

# Comparison in Context

Lera Boroditsky (lera@psych.stanford.edu)  
Department of Psychology; Bldg. 420  
Stanford, CA 94305 USA

## Introduction

The features of a concept that come to mind depend on the context in which that concept occurs. Tversky (1977) argued that context affects the outcome of a comparison by changing the salience of particular features in the meanings of all items in the comparison set. We investigate further the dynamics of the interaction between context and comparison. We hypothesized that a context given just before a target concept will have far greater influence on the salience distribution of features of that target, than if the context is given just after the target.

## Experiment

In this experiment subjects were asked to generate differences between a target concept and a contrast set, and to phrase these differences in terms of some property of the target. We varied the order of presentation of the target and the contrast set. We expected that different contrast sets would cause people to generate different properties for the target. However, we expected to find this context effect was only when the contrast set was presented first.

## Materials & Design

Each trial was composed of a **target** concept (e.g., 'sugar'), and a **contrast pair** of concepts (e.g., 'pickles, olives'). Ten different target items were used. Three different contrast pairs were constructed for each target item. For example, the contrast pairs for 'sugar' were 1. pickles, olives; 2. soot, pepper; 3. water, whiskey. Each subject only saw one of the three possible contrast-target combinations. For half of the subjects, the target was presented first, and for the other half, the contrast pair was presented first. The first item(s) appeared on the computer screen and participants were given 5 sec. to 'think about what the concept(s) mean.' After 5 sec., the second item appeared. The target word always appeared at the bottom of the screen. Subjects were instructed to name a difference between the target and the contrast pair as quickly as they could, phrased in terms of some property of the target concept. 40 Stanford University undergraduates participated in this experiment. Another group of 70 subjects were simply asked to name the first property that came to mind for each target item, thus providing "no context" norms (1st line of Table 1).

## Results

A typical example of the results appears in Table 1. When subjects were simply asked to name a property of sugar, 73% responded that sugar is 'sweet'. Thus we determined

that 'sweet' is the most salient property of sugar. We predicted that in the target-first condition, subjects would generate this most salient property regardless of the contrast-type. Just as predicted, an overwhelming majority of subjects chose 'sweet' as the distinguishing property between sugar and each of the three contrast pairs. There was no effect of context when the target item was presented first. The pattern was strikingly different for the contrast-first condition. We predicted that in the contrast-first condition, subjects would name properties of sugar that were most salient to the particular contrast pair, and this is indeed what we observed. For two comparison types, subjects overlooked the most salient property of sugar ('sweet'), and instead produced context-specific properties. For example, when the contrast pair was 'soot, pepper', 75% of the subjects said that sugar is 'white'. When the contrast pair was 'water, whiskey', 86% of the subjects said that sugar is 'solid'. Context had a strong effect on the outcome of a comparison when the context preceded the target. However, context had no effect when the context was presented after the target.

Table 1: Sample results for 'sugar'.

	sweet	solid	white	other
context-free prop. naming	73%	5%	3%	19%
<b>context-first</b>				
pickles, olives	71%	—	14%	14%
soot, pepper	25%	—	75%	—
water, whiskey	—	86%	—	14%
<b>target-first</b>				
pickles, olives	100%	—	—	—
soot, pepper	100%	—	—	—
water, whiskey	60%	20%	—	20%

## Conclusions

The effect of context on comparison is order-sensitive. We found that context did not retroactively affect comparison. A proper model of context effects on comparison must take account of the order in which the concept properties are activated.

## References

Tversky, A. (1977). Features of Similarity. *Psychological Review*, 84, 327-352.