The Rise and Fall of Cooperativity

Matthijs Westera

Institute for Logic, Language and Computation
University of Amsterdam

ESSLLI, CISI, August 7th 2013

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?
   a. John came↘. $\rightsquigarrow$ Mary and Bill didn't. (*exhaustivity*)

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. $\rightsquigarrow$ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know.

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know.

⇝ ...wait, there's more.

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B?

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

Proposal

The final rise conveys *non-cooperativity*.

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

(Quality)

Proposal

The final rise conveys *non-cooperativity*.

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

(Quality)

(Manner)

Proposal

The final rise conveys *non-cooperativity*.

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

⇝ ...but I'm not entirely sure. (Quality)

(Manner)

Proposal

The final rise conveys *non-cooperativity*.

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

⇝ ...but I'm not entirely sure. (Quality)

⇝ ...that's his name, right? (Manner)

Proposal

The final rise conveys *non-cooperativity*.

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

⇝ ...but I'm not entirely sure. (Quality)

⇝ ...that's his name, right? (Manner)

Proposal

The final rise conveys *non-cooperativity*.

Background assumptions

1. The maxim of Relation is sensitive to *attentive content*

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

⇝ ...but I'm not entirely sure. (Quality)

⇝ ...that's his name, right? (Manner)

Proposal

The final rise conveys *non-cooperativity*.

Background assumptions

1. The maxim of Relation is sensitive to *attentive content* (also required for exhaustivity)

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

⇝ ...but I'm not entirely sure. (Quality)

⇝ ...that's his name, right? (Manner)

Proposal

The final rise conveys *non-cooperativity*.

Background assumptions

1. The maxim of Relation is sensitive to *attentive content* (also required for exhaustivity) → this Friday

Goal of this talk

(1) Who (among John, Mary, Bill) came to the party?

a. John came↘. ⇝ Mary and Bill didn't. (*exhaustivity*)

b. John came↗.

⇝ ...and that's all we need to know. (Quantity)

⇝ ...wait, there's more. (Quantity)

⇝ ...perhaps that implies sth. about M&B? (Relation)

⇝ ...but I'm not entirely sure. (Quality)

⇝ ...that's his name, right? (Manner)

Proposal

The final rise conveys *non-cooperativity*.

Background assumptions

1. The maxim of Relation is sensitive to *attentive content* (also required for exhaustivity) → this Friday
2. All final rises share this same semantic core (cf. discussion).

Outline

1. Theory
2. Predictions
3. Conclusion
4. Discussion and comparison

1. Theory

1.1. Translation into logic

1.2. Attentive semantics

1.3. Pragmatics

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

- To be defined in terms of the maxims.

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

- To be defined in terms of the maxims.

As for the *at-issue* content:

(2) a. Who (among John, Bill and Mary) came?
b. John came.

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

- To be defined in terms of the maxims.

As for the *at-issue* content:

(2) a. Who (among John and Mary) came?
b. John came.

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

- To be defined in terms of the maxims.

As for the *at-issue* content:

(2) a. There are people (among John and Mary) who came.
b. John came.

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

- To be defined in terms of the maxims.

As for the *at-issue* content:

(2) a. John came, Mary came, or both came.
b. John came.

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

- To be defined in terms of the maxims.

As for the *at-issue* content:

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

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

- To be defined in terms of the maxims.

As for the *at-issue* content:

(2) a. John came, Mary came, or both came. $p \vee q \vee (p \wedge q)$
b. John came. p
c. At least John came. $p \vee (p \wedge q)$

1.1. Translation into logic

The contribution of the final rise is *non-at-issue* content.
(e.g., Ward and Hirschberg, 1985)

- To be defined in terms of the maxims.

As for the *at-issue* content:

(2) a. John came, Mary came, or both came. $p \vee q \vee (p \wedge q)$
b. John came. p
c. At least John came. $p \vee (p \wedge q)$

(cf. Coppock & Brochhagen, 2013)

1.2. Attentive Semantics (Roelofsen, 2011)

1.2. Attentive Semantics (Roelofsen, 2011)

- *Possibility*: a set of worlds (a, b)

1.2. Attentive Semantics (Roelofsen, 2011)

- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$

1.2. Attentive Semantics (Roelofsen, 2011)

- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$
- *Informative content*: $|\varphi| := \bigcup[\varphi]$

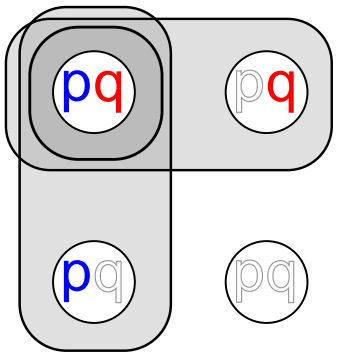
1.2. Attentive Semantics (Roelofsen, 2011)

- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$
- *Informative content*: $|\varphi| := \bigcup[\varphi]$

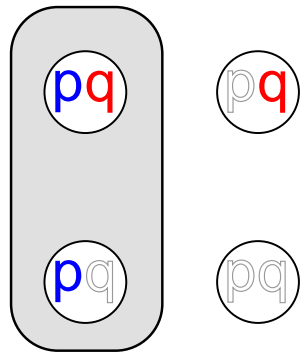
(2a) $[p \vee q \vee (p \wedge q)]$ (2b) $[p]$ (2c) $[p \vee (p \wedge q)]$

1.2. Attentive Semantics (Roelofsen, 2011)

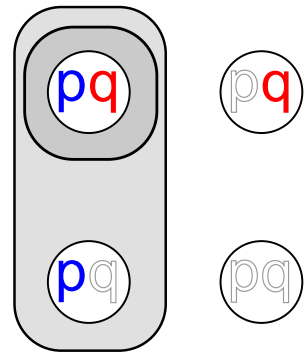
- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$
- *Informative content*: $|\varphi| := \bigcup[\varphi]$



