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(But he was wrong about cancellability)

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Institute for Logic, Language and Computation
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LEGO, October 18th 2013

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Wrong, it does!

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but how?!

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I will show that none of this is necessary.

Part I: Attention!

Part II: Focus!

Part III: Listen!

Part I: Attention!

Exhaustivity without the opinionatedness assumption.

Part II: Focus!

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Removing the last bits of contextual uncertainty.

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Part III: Listen!

The effect of rising pitch.

Part I: Attention!

2. Diagnosis
3. Theory
4. Results
5. Reflection

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maxim of Relation

3. Theory

3.1. Translation into logic

(4) a. Of John, Bill and Mary, who came to the party?

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(4) a. John came, or Mary, or John and Mary. $p \vee q \vee (p \wedge q)$

b. John came. p

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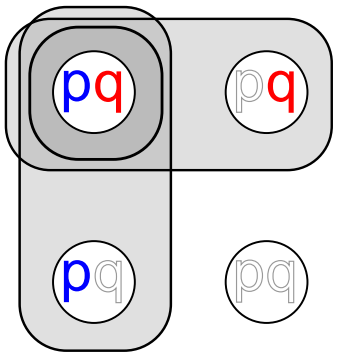

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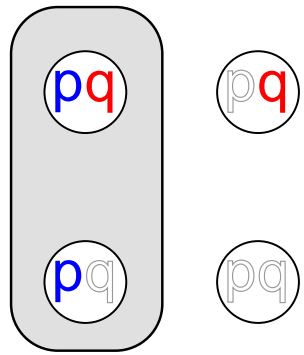

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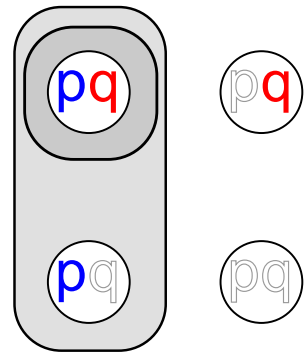

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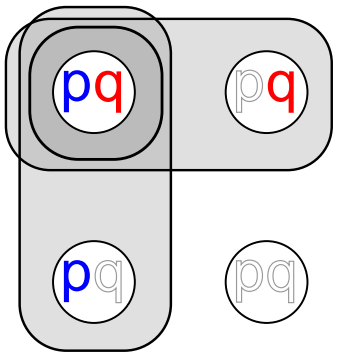

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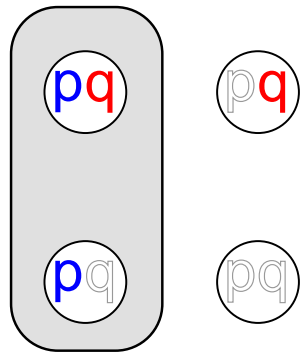

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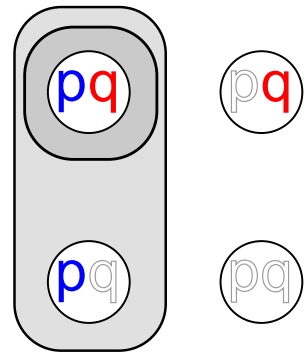

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Entailment

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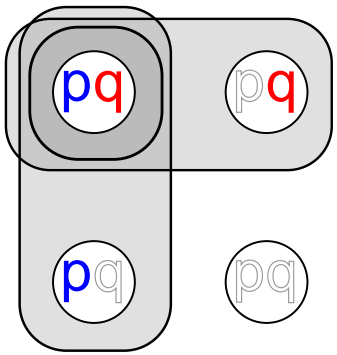

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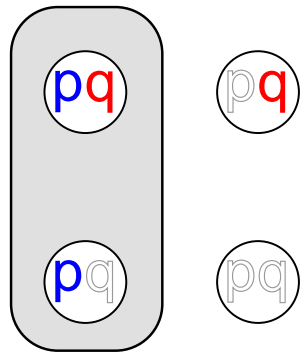

