

# Presuppositions Can Disrupt NPI Licensing

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UCSD. February 17, 2009

- ▶ Presuppositions can disrupt NPI licensing.

- (1) (*Context*: Mary read something interesting.)  
\*I don't think [John]<sub>F</sub> read **anything** interesting **too**.
- (2) I don't think [John]<sub>F</sub> read something interesting **too**.
- (3) *Presupposition of (2)*: **Somebody other than John**  
**read something interesting.**

► My goals:

- (i.) Prove that a theory of NPI licensing based on Strawson-entailment cannot work.
- (ii.) Show that the notion of meaning that is relevant for NPI licensing (sometimes) includes presuppositions.

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# Downward-Entailingness

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- ▶ Fauconnier-Ladusaw: An NPI requires being in the scope of a **downward-entailing function** at LF.

### (4) Downward Entailingness:

A function  $f$  of type  $\langle \sigma, t \rangle$  is DE iff for all  $x, y$  of type  $\sigma$  such that  $x \Rightarrow y$ :  $f(y) \Rightarrow f(x)$

- ▶ DE functions: *'no student', not, doubt, without, 'less than three students', 'few students'...*

# Sorry is not DE

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- (5) John is sorry that Mary bought **any** car.
- (6) a. John is sorry that Mary bought **a car**.  
*Presupposition: Mary bought a car.*
- b. John is sorry that Mary bought **a Honda**.  
*Presupposition: Mary bought a Honda.*

Unclear whether (6-a) entails (6-b)

# Strawson Downward-Entailment (von Fintel 1999)

- (7) **Strawson-Entailment:**  
 $\Phi$  Strawson-entails  $\Psi$  if and only if, **assuming that the presuppositions of  $\Psi$  are satisfied**, whenever  $\Phi$  is true,  $\Psi$  is true.
- (8) **Strawson Downward-Entailingness:**  
A function  $f$  of type  $\langle \sigma, t \rangle$  is Strawson-DE iff for all  $x, y$  of type  $\sigma$  such that  $x \Rightarrow y$  and  **$f(x)$  is defined:**  
 $f(y) \Rightarrow f(x)$
- (9) **von Fintel's licensing condition:** A (weak) NPI is licensed only if it is **in the scope of a SDE operator.**

# Sorry is SDE

- ▶ von Fintel: A (weak) NPI is licensed only if it is in the scope of a SDE operator.

## Example

(10) John is sorry that Mary bought **any** car.

(11) a. John is sorry that Mary bought **a car**.

*Presupposition:* Mary bought a car.

b. John is sorry that Mary bought **a Honda**.

*Presupposition:* Mary bought a Honda.

(11-a)  $\Rightarrow$  *Strawson* (11-b)

- ▶ *Only* and emotive factives like *regret* and *surprise* are captured by von Fintel's SDEness.

# Strawson Upward-Entailment

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- ▶ Lahiri (1998): A (weak) NPI is only licensed in the scope of a SDE, **non SUE operator**.

### (12) Strawson Upward-Entailingness:

A function  $f$  of type  $\langle \sigma, t \rangle$  is Strawson-UE iff for all  $x, y$  of type  $\sigma$  such that  $x \Rightarrow y$  and  **$f(y)$  is defined**:  $f(x) \Rightarrow f(y)$

# Singular definite article

- (13) (*Context: There is exactly one student who read some book on NPIs.*)
- a. \***The** student who read **any** books on NPIs is selling them.
- b. *Presupposition: There is exactly one salient student who read some book on NPIs.*
- (14) a. The student who read **a book** is selling it.  
*Presupposition: There is exactly one salient student who read a book.*
- b. The student who read **a novel** is selling it.  
*Presupposition: There is exactly one salient student who read a novel.*
- (14-a)  $\Rightarrow$  *Strawson* (14-b)      (*SDE*)  
(14-b)  $\Rightarrow$  *Strawson* (14-a)      (*SUE*)

# Both

- (15) (*Context*: Exactly two students read some linguistics book.)
- \***Both** students who read **any** linguistics books have applied to the department.
  - Presupposition*: There are exactly two salient students who read some linguistics book.
- (16)
- Both students who read **books** have applied to the department.  
*Presupposition*: There are exactly two salient students who read books.
  - Both students who read **novels** have applied to the department.  
*Presupposition*: There are exactly two salient students who read novels.