(2a) $[p \vee q \vee (p \wedge q)]$



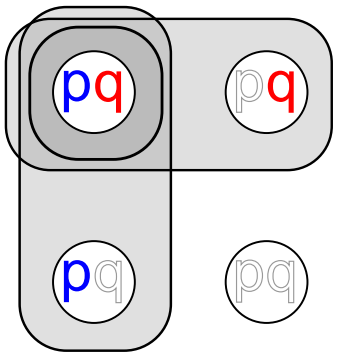
(2b) $[p]$



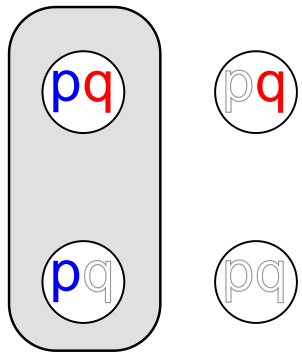
(2c) $[p \vee (p \wedge q)]$

1.2. Attentive Semantics (Roelofsen, 2011)

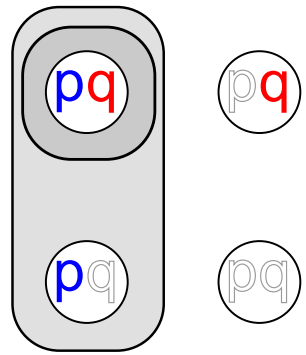
- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$
- *Informative content*: $|\varphi| := \bigcup[\varphi]$



(2a) $[p \vee q \vee (p \wedge q)]$



(2b) $[p]$



(2c) $[p \vee (p \wedge q)]$

Entailment

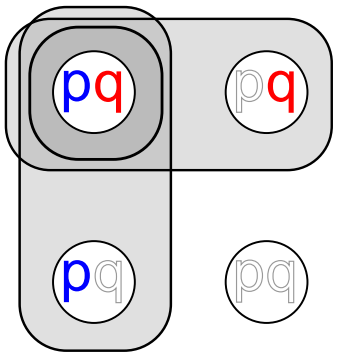
A entails B, $A \models B$, iff

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

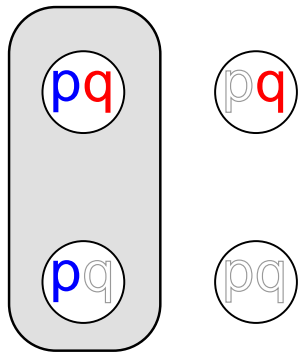
(ii) for all $b \in B$, if $b \cap \bigcup A \neq \varnothing$, $b \cap \bigcup A \in A$

1.2. Attentive Semantics (Roelofsen, 2011)

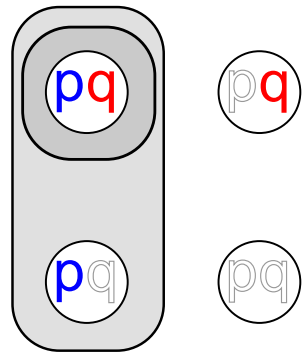
- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$
- *Informative content*: $|\varphi| := \bigcup[\varphi]$



(2a) $[p \vee q \vee (p \wedge q)]$



(2b) $[p]$



(2c) $[p \vee (p \wedge q)]$

Entailment

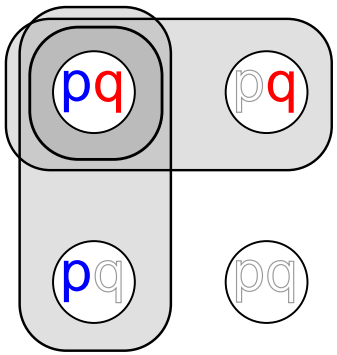
A entails B, $A \vDash B$, iff

(i) $\bigcup A \subseteq \bigcup B$; and → at least as informative

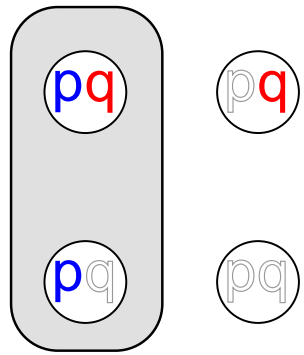
(ii) for all $b \in B$, if $b \cap \bigcup A \neq \varnothing$, $b \cap \bigcup A \in A$

1.2. Attentive Semantics (Roelofsen, 2011)

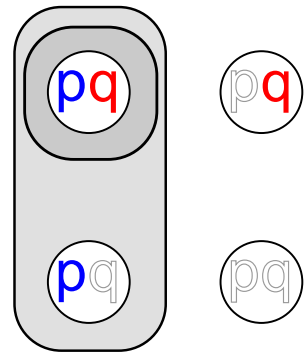
- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$
- *Informative content*: $|\varphi| := \bigcup[\varphi]$



(2a) $[p \vee q \vee (p \wedge q)]$



(2b) $[p]$



(2c) $[p \vee (p \wedge q)]$

Entailment

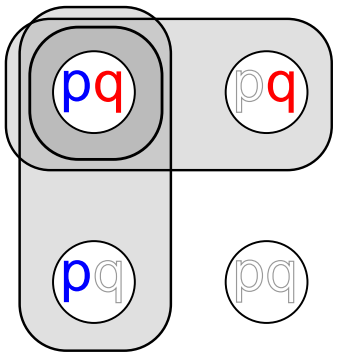
A entails B, $A \models B$, iff

(i) $\bigcup A \subseteq \bigcup B$; and → at least as informative

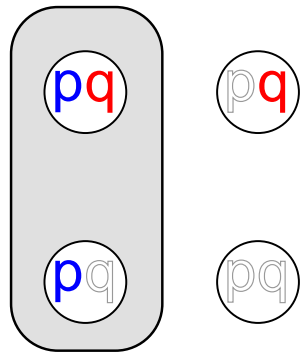
(ii) for all $b \in B$, if $b \cap \bigcup A \neq \varnothing$, $b \cap \bigcup A \in A$ → at least as attentive

