Exhaustivity implicatures and attentive content

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Goal of this talk

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Wrong, it does!

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- Counterexample:

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but how?!

Outline

1. Diagnosis
2. Theory
3. Results
4. Discussion (cancellability)

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Intuition

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maxim of Relation

2. Theory

2.1. Translation into logic

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

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(4) a. There are colours (among red and blue) that John likes.
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(4) 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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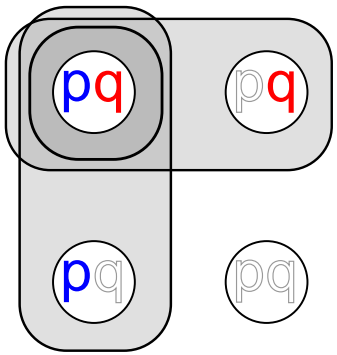
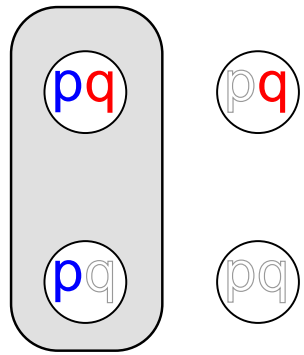


(4a) $[p \vee q \vee (p \wedge q)]$



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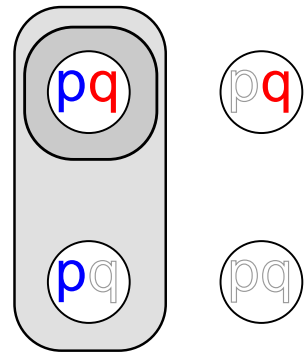

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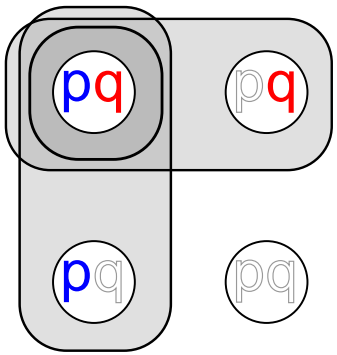

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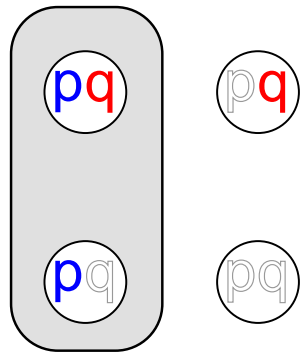

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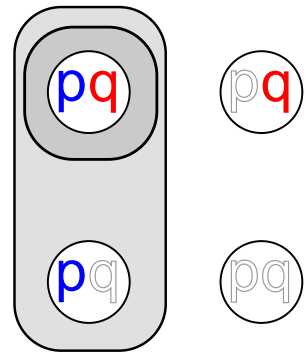

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Entailment

A entails B, $A \models B$, iff

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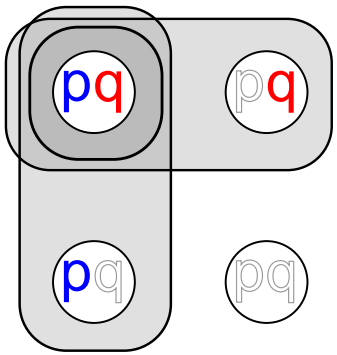

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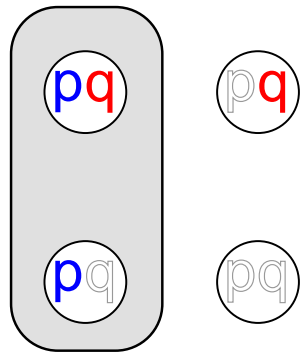

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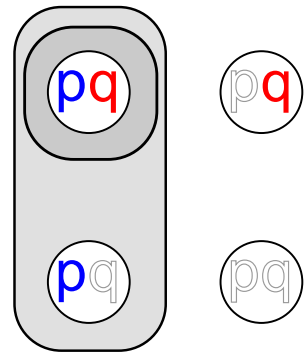