(16-a)  $\Rightarrow$  *Strawson* (16-b) (SDE)

(16-b)  $\Rightarrow$  *Strawson* (16-a) (SUE)

# Main tenets of von Fintel/Lahiri

- ▶ A theory which characterizes possible licensing **operators** (**syntactic** component).
  - ▶ As such, it doesn't deal with the intermediate material between the operator and the NPI.
- ▶ A theory which uses **Strawson**-Entailment (**semantic** component) to ensure that **presuppositions do not disrupt NPI licensing**.

## SDE non SUE operators

### DE operators

*not, no, doubt, few, without,  
every, if...*

*only, sorry, surprise*

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## NPIs are licensed within appropriate environments (not by operators)

- (17)
- John forbade eating **anything**.
  - John didn't forbid eating **anything**.
  - #John didn't forbid eating anything, he just forbade eating haggis.
  - John didn't forbid eating anything, because there isn't a single thing he is willing to prohibit.
  - \*LF 1:  $\neg$ [John **forbid** [[s.t.] 1 [PRO eating  $t_1$ ]]]
  - LF 2:  $\neg$ [[s.t.] 1 [John **forbid** [PRO eating  $t_1$ ]]]

- ▶ (17-c) and (17-d) together show that the NPI has to take intermediate scope: NOT > NPI > FORBID.
- ▶ Therefore the licensing is checked on some constituent which contains the NPI: **all the constituent's material matters.**

# NPIs are licensed within appropriate environments (not by operators)

- ▶ Licensing is sometimes subject to flip-flop:

- (18) a. There wasn't anyone at the scene of the accident who didn't do something to help.  
b. \*There wasn't anyone at the scene of the accident who didn't do **anything** to help.

- ▶ Flip-flop is not due to the number of operators:

- (19) Everyone who doesn't know **any** Greek is welcome to take this class.

- ▶ Therefore the licensing is checked on some constituent which contains the NPI: **all the constituent's material matters.**

# Disruption by a presupposition trigger: *too*

- ▶ Can von Stechow/Lahiri's theory countenance environments (revising the **syntactic** component)?  
No, because presupposition triggers can **be disruptors** (against the **semantic component**).

- (20)
- a. (*Context*: Mary read something interesting.)  
\*I don't think [John]<sub>F</sub> read **anything** interesting **too**.
  - b. I don't think [John]<sub>F</sub> read something interesting too.
  - c. *Presupposition of (20-b)*: **Somebody other than John read something interesting.**

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# Disruption by a presupposition trigger: *too*

(21) \*I don't think [John]<sub>F</sub> read **anything** interesting **too**.

- (22) a. I don't think [John]<sub>F</sub> read **a book** too.  
*Presupposition: Somebody other than John read a book.*
- b. I don't think [John]<sub>F</sub> read **a novel** too.  
*Presupposition: Somebody other than John read a novel.*

$$\begin{array}{ll} (22\text{-a}) \Rightarrow^{\text{Strawson}} (22\text{-b}) & (SDE) \\ (22\text{-b}) \not\Rightarrow^{\text{Strawson}} (22\text{-a}) & (\text{not } SUE) \end{array}$$

- ▶ This is a problem for the **semantic** and the **syntactic components** of the theory.

# Either is not a disruptor

- (23) a. (*Context*: Mary didn't read anything interesting.)  
I don't think [John]<sub>F</sub> read **anything** interesting **either**.
- b. *Presupposition*: Somebody other than John **didn't** read anything interesting.

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# Either is not a disruptor

(24) I don't think [John]<sub>F</sub> read **anything** interesting **either**.

(25) a. I don't think [John]<sub>F</sub> read **a book** either.  
*Presupposition: S.o. other than John didn't read a book.*

b. I don't think [John]<sub>F</sub> read **a novel** either.  
*Presupposition: S.o. other than John didn't read a novel.*

(25-a)  $\Rightarrow$  *Strawson* (25-b)      (*SDE*)  
(25-b)  $\not\Rightarrow$  *Strawson* (25-a)      (*not SUE*)

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- ▶ **Hypothesis:** Presupposition triggers can be disruptors and the **monotonicity** of the presupposition itself must be taken into account.