1.2. Attentive Semantics (Roelofsen, 2011)

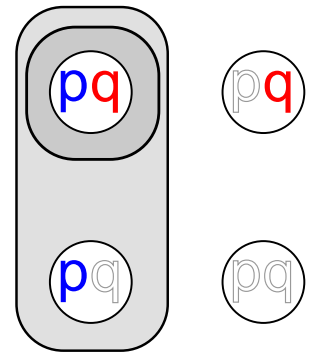
- *Possibility*: a set of worlds (a, b)
- *Proposition*: a set of possibilities $(A, B, [\varphi])$
- *Informative content*: $|\varphi| := \bigcup[\varphi]$



(2a) $[p \vee q \vee (p \wedge q)]$



(2b) $[p]$



(2c) $[p \vee (p \wedge q)]$

Entailment

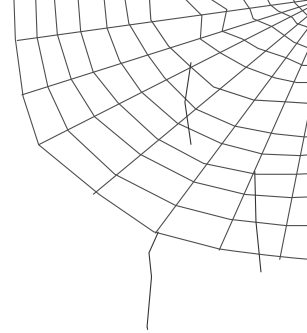
A entails B, $A \models B$, iff

(i) $\bigcup A \subseteq \bigcup B$; and → at least as informative

(ii) for all $b \in B$, if $b \cap \bigcup A \neq \varnothing$, $b \cap \bigcup A \in A$ → at least as attentive

Now, (2c) $\models$ (2a), but (2b) $\not\models$ (2a).

1.3. Pragmatics



The relevant maxims

1. **Quality**:
2. **Quantity**:
3. **Relation**:
4. **Manner**:

1.3. Pragmatics

The relevant maxims

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

1. **Quality**:
2. **Quantity**:
3. **Relation**:
4. **Manner**:

1.3. Pragmatics

The relevant maxims

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

1. **Quality**: $s \subseteq \bigcup R$.
2. **Quantity**:
3. **Relation**:
4. **Manner**:

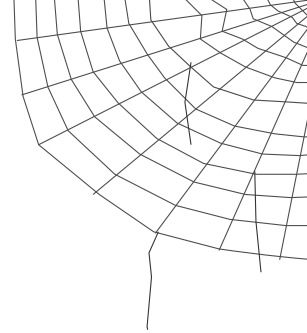
1.3. Pragmatics

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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**:
4. **Manner**:

1.3. 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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.
4. **Manner**:

1.3. 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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \vDash Q$.
4. **Manner**:

(3) Did John come to the party?
It was raining.

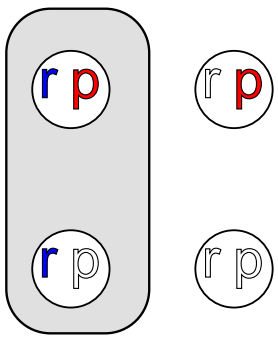
1.3. Pragmatics

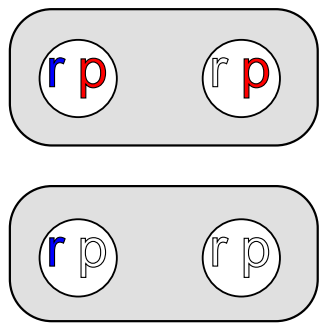
The relevant maxims

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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.
4. **Manner**:

(3) Did John come to the party?
It was raining.





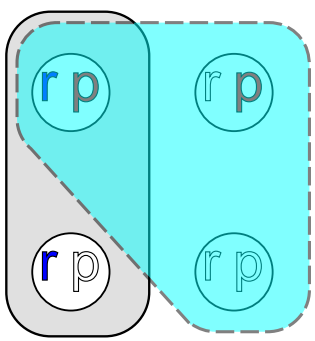
1.3. Pragmatics

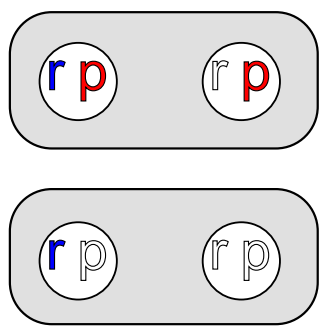
The relevant maxims

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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.
4. **Manner**:

(3) Did John come to the party?
It was raining.





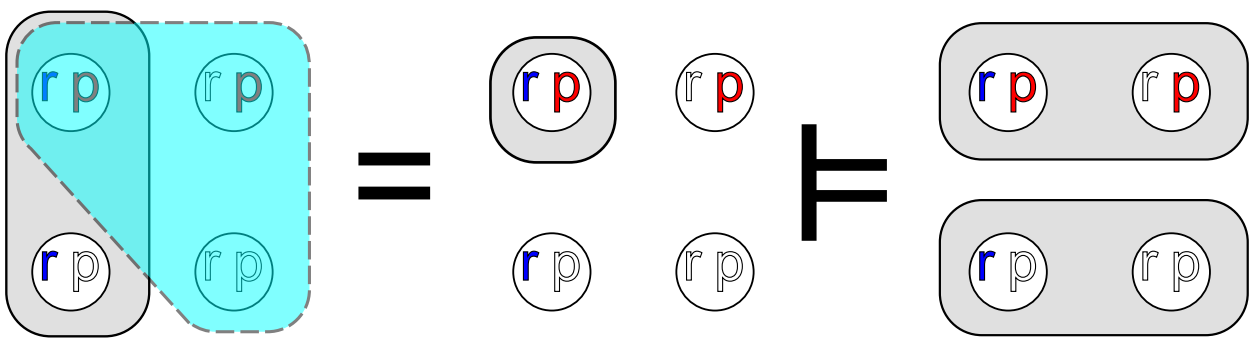
1.3. Pragmatics

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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.
4. **Manner**:

(3) Did John come to the party?
It was raining.



