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Short Communication

Do judgments about freedom and responsibility depend on who you are? Personality differences in intuitions about compatibilism and incompatibilism $^{\Rightarrow}$

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ABSTRACT

Recently, there has been an increased interest in folk intuitions about freedom and moral responsibility from both philosophers and psychologists. We aim to extend our understanding of folk intuitions about freedom and moral responsibility using an individual differences approach. Building off previous research suggesting that there are systematic differences in folks' philosophically relevant intuitions, we present new data indicating that the personality trait extraversion predicts, to a significant extent, those who have compatibilist versus incompatibilist intuitions. We argue that identifying groups of people who have specific and diverse intuitions about freedom and moral responsibility offers the possibility for theoretical advancement in philosophy and psychology, and may in part explain why some perennial philosophical debates have proven intractable.

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1. Introduction

One of the goals of experimental philosophy is to uncover in empirically systematic ways the intuitions that non-professional philosophers (the "folk") have about philosophically important issues. In this paper, we attempt to further the exploration and identification of philosophically relevant folk intuitions by shedding more light on the sources of diversity in folk intuitions. In line with the growing body of evidence indicating that there are a number of individual differences in folk intuitions (Cushman & Mele, 2008; Feltz, 2007; Feltz & Cokely, 2008; Feltz, Cokely, & Nadelhoffer, in press; Nichols & Ulatowski, 2007), we present new data suggesting that general personality traits can predict variations in intuitions concerning freedom and moral responsibility. Specifically, our results suggest that the personality trait extraversion predicts people's intuitions about the relationship of determinism to free will and moral responsibility (for similar results in intentional action and ethics see Cokely & Feltz, submitted; Feltz & Cokely, 2008). We find that those who are high in extraversion (e.g., socially minded, outgoing, enthusiastic individuals) are much more likely to judge that a person is free and responsible in a deterministic world than their non-extraverted counterparts, who in some cases express qualitatively different intuitions.

We argue that if there are discrete, identifiable sub-groups of folk who express different intuitions, then this fragmentation has several theoretical and practical implications. First, these findings suggest that some philosophers (e.g., Kane, 1996;

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¹ Determinism is 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" (Mele, 2006, p. 3).

Pink, 2004) who purport that their views capture the folk view may be wrong—there is not necessarily any unitary set of folk intuitions.² Rather, the folk may be composed of discrete sub-groups of individuals with stable but varied intuitions. Second, being able to identify stable folk sub-groups with well known, general psychological trait instruments offers an opportunity for a higher fidelity understanding of intuitive judgment processes (e.g., heuristics), folk concepts, and the more general psychological diversity of the folk (Cronbach, 1957). Third, we suggest that these results might partially explain why some philosophical debates are so intractable: People with different personalities, skills, and cognitive representations may simply have different intuitions about philosophical issues, perhaps as a product of different (conscious and unconscious) processes. We conclude that the implications of these results have a significant role to play in the exploration of intuitions about free will and moral responsibility.

2. Free will and individual differences

2.1. Free will and experimental philosophy

Many philosophers and psychologists think that belief in at least a minimal amount of free will is required for us to have healthy relationships with others, have notions of desert and punishment, or to have self respect. Indeed, some philosophers think that the belief in free will is so necessary that if we were to discover that determinism is true and rules out freedom and moral responsibility, we should leave people to their mistaken beliefs in free will (Smilansky, 2002). To disabuse the folk of their notions would create a world where nobody believes in the aforementioned things.³ Empirical research supports this view to some extent, demonstrating that the adoption of a deterministic world view can in some situations increase undesirable behavior (Vohs & Schooler, 2008). Therefore, if these philosophers and scientists are right, then people's understanding of what is required for freedom and responsibility forms a cornerstone of most people's understanding of themselves and their relationship to the world.

