

Factors Affecting Valence of Unexpected Events

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Do we “fear for the worst” or “Hope for the best” in thinking about the unexpected?: Factors affecting the valence of unexpected outcomes reported for everyday scenarios

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Winner of European Society of Cognitive Psychology
Early Career Publication for PhDs

Outline

- Predicting Unexpected Events
- Experiments on the Valence of Unexpected Events
- Conclusions & Future Work

Predicting Unexpected Events

In a foreign city and worried about missing a flight?

Q: What unexpected things could occur?

- Traffic is really bad here...
- Buses are unsafe...
- Taxi drivers are unreliable...
- Police outriders escort me to the airport...

Predicting Unexpected Events

In a foreign city and worried about missing a flight?

Q: What unexpected things could occur?

- Traffic is really bad here...
- Buses are unsafe...
- Taxi drivers are unreliable...
- Police outriders ferry me to the airport...

What is “Unexpected”?

- Subjective probability?
- What things do people mutate in the unexpected?
- What is the valence of the event?

Instructions

- | | |
|---|--------------|
| “Something unexpected occurred...” | (UNEXP) |
| “Something good and unexpected occurred...” | (UNEXP-GOOD) |
| “Something bad and unexpected occurred...” | (UNEXP-BAD) |
| “What do you think happened?” | |

Material Scenarios

Sentence Type	Scenario
Goal	Louise wants to shop at an expensive clothes store.
Intermediate Event	She is wearing her favourite dress and matching shoes.
Plan Step	Louise draws money from the ATM.
	Something unexpected occurred. What do you think happened?

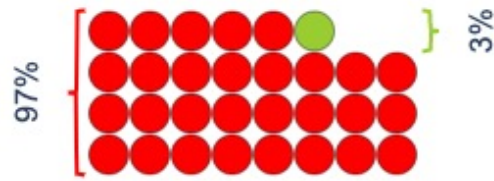
Something unexpected occurred.

What do you think happened?



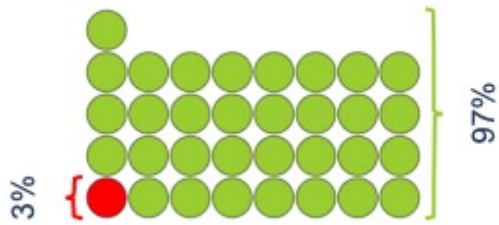
But {the actor} did not {achieve their goal}

What do you think happened?



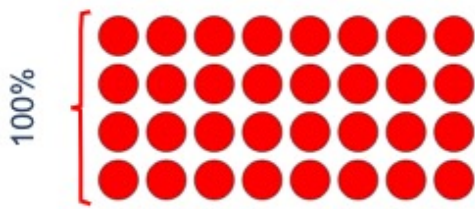
Something good and unexpected occurred.

What do you think happened?