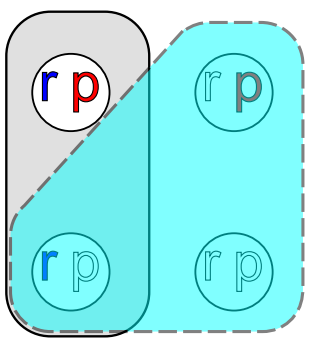
1.3. Pragmatics

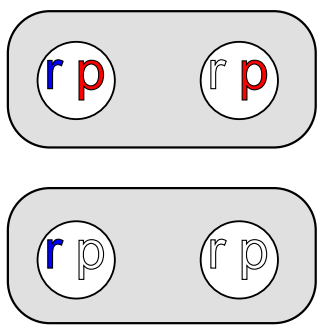
The relevant maxims

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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \vDash Q$.
4. **Manner**:

(3) Did John come to the party?
It was raining.





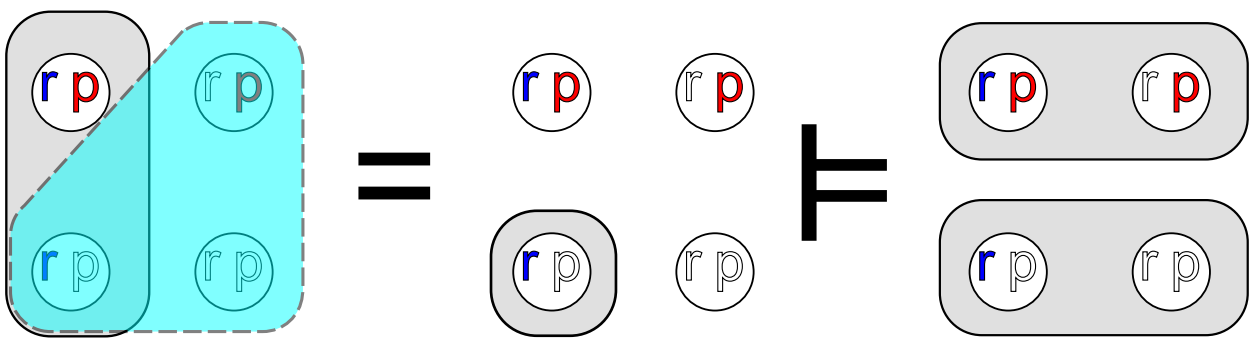
1.3. Pragmatics

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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.
4. **Manner**:

(3) Did John come to the party?
It was raining.



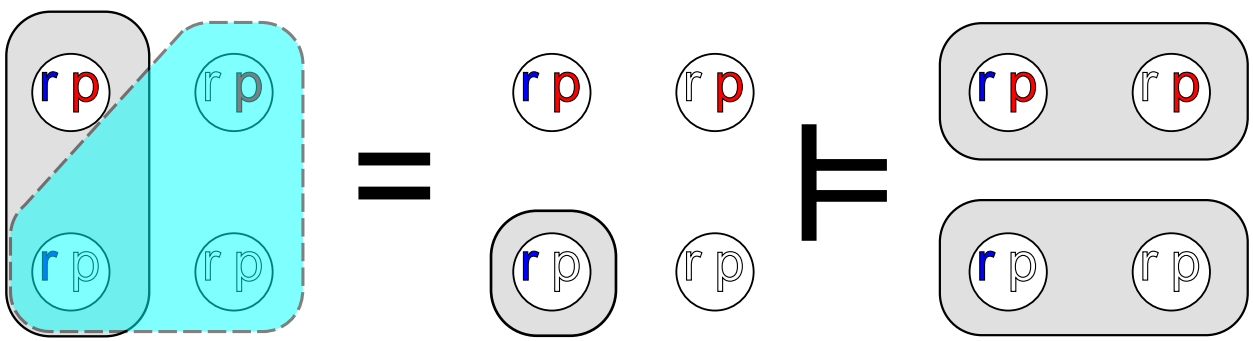
1.3. Pragmatics

The relevant maxims

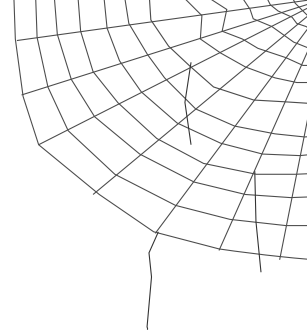
For a cooperative speaker with information s, responding R to Q:

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

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



1.3. Pragmatics

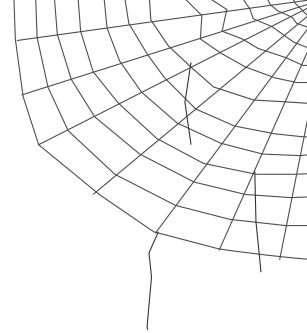


The relevant maxims

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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.
4. **Manner**:

1.3. Pragmatics



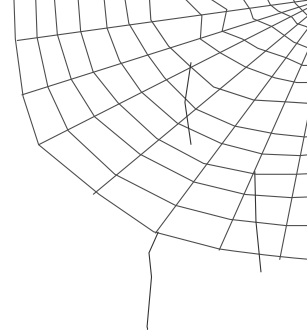
The relevant maxims

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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.
4. **Manner**: The speaker must believe she is clear, concise, etc.

1.3. Pragmatics

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



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 $\bigcup R \subseteq \bigcup Q'$.
3. **Relation**: $\{r \cap s \mid r \in R\} \models Q$.
4. **Manner**: The speaker must believe she is clear, concise, etc.

