Exhaustivity through the maxim of Relation

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Goal of this talk

(1) Of red, green and blue, which colours does John like?
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Wrong, it does!

Outline

1. Diagnosis
2. Theory
3. Results
4. Conclusion and discussion

1. Diagnosis

(2) a. Of red, green and blue, which colours does John like?
b. He likes blue. $\rightsquigarrow$ *He doesn't like red*
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maxim of Relation

2. Theory

2.1. Translation into logic

(3) a. Which colours (of red, green and blue) does John like?

b. He likes blue. $\rightsquigarrow$ *He doesn't like red*

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(3) a. There are colours (among red and blue) that John likes.
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(3) a. John likes blue, red, or blue and red. $p \vee q \vee (p \wedge q)$

b. He likes blue. p

c. He likes blue, or blue and red. $p \vee (p \wedge q)$

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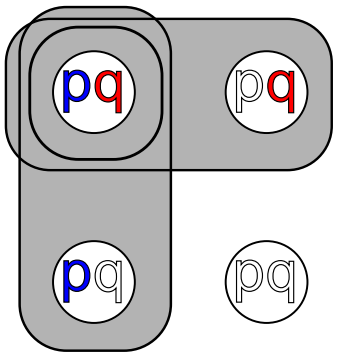
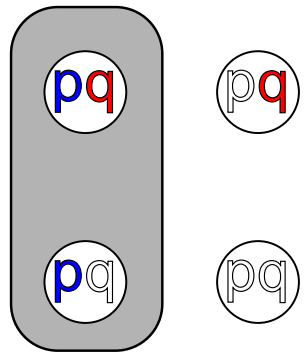
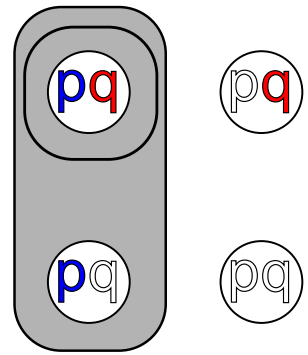


(3a) $[p \vee q \vee (p \wedge q)]$



(3b) $[p]$



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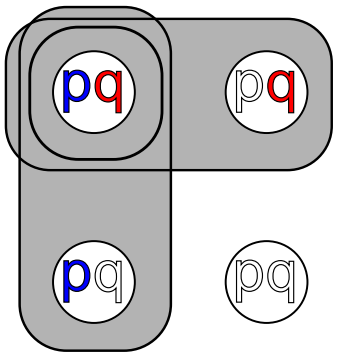

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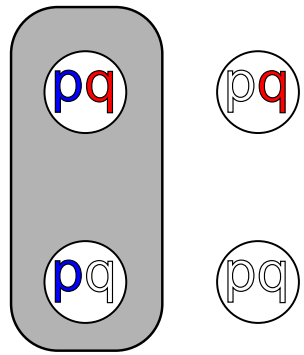

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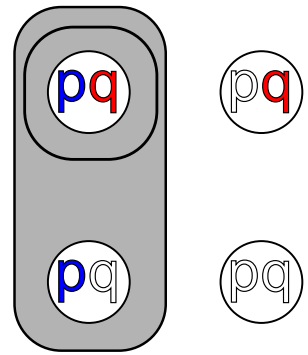

(3c) $[p \vee (p \wedge q)]$

Entailment

A entails B, $A \vDash B$, iff

(i) $\bigcup A \subseteq \bigcup B$; and

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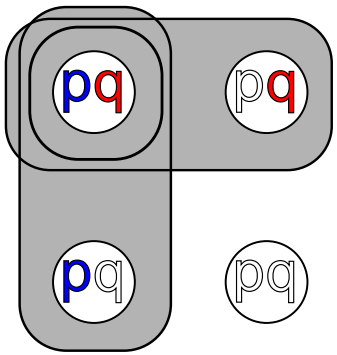