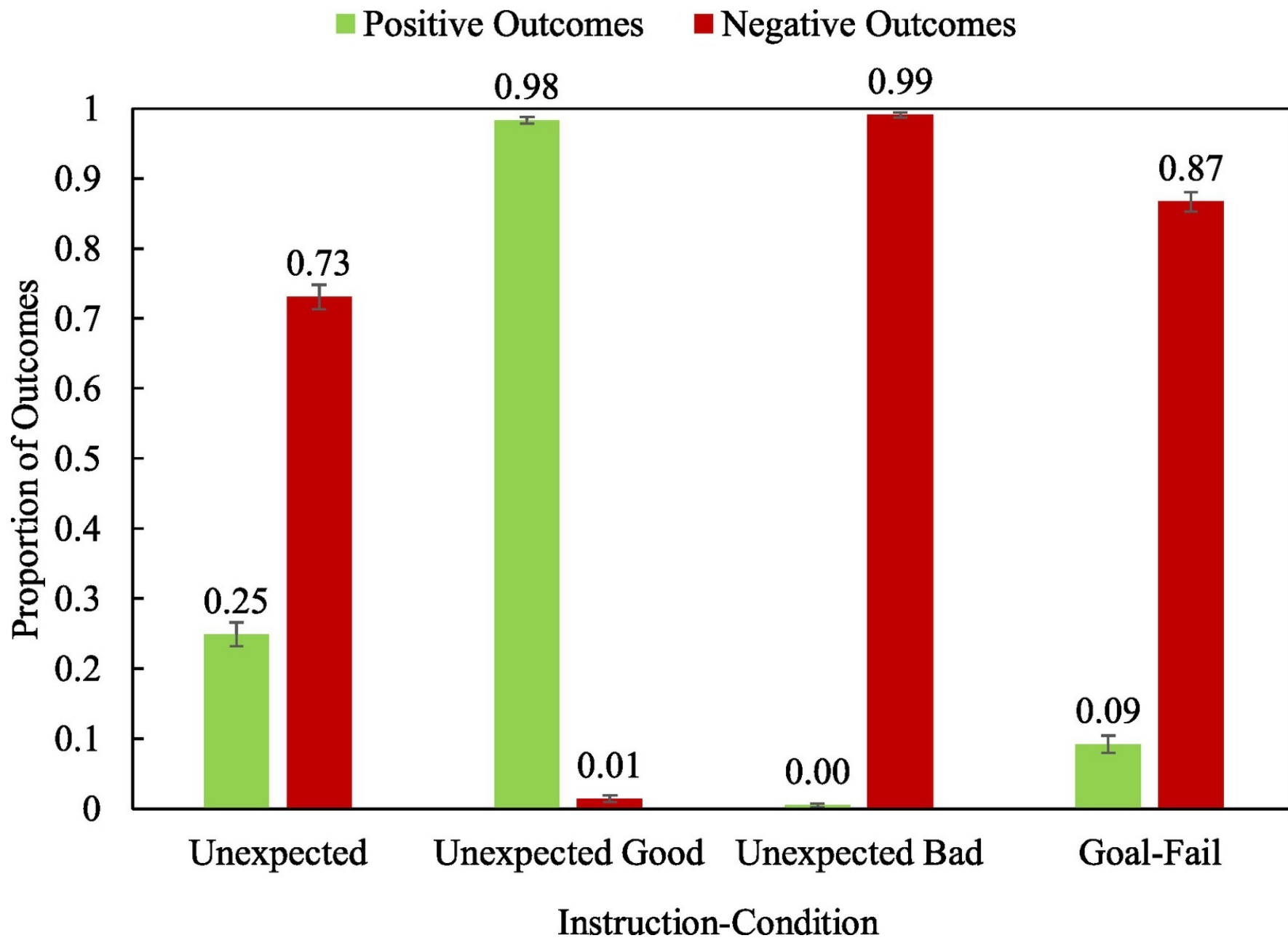
Something bad and unexpected occurred.

What do you think happened?



Study 1 - Method

- 20 Materials: Louise, Bob...
- 4 Conditions
 - Unexpected, Unexpected-Bad, Unexpected-Good, Goal-Fail
- 2 Sentence Order Conditions
 - Further action sentence or intermediate event sentence last
- 2 Comprehension Question Conditions
 - Comprehension question about the goal-sentence/intermediate-event
- N = 127 generating 2,540 unexpected-event responses



What leads to positive vs. negative unexpected events?

- Negativity Bias
- Positivity Bias
- Valence Countering – current contribution

Negativity Bias

“Bad is Stronger than Good”

(Baumeister et al., 2001)

“losses loom larger than gains”

