

# Decontaminating Human Judgments By Removing Sequential Dependencies

M. Mozer, H. Pashler, M. Wilder,  
R. Lindsey, M. C. Jones, and M. N. Jones

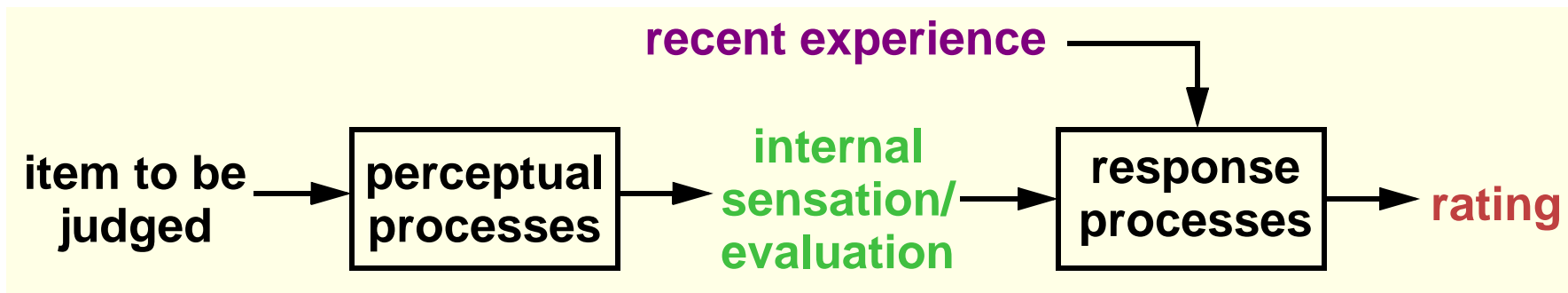
**Make a moral judgment about the following actions:**

- (1) Stealing a towel from a hotel
- (2) Keeping a dime you found on the ground
- (3) Poisoning a barking dog

**Suppose instead the sequence had been:**

- (1') Testifying falsely for pay
- (2') Using guns on striking workers
- (3') Poisoning a barking dog

**Rating of action (3) is reliably higher than rating of action (3')  
(Parducci, 1968)**



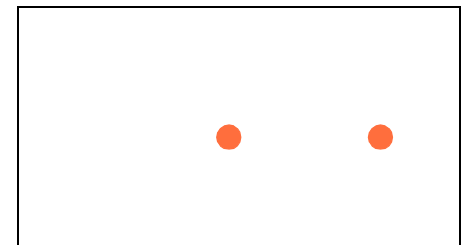
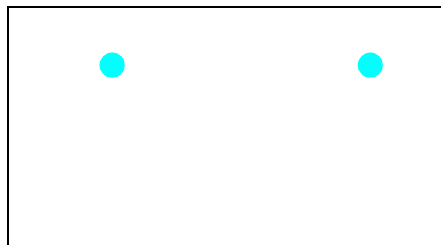
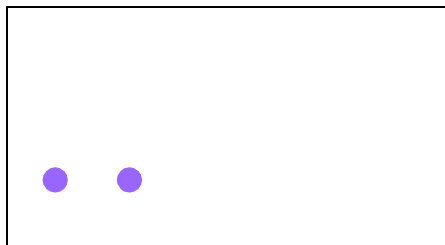
If **ratings** are contaminated by **recent experience**, can we *decontaminate* them to recover scores more meaningfully related to an individual's **internal sensation/evaluation**?

## Strategy

Collect data on a simple judgment task for which we have ground truth knowledge of the subjects' internal sensations