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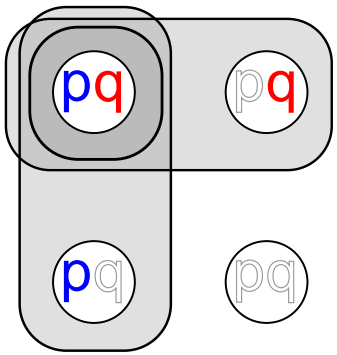

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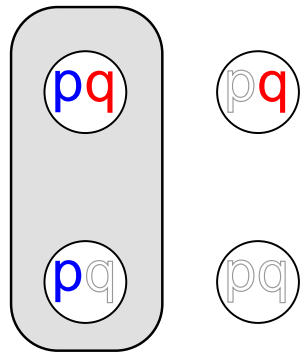

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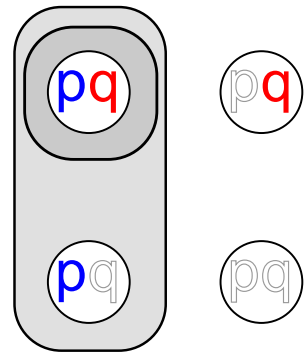

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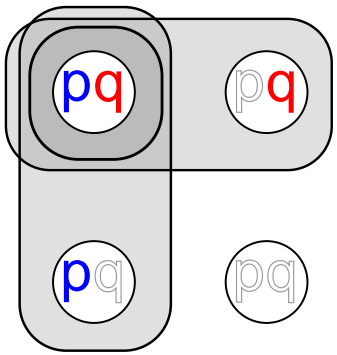

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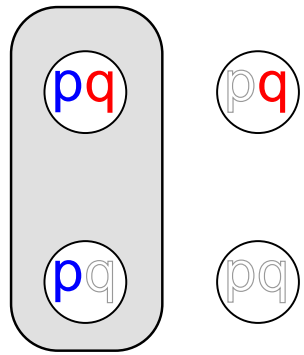

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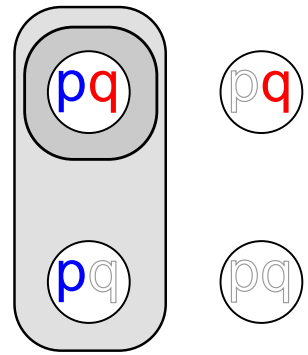

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Now, (4c) $\vDash$ (4a), but (4b) $\nvDash$ (4a).

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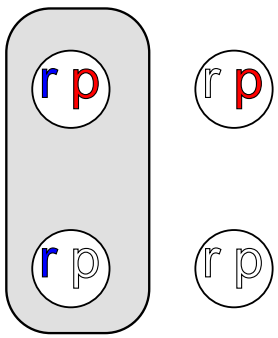

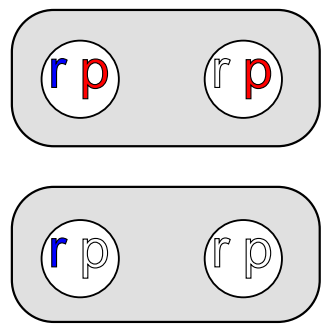

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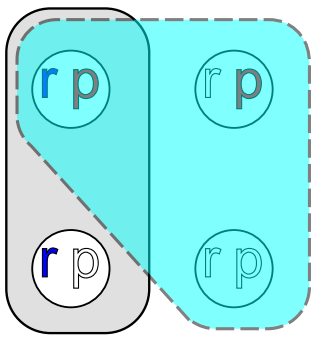

