Specificity: Combining the approaches

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March 13, 2002
University of Chicago
Outline of talk

- Specificity and scope
- Previous approaches and their problems
- Indefinites as partial variables
- Extension to plural quantifiers
- Conclusion
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1. The phenomenon

- Pragmatic ambiguity of indefinite descriptions:
  (1) A student in the syntax class cheated in the final exam

- Can be
  - statement of existence—non-specific usage
  - statement about a particular student—specific usage

  - specificity involves “cognitive contact” (Yeom)
  - different speech acts
  - rich descriptive content favors specific reading (and vice versa)
  - affinity between specificity and topicality
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Specificity and scope

- Quantifier scope is usually clause bounded

(2)  
   a. Mary will be happy if every movie is shown ($if > \forall, \forall > if$)
   
   b. Mary will be happy if at most three movies are shown ($if > 3_{\le}, 3_{\le} > if$)
   
   c. Mary will be happy if at least three movies are shown ($if > 3_{\ge}, 3_{\ge} > if$)
   
   d. Mary will be happy if exactly three movies are shown ($if > 3_{=} = if$)
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• Singular indefinites and plain cardinal quantifiers can escape scope islands

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• Exceptional wide scope not restricted to global scope (contra Fodor and Sag 1982)

• Intermediate scope readings are possible (Farkas 1981, Abusch 1994)

(4)  a. Every writer overheard the rumor that she didn’t write a book she wrote (∀ > ∃ > ¬)

     b. Every professor got a headache whenever there was a student he hated in class (∀ > ∃ > whenever)

• Also possible without bound pronoun inside the restriction

(5) In every town, every girl that a boy was in love with married an Albanian (∀ > ∃ > ∀ > ∃)
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In every town, every girl that a boy was in love with married an Albanian \((\forall > \exists > \forall > \exists)\)
Two questions:

1. Why can some quantifiers escape scope islands (and others can’t)?
2. What determines the scope taking behavior of a quantifier?
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2. Solution strategies

2.1. Long QR

- *Simplest solution:*
  There are two versions of QR (or whatever your favorite scoping mechanism is), one is island sensitive and the other one isn’t
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Problems

• Conceptually unpleasant

• Empirically wrong:

(6)  a. If three relatives of mine die, I’ll inherit a fortune
b. QR: \(|\text{RELATIVE}' \cap \lambda x (\text{DIE}'(x)) \rightarrow \text{INHERIT}'(i', \text{FORTUNE}'))| \geq 3
≈ There are three relatives such that if one of them ... 

c. correct reading: \(\exists X (X \subseteq \text{RELATIVE}' \land |X| = 3 \land ((\forall y.y \in X \rightarrow \text{DIE}'(y)) \rightarrow \text{INHERIT}'(i', \text{FORTUNE}'))))
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• Plural specifics have double scope (cf. Ruys 1992):
  ○ wide existential scope
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2.2. Unselective binding

- Analysis of wide scope indefinites by means of unselective binding (in the sense of Heim 1982):

\[(7)\]

a. If we invite some philosopher, Max will be offended

b. predicted reading:
\[\exists x((\text{PHILOSOPHER'}(x) \land \text{INVITE'}(\text{WE'}, x)) \rightarrow \text{OFFENDED'}(\text{MAX'}))\]

c. real reading:
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Problems

- Wrong truth conditions
- Known as “Donald Duck Problem” (because the existence of the non-philosopher Donald Duck is sufficient to make the sentence true)
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2.3. Indefinites as choice functions


- Intuition: *some movie* refers to some movie
- Thus determiner *some* maps the set of movies to an element of this set
- I.e. indefinite determiners denote choice functions

\[(8) \quad CF(f) \leftrightarrow \forall X. X \neq \emptyset \rightarrow f(X) \in X\]
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\[(8) \quad CF(f) \leftrightarrow \forall X. X \neq \emptyset \rightarrow f(X) \in X\]
• Technically: indefinite Det denotes variable over choice functions

• This variable is (non-deterministically) bound via existential closure at some superordinate level

(9) a. Every girl will be happy if some movie is shown.
   b. \( \exists f. CF(f) \land IS\_SHOWN'(f(MOVIE')) \rightarrow (\forall x. GIRL'(x) \rightarrow IS\_HAPPY'(x)) \)
   c. \( \exists y. MOVIE'y \land (IS\_SHOWN'(y) \rightarrow (\forall x. GIRL'(x) \rightarrow IS\_HAPPY'(x))) \)