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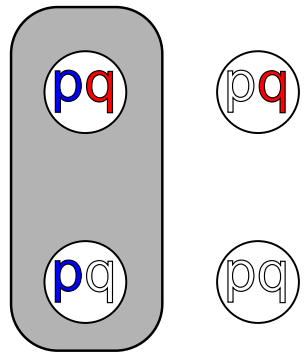

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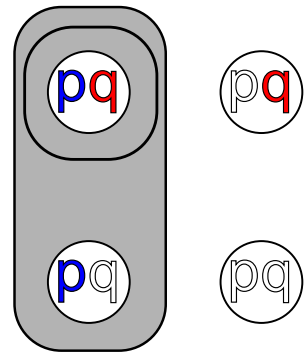

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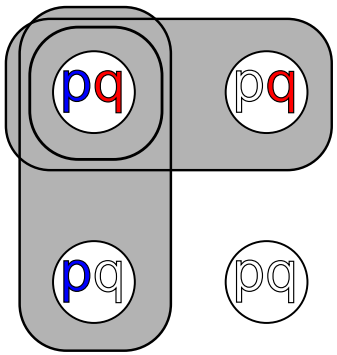

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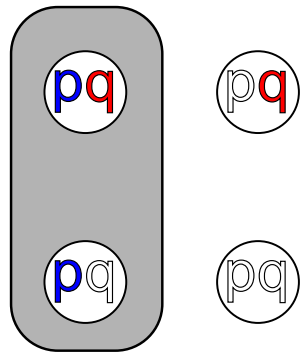

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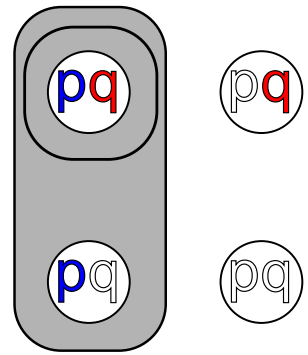

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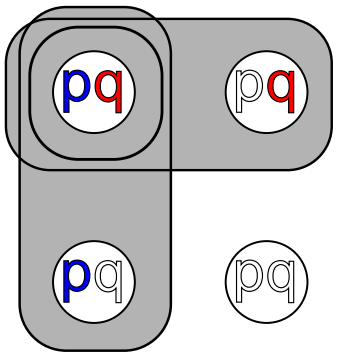

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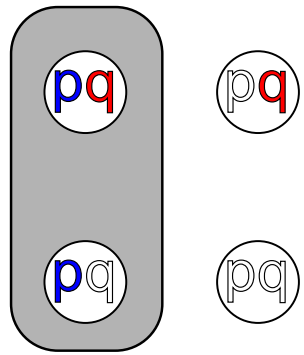

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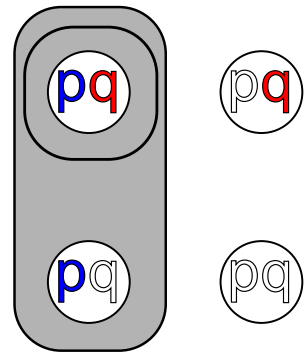

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Now, (3c) $\vDash$ (3a), but (3b) $\nvDash$ (3a).

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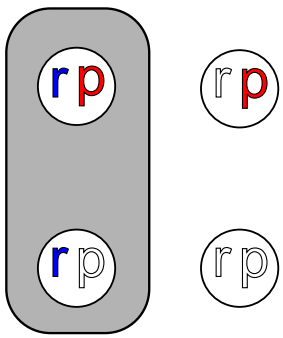

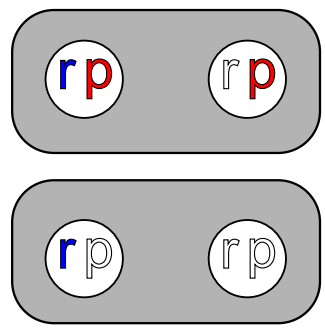

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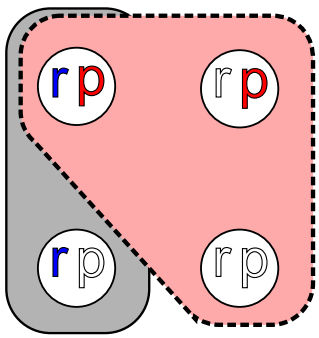

