

# Outcome effects, moral luck and the hindsight bias

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Forthcoming in *Cognition*.  
Preprint: <https://bit.ly/3nVuvZs>

## The outcome effect on mental states and culpability ascriptions constitutes a bias

Example scenario:

A farm owner hosts workers on her grounds, close to a river. There was a flood a few years ago, though none in recent years. This year she uses the money usually used for flood protection to refurbish the kitchens of the lodgings.



- Strong effect of outcome on probability, mental states and blame in between subjects design (BWS).
- Small effect of outcome on probability, mental states and blame in within subjects design (WS).

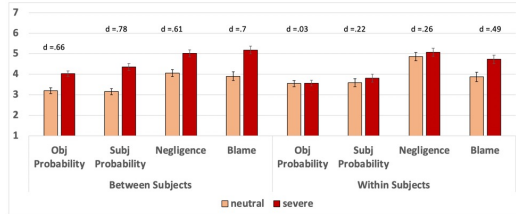


Figure 1: Mean ratings for probability, negligence and blame for the between-subjects (left panel) and within-subjects designs (right panel); error bars denote the standard error of the mean.

## Mediation analyses

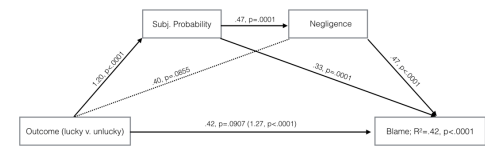


Figure 2: Mediation analysis with 5000 bootstrap samples of the relationship between outcome (neutral v. bad) and blame judgments by subjective probability and negligence.

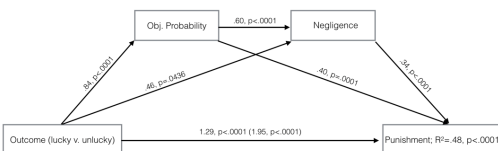


Figure 3: Mediation analysis with 5000 bootstrap samples of the relationship between outcome (neutral v. bad) and punishment judgments by objective probability and negligence.

## Discussion

Overall: 10 preregistered experiments with total N=2043.

- Mediation analysis (Figs. 2 & 3): outcome effect on negligence ascriptions is driven by different assessments of the probability of a bad outcome.
- Hindsight bias or rational inference from outcome to likelihood? Depends on whether probability should be sensitive to *ex ante* situation only (before outcome is revealed) or also *ex post* information (including actual outcome).
- Strong effect of outcome on probability, mental states and blame in BWS (Fig. 1).
- Small effect of outcome on probability, mental states and blame in WS (Fig. 1).
- Suggests:
  - People do not find it reasonable to ascribe different probabilities.
  - Hence: The effect of outcome on probability post hoc is a bias.

3 strategies to alleviate the bias (Fig. 4):

**Anchoring** = Let people think about probability before outcome is revealed.

**Priming** = Let people think of counterfactual outcomes.

**Stabilizing** = Provide people with an expert assessment of probability.

Results (Fig. 5): Stabilizing proves the most effective strategy to alleviate the bias.

## Conclusions

- Outcome influences subjective probability, which in turn affects negligence and thereby blame.
- Making people reflect more about probability or outcome has a small effect but does not make the outcome effect disappear completely.
- Providing an expert assessment of probability is the most effective strategy to alleviate the outcome effect.

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## Debiasing: Design

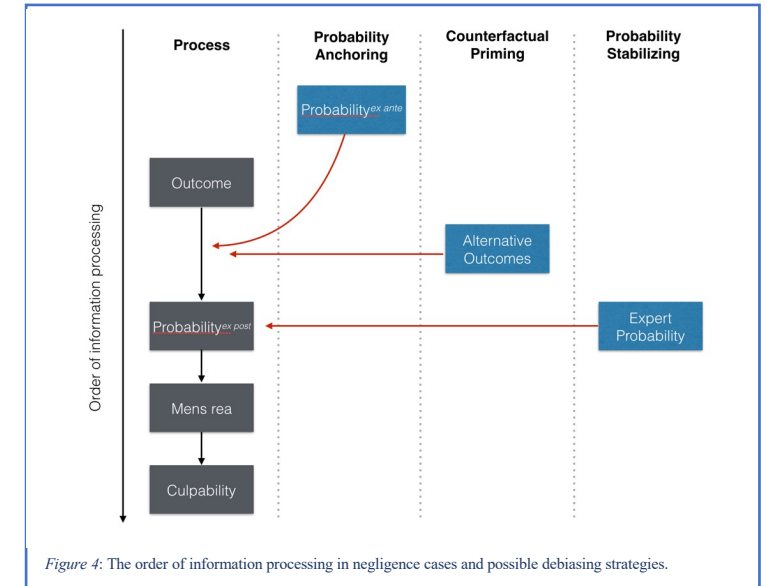


Figure 4: The order of information processing in negligence cases and possible debiasing strategies.

## Results: Meta-analysis

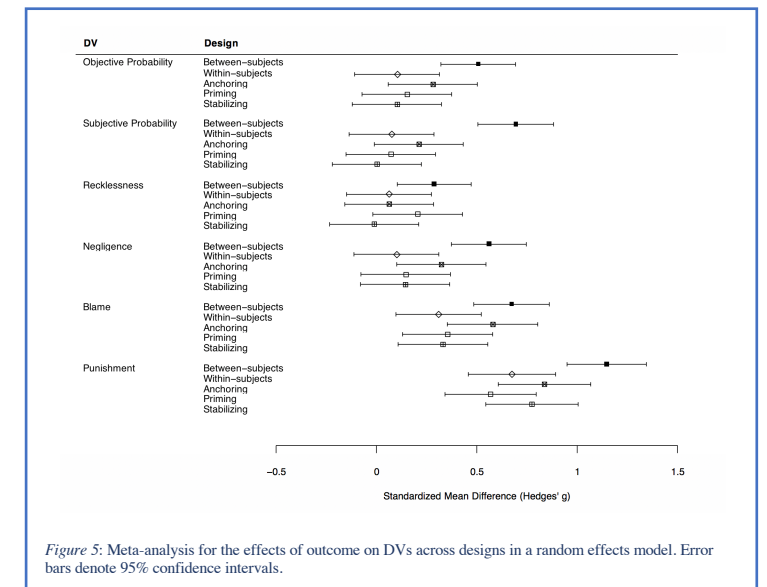


Figure 5: Meta-analysis for the effects of outcome on DVs across designs in a random effects model. Error bars denote 95% confidence intervals.