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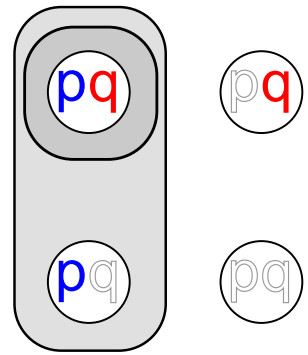

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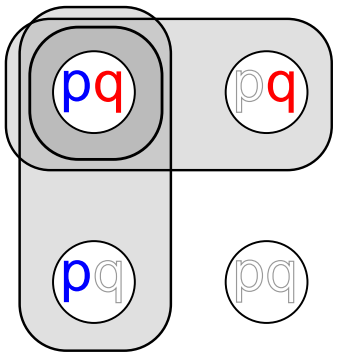

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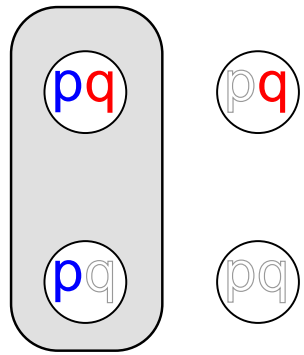

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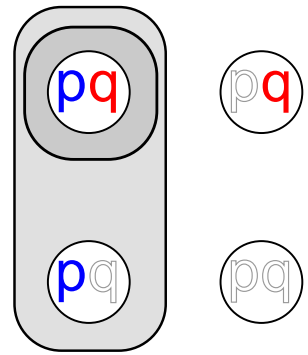

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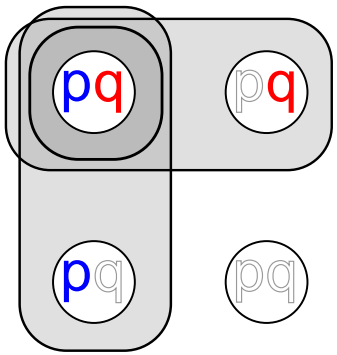

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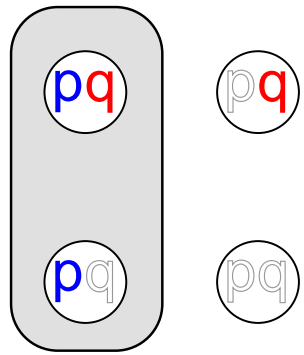

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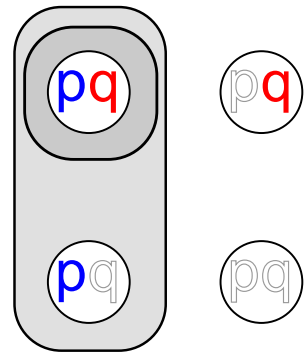

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Now, (4c) $\vDash$ (4a), but (4b) $\nvDash$ (4a).

3.3. Pragmatics

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3. **Relation**: $\{r \cap s \mid r \in R\} \vDash Q$.

(5) Did John go to the party?
It was raining.

3.3. Pragmatics

The relevant maxims

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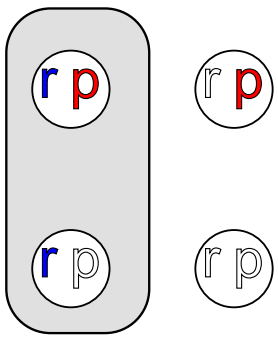

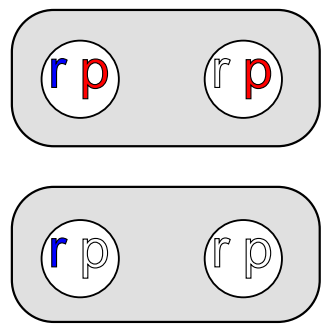

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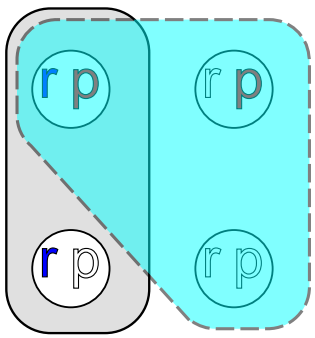