2. Predictions

2.1. Cooperativity

2.2. Non-cooperativity

2.1. Cooperativity: exhaustivity implicatures

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

b. John came$\searrow$. (p)

c. At least John came. $(p \vee (p \wedge q))$

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

c. At least John came. $(p \vee (p \wedge q))$

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

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

c. At least John came. $(p \vee (p \wedge q))$

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

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

1. $s \subseteq |p|$ (Quality)

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)

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

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

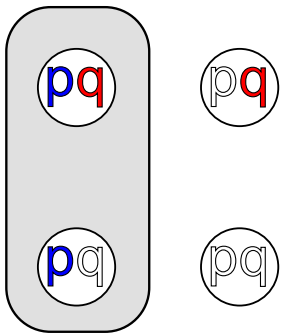
2.1. Cooperativity: exhaustivity implicatures

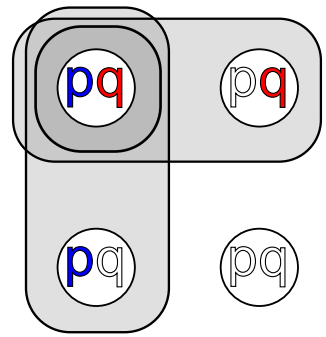
(2) a. John came, Mary came, or both came $(p \vee q \vee (p \wedge q))$

b. John came↘. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)

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





c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

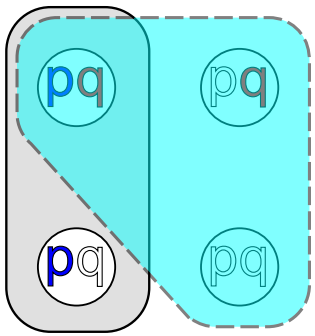
2.1. Cooperativity: exhaustivity implicatures

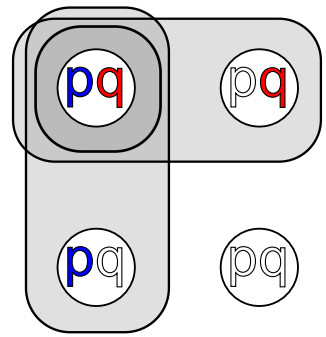
(2) a. John came, Mary came, or both came $(p \vee q \vee (p \wedge q))$

b. John came↘. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)

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





c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

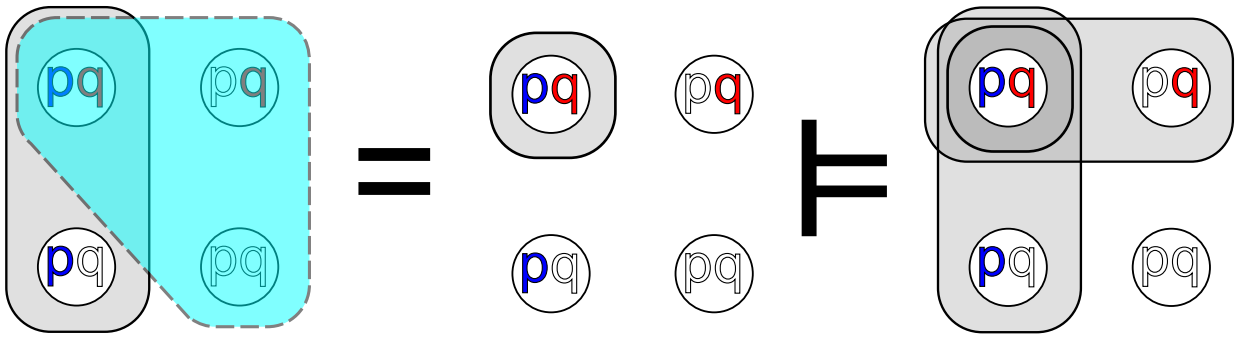
2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)

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



c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

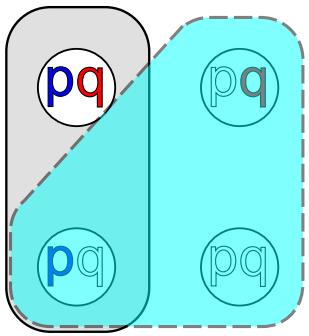
2.1. Cooperativity: exhaustivity implicatures

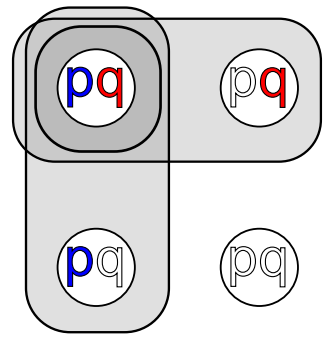
(2) a. John came, Mary came, or both came $(p \vee q \vee (p \wedge q))$

b. John came↘. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)

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





c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

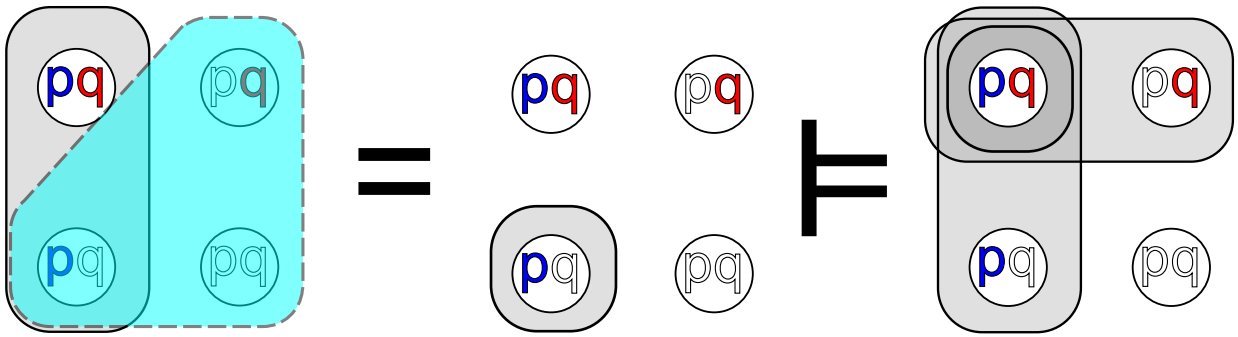
2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)

