Lecture #5

24.979 Topics in Semantics

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Preview

Today:

- Review: The definite article
- Plural definite descriptions

Future lectures:

- More on plural definite descriptions
- Free choice occurrences of *any*
- Explanatory approaches to *any*

Definite descriptions and maximality

Tanya: Is the definite article that combines with singular NPs distinct from the one that combines with plural NPs? (apparently distinct presuppositions!)

Uniform presupposition of *the* (cf. Sharvy 1980, Link 1983)

(1) $[\![\text{the}]\!](\text{P})$ is defined only if $\exists \text{x}(\max(\text{P})(\text{x}))$.
If defined, $[\![\text{the}]\!](\text{P}) = \iota \text{x}(\max(\text{P})(\text{x}))$.

(2) $\max(\text{P})(\text{x}) = 1$ iff $\text{P}(\text{x}) \wedge \forall \text{y}(\text{P}(\text{y}) \rightarrow \text{y} \sqsubseteq \text{x})$

the workers

(3) a. $\max([\![\text{workers}]\!])(\text{x}) = 1$ iff $[\![\text{workers}]\!](\text{x}) \wedge \forall \text{y}([\![\text{workers}]\!](\text{y}) \rightarrow \text{y} \sqsubseteq \text{x})$
b. The presupposition of $[\![\text{the workers}]\!]$ corresponds to (merely) there being a plurality of workers – $[\![\text{workers}]\!]$ is distributive/cumulative.

the worker

(4) a. $\max([\![\text{worker}]\!])(\text{x}) = 1$ iff $[\![\text{worker}]\!](\text{x}) \wedge \forall \text{y}([\![\text{worker}]\!](\text{y}) \rightarrow \text{y} \sqsubseteq \text{x})$
b. The presupposition of $[\![\text{the worker}]\!]$ corresponds to there being a unique worker.

Definite descriptions and maximality

Maximal informativity (stronger variant, Fox & Hackl 2006)

(5) $\text{max}_i^{F\&H}(\text{P}_{(e(st))})(\text{x})(\text{w}) = 1$ iff $\text{P(x)(w)} \wedge \forall \text{x'}(\text{P(x')(w)} \rightarrow \text{P(x)} \Rightarrow \text{P(x')})$

(6) $[\![\text{the}]\!](\text{P})(\text{w})$ is defined only if $\exists \text{x}(\text{max}_i(\text{P})(\text{x})(\text{w}))$.
If defined $[\![\text{the}]\!](\text{P})(\text{w}) = \iota \text{x}(\text{max}_i(\text{P})(\text{x})(\text{w}))$

Fact about distributive predicates (recall our discussion of downward-scalarity):

(7) For all w, $\lambda \text{x}.\text{max}_i(\text{P})(\text{x})(\text{w}) = \text{max}(\lambda \text{x}.\text{P}(\text{x})(\text{w}))$.

(8) a. $[\![$the workers$]\!]$: there is a plurality of workers
b. $[\![$the worker$]\!]$: there is a unique worker

Can we distinguish the two formulations of the meaning of *the* empirically?

(see von Fintel, Fox & Iatridou 2014 for a positive answer)

Plural definite descriptions

Plural definite descriptions: some expectations

Distributive predicates:

(9) The workers who attended any DSA rallies were fired.

(10) a. The workers who attended any DSA rallies were fired.
b. There's a plurality of workers who attended DSA rallies in Newton.
c. $\Rightarrow$ The workers who attended any DSA rallies in Newton were fired.

Naive expectation about collective predicates: *any* should be unacceptable in definite descriptions that combine with collective predicates

(11) a. The students with any knowledge of French are numerous.
b. There's a plurality of students with consid. knowledge of French.
c. $\not\Rightarrow$ The students with consid. knowledge of French are numerous.

Collective predicates: tabulating the facts (cf. Gajewski & Hsieh 2014)

From most to least acceptable (at least without special priming):

(12) a. The students with any sense dispersed after the rally.
b. The students who had any grievances assembled in the hall.