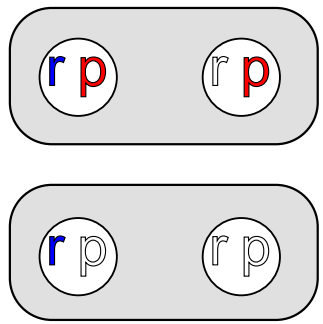

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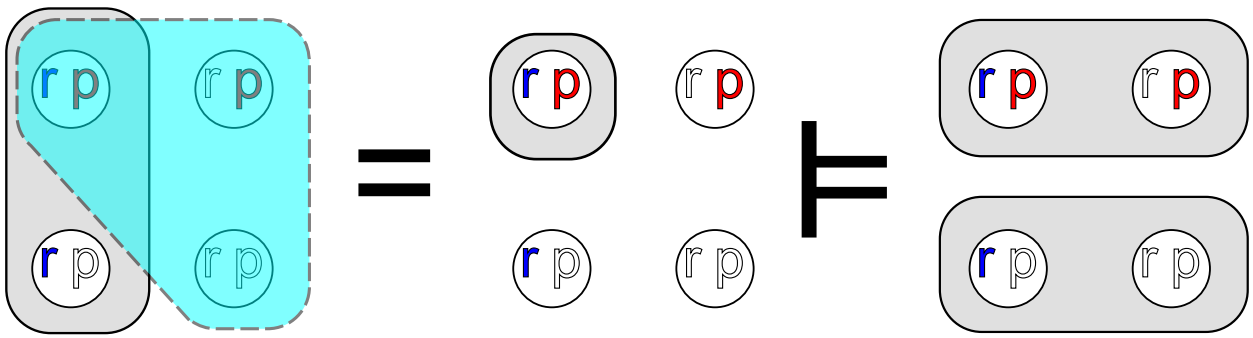

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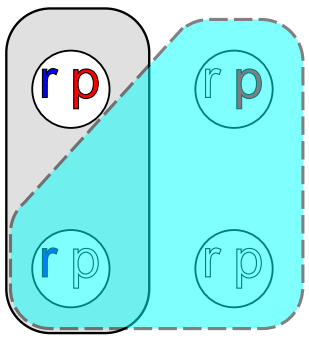

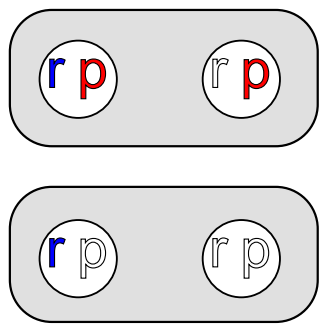

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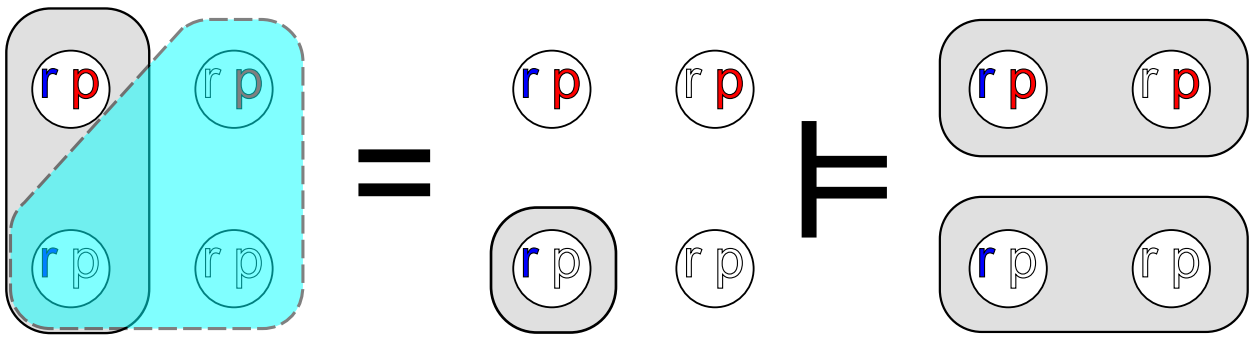