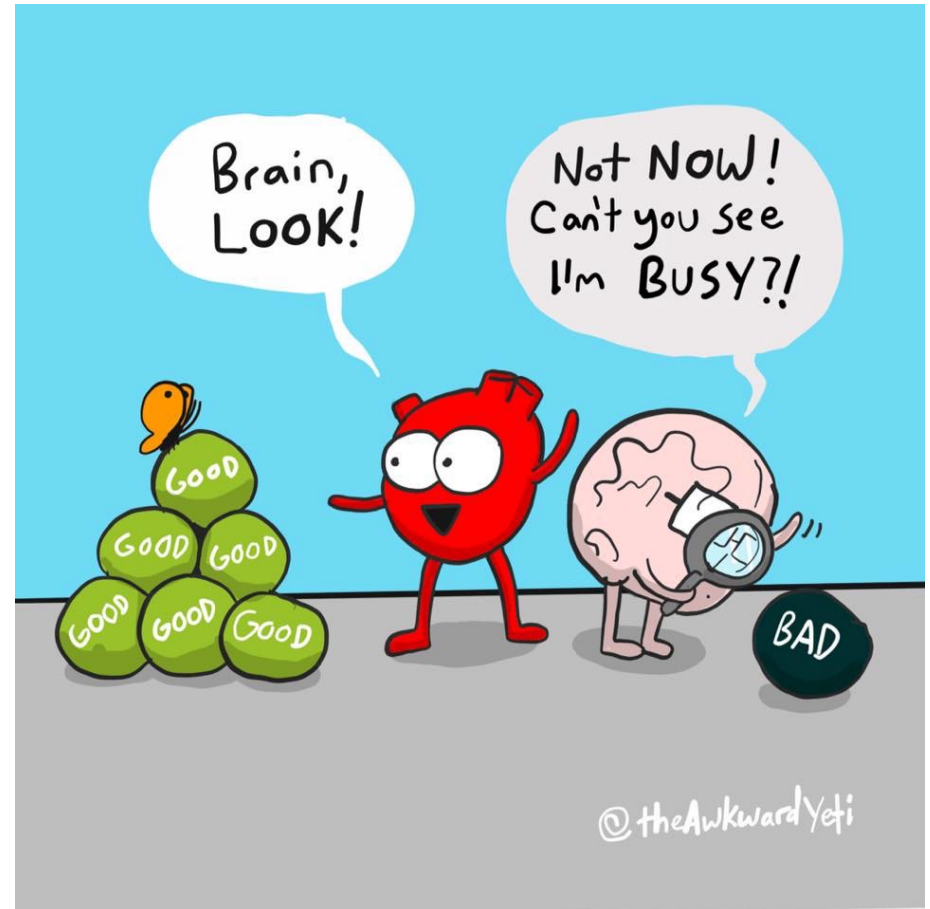
(Kahneman & Tversky, 1979)

“greater psychological impact of negative events than equivalent positive events”

(Rozin & Royzman, 2001)

Causal reasoning for unexpected and negative events.

(Taylor, 1991)



Positivity Bias

Positive events are more common

(Peeters, 1971)

Belief that things will generally work out well

(Rozin & Royzman, 2001)

More positive affect in memories

(Singer, Rexhaj, & Baddeley, 2007).

Overconfidence in future positive events

(Pulford & Colman, 1996)



Credit KC Green

Another Example:

Sentence Type	Scenario
Goal	Bob wants to quit his job because he is not credited for his hard work.
Intermediate Event	On arriving at the office, he turns on his computer and starts working as usual.
Plan Step	At coffee-time, Bob goes to talk to his boss about his job.
	Something unexpected occurred. What do you think happened?

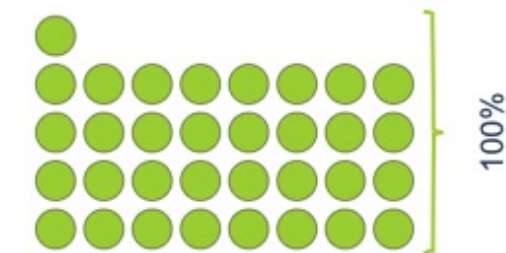
Something unexpected occurred.

What do you think happened?



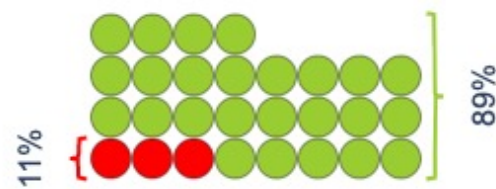
Something good and unexpected occurred.

What do you think happened?



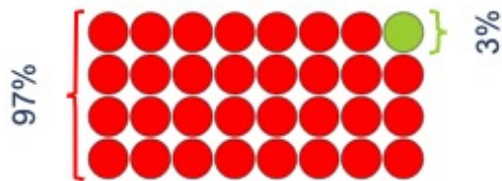
But {the actor} did not {achieve their goal}

What do you think happened?