. . . .

(13) a. The soldiers with any siege experience surrounded the fort.
b. The athletes who came to any practices formed a good team.

. . . .

(14) a. The students with any knowledge of French are numerous. ?
b. The students that have ever failed my class are many in number.

. . . .

(15) a. The boxes that have ever held sprockets outweigh the truck. ??
b. The potatoes picked on any European farm weighed 400 tons.
(improvement with adnominal 'together'?)

(The fact that there seems to be cross-speaker variation, and that perhaps all of these may be construed as acceptable, is an explanandum in its own right.)

Gather, assemble, disperse – Strawson Entailment-Reversal after all

Distribution to non-atoms of certain collective predicates:

(16) a. $\forall$x,y (y$\sqsubseteq$x $\wedge$ card(y)$\geq$2 $\wedge$ $[\![$gather$]\!]$(x) $\rightarrow$ $[\![$gather$]\!]$(y))
b. $\forall$x,y,z (y$\sqsubseteq$x $\wedge$ card(y)$\geq$2 $\wedge$ $[\![$disperse$]\!]$(x)(z) $\rightarrow$ $[\![$disperse$]\!]$(y)(z))

Strawson Entailment-Reversal:

(17) The students who read any book gathered.

(18) a. $[\![$[the students λx any book λy [x read y]] gathered$]\!]$
b. There is a plurality of students who read a long book.
c. $\Rightarrow$ $[\![$[the students λx any book λy [x read y]] gathered$]\!]$

(19) We dispersed the protesters who demanded any judicial reforms.

(20) a. $[\![$We dispersed [the protesters λx any reforms λy x demand y]$]\!]$
b. There is a plurality of protesters who demand judicial reforms.
c. $\Rightarrow$ $[\![$We dispersed [the protesters λx any jud. ref's λy x demand y]$]\!]$

Accordingly, we focus on *surround the fort (weigh 900 kg, be numerous).*

Plural definite descriptions: strategies for approaching the puzzle

- DP-centered strategies:
  - Modified notion of Strawson entailment (Gajewski & Hsieh 2014): We need to revise the notion of entailment so that it subsumes the part-of relation defined on the domain of individuals.
  - Decomposition of definite descriptions: Perhaps there is more to the structure of definite DPs than usually assumed (though see, e.g., Beaver & Coppock 2016, Bumford 2018), in particular, they may contain an SER environment.
- S-centered strategies:
  - Standard distributivity (as entertained by Gajewski & Hsieh): Perhaps one obtains an SER environment via a (vacuous) Distributivity operator.
  - Participatory distributivity re-analysis of (some) collective predicates may lead to there being an SER environment.

All of these strategies could be **coupled with certain preferences** that would account for variability. For example: What environment is selected for evaluating SERness? (Hopefully, this would fit in with an explanatory approach.)

DP-centered approach 1: Revising entailment

Gajewski & Hsieh propose the following revision of Strawson entailment:

(21) **Strawson Entailment** ($\Rightarrow_s$)

a. For any p, q of type t: p $\Rightarrow_s$ q iff p $=$ 0 or q $=$ 1.

b. For any x, y of type e: x $\Rightarrow_s$ y iff y $\sqsubseteq$ x.

c. For any f, g of type $(\sigma\tau)$, f $\Rightarrow_s$ g iff for every x of type σ such that g(x) is defined, f(x) $\Rightarrow$ g(x).

(22) $[\![\text{the}]\!]$(P)(w) is defined only if $\exists$x(max$_i$(P)(x)(w)).
If defined, $[\![\text{the}]\!]$(P)(w) $=$ ιx(max$_i$(P)(x)(w)).

(23) For every w, P, P' such that P$\Rightarrow$P': $[\![\text{the}]\!]$(P')(w) $\Rightarrow_s$ $[\![\text{the}]\!]$(P)(w).

(24) [$_{DP}$ the students λx any book λy x read y] is SER wrt [any book].