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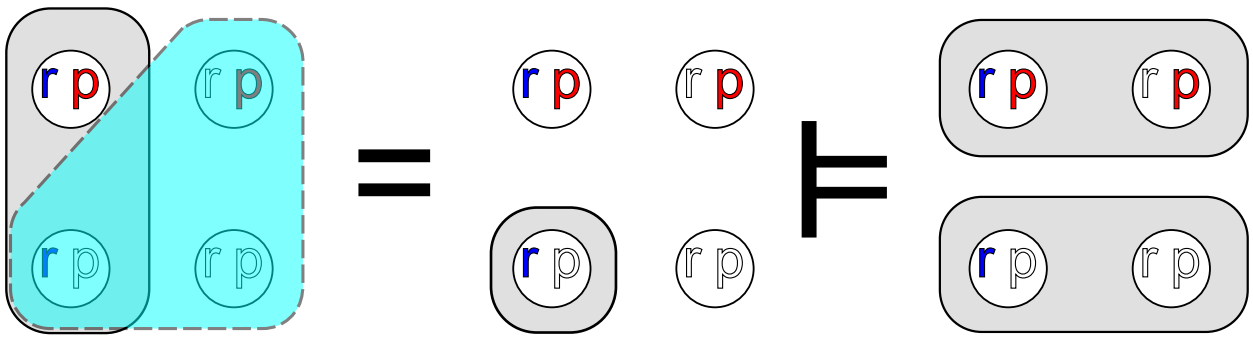
(5) Did John go to the party?
It was raining. $\rightsquigarrow$ If it rained, John {went / didn't go}.



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

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4. Results

4.1. Examples

(4) a. John came, Mary came, or both came $(p \vee q \vee (p \wedge q))$

b. John came. (p)

c. John came, or Mary and John. $(p \vee (p \wedge q))$

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1. $s \subseteq |p \vee (p \wedge q)|$ (Quality)

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1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
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$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

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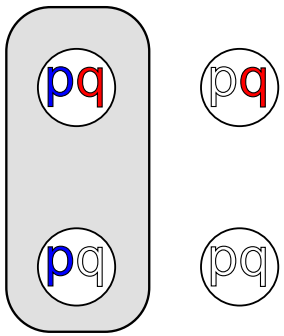

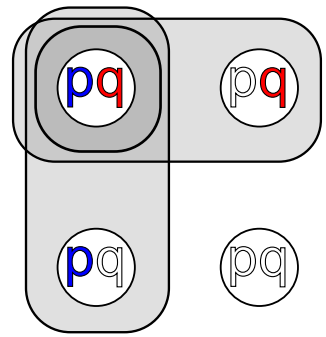

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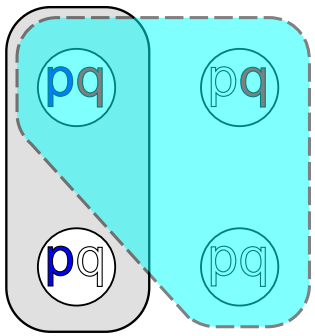