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



c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

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)

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

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

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)

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

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.1. Cooperativity: exhaustivity implicatures

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

b. John came↘. (p)

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

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

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.1. Cooperativity: exhaustivity implicatures

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

b. 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)

---

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

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

c. At least John came. $(p \vee (p \wedge q))$

1. $s \subseteq |p \vee (p \wedge q)| = |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)
3. - (Relation)

$p \vee (p \wedge q) \models p \vee q \vee (p \wedge q)$

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

Readings

...and that's all we need to know.	(Quantity)
...wait, there's more.	(Quantity)
...perhaps that implies sth. about Mary?	(Relation)
...but I'm not entirely sure.	(Quality)
...that's his name, right?	(Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

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)

Readings

...and that's all we need to know. (Quantity)
...wait, there's more. (Quantity)
...perhaps that implies sth. about Mary? (Relation)
...but I'm not entirely sure. (Quality)
...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. 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)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

...and that's all we need to know. (Quantity)
...wait, there's more. (Quantity)
...perhaps that implies sth. about Mary? (Relation)
...but I'm not entirely sure. (Quality)
...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

1. $s \notin |p|$ (↗)
2. $s \notin |q|$ (Quantity)
3. $s \subseteq \overline{|p|} \cup |q|$ or $s \subseteq \overline{|p|} \cup \overline{|q|}$ (Relation)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

...and that's all we need to know. (Quantity)
...wait, there's more. (Quantity)
...perhaps that implies sth. about Mary? (Relation)
...but I'm not entirely sure. (Quality)
...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

1. $s \notin |p|$ (↗)
2. $s \notin |q|$ (Quantity)
3. $s \subseteq \overline{|p|} \cup |q|$ or $s \subseteq \overline{|p|} \cup \overline{|q|}$ (Relation)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

...and that's all we need to know. (Quantity)

...wait, there's more. (Quantity)

...perhaps that implies sth. about Mary? (Relation)

✓ ...but I'm not entirely sure. (Quality)

...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

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. The speaker thinks she is clear, concise, etc. (Manner)

Readings

...and that's all we need to know. (Quantity)
...wait, there's more. (Quantity)
...perhaps that implies sth. about Mary? (Relation)
✓ ...but I'm not entirely sure. (Quality)
...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \subseteq |q|$ (↗)
3. $s \subseteq \overline{|p|} \cup |q|$ or $s \subseteq \overline{|p|} \cup \overline{|q|}$ (Relation)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

...and that's all we need to know. (Quantity)

...wait, there's more. (Quantity)

...perhaps that implies sth. about Mary? (Relation)

✓ ...but I'm not entirely sure. (Quality)

...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \subseteq |q|$ (↗)
3. $s \subseteq \overline{|p|} \cup |q|$ or $s \subseteq \overline{|p|} \cup \overline{|q|}$ (Relation)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

✓ ...and that's all we need to know. (Quantity)

...wait, there's more. (Quantity)

...perhaps that implies sth. about Mary? (Relation)

✓ ...but I'm not entirely sure. (Quality)

...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \subseteq |q|$ (↗)
3. $s \subseteq \overline{|p|} \cup |q|$ or $s \subseteq \overline{|p|} \cup \overline{|q|}$ (Relation)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

✓ ...and that's all we need to know. (Quantity)

✓ ...wait, there's more. (Quantity)

...perhaps that implies sth. about Mary? (Relation)

✓ ...but I'm not entirely sure. (Quality)

...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. 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)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

✓ ...and that's all we need to know. (Quantity)
✓ ...wait, there's more. (Quantity)
...perhaps that implies sth. about Mary? (Relation)
✓ ...but I'm not entirely sure. (Quality)
...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \nsubseteq |q|$ (Quantity)
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

✓ ...and that's all we need to know. (Quantity)

✓ ...wait, there's more. (Quantity)

...perhaps that implies sth. about Mary? (Relation)

✓ ...but I'm not entirely sure. (Quality)

...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. John came↗. (p)

1. $s \subseteq |p|$ (Quality)
2. $s \not\subseteq |q|$ (Quantity)
3. $s \not\subseteq \overline{|p|} \cup |q|$ and $s \not\subseteq \overline{|p|} \cup \overline{|q|}$ (↗)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

✓ ...and that's all we need to know. (Quantity)

✓ ...wait, there's more. (Quantity)

✓ ...perhaps that implies sth. about Mary? (Relation)

✓ ...but I'm not entirely sure. (Quality)

...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. 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)
4. The speaker thinks she is clear, concise, etc. (Manner)

Readings

✓ ...and that's all we need to know. (Quantity)
✓ ...wait, there's more. (Quantity)
✓ ...perhaps that implies sth. about Mary? (Relation)
✓ ...but I'm not entirely sure. (Quality)
...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. 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)
4. The speaker doesn't think she's clear, concise, etc. (↗)

Readings

✓ ...and that's all we need to know. (Quantity)
✓ ...wait, there's more. (Quantity)
✓ ...perhaps that implies sth. about Mary? (Relation)
✓ ...but I'm not entirely sure. (Quality)
...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. 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)
4. The speaker doesn't think she's clear, concise, etc. (↗)

Readings

✓ ...and that's all we need to know. (Quantity)
✓ ...wait, there's more. (Quantity)
✓ ...perhaps that implies sth. about Mary? (Relation)
✓ ...but I'm not entirely sure. (Quality)
✓ ...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. 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)
4. The speaker doesn't think she's clear, concise, etc. (↗)

Readings

✓ ...and that's all we need to know. (Quantity)
✓ ...wait, there's more. (Quantity)
✓ ...perhaps that implies sth. about Mary? (Relation)
✓ ...but I'm not entirely sure. (Quality)
✓ ...that's his name, right? (Manner)

