John met the unique possible spy.
    b. Modal superlative reading: John met only one spy that it was possible for him to meet.

(35) a. (i) John meet the [only C₅] [possible spy] (cf. (20a))
    (ii) John [only C₅] [[INC meet] the [possible spy]]
    b. ∃ [only [1 POSSIBLE [John meet t₁]]] [the spy [1 [John meet t₁]]] (cf. (20b))

While it is far from clear why Split Scope with adjectival only is more constrained than it is with
the “real” superlative, the fact that the only/A-est NPs may, in principle, be non-definite justifies a
unified analysis of them. But how “unified”? (22), as opposed to (8), does not involve quantification
over degrees and so, only-movement does not leave a trace. If the-deletion is always constrained by
(10), we indeed expect (36b) to be illicit (explaining the contrast in (2)), but we also expect (23b),
for example, to be illicit. Conversely, if only-movement obeys island constraints but overrides (10), it is
clear why (37e) is illicit, but it is not obvious why (37d) is illicit, leaving the contrast between (2a) and
(4) unexplained (as we will see in Section 5, the need not be c-commanded by only).

(36) John is not the boy. (#There are three boys / no boys). (cf. (12))
    a. not John be [IDENT the boy]
    b. *not John be the boy

(37) John is not the child who is the only boy. (#There are three boys / no boys). (cf. (13))
    a. not John be [IDENT the child [who 2 [t₂ be [IDENT the [only C₅] boy]]]]
    b. not John be [IDENT the child [who 2 [t₂ [only C₅] be the boy]]]
    c. *not John be the child [who 2 [t₂ be [IDENT the [only C₅] boy]]]
    d. *not John be the child [who 2 [t₂ [only C₅] be the boy]]
    e. *not John [only C₅] be the child [who 2 [t₂ be the boy]]

To solve this problem, in Section 4 we propose that adjectival only is the phonetic spell-out of -est and,
as such, it always leaves behind a degree-trace when it moves (and thus the-deletion is always subject
to (10)). In Section 5 we provide some independent empirical motivation for this fully unified analysis.

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9 The LF in (33b) may over-generate unless some pragmatic constraints restrict the value of C₅ (the comparison
set of only), so that the recommendations do not conflict.
4. Adjectival Only as -est

Adopting some ideas in Cresswell (1976), Krifka (1989) and Hackl (2000), we propose that all nouns obligatorily take a degree argument. Accordingly, \textit{boy} has the meaning in (38) (where \text{CARD} is the cardinality function).

(38) For any \( n \in \mathbb{D}_d \) and \( x \in \mathbb{D}_e \), \([\textit{boy}]g(n)(x) = \text{True}\) iff \text{CARD}(\{x\}) = n \text{ and } x \text{ is a boy}.

Since \{x\} is a singleton, only \( n = 1 \) yields \('\text{CARD}(\{x\}) = n'\), but the assumption that \textit{boy} takes a degree argument is precisely what allows \textit{boy} itself to serve as an argument of \textit{-est} (when it is pronounced \textit{only}). We propose, then, that (8) is the meaning of the superlative morpheme in all its occurrences (and we assume that LF-PF mapping rules dictate that \textit{-est} is pronounced \textit{only} when it “binds” a noun). Accordingly, \textit{John is the tallest boy} and \textit{John is the only boy} have the LFs in (39) and (40) respectively (the presuppositions of (39a,b) can be met only if \([n_3]^f = 1\)).

(39) John is the tallest boy
   a. Identity LF: \textit{John be [IDENT the [-est C3] [1 [[tall d1] [n3 boy]]]]} (cf. (11a))
      \text{John} = (\text{the tallest boy in REL}) (\text{Presupposition: there is a tallest boy in REL})
   b. Predicative LF: \textit{John [-est C3] [1 [be [DP the [[tall d1] [n3 boy]]]]]} (cf. (11b))
      Every boy \( x \) in REL s.t. \( x \neq \text{John} \) is shorter than John (Presupposition: John is a boy in REL)

(40) John is the only boy
   a. Identity LF: \textit{John be [IDENT the [-est C3] boy]} (cf. (23a)/(11a))
      \text{John} = (\text{the } x \text{ such that } \{ y \in \text{REL} | y \text{ is a boy and } \text{CARD}(\{y\}) = 1 \} = \{x\})
      (\text{Presupposition: there is a unique } y \text{ in REL such that } y \text{ is a boy and } \text{CARD}(\{y\}) = 1)
   b. Predicative LF: \textit{John [-est C3] [1 [be [DP the [n1 boy]]]]} (cf. (23b)/(11b))
      \{ y \in \text{REL} | y \text{ is a boy and } \text{CARD}(\{y\}) = 1 \} = \{ \text{John} \}
      (\text{Presupposition: John is a boy in REL and } \text{CARD}(\{\text{John}\}) = 1)

Avoid Vacuous Comparisons (mentioned in Section 2 in connection with (8)) guarantees that REL contains other boys besides John in the case of (39), and that REL is not a singleton in the case of (40). \textit{The}-deletion is always constrained by (10), and the parallelism between \textit{the only} NPs and \textit{the A-est} NPs is now fully explained. All other constructions involving only-movement are now analyzed in this way, as illustrated in (41)-(45).

(41) Anna didn’t give the only good talk at SALT.
\textit{not Anna [-est C3] [2 [[INC give [DP the [[good d3][n2 talk] at SALT]]]]}} (cf. (14b)/(24b))

(42) John doesn’t have the only sister.
\textit{not John [-est C3] [2 [have [DP the [n2 sister]]]]}} (cf. (15a)/(25a))

(43) Prof. Smith recommended the only book.
\textit{Prof. Smith [-est C3] [1 [recommend [DP the [n1 book]]]]}} (cf. (33a,b))

(44) John met the only possible spy.
\textit{exists [-est [3 [POSIBLE [John met t3]]]] [2 [[DP the [n2 spy]]][3 [John meet t3]]]]}} (cf. (20b)/(35b))

(45) John is not the child who is the only boy.
\textit{*John be the child [who 2 [t2 [-est C3] [1 [be [DP the [n1 boy]]]]]]}} (cf. (13d)/(37d))

Plural \textit{the only}/\textit{A-est} NPs seem to have what we might also call “non-definite readings”, as shown by the fact that (46a,b) are well-formed just like their singular counterparts.

