Binding into relative superlative descriptions

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May 20, 2018: SALT 28, MIT

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Superlative ambiguities

Superlative adjectives often associated with two kinds of readings

(1) Who here owns the newest iphone?

    a. Who here owns an iphone X?   **[Absolute]**

    b. Who here owns an iphone newer than   **[Relative]**
       any iphone owned by anyone else?

  Question Is this a matter of domain underspecification or
                 compositional ambiguity?

Domain restriction

On the one hand, quantificational domains known to be rampantly underspecified

(2) When I walked into my class today, everyone$_C$ was really quiet

   a. everyone in the school

   b. everyone in my class

(3) Which student visited the largest$_C$ New England city?

John $\cdots$✈$\cdots$ Manchester

Sue $\cdots$✈$\cdots$ Amherst

Mary$\cdots$✈$\cdots$ Providence

Bill $\cdots$✈$\cdots$ New Haven

   a. **Abs:** No one (...Boston)

      ▷ $C = \{x \mid \text{NE-city } x\}$

   b. **Rel:** Mary (...the largest visited city)

      ▷ $C = \{x \mid \text{NE-city } x, \text{ visited } x\}$

Scope

On the other hand, degree quantifiers known to take variable scope

(4) John read a longer play ...

   a. ... than Macbeth   John read a [long $\overset{\text{er}}{}$ play]

   b. ... than Mary   John [read a long $\overset{\text{er}}{}$ play]

(5) Which student visited the largest New England city?

John ··· ✈ ··· Manchester

Sue ··· ✈ ··· Amherst

Mary ··· ✈ ··· Providence

Bill ··· ✈ ··· New Haven

  a. **Abs:** student visit [large $\overset{\text{est}}{}$ city]

     ▷ No one (visited Boston)

  b. **Rel:** student [visit large $\overset{\text{est}}{}$ city]

     ▷ Mary (out-visited the others)

Focus

Any analysis should contend with the fact that relative readings associate with focus

Jackendoff (1972)

(6) a. Of the three men, John hates {BILL, *MARY} the most

   b. Of the three men, {JOHN, *MARY} hates Bill the most

Szabolcsi (1986)

(7) a. When did JOHN get the fewest letters from Peter?
     ▸ John got fewer Peter letters than anyone else got

   b. When did John get the fewest letters from PETER?
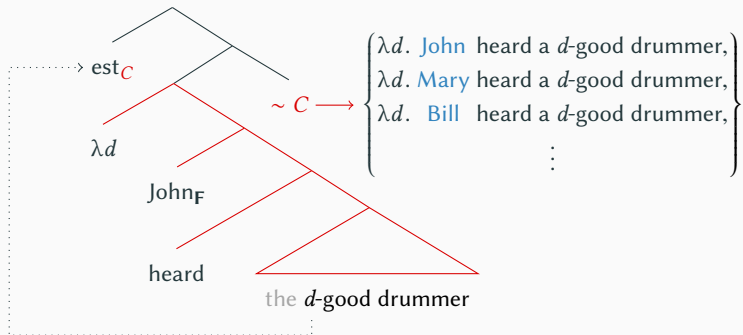   ▸ John got fewer Peter letters than letters from anyone else

Reference analysis: Scope

With this in mind, take the following hypothesis from Heim 1999

- 'est' scopes over sentence; compares the degrees the focus achieves to the degrees its competitors achieve

$$[\![est]\!] = \lambda C \lambda P. \, \forall Q \in C. \, Q \neq P \Rightarrow Q \subset P$$
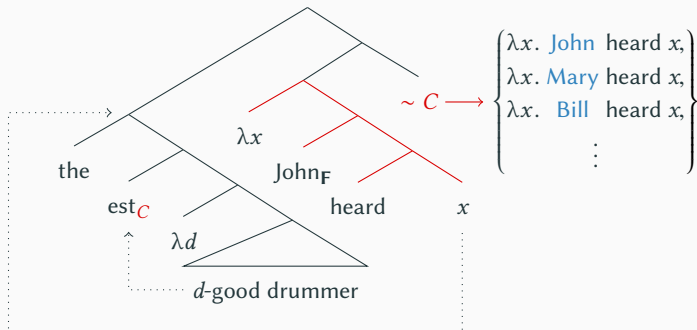
(8) JOHN heard the best drummer

