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# Questioning the Free Will Comprehension Question

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## Abstract

Understanding the folk notion of free will and moral responsibility is important for a host of applied and theoretical issues in psychology, philosophy, and ethics. The bulk of experimental research has focused on folk intuitions concerning determinism's relation to free will and moral responsibility. However, determinism is a difficult term for many folk to understand. Accordingly researchers often use comprehension questions to identify and exclude large proportions of participants who seem to struggle with relevant concepts. Here, we document some of the cognitive mechanisms involved in folk judgments related to comprehension of determinism, and its relations to free will and moral responsibility. Results provide prescriptions for experimental designs that can increase comprehension, potentially decreasing sampling biases. Theoretical and methodological implications are discussed.

**Keywords:** Free will, moral responsibility, experimental philosophy, judgment, decision making, cognitive control, methodology.

## Free Will and Moral Responsibility

One of the most persistent philosophical problems deals with difficult issues surrounding free will and moral responsibility. When grappling with these issues, some philosophers take what ordinary people think about free will and moral responsibility to be important theoretical considerations for a variety of reasons. For example, beliefs in free will and moral responsibility form essential cornerstones of many people's relationships to themselves and others. Some philosophers even go so far as to say that if we find that humans in fact do not have free will and moral responsibility, we should continue to let people indulge in the myth that they can be free and moral responsibility (Smilansky, 2002). But typically, philosophers have not conducted systematic or controlled scientific studies to uncover what ordinary people think about free will and moral responsibility. Over the past decade, empirically minded theorists have begun filling in this lacuna.

Most of the debate about free will and moral responsibility concerns determinism's relation to free will and moral responsibility. The empirical investigation of folk intuitions about free will and moral responsibility has reflected this tradition. Most empirical studies so far have focused on ordinary people's

intuitions about determinism's relation to free will and moral responsibility.<sup>1</sup> But "determinism" is a "term of art". Because determinism is a term of art, some have worried that some folk may not be fully internalizing or understand determinism when making judgments about free will or moral responsibility. We agree that this is a problem for any measure of folk intuitions about determinism's relation to free will and moral responsibility. In this paper, we present evidence from two studies suggesting that one can make the deterministic nature of some scenario more transparent to participants with a simple manipulation. We argue that these results provide some important insights into judgments of free will and moral responsibility, the processes responsible for those judgments, and the philosophical importance of those judgments.

## Free Will Comprehension Question

In recent years, researchers have attempted to help shed light on folk notions of freedom and moral responsibility. For example, Nahmias, Morris, Nadelhoffer, and Turner (2005; 2006) found that most people judge that people in some deterministic universes are free and morally responsible—a result that has been widely replicated (Feltz & Cokely, 2009; Nahmias, Coates, & Kvaran, 2007; Nichols & Knobe, 2007). These results indicated that many people have *compatibilist* intuitions that free will and moral responsibility are compatible with the truth of determinism. Relatively few people have *incompatibilist* intuitions that free will and moral responsibility are not compatible with the truth of determinism.

However, many theorists have worried that participants do not fully understand the deterministic nature of the commonly used scenario. If participants do not appropriately appreciate the deterministic nature of the scenario, then their responses do little to help illuminate folk intuitions about determinism's relation to free will and moral responsibility. The worry is

<sup>1</sup> There are, or course, some exceptions. For examples, Vohs and Schooler (2008) explore the effects of increasing anti-free will beliefs, Woolfolk, Doris, and Darley (2006) explore intuitions about moral responsibility as a function of constraint, and Miller and Feltz (2009) discuss Frankfurt-style cases. These studies do not obviously gauge people's intuitions about determinism's relation to free will and moral responsibility.

especially problematic because the philosophical sense of determinism is highly technical and nuanced. To illustrate, Alfred Mele (2006) describes determinism as the thesis that “at any instant exactly one future is compatible with the state of the universe at that instant and the laws of nature” (p. 3). This notion is conceptually distinct from other, yet related, notions such as fatalism. Fatalism is “the thesis that whatever happens must happen; every event or state of affairs that occurs, must occur, while the non-occurrence of every event and state of affairs is likewise necessitated” (Bernstein, 2002, p. 65). One reason why fatalism and determinism are distinct concepts is that fatalism is consistent with determinism being true or false (Bernstein, 2002). That is, all things may happen necessarily even if some things are indeterministically caused (e.g., God may have foreknowledge of all events). Many compatibilists believe that fatalism rules out free will and moral responsibility. Hence, it is difficult but essentially important to convey to non-philosophers an accurate notion of determinism that does not imply something too strong (e.g., fatalism) or something that is too weak (e.g., indeterminism).