(46) a. John and Bill are not the tallest boys. Fred is as tall as they are.
   b. John and Bill are not the only boys. Fred is a boy too.

It may seem tempting to say that \textit{John and Bill are not the tallest boys} means ‘\{John, Bill\} \neq \{\text{the greatest set } S \text{ of boys taller than any boy that is not in } S\}’. This would certainly account for (46a) without resorting to \textit{the}-deletion (i.e., without treating \textit{the tallest boys} in (46) as non-definite).
However, *John and Bill are the tallest boys*, without *not*, may be true even when Fred is a boy shorter than John and shorter than Bill, suggesting that ‘{John, Bill}’ = (the greatest set S of boys taller than any boy that is not in S) is not its only meaning (see Stateva 2005 and Fitzgibbons et al. 2009).

To account for the facts while providing a unified analysis of the only/A-est NPs, we maintain the deletion, but we assume (see (47)) that DC contains singularities (singleton sets of simplex objects) as well as pluralities (non-empty non-singleton sets of simplex objects). Slightly adjusting the proposal in Fitzgibbons et al. (2009), we assume two “pluralizing” operators – *pl* and *pll* in (48a,b) – and the meanings for *boy, tall and the in* (48c,d,e), and we propose (49) as the meaning of *-est.*

(47) \[ D_e = \{ \{John\}, \{Bill\}, \{Fred\}, \{Jane\}, \ldots, \{John, Bill\}, \{Bill, Fred\}, \ldots, \{John, Bill, Jane\}, \{John, Fred, Jane\}, \ldots, \{John, Bill, Fred, Jane\}, \ldots \} \]

(48) a. \[ \pl\frak{f}(B^{<d,(<e,>t)>})(x) = \text{True iff for all singularities } y \subseteq x, P(1)(y) = \text{True} \]
   cf. the distributivity operator in Link (1983).
   b. \[ \pl\frak{f}(R^{<d,(<e,>t)>})(d)(x) \text{ is defined only if:} \]
   \[ \text{for all singularities } y \subseteq x, R(d)(y) = \text{False}; \text{or for all singularities } y \subseteq x, R(d)(y) = \text{True.} \]
   When defined, \[ \pl\frak{f}(R^{<d,(<e,>t)>})(d)(x) = \text{True iff there is a singularity } y \subseteq x \text{ such that } R(d)(y) = \text{True} \]
   cf. Fitzgibbons et al. (2009).
   c. \[ \boy\frak{f}(n)(x) \text{ is defined only if } x \text{ is a singularity. When defined, } \boy\frak{f}(n)(x) = \text{True iff CARD}(x) = n \text{ and the unique } y \in x \text{ is a boy.} \]
   d. \[ \tall\frak{f}(d)(x) \text{ is defined only if } x \text{ is a singularity. When defined, } \tall\frak{f}(d)(x) = \text{True iff \text{TALLNESS}(the unique } y \in x) \geq d. \]
   e. \[ \the\frak{f}(X^{<e,>t}) \text{ is the greatest relevant } y \in D_e \text{ such that } X(y) = \text{True, if there is one \text{ (otherwise, } \the\frak{f}(X^{<e,>t}) \text{ is undefined})} \]
   Sharvy (1980).

(49) \[ \est\frak{f}(REL)(R)(x) \text{ is defined only if: } (i) x \in REL; (ii) for all } y \in REL, \text{ there is a degree } d \text{ such that } R(d)(y) \text{ is defined; and (iii) there is a degree } d \text{ such that } R(d)(x) = \text{True.} \]
   When defined: (a) \[ \est\frak{f}(REL)(R)(x) = \text{True if there is a degree } d \text{ such that } (i) R(d)(x) = \text{True, and (ii) for all } y \in REL \text{ such that } y \neq x, R(d)(y) = \text{False}; \]
   and (b) \[ \est\frak{f}(REL)(R)(x) = \text{False if for all degrees } d: (i) R(d)(x) \text{ is undefined, or (ii) } R(d)(x) = \text{False, or (iii) there is a } y \in REL \text{ such that } y \neq x, \text{ and } R(d)(y) \text{ is undefined or } R(d)(y) = \text{True} \]
   cf. Fitzgibbons et al. (2009).

Bearing in mind that, in this system, there is no distinction between a singularity x and the unique y \in x (see Quine 1969 and Schwartzschild 1996), the consequences are these: (i) the LFs of *John is the tallest/only boy* remain as in (39)-(40), yielding the same meanings (with REL restricted to singularities by the presuppositions of *boy, tall and the*)—and the LFs of *John and Bill are the tallest/only boys* are as in (50)-(51), accounting for the data in (46) and allowing *John and Bill are the tallest boys* to be true when there is a boy shorter than both John and Bill.11

(50) John and Bill are the tallest boys.
   a. Identity LF: \[ \text{[John and Bill] be [IDENT the [<est C3] [1 [[[pll tall] d1] [pl boy]]]]} \]
   \{John, Bill\} = (the } x \in REL \text{ such that for all } y \in x: y \text{ is a boy, and for all } u \in REL \text{ such that } u \neq x \text{ and all } v \in u \text{ such that } v \text{ is a boy, } v \text{ is shorter than } y). 
   b. Predicative LF: \[ \text{[John and Bill] [<est C3] [1 be the [ [[[pll tall] d1] [pl boy]]]]} \]
   John is a boy, Bill is a boy, \{John, Bill\} \subseteq REL, and for all } u \in REL \text{ such that } u \neq \{John, Bill\} \text{ and all } v \in u \text{ such that } v \text{ is a boy: } v \text{ is shorter than John and shorter than Bill.}

---

10 There may be reasons to attribute to De a more complex structure than what (47) implies (see Schwartzschild 1996 for discussion), but this has no bearing on the current discussion.