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# Licensing within a DE environment

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### (26) Licensing condition:

An NPI  $\alpha$  is licensed in a sentence  $S$  only if the constituent  $\beta$  of  $S$  containing  $\alpha$  upon which licensing is checked is Downward Entailing with respect to the position of  $\alpha$ .

### (27) A constituent $\beta$ is Downward Entailing with respect to the position of $\alpha$ ( $\llbracket \alpha \rrbracket \in D_\sigma$ ) iff the function $\lambda x. \llbracket \beta[\alpha/v_\sigma] \rrbracket^g[v_\sigma \rightarrow x]$ is Downward Entailing.

# $\mu$ meaning

- ▶ Let's define the operator  $\mu$ , which takes a trivalent meaning and returns a bivalent meaning:

(28) Let  $F$  be a constituent of type  $\langle t \rangle$ .

$$\mu(\llbracket F \rrbracket) = 0 \text{ iff } \llbracket F \rrbracket = \# \text{ or } 0$$

$$\mu(\llbracket F \rrbracket) = 1 \text{ iff } \llbracket F \rrbracket = 1.$$

- ▶ The notion of meaning of  $F$  that is relevant for NPI licensing is (sometimes) the  $\mu$  meaning, i.e. the **conjunction** of the **assertive content** and the **presuppositions** of  $F$ .

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(29) \*I don't think [John]<sub>F</sub> read **anything** interesting **too**.

(30) a. I don't think [John]<sub>F</sub> read **a book** too.  
*Presupposition: Somebody other than John read a book.*

b. I don't think [John]<sub>F</sub> read **a novel** too.  
*Presupposition: Somebody other than John read a novel.*

(31)  $\mu(\llbracket(30-a)\rrbracket) = \exists x [x \neq j \wedge \llbracket a \text{ book} \rrbracket [\lambda y. \text{read}(x,y)]]$   
 $\wedge \neg \llbracket a \text{ book} \rrbracket [\lambda y. \text{read}(j,y)]$

(32)  $\mu(\llbracket(30-b)\rrbracket) = \exists x [x \neq j \wedge \llbracket a \text{ novel} \rrbracket [\lambda y. \text{read}(x,y)]]$   
 $\wedge \neg \llbracket a \text{ novel} \rrbracket [\lambda y. \text{read}(j,y)]$

$$\begin{array}{l} \mu(\llbracket(30-a)\rrbracket) \not\approx \mu(\llbracket(30-b)\rrbracket) \\ (30-a) \Rightarrow^{\text{Strawson}} (30-b) \quad (\text{SDE}) \\ (30-b) \not\Rightarrow^{\text{Strawson}} (30-a) \quad (\text{not SUE}) \end{array}$$

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(33) I don't think [John]<sub>F</sub> read **anything** interesting  
**either**.

- (34) a. I don't think [John]<sub>F</sub> read **a book** either.  
*Presupposition: S.o. other than John didn't read a book.*
- b. I don't think [John]<sub>F</sub> read **a novel** either.  
*Presupposition: S.o. other than John didn't read a novel.*

(35)  $\mu(\llbracket(34\text{-a})\rrbracket) = \exists x [x \neq j \wedge \neg \llbracket\text{a book}\rrbracket[\lambda y. \text{read}(x,y)]]$   
 $\wedge \neg \llbracket\llbracket\text{a book}\rrbracket[\lambda y. \text{read}(j,y)]\rrbracket$

(36)  $\mu(\llbracket(34\text{-b})\rrbracket) = \exists x [x \neq j \wedge \neg \llbracket\text{a novel}\rrbracket[\lambda y. \text{read}(x,y)]]$   
 $\wedge \neg \llbracket\llbracket\text{a novel}\rrbracket[\lambda y. \text{read}(j,y)]\rrbracket$

$$\begin{array}{l} \mu(\llbracket(34\text{-a})\rrbracket) \Rightarrow \mu(\llbracket(34\text{-b})\rrbracket) \\ (34\text{-a}) \Rightarrow^{\text{Strawson}} (34\text{-b}) \quad (SDE) \\ (34\text{-b}) \not\Rightarrow^{\text{Strawson}} (34\text{-a}) \quad (\text{not SUE}) \end{array}$$

# A case of non disruption with *too*

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- ▶ Two different positions in the presupposition triggered by *too*:

- (37)
- a.  $[X]_F$  did *Y* *too*.
  - b. *Presupposition of (37-a)*: **Someone other than *X* did *Y*.**

# A case of non disruption with *too*

(38) I don't think [**anybody** in my class]<sub>F</sub> read something interesting **too**.