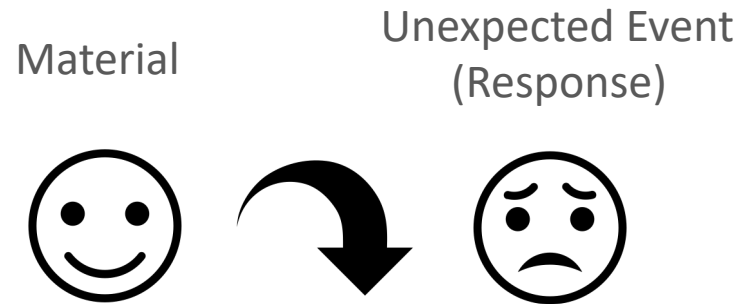


Something bad and unexpected occurred.

What do you think happened?



Current Hypothesis: Valence Countering



The “unexpected” is the counter of the valence of the given events.

Current Hypothesis: Valence Countering



The “unexpected” is the counter of the valence of the given events.



Louise wants to go shopping and stops by the ATM to get some money.



Unexpectedly, “She was robbed at the ATM.”





Bob wants to quit his job because he is not credited for his hard work.



Unexpectedly, “The boss told him he was doing a great job and apologized for not giving him more credit.”



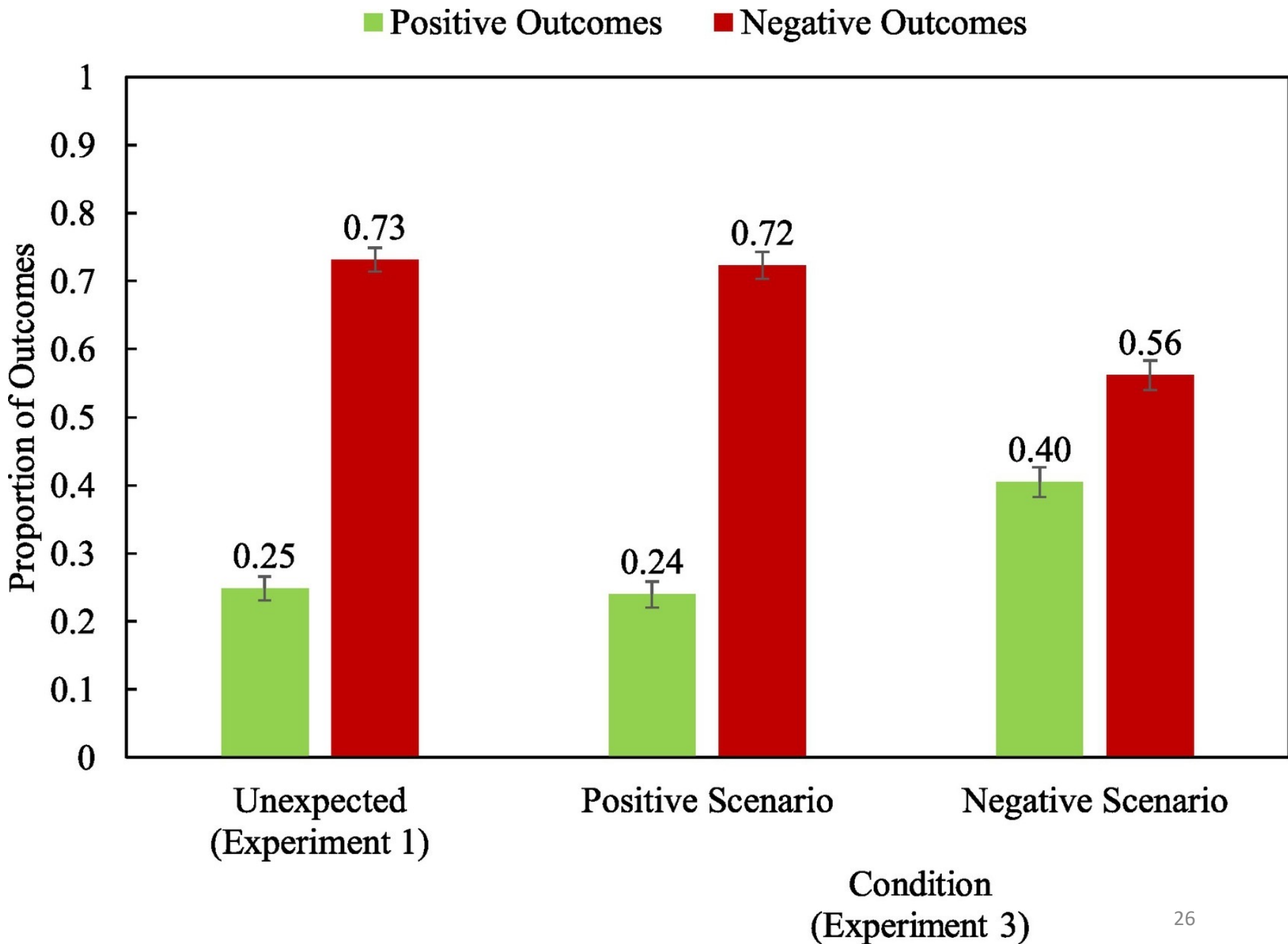
Study 3 – Method

As before,

- 20 materials (10 scenarios with positive/negative variants)
- 2 Valence Conditions for the Same Scenario
 - Positively or Negatively Valenced Plan Step
- 1,018 Unexpected Events from 102 Participants
 - (2 missing responses)

Study 3 – Material Example

Sentence Type		Scenario
Valenced Plan Step	Goal	Louise wants to shop at an expensive clothes store.
	POS:	The previous week, she received a pay rise because she won a big account for her company.
	NEG:	The previous week, she received a pay cut because she lost a big account for her company.