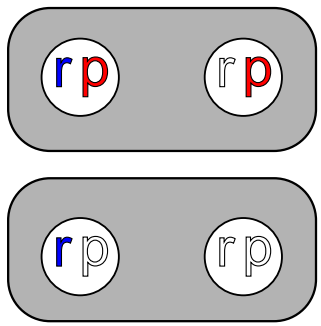

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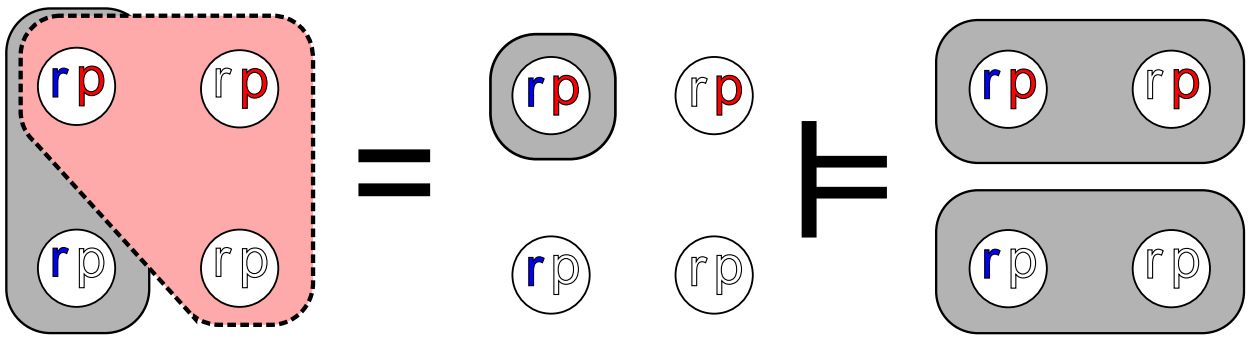

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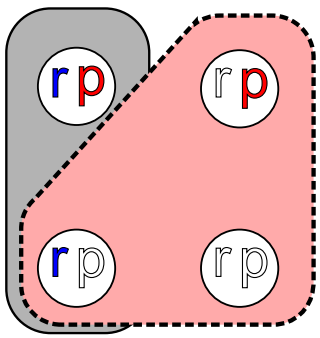

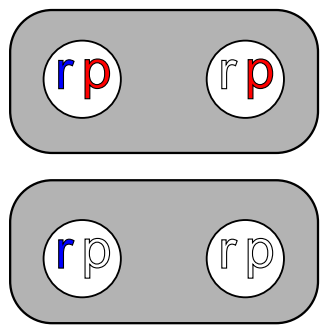

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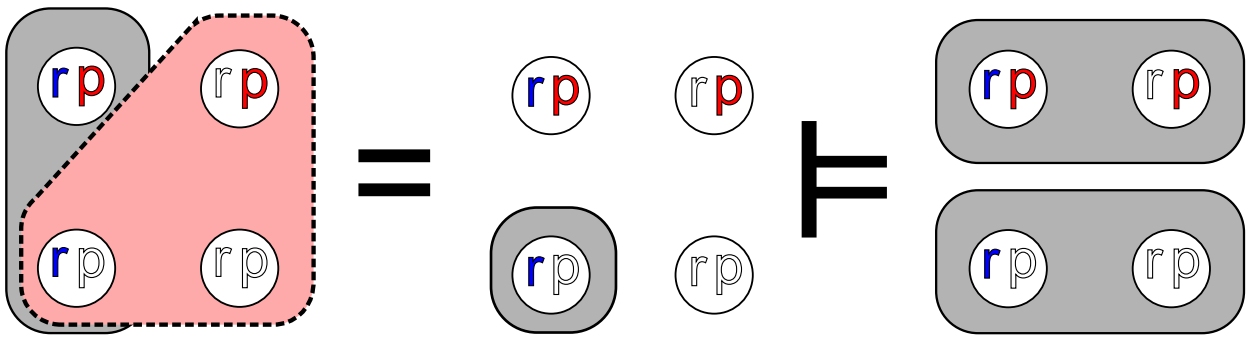

