

Melbourne School of Psychological Sciences Debriefing Statement

PROJECT TITLE: *Identifying causes of events*

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Thank you for participating in our study!

The study was pretty straightforward so there's not much more to say, but in case you're interested in more of the background, here it is:

As mentioned at the beginning of this experiment, we are interested in understanding how people identify the cause or causes of an effect. Two existing theories make predictions about these judgments. Suppose for example that Suzy throws a rock at a bottle and breaks it. One approach states that if Suzy hadn't thrown the rock, the bottle wouldn't have shattered, and then concludes that Suzy's throw is the cause of the bottle shattering. The other approach says that Suzy's throw caused the bottle to shatter because the rock transmitted energy to the bottle.

The two theories agree in this simple example but in other contexts they disagree. For instance, suppose that Suzy is piloting a bomber with the goal of destroying an enemy target. On her trajectory she meets an enemy fighter aircraft that is about to intercept her, but Bob who is escorting her shoots the enemy and Suzy succeeds in destroying the target. The first theory states that Bob's action is a cause of the destruction of the target, but the second one states that the only cause of the target's destruction is Suzy's action, because this is the only action physically connected to the dropping of the bomb. If you are interested in these two competing theories, you can read more at <https://www.andrew.cmu.edu/user/ddanks/papers/SingularCause-Final.pdf>

The experiment you just did is designed to test a new theory of causation that focuses on changes of state. An effect (e.g. the activation of a detector) is a change of state, and we propose that when an effect occurs people identify a sequence of changes that led to the effect, and identify the first change in the sequence as the primary cause of the effect. In some cases this theory makes predictions that differ from the two standard theories already described, and the experiment you did includes questions that are designed to distinguish between these competing theories

As always we are very grateful for your thoughtful responses, as they tell us a great deal about how humans think and reason.

This research has been cleared by the Human Research Ethics Committee (**HREC ?** If you have any concerns about this project please contact the Executive Officer, Human Research Ethics, The University of Melbourne (Tel: 8344 2073; Fax: 9347 6739).