- (39) a. I don't think [**a student**]<sub>F</sub> read s.t. interesting too. *Presupposition*: S.o. other than a student read s.t. interesting.  
b. I don't think [**a French student**]<sub>F</sub> read s.t. interesting too. *Presupposition*: S.o. other than a French student read s.t. interesting.

(40)  $\mu(\llbracket(39\text{-a})\rrbracket) = \exists x[x \notin \llbracket\text{student}\rrbracket \wedge \exists y[x \text{ read } y]]$   
 $\wedge \neg \exists x[x \in \llbracket\text{student}\rrbracket \wedge \exists y[x \text{ read } y]]$

(41)  $\mu(\llbracket(39\text{-b})\rrbracket) = \exists x[x \notin \llbracket\text{French student}\rrbracket \wedge \exists y[x \text{ read } y]]$   
 $\wedge \neg \exists x[x \in \llbracket\text{French student}\rrbracket \wedge \exists y[x \text{ read } y]]$

$$\begin{array}{ccc} \mu(\llbracket(39\text{-a})\rrbracket) & \Rightarrow & \mu(\llbracket(39\text{-b})\rrbracket) \\ (39\text{-a}) & \Rightarrow^{\text{Strawson}} & (39\text{-b}) \quad (\text{SDE}) \\ (39\text{-b}) & \not\Rightarrow^{\text{Strawson}} & (39\text{-a}) \quad (\text{not SUE}) \end{array}$$

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- ▶ A rule of thumb: A presupposition trigger disrupts the licensing of an NPI falling under its scope (within the environment upon which licensing is checked) unless the presupposition it triggers is downward entailing in the relevant position.

# Both and singular *the*

- ▶ The non-licensing under the operators *both* and *the* (sg.) is simply due to their presuppositional nature (no need for the SDE-non SUE criterion).

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# French and Italian cognitive factives

(42) (*Context: Marie is the best player in the tournament.*)

- a. \*Jean ne **sait** pas que Marie a **la**  
Jean NEG knows NEG that Marie have.IND the  
**moindre** chance de gagner. (*French*)  
slightest chance to win.  
*'Jean doesn't know that Marie has any chance to win.'*
- b. Jean ne sait pas que Marie a **une** chance de  
gagner.
- c. *Presupposition of (42-b): Marie has some  
chance to win.*

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# French and Italian cognitive factives

(43) \*Jean ne **sait** pas que Marie a **la moindre** chance de gagner.

(44) a. Jean doesn't know that Marie read **a book**.  
*Presupposition: Marie read a book.*

b. Jean doesn't know that Marie read **a novel**.  
*Presupposition: Marie read a novel.*

(45)  $\mu(\llbracket(44\text{-a})\rrbracket) = \llbracket\llbracket\text{a book}\rrbracket\llbracket\lambda y. m \text{ read } y\rrbracket\rrbracket$   
 $\wedge \neg\llbracket\text{believe}\rrbracket\llbracket\llbracket\text{a book}\rrbracket\llbracket\lambda y. m \text{ read } y\rrbracket\rrbracket(j)$

(46)  $\mu(\llbracket(44\text{-b})\rrbracket) = \llbracket\llbracket\text{a novel}\rrbracket\llbracket\lambda y. m \text{ read } y\rrbracket\rrbracket$   
 $\wedge \neg\llbracket\text{believe}\rrbracket\llbracket\llbracket\text{a novel}\rrbracket\llbracket\lambda y. m \text{ read } y\rrbracket\rrbracket(j)$

$$\begin{array}{l} \mu(\llbracket(44\text{-a})\rrbracket) \not\Rightarrow \mu(\llbracket(44\text{-b})\rrbracket) \\ (44\text{-a}) \Rightarrow^{\text{Strawson}} (44\text{-b}) \quad (SDE) \\ (44\text{-b}) \not\Rightarrow^{\text{Strawson}} (44\text{-a}) \quad (\text{not } SUE) \end{array}$$

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- ▶ In French and Italian, an NPI is licensed in the complement of a negated epistemic predicate:

- (47) a. Jean ne pense pas que Marie a/ait  
Jean NEG thinks NEG that Marie have.IND/SUBJ  
**la moindre** chance de gagner. (*French*)  
the slightest chance to win.  
*'Jean doesn't think that Marie has any chance to win.'*
- b. *Presupposition: None.*

# Italian indicative

(Context: Maria has been to Paris several times.)