To help ensure that participants understand the deterministic nature of the scenarios, many authors include comprehension questions. It is common practice to exclude those who fail the comprehension checks (Nahmias, Morris, Nadelhoffer, & Turner, 2005, 2006). However, one shortcoming of previous research is that often the number of participants who fail the comprehension question is not reported and no empirically tested explanation is offered why participants fail the checks. Feltz, Cokely, and Nadelhoffer (2009) suggest that “many participants often fail the manipulation checks in these kinds of studies” (p. 16).<sup>2</sup> But why do so many people fail the manipulation checks and how can we get more people to pass them? We explore this question in a series of two experiments.

### Experiment 1

One possible explanation of why participants do not give the “correct” answer to the comprehension question is that they may not spend the time necessary to internalize the description of determinism.

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<sup>2</sup> In one of the few studies that report the percentage of participants who were excluded, Nahmias, Coates, and Kvaran (2007) reported that they excluded 22 percent of their participants because of comprehension failures. However, in their study, participants first answered the comprehension question. Anecdotal evidence suggests that in other experiments, rates of failure were much higher. These data provide some evidence suggesting that placement of the comprehension question is a key factor in correct responses (see Experiments and Discussion)

Typically, participants are volunteers or are given for partial course credit for participating. In these situations, there may be some reason for the participants to complete the survey, but there is little reason for them to spend a great deal of time or effort completing the surveys. In these conditions, participants may fail the comprehension question because of a relative lack of concentration, effort, or time needed to understand the deterministic nature of the scenarios. Hence, one hypothesis is that increasing incentives for participants to understand the deterministic nature of the scenarios would increase correct answers to the comprehension question.

An alternative hypothesis is that the order of presentation of questions biases responses to the comprehension question. On a standard “two systems” conception of cognition, System 2 (controlled, deliberative processing) works to override and correct System 1 processing (effortless, quick, effortless processing) (Stanovich & West, 2000; but see Cokely, 2009 or Gigerenzer & Regier, 1996; Osman, 2004 for critical discussion of “dual systems”). Hence, once impressions are formed (e.g., after making other judgments about crimes that have high emotional valence), one can only attempt to correct previous, perhaps erroneous intuitions. Unfortunately, theory suggests that many people do not have the requisite cognitive control capacities that would allow such an intervention. Fortunately, evidence suggests biases can also be overcome or entirely avoided by shaping the initial interpretation and representation of tasks before alternative intuitions are issued. This shaping requires early intervention (e.g., early selection cognitive control or changes in task orders) and can circumvent the need to correct biased processing (Cokely & Kelly, 2009; Cokely, Parpart, & Schooler, 2009; for related mechanistic accounts see also *Query Theory* by E. Weber, E.J. Johnson, & colleagues).

To be clear, cognitive processes associated with philosophical intuitions (e.g., long term memory activation and retrieval dynamics) may be shaped by participants’ representation of the content of the previously viewed scenarios. Such influence is especially likely when the task involves a strong affective component. Evidence already suggests that a scenario’s affective strength can alter people’s judgments concerning freedom and moral responsibility (Nichols & Knobe, 2007). Those given especially strong affective scenarios tend to give more compatibilist-friendly responses than those given a relatively less affectively charged scenario. Nichols and Knobe (2007) even go so far as to say that these results indicate the existence of an “affective bias” for judgments of freedom and moral responsibility.

We hypothesized that a similar phenomenon might occur with respect to the comprehension question. When affective components are presented before the comprehension question, they may alter the interpre-

tation of the task making it difficult to give the normatively correct answer to the comprehension question (e.g., as this answer could contradict the previous answer that participants feel very strongly about). However, when the comprehension question is presented first and in the absence of affective information, many people may find it relatively easier to answer the comprehension question according to the supplied definition. Hence, this possibility generates the hypothesis that if the comprehension question is presented first and before affective material, then there should be more correct answers to the comprehension question than if the comprehension question is presented after affective material.

### Methods and Materials

There were three conditions in Experiment 1. In the Control and Paid condition, participants read the following scenario from Nahmias, Coates, and Kvaran (2007):

“Most respected psychologists are convinced that eventually we will figure out exactly how all of our decisions and actions are entirely caused. For instance, they think that whenever we are trying to decide what to do, the decision we end up making is completely caused by the specific thoughts, desires, and plans occurring in our minds.

The psychologists are also convinced that these thoughts, desires, and plans are completely caused by our current situation and the earlier events in our lives, and that these earlier events were also completely caused by even earlier events, eventually going all the way back to events that occurred before we were born.

So, once specific earlier events have occurred in a person's life, these events will definitely cause specific later events to occur. For example, one day a person named John decides to kill his wife so that he can marry his lover, and he does it. Once the specific thoughts, desires, and plans occur in John's mind, they will definitely cause his decision to kill his wife.

