

**Study Name: The influence of motivation on evidence assimilation in a repeated judgement task – Study 2.**

**Authors: Prachi Solanki and Zachary Horne**

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**Exploratory or Confirmatory: Confirmatory**

Our interest is in how adults assimilate evidence inconsistent with beliefs they are motivated to maintain. To examine the underlying mechanisms behind decision-making in a motivated reasoning context, we developed a judgement task using Bongard problems. Bongard problems are simple images that differ from one another in ways that are not instantly obvious. This property of Bongard problems made it easy to develop a challenging task for adults using arbitrary facts.

We developed a motivated reasoning context by telling the participants that a higher score on the task meant that they had better attentional control than their peers. We will instruct the participants that on some trials they might see a picture with a blue border around it (henceforth, referred to as the bonus picture), and on other trials there will be no blue border around either of the pictures. Importantly, participants were told that if they correctly guessed which of two pictures belonged to a made-up category (e.g., a Cannin), *and* it has a blue border on it, then they would earn three points. Otherwise, they would earn one point for correctly guessing which of two pictures belonged to a made-up category (e.g., a Cannin).

In all the trials, participants will report the number of facts they remembered as supporting the Cannin, for instance. They will also be asked how certain they are that the picture they chose was, in fact, the Cannin. Our hope is that this certainty question will resolve the underlying mechanism in the Motivation condition when there is equal evidence for both pictures (discussed below).

**Distribution of evidence manipulation – Within-Subjects**

The study has a 2 (Motivation vs. No-Motivation) x 3 (Half evidence, Little evidence, Most evidence) within-subjects design. The Motivation condition is where participants will be presented a picture with a blue border, whereas in the No-Motivation condition there will be no blue border (see Table 1). All participants will receive twelve trials with evidence distributed in the following ways:

In the trials with Little evidence, one of six pieces of evidence will support the belief that the bonus picture is the Cannin.

In trials with Half evidence, three of six pieces of evidence will support the belief that the bonus picture is the Cannin.

In trials with Most evidence, five of six pieces of evidence will support the belief that the bonus picture is the Cannin.

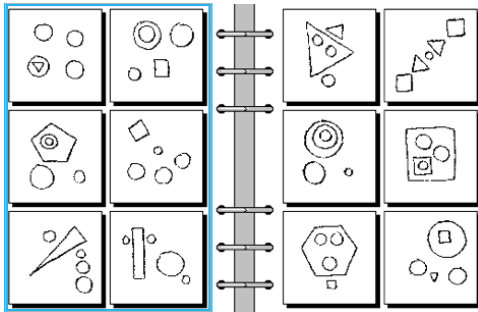
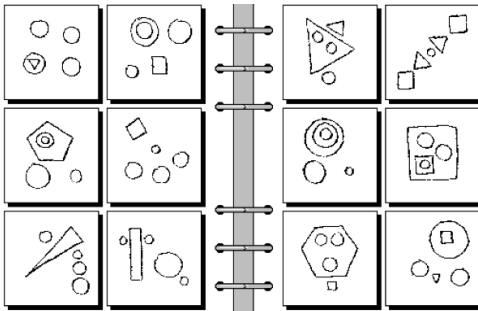
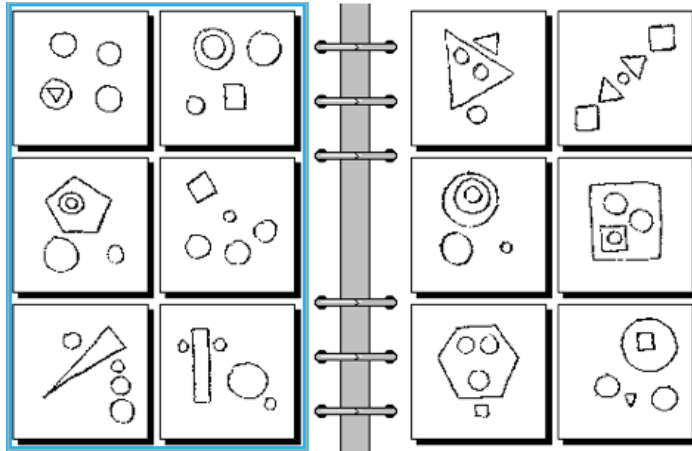
CONDITIONS (Total trials = 12)	SAMPLE STIMULI	DISTRIBUTIONS OF EVIDENCE		
MOTIVATION		Little evidence supports the bonus.  Number of trials: two.	Half of the evidence supports the bonus.  Number of trials: two.	Most of the evidence supports the bonus.  Number of trials: two.
NO-MOTIVATION		Little evidence supports the bonus.  Number of trials: two.	Half of the evidence supports the bonus.  Number of trials: two.	Most of the evidence supports the bonus.  Number of trials: two.

Table 1: *Distribution of evidence in the Motivation and No-Motivation Conditions across trials.*

In both, the Motivation and No-Motivation conditions, participants will be given a total of six trials – two trials each with Little, Half, and Most evidence supporting the bonus picture (sample trial below).

After each trial in which they decide which picture the Cannin is, participants will be asked how many pieces of evidence they remembered as supporting the belief that the bonus picture was the Cannin. Further, once they decide which picture is, for example, the Cannin, they will be asked how certain they are of their choice. Participants will not receive feedback about whether they correctly guessed the Cannin, but will be told that they will find out if they were right at the end of the study.

### Sample trial for “Little” evidence in the Motivation condition:



The cannin might be the one with four or more circles in each figure.

The cannin might be the one with a pentagon in the middle row.

The cannin might be the one with two or less concentric circles in the middle row.

The cannin might be the one with two or less triangles.

The cannin might be the one with two or less squares.

The cannin might be the one with a hexagon in the bottom row.

### Predictions:

#### The Motivation condition

In the trials having Little evidence for the bonus picture, we predict that participants will generally tend to follow the evidence and choose the no-bonus picture more often. This would be a replication of our prior findings in Study 1.

We are particularly interested in the underlying mechanisms behind participants' behavior in the trials with Half evidence supporting the bonus picture. On the one hand, half of the evidence supports the belief that the no-bonus picture is the Cannin. However, participants will want the bonus picture to be the Cannin because it would yield more points. Because participants are given *some* evidence that the bonus picture is the Cannin, we expect their choices to reflect rational decision-making despite being uncertain about their decision.

In the trials with Most evidence supporting the bonus picture, we predict that participants will follow the evidence and pick the bonus picture.

#### The No-Motivation condition

As there will be no bonus picture in the No-motivation condition, we predict that participants will not be particularly motivated to pick either of the pictures and in all the trials they will follow the evidence and respond accordingly.

#### Prediction regarding memory task

We predict that participants' memory for the evidence will predict their choices. Participants who remember more evidence for a given picture will tend to have chosen that picture. However, we will examine whether participants remember there being more support for the bonus picture the Half evidence condition.

#### Prediction regarding certainty question

We predict that participants will be unsure of their decisions in the Half evidence condition but will choose the picture that will lead to a larger reward because they will want to maximize the points they will win. We are unsure what will happen but hope that it will resolve the mechanism underlying the behavior seen in the Half evidence condition in Study 1.