- (48) a. \*Gianni non pensa che Maria **è** **mai** andata  
Gianni NEG think that Maria be.IND ever gone  
a Parigi.  
to Paris. (Italian)  
*'Gianni doesn't think that Maria ever went to Paris.'*
- b. *Presupposition: Maria has been to Paris.*
- (49) a. Gianni non pensa che Maria **sia** **mai**  
Gianni NEG think that Maria be.SUBJ ever  
andata a Parigi.  
gone to Paris.  
*'Gianni doesn't think that Maria ever went to Paris.'*
- b. *Presupposition: None.*

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# Pourquoi/Comment (*Why/How*)

(Context: Marie wrote something to her mother.)

- (50) a. \***Pourquoi/Comment** Marie a-t-elle écrit  
Why/How Marie has she written  
**quoi que ce soit** à sa mère? (*French*)  
anything to her mother?  
*'Why/How has Marie written anything to her  
mother?'*
- b. *Presupposition:* Marie wrote something to her  
mother.

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Too and either

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- (51) a. Pourquoi/Comment Marie écrivait- elle  
Why/How Marie would-write she  
**quoi que ce soit** à sa mère ? (*French*)  
anything to her mother?  
*'Why/How would Marie write anything to her  
mother?'*
- b. *Presupposition: None.*

# Strong NPIs

- English cognitive factive predicates

- (52) (*Context*: John slept a solid 10 hours last night.)
- \*Mary doesn't know that John **slept a wink**.
  - Mary doesn't know that John slept.
  - Presupposition of (52-b)*: John **slept**.

- Be sorry*

- (53) (*Context*: Betty's husband visited Mary three times over the past 10 years.)
- \*Betty is sorry that her husband has visited Mary **in years**.
  - Betty is sorry that her husband has visited Mary.
  - Presupposition of (53-b)*: Betty's husband has **visited Mary**.

# Strong NPIs

- o *Only*

(54) (Context: John visited Mary three times over the past 10 years.)

- a. \***Only** John has visited Mary **in years**.
- b. Only John has visited Mary.
- c. *Presupposition of (54-b):* John has visited Mary.

- o *Be surprised*

(55) (Context: Mary exercised last year.)

- a. \*I am **surprised** that Mary has exercised **in years**.
- b. I am surprised that Mary has exercised.
- c. *Presupposition of (55-b):* Mary has exercised.

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- ▶ Plural *the* is SDE non SUE. The following contrast is not captured by von Stechow/Lahiri.

- (56)
- a. The students who have ever been to Florida are happy about their trip.
  - b. (*Context*: It's the end of the party; all the guests are gone, except for John and Mary, two students who recently came back from Florida...)  
\***The** students who have **ever** been to Florida are now in the lobby, saying goodbye to the host.

- ▶ Plural *the* is SDE non SUE. The following contrast is not captured by von Stechow/Lahiri.

- (57)
- The drugs that have any hazardous side effects are prohibited under a certain age.
  - (*Context*: My backpack fell into the fountain; I have two kinds of drugs in it: the vitamins are intact but...)  
**\*The** drugs that have **any** hazardous side effects are soaked.

# The Problem of *it*-clefts

- ▶ Let's add a negation above an SDE SUE operator.

(58) (*Context*: Two men are flirting with Mary; one of the two keeps giving her presents, while the other never offered her anything.)

\*I don't think **the** man who gave Mary **anything** is very smart.

- ▶ It won't do to say that an NPI should not be in the scope of an SDE SUE operator.

(59) (*Context*: There is some student who knew nothing about linguistics.)

- The** student who didn't know **any** linguistics passed all his syntax exams.
- Presupposition*: There is some student who knew nothing about linguistics.

