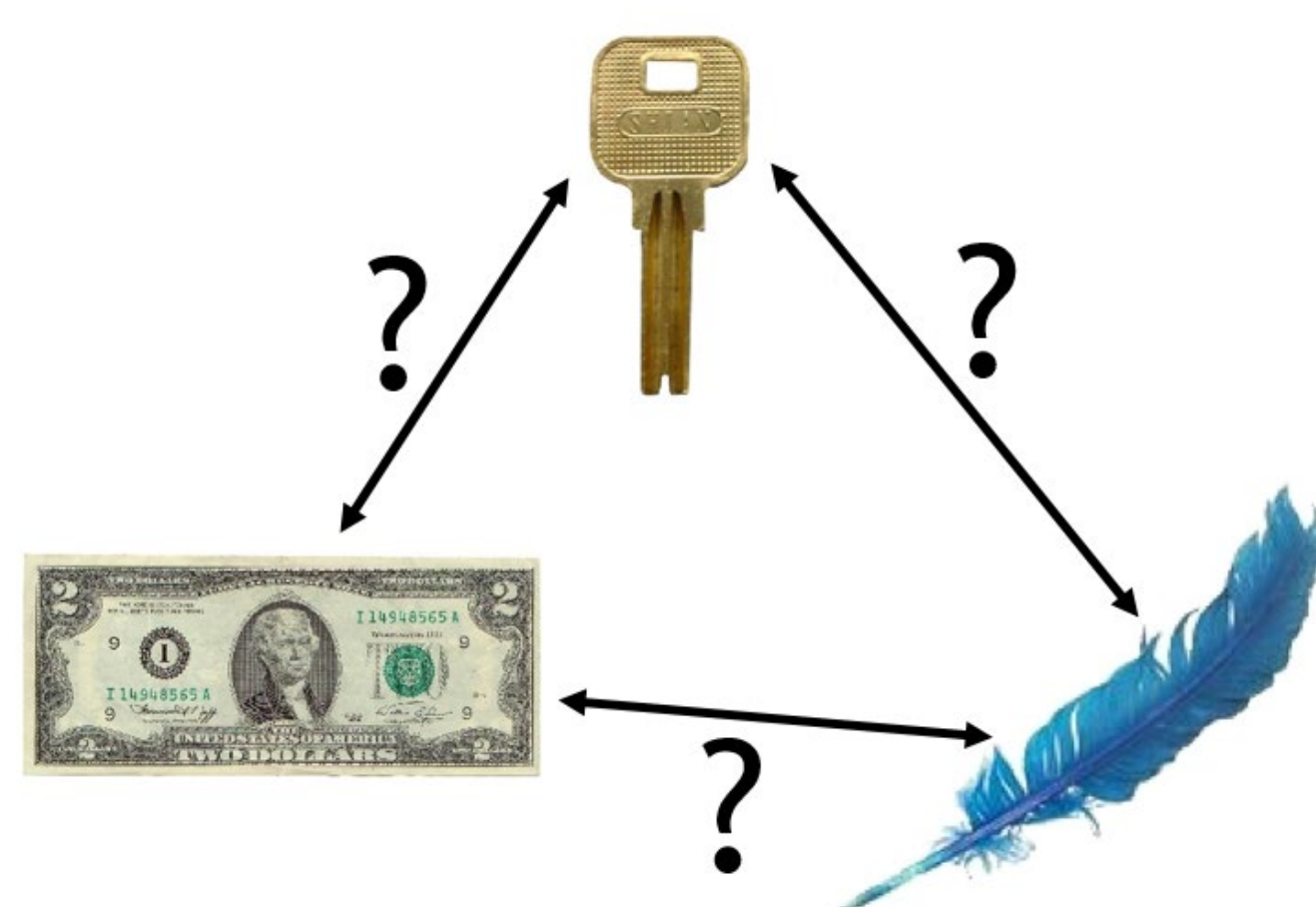


# An Evaluation of Context Awareness in Similarity Measurement: Total-Set Versus Classic Pairwise Comparison

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## Why Measure Subjective Similarity?<sup>1</sup>

- A component of many theories
  - Learning
  - Memory
  - Categorization
  - ...
- Not objectively deducible