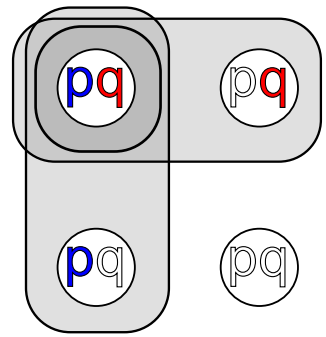

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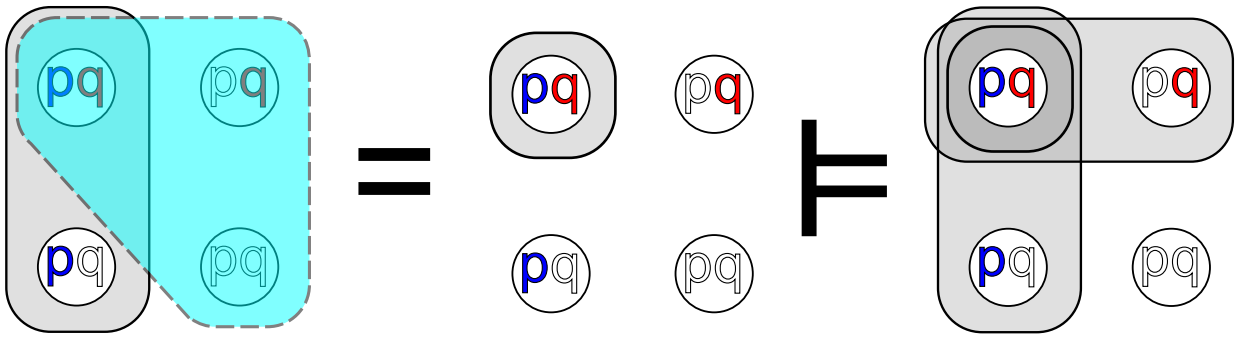

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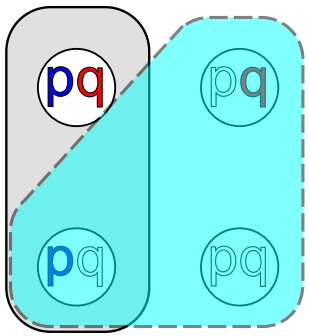

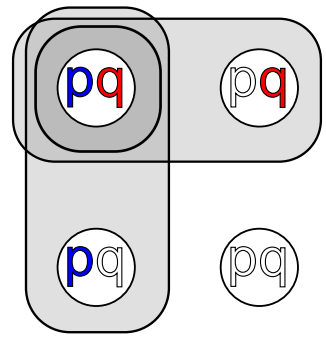

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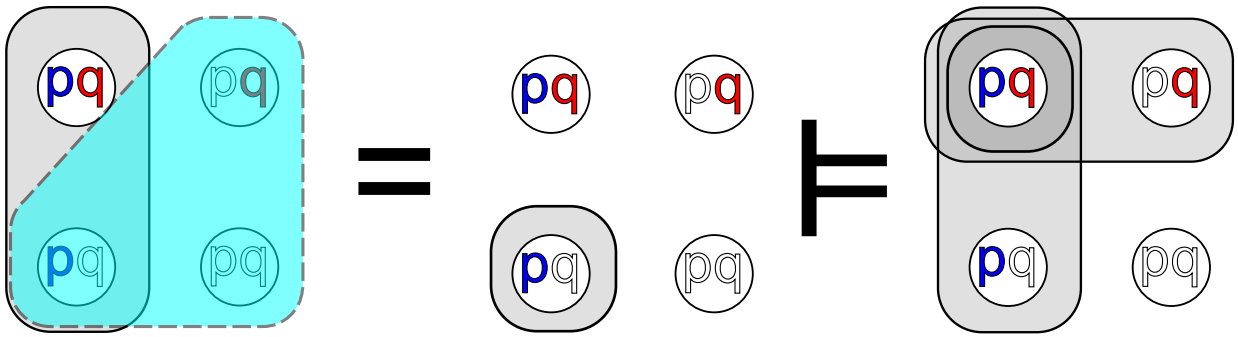

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4. $s \subseteq \overline{|q|}$

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

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

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4.2. Formal results

Recall: A *entails* Q, $A \models Q$, iff
(i) $\bigcup A \subseteq \bigcup Q$; and
(ii) for all $q \in Q$, $q \cap \bigcup A = \varnothing$ or $q \cap \bigcup A \in A$

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Relation implicature

For a cooperative speaker with info s, responding A to Q:

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Relation implicature

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(ii) ...

