Modeling manipulative language use

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Gricean pragmatic theory and argumentativity in language use

(1) A: How did your students do in the exam?
B: Some of them passed.

(2) Some people loved your poem.

(3) Some people hated your poem.

(4) A: How did your students do in the exam?
B: Most of them got some of the questions right.

vs.

B: Some of them got some of the questions right.

Lisanne	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
Alex	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
Pablo	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
Theresa	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Johann	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

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Linguistic expressions of quantity

Usage

manipulative + truthful

Trade-off

argumentativity <> informativity

Modeling manipulative language use

Standard RSA

$$Util(s, u) = \log (P_{LL}(s \mid u)) - cost(u)$$

$$P_S(u \mid s) \propto \exp(\alpha * Util(s, u))$$

$$Util(s, u) = \underbrace{\log([s \in [[u]]])}_{\text{truth}} + \underbrace{\log(|[[u]]|^{-1})}_{\text{informativity}} - \underbrace{cost(u)}_{\text{cost}}$$

Argumentativity

$$Util(s, u) = \underbrace{\log([s \in [[u]]])}_{\text{truth}} + \underbrace{\beta \log(|[[u]]|^{-1})}_{\text{informativity}} + (1 - \beta) \underbrace{arg\_str(u)}_{\text{argumentativity}} - \underbrace{cost(u)}_{\text{cost}}$$

$$arg\_str(u) = \log \frac{P([[u]] \mid H_0)}{P([[u]] \mid H_1)}$$

Experiment

In this exam **QUANT$_1$** of the students got **QUANT$_2$** of the questions **ADJ**.

Condition

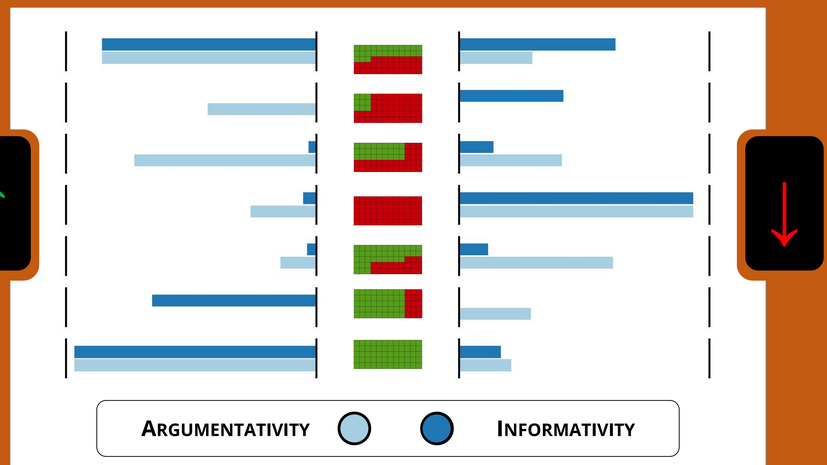
QUANT$_{1,2}$: <NONE, SOME, MOST, ALL>

ADJ: <RIGHT, WRONG>

HIGH ↑

LOW ↓

Model fit to empirical data



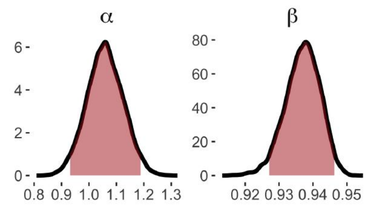
Exploration

Informativity ~ Framing

− ← Framing compatability → +

\+ Semantically informative description

\+ Argumentatively strong description



Next

Free production exp

Coding

- Quantifier properties
- Predicate properties