

## Lecture #12

24.979 Topics in Semantics

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# The Setup and Some of Its Consequences

## The system

- (1) [even [<sub>S</sub> ... indef D<sub>F</sub> NP ...]]
- (2) **Presupposition:**  $\forall D', D: \llbracket D' \rrbracket \subset \llbracket D \rrbracket \cap \llbracket NP \rrbracket \rightarrow P_c(\llbracket S \rrbracket) < P_c(\llbracket S[D/D'] \rrbracket)$
- (3) **Fact:** For any information state  $c$  and any propositions  $p, q$ :  
if  $p \Rightarrow_{c,s} q$ , then  $P_c(p) \leq P_c(q)$ . (where  $p \Rightarrow_{c,s} q$  iff  $p \cap c \Rightarrow_s q$ .)

## Some consequences

- (4)  $S$  is  $\times \times \times$  with respect to the domain of *indef*:
  - a. **(Strawson) EP:** faulty presuppositions, unacceptability  
EP environments, plain singular definite descriptions
  - b. **(Strawson) ER (not EP):** licit presuppositions, acceptability  
(Strawson) ER environments, existential modals

## What about?

- c. **Strawson non-monotone:** contingent presuppositions

**The Condition:** occurrences of *any* ungrammatical

**The System:** occurrences of *any* in principle grammatical (it triggers a contingent – thus, non-pathological – presupposition)

## What we derived last time?

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### Singular definite descriptions (in generics)

- (5) The mayor with any sense controls the schoolboard. (Hoeksema)

### Non-monotone nominal quantifiers (specific inferences about context)

- (6) a. Exactly 2 (out of 10) students did any work at all. (Linebarger)  
b. #Exactly 9 (out of 10) students did any work at all.

### Desire predicates (specific inferences about context)

- (7) a. I am glad that we got any tickets. (Kadmon & Landman)  
b. I hope that there is any food left. (Giannakidou)

### Universal modals and doxastic/epistemic attitude

- (8) a. #I believe that there is any food left.  
b. #You are required to read any book.

## Reminder about the malleability of the system

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There are several assumptions in our system that could/should be modified/loosened/explicated more. For example, while we assumed the following **(a)** association pattern (with the subdomain alternatives being relevant),

(9) [even [<sub>S</sub> ... indef D<sub>F</sub> ...]]

we could have very well assumed an ambiguity in association, (9) or (10). The only occurrences of *any*-DP for which a disambiguation to (9) would be forced by the properties of the sentence are those in existential modal sentences.

(10) [even [<sub>S</sub> ... indef<sub>F</sub> D ...]]

Unsurprisingly, this mirrors the process of our revising the Condition (shift from *any DP* to the domain of *any DP* in the discussion of free choice *any*). Two other parameters are **(b)** what alternatives may be pruned (at least some subdomain alt's should not be) and **(c)** the nature of the information state relative to which the scalar presupposition is evaluated.

## **Intervention**

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## Intervention by scalar items

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The Condition and the system are not restrictive enough:

- (11) a. \*I doubt that Mary and any boy have blue eyes.  
b. \*John didn't drink any whisky and the soda.

- (12) a. \*I doubt that every student did any of her homework.  
b. \*Not every student did any homework.

- (13) \*Mary is surprised that 4 friends lent her any of their books.

The presupposition of *even* is almost tautologous in these examples:

- (14) For all  $D' \subset D$ :  
a. I doubt that every student did any homework in  $D$   
b.  $\Rightarrow$  I doubt that every student did any homework in  $D'$

## Intervention by scalar items: operator-based condition

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Linebarger's (1987) Immediate Scope Constraint:

(15) **Immediate scope constraint (ISC):**

An NPI is acceptable in a sentence *S* if in the LF of *S* the NPI is in the immediate scope of an entailment-reversing operator; that is, only if (i) it occurs in the scope of an entailment-reversing operator, and (ii) there are no logical elements intervening between it and the entailment-reversing operator.

