

# Inference From Explanation

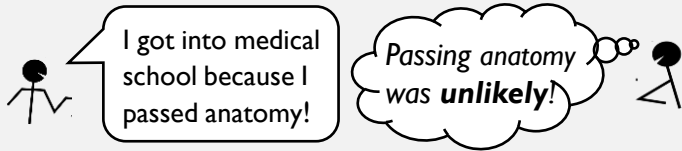


Lara Kirfel<sup>1</sup>, Thomas Icard<sup>2</sup>, Tobias Gerstenberg<sup>2</sup>

<sup>1</sup> University College London <sup>2</sup> Stanford University

## INTRO

What do we learn from causal explanations?



... features that would have made this explanation an appropriate thing to say, e.g. *normality*.

**Normality and Causal Structure** influence people's causal explanations. Gerstenberg & Icard, 2019  
Icard et al., 2017

## HYPOTHESES

When given a causal explanation ...

- (I) People infer the cited cause to be *abnormal* / *normal* if the underlying causal structure is *conjunctive* / *disjunctive*.
- (II) People infer the causal structure to be *conjunctive* / *disjunctive* if the cited cause is *abnormal* / *normal*.

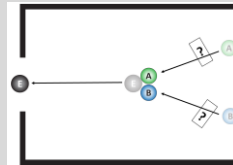
### References

Gerstenberg, T., & Icard, T. (2019). Expectations affect physical causation judgments. *Journal of Experimental Psychology: General*, 149(3), 599–607.  
Icard, T. F., Kominsky, J. F., & Knobe, J. (2017). Normality and actual causal strength. *Cognition*, 161, 80–93  
Woodward, J. (2006). Sensitive and insensitive causation. *Philosophical Review*, 115, 1–50.

## METHODS

### Inferring Normality

**EXP 1**  
Statistical / Prescriptive normality



+  
Ball E went through the gate because Ball A went through the motion block.

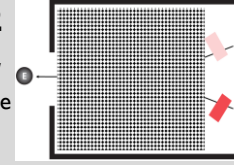
### Inference Task



Definitely this one      Unsure      Definitely this one

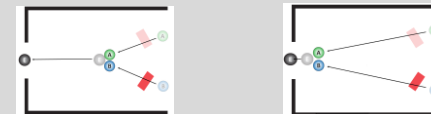
### Inferring Structure

**EXP 2**  
Statistical / Prescriptive normality



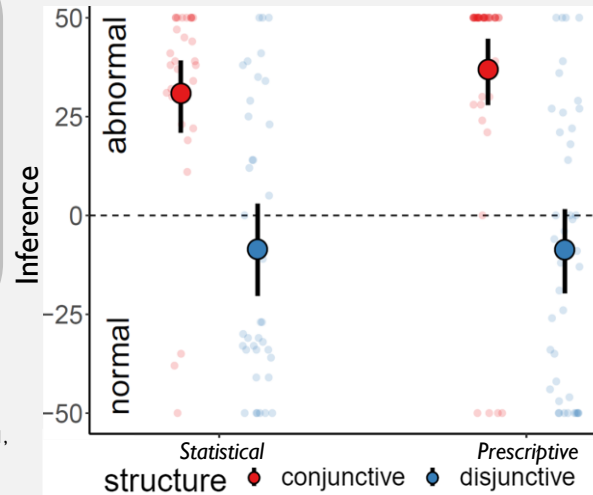
+  
Ball E went through the gate because Ball A went through the motion block.

### Inference Task

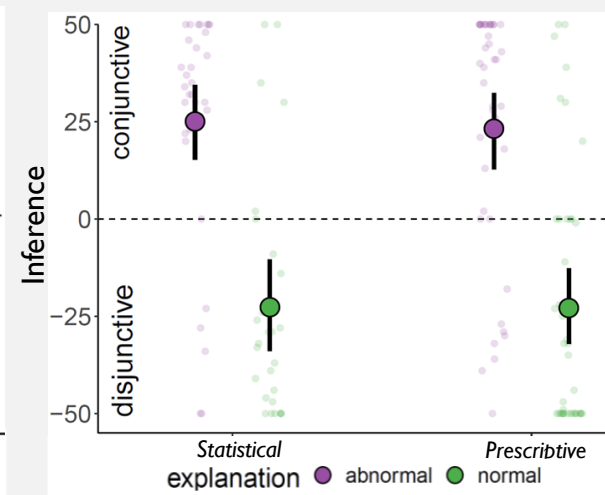


Definitely this one      Unsure      Definitely this one

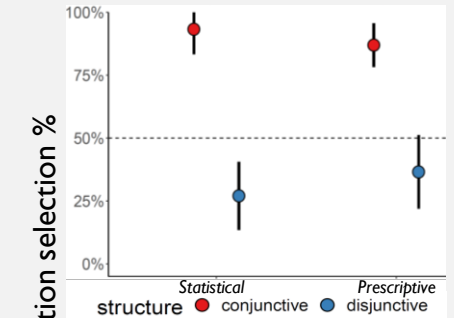
## RESULTS EXP 1



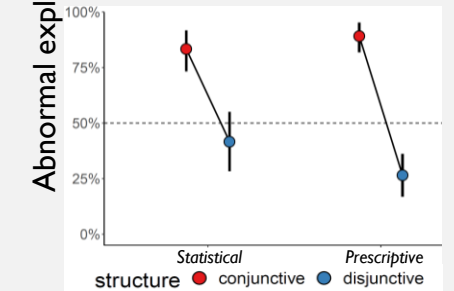
## RESULTS EXP 2



## EXPLANATION SELECTION EXPI



## EXP 2



## GD

People make systematic inferences about normality and structure from explanations. The communicative dimension of explanations **might help elucidate the role of normality**: For example, communicating *optimal interventions*.

Woodward, 2006