• no Donald Duck problem

• double scope behavior can be accommodated
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   c. \[
      \exists y. MOVIE'y \land (IS\_SHOWN'(y) \rightarrow (\forall x. GIRL'(x) \rightarrow IS\_HAPPY'(x))))
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   \]

\[
(9) \quad c. \exists y. MOVIE'y \land (IS\_SHOWN'(y) \rightarrow (\forall x. GIRL'(x) \rightarrow IS\_HAPPY'(x)))
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   c. \( \exists y.\text{MOVIE'}y \land (IS_{\text{SHOWN}}'(y) \rightarrow (\forall x.\text{GIRL'}(x) \rightarrow \text{IS\_HAPPY'}(x))) \)  

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b. \[\exists f. \text{CF}(f) \land \text{IS SHOWN'}(f(\text{MOVIE'})) \rightarrow (\forall x. \text{GIRL'}(x) \rightarrow \text{IS HAPPY'}(x))\]

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- no Donald Duck problem
- double scope behavior can be accommodated
Problems

- **Empty set problem:**
  - Choice function supplies arbitrary object if applied to empty set
  - Thus according to CF-approach:
    \[ (10) \text{A cup moved } \not\equiv \text{There exists a cup} \]

- **Bound pronoun problem:**
  - Arises if indefinite NP contains a pronoun that is bound from outside the NP
    \[ (11) \]
    a. At most three girls, visited a boy that they fancied.
    b. \[ \exists f. CF(f) \land |\lambda x. \text{GIRL}'(x) \land \text{VISIT}'(x, f(\lambda y. \text{BOY}'(y) \land \text{FANCY}'(x, y))))| \leq 3 \]
    c. \[ |\lambda x. \text{GIRL}'(x) \land \forall y. \text{BOY}'(y) \land \text{FANCY}'(x, y) \rightarrow \text{VISIT}'(x, y)| \leq 3 \]
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    c. \( |\lambda x.\text{GIRL}'(x) \land \forall y.\text{BOY}'(y) \land \text{FANCY}'(x, y) \rightarrow \text{VISIT}'(x, y)| \leq 3 \)

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  c. \( \lambda x. \text{GIRL}'(x) \land \forall y. \text{BOY}'(y) \land \text{FANCY}'(x, y) \rightarrow \text{VISIT}'(x, y) \leq 3 \)

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        c. \( \lambda x.\ \text{GIRL}'(x) \land \forall y.\ \text{BOY}'(y) \land \text{FANCY}'(x, y) \rightarrow \text{VISIT}'(x, y) \leq 3 \)
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    $$(11) a. \ \exists f. CF(f) \land |\lambda x. \text{GIRL}'(x) \land \text{VISIT}'(x, f(\lambda y. \text{BOY}'(y) \land \text{FANCY}'(x, y)))| \leq 3$$

    $$b. \ |\lambda x. \text{GIRL}'(x) \land \forall y. \text{BOY}'(y) \land \text{FANCY}'(x, y) \rightarrow \text{VISIT}'(x, y)| \leq 3$$

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    a. At most three girls\(_i\) visited a boy that they\(_i\) fancied.
    b. \( \exists f. \text{CF}(f) \land |\lambda x. \text{GIRL}'(x) \land \text{VISIT}'(x, f(\lambda y. \text{BOY}'(y) \land \text{FANCY}'(x, y)))| \leq 3 \)
    c. \( |\lambda x. \text{GIRL}'(x) \land \forall y. \text{BOY}'(y) \land \text{FANCY}'(x, y) \rightarrow \text{VISIT}'(x, y)| \leq 3 \)
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    \[(11) \text{ a. At most three girls}_i \text{ visited a boy that they}_i \text{ fancied.} \]
    
    \[\text{ b. } \exists f. CF(f) \land |\lambda x. \text{GIRL}'(x) \land \text{VISIT}'(x, f(\lambda y. \text{BOY}'(y) \land \text{FANCY}'(x, y)))| \leq 3\]
    
    \[\text{ c. } |\lambda x. \text{GIRL}'(x) \land \forall y. \text{BOY}'(y) \land \text{FANCY}'(x, y) \rightarrow \text{VISIT}'(x, y)| \leq 3\]