Recently, experimental philosophers have revealed a number of factors that appear to influence folk intuitions about compatibilism and incompatibilism. Compatibilism is the thesis that freedom and moral responsibility are compatible with the truth of determinism. Incompatibilism is the thesis that freedom and moral responsibility are incompatible with the truth of determinism. Often philosophers, in arguing for either compatibilism or incompatibilism, make an explicit appeal to folk intuitions about freedom and moral responsibility. However, a growing body of research indicates that some philosophers are wrong about what intuitions the folk have. For example, some of the first work to determine in an empirically informed way what intuitions the folk have about the relationship of determinism with freedom and moral responsibility was done by Eddy Nahmias, Stephen Morris, Thomas Nadelhoffer, and Jason Turner (2004, 2005, 2006). They gave non-professional philosophers various scenarios describing a person who performs an action in a deterministic universe. Participants were then asked whether the person in these scenarios was free or morally responsible. Remarkably, people tended to judge that the person in the scenarios was free and morally responsible even though the universe was deterministic. Nahmias et al. interpret these data as providing some evidence that most people are pre-theoretical compatibilists.

More recently, interesting data have emerged about how folk intuitions about moral responsibility can be influenced by situational factors. Specifically, Shaun Nichols and Joshua Knobe (2007) found that folk intuitions about moral responsibility can be influenced by (a) the "concreteness" or "abstractness" of the scenario and (b) by the emotional content of the scenario. The concrete scenarios describe a person performing an action in a deterministic universe. The abstract scenarios simply ask a theoretical question whether one could be fully morally responsible in a deterministic universe. Nichols and Knobe found that most people express incompatibilist intuitions about abstract cases. However, intuitions about the concrete scenarios were related to the emotional content of the scenario. In cases that have high emotional content (e.g., one stalking and raping a stranger), most people express compatibilist intuitions that the person is fully morally responsible. In contrast, in cases that have low emotional content (e.g., evading taxes), people have the intuition that one is not full morally responsible. Hence, data suggest that there may be some situational variability, or instability, in folk intuitions about determinism's relation to moral responsibility.⁵

Adam Feltz, Edward Cokely, and Thomas Nadelhoffer (in press) have extended Nichols and Knobe's study. Using Nichols and Knobe's scenarios, they asked one group of participants if the person in the scenario is fully morally responsible, and they asked a separate group if the person in the scenario acts of his own free will. However, unlike Nichols and Knobe, they used a within-participants design where participants received both high and low affectively charged cases. In contrast to previous results, many people exhibited clear stability in their intuitions about the cases. People who tended to express compatibilist intuitions about the high affect case also expressed compatibilist intuitions about the low affect case. Additionally, those who expressed incompatibilist intuitions about the

² It is important to note that many philosophers who do experimental work in free will do not claim that all "the" folk have the same intuitions (see Nichols, 2006).

³ Ultimately, determining the soundness of Smilansky's argument requires some empirical evidence. Smilansky's argument depends on at least two empirical premises: (1) most people have a libertarian conception of free will and (2) to give up that conception would be ultimately disastrous to our way of life. We have reason to doubt both of those premises (Nadelhoffer & Feltz, 2007).

⁴ For a few examples, see Kane, 1999; Ekstrom, 2002; Pink, 2004.

⁵ See Vargas, 2006 for a discussion of Nichols and Knobe's studies.

low affect case. Moreover, most people expressed incompatibilist intuitions about both cases. Hence, there seems to be some clear, specific, stable individual variation in pre-theoretical folk intuitions about freedom and moral responsibility.

Eddy Nahmias, Justin Coates, and Trevor Kvaran (2007) have also provided data from an interesting set of experiments about how people's intuitions are influenced by how determinism is described. They gave participants one of the following abstract scenarios. One scenario framed determinism in psychologically reductionistic terms (underlined), and the other scenario framed determinism in psychological non-reductionist terms (in brackets):

Most respected <u>neuroscientists</u> [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 <u>chemical reactions and neural processes</u> [thoughts, desires, and plans] occurring in our <u>brains</u> [minds]. The <u>neuroscientists</u> [psychologists] are also convinced that these <u>chemical reactions and neural processes</u> [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, if these <u>neuroscientists</u> [psychologists] are right, then once specific earlier events have occurred in a person's life, these events will definitely cause specific later events to occur. For instance, once specific <u>chemical reactions and neural processes</u> [thoughts, desires, and plans] occur in the person's <u>brain</u> [mind], they will definitely cause the person to make the specific decision he or she makes (Nahmias, Coates, & Kvaran, 2007, p. 224).