- ▶ Can one rephrase von Stechow/Lahiri in terms of SDE non SUE environments?
- ▶ This will lead to wrong predictions (**undergeneration**).

(60) (*Context: All the Chinese statuettes have been stolen; investigators say they found fingerprints, and they think there was only one burglar.*)

I don't think **it was** John **who** stole **anything**.

(61) a. I don't think it was John who stole **a vase**.  
*Presupposition:* There is exactly one individual who stole **a vase**.

b. I don't think it was John who stole **a blue vase**.  
*Presupposition:* There is exactly one individual who stole **a blue vase**.

$$\mu(\llbracket(61-a)\rrbracket) \not\approx \mu(\llbracket(61-b)\rrbracket)$$

$$(61-a) \Rightarrow^{Strawson} (61-b) \quad (SDE)$$

$$(61-b) \Rightarrow^{Strawson} (61-a) \quad (SUE)$$

► Where are we?

- I. Presentation and refutation of a Strawson-based theory
  - a. von Fintel's theory
  - b. Against the syntactic and the semantic components
- II. Presuppositions must (sometimes) be included in the meaning that is relevant for NPI licensing
- III. A test for local accommodation

# Interesting consequences

- ▶ Disruption data provide a way to tease apart local accommodation and non-projection on the one hand and non-triggering on the other.

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# Local accommodation: the disruption effect remains

(62) The King of France is not bald, because there is no King of France.

(63) (*Context: Marie has some chance.*)

\*Pierre ne **s'aperçoit** pas que Marie a **la**  
Pierre NEG REFL-perceive NEG that Marie has the  
**moindre** chance, car elle n' a aucune chance.  
slightest chance, for she NEG has no chance.  
*'Pierre doesn't realize that Marie has any chance,  
for she has no chance.'*

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# Non-projection of the presupposition: the disruption effect remains

- (64)
- If John is incompetent, he knows that he is.
  - Presupposition of **if p, qq'** is **if p  $\Rightarrow$  q**
  - Presupposition of (64-a): **If John is incompetent, he's incompetent.** In other words, **None.**

- The presupposition of the consequent is satisfied by the antecedent:

- (65) \*I doubt that if Peter went to Paris, [Mary]<sub>F</sub> **ever** went to Paris **too.**

# Non-triggering: no disruption effect

(66) (*Context: Mary is missing, no one knows her whereabouts*).

If Peter discovered that Mary was in London, he would be relieved.

(67) Si Pierre **s'apercevait** que Marie a changé  
If Pierre discovered that Marie have.IND changed  
**quoi que ce soit**, il serait en colère.

anything, he would-be in wrath.

*'If Pierre found out that Marie changed anything, he would be mad.'*

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# Conclusion

- ▶ A number of disruption effects can only be captured if presuppositions are taken into account.
- ▶ The meaning that is relevant for NPI licensing is the conjunction of the assertive content and presuppositions.
- ▶ We have an empirical test to distinguish local accommodation/non-projection and non-triggering.

## How to account for exceptions?

- ▶ The exceptions (*only, regret, surprise*) suggest a modular system: the presuppositions are not always accessible to the rest of the grammar.
- ▶ Or the notion of presupposition needs to be refined: the cause of the intervention is a *certain* type of presupposition.

## Every, each and both

- (68) a. Every student who knows **any** linguistics has applied to the department.  
b. *Presupposition:* **None**.

Every, each and both

Strong NPIs

Summary of the data

- If *every* carries a presupposition, the following test should reveal it (local accommodation in the scope of a quantifier over times):

- (69) a. Each year since 1990, every visiting student from France who spent a quarter in the department got their first job in the US.  
b. No presupposition that there was at least one student from France in the department every year from 1990 on.

## Every, each and both

- (70) (*Context*: Exactly two students know some linguistics.)
- \***Both** students who know **any** linguistics have applied to the department.
  - Presupposition*: There are exactly two salient students who know some linguistics.
- (71)
- Each year since 1990, both visiting students from France who spent a quarter in the department got their first job in the US.
  - It is presupposed that there were exactly two students from France in the department every year from 1990 on. (*Local accommodation*)

## Every, each and both

(72) (*Context*: There is at least one student who knows some linguistics.)