DP-centered approach 2: Decomposition

(25) $[\![\text{the}]\!](\text{P})(\text{w})$ is defined only if $\exists\text{x}(\text{max}_i(\text{P})(\text{x})(\text{w}))$.
If defined, $[\![\text{the}]\!](\text{P})(\text{w}) = \iota\text{x}(\text{max}_i(\text{P})(\text{x})(\text{w}))$

Recall the analysis of *only*:

(26) $[\![\text{only}]\!](\text{x})(\text{P})(\text{w})$ is defined only if $\text{P}(\text{x})(\text{w})$.
If defined, $[\![\text{only}]\!](\text{x})(\text{P})(\text{w}) = 1$ iff $\text{max}_i(\text{P})(\text{x})(\text{w})$.

(27) a. Only Mary arrived.
b. (Mary arrived $\wedge$) $\forall$x(x arrived $\rightarrow$ ^(M. arrived) $\Rightarrow$ ^(x arrived))

One possible decomposition: covert *only* (cf. Nicolae 2015 on questions)

(28) a. the NP = [IOTA [λx [[only x] NP]] w]
b. If defined, $[\![\text{IOTA}]\!](\text{P}_{e(st)})(\text{w}) = \iota\text{x}(\text{P}(\text{x})(\text{w}))$

(29) [IOTA [λx [only x] students λz any book λy z read y] w]

(30) [λx [only x] students λz any book λy z read y] and [[only x] students λz any book λy z read y]] are both SER wrt [any book].

Partitives and plural definite descriptions

How can we differentiate between different collective predicates on these approaches? Do we make undesirable (naive) predictions about partitives?

Recall the examples with distributive predicates:

(31) a. The students who read anything about polarity passed.
b. The workers who attended any DSA rallies were fired.

Partitive universal quantifier:

(32) a. All of the students who read anything about polarity passed.
b. All of the workers who attended any DSA rallies were fired.

Partitive existential quantifier:

(33) a. *Some of the students who read anything about polarity passed.
b. *Some of the workers who attended any DSA rallies were fired.

This is problematic for the above account!

S-centered approach 1: Distributivity

Gajewski & Hsieh entertain a Distributivity-based account. Let us assume that a potentially vacuous Distributivity operator is always available.

Attempt #1: No restriction on the domain of Dist

(34) $[\![\text{Dist}]\!](C)(x)(P) = 1$ iff $\forall y\ (y \sqsubseteq x \wedge C(y) \rightarrow P(y))$

(35)
a. $[\![$[Dist C [the students with any knowledge]] are numerous$]\!]$
b. There is a plurality of students with considerable knowledge.
c. $\overset{\not\Rightarrow}{\not\Leftarrow}$ $[\![$[Dist C [the students with any consid. knowledge]] are num.$]\!]$

S-centered approach 1: Distributivity

Attempt #2: existence presupposition

(36) $[\![\text{Dist}]\!](\text{C})(\text{x})$ is defined only if $\exists \text{y}\ (\text{y} \sqsubseteq \text{x} \wedge \text{C}(\text{y}))$.
If defined, $[\![\text{Dist}]\!](\text{C})(\text{x})(\text{P}) = 1$ iff $\forall \text{y}\ (\text{y} \sqsubseteq \text{x} \wedge \text{C}(\text{y}) \rightarrow \text{P}(\text{y}))$.

(37)
a. $[\![$[Dist C [the students with any knowledge]] are numerous$]\!]$
b. There is a plurality of students who have considerable knowledge.
c. A plurality of students with considerable knowledge is in C.
d. $\Rightarrow$ $[\![$[Dist C [the students with any consid. knowledge]] are num.$]\!]$

(38)
a. $[\![$[Dist C [the students with any consid. knowledge]] are num.$]\!]$
b. There is a plurality of students who have (considerable) knowledge.
c. A plurality of students with some knowledge is in C.
d. $\not\Rightarrow$ $[\![$[Dist C [the students with any knowledge]] are num.$]\!]$