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$s \subseteq (\overline{q \cap \bigcup A} \cap \overline{a}) \cup (q \cap \bigcup A \cap a)$

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Relation implicature for singleton answer

And if responding $\{a\}$ to Q for some $a \in Q$:

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Relation implicature for singleton answer

And if responding $\{a\}$ to Q for some $a \in Q$:

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Recall: A *entails* Q, $A \models Q$, iff
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Main conclusion:

- If pragmatic reasoning is sensitive to *attentive content* (which it must be, to distinguish between (3b) and (3c));
- then *exhaustivity is a conversational implicature*.

5. Reflection

5.1. 'Alternatives'

Existing approaches (since forever):

- 'Why did the speaker not say "$p \wedge q$"?'

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Beware:

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

5.2. Semantics

Restriction

A restricted to b, $A_b := \{a \cap b \mid a \in A, a \cap b \neq \varnothing\}$

Semantics (Roelofsen, 2011)

1. $[p] = \{\{w \in \textbf{Worlds} \mid w(p) = \text{true}\}\}$
2. $[\neg\varphi] = \{\overline{\bigcup[\varphi]}\}$ if $\overline{\bigcup[\varphi]}$ is nonempty; $\varnothing$ otherwise.
3. $[\varphi \vee \psi] = ([\varphi] \cup [\psi])_{|\varphi| \cup |\psi|} = [\varphi] \cup [\psi]$
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Minimally, the semantics must lack the *absorption laws*:

- Absorption: $p \vee (p \wedge q) \equiv p \equiv p \wedge (p \vee q)$

5.3. Semantic desiderata

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- Wh-words are existential quantifiers over sets.

5.4. 'Embedded' exhaustivity

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Many 'embedded' implicatures are in fact predicted.

5.5. 'Gricean'?

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Besides: this is the only way.

End of Part I

Part II: Focus!

6. Cancellability
7. Exhaustivity and Focus
8. Anticipated ‘but’s

6. Cancellability

6.1. Grice on cancellability

> *A putative conversational implicature that p is explicitly cancellable if [...] it is admissible to add "but not p", or "I do not mean to imply that p" [...].*
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> *(Grice, 1975, p. 44.)*

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(Grice, 1975, p. 44.)

[...] since it is possible to opt out of the observation of [the Cooperative Principle], it follows that a conversational implicature can be cancelled in a particular case. *(p.57)*

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3. Hence, cancelling CI requires the sp. to retroactively:
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4. The speaker would be either uncooperative, or inconsistent.

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- CI is defeasible only insofar as the mutual assumption of cooperativity is. (That is, not *really*.)
- A *really* defeasible 'CI' is not a CI; it's an *inference*.

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In sum:

- Grice's choice of the word "cancel" is unfortunate.
- CI is defeasible only insofar as the mutual assumption of cooperativity is. (That is, not *really*.)
- A *really* defeasible 'CI' is not a CI; it's an *inference*.

Now, if I'm correct:

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This makes the Gricean story much more *generative*...

7. Exhaustivity and focus

7.1. The focus principle

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This makes the Gricean story even more generative.

7.2. Focus vs. ‘only’

The foregoing is not to say that focus ‘means’ ‘only’:

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But at least for ‘simple’ sentences:

- ‘$[\text{Subject}]_F$ predicate’ $\rightsquigarrow$ ‘only $[\text{Subject}]_F$ predicate’.

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This is the way to enforce exhaustivity.

8. Anticipated ‘but’s

8.1. But... experiments!

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- Domain restriction is left implicit;
- Level of granularity is left implicit;
- The experimental task may disable maxims;
- Intonation is not controlled for (e.g., final rise).

8.2. But... mention-some!

Contexts where, supposedly, exhaustivity is absent:

(16) Where can I buy an Italian newspaper?
In the kiosk around the corner. $\not\rightarrow$ Nowhere else.