Nahmias, Coates, and Kvaran found a striking result. Only about 40 percent of those who received the reductionistic scenario thought people in that situation were free and morally responsible. However, around 85 percent of those who received the non-reductionistic scenario thought that people in that situation were free and morally responsible (Nahmias et al., 2007, p. 229). They conclude that the *kind* of determinism can influence intuitions about free will and moral responsibility. Overall, these and other emerging data suggest that folk intuitions are complex and can be predictably influenced by a variety of factors.

2.2. Compatibilism, incompatibilism, and individual differences

While we think the previous studies contribute importantly to our understanding of folk intuitions about freedom and moral responsibility, we hypothesized that there would also be more general individual differences that would be associated with folk intuitions about free will and moral responsibility. After all, there is a substantial dissenting minority in most of the studies conducted thus far. As well, Feltz et al. (in press) found that there are stable individual differences at the level of specific intuitions about free will and responsibility. Furthermore, in other philosophically relevant domains a variety of individual difference factors, including both specific and general factors, play important roles in predicting folk intuitions (Cokely & Feltz, submitted; Feltz & Cokely, 2007; Feltz & Cokely, 2008). Take, for example, folk intuitions about side effects of intentional actions. If a consequence of an intended action is foreseen but not intended, then that consequence is a side effect of the intended action. Joshua Knobe (2003) found that bad side effects tend to be judged as being brought about intentionally but good side effects are not. There has been an explosion of literature attempting to explain these results (Feltz, 2007). However, in pioneering work, Shaun Nichols and Joseph Ulatowski (2007) argued that the asymmetry was the result of specific individual differences in how people interpret the word 'intentionally'. They claim that some people have a desire based interpretation, some people have a knowledge based interpretation, and some people oscillate in their interpretation.

Fiery Cushman and Alfred Mele (2008) refined Nichols and Ulatowski's approach and claimed that the data support at least two different concepts of intentional action—one that treats a subject S's foresight that S will perform action A as a sufficient condition for S A-ing intentionally and one that treats S A-ing with a desire to A as a necessary condition for S A-ing intentionally. They speculate that there might be a third concept that treats desire as a necessary condition except for morally bad actions, in which case it treats belief as a sufficient condition for acting intentionally.

More recently, in work extending these approaches, Cokely & Feltz (submitted; Feltz & Cokely, 2007; Feltz & Cokely, 2008) have found that those who displayed the largest judgment asymmetry were also high in the general personality trait extraversion. That is, rather than differences based solely on specific individual differences in interpretations of words, these data revealed that folk intuitions are also associated with global psychological trait complexes reflecting a variety of differences in beliefs, experiences, and sensitivities. Important for the present purposes, we argue that these and other similar data converge to suggest that there is not necessarily any single set of folk intuitions about intentional action.

Following these lines of thought, we hypothesized that the personality trait extraversion would predict, at least in part, differences in intuitions about the relationship of determinism with freedom and moral responsibility. Generally, research and theory indicate that global personality traits such as extraversion are largely stable across one's lifespan and are often associated with differences in cognitive and behavioral sensitivities (e.g., tendencies to search for and perceive certain information) (Funder, 1991, 2001; McCrae & Costa, 1990).⁷ For example, these sensitivities can be associated with differences in

⁶ Nahmias, Coates, and Kvaran used a number of different scenarios. Some were set on earth and some were set on an alien planet named Erta. They used different settings to explore possible differences in folk intuitions about freedom and moral responsibility concerning aliens and humans found by Nichols and Roskies (in press). Of note, Nahmias, Coates, and Kvaran did not collect data on the concrete, real world scenarios we used in our experiment.

⁷ One additional advantage of our approach that might be of interest to personality researchers is that it can help shed light on extraverts' actual judgments as well as their specific metaphysics which may generalize to real world situations.

information processing and motivational factors such as the ability to detect cues, the saliency of cues, and the general interest in and knowledge of the issues at hand (Funder, 1995). More generally, extraversion is a member of the Five Factor model of personality (John & Srivastava, 1999) and is in some way represented in almost all major personality models (Lucas, Diener, Grob, Eunkook, & Liang, 2000). Within the Big Five model, an extravert is defined as one who is a "communicative, sociable, energetic person who thrives on social contact and who does not regulate tightly his/her emotional reactions" (Akert & Panter, 1998, p. 966). Extraverts enjoy social interaction, find social interacting rewarding, and actively seek out social interaction over being alone (Ashton, Lee, & Paunonen, 2002; Lucas, Diener, Grob, Suh, and Shao, 2000). Indeed, extraversion is one of the best understood personality traits in the Five Factor model of personality.

