Reverse engineering this algorithm.

Humans and Information:

1. Humans have been “designed” to efficiently compute similarity, abstract knowledge, make inferences, and generalize to novel domains
2. We are both the producers and consumers of language
3. Small data \(\rightarrow\) Big Data
4. Translational cognitive science
Research Projects:

- Integrating linguistic and perceptual information
- Clinical data mining w/ cognitive models
- Model-based optimal teaching and learning
- Mining the neuroimaging literature
- Translational cogsci from lab to real world:
  “Decontamination” of review ratings
NSF Semantic Pictionary Project:

www.SemanticPictionary.org

We are *terrible* at rating absolute magnitudes

- Regardless of task, judgments of absolute magnitude of a stimulus, experience, or feeling, are inherently contaminated by relative information from the sequence of judgments prior to the current one
- Example: Mass of a weight at the gym

Parducci (1968): Moral judgments on 1-10 scale

1. Stealing a towel from a hotel
2. Keeping a dime you find on ground
3. Poisoning a barking dog

1*. Testifying falsely for pay
2*. Using guns on striking workers
3*. Poisoning a barking dog
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Yelp and Amazon:

\[ R_x - M(\hat{R}_{T-x}) \]

Yelp

Amazon

\[ \begin{align*}
  &n - k \quad \text{Review Rating} \\
  &1 \quad 2 \quad 3 \quad 4 \quad 5 \\
  &k \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \\
  &R_x - M(\hat{R}_{T-x}) \\
  &-0.1 \quad 0.0 \quad 0.1 \quad 0.2 \quad 0.3 \quad 0.4 \quad 0.5 \quad 0.6 \quad 0.7
\end{align*} \]