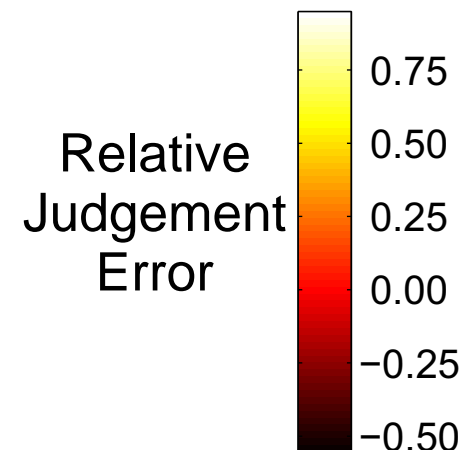
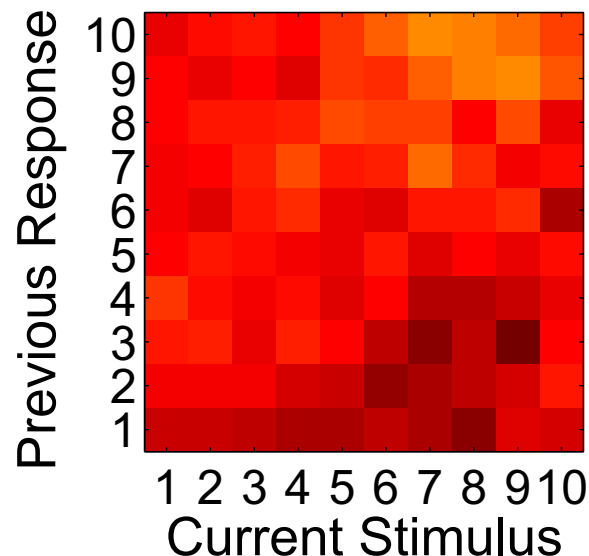
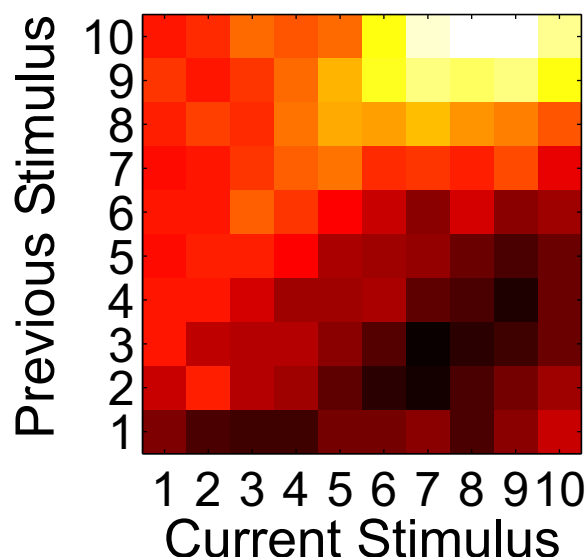
## Experiment

Judge the width of the gap is between pairs of dots using a 1-10 scale.

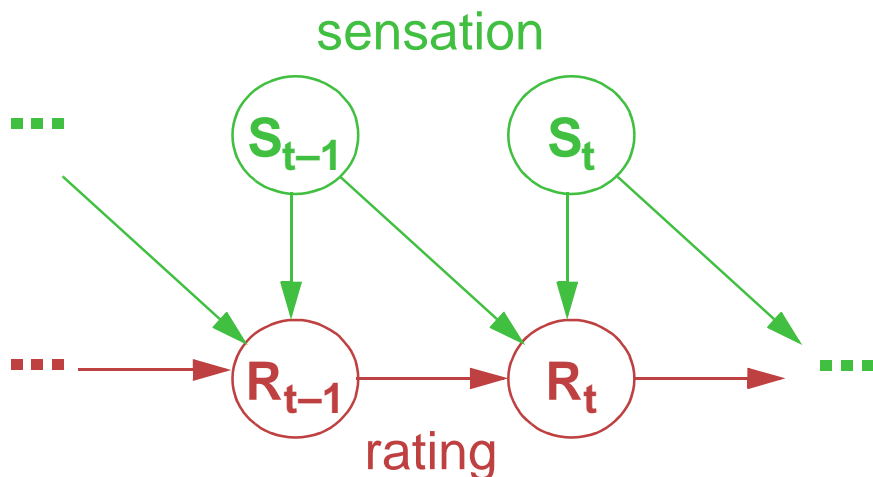


# Experiment produced sequential dependencies.

Rating of current stimulus influenced by both previous stimulus and response



Psychological models suggest dependency structure like:

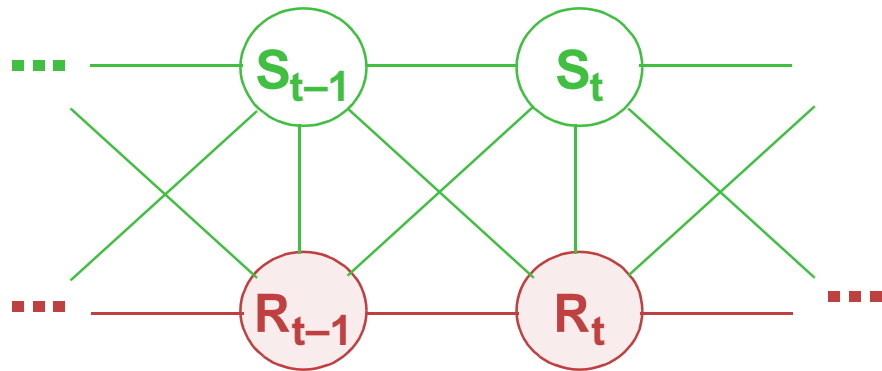


## Decontamination problem

Infer sensations  $S_1, S_2, \dots, S_T$

Given ratings  $R_1, R_2, \dots, R_T$

## Recast as a linear-chain conditional random field:



### Decontamination problem

Infer sensations  $S_1, S_2, \dots, S_T$

Given ratings  $R_1, R_2, \dots, R_T$

Psychological theories impose strong constraints on clique potentials  $\Rightarrow$  few free parameters to be learned.

Evaluate performance using cross validation

