

The Processing of Scalar Implicatures

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The Beginning: Grice (1967)

- Conventional Implicature
- Conversational Implicature
 - Particularized
 - Generalized
- Maxims of co-operativity:
 - Quantity
 - Quality
 - Manner
 - Relevance

Exclusive vs. Inclusive *or*

1. Either Mary is a genius, or she cheated at the test.
2. Mary is a genius and she cheated at the test.
 - Step 1: (2) is a stronger statement than (1).
 - Step 2: If the speaker knew (2) was true, she would have said so. (maxim of quantity)
 - Step 3: We have reason to believe that the speaker knows that (2) is false. (epistemic step)
3. Either Mary is a genius, or she cheated at the test, but not both.

Exclusive vs. Inclusive *or*

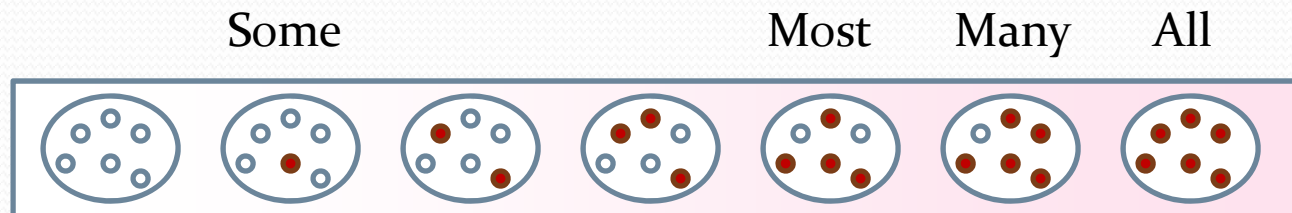
1. It's not true that Mary is a genius, or she cheated at the test.
2. It's not true that Mary is a genius and she cheated at the test.
 - (1) is a stronger statement than (2).
 - No implicature for (1)
3. Either Mary is a genius, or she cheated at the test, but not both.

But...

1. Either Mary is a genius, or she cheated at the test.
2. Mary is a genius.
 - Step 1: (2) is a stronger statement than (1).
 - Step 2: If the speaker knew (2) was true, she would have said so. (maxim of quantity)
 - Step 3: We have reason to believe that the speaker knows that (2) is false. (epistemic step)
3. Mary cheated at the test.

Neo-Griceans: Horn Scales

- Horn(1972) – The maxim of quantity leads to the establishment of entailment scales.



1. All of the dots are red.
2. \Rightarrow Many of the dots are red.
3. \Rightarrow Most of the dots are red.
4. \Rightarrow Some of the dots are red.

Neo-Griceans: Horn Scales

- It's generally assumed that what scales a word is part of, and possibly the direction of the scale, is lexically stored information.
- Hence, <some, all> but not <some, too many>, even though:
 1. Too many of the dots are red.
 2. \Rightarrow Some of the dots are red.

Examples of scales

- <some, (most), many, all>
- <or, and>
- <one, two, three, four, five, six....>
- <sometimes, often, usually, always>
- <possible, likely, certain>
- <can, might, must>
- <not all, few/not many, no/none>
- <not always, rarely, never>
- <lukewarm, cool, cold, freezing>
- <warm, hot, scalding>
- <finger, thumb>

Question 1: scales vs. underspecificity

- One of the major rivals to the Neo-Gricean theory comes from relevance theory (Sperber & Wilson 1986)
- In a nutshell, this view proposes that implicature triggers (scalar or not) are underspecified. Thus, *or* is not specified as to whether or not it is exclusive.
- When such a word is used, context determines which reading is the most relevant. This is the source of the so-called implicature.

Question 1: scales vs. underspecificity

- Thus, the neo-Gricean model proposes a rather rich lexicon (words with specified meanings + scales), while the Relevance Theory model proposes a relatively lean lexicon (underspecified words).
- Unfortunately, this distinction has not been much studied, because it has become conflated with...

Question 2: automaticity vs. effort

- Levinson (2000) argues that scalar implicatures are **default**: they arise without any effort on the behalf of the speaker/hearer.
- Most relevance theory literature takes this to be the general neo-Gricean position.
- They argue that it is wrong, and we can find evidence that scalar implicature calculation is effortful, and only takes place if necessary.

Question 2: automaticity vs. effort

- However, while this is itself an important question, nothing prevents a neo-Gricean system that predicts effortfulness.
- For example, Reinhart (1999, 2006) argues that scalar implicatures are an example of “reference set” computations.
- A reference set computation is a computation where several different alternatives are compared
- It has a relatively high working memory demand.

Question 2: automaticity vs. effort

- Because of the cost of reference set computations, they are harder on children (and other groups with imperfectly developed language systems).
- Reinhart argues that when children have not yet acquired a process, they should behave consistently un-adult.
- When a child acquired a process but finds it hard, they should have a 50% success rate.
- Thus, 50% success rates are taken to be evidence of reference-set computations.

Question 3: local vs. global

- Neo-Gricean calculations happen on the level of entire sentences.
- But as early as Gazdar (1979), it has been known that sometimes they behave more locally:
 1. Every boy ate some of the cookies.
 2. \nRightarrow Every boy ate some of the cookies, and it's not true that every boy ate all of the cookies.
 3. \Rightarrow Every boy ate some, but not all, of the cookies.

Question 3: local vs. global

- Does (scalar) implicature calculation happen in parallel with semantic composition, or only once the entire sentence has been completed?
- Do we need to modify our view of the semantic/pragmatic distinction to allow sub-sentential pragmatics?
- Or is implicature calculation really a grammatical phenomenon and not pragmatic at all?