Reference analysis: Restriction

And the other following hypothesis from Heim 1999

- 'est' compares witnesses for the description *restricted* to those that satisfy the description's local context

$$[\![\text{est}]\!] = \lambda C \lambda R \lambda x. \exists d. \{x\} = R\,d \cap \bigcup C$$

(8) JOHN heard the best drummer

$$\sim C \longrightarrow \begin{Bmatrix} \lambda x.\ \text{John heard } x, \\ \lambda x.\ \text{Mary heard } x, \\ \lambda x.\ \text{Bill heard } x, \\ \vdots \end{Bmatrix}$$

Immediate predictions: Ties

(9) JOHN climbed the highest mountain

|		Restr	Scope
a.	John and Mary climbed the same highest climbed mountain	✓	✘
b.	John out-climbs everyone else, by climbing two equally high mountains	✘	✓

▷ Judgments appear to be mixed ...

Immediate predictions: Split-scope

Heim (1999)

(10) MARY needs to climb the highest mountain

John $\cdots$ 🗒 $\cdots$ 1000 ft

Sue $\cdots$ 🗒 $\cdots$ 2000 ft

Mary $\cdots$ 🗒 $\cdots$ 3000 ft

	Restr	**Scope**
a. Mary's mountain-climbing requirements exceed everybody else's	✖	✓

John$_\mathbf{F}$ [⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱ **est** ⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱⸱
need climb high   mountain]

▷ Data widely accepted, but whether this is a real undergeneration issue for restriction theories is disputed (Sharvit & Stateva 2002, Coppock & Beaver 2014)

Sloppiness in relative readings

As with 'only', if the focus binds a pronoun, an ambiguity arises depending on whether the pronoun covaries with alternatives or not

Gawron (1995)

(11) Mary gave her sister the most expensive book

    a. **Absolute:**
       Of all the books, Mary gave the most expensive to Mary's sister

    b. **Strict Relative:**
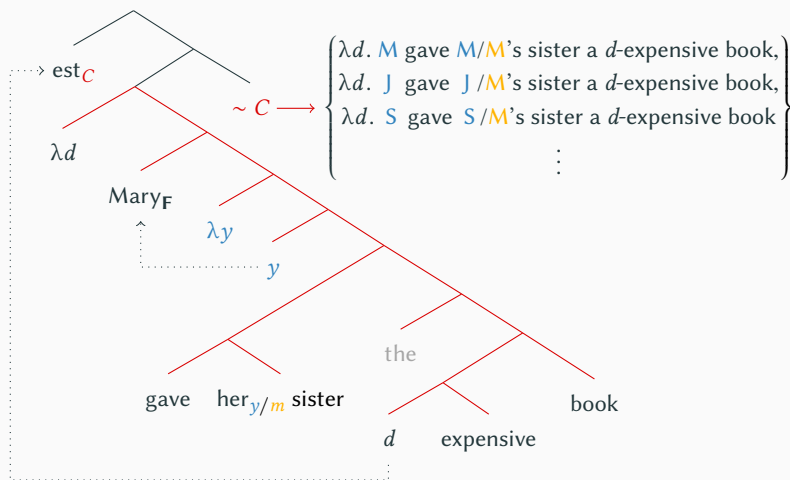   Of all the people to give Mary's sister a book, Mary gave her the most expensive

    c. **Sloppy Relative:**
       Of all the people to give their sister a book, Mary gave her's the most expensive

Sloppiness: Scope analysis

Scope theories of the superlative predict both relative readings:

$$\sim C \longrightarrow \begin{cases} \lambda d. \; \mathsf{M} \text{ gave } \mathsf{M}/\mathsf{M}\text{'s sister a } d\text{-expensive book,} \\ \lambda d. \; \mathsf{J} \text{ gave } \mathsf{J}/\mathsf{M}\text{'s sister a } d\text{-expensive book,} \\ \lambda d. \; \mathsf{S} \text{ gave } \mathsf{S}/\mathsf{M}\text{'s sister a } d\text{-expensive book} \\ \qquad\qquad\qquad \vdots \end{cases}$$

