

Anton and Diana
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Verification of “Most”

Big Picture Question:

How much does the semantics dictate in the verification process?

Concerning the words “Most” and “More than half,” is there an innate feature of the word that forces an individual to verify truth conditions based on specific methods?

OR

Does semantics leave it up to the Logical/Pragmatic Systems in the brain to most effectively evaluate the truth condition on its own without specific guidance or stipulation?

Representing Truth Conditions

“Most of the dots are yellow.” : $|\text{DOT} \cap \text{YELLOW}| > |\text{DOT} - \text{YELLOW}|$

“More than half of the dots are yellow.” : $|\text{DOT} \cap \text{YELLOW}| > 1/2 |\text{DOT}|$

The Nonexistent “Fost”

“‘Fost’ of the dots are yellow.” : $|\text{DOT} \cap \text{YELLOW}| < |\text{DOT} - \text{YELLOW}|$

This is not found in any language! (see Hunter et al. 2009)

One-to-One Correspondence

Two sets A and B have the same cardinality if and only if the elements of A can be put in one-to-one correspondence with the elements of B:

$$|A| = |B| \Leftrightarrow \text{OneToOne}(A,B)$$

One-to-One Plus

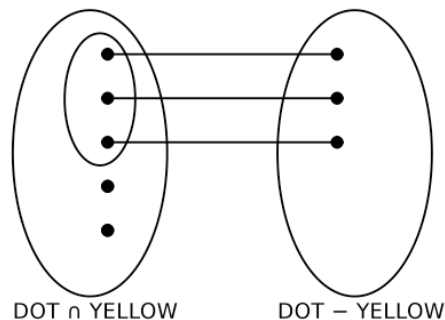
If there is two sets A and B and there is a subset A' that has a one-to-one correspondence with B, then set A must be greater than set B:

$$\text{OneToOnePlus}(A,B) \Leftrightarrow \exists A'[\text{OneToOne}(A',B) \text{ and } A' \subset A]$$

$$|\text{DOT} \cap \text{YELLOW}| > |\text{DOT} - \text{YELLOW}|$$

$$\Leftrightarrow \exists A'[\text{OneToOne}(A', (\text{DOT} - \text{YELLOW})) \text{ and } A' \subset (\text{DOT} \cap \text{YELLOW})]$$

$$\Leftrightarrow \text{OneToOnePlus}(\text{DOT} \cap \text{YELLOW}, \text{DOT} - \text{YELLOW})$$



Approximate Number System (ANS)

Verification based on Weber's Law: you can determine which of the two sets is greater based on the ratio of the cardinalities rather than knowing the specific number of each set.

The closer you are to a 1/1 ratio, the more difficult it is to determine which has a greater cardinality.