2.2. Non-cooperativity: the final rise readings

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

b. 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)
4. The speaker doesn't think she's clear, concise, etc. (↗)

Readings

✓ ...and that's all we need to know. (Quantity)
✓ ...wait, there's more. (Quantity)
✓ ...perhaps that implies sth. about Mary? (Relation)
✓ ...but I'm not entirely sure. (Quality)
✓ ...that's his name, right? (Manner)

Furthermore:

- Exhaustivity disappears in all readings except Manner

3. Conclusion

Main finding:

3. Conclusion

Main finding:

1. If the maxims are sensitive to *attentive content*
   (which they must be for exhaustivity)

3. Conclusion

Main finding:

1. If the maxims are sensitive to *attentive content*
   (which they must be for exhaustivity)
2. And if the final rise conveys *non-cooperativity*

3. Conclusion

Main finding:

1. If the maxims are sensitive to *attentive content*
   (which they must be for exhaustivity)
2. And if the final rise conveys *non-cooperativity*
3. Then the readings of the final rise are predicted.

3. Conclusion

Main finding:

1. If the maxims are sensitive to *attentive content*
   (which they must be for exhaustivity)
2. And if the final rise conveys *non-cooperativity*
3. Then the readings of the final rise are predicted.

This is the first unifying account of the final rise.

3. Conclusion

Main finding:

1. If the maxims are sensitive to *attentive content*
   (which they must be for exhaustivity)
2. And if the final rise conveys *non-cooperativity*
3. Then the readings of the final rise are predicted.

This is the first unifying account of the final rise.

Take-home messages:

- Pragmatic concepts enter semantics.

3. Conclusion

Main finding:

1. If the maxims are sensitive to *attentive content*
   (which they must be for exhaustivity)
2. And if the final rise conveys *non-cooperativity*
3. Then the readings of the final rise are predicted.

This is the first unifying account of the final rise.

Take-home messages:

- Pragmatic concepts enter semantics.
- Exhaustivity is a conversational implicature.

3. Conclusion

Main finding:

1. If the maxims are sensitive to *attentive content*
   (which they must be for exhaustivity)
2. And if the final rise conveys *non-cooperativity*
3. Then the readings of the final rise are predicted.

This is the first unifying account of the final rise.

Take-home messages:

- Pragmatic concepts enter semantics.
- Exhaustivity is a conversational implicature. → this Friday

4. Discussion and comparison

4.1. One rise to rule them all?

4.2. Gunlogson's rise

4.3. Constant's rise-fall-rise

4.4. Cooperative non-cooperativity

4.5. Other suitable semantics

4.1. One rise to rule them all?

Background assumption

1. All final rises share this same semantic core.

4.1. One rise to rule them all?

Background assumption

1. All final rises share this same semantic core.

Perhaps variation among the rises helps to *disambiguate*:

4.1. One rise to rule them all?

Background assumption

1. All final rises share this same semantic core.

Perhaps variation among the rises helps to *disambiguate*:

- Low rise: mild violation = Relation/Quantity

4.1. One rise to rule them all?

Background assumption

1. All final rises share this same semantic core.

Perhaps variation among the rises helps to *disambiguate*:

- Low rise: mild violation = Relation/Quantity
- High rise: more dramatic violation = Quality/Manner

4.1. One rise to rule them all?

Background assumption

1. All final rises share this same semantic core.

Perhaps variation among the rises helps to *disambiguate*:

- Low rise: mild violation = Relation/Quantity
- High rise: more dramatic violation = Quality/Manner
- Higher rise: additional surprise, uncertainty, emotion

4.1. One rise to rule them all?

Background assumption

1. All final rises share this same semantic core.

Perhaps variation among the rises helps to *disambiguate*:

- Low rise: mild violation = Relation/Quantity
- High rise: more dramatic violation = Quality/Manner
- Higher rise: additional surprise, uncertainty, emotion
- Rise-fall-rise: additional emphasis?

4.1. One rise to rule them all?

Work in progress.

Background assumption

1. All final rises share this same semantic core.

Perhaps variation among the rises helps to *disambiguate*:

- Low rise: mild violation = Relation/Quantity
- High rise: more dramatic violation = Quality/Manner
- Higher rise: additional surprise, uncertainty, emotion
- Rise-fall-rise: additional emphasis?

4.2. Gunlogson's (high) rise

Gunlogson (2008) analyses the (high) final rise as conveying a *contingent commitment*.

4.2. Gunlogson's (high) rise

Gunlogson (2008) analyses the (high) final rise as conveying a *contingent commitment*.

She gives:

- A detailed (no doubt superior) account of the Quality reading.

4.2. Gunlogson's (high) rise

Gunlogson (2008) analyses the (high) final rise as conveying a *contingent commitment*.

She gives:

- A detailed (no doubt superior) account of the Quality reading.
- ...and thereby of the maxim of Quality.

4.2. Gunlogson's (high) rise

Gunlogson (2008) analyses the (high) final rise as conveying a *contingent commitment*.

She gives:

- A detailed (no doubt superior) account of the Quality reading.
- ...and thereby of the maxim of Quality.
- But disconnected from other rises/readings.

4.3. Constant's rise-fall-(low)rise

'*We take RFR to quantify nonvacuously over post-assertable alternative propositions, to the effect that none of these propositions can safely be claimed.*' (Constant, 2012)

4.3. Constant's rise-fall-(low)rise

> '*We take RFR to quantify nonvacuously over post-assertable alternative propositions, to the effect that none of these propositions can safely be claimed.*' (Constant, 2012)

That is:

- The contour 'semanticizes' the Quantity implicature.