One unique characteristic of extraverts is that they are more interested in and sensitive to social and group dynamics as compared to their introverted counterparts. For example, extraverts are more skilled at decoding non-verbal communication than introverts (Akert & Panter, 1988). Extraversion is also correlated with unique socially minded judgment processes, scenario interpretations, and memory retrieval processes (Chamorro-Premuzic, Furnham, & Ackerman, 2006; Lucas & Fujita, 2000; Rusting, 1999; Zelenski & Larsen, 2002). In these ways, evidence indicates that extraverts are generally more tuned to social dynamics. As a result of this social sensitivity, we thought that extraverts would also be more influenced by factors surrounding a person's free and responsible action—especially when those actions have a socially important and potentially affective dimension.

Because extraverts are more socially sensitive and may not rigorously regulate their emotional expression, when an action under question is socially important (e.g., killing a person), extraverts may rely on judgment processes that are different or at least differentially triggered by their enhanced perception of the scenario's social features and their relatively loose emotional regulation. For example, extraverts might be more likely to rely on judgment heuristics (i.e., conscious or unconscious rules of thumb) that are designed to facilitate social harmony (e.g., one's responsibility and freedom), regardless of whether everything about a person is said to be caused by previous events. That is, because extraverts are more socially minded, they may disproportionately encode or perceive features of the individual in the scenario, perhaps drawing on examples from their own social experiences. In these ways, their intuitions may be proportionally less influenced by the deterministic features of the universe (as compared to introverts) and more influenced by affective or social factors. In other words, if it is "the person" who performs the action, then we thought that extraverts would be more likely to think the person is free and responsible because holding people free and responsible serves an important regulatory function in social dynamics (c.f., Smilansky, 2002).

To test our hypothesis, we examined the relationships between extraversion and folk intuitions about compatibilism and incompatibilism. We examined these intuitions adopting the structure of Nahmias, Coates, and Kvaran's (2007) scenarios to create psychologically non-reductionistic real world concrete scenarios. These scenarios are identical to the psychologically non-reductionistic real world abstract scenarios except that the second paragraph is replaced with the following paragraph:

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.

We used this version for three reasons. First, it involves a socially important action of a man killing his wife. Second, it describes determinism in terms of complete causation while at the same time avoiding using terminology implying that events had to happen as they did. Third, we know that in the psychologically non-reductionist, concrete scenarios the majority of people have compatibilist intuitions (Nahmias et al., 2007, p. 230).

3. Experiment

3.1. Participants

Participants included 58 undergraduates in lower-level philosophy classes at Florida State University.9

3.2. Procedures and materials

Fifty-eight participants were tested as one group. The total time of the experiment was about 20 min. Participants received the psychologically non-reductionist real world concrete scenario and were asked to rate how much they agreed with the following statements on a 7 point Likert scale (1 = strongly agree, 4 = neutral, and 7 = strongly disagree):

- 1. John's decision to kill his wife was "up to him."
- 2. John decided to kill his wife of his own free will.
- 3. John is morally responsible for killing his wife.

⁸ See Feltz et al., in press, or Turner & Nahmias, 2006 for a more detailed discussion.

⁹ There were 60 participants overall. Two participants requested that their answers be excluded (e.g. they indicated they were too tired, did not read the questions carefully, or randomly selected answers). We excluded those responses.

Table 1Proportion of participants' responses to each of the psychological scenario questions classified by response type

Judgment	Compatibilists	Incompatibilists	Neutral
Up to him	.71	.26	.03
Free will	.69	.29	.02
Responsible	.76	.22	.02

Table 2 Correlations of participants' responses (N = 58)

	Up to him	Responsible	Compatibilism	Extraversion
Free will	.73**	.70**	.90**	27*
Up to him		.73**	.91**	38**
Responsible			.90**	26 [*]
Compatibilism				34 ^{**}

^{*} p < .05.