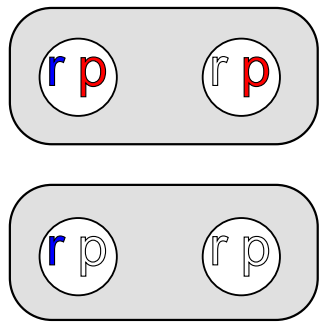

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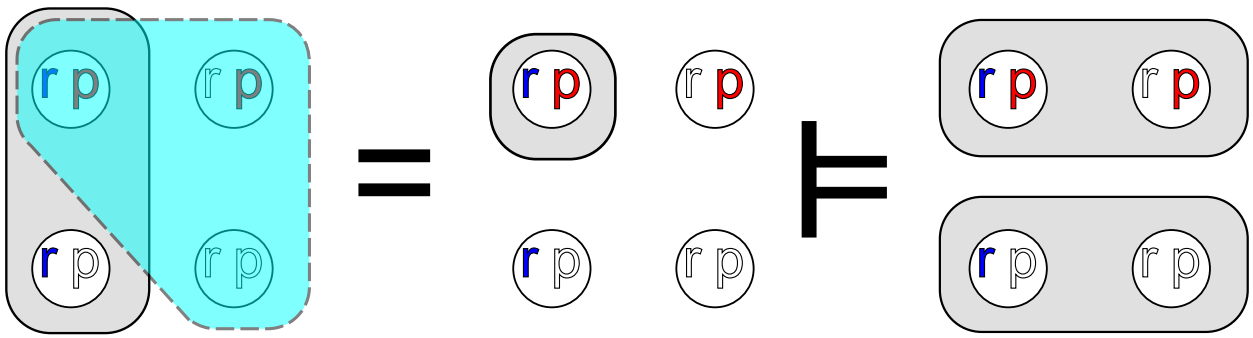

2.3. Pragmatics

The relevant maxims

For a cooperative speaker with information s, responding R to Q:

1. **Quality**: $s \subseteq \bigcup R$.
2. **Quantity**: For all $Q' \subseteq Q$, if $s \subseteq \bigcup Q'$ then $\bigcup R \subseteq \bigcup Q'$.
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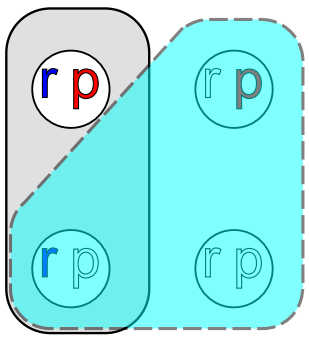

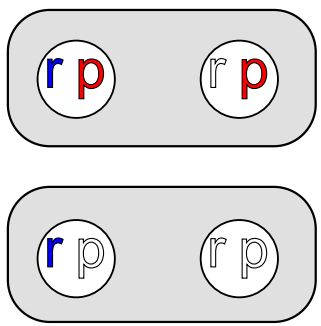

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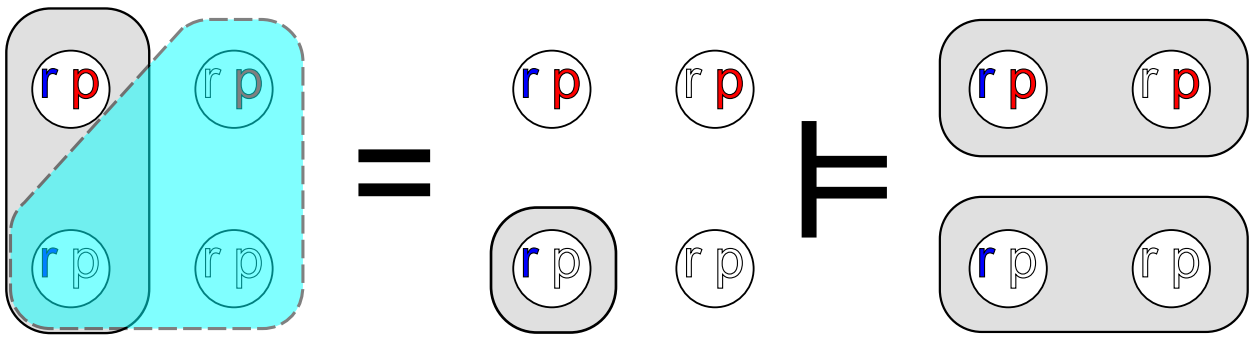