11 Three things should be noted. First, Fitzgibbons et al. (2009) assume that \[ \est\frak{f}(REL)(R)(x) \text{ also presupposes that for all } y \in REL \text{ distinct from } x, y \text{ and } x \text{ do not overlap. This non-overlap may alternatively be a consequence of Avoid Vacuous Comparisons. Secondly, the more fine-grained semantics for -est in Fitzgibbons et al. (2009) makes explicit reference to a contextually supplied “cut-off” point on the relevant scale, reflecting the context-dependence of plural superlatives. Reference to such a “cut-off” point can easily be incorporated into (49). Thirdly, } \pl\frak{f}(P) \text{ and } \pll\frak{f}(R)(d) \text{ in (48) are not defined strictly for pluralities (they are also defined for singularities). This is potentially problematic, but the concern arises independently of the facts discussed here.} \]
(51) John and Bill are the only boys.
   a. Identity LF: [John and Bill] be [IDENT the [-est C5] [pl1 boy]]
      {John, Bill} = (the x ∈ REL such that for all y ∈ x, y is a boy, and for all u ∈ REL such
      that u ≠ x and all v ∈ u, v is not a boy).
   b. Predicative LF: [John and Bill] [-est C5] [1 [be the [ [pl1 boy] n1]]]
      John is a boy, Bill is a boy, {John, Bill} ∈ REL, and for all u ∈ REL such that u ≠ {John,
      Bill} and all v ∈ u, v is not a boy.

Taking stock: enriching M-D with the assumption that adjectival only has the semantics of -est
affords a fully unified analysis of the only/A-est NPs.\footnote{12} As we show in Section 5, this assumption also
affords a unified account of a certain subject-object asymmetry exhibited by the only/A-est NPs. That
asymmetry suggests that (8)/(49) is not appropriate even for singular the only/A-est NPs. We replace
(8)/(49) with a semantics of -est that resembles the semantics of non-adjectival only.

5. A Puzzling Asymmetry

Our theory correctly predicts the only/A-est NPs to sometimes be non-definite (i.e., not to have a
uniqueness implication), but the semantics in (8)/(49) does impose on the only/A-est NPs an existence
presupposition of an NP. As we will now see (and as noticed in Higgins 1973), the presuppositions of
the only/A-est NPs are, in fact, much weaker. We will also see that this “weakness” disappears in Y-N
(Yes-No) questions, and that subjects and objects differ regarding uniqueness implications in such
questions. We account for these facts exploiting the idea that adjectival only has a meaning very
similar to that of non-adjectival only, as proposed in Ippolito (2008). Since adjectival only is -est, this
effectively means that -est itself has a meaning similar to that of non-adjectival only.

Affirmative sentences with the only NP in subject or object position do not, in fact, presuppose
existence of an NP (i.e., of an individual fitting the description corresponding to NP), as shown by the
fact that such sentences may serve as answers to a question that has no such presupposition ((52) and
(53)); their only-less counterparts do presuppose existence of a unique NP. However, in the presence
of not ((54)), and in Y-N questions ((55)), the only NP is incompatible with there being no NP, but
only in subject position is the only NP also incompatible with there being two NPs.

12 Notice that both (i), where heaviest precedes two, and (ii), where two precedes heaviest, may be used to
describe a situation where John and Bill are, individually, heavier than any boy outside {John, Bill}. But only (i)
may be used to describe a situation where Bill weighs less than Fred, yet Bill and John, as a twosome, weigh
more than any other twosome of boys (see Matushansky & Ruys 2006 for related French data).

(i) John and Bill are the heaviest two boys.
(ii) John and Bill are the two heaviest boys.

This may be accounted for within M-D as follows. (iii), the individual predicative LF of both (i) and (ii), is well-
formed: two, which is a <e, t>-modifier, moves without leaving a trace and modifies [-est C5 [1 [be the [ [pl1 heavy
d1] [pl1 boy]]]]]. (iv), the twosome predicative LF of (i), is also well-formed (as is the twosome identity LF of (i)).
But both (v(a)), the twosome predicative LF of (ii), and (v(b)), the twosome identity LF of (ii), involve illicit -est-
movement because, by assumption, PG is a barrier for movement. (\[\[\]\]\[\[\]\] forms an “impure” singularity – a group,
in the sense of Landman 1989 – from a “pure” plurality, and PG forms properties of “impure” singularities from
elements of D_{<e,t}>; D_{t} contains “pure” and “impure” singularities and pluralities.)

\begin{itemize}
\item[(iii)] \[\text{[John and Bill] [two -est C5 [1 [be the [ [pl1 heavy d1] [pl1 boy]]]]]}
\item[(iv)] \[\text{[John and Bill] [two -est C5 [1 [be the [ [pl1 heavy d1] [pl1 boy]]]]]}
\item[(v)] a. \[\text{[John and Bill] [two -est C5 [1 [be the [ [pl1 heavy d1] [pl1 boy]]]]]}
\item[(v)] b. \[\text{[John and Bill] [be IDENT the -est C5 [1 [PG [two [ [pl1 heavy d1] [pl1 boy]]]]]]}
\item[(v)] a. \[\text{[PG] (P(x) = True iff there is a y ∈ D_{t} such that y is a “pure” plurality, P(y) = True, and x = [\[\[\]\]\(y)]]}\]
\item[(v)] b. \[\text{[two] (x) = True iff CARD(x) = 2.}
\end{itemize}

John and Bill are the only two boys has an LF similar to (iv). However, the relative oddity of John and Bill are the
two only boys is unexpected (given (iii)). We currently have no explanation for this.
(52) Did any students vote?
Expected answers: The only student who voted was Bill
Bill was the only student who voted
No student voted / There were no students
Somewhat odd answers: The student who voted was Bill / Bill was the student who voted

(53) How was SALT? Any good talks on polarity?
Expected answers: The only good talk on polarity came from Anna’s lab
Anna gave the only good talk on polarity
There were no (good) talks on polarity
Somewhat odd answers: The good talk on polarity came from Anna’s lab / Anna gave the good talk on polarity

(54) a. Anna didn’t give the only good talk on polarity. There were many good talks on polarity / #There were no good talks on polarity. (existence)
b. The only good talk on polarity didn’t come from Anna’s lab. #There were many good talks on polarity / #There were no good talks on polarity. (existence-uniqueness)

(55) a. Did Anna give the only good talk?
   Expected answers: No, Fred did
   No, there were many good talks
   Unexpected answer: No, there were no good talks (existence)
b. Did the only good talk come from Anna’s lab?
   Expected answer: No, from Fred’s.
   Unexpected answers: No, there were many good talks
   No, there were no good talks (existence-uniqueness)

The A-est NPs exhibit a similar pattern regarding existence of a NP with some degree of A-ness (i.e., an individual fitting the description ‘NP’): (56)-(59) parallel (52)-(55).