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    c. $|\lambda x. \text{GIRL}'(x) \land \forall y. \text{BOY}'(y) \land \text{FANCY}'(x, y) \rightarrow \text{VISIT}'(x, y)| \leq 3$
  - CF-approach predicts a reading (b), which is equivalent to (c)
2.4. Specificity as presupposition accommodation


- Specific indefinites are presupposition triggers
- Wide scope is result of accommodation
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- Specific indefinites are presupposition triggers
- Wide scope is result of accommodation
Obvious parallels

- Preference for global scope:
  - *Classical presupposition trigger*
    1. Every Italian watched a film that showed the king in his childhood
    2. = There is a (salient?) king, and every Italian watched a film that showed him in his childhood
  - *Specific indefinite*
    1. Every Italian watched a program that showed a certain diva in her youth
    2. = There is a certain diva, and every Italian watched a program that showed her in her youth
Obvious parallels

● Preference for global scope:
  ○ Classical presupposition trigger
    (12) a. Every Italian watched a film that showed the king in his childhood
    b. = There is a (salient?) king and every Italian watched a film that showed him in his childhood
  ○ Specific indefinite
    (13) a. Every Italian watched a program that showed a certain diva in her youth
    b. = There is a certain diva and every Italian watched a program that showed her in her youth
Obvious parallels

- Preference for global scope:
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    (12) a. Every Italian watched a film that showed the king in his childhood  
    b. = There is a (salient?) king and every Italian watched a film that showed him in his childhood

  - *Specific indefinite*
    
    (13) a. Every Italian watched a program that showed a certain diva in her youth  
    b. = There is a certain diva and every Italian watched a program that showed her in her youth
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    (12) a. Every Italian watched a film that showed the king in his childhood
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    (13) a. Every Italian watched a program that showed a certain diva in her youth
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  - Specific indefinite
    (13) a. Every Italian watched a program that showed a certain diva in her youth
    b. = There is a certain diva and every Italian watched a program that showed her in her youth
“Trapping”: bound pronouns cannot become unbound

○ *Presupposition trigger*

(14) a. Every girl$_i$ visited her$_i$ boyfriend
   b. = Every girl has a boyfriend and visited him
   c. $\not\Rightarrow$ There is a boyfriend that every girl visited

○ *Specific indefinite*

(15) a. Every girl$_i$ visited a certain boy she$_i$ fancied
   b. = Every girl fancies a boy and visited him
   c. $\not\Rightarrow$ There is a boy that every girl visited
“Trapping”: bound pronouns cannot become unbound

- Presupposition trigger
  (14) a. Every girl$_i$ visited her$_i$ boyfriend
      b. $\equiv$ Every girl has a boyfriend and visited him
      c. $\not\Rightarrow$ There is a boyfriend that every girl visited

- Specific indefinite
  (15) a. Every girl$_i$ visited a certain boy she$_i$ fancied
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● “Trapping”: bound pronouns cannot become unbound
  ○ *Presupposition trigger*
    (14) a. Every girl, visited her boyfriend
        b. = Every girl has a boyfriend and visited him
        c. ∉ There is a boyfriend that every girl visited
  ○ *Specific indefinite*
    (15) a. Every girl, visited a certain boy she fancied
        b. = Every girl fancies a boy and visited him
        c. ∉ There is a boy that every girl visited
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    (14) a. Every girl, visited her boyfriend
        b. = Every girl has a boyfriend and visited him
        c. ⊳ There is a boyfriend that every girl visited
  
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    (15) a. Every girl, visited a certain boy she fancied
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• “Local informativity”: Accommodation/wide scope must not make substructures redundant
  ◦ Presupposition trigger
    (16) a. If France is a kingdom, the king of France is bald
       b. \(\neq\) There is a king of France, and if France is a kingdom, he is bald
  ◦ Specific indefinite
    (17) a. If John is not a single child, a certain sibling of him will inherit his house.
       b. \(\neq\) John has a sibling and if he is not a single child, this sibling will inherit his house

• avoids all shortcomings of above mentioned approaches
“Local informativity”: Accommodation/wide scope must not make substructures redundant