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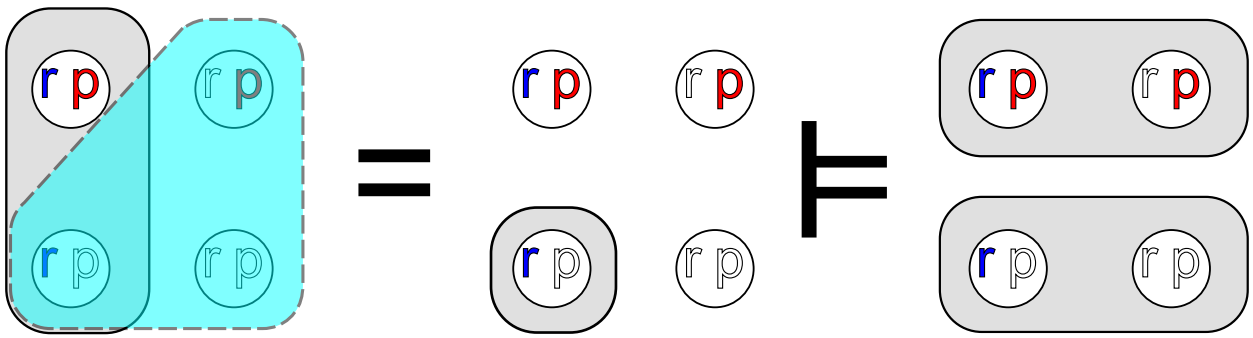

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(cf. Grice, 1975; Groenendijk and Stokhof, 1984; Roberts, 1996; Spector, 2007)

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(4) a. John likes blue, red, or blue and red. $(p \vee q \vee (p \wedge q))$

b. He likes blue. (p)

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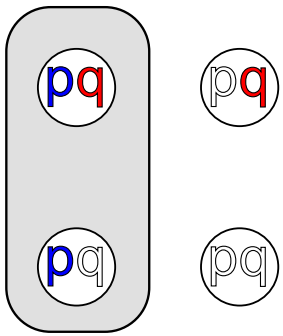

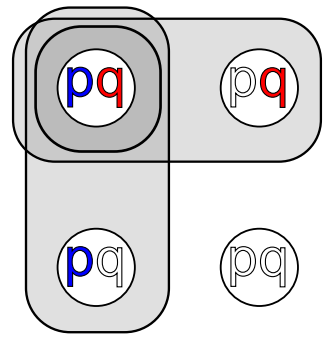

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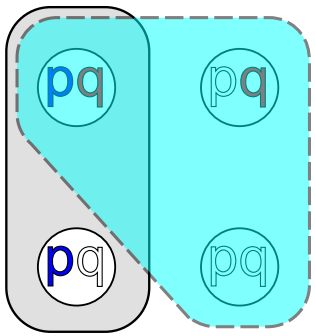

