

Scales and scalarity: Processing scalar inferences

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The theoretical derivation of scalar inferences involves a process of enriching the literal interpretation by constructing and negating alternatives. So, theoretically, the literal interpretation is prior to the interpretation with a scalar inference. A key question in experimental pragmatics is whether the theoretical priority of the literal interpretation is reflected in the cognitive processing of scalar inferences.

Results from sentence verification tasks appear to speak in favour of such a consilience between theory and psychology. Thus, Bott and Noveck (2004) observed that participants are faster to confirm than reject underinformative sentences like ‘Some dogs are mammals’. Similarly, De Neys and Schaeken (2007) found that participants are more likely to accept such underinformative sentences when their cognitive resources are burdened by having to memorise complex dot patterns. We refer to these two findings as the B&N and D&S effects. Taken together, these two effects suggest that the processing of scalar inferences is cognitively costly.

An important limitation in this line of work is that it has largely focused on the some/all scale. There is by now substantial evidence that the class of lexical scales is highly diverse so it is very much an open question whether the B&N and D&S effects generalise to other lexical scales. Here, we present the results of two studies in which we tested this question (van Tiel et al., 2019; van Tiel & Pankratz, 2021). In these studies, we carried out a series of sentence-picture verification tasks using a large variety of lexical scales. Only a subset of these lexical scales gave rise to the B&N and D&S effects.

In particular, we observed B&N and D&S effects only for lexical scales consisting of positive words (e.g., warm/hot, passable/good) but not for lexical scales consisting of negative words (e.g., cool/cold, mediocre/bad). Here, we introduce a novel usage-based way to classify scalar words as either positive or negative. We explain the pattern of results by arguing that the apparent processing cost of scalar inferences is in fact due to the processing of the negative information introduced by positive scalar words. Hence, we conclude that the B&N and D&S effects should not be construed as evidence for the idea that the processing of scalar inferences is cognitively costly, or for a consilience between theory and psychology more broadly.

References

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