(56) Did any rich students from NY vote?
Expected answers: The richest student from NY who voted was Bill
Bill was the richest student from NY who voted
No students voted / There were no students from NY
Somewhat odd answers: The (rich) student from NY who voted was Bill / Bill was the (rich) student from NY who voted

(57) How was SALT? Any good talks on polarity?
Expected answers: The best talk on polarity came from Anna’s lab
Anna gave the best talk on polarity

(58) a. Anna didn’t give the best talk on polarity. All the talks on polarity were of the same quality / #There were no talks on polarity.
b. The best talk on polarity didn’t come from Anna’s lab. #All the talks on polarity were of the same quality / #There were no talks on polarity.

(59) a. Did Anna give the best talk on polarity?
   Expected answers: No, Fred did
   Unexpected answer: No, all the talks were equally good
b. Did the best talk come from Anna’s lab?
   Expected answer: No, from Fred’s
   Unexpected answers: No, all the talks were equally good
   No, there were no talks at all
Given our assumption that the cannot delete in the absence of -est/only, it is not surprising that the -est/only-less answers in (52), (53) and (56) are not in the “expected” category. But why do the only/A- est NP s not presuppose existence? And how do they acquire an existence implication in non-affirmative sentences, and an additional uniqueness implication in subject position of non-affirmative sentences? There are no obvious answers to these questions, given what we have proposed so far.

The theory we now entertain consists of the familiar assumption that only = -est, the familiar assumption that the may delete, and a new assumption, namely, that \([\text{only}/\text{-est}]g(R)(x)\) asserts – rather than presupposes – that \(R(d)(x) = \text{True}\) for some degree d; the latter idea is borrowed from the analysis of non-adjectival only in Ippolito (2008). We show that it follows from these assumptions that the only/A-est NP in subject position must scope above not (while the only/A-est NP in object position need not). As a result, the pattern illustrated in (52)-(55) and (56)-(59) is predicted.

The basis of the proposal is the analysis of non-adjectival only in Ippolito (2008), which is motivated by Horn’s (1996) observation that non-adjectival only has very weak presuppositions, as illustrated in (60). (Note the similarity between (60) and (52).)

(60) Q: Did any students vote?
   A: Only John.

Ippolito accounts for the fact that A is a good answer to Q in (60) by assuming that the presupposition of only
non-adj
John P is ‘if someone P, John P’, and not ‘John P’ or even ‘someone P’, as is often assumed. More concretely, only
non-adj has the meaning in (61) (where the contextual restrictor is omitted for simplicity; but P is presupposed to be defined for all relevant individuals).

\[
\text{only/\text{-est}}\backslash g(x)(P) \text{ is defined only if: } \{y \mid P(y) = \text{True}\} = \emptyset, \text{ or } P(x) = \text{True}.
\]

When defined, \([\text{only}/\text{-est}]g(x)(P)\) = True iff \(\{y \neq x \text{ and } P(y) = \text{True}\} = \emptyset\).

In addition, Ippolito assumes that ALT(only
non-adj
John) – the set of scalar alternatives to only
non-adj
John – is \{"\text{only}/\text{-est} John, \text{no one}\}; and that the scalar implicature associated with it is non-cancellable: that is to say, the proposition resulting from replacing only
non-adj
John with no one is always false. We adopt Ippolito (2008), utilizing the exhaustifying operator exh (e.g., Fox 2007) to account for the scalar implicature of only
non-adj.

Exh is inserted in the local domain of only
non-adj.

(62) For any LF \(\alpha\) of type t, \([\text{exh } \alpha]\)g is defined only if \([\alpha]\)g is defined.
   When defined, \([\text{exh } \alpha]\)g = True iff \([\alpha]\)g = True and for all \(q \in \text{ALT}(\alpha)\) such that \(\lnot q\) is consistent with \([\alpha]\)g: q = False.\(^{13}\)

That the scalar implicature of only
non-adj is non-cancellable means, in this system, that exh-insertion is obligatory.\(^{14}\) Assuming that ALT(only
non-adj
John voted) = {‘that only John voted’, ‘that no one voted’}, the derivation of exh only
non-adj
John voted proceeds as follows.

(63) a. only
non-adj
John voted
   Presupposition: if someone voted, John voted.
   Assertion: no x ≠ John voted.
   b. exh [only
non-adj
John voted] As in a., PLUS strengthening:
   No x ≠ John voted and someone voted (=> John voted).

Thus, the surface string Only John voted means that John voted and no one else voted. Since it does not presuppose that anyone voted, it is a good answer to Did any students vote? in (60).

\(^{13}\) More accurately, for any world w and p \(\in D_{\text{-exh}}\): \([\text{exh } \alpha]\)g(p) is defined only if for all q \(\in \text{ALT}(p)\), q(w) is defined; when defined, \([\text{exh } \alpha]\)g(p) = True iff p(w) = True and for all q \(\in \text{ALT}(p)\) such that that \(\lnot q\) is consistent with p, q(w) = False.

\(^{14}\) This is not generally the case. Some scalar items (famously, or and some) have cancellable implicatures. In the current system, this follows from the assumption that in those cases, exh-insertion is optional, so the grammar generates at least one exh-less LF for each string with such a scalar item. But the theory allows there to be scalar items with non-cancellable implicatures. The idea that such items exist in natural language goes back at least to Landman (1998), where exactly is analyzed along those lines (though without a covert exh).
Exh-insertion in not only$_{\text{non-adj}}$ John voted is also obligatory and proceeds in the following way: (i) exh may be inserted above not ((64b)), but exhaustification is vacuous in this case, because negating the alternative – not no one voted – is inconsistent with the assertion of the exh-less (64a); (ii) exh may not be inserted below not ((64c)) for the following reason: the resulting assertion is weaker than that of the exh-less (64a) (crucially, (64b) is not weaker than (64a)).$^{15}$ Like its positive counterpart (63b), (64b) does not presuppose that John voted; this explains why Not only John may be a felicitous answer to Did any students/anyone vote?$^{16}$

(64)

a. not only$_{\text{non-adj}}$ John voted  
   Presupposition: if someone voted, John voted.  
   Assertion: some x ≠ John voted.  
   ($\Rightarrow$ John voted)

b. exh not [only$_{\text{non-adj}}$ John voted]  
   As in a.: some x ≠ John voted and John voted.

c. *not exh [only$_{\text{non-adj}}$ John voted]  
   Presupposition: as in a.  
   Assertion: Some x ≠ John voted or John didn’t vote.

(65)  
Mary: John may have voted.  
Sally: OK, but did anyone vote at all?  
Jim: Not only/ONLY John.