Participants were also given a brief version of the Big 5 personality inventory (Gosling, Rentfrow, & Swann, 2003). The brief version of the Big 5 inventory asks participants to rate to what degree they think each prompt describes them. Of particular importance for our purposes are the two prompts that make up the extraversion sub-scale. On this sub-scale, participants are asked to rate how much the following two pairs of adjectives describe them: (a) extraverted, enthusiastic, and (b) reserved, quiet. 11

3.3. Results

Agreement with prompts 1–3 was operationalized to indicate compatibilist intuitions and disagreement to indicate incompatibilist intuitions. Table 1 presents participants' responses.

Replicating Nahmias, Coates, and Kvaran's (2007) experiment, the means for all questions were compatibilist friendly: Up to him: M = 2.72, SD = 2.03; free will M = 2.95, SD = 2.06; responsible: M = 2.35, SD = 2.13. For the present analyses, we formed two groups. One group consisted of participants who expressed compatibilist intuitions (responded 1–3) and the other consisted of participants who did not express compatibilist intuitions (those who responded 4–7). Significantly more people responded as compatibilists to all prompts: Up to him χ^2 (1, N = 56) = 12.01, p = .001; free will χ^2 (1, N = 57) = 7.74, p = .005; responsible χ^2 (1, N = 57) = 16.86, p = .001.

There were strong inter-correlations between responses to the three questions. We used the three scores to "free will," "up to him," and "responsible" to construct a composite "compatibilism" score. All four items were correlated with extraversion, yet not related to any of the other 4 Big Five personality types (Table 2).

There were no sex differences in relation to responses (all Fs < 1). Three planned linear regression models were constructed using extraversion as the independent variable and responses to the three different statements as the dependent variables. Consistent with our hypothesis, all models revealed significant relationships between extraversion and compatibilist responses: Up to him: $\beta = -.38$, t(56) = -3.07, p = .01, $R^2 = .14$; free will: $\beta = -.21$, t(56) = -2.13, p = .05, $R^2 = .08$; responsible: $\beta = -.20$, t(56) = -2.0, p = .05, $R^2 = .08$. To further illustrate these relationships, planned analyses next followed a common approach in individual differences research and divided extraversion scores into roughly upper and lower quartiles (i.e., an extreme groups analysis; Cokely, Kelley, & Gilchrist, 2006) illustrated in Fig. 1. As expected, the differences in responses between those high (N = 21) and low (N = 20) in extraversion were large and significant for all three questions. Up to him: t(39) = 2.86, p = .01, d = .9. Free will: t(39) = 2.46, p = .02, d = .8. Responsible: t(39) = 2.27, p = .03, d = .6.

These results suggest that extraversion is a reliable predictor of compatibilist and incompatibilist intuitions. First, the linear regressions indicate that extraversion is positively, linearly related to compatibilist judgments. Indeed, extraversion explains a moderate amount of the judgment variance. Second, when we look at those who are moderately high versus moderately low in extraversion, we find large quantitative and qualitative differences in (a) the up to him statement and (b) the free will statement. Critically, those who are lower in extraversion tend to be neutral about (a) and (b) whereas those who are higher in extraversion agree to both. As well, there is a clear quantitative shift between those who are high and low in extraversion in relation to the person being morally responsible. Those who are moderately extraverted strongly agree that the person is morally responsible, but those who are moderately low in extraversion only weakly agree.

^{**} p < .01.

¹⁰ The brief Big Five inventory was used because it is short and yet has a very high correlation with the full version of the Big-Five Inventories (John & Srivastava, 1999). For example, the correlation of extraversion between the longer and shorter inventories is .87 (Gosling et al., 2003, p. 517).

¹¹ Participants were asked to respond on a 7 point Likert Scale where 1 = strongly disagree and 7 = strongly agree. Responses to "reserved, quiet" were reverse scored, so a higher overall score indicates a person is more strongly extraverted. In our sample, 22% scored 7 or less, whereas 78% scored 8 or higher.

¹² These are the only analyses that used our categorization of participants. All subsequent analyses used the scores from the Likert scale.