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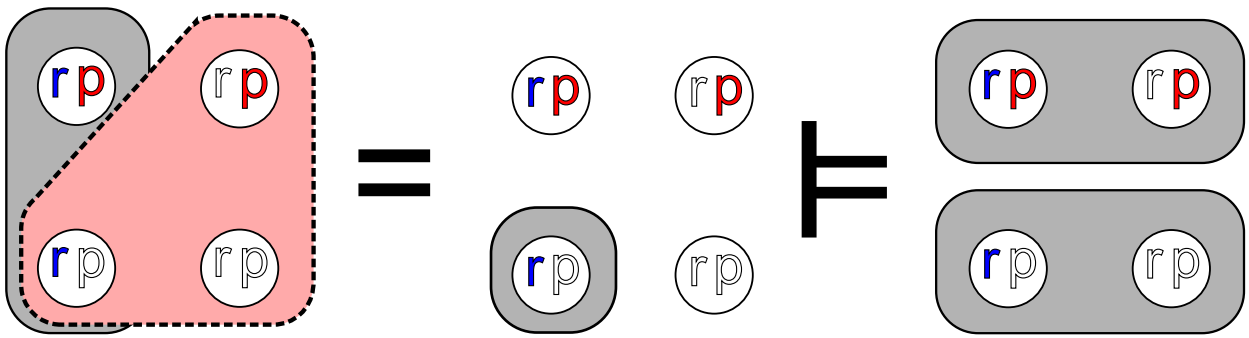
1. **Quality**: $s \subseteq \bigcup R$.
2. **Quantity**: For all $Q' \subseteq Q$, if $s \subseteq \bigcup Q'$ then $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.

(4) Did John go to the party?
It was raining. $\rightsquigarrow$ If it rained, John {went / didn't go}.



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(cf. Grice, 1975; Groenendijk and Stokhof, 1984; Roberts, 1996; Spector, 2007)

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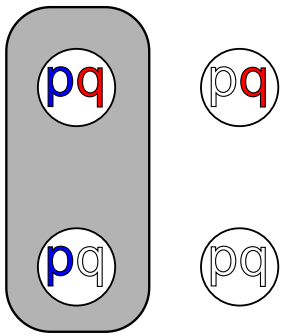

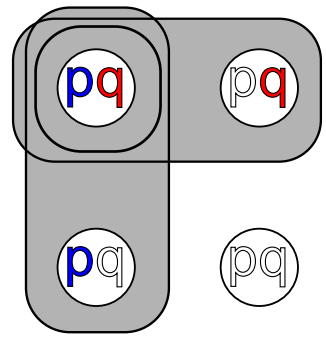

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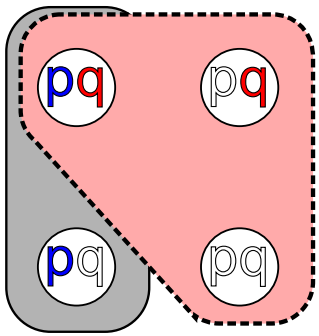