- a. ??**Each** student who knows **any** linguistics has applied to the department.
- b. *Presupposition*: The set of students who knew some linguistics is non-empty.

(73) a. Each year since 1990, each visiting student from France who spent a quarter in the department got their first job in the US.

b. It is presupposed that there was at least one student from France in the department every year from 1990 on. (*Local accommodation*)

- The difference between *each* and *every* is not captured by von Stechow/Lahiri (*each* and *every* are SDE non SUE in their restrictors).

# The problem of Strong NPIs

- ▶ Strong NPIs like *in years* or *yet* are not licensed by *be sorry*.
- ▶ Let's show that they require being in a strictly DE environment.

# The problem of Strong NPIs

- ▶ According to Zwarts (1996), strong NPIs must be licensed by an **Anti-Additive function** (e.g. 'fewer than three students' is not AA, but 'no student' is):

(74) **Anti-Additivity:**

A function  $f$  is AA iff  $(f(X) \wedge f(Y)) \iff f(X \vee Y)$   
(Zwarts 1996)

Anti-Additive

Downward-entailing

(i)  $f(X) \vee f(Y) \Rightarrow f(X \wedge Y)$

(ii)  $f(X \vee Y) \Rightarrow f(X) \wedge f(Y)$

(iii)  $f(X) \wedge f(Y) \Rightarrow f(X \vee Y)$

- *Sorry* is **not Anti-Additive**.

- (75) a. John is sorry that Mary is here and is sorry that Peter is here.  
b.  $\Rightarrow$  John is sorry that Mary or Peter is here.

$\text{SORRY}(X) \wedge \text{SORRY}(Y) \Rightarrow \text{SORRY}(X \vee Y)$  (Left to Right)

- (76) a. John is sorry that Mary or Peter is here.  
b.  $\nRightarrow$  John is sorry that Mary is here and is sorry that Peter is here.

$\text{SORRY}(X \vee Y) \nRightarrow \text{SORRY}(X) \wedge \text{SORRY}(Y)$  (Right to Left)

► *Sorry* is **Strawson Anti-Additive**:

(77) **Strawson Anti-Additivity**:

A function  $f$  is Strawson Anti-Additive (SAA) iff  $(f(X) \wedge f(Y))$  and  $f(X \vee Y)$  Strawson-entail each other.

- (78) a. John is sorry that Mary is here and that Peter is here.  
 b.  $\Rightarrow^{Strawson}$  John is sorry that Mary or Peter is here.

$SORRY(X) \wedge SORRY(Y) \Rightarrow^{Strawson} SORRY(X \vee Y)$  (Left to Right)

- (79) a. John is sorry that Mary or Peter is here.  
 b.  $\Rightarrow^{Strawson}$  John is sorry that Mary is here and is sorry that Peter is here.

$SORRY(X \vee Y) \Rightarrow^{Strawson} SORRY(X) \wedge SORRY(Y)$  (Right to Left)

NPIs:	<i>Why/How</i>	<i>Know</i>	<i>Sing. Definite article</i>	<i>Both</i>
Weak:	✓ (rhetorical)	✓	*	*
Strong:	*	*	*	*

NPIs:	<i>Too</i>	<i>Regret that...</i>	<i>Be surprised that...</i>	<i>Only</i>
Weak:	*	✓	✓	✓
Strong:	*	*	*	*

NPIs:	<i>It-Cleft</i>	<i>Again</i>	<i>Stop</i>
Weak:	✓	✓	✓
Strong:	*	??	*

**Table:** NPI-Licensing in the Scope of Presuppositional Items in English

NPIs:	<i>Why/How</i>	<i>Know</i>	<i>Sing. Definite article</i>	<i>Both</i>
Weak:	*	*	*	*
Strong:	*	*	*	*

NPIs:	<i>Too</i>	<i>Regret that...</i>	<i>Be surprised that...</i>	<i>Only</i>
Weak:	*	✓/?	✓	✓
Strong:	*	*	*	*

NPIs:	<i>It-Cleft</i>	<i>Again</i>	<i>Stop</i>
Weak:	✓	✓	✓
Strong:	*	??	*

**Table:** NPI-Licensing in the Scope of Presuppositional Items in French