Problematic data for the generalization:

- (16) a. John didn't talk to Mary or any boy.  
b. Mary is surprised that one friend lent her any of his books.

Condition on interveners:

(17) **Sufficient condition to be an intervener** (operator-based)

A logical operator counts as an intervener if it entails at least some of its scalar alternatives.

## New observation (joint work with Brian Buccola)

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But *and* is not an intervener *simpliciter* either...

(18) \*I don't think that Mary and any boy here have ever laughed at my jokes.

(19) I don't think that Mary and any boy here have ever collaborated.

(20) \*John didn't drink the soda and any whisky.

(21) John didn't mix the soda and any whisky.

Further types of felicitous examples

(22) I don't think that Mary and any boy here have ever laughed at each other's jokes.

(23) The keeper didn't put any monkey and the lion into the same cage.

(24) The HR person doubts that Mary and any engineer will be promoted together.



## The puzzle

These contrasts are unexpected on the condition. Boolean 'and' (Winter 2001):

- (25) a. I doubt that Mary and any boy collaborated.  
b. [I doubt [ $\exists f$  [ $\exists \min$  [[G Mary] **and** [G [f [D boy]]]]]] have met]]  
c.  $\neg \exists f (\exists x (x = \text{Mary} + f(D \cap \text{boy}) \wedge x \text{ collaborate}))$
- (26) a. #I doubt that Mary and any boy laughed at my jokes.  
b. [I doubt [ $\exists f$  [ $\exists \min$  [[G Mary] **and** [G [f [D boy]]]]]] laughed]]  
c.  $\neg \exists f (\exists x (x = \text{Mary} + f(D \cap \text{boy}) \wedge x \text{ *laughed}))$

Recall from previous slides (cf. Champollion 2016):

- (27) a.  $[\text{and}](P)(Q)(x) = 1$  iff  $P(x) = Q(x) = 1$   
b.  $[\text{G}](z)(x) = 1$  iff  $z \sqsubseteq x$   
c.  $[\text{min}](P)(x) = 1$  iff  $P(x) \wedge \neg \exists x': x' \sqsubset x \wedge P(x')$

- (28) **Sufficient condition to be an intervener** (environment-based)  
A logical operator is an intervener in a constituent that is entailment-reversing with respect to the domain of *any* if (i) it is dominated by the constituent, and (ii) the constituent is (Strawson) entailed by an alternative obtained by substituting the logical operator with one of its alternatives.

Illustration (the use of singular NPs is not crucial):

- (29) a. I doubt that the girls or any boys collaborated.  
b.  $\nrightarrow_s$  I doubt that the girls and any boys collaborated.
- (30) a. I doubt that Mary or any boy laughed.  
b.  $\Rightarrow_s$  I doubt that Mary and any boy laughed.

## Potential prediction

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### Numeral intervention

- (31) a. I don't have 1 colleague who has ever read any paper of mine.  
b. \*I don't have 4 colleagues who have ever read any paper of mine.
- (32) I don't have 4 colleagues who have ever written any paper together.
- (33) <?>The journalist doubts that 100 soldiers surrounded any fort in their vicinity.

No similar configurations can be constructed for other interveners due to an entailment relation necessarily obtaining between the alternatives. Illustration:

- (34) a. All the students lifted the piano together  
b.  $\Rightarrow$  Some students lifted the piano together.

## Towards an explanation

Chierchia 2013 proposes obligatory association with intervening scalar items in his system. We can borrow the same stipulation.

(35) #I doubt that John **and** any **D** girl smiled.