Assume the psychologists are right that events that occurred before John was born definitely caused his decision to kill his wife. Please rate to what degree you agree with the following statements.”

After reading this scenario, participants were asked to rate their level of agreement with the following two sentences (1 = strongly disagree, 4 = neutral, 7 = strongly agree): (1) John decided to kill his wife of his own free will; (2) John is morally responsible for killing his wife. Immediately following those two questions, participants were asked two 'yes' or 'no' questions: (3) Do you personally think the psycholo-

gists are right that all of our decisions are ultimately caused by events occurring before our birth? and (4) Regardless of how you answered question 3, if the psychologists are right, is it accurate to say that if the universe were re-created, people would make all the same decisions?

In the Early Selection condition, participants only read the first paragraph and then answers questions (3) and (4) (with appropriate substitution). After answering questions (3) and (4), they went to a separate page where the entire scenario was present and they were asked to answer questions (1) and (2). They were instructed not to go back and change their answers to (3) and (4) after they submitted their answers.

### Participants

In the Control and Early Selection conditions, participants completed the surveys at the Philosophical-Personality website. In the Paid condition, participants completed surveys at Schreiner's Behavioral Philosophy Lab. Participants were tested in 6 groups of no larger than 12 and no smaller than 4 participants. They received exactly the same materials as those in the Control condition. Participants completed the survey at computer terminals and were told that they would be paid \$2.00 for getting at least 80% of the questions correct.

Following standard practice, we eliminated all those with extensive philosophical training (all those reporting having a B.A. or greater in philosophy), those whose first language was not English, and those who reported themselves to be age 18 or under.

### Results and Discussion

Question (3) is one typical comprehension question. Table 1 represents the numbers of those who passed and failed the question for each condition:

Table 1: Comprehension Failures.

	Fail	Pass
Early Selection (N = 71)	23, 32%	48, 68%
Control (N = 115)	54, 47%	61, 53%
Paid (N = 40)	24, 60%	16, 40%

The difference between Early Selection and Control was significant  $\chi^2(1, N = 186) = 3.837, p = .05$ . The difference between Early Selection and Paid was significant,  $\chi^2(1, N = 111) = 7.99, p = .005$ . However, the difference between Control and Paid was not significant  $\chi^2(1, N = 155) = 2.02, p = .16$ , but showed a very small, potential non-significant trend.

These results suggest that a substantial number of participants can pass the comprehension question. In addition, giving participants incentive to answer the comprehension question correct did not have a reliable effect. Rather, the position of the question seemed to be the most relevant factor determining participants judgment accuracy. However, one possible alternative explanation might be that the rather lengthy scenarios complicates interpretation and is the primarily reason participants did not make the correct inference concerning the deterministic nature of the scenarios. Participants may be more likely to lose track of the deterministic nature of the scenarios because they are so long and the comprehension questions late in the series of questions (Nichols and Knobe, 2007). To rule out this possible explanation, we performed a second experiment to replicate and extend the results of Experiment 1.

## Experiment 2

Experiment 2 was designed to address two different issues. First, the length of the scenarios was drastically reduced. If we still find an effect with respect to the placement of the comprehension question, then it is not likely that the length of the scenario is what was responsible for differences observed in Experiment 1. Second, we wanted to make perfectly clear what the correct answer to the comprehension question was. So, in one version of the scenario we provided a sentence that clearly states what the correct answer to the comprehension question was. This provides the strongest test of whether the placement of the comprehension question is responsible for correct to that question in comparison to the 'too lengthy' hypothesis. Those who received the extra sentence should get the comprehension question correct more frequently than those who did not receive the extra sentence. In addition, those who receive the extra sentence and the comprehension question first should give the correct response to the comprehension question more often than those who receive the extra sentence with the comprehension question second.

### Experiment 2a

**Participants** Participants completed the short survey on the Philosophical Personality website. We excluded those who reported that their first language was not English, had at least a bachelors degree in philosophy, and who were under 18. After excluding these people, there were 109 participants remaining.

**Methods and Materials** Participants were randomly divided into two conditions. One group was in the No Sentence condition where they read the following passage: "Most respected psychologists are convinced that our thoughts, desires, and plans are completely caused by our current situation, the earlier events in our lives, and events that occurred before we were born." The other group of participants were

in the Extra Sentence condition. Participants in this condition read the following passage in addition to the passage read by those in No Sentence: "That means that if the psychologists are right and the world was exactly re-created, people would make all the same decisions." They were then asked two questions: (a) According to the psychologists, is it accurate to say that if the universe was exactly re-created people would make all the same decisions? and (b) Regardless of how you answered question 1, do you personally think the psychologists are right that all of our decisions are completely caused by our current situation, earlier events in our lives, and events occurring before our birth? They could only respond 'yes' or 'no'. On a separate page, both groups were given an addition sentence: Please imagine that one day a person named John decides to kill his wife so that he can marry his lover, and he does it. Following this sentence, they were asked to rate their level of agreement with two sentences (1 = strongly disagree, 4 = neutral, 7 = strongly agree): (c) John decided to kill his wife of his own free will, (d) John is morally responsible for killing his wife. After submitting their answers to (a) and (b), participants could not go back and change their answers.

