

Effects of Extremity and Valence on the Availability Heuristic

Joel Roberts

Introduction

The availability heuristic refers to a mental shortcut where people assess the likelihood or frequency of events based on how easily examples come to mind (Tversky & Kahneman, 1973). Prior research, such as Rothbart et al. (1978), has shown that extreme information can distort these judgments, but only extreme negative content has been systematically studied. This study builds on that foundation by replicating the extreme negative and mild negative conditions used by Rothbart et al. and adding extreme positive and mild positive conditions. Understanding how extremity and valence interact offers insight into how people process information and form biased perceptions. Given the widespread influence of heuristics on real-world decisions in areas like medicine, law, finance, and public policy, identifying what kinds of information are most cognitively available has practical significance. This research tests whether extreme positive events are as influential as extreme negative ones in shaping perception and memory.

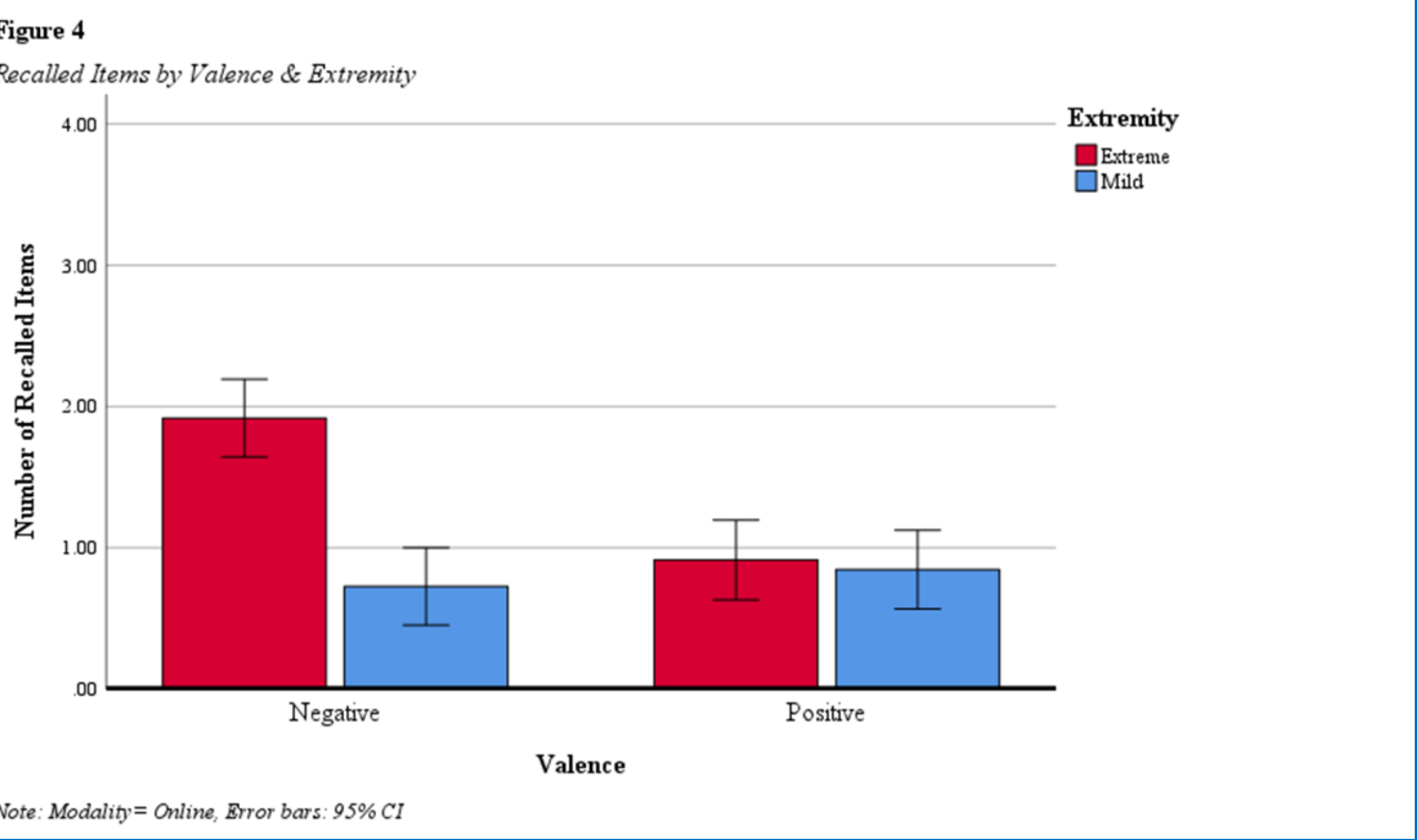
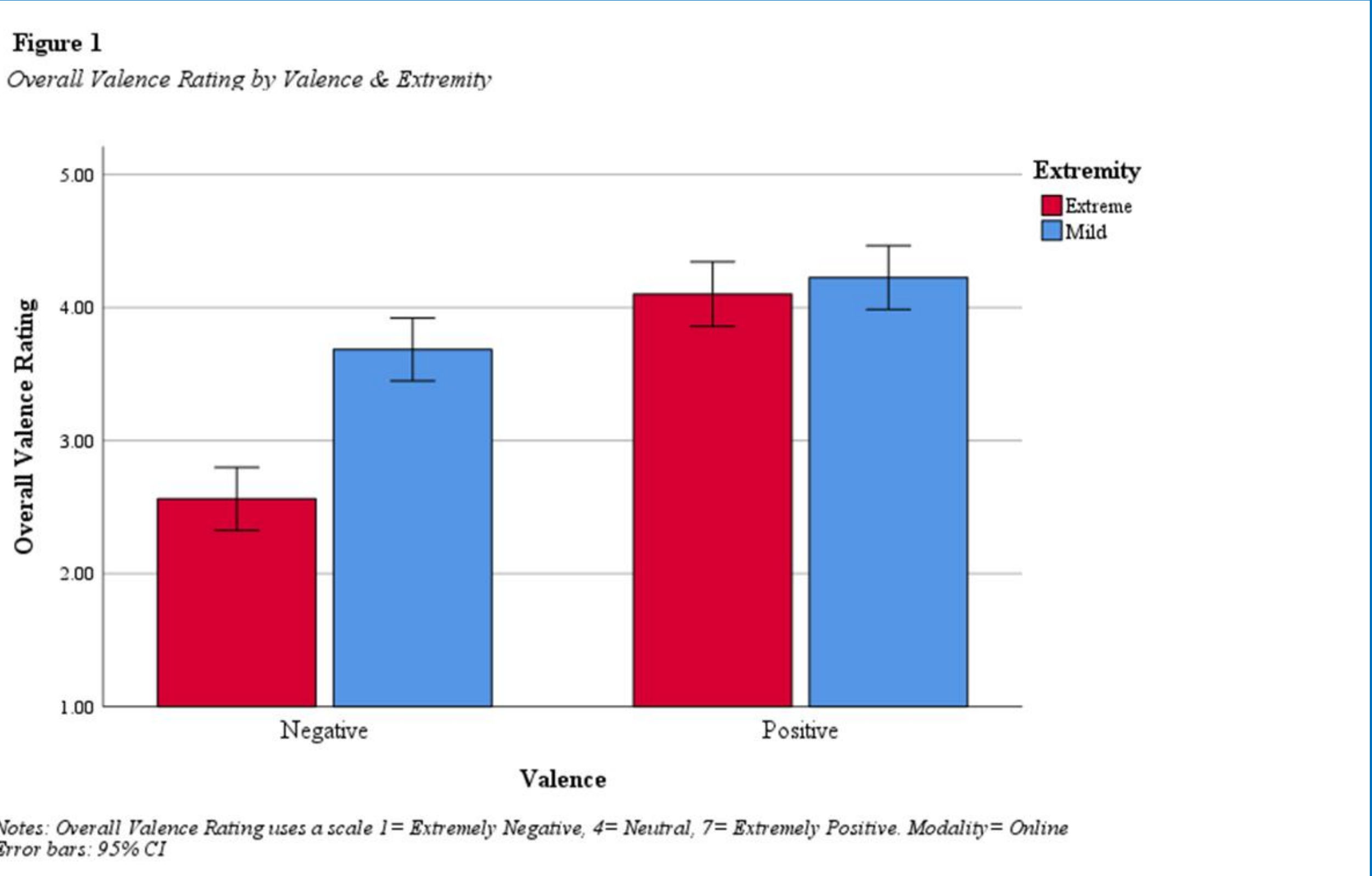
Limitations

