

## Manipulated belief in free will and fundamental attribution error (#3896)

### Author(s)

Oliver Genschow (University of Cologne) - oliver.genschow@uni-koeln.de  
Davide Rigoni (Ghent University) - davide.rigoni@ugent.be  
Marcel Brass (Ghent University) - marcel.brass@ugent.be

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### 1) What's the main question being asked or hypothesis being tested in this study?

We will test the hypothesis that weakening the belief in free will reduces the fundamental attribution error.

### 2) Describe the key dependent variable(s) specifying how they will be measured.

In order to measure the fundamental attribution error, we will apply the procedure used by Kitayama et al. (2006). That is, participants read four stories, with each story featuring a protagonist engaging in a certain behavior. After reading each of the four stories, participants indicate their agreement/disagreement with four statements on 7-point rating scales (1 = strongly disagree; 7 = strongly agree). Two statements measure the attribution to external factors and two statements measure the attribution to internal factors. A fundamental attribution error score will be computed by subtracting participants' external attributions from their internal attributions.

Believe in free will will be measured with the Free Will Inventory (FWI; Nadelhoffer et al., 2014). An overall free will score will be computed by averaging the free will subscale with the dualism subscale and the reversed determinism subscale.

### 3) How many and which conditions will participants be assigned to?

There are two between-subject conditions: an anti-free-will condition and a control condition. In order to manipulate participants' belief in free will, we will apply a manipulation that has been often and successfully used in previous research on free will beliefs (e.g., Caspar, Vuillaume, Magalhães De Saldanha da Gama, & Cleeremans, 2017; Rigoni, Kühn, Sartori, & Brass, 2011; Rigoni et al., 2015, 2013; Shariff et al., 2014; Vohs & Schooler, 2008). Specifically, participants will read a passage of the book "The Astonishing Hypothesis" written by Francis Crick (1994). While participants in the anti-free-will group will read a text claiming that scientists recognize that free will is an illusion, participants in the control group read a passage from the same book that does not mention free will.

### 4) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Firstly, we will analyze whether the anti-free will manipulation has an effect on participants' belief in free will assessed with the FWI (Nadelhoffer et al., 2014). A t-test for independent samples will test the hypothesis that anti-free will participants report weaker belief in free will than control participants.

Secondly, we will test the effect of the anti-free will manipulation on the fundamental attribution error with a 2 (belief manipulation: anti-free will vs. control) x 2 (attribution: internal vs. external) mixed ANOVA with manipulation as between subjects factor and attribution as within subject factor. We hypothesize a main effect for attribution indicating that participants attribute behavior more to internal than to external factors. Moreover we expect a significant interaction between belief manipulation and attribution indicating that anti-free will participants show a smaller fundamental attribution error than control participants.

### 5) Any secondary analyses?

In two post-hoc analysis we will test whether there is a difference between anti-free will participants and control participants in terms of internal as well as external attribution.

Finally, we will test the hypothesis whether the fundamental attribution error positively correlates with the level of endorsement of free will.

### 6) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

We will assess 504 participants. For each participant who will be excluded based on the criteria described below, we will collect data of a new participant.

### 7) Anything else you would like to pre-register? (e.g., data exclusions, variables collected for exploratory purposes, unusual analyses planned?)

We will apply two exclusion criteria. That is, (1) participants need to spend at least 45 seconds on the page on which they have to read the Crick text and (2) they need to successfully accomplish a reading check of the Crick text at the end of the study. If they fail the reading check or if they spend less than 45 seconds on the text page we will exclude participants. For each excluded participant we will collect data of another participant.

Regarding the reading check, we will exclude participants who do not select the correct answer of the following multiple-choice question:

For the anti-free-will text we will ask the following question with the following choice options (the correct answer is the last answer):

What was the core theme of the first text that you read in the beginning of this study?

- In the postscript, Francis Crick argues that men have more free will than women
- In the postscript, Francis Crick argues that science demonstrates that free will exists

- In the postscript, Francis Crick details how the concept of free will develops during childhood
- In the postscript, Francis Crick argues that not only humans, but also animals have free will
- In the postscript, Francis Crick argues that free will is an illusion

For the control text we will ask the following question with the following choice options (the correct answer is the last answer):

What was the core theme of the first text that you read in the beginning of this study?

- In the postscript, Francis Crick argues that men and women differ in their visual consciousness
- In the postscript, Francis Crick describes how consciousness evolves during childhood
- In the postscript, Francis Crick argues that animals have as much consciousness as humans
- In the postscript, Francis Crick argues that consciousness is an illusion
- In the postscript, Francis Crick outlines the difficulties involved in the scientific investigation of consciousness

**8) Have any data been collected for this study already?**

No, no data have been collected for this study yet