4.3. Constant's rise-fall-(low)rise

> '*We take RFR to quantify nonvacuously over post-assertable alternative propositions, to the effect that none of these propositions can safely be claimed.*' (Constant, 2012)

That is:

- The contour 'semanticizes' the Quantity implicature. (while also saying 'this is not a maximal answer')

4.3. Constant's rise-fall-(low)rise

> '*We take RFR to quantify nonvacuously over post-assertable alternative propositions, to the effect that none of these propositions can safely be claimed.*' (Constant, 2012)

That is:

- The contour 'semanticizes' the Quantity implicature. (while also saying 'this is not a maximal answer')
- Doesn't predict exhaustivity cancellation.

4.3. Constant's rise-fall-(low)rise

> '*We take RFR to quantify nonvacuously over post-assertable alternative propositions, to the effect that none of these propositions can safely be claimed.*' (Constant, 2012)

That is:

- The contour 'semanticizes' the Quantity implicature. (while also saying 'this is not a maximal answer')
- Doesn't predict exhaustivity cancellation.
- Disconnected from other rises/readings.

4.4. Cooperative non-cooperativity?

Utterances with a final rise are often perfectly cooperative.

4.4. Cooperative non-cooperativity?

Utterances with a final rise are often perfectly cooperative.

- Perhaps it says: 'I'm not *absolutely* cooperative.'

4.4. Cooperative non-cooperativity?

Utterances with a final rise are often perfectly cooperative.

- Perhaps it says: 'I'm not *absolutely* cooperative.'

The speaker conveys that she couldn't comply with the maxim:

4.4. Cooperative non-cooperativity?

Utterances with a final rise are often perfectly cooperative.

- Perhaps it says: 'I'm not *absolutely* cooperative.'

The speaker conveys that she couldn't comply with the maxim:

- because of a clash with another maxim. (Quantity reading)

4.4. Cooperative non-cooperativity?

Utterances with a final rise are often perfectly cooperative.

- Perhaps it says: 'I'm not *absolutely* cooperative.'

The speaker conveys that she couldn't comply with the maxim:

- because of a clash with another maxim. (Quantity reading)
- just because she couldn't. (Quality, Manner, Relation)

4.4. Cooperative non-cooperativity?

Utterances with a final rise are often perfectly cooperative.

- Perhaps it says: 'I'm not *absolutely* cooperative.'

The speaker conveys that she couldn't comply with the maxim:

- because of a clash with another maxim. (Quantity reading)
- just because she couldn't. (Quality, Manner, Relation)
  (and saying something is better than saying nothing)

4.5. Other suitable semantics

Background assumption

2. The maxim of Relation is sensitive to *attentive content*

4.5. Other suitable semantics

Background assumption

2. The maxim of Relation is sensitive to *attentive content*

Attentive semantics is not the only suitable semantics:

- *Unrestricted Inquisitive Sem.* (Ciardelli, 2009; Westera, 2012)

4.5. Other suitable semantics

Background assumption

2. The maxim of Relation is sensitive to *attentive content*

Attentive semantics is not the only suitable semantics:

- *Unrestricted Inquisitive Sem.* (Ciardelli, 2009; Westera, 2012)

Minimally, the semantics must lack the *absorption laws*:

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

4.5. Other suitable semantics

Background assumption

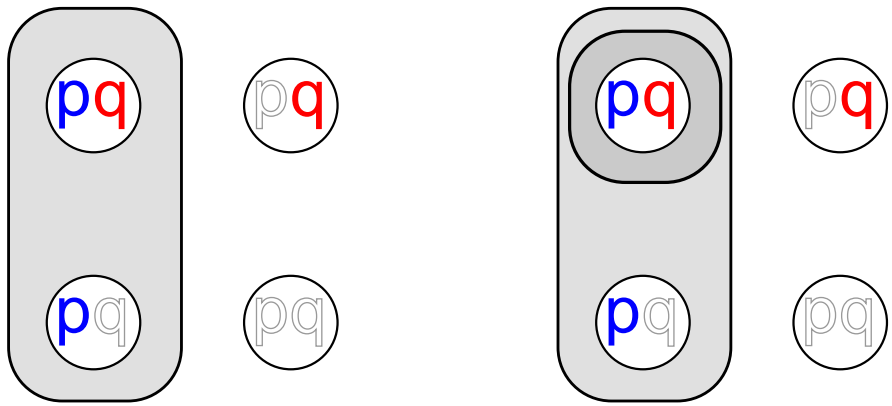
2. The maxim of Relation is sensitive to *attentive content*

Attentive semantics is not the only suitable semantics:

- *Unrestricted Inquisitive Sem.* (Ciardelli, 2009; Westera, 2012)

Minimally, the semantics must lack the *absorption laws*:

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



The final rise

The final ~~rise~~ slide

The final ~~rise~~ slide

Contact

Matthijs Westera - m.westera@uva.nl

The final ~~rise~~ slide

Contact

Matthijs Westera - m.westera@uva.nl

Article

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

The final ~~rise~~ slide

Contact

Matthijs Westera - m.westera@uva.nl

Article

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

Thanks to the *Netherlands Organisation for Scientific Research* (NWO) for financial support; to F. Roelofsen, J. Groenendijk, J. Tyler, M. Križ, A. Ettinger, the audience of *S-Circle* (Santa Cruz) and several anonymous reviewers for valuable comments.

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. References

- Ciardelli, I. (2009). Inquisitive semantics and intermediate logics.
- Coppock, E., & Brochhagen, T. (2013). Raising and resolving issues with scalar modifiers.
- Grice, H. (1975). Logic and conversation.
- Groenendijk, J., & Stokhof, M. (1984). Studies on the semantics of questions and the pragmatics of answers.
- Gunlogson, C. (2008). A question of commitment.
- Roberts, C. (1996). Information structure in discourse.
- Roelofsen, F. (2011). Information and attention.
- Ward, G. & J. Hirschberg (1985). Implicating Uncertainty: The Pragmatics of Fall-Rise Intonation.
- Westera, M. (2012). Meanings as proposals: a new semantic foundation for Gricean pragmatics.