## What is Pairwise Comparison (PW)?

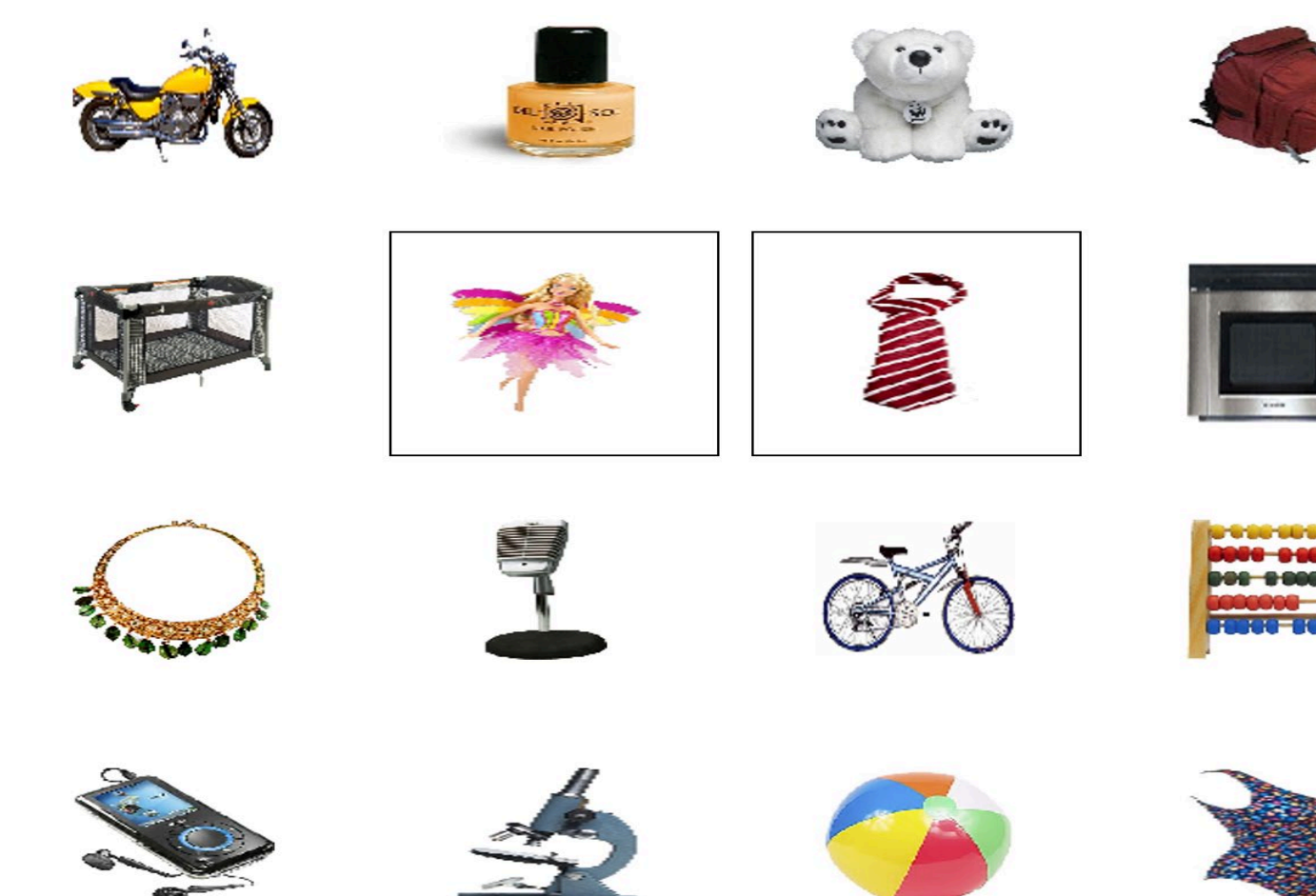
- Tool in determining one's sense of similarity
- How it is used:
  - Participant is shown two items of a set at a time
  - Perceived similarity is rated
  - Process repeats until all pairs have been evaluated
- Types of PW:
  - Classic
  - Total-Set

## Two Methods of Measuring Subjective Similarity Using Pairwise Comparison:

### 1. Classic



### 2. Total-Set (TS)<sup>2</sup>



## The Difference Between Classic and Total-Set Pairwise Comparison:

- The process for each is the same: pairwise comparison of all possible pairs in the set
- TS, the entire set of items remains in view
- Classic, only the two rated items are shown