**Results and Discussion** Results for each condition are reported in Table 2.

Table 2: Comprehension Failures.

	Fail	Pass
"No Sentence" (N = 60)	36, 60%	24, 40%
"Extra sentence" (N = 49)	16, 33%	33, 67%

The difference between the two conditions was statistically significant,  $\chi^2 = (1, N = 109) = 8.09, p = .004$ . To test whether order made a difference in these judgments, an additional experiment was conducted.

### Experiment 2b

**Participants** Participants completed the survey on the Philosophical Personality website. The same exclusion criteria that applied in Experiment 2a applied in Experiment 2b. After excluding these participants, 187 participants remained.

**Methods and Materials** Participants received the exact same materials as those in Experiment 2a except that the order of the questions was reversed. Participants received questions in the following order: (c), (d), (a), (b). Importantly, participants received the sentence concerning John killing his wife before they answered all questions. Questions (c) and (d) appeared on one page. Once participants answered (c) and (d), they then answered on a separate page (a) and (b) and were not able to go back to change their answers to (c) and (d).

**Results and Discussion** Results for Experiment 2b are reported in Table 3.

Table 3: Comprehension Failures

	Fail	Pass
“No Sentence” (N = 89)	54, 61%	35, 39%
“Extra sentence” (N = 98)	56, 57%	42, 43%

The difference between the two conditions was not statistically significant,  $\chi^2 = (1, N = 187) = .24, p = .62$ . Importantly, across experiment 2a and 2b, the order had an effect on whether those who received the extra sentence version gave the correct answer,  $\chi^2 = (1, N = 147) = 7.84, p = .005$ .<sup>3</sup>

### General Discussion

Our experiments suggest that the placement of the comprehension question was an important factor in whether participants give the correct answer. Experiment 1 suggested that those who received the comprehension question first and in the absence of affective material were more likely to give the correct answer than those who received it later and after the presence of affective material. Moreover, Experiment 1 suggested that motivation to understand the scenarios was not a reliable, primary factor in whether people were able to make the correct inferences about the deterministic nature of the scenarios (although it is possible, but by no means certain, it could become more influential with higher levels of incentive). Experiment 2 suggested that the length of the scenario was not responsible for comprehension failures. In addition, Experiment 2 suggested that the order of presentation was a factor even when it was very clear what the correct answer to the comprehension question was.

These results lead to some clear prescriptions regarding how to go about measuring comprehension in these scenarios. If one desires to maximize the usable sample (i.e., those who pass the comprehension question) and avoid potential sample bias one should present the comprehension question first and before any potentially biasing, affective content. These results also indicate that people may interpret scenarios and questions differently than intended by the experimenters (Feltz & Cokely, in press; see also Cokely

& Feltz, 2009a; 2009b) or at least that the ability to infer correctly the deterministic nature of these scenarios is plastic. A common explanation of failures to the comprehension questions is that the participant did not “care” enough or could not correctly apply or understand the deterministic nature of the scenarios. However, our data suggest something different. Perhaps those who fail the comprehension question simply interpret and represent the question differently. Perhaps they understand the question in a fundamentally different way. Perhaps they are biased by affect. Given their understanding of the task, they may not be giving an incorrect answers at all (Feltz, Cokely, & Nadelhoffer, 2009; but for more general examples from the judgment and decision making see Gigerenzer, 1991, and Gigerenzer & colleagues). In such cases, these responses reveal something important about how plastic our intuitions about freedom and moral responsibility can be. The understanding of determinism appears to bi-directional—correctly understanding determinism could influence judgments about free will and moral responsibility. But importantly, it could be that beliefs about free will and moral responsibility can influence judgments about determinism. If all of this is true, it provides a more plausible description of the rich and nuanced ways people go about making a host of important judgments about themselves, their place in the world, and their relationships with others. Critically, results such as these (and others) necessitate that experimental philosophers and cognitive scientists adopt psychologically sensitive multimethod approaches to the investigation of folk intuitions.

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<sup>3</sup> In some of the experimental conditions, we found that answering the control question interacted with judgments about moral responsibility, as expected. Those who failed the comprehension question agreed more strongly that the person is morally responsible than those who passed. In both experiments, people's judgments about free will did not change as a function of answering the comprehension question correctly.

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