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  (16) a. If France is a kingdom, the king of France is bald
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  (16) a. If France is a kingdom, the king of France is bald  
  b. ̸= There is a king of France, and if France is a kingdom, he is bald

  ○ *Specific indefinite*

  (17) a. If John is not a single child, a certain sibling of him will inherit his house.  
  b. ̸= John has a sibling and if he is not a single child, this sibling will inherit his house

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• “Local informativity”: Accommodation/wide scope must not make substructures redundant
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    (16) a. If France is a kingdom, the king of France is bald 
    b. $\neq$ There is a king of France, and if France is a kingdom, he is bald 
  o Specific indefinite
    (17) a. If John is not a single child, a certain sibling of him will inherit his house. 
    b. $\neq$ John has a sibling and if he is not a single child, this sibling will inherit his house 

• avoids all shortcomings of above mentioned approaches
Problems

• Unless “ordinary” presuppositions, specifics cannot be bound

  (18) a. If a man walks, the man talks
      b. can mean: If a man_1 walks, he_i talks

  (19) a. If a man walks, a (certain) man talks
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• only formally spelled out theory of accommodation—van der Sandt 1992—is non-compositional
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3. Combining the approaches

3.1. The idea

- Heim style DRT, choice function approach, and specificity-as-presupposition each contain sound intuition
- should be seen as complementary rather than mutually exclusive
- the denotation of an indefinite as *as cup*

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  \( a \text{ cup} \sim [x | \text{CUP}'(x)] \)

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(20) a. A cup moved
   b. $\exists x. \text{MOVE'}([x|\text{CUP'}(x)])$

c. $\|\text{MOVE'}([x|\text{CUP'}(x)])\|_g = \begin{cases} 
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c. $\|\text{MOVE}'([x|\text{CUP}'(x)]) \rightarrow \text{GHIP}'\|_g =$

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\begin{cases}
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• restrictions on variables comparable to presuppositions
• existential closure amounts to accommodation
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- Wide scope existential closure leads to reading (b) for (a), which is equivalent to (c)

(22) a. Every girl visited a boy she fancied  
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4. Plurals

The puzzle

- *three cups* and *at least three cups* have the same truth-conditional content:

\[
\text{Three cups moved } \equiv \text{ At least three cups moved}
\]

- Yet the former can be specific, the latter not:

  (23) a. If three cups moved, the ghost was present
  
  b. *Can mean:* There are three cups, and if they all moved, the ghost was present

  (24) a. If at least three cups moved, the ghost was present
  
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(25) Three cups moved. They (= the three cups) turned black

*Perhaps there are more cups that moved which did turn black*

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- In current framework, anchors for anaphors correspond to free partial variables
- Plural anaphors correspond to set variables \((X, Y, Z, \ldots)\)
- Combination of plural variable with singular predicate (like move, break) requires insertion of a distribution operator (tacit each)

\[(27)\]  
a. Three cups moved  
b. \(\forall y(y \in [X|X \subseteq \text{CUP'} \land |X| = 3] \rightarrow \text{MOVE'}(y))\)

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Specific interpretation

• Difference becomes truth conditionally relevant if we do wide scope existential closure

(29) a. If three cups moved, the ghost was present

b. \( \exists X (\forall y (y \in [X | X \subseteq \textsc{cup'} \land |X| = 3] \rightarrow \text{MOVE}'(y)) \rightarrow \text{GHWP}') \)

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- Wide scope interpretation is possible
Compare to:

(30) a. If at least three cups moved, the ghost was present
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- Antecedent of conditional would become redundant under wide scope interpretation
- Thus ruled out by “Local Informativity Constraint”: Avoid redundant substructures
• Compare to:

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c. \[ = \text{There are at least three cups that moved, and if they moved, the ghost was present} \]

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The generalization

• “Local informativity” is violated iff VP becomes part of the restriction of a partial variable.

⇒ Generalization

A quantifier has a specific reading iff it is not exhaustive.

• Gives correct classification of quantifiers

<table>
<thead>
<tr>
<th>exhaustive</th>
<th>non-exhaustive</th>
</tr>
</thead>
<tbody>
<tr>
<td>at least three cups</td>
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A quantifier has a specific reading iff it is not exhaustive.

- Gives correct classification of quantifiers

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