est$_C$

λd

Mary$_\mathbf{F}$

λy

y

gave   her$_{y/m}$ sister

the

d expensive

book

Sloppiness: Restriction analysis

As do restriction theories:
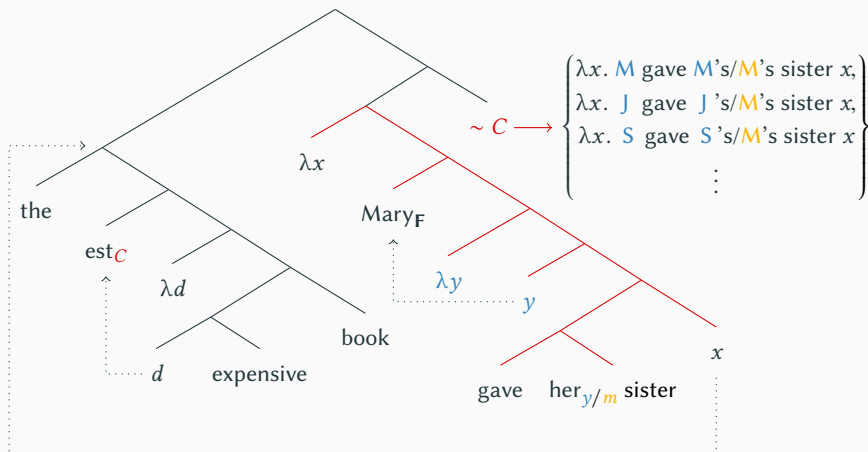
The trouble: Sloppiness in relative descriptions

Cleo: ♣   Dina: ♦   Harry: ♥   Sam: ♠

Cleo
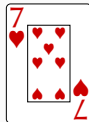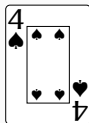
(12) Who played the highest
card of their suit?

Sam

Dina

Harry

a. **Absolute:** No one

b. **Strict Rel:** Dina, Sam

c. **Sloppy Rel:** Harry

Scope: Strict descriptions predicted
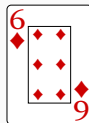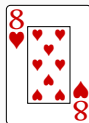
(13) HARRY played the highest card of his suit

    a. ✓ **Strict:** Harry played a higher heart than anyone else played

$$\forall Q \in C . Q = H \lor Q \subset H$$

est_C

$\sim C$

λd

$Harry_F$

λz

z

play d-high card of his_h suit

$$\left\{ \begin{array}{l} \lambda d . \, C^{\clubsuit} \ldots d\text{-high card of } h\text{'s suit} \\ \lambda d . \, D^{\diamondsuit} \ldots d\text{-high card of } h\text{'s suit} \\ \lambda d . \, H^{\heartsuit} \ldots d\text{-high card of } h\text{'s suit} \\ \lambda d . \, S^{\spadesuit} \ldots d\text{-high card of } h\text{'s suit} \end{array} \right\}$$
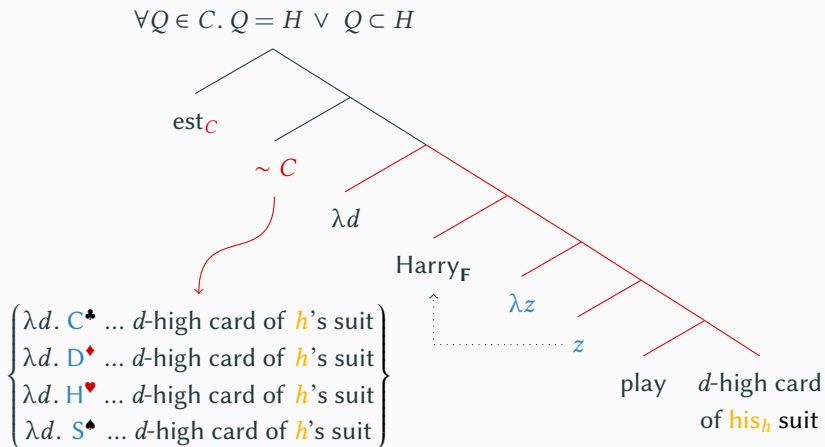
Scope: Sloppy descriptions predicted