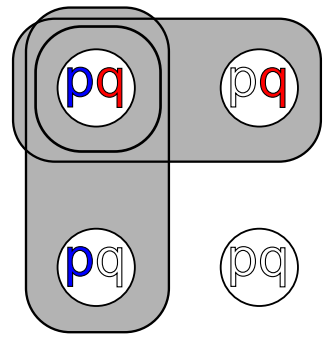

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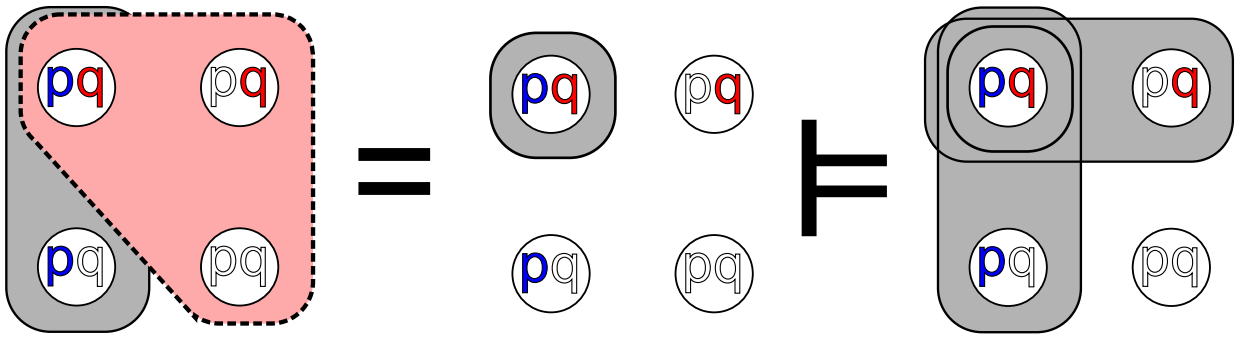

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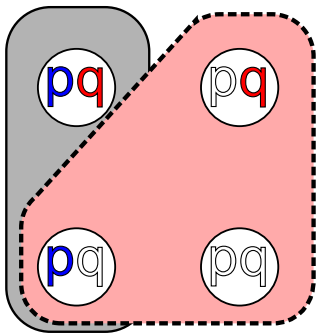

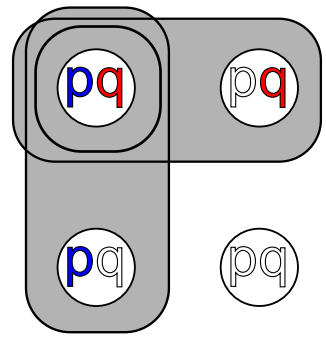

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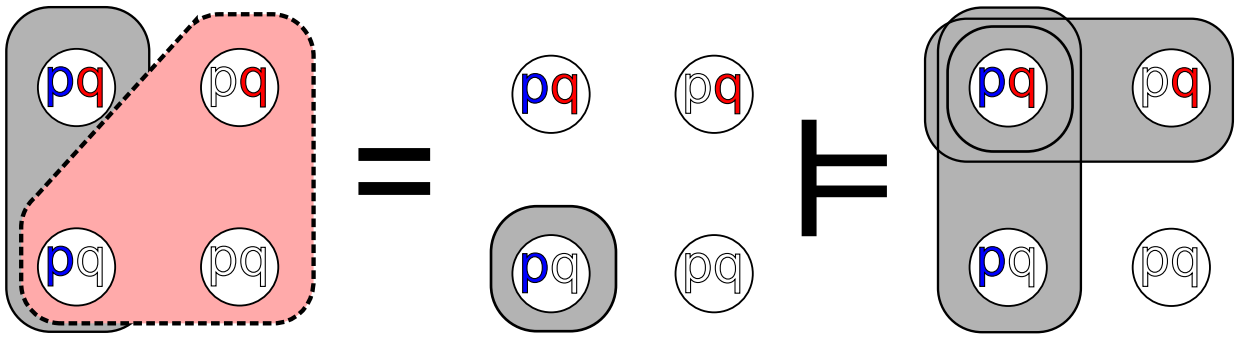

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4. $s \subseteq \overline{|q|}$ exhaustivity!

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4. Conclusion and discussion

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Take-home messages:

- Pragmatic reasoning is sensitive to attentive content.
- *Exhaustivity implicatures are conversational implicatures*.

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Counterexample:

(5) I'm asking the wrong person, but which colours does J. like?
He likes blue and red. $\rightsquigarrow$ He doesn't like green.