**Research Purpose:** To systematically evaluate changes in awareness between classic and total-set PW across trials for categories of items at the subordinate, basic, and superordinate levels

## THE CURRENT STUDY

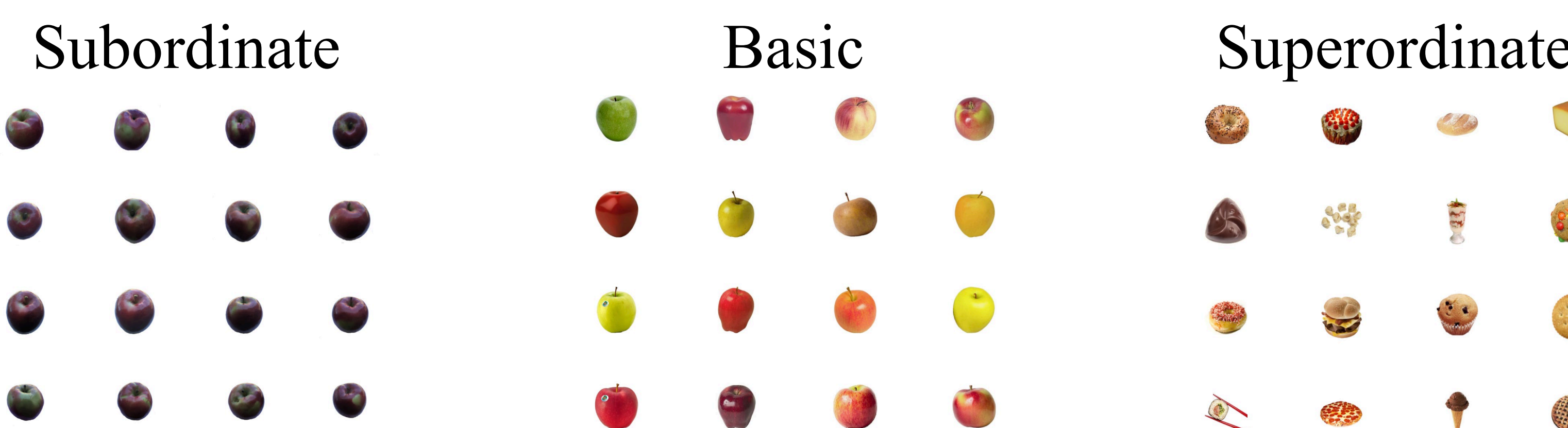
### Design:

- Participants randomly assigned to Classic or TS
- All participants complete three phases: subordinate, basic, and superordinate categories<sup>6</sup>
- Order of phases counterbalanced across subjects
- Within a phase, participant rates similarity of all possible pairs
- Probes test awareness of context periodically during phases

### Hypotheses:

- Participants performing the TS method will be more aware of the context of their judgements, especially during early trials.
- Participants performing the classic method will begin by assuming the total set to be at the basic level and adjust as more information becomes available across trials.

### Stimuli:



## Peek into the program: probe



## What This Study Will Determine:

- The results of this study will help researchers to choose more wisely between classic and total-set pairwise comparison methods.
- Currently, data collection is in progress.

## References:

<sup>1</sup>Goldstone, R. L., & Day, S. B. (2013). *Similarity*. (Unpublished). Indiana University, Bloomington, IN.

<sup>2</sup>Hout, M. C., Goldinger, S. D., & Ferguson, R. W. (2013). The versatility of SpAM: A fast, efficient, spatial method of data collection for multidimensional scaling. *Journal of Experimental Psychology*, 142(1), 256.

<sup>3</sup>Konkle, T., Brady, T. F., Alvarez, G. A., & Oliva, A. (2010). Conceptual distinctiveness supports detailed visual long-term memory for real-world objects. *Journal of Experimental Psychology: General*, 139(3), 558.

<sup>4</sup>Kulpa, J. D. (2018). *An evaluation of spatial arrangement methods of measuring subjective similarity*. (Unpublished doctoral dissertation). New Mexico State University, Las Cruces, NM.

<sup>5</sup>Powers, M. L., & Kulpa, J. D. (in preparation). *Not the destination: A closer look at the process of spatial arrangement in measuring subjective similarity*.

<sup>6</sup>Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of experimental psychology: General*, 104(3), 192.