- Arousal not measured or controlled:** The emotional intensity of statements could have influenced results independently of valence or extremity.
- Free recall only:** The study relied solely on free recall to measure availability, without a recognition component.
- Sample limited to undergraduates:** Findings may not generalize to broader or older populations.
- Agency not controlled:** Whether the subject in a statement caused or experienced an event might have influenced participant responses.

Methodology

A total of 282 participants were used for final analysis for all conditions combined. Participants completed the experiment online. Approximately 75 participants were in each condition. Participants read through 50 statements one at a time in a randomized order. After reading the statements participants were asked the following questions. How would you rate the statements overall? Recall as many behavioral statements as you can.

Condition	50 Statements Total	Valence/Extremity	Example
All Conditions	Same 40 Statements	14 Neutral 13 Mildly Negative 13 Mildly Positive	<i>Tom took the bus to the museum. Justin pushed a classmate in the hall. Dan brought his neighbor their mail.</i>
Condition 1	10	Extremely Negative	<i>John stabbed a man to death in the park.</i>
Condition 2	10	Extremely Positive	<i>Marcus discovered a cure for cancer.</i>
Condition 3	10	Mildly Negative	<i>Antonio got a flat tire on the way to work.</i>
Condition 4	10	Mildly Positive	<i>Sophia saved \$20 on her purchase.</i>



Results

Results showed that extreme negative information significantly enhanced recall and influenced participants' overall valence ratings. In contrast, extreme positive information had little to no impact compared to mild positive or negative statements. Participants exposed to extreme negative statements consistently recalled more items and rated the overall content as more negative, while positive valence (regardless of extremity) did not produce comparable effects. These findings suggest that negative extremes are more cognitively available than positive extremes.

Overall Valence Rating Measure Results:
Main effect of valence: $F(1,282)=64.81$, $p < .001$, partial $\eta^2 = .19$.
Main effect of extremity: $F(1,282)=23.3$, $p < .001$, partial $\eta^2 = .08$.
Interaction between valence and extremity: $F(1,282)=14.96$, $p < .001$, partial $\eta^2 = .05$.

Simple effect of extremity within the negative valence condition, $F(1, 282) = 38.61$, $p < .001$, partial $\eta^2 = .120$. Simple effect of extremity within the positive valence condition, $F(1, 282) = 0.45$, $p = .503$, partial $\eta^2 = .002$

Recall Results
Main effect of valence, $F(1,282)= 10.95$, $p < .001$, partial $\eta^2 = .04$.
Main effect of Extremity: $F(1,282)=22.16$, $p < .001$, partial $\eta^2 = .07$.
Interaction for valence and extremity: $F(1,282)= 17.64$, $p < .001$, partial $\eta^2 = .06$.
Simple effect of extremity for the negative valence condition, $F(1, 282) = 40.52$, $p < .001$, partial $\eta^2 = .126$.
Simple effect of extremity for the positive valence condition, $F(1, 282) = .13$, $p < .722$, partial $\eta^2 = .000$

Discussion

This research demonstrates that extreme negative information significantly effects the availability heuristic, while extreme positive information has no effect. These findings reinforce the concept of a negativity bias, suggesting that negative events are more readily recalled and influence perception more strongly than positive ones. This has practical implications across multiple domains:

- Risk communication:** Negative information may disproportionately influence public perception of risk (e.g., in health or environmental crises).
- Media & marketing:** Negative framing may have a stronger impact on memory and decision-making than positive messaging.
- Program design:** Interventions aimed at reducing cognitive bias should account for the stronger cognitive salience of negative content.