Interestingly, the inference ‘John voted’ – which Only John voted and Not only John voted share – “survives” in the Y-N question corresponding to Only John voted (namely, Did only John vote?).

(66) Q: Did only John vote?
   A1: No, Bill voted too.
   A2: #No. No one did.

This is not easy to predict, though, within standard theories of questions (e.g., Karttunen 1977), according to which a Y-N question denotes a two-membered set: the question nucleus (i.e., the surface complement of the question operator) and its negation. Accordingly, for Did only John vote? (whose nucleus is exh only$_{\text{non-adj}}$ John voted), we get either (67) (if we illegally omit exh from the nucleus), or (68) (if we do not omit exh from the nucleus), with the illicit (64c) as one of the possible answers.

(67) { [[only$_{\text{non-adj}}$ John voted]]$_g$, [[not only$_{\text{non-adj}}$ John voted]]$_g$ } =  
   { ‘that no x ≠ John voted’, ‘that some x ≠ John voted’}

(68) { [[exh only$_{\text{non-adj}}$ John voted]]$_g$, [[not exh only$_{\text{non-adj}}$ John voted]]$_g$ } =  
   { ‘that John voted and no x ≠ John voted’, ‘that John didn’t vote or some x ≠ John voted’}

Neither (67) nor (68) implies that John voted; thus, they both fail to capture the intuition that Did only John vote implies that John voted. Suppose, then, that we could replace the denotation in (68) with { [[exh only$_{\text{non-adj}}$ John voted]]$_g$, [[exh not only$_{\text{non-adj}}$ John voted]]$_g$ }, where exh scopes above not (as in (64b)). This would correctly predict A2 to be an odd answer to Q in (66). As shown in (69), both members of the question denotation would have ‘John voted’ as an inference.

(69) { [[exh [only$_{\text{non-adj}}$ John voted]]$_g$, [[exh [not only$_{\text{non-adj}}$ John voted]]$_g$ ] } =  
   { ‘that John voted and no x ≠ John voted’, ‘that John voted and some x ≠ John voted’}

How can we legitimately replace (68) with (69) (without appealing to an ad-hoc rule)? As it turns out, such “replacement” is predicted within Guerzoni & Sharvit (2014), according to which all Y-N

$^{15}$ Exh insertion is, in principle, optional but must sometimes be blocked, as in (64c), and sometimes forced (see Fn. 14). The general problem of forcing and blocking exh insertion is fairly complex; for some discussion, see Chierchia (2013), Meyer (2013), Fox (2014), Bowler (2014) and others.

$^{16}$ As the readers can easily verify, if Sally asks her question in (65) out of the blue (i.e., without Mary’s preceding statement), Jim’s answer is somewhat odd. It is beyond the scope of this paper to account for this fact (which has to do with the pragmatics of negation and its interaction with focus; see, for example, Rooth 1996); for current purposes, all that matters is that (64b) is grammatical (and in principle a possible answer to Did anyone vote?), while (64c) is ungrammatical.
questions contain disjunction and negation at LF. For example, the question pronounced Did any student vote? is, underlyingly, as in (70) (where the NPI any is licensed by not).\footnote{17}

\[
\text{(70) } [\text{whether } [1 ? [[\text{sm student voted}] \text{ or}_1 [\text{not any student voted}]]]] = \\
\{'\text{that } [x] \text{ x is a student who voted} \neq \emptyset', '\text{that } [x] \text{ x is a student who voted} = \emptyset'\}
\]

Applying this analysis to Did only John vote?, together with the assumption that only\textsuperscript{non-adj} is obligatorily exhaustified, yields (71), whose denotation is (69) (\{"that John voted and no } x \neq \text{John voted}', 'that John voted and some } x \neq \text{John voted'").

\[
\text{(71) } [\text{whether } [2 ? [[\text{exh only}\textsuperscript{non-adj} \text{John voted}] \text{ or}_2 [[\text{exh not only}\textsuperscript{non-adj} \text{John voted}]]]]]
\]

To sum up so far, the assumption that non-adjectival only has a conditional presupposition and a non-cancellable scalar implicature, coupled with the assumption that all Y-N questions are underlyingly disjunctions, accounts for the pattern illustrated by (60), (65) and (66).

To extend this analysis to the only NPs and the A-est NPs we have to amend M-D as follows. Adjectival only, which we assume to be -est, resembles non-adjectival only in that it has a conditional presupposition and is obligatorily (and locally) exhaustified. Since the discussion is confined (for simplicity) to singular the only/A-est NPs, we use the amended version of (8) (72) (which can easily be adjusted to handle plural the only/A-est NPs along the lines of (49)). We illustrate how the theory works only for the only NPs, but similar predictions obtain with the A-est NPs.

\[
\text{(72) } a. \quad [\text{-est}] (R(x)) \text{ is defined only if:} \\
\begin{align*}
& (i) \ x \in \text{REL}; \ (ii) \text{ for all } y \in \text{REL}, \text{ there is a degree } d \text{ such that } R(d)(y) \text{ is defined}; \text{ and (iii) } \\
& \{x \in \text{REL}\} \text{ there is a degree } d \text{ such that } R(d)(y) = \text{True} = \emptyset, \text{ or there is a degree } d \text{ such that } \\
& R(d)(y) = \text{True}.
\end{align*}
\]

When defined, \([\text{-est}] (R)(x) = \text{True} \iff \{y \in \text{REL}\} \text{ there is a degree } d \text{ such that } \\
R(d)(y) = \text{True} = \emptyset, \text{ or there is a degree } d \text{ such that } \{x \in \text{REL}\} R(d)(y) = \text{True} = \{x\}.
\]

b. ALT([\text{\text{-est} C}] [\text{\text{exh} } j]) = \{[\text{-est}] (R)(\{[\text{\text{exh} } j]\}) \text{, [not only/\text{no one}] (R)(\text{\text{exh} } j)} \} \text{ there is a degree } d \text{ such that } \\
\alpha([\text{-est}] (d)(\text{exh } j) = \text{True})).