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Counterexample:

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Instead, in my approach:

- Opinionatedness follows from Quality + Relation implicatures

4.3. ‘Alternatives’

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- ‘Why did the speaker not say “$p \wedge q$”?’

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Beware:

- The 'alternatives' are fully determined by the maxims.
- Speakers need not reason in terms of alternatives.

4.4. Other suitable semantics

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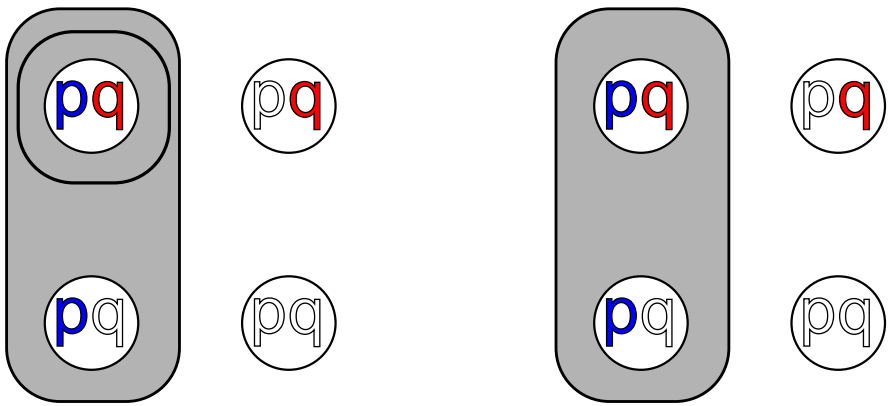

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- The semantics treats informative content classically.
- Grice wouldn't be against other dimensions of meaning.
- The connectives are still algebraically 'basic'.

Besides: this is the only way.

The end

Contact

Matthijs Westera - m.westera@uva.nl

Article

- Attentive Pragmatics: Exhaustivity and the Final Rise. *ESSLLI StuS proceedings* (staff.science.uva.nl/~westera/)

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Appendix A. Semantics (Roelofsen, 2011)

Ingredients

- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$
- *Informative content*: $|\varphi| := \bigcup[\varphi]$
- *A restricted* to b, $A_b := \{a \cap b \mid a \in A, a \cap b \neq \varnothing\}$

Semantics of relevant fragment

1. $[p] = \{\{w \in \textbf{Worlds} \mid w(p) = \text{true}\}\}$
2. $[\varphi \vee \psi] = ([\varphi] \cup [\psi])_{|\varphi| \cup |\psi|} = [\varphi] \cup [\psi]$
3. $[\varphi \wedge \psi] = ([\varphi] \cup [\psi])_{|\varphi| \cap |\psi|}$

Entailment

A entails B, $A \vDash B$, iff (i) $\bigcup A \subseteq \bigcup B$ and (ii) $B_{\bigcup A} \subseteq A$.

Appendix B. Roberts's (1996) 'relevance'

- 'My' Maxim of Relation: $R_s \vDash Q$
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Roberts's requirement is too strong:

- The participants need not *already know* how R is relevant.
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E.g., in case of exhaustivity:

1. $s \subseteq |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. $s \subseteq \overline{|p|} \cup |q|$ or $s \subseteq \overline{|p|} \cup \overline{|q|}$ (Relation)

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4. $s \subseteq \overline{|q|}$

Appendix C. 'Embedded' implicatures

Chierchia, *et al.* (2008), and much subsequent discussion

(6) Which books did every student read?
Every student read O. or K.L. $\rightsquigarrow$ No student read both.

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- (Hence so do the 'alternatives'.)

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Chierchia, *et al.* (2008), and much subsequent discussion

(6) Which books did every student read?
Every student read O. or K.L. $\rightsquigarrow$ No student read both.

The problem

The problem has never been the Gricean approach as such, but rather *to find the right 'alternatives'*.

In the present theory:

- The maxims are sensitive to attentive content
- Attentive content mirrors sub-sentential structure.
- (Hence so do the 'alternatives'.)

The 'embedded' implicature of (6) is in fact predicted.

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