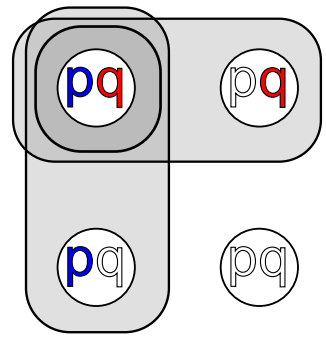

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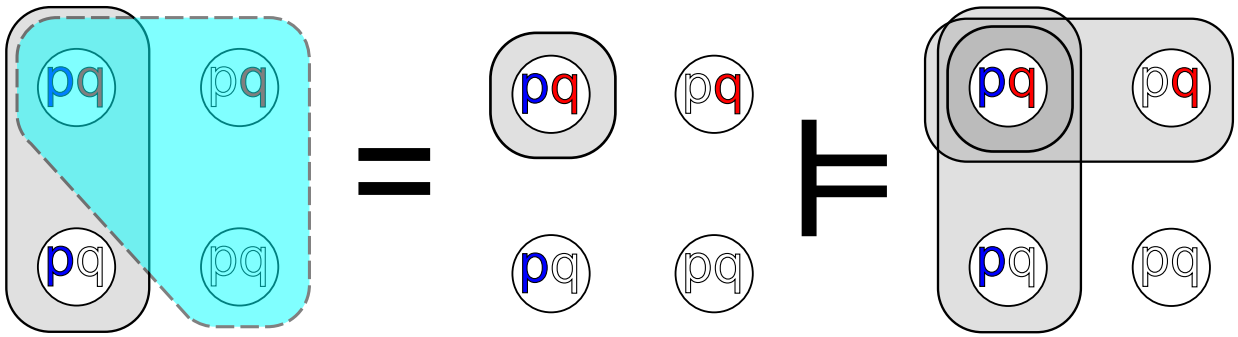

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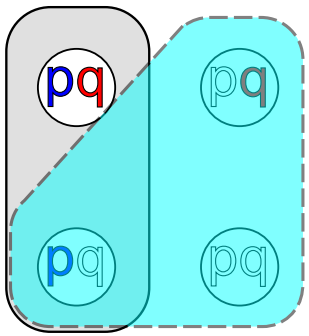

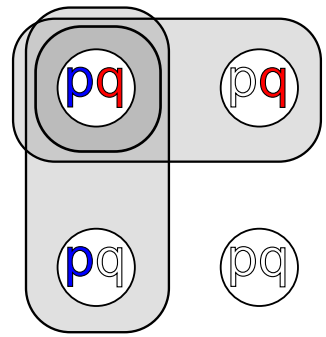

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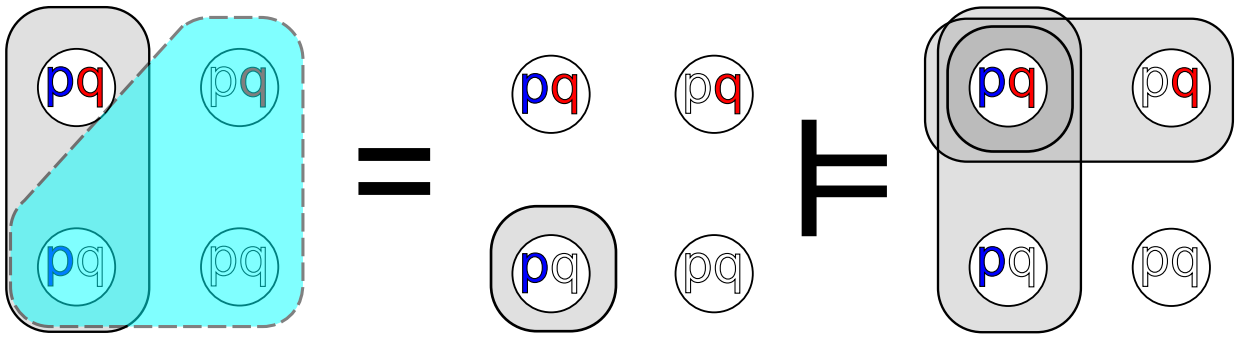

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4. $s \subseteq \overline{|q|}$ exhaustivity!

$p \not\models p \vee q \vee (p \wedge q)$!!!

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Main conclusion:

- If pragmatic reasoning is sensitive to *attentive content* (which it must be, to distinguish between (4b) and (4c));
- then *exhaustivity is a conversational implicature*.

4. Discussion

4.1. 'Alternatives'

Existing approaches (since forever):

- '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.

4.2. Cancellability (I)

'If exhaustivity is a conversational implicature, then why is it sometimes mandatory?'

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Some typical examples of cancellation:

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(5) On an unrelated note, it was raining.

'Prevention'

(6) John, or Mary, or both. $\not\rightarrow$ *not both*

CI are computed globally; the CI wasn't there to begin with...