First, we predict that the only good talk in object position (as in Anna gave the only good talk at SALT; cf. (53)) need not presuppose existence of a good talk, but in the presence of not it acquires an implication regarding existence (but not uniqueness) of a good talk (cf. (54a)). Here is why: (73a,b) both presuppose existence of a unique good talk at SALT (\(t_1\) is an individual-denoting trace in a headless relative clause), but (74a) asserts existence of a unique good talk and (74b(ii)) asserts existence of at least two good talks. Importantly, (74b(ii)) is ungrammatical, as it is weaker than its \textit{-less} counterpart; on the other hand, (73b) and (74b(i)) are both grammatical, as they are not weaker than their \textit{-less} counterparts. (All free variables/pronouns are omitted here for simplicity.)

\[
\text{(73) Absolute LFs of Anna gave / didn’t give the only good talk at SALT} \\
\begin{align*}
a. \quad & \text{Anna gave the } [\text{wh 1 [exh t}_1\text{-est }[2 \text{ [good } t_2\text{ talk at SALT]]}\] ] (\text{cf. (63b))} \\
& \text{Anna gave the x such that: (i) if something is a good talk at SALT, } x \text{ is a good talk at SALT; (ii) something is a good talk at SALT; and (iii) no } y \neq x \text{ is a good talk at SALT.} \\
b. \quad & \text{not Anna gave the } [\text{wh 1 [exh t}_1\text{-est }[2 \text{ [good } t_2\text{ talk at SALT]]}\] ] (\text{cf. (64b))} \\
& \text{Anna did not give the x such that: (i) if something is a good talk at SALT, } x \text{ is a good talk at SALT; (ii) something is a good talk at SALT; and (iii) no } y \neq x \text{ is a good talk at SALT.} \\
\end{align*}
\]

Presupposition of a. and b.: there is an x such that: (i) if something is a good talk at SALT, x is a good talk at SALT; (ii) something is a good talk at SALT; and (iii) no } y \neq x \text{ is a good talk at SALT.

\text{"}
Comparative LFs of Anna gave / didn’t give the only good talk at SALT

a. \( \text{exh Anna -est} \ [2 [\text{INC give} \ \textbf{the} \ [\text{good} \ [n_2 \text{talk}] \text{at SALT}]]] \)  (cf. (63b))
   If someone gave a good talk at SALT, then Anna gave a good talk at SALT, and every \( x \neq \) Anna did not give a good talk at SALT, and someone gave a good talk at SALT.
   \( \Rightarrow \) No \( x \neq \) Anna gave a good talk at SALT, and Anna gave a good talk at SALT.

b. (i) \( \text{exh not Anna -est} \ [2 [\text{INC give} \ \textbf{the} \ [\text{good} \ [n_2 \text{talk}] \text{at SALT}]]] \)  (cf. (64b))
   If someone gave a good talk at SALT then Anna gave a good talk at SALT, and some \( x \neq \) Anna gave a good talk at SALT.
   \( \Rightarrow \) Some \( x \neq \) Anna gave a good talk at SALT, and Anna gave a good talk at SALT.

(ii) \( \text{*not exh Anna -est} \ [2 [\text{INC give} \ \textbf{the} \ [\text{good} \ [n_2 \text{talk}] \text{at SALT}]]] \)  (cf. (64c))

Next, we predict that the only good talk in subject position (as in The only good talk came from Anna’s lab, see (53)) need not presuppose existence of a good talk, but in the presence of not it acquires an implication regarding existence of a unique good talk (see (54b)). When the does not delete ((75)), The only good talk came from Anna’s lab presupposes existence of a unique good talk. When the deletes, -est cannot move DP-externally ((76a)), since subjects are islands for movement.

\[ \text{[the wh 1 exh t1 -est} \ [2 [\text{good} \ [n_2 \text{talk}] \text{at SALT}]]] \text{[come from Anna’s lab]} \]  (cf. (73a))

But recall from Section 2 (see (10)) that M-D does not ban the-deletion when -est moves DP-externally (though so far we have not exploited this option). Accordingly, (77a), where -est moves DP-externally and exh is inserted below the, is well-formed. Like (74a) (where -est moves DP-externally without violating any island constraints), (77a) does not presuppose existence of a good talk at SALT. Thus, (74a) and (77a) are LFs of felicitous answers to How was SALT? Any good talks?.

\[ \text{[the wh 1 exh t1 -est} \ [2 [\text{good} \ [n_2 \text{talk}] \text{at SALT}]]] \text{[come from Anna’s lab]} \]  (cf. (73a))

Not interacts with -est in subject position in the following way. When the does not delete, as in (78), existence and uniqueness are presupposed. When the deletes, (79a), like (76a), involves illegal movement, and (79b), like (74b(ii)), is weaker than its exh-less alternative, and is therefore ungrammatical. But (79c), like (74b(i)) and (77a), is not weaker than its exh-less alternative and does not involve illegal movement; it is a grammatical “negative” LF with no existence presuppositions.

\[ \text{not [the wh 1 exh t1 -est} \ [2 [\text{good} \ [n_2 \text{talk}] \text{at SALT}]]] \text{[come from Anna’s lab]} \]  (cf. (73b))

This means that The only good talk didn’t come from Anna’s lab need not presuppose existence of a unique good talk and may be a felicitous answer to Sally’s question in (80) (cf. (65)).

Mary: Someone from Anna’s lab may have given a good talk.
Sally: Yes, but were there any good talks at all?
Jim: The only good talk did not come from Anna’s lab.  (79c)

What about the interaction of the only good talk with other “negative” operators? The predictions vary, because unlike not, some of these operators have presuppositions (see, for example, the discussion of if in von Fintel 1999) that guarantee that the LF with exh is not weaker than the exh-less LF.
Next, the disjunction-negation analysis of questions that we have adopted (see (70) and (71)) explains why the questions in (55) preserve the “negative” pattern of (54) regarding existence and uniqueness of a good talk. (81a), where the only good talk is in subject position, denotes either the Y-N pair \{(75), (78)\} (see (81b)), or the Y-N pair \{(77a), (79c)\} (see (81d)); both pairs imply that there was exactly one good talk. Crucially, (81c) – which does not imply that – is ungrammatical, like (76a) and (79a), because of illegal movement. We assume that (81e) is ungrammatical too, because it contains the ungrammatical (79b), though (81e) as a whole is not weaker than its exh-less counterpart (but see Bowler 2014 for a different approach to exhaustification in questions, based on data from Warlpiri). Thus, neither There were many good talks nor There were no good talks at all is a good answer.18