(13) HARRY played the highest card of his suit

    b. ✓ **Sloppy:** Harry played a higher heart than Cleo a club,
                                              Dina a diamond,
                                              Sam a spade

$$\forall Q \in C.\, Q = H \,\vee\, Q \subset H$$

est$_C$

$\sim C$

λd

Harry$_{\mathbf{F}}$

λz

z

$$\begin{cases} \lambda d.\; C^{\clubsuit} \ldots d\text{-high card of } C\text{'s suit} \\ \lambda d.\; D^{\diamond} \ldots d\text{-high card of } D\text{'s suit} \\ \lambda d.\; H^{\heartsuit} \ldots d\text{-high card of } H\text{'s suit} \\ \lambda d.\; S^{\spadesuit} \ldots d\text{-high card of } S\text{'s suit} \end{cases}$$

play d-high card
of his$_z$ suit

Restriction: Strict descriptions predicted

(14) HARRY played the highest card of his suit

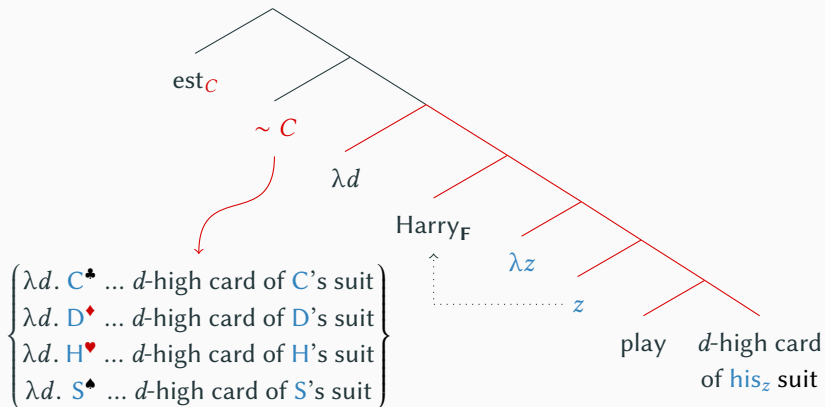   a. ✓ **Strict:** Harry played a higher heart than anyone else played

$$\begin{cases} \lambda x.\ \mathsf{C}^{\clubsuit}\ \text{played}\ x \\ \lambda x.\ \mathsf{D}^{\blacklozenge}\ \text{played}\ x \\ \lambda x.\ \mathsf{H}^{\heartsuit}\ \text{played}\ x \\ \lambda x.\ \mathsf{S}^{\spadesuit}\ \text{played}\ x \end{cases}$$

$\sim C$

the $\lambda y.\ \exists d.\ \{y\} = R\,d \cap \bigcup C$ λx

est_C

Harry$_{\mathbf{F}}$

λd d-high card

λz

of his$_h$ suit

z

play x

(14) HARRY played the highest card of his suit

    b. ✖ **Sloppy:** Harry played a higher heart than Cleo a club,

                                          Dina a diamond,
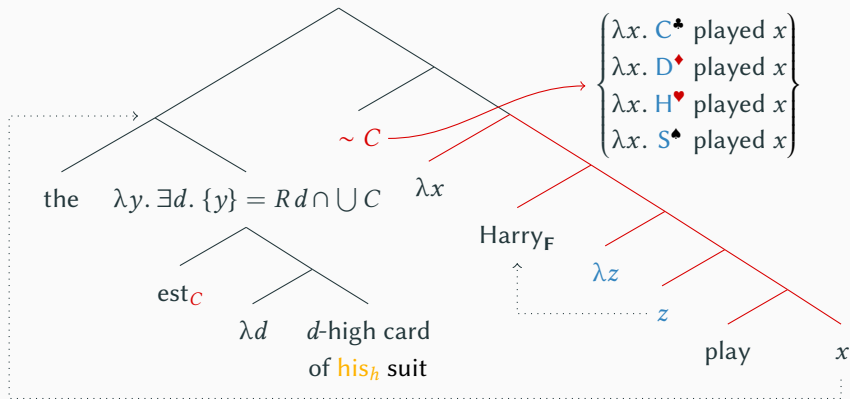
                                          Sam a spade

$$\left\{ \begin{array}{l} \lambda x.\ \mathrm{C}^{\clubsuit}\ \text{played}\ x \\ \lambda x.\ \mathrm{D}^{\blacklozenge}\ \text{played}\ x \\ \lambda x.\ \mathrm{H}^{\heartsuit}\ \text{played}\ x \\ \lambda x.\ \mathrm{S}^{\spadesuit}\ \text{played}\ x \end{array} \right\}$$