'Contextual disambiguation'

(7) Will one of your parents be home?
Sure, one of them will be home. Indeed, both will be home.

(8) How many people will be home?
One of my parents will be home. # Indeed, both will be home.

In (7), the implicature wasn't there to begin with...

(9) John or Mary. Oh, but I did not mean to imply not both.

(10) It is raining. Oh, but it has stopped!

'Correction'

The speaker is changing her mind...

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   (ii) revise what counted as cooperative.
4. The speaker would be either uncooperative, or inconsistent.

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- 'Cancellation' (in the sloppy sense) is not a uniform phenomenon:
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  These surely have *different cognitive correlates*?

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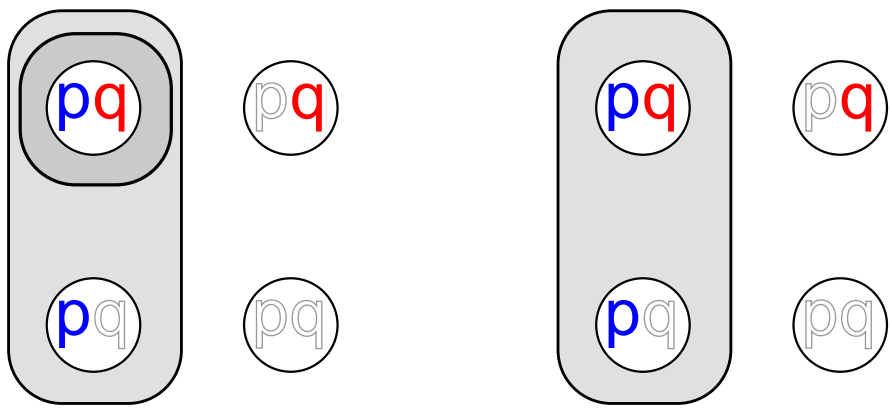
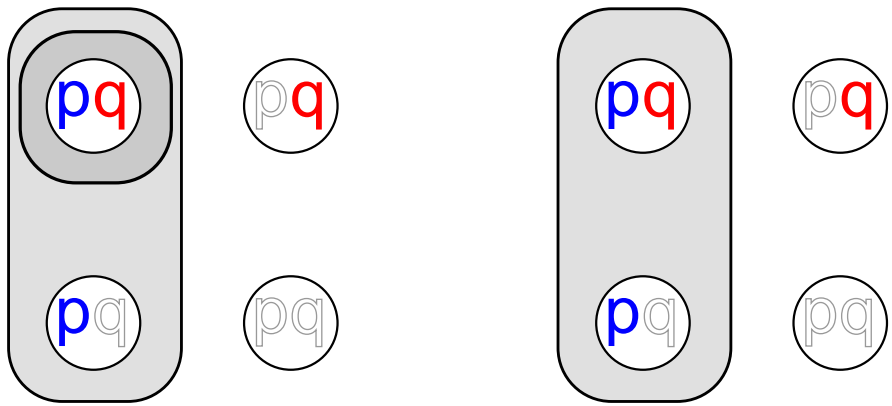


4.3. Semantic desiderata

- No *absorption*: $p \vee (p \wedge q) \not\equiv p \not\equiv p \wedge (p \vee q)$
- Questions, the responses to which may be exhaustified, are *not* partitions. (cf. Groenendijk and Stokhof, 1984)



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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

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Articles

- *Exhaustivity through the maxim of Relation*
  (*LENLS* proceedings, see staff.science.uva.nl/~westera/)
- *'Attention, I'm violating a maxim!'*
  (submitted, available through me)

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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: $R_s \vDash Q$
- Roberts's *relevance*: $R_{CG} \vDash Q$ (CG = Common Ground)

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Roberts's requirement is too strong:

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- They need only be able to *figure it out*.

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)

---

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

Appendix C. 'Embedded' implicatures

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

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

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The 'embedded' implicature of (5) is in fact predicted.

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