	Plan Step	Louise draws money from the ATM.
		Something unexpected occurred. What do you think happened?



Conclusions

- There does appear to be a negativity bias.
 - regardless of material valence.
- **However, there also appears to be a slight countering effect.**
 - Negative materials get more positive answers...
- Applications: CBT, XAI, etc...

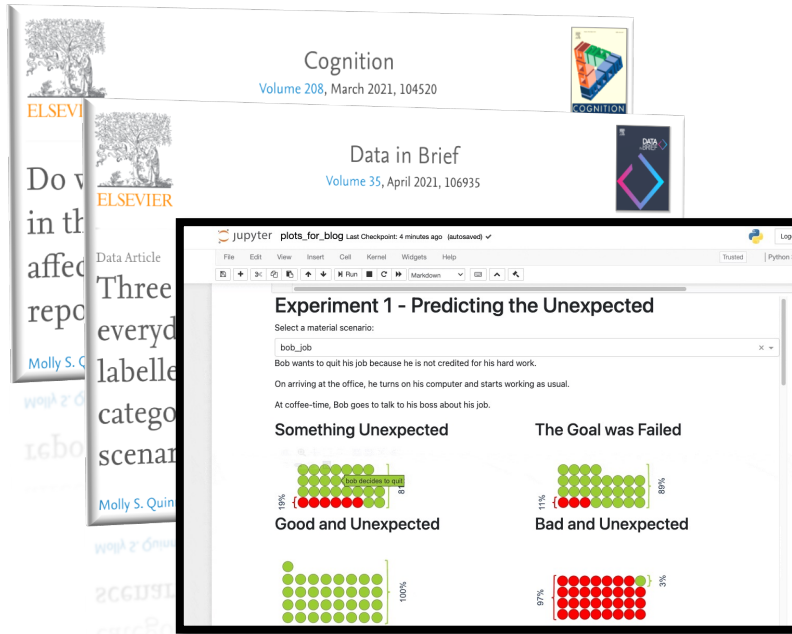
Data Article

Three datasets reporting unexpected events for everyday scenarios: Over 9000 events human-labelled for overall valence/sentiment, topic category, and relationship to the initial goal of the scenario

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<http://dx.doi.org/10.17632/kkt999sn7b.1>

The Papers, The Data, The Plots



https://github.com/MollySQuinn/interactive_unexpected_events



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Study 2 – Method

- 20 Materials: Louise, Bob...
- 6 Conditions:
 - Unexpected, Unexpected-Bizarre,
 - Unexpected-Bad, Unexpected-Bad-Bizarre,
 - Unexpected-Good, Unexpected-Good-Bizarre
- 2 Sentence Order Conditions
 - Further action sentence or intermediate event sentence last
- 2 Comprehension Question Conditions
 - Comprehension question about the goal-sentence/intermediate-event
- N = 257 generating 5,140 unexpected-event responses