(81) a. Did the only good talk at SALT come from Anna’s lab? (55b) b. whether [3 ? [[(\text{the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ) [come from Anna’s lab]] ] or3 [not [(\text{the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ) [come from Anna’s lab]] ] c. *whether [3 ? [[(\text{exh Anna -est} 1 2 3 [[\text{the} [\text{good [n1 talk]] } ] ) come from \text{t}_2 \text{’s lab}]] ] ) or3 [exh not [Anna -est [1 2 3 [[\text{the} [\text{good [n1 talk]] } ] ) come from \text{t}_2 \text{’s lab}]] ] ) ) ] d. whether [3 ? [[\text{[the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] [come from Anna’s lab]] ] ] or3 [\text{3[the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] ]1 [not t \text{come from Anna’s lab]] ] ) ] e. *whether [3 ? [[\text{[the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] [come from Anna’s lab]] ] ] or3 [not [3 [[\text{the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] [come from Anna’s lab]] ]

On the other hand, (82a), where the only good talk is in object position, may denote the Y-N pair \{(73a), (73b)\} (see (82b)), which implies that there was exactly one good talk, but it may also denote the Y-N pair \{(74a), (74b(i))\} (see (82c)), which merely implies that there was a good talk. As a result, (82a) may be answered with No, there were many good talks. Crucially, (82a) does not have (82e) (which mimics the structure of the ungrammatical (81e)) as a possible LF (even if it has (82d) as a possible LF), so it may not be answered with No, there were no good talks at all.19

(82) a. Did Anna give the only good talk at SALT? (55a) b. whether [3 ? [[Anna give [\text{the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] ) or3 [not [Anna give [\text{the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] ) ) ) ] c. whether [3 ? [[exh Anna -est [1 [\text{INC give} \text{the} \text{good [n1 talk]]] ] ] or3 [exh not [Anna -est [1 [\text{INC give} \text{the} \text{good [n1 talk]]] ] ] ] ] d. whether [3 ? [[\text{[the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] [3 [Anna give t\text{3}]] ] ] or3 [\text{3[the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] ]3 [not Anna give t\text{3}] ] ] ] e. *whether [3 ? [[\text{[the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] [3 [Anna give t\text{3}]] ] ] or3 [not [3 [[\text{the} \text{wh} 1 \text{exh} \text{t} \text{-est} 2 \text{[good [n2 talk]]}] ] [3 [Anna give t\text{3}]] ] ]

We are now in a somewhat better position to address the following concern (see Fn. 6). We predict that Anna didn’t give the only good talk may be acceptable when Anna gives two good talks; similarly for Anna gave the only good talk. The former prediction is unobjectionable; the latter prediction seems worrisome. However, the same prediction seems less worrisome in view of (83)-(85).

(83) Q: Did Anna give exactly one good talk at SALT? A: She sure did. #In fact, she gave two good talks.

(84) Q: Did Anna give a good talk at SALT? A: She sure did. In fact, she gave two good talks.

(85) Q: Did Anna give the only good talk at SALT? A: She sure did. In fact, she gave two good talks.

18 Some speakers report that the copular Was the only student who voted Bill? can be answered with Two students voted (and not as a presupposition correction). Such speakers, it seems, allow movement out of subjects in copular constructions (consistently with Kotek et al. 2011). We currently see no obvious explanation for this (even if we assume an “inversion” structure for The only student who voted was Bill, along the lines of Moro 1997).

19 (81d) and (82d) may be ruled out as well, on independent grounds: in the “negative” disjunct of a Y-N question, no element (other than exh) can be higher than negation (as is clearly the case in Did someone vote?).
Our hope is that a rich enough pragmatic theory will ultimately explain why the “bare” Anna gave the only good talk tends to have an ‘exactly-one’ reading.

Finally, the proposal predicts an additional property that the only NPs and the A-est NPs have in common. As observed in Bhatt (2002), when NP contains an intensional clause-taking verb (such as say), the verb shows scope interaction with only/-est.

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

longest << say: Of the books written by Tolstoy according to what John said, AK is longest.
say << longest: According to what John said, of the books written by Tolstoy, AK is longest.

(87) The only book John said Tolstoy had written was Anna Karenina.

only << say: John said about AK that Tolstoy had written it; he didn’t say about any other book that Tolstoy had written it.
say << only According to what John said, Tolstoy wrote AK and no other book.

Bhatt’s (2002) analysis consists of enriching M-D with optional lowering of -est (see also Bhatt & Sharvit 2005, Hulsey & Sauerland 2006). Adding exh yields (88a,b) for (87) (and similar LFs for (86)).

(88) a. [the wh 2 exh t2 -est [1 [[n1 book][4 [John said Tolstoy wrote t4]]]]] be IDENT AK
   (the x such that {y| y is a book and John said ‘Tolstoy wrote y’} = {x}) = AK
b. [the wh 2 [John said exh t2 -est [3 [[n1 book][4 [Tolstoy wrote t4]]]]] be IDENT AK
   (the x such that John said ‘{y| y is a book and Tolstoy wrote y} = {x}’) = AK

Both LFs in (88) come with an existence presupposition imposed by the. But given our version of M-D, we expect the-deletion to be possible here. Indeed, Q1 in (89) does not presuppose existence of an actual book such that John said Tolstoy wrote it, and Q2 in (90) does not presuppose that John said that Tolstoy wrote a book, yet the string The only book John said Tolstoy wrote / had written was Anna Karenina is a good answer to both.

(89) Q1: Are there any books that, according to John, were written by Tolstoy?
A: The only book John said Tolstoy wrote was Anna Karenina.

LF1: ∃[the wh 2 [exh t2 -est [1 [[n1 book][4 [John said Tolstoy wrote t4]]]]]] be IDENT AK
   There is a x such that {y| y is a book and John said ‘Tolstoy wrote y’} = {x}, and x = AK

(90) Q2: According to what John said, did Tolstoy write any books?
A: The only book John said Tolstoy wrote was Anna Karenina.

LF2: ∃[the wh 2 [John said exh t2 -est [3 [[n1 book][4 [Tolstoy wrote t4]]]]]] be IDENT AK
   There is a x such that John said ‘{y| y is a book and Tolstoy wrote y} = {x}’, and x = AK

To sum up: on the assumption that adjectival only is -est, and that adjectival only and non-adjectival only are semantic kin, it is natural to attribute to -est the same semantic and pragmatic properties that non-adjectival only has. This affords an account of the fact that the only NPs and the A-est NPs do not presuppose NP-existence, and exhibit a subject-object asymmetry regarding existence and uniqueness inferences in the presence of not and in Y-N questions.