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(Alternatively, use a *final rise*...)

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(18) [Amy and Ben]$_F$ saw Cleo. $\vDash$ [Amy]$_F$ saw Cleo.

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Proposal:

- Hungarian focus conveys that *the domain is 'wide'*.

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- Hungarian focus conveys that *the domain is 'wide'*.

(21) Of Amy, Ben, and John, [Amy and Ben]$_F$ saw Cleo.
$\not\models$ Of Amy, Ben, and John, [Amy]$_F$ saw Cleo.

End of Part II

Part III: Listen!

9. Preventing exhaustivity: the rising pitch

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(22) Of John, Bill and Mary, who came to the party?
John came↘. ⇝ Mary and Bill didn't.

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- ⇝ ...did I make myself clear?

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(22) Of John, Bill and Mary, who came to the party?

John came$\nearrow^{L}$. $\not\nearrow$ Mary and Bill didn't.

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c. John came$\nearrow^{H}$.

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2. Its pitch conveys *emotivity*. (Banziger & Scherer, 2005)

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   $\nearrow^{H}$: Quality/Manner; (cf. Ward & Hirschberg, 1992)
   $\nearrow^{L}$: Quantity/Relation.

This proposal is new in its generality, not in spirit.

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(23) Of J and M, who came to the party? $(p \vee q \vee (p \wedge q))$
John came ↗. (p)

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(23) Of J and M, who came to the party? $(p \vee q \vee (p \wedge q))$
John came↗. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)
3. $s \subseteq \overline{|p|} \cup |q|$ or $s \subseteq \overline{|p|} \cup \overline{|q|}$ (Relation)

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3. $s \nsubseteq \overline{|p|} \cup |q|$ and $s \nsubseteq \overline{|p|} \cup \overline{|q|}$ (↗)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

✓ ...wait, there's more. (Quantity)
✓ ...perhaps that implies sth. about Mary? (Relation)
✓ ...but I'm not sure. (Quality)
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9.2. Deriving the readings

(23) Of J and M, who came to the party. $(p \vee q \vee (p \wedge q))$
John came↗. (p)

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Noteworthy:

- Attentive content is crucial for the Relation readings.
- Conjunctive lists: Quantity (I will say more!);
  Disjunctive lists: Relation (I will attend more!)

9.4. Interrogatives

Work in progress

Upon seeing John's shoes in the hallway:

(24) Oh, is John home↗

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Proposal:

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- In contrast, (25) says 'this is the only possibility'.
- (24) patterns with disjunctive lists:

(26) ?? Oh, is John home↗, or not↘

9.5. Multiple foci

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(27) Who had what for lunch?
a. $[\text{John}]_F$ had the $[\text{beans}]_F$.

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- My account might enable a compositional analysis.

End of Part III

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- Polar questions? Contrastive topic?

The End

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)

Thanks to the *Netherlands Organisation for Scientific Research* (NWO) for financial support; to F. Roelofsen, J. Groenendijk, C. Cummins, K. Von Fintel, A. Ettinger, J. Tyler, M. Križ, the audiences of *SemDial*, *S-Circle* (UCSC), *SPE6*, *ICL*, *CISI*, *ESSLLI StuS*, *LIRA*, *Göttingen*, *INSEMP*, and many anonymous reviewers for valuable comments.

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(5) Did John go to the party?
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Appendix B. Relatedness and knowledge

$R_s \vDash Q$ 'the speaker *knows how* R is related to Q'

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Within a world, everything is related.

Appendix C. Logical relatedness

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Logical consequence is logical relatedness.

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Connecting this to the literature is a work in progress.

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But an account based on *objective* maxims would also work:

- Final rise: 'For some maxim, I'm not sure whether or how I comply with it'.

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Example given by Fox (forthcoming):

(25) There's money in box A or in box B! $(p \vee q)$

$\rightsquigarrow$ *Not in both.*

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