As it stands, various parses may be available to us (simplifying):

- (36) a. [even [I doubt that TS John **and** [any  $D_F$  girl] smiled]]  
b.  $F([I \text{ doubt that TS John } \mathbf{and} [any D_F \text{ girl}] \text{ smiled}]) =$   
 $\{[[I \text{ doubt that TS John } \mathbf{and} [any D' \text{ girl}] \text{ smiled}]],$   
 $[I \text{ doubt that TS John or any } D' \text{ girl smiled}]] \mid [D'] \subseteq [D]\}$

Consequence of the stipulation for **distributive predicates**:

- (37) # $P_c$ (I doubt that John and any girl smiled)  
 $< P_c$ (I doubt that John or any girl smiled)

**Collective predicates:** a contingent scalar presupposition is generated. Avoid contingency: prune excludable alternatives, which the disjunctive alternative is (this is in line with our above assumptions about pruning).

## **Challenge & variation**

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## Asymmetry: covert vs. overt even

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Heim 1984 notices an asymmetry between *any* and *even one*:

- (38) a. Every student who read any book passed the exam.  
b. Every student who read any book wore blue jeans.
- (39) a. Every student who read even one book passed the exam.  
b. ??Every student who read even one book wore blue jeans.

The behavior of *even one* is unexpected given what we said so far ...

## Accounting for context-sensitivity

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Observation: Exhaustification of the associate of *even* (*one* vs. the domain of *any*) gives us the scalar presuppositions that explain the apparent context-sensitivity (as discussed in Crnič 2014)

- (40) a. Every student who read even one book passed the exam.  
b. [even [every student<sub>x</sub> [exh [one<sub>F</sub> book]<sub>y</sub> [x read y] passed the exam]]

- (41) For  $n > 1$ ,  
 $P_c(\text{Every student who read exactly 1 book passed the exam})$   
 $< P_c(\text{Every student who read exactly 2 books passed the exam})$

- (42) a. ??Every student who read even one book wore blue jeans.  
b. [even [every student<sub>x</sub> [exh [one book]<sub>y</sub> [x read y] wore b]]]

- (43) For  $n > 1$ ,  
 $?P_c(\text{Every student who read exactly 1 book wore blue jeans})$   
 $< P_c(\text{Every student who read exactly 2 books wore blue jeans})$

## Accounting for context-sensitivity

What happens with *any*-DPs on this assumption? Exhaustification of the domain of *any* is vacuous, so the exhaustification does not suspend entailment. And the exhaustification of *any* itself does not suspend pertinent entailment either!

- (44) a. Every student who read any book wore blue jeans.  
b. [even [every student<sub>x</sub> [exh [any D<sub>F</sub> book]<sub>y</sub> [x read y] wore bj]]

- (45) For all  $D' \subseteq D$ ,  
Every student who read some but not every book in D wore bj  
 $\Rightarrow_s$  Every student who read some but not every book in D' wore bj

Note that this exhaustification appears to occur only in certain Strawson-ER environments (roughly, environments in which *exh* can be easily embedded and does not cause a clash with (weakened) additivity):

- (46) a. Modric didn't score even one<sub>F</sub> goal in the last two matches.  
b. I am surprised that you ate even one<sub>F</sub> M&M.

**Wherefrom the assumption about “obligatory exhaustification if possible”?**



## Some remarks on variation: minimizers

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Context-sensitivity (vs. *any*)

- (47) a. Everyone who lifted a finger to help was rewarded.  
b. #Everyone who lifted a finger to help wore blue jeans.

Lack of free choice (vs. *any*)

- (48) a. #You are allowed to read even one book.  
b. #Mary was allowed to lift a finger to help.

Explanation: form of the alternatives (+ exhaustification stipulation)

- (49) a.  $F(\text{one}_F) = \{\text{one, two, three, ...}\}$   
b.  $F(\text{lift a finger}_F) = \{P_1, P_2, P_3, \dots \mid P_1 = \text{lift a finger}, P_{i+1} \Rightarrow P_i\}$

There are many other expressions whose distributions resemble that of *any* in some respects, but differ from it in others (cf. Zwarts 1998, Gajewski 2011, Chierchia 2013, Iatridou & Zeijlstra 2018, Staniszewski 2018, etc) ...

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24.979 Topics in Semantics: Negative Polarity Items  
Fall 2018

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