6. Unsolved Problems and Other Loose Ends

As we saw, an extended version of M-D affords a fully unified analysis of some superficially different types of non-definite DPs headed by the. There are problems with this version of M-D that arise from the assumption that -est may move, and there are problems that arise from the claim that non-definiteness is the result of the presence of -est and deletion of the. The brief discussion below is not intended to provide an exhaustive list of concerns.

We have already seen some cases of over-generation due to the hypothesis that only/-est moves DP-externally. Another instance of such over-generation has to do with the interaction of only/-est with negation. For example, when Paul and Mary each give a good talk and Anna gives no talk (or
only bad talks), Anna didn’t give the only good talk is not judged true, but if not is allowed to scope below -est, we do not predict that.

(91) a. \(\text{exh not Anna -est } C_5 [3 [[\text{INC give} \text{ the } \text{good n}_3 \text{talk}]]]\)
b. \(\text{exh Anna -est } C_5 [3 [\text{not} [\text{INC give} \text{ the } \text{good n}_3 \text{talk}]]]\)

There is no obvious way to block (91b), which comes out true in this scenario. Furthermore, forcing not to scope above -est would conflict with facts regarding “negative” superlatives such as least. To see this, consider Bill climbed the least high mountain. It is judged true when Bill climbs a mountain that is lower than all the mountains climbed by anyone else. (92a), which is presumably equivalent to (92b), accounts for this fact. This suggests that not is not forced to scope above -est.

(92) a. \(\text{exh Bill least } C_5 [1 [[\text{INC climb} \text{ the high d}_1] \text{ [n}_3 \text{mountain}]]]\)
b. \(\text{exh Bill -est } C_5 [1 [\text{not} [\text{INC climb} \text{ the high d}_1] \text{ [n}_3 \text{mountain}]]]\)

But as observed in Sharvit & Stateva (2002), (92a) does not account for the fact that when Bill climbs a mountain that is lower than one of the mountains that John climbs but higher than another mountain that John climbs, the same sentence is not judged true. According to Sharvit & Stateva, the problem is solved if least/-est never moves DP-externally, and the so-called comparative reading is just a special case of the absolute reading. That analysis was already explored and rejected in Heim (1999) because of Split Scope, leaving the problem unsolved (see discussion of (14); for some additional relevant discussion, see Heim 2000, Aihara 2009, Pancheva and Tomaszewicz 2012, and Tomaszewicz 2015).

A different problem concerns the general approach to (non-)definiteness. If all cases of semantic non-definiteness of morpho-syntactically definite DPs are due to the-deletion, and the-deletion is constrained by (10), it follows that all such DPs contain a hidden superlative morpheme. Due to space limitations, we mention only two of the cases that seem problematic for such a view.

It is tempting to analyze the first NP as containing a covert -est, because: (i) they can be non-definite in the complement position of relational have as in (93), (ii) they interact scopally with say as in (94) (see Bhatt 2002), (iii) they show the same subject-object asymmetry that the only/-est NP do (No, there were parallel sessions so three talks opened the conference is an expected answer only to (95a)), and (iv) they support modal superlative readings as in (96).

(93) Mary had the first boyfriend.
   Possible reading, roughly: Mary became part of a couple before anyone else did.

(94) The first book that John said Tolstoy had written was Anna Karenina.
   1st << say: John said ‘Anna Karenina was written by Tolstoy’ before John said about any other book that it was written by Tolstoy.
   say << 1st: John said ‘Tolstoy wrote Anna Karenina before he wrote any of his other books’.

(95) a. Did Anna give the first talk at WCCFL?
b. Did the first talk at WCCFL come from Anna’s lab?

(96) John met the first possible spy.
   Possible reading, roughly: John met the first spy that it was possible for him to meet.

In addition, while John needed to climb the first mountain cannot mean ‘John needed to climb a mountain before anyone else needed to climb a mountain’ (see Bylinina et al. 2014), some intensional DP-taking verbs (see Section 3) seem to support Split Scope readings.

(97) Mary didn’t imagine the first ghost; John imagined one at exactly the same time.

But as noticed in Bylinina et al. (2014), while the non-modal object DP in (98a) forces a temporal-ordering interpretation, the modal object DP in (98b) is compatible with a non-temporal ordering interpretation. It is hard to see how this difference follows from the presence of a hidden superlative.

b. John read the first book to be assigned in my class next year.
It is also tempting to account for the behavior of role-DPs such as the president and the mayor, which do not contain any overt “adjectival” material, by positing a covert superlative-like operator – call it $-EST$ – in the lexical entry of the noun, and an optional covert operator – $IL$ – in constructions where the noun is preceded by only $-est$.

(99) John is not the president. We don’t even have a president / #We have two presidents.

\[
\text{exh } \text{not } J\text{ohn } \text{be the } [-EST C_5 \text{ president}] \\
\text{(cf. (74))}
\]

(100) The president is not John. #We don’t even have a president / #We have two presidents.

\[
\begin{align*}
\text{(i) } & \exists \left[\text{the wh } 1 \text{ [exh } t_1 \text{ -EST } C_5 \text{ president}] \right] \left[\text{not } t_1 \text{ be IDENT John}\right] \\
\text{(ii) } & \text{not } \left[\text{the wh } 1 \text{ [exh } t_1 \text{ -EST } C_5 \text{ president}] \right] \left[\text{be IDENT John}\right] \\
\end{align*}
\]

(101) a. John is not the president at this conference. Two presidents are giving talks / #There are no presidents at this conference.

\[
\text{exh not John } -est C_5 \left[4 \text{ [be the [IL } 3 \text{ exh pro}_3 \text{ [-EST } C_2 \text{ president}] ] n_4]\right] \\
\text{(cf. (40b))}
\]

\[
\left[IL F(p^{est})\right](n)(x) = \text{True iff } P(x) = \text{True and } \text{CARD}(x) = n
\]

Such a theory of role-DPs depends on the (somewhat problematic) stipulation that $-EST$ and $-est$ are not exactly the same. More concretely, we would have to say that while they have the same assertion (as in (72)), and the same set of alternatives, they have different presuppositions: $[\text{-EST}]g(R)(x)$ presupposes that there is at most one $y$ in REL that has some degree of $R$, while $[\text{-est}]g(R)(x)$ has the presupposition in (72).

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