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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- 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
- Distinction has impact on pragmatics and discourse (cf. Fodor and Sag 1982, Ludlow and Neale 1991, Prince 1982, Yeom 1998)
  - 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 ($if > 3_{\leq}$, *$3_{\leq} > if$)

c. Mary will be happy if at least three movies are shown ($if > 3_{\geq}$, *$3_{\geq} > if$)

d. Mary will be happy if exactly three movies are shown ($if > 3_{=}$, *$3_{=} > if$)

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- Singular indefinites and plain cardinal quantifiers can escape scope islands

(3) a. Mary will be happy if a/some movie is shown (if $> \exists, \exists >$ if)
b. Mary will be happy if three movies are shown (if $> 3, 3 >$ if)

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- 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* ($\forall > \exists > \neg$)

b. Every professor got a headache whenever there was *a student he hated* in class ($\forall > \exists >$ 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 ($\forall > \exists > \forall > \exists$)

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- *Simplest solution:*
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Problems

- Conceptually unpleasant
- Empirically wrong:

(6) a. If three relatives of mine die, I'll inherit a fortune

b. QR: $|\text{RELATIVE'} \cap \lambda x(\text{DIE'}(x) \rightarrow \text{INHERIT'}(\text{I'}, \text{FORTUNE'}))| \geq 3$

$\approx$ *There are three relatives such that if* **one** *of them ...*

c. correct reading: $\exists X(X \subseteq \text{RELATIVE'} \wedge |X| = 3 \wedge ((\forall y.y \in X \rightarrow \text{DIE'}(y)) \rightarrow \text{INHERIT'}(\text{I'}, \text{FORTUNE'})))$

$\approx$ *There are three relatives such that if* **each** *of them ...*

- Plural specifics have **double scope** (cf. Ruys 1992):
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- 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:
$\exists x((\textsc{philosopher'}(x) \wedge \textsc{invite'}(\textsc{we'}, x)) \rightarrow \textsc{offended'}(\textsc{max'}))$
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Reinhart 1992, Reinhart 1997, Winter 1997, Kratzer 1998, Chierchia 2001...:

- 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**

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Reinhart 1992, Reinhart 1997, Winter 1997, Kratzer 1998, Chierchia 2001...:

- 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**

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- 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. $\exists f.CF(f) \wedge \text{IS\_SHOWN'}(f(\text{MOVIE'})) \longrightarrow (\forall x.\text{GIRL'}(x) \longrightarrow \text{IS\_HAPPY'}(x))$

c. $\exists y.\text{MOVIE'}y \wedge (\text{IS\_SHOWN'}(y) \longrightarrow (\forall x.\text{GIRL'}(x) \longrightarrow \text{IS\_HAPPY'}(x)))$

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Problems

- **Empty set problem:**
  - Choice function supplies arbitrary object if applied to empty set
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(10) A cup moved $\not\models$ There exists a cup

- **Bound pronoun problem:**
  - Arises if indefinite NP contains a pronoun that is bound from outside the NP

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Chresti 1995, Reniers 1997, van Geenhoven 1998, Krifka 1998, Yeom 1998, Geurts 1999, maybe more:

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

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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$_i$ and every Italian watched a film that showed him$_i$ in his$_i$ childhood

  - *Specific indefinite*

(13) a. Every Italian watched a program that showed **a certain diva** in her youth

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- “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*

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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

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(17) a. If John is not a single child, a certain sibling of him will inherit his house.
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(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

- avoids all shortcomings of above mentioned approaches

- “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

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Problems

- Unlike "ordinary" presuppositions, specifics cannot be bound

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

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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*

DRT	*CF*	*Presup.*
is supplied by context	is some cup	does not exist if it is not a cup

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3.2. Technical implementation

- Denotation of *a cup* is a **partial variable**:

$$\textit{a cup} \rightsquigarrow [x|\text{CUP'}(x)]$$

- partial variables only denote if the restriction is true
- otherwise they behave like ordinary variables
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- *If x is a variable of type α and φ is a formula of type t, then $[x|\varphi]$ is a partial variable of type α*
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An example

(20) a. A cup moved

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4. Plurals

The puzzle

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

$$\textit{Three cups moved} \equiv \textit{At least three cups moved}$$

- 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

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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 $(X, Y, Z, ...)$
- Combination of plural variable with singular predicate (like *move, break*) requires insertion of a distribution operator (tacit *each*)

(27) a. Three cups moved

b. $\forall y(y \in [X | X \subseteq \text{CUP'} \wedge |X| = 3] \rightarrow \text{MOVE'}(y))$

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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. $\exists X(\forall y(y \in [X|X \subseteq \textsc{cup}' \wedge |X| = 3] \rightarrow \textsc{move}'(y)) \rightarrow \textsc{ghwp}')$

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- "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

exhaustive	**non-exhaustive**
at least three cups	a cup
at most three cups	three cups
exactly three cups	some cups
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- existential impact via unselective closure operation
- combines advanteges of DRT, CF, and presuppsositional analyses of the phenomena
- predicts correlation betweeen exhaustivity and impossibility of a specific reading of plural quantifiers

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