$\sim C$

the $\lambda y.\ \exists d.\ \{y\} = R\,d \cap \bigcup C$ λx

est_C Harry$_{\mathbf{F}}$

λd d-high card λz

          of his$_z$ suit z

                               play x
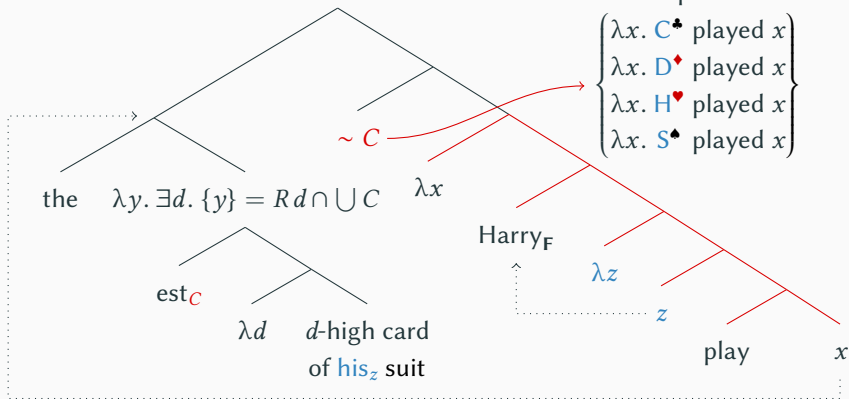
Two nonstarters

- Scope the focus

  ⋯▸ Harry λz

  ⋯▸ [the est$_C$ λd [d-high ... his$_z$ ...]]

  [$\sim C$ [λx $z_{\mathbf{F}}$ play x]]

$$\left\{\begin{array}{l}\lambda x.\ \text{C} \clubsuit \text{ play } x \\ \lambda x.\ \text{D} \diamondsuit \text{ play } x \\ \lambda x.\ \text{H} \heartsuit \text{ play } x \\ \lambda x.\ \text{S} \spadesuit \text{ play } x\end{array}\right\}$$
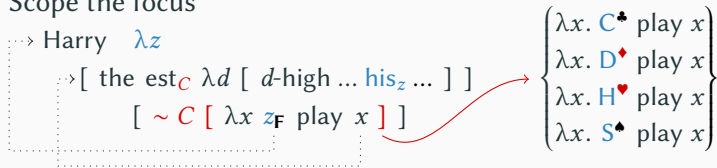
▷ No problem, but this is just the strict reading

- Unscope the superlative DP

  $\sim C$ [Harry$_{\mathbf{F}}$ λz z play [the est$_C$ λd [d-high ... his$_z$ ...]]]

$$\left\{\begin{array}{l}\text{C} \clubsuit \text{ play the est}_C\,(\lambda d.\ d\text{-high ... C ...}) \\ \text{D} \diamondsuit \text{ play the est}_C\,(\lambda d.\ d\text{-high ... D ...}) \\ \text{H} \heartsuit \text{ play the est}_C\,(\lambda d.\ d\text{-high ... H ...}) \\ \text{S} \spadesuit \text{ play the est}_C\,(\lambda d.\ d\text{-high ... S ...})\end{array}\right\}$$
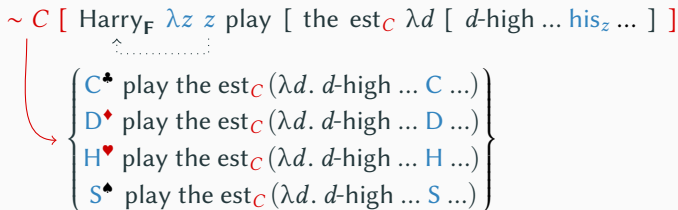
▷ Possibly incomprehensible, probably unusable

Reconstruction?

A more promising option: unscope just the part of the superlative DP that is bound into

[the est$_C$ λd [d-high ~~card of his$_z$ suit~~]]
      [~ C [λx Harry$_\mathbf{F}$ λz z play [x [card of his$_z$ suit]]]]

$$\left\{\begin{array}{l} \lambda x : \text{card of C's suit. C}^\clubsuit \text{ play } x, \\ \lambda x : \text{card of D's suit. D}^\diamondsuit \text{ play } x, \\ \lambda x : \text{card of H's suit. H}^\heartsuit \text{ play } x, \\ \lambda x : \text{card of S's suit. S}^\spadesuit \text{ play } x, \end{array}\right\}$$

Correct truth conditions!

- But looks like a *roofing violation* (Brasoveanu & Farkas 2011) ;
  cf. 'No boy submitted a paper he wrote' (Schwarz 2001) ;

- Also compromises recent motivations *for* restriction analyses based on failure to associate with superlative-internal focus (Tomaszewicz 2015)

Sloppy binding into the superlative adjective phrase

Sloppy readings also available for adjective-internal pronouns

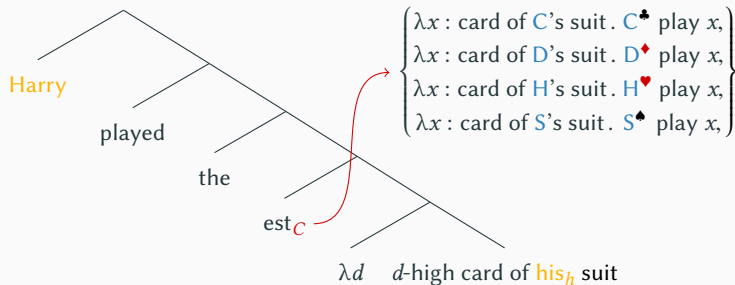(15) JOHN climbed the mountain closest to his house

    a. **Abs:** mntn closer to J's house than any other mntn

    b. **Strict:** J was closer to J's house than anyone else to J's house

    c. **Sloppy:** J was closer to J's house than anyone else to their house

[the est_C λd [mntn d-close to his_z house]]

    [$\sim C$ [λx John$_\textbf{F}$ λz z climb [x [mntn d-close to his_z house]]]]

- Yet, reconstruction impossible here, because the two arguments of the adjective are bound by conflicting operators

Give up on focus-sensitivity?

What if we were completely free to choose the right value for C, independent of the mechanics of association with focus?

$$\begin{cases} \lambda x : \text{card of } C\text{'s suit}.\ C^{\clubsuit} \text{ play } x, \\ \lambda x : \text{card of } D\text{'s suit}.\ D^{\diamondsuit} \text{ play } x, \\ \lambda x : \text{card of } H\text{'s suit}.\ H^{\heartsuit} \text{ play } x, \\ \lambda x : \text{card of } S\text{'s suit}.\ S^{\spadesuit} \text{ play } x, \end{cases}$$

Harry

played

the

est_C

$\lambda d \quad d\text{-high card of his}_h \text{ suit}$

The problem is that the superlative's arg only measures *hearts*

$$[\![\text{est}]\!](C)(R) = \lambda y.\ \exists d.\ \{y\} = d\text{-high heart} \cap \bigcup C$$

$$= \lambda y.\ \exists d.\ \{y\} = d\text{-high heart played by Harry}$$

▷ # Harry played the highest heart that he played

Give up on the noun phrase?

It seems to be that as long as the noun phrase is in the scope of the superlative, the comparison will be too narrow for sloppiness

- Bracket off the NP?   the [[est$_C$ high] [card of his$_h$ suit]]

  ▷ Would make the NP non-restrictive:
    'Of all the things in the closet, John picked out the biggest chair'
    #the [[est$_{closet\text{-}thing}$ big] [chair]]

- Ignore the NP?   the [[est$_C$ high] [card of his$_h$ suit]]

  ▷ That'd work! But then why is the comparison class necessarily restricted to cards?

Conclusion

(16) MARY needs to climb [the highest mountain]

    a. ✓Mary's mountain-climbing requirements exceed everybody else's

(17) MARY climbed [the highest mountain on her list]

    a. ✓Mary climbed a higher mountain from her list than anyone else did from their list

▷ Sloppy descriptions, like *de dicto* descriptions, appear to require the superlative to take scope outside of its description.

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Coppock, Elizabeth & David Beaver. 2014. A superlative argument for a minimal theory of definiteness. In *Proceedings of semantics and linguistic theory (SALT) 24*, 177–196.

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Szabolcsi, Anna. 1986. Comparative superlatives. In *MIT working papers in linguistics 8*, 245–265. Cambridge, MA.

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