Measuring the effect of cancelling the Maxim of Quantity

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Quantity and scalar implicature

Pragmatic Views (Gricean, neo-Gricean, Relevance-Theoretic (e.g., Grice, 1975, Horn and Ward, 2004, Sperber and Wilson, 1986))

Make your contribution to the conversation as informative as is required for the purposes of the exchange.

Susie ate cookies or ice-cream $\rightarrow$ not both.

Grammatical exhaustification (e.g., Fox, 2007, Chierchia et al., 2004; 2008)

Operator optionally applied with semantics similar to the term *only*.

Susie ate cookies or ice-cream $\rightarrow$ Susie only ate cookies or ice-cream
Fox (2014, p. 7)

There are 100 boxes and five of them contain a million dollars each (the rest of the boxes are empty). The show’s host knows the identity of the five boxes, but will, of course, not disclose this information. At any point, contestants can take the risk of choosing a box. At various points hints are provided by the host, with the common understanding that these reveal only part of the relevant information available to the host.

Hint: There is money in box 20 or 25.
Competing Predictions

The pragmatic views make no predictions about what occurs when Quantity is not available, resulting in that when Quantity is unavailable, i.e, neither are scalar implicatures.

- Box 20 or 25 = Box 20 or 25 or both.

The grammatical views predict that scalar implicatures are available despite Quantity being unavailable.

- Box 20 or 25 ⇒ Box 20 or 25 and not both.
Experiment

Eight items, four disjunctions & four numerals

Pragmatic Approach
Box 20 or 25 (SI)/Win $\rightarrow$ Another box $\approx$ Box 25
Box 20 or 25 or both/Win $\rightarrow$ Another box $\approx$ Box 25
Box 20 or 25 (SI)/Lose $\rightarrow$ Box 25 $>_{\text{Box}}$ Another box
Box 20 or 25 or both/Lose $\rightarrow$ Box 25 $>_{\text{Box}}$ Another box

Grammatical Approach
Box 20 or 25 (SI)/Win $\rightarrow$ Another box $>_{\text{Box}}$ Box 25
Results

210 participants from SONA and community sample
Box 20 or 25 (SI)/Win → Another box > Box 25

Choice as a Function of Implicature Availability

\[ \chi^2(1) = 5.93, \ p = 0.015 \]

Box 20 or 25 or both/Win → Another box ≈ Box 25
Box 20 or 25 (SI)/Lose → Box 25 > Another box
Box 20 or 25 or both/Lose → Box 25 > Another box
Conclusion

Scalar Implicatures are still available when Quantity is cancelled.

- Support for the grammatical theory of scalar implicature.

Caveats:

- Hurford’s disjunctions
- Conversational expectations in non-cooperative contexts.


Your task is to choose a numbered door. There are eight numbered doors and four of them are associated with a million dollar prize. The host tells the first contestant that there is money associated with one/at least one door with a number less than 3. The contestant before you picks Door 1 and wins a million dollars/does not win any money. Imagine you are the next contestant in this game. The host does not give you any new hints.

Which action are you most likely to take?

a.) Choose Door 2.
b.) Choose another door.
Experiment 1: Predictions & Results

<table>
<thead>
<tr>
<th>Frameworks</th>
<th>Disjunction</th>
<th>Previous Outcome</th>
<th>Predicted Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pragmatic</td>
<td><strong>box 20 or 25</strong></td>
<td>won</td>
<td>another box (\approx) box 25</td>
</tr>
<tr>
<td></td>
<td>box 20 or 25 or both</td>
<td>won</td>
<td>another box (\approx) box 25</td>
</tr>
<tr>
<td></td>
<td>box 20 or 25 or both</td>
<td>lost</td>
<td>box 25 (&gt;) another box</td>
</tr>
<tr>
<td></td>
<td>box 20 or 25</td>
<td>lost</td>
<td>box 25 (&gt;) another box</td>
</tr>
<tr>
<td>Grammatical</td>
<td><strong>box or 25</strong></td>
<td>won</td>
<td>another box (&gt;) box 25</td>
</tr>
<tr>
<td></td>
<td>box 20 or 25 or both</td>
<td>won</td>
<td>another box (\approx) box 25</td>
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<td></td>
<td>box 20 or 25</td>
<td>lost</td>
<td>box 25 (&gt;) another box</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scalar Item</th>
<th>Implicature</th>
<th>Previous Outcome</th>
<th>Proportions (SE)</th>
<th>RT (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disjunctions</td>
<td>Available</td>
<td>Won</td>
<td>0.22 (0.05)</td>
<td>32.1 (1.6)</td>
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<tr>
<td></td>
<td>Available</td>
<td>Lost</td>
<td>0.82 (0.05)</td>
<td>27.4 (1.5)</td>
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<tr>
<td></td>
<td>Unavailable</td>
<td>Lost</td>
<td>0.86 (0.04)</td>
<td>29.2 (1.5)</td>
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<tr>
<td></td>
<td>Unavailable</td>
<td>Won</td>
<td>0.39 (0.06)</td>
<td>33.6 (2.0)</td>
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<tr>
<td>Numerals</td>
<td>Available</td>
<td>Won</td>
<td>0.26 (0.06)</td>
<td>31.0 (1.8)</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>Lost</td>
<td>0.86 (0.04)</td>
<td>28.5 (1.8)</td>
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<tr>
<td></td>
<td>Unavailable</td>
<td>Lost</td>
<td>0.81 (0.05)</td>
<td>27.8 (1.4)</td>
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<tr>
<td></td>
<td>Unavailable</td>
<td>Won</td>
<td>0.44 (0.07)</td>
<td>33.1 (1.7)</td>
</tr>
</tbody>
</table>
Assumptions on the pragmatic views about the granularity of the semantics is made & Quantity.

Experiment 1: Distinction between *or* and *or both*

Attentional pragmatics provides an alternative solution to both issues by appealing to the maxim of Relevance (one’s contribution ought to be relevant to the conversation)
Shifting relevance

I want to go to Jasper.
I want to go to Jasper or Banff.
I want to go to Jasper or Banff or both.

Separability of Quantity and Relevance maxims in conversation

- Quantity-2 (Do not make your contribution more informative than is necessary) is subsumed by the Relevance maxim, in the sense that an extraneously informative claim is irrelevant to conversational goals.

Meyer (2013) - Quantity & Relevance are distinct, Quantity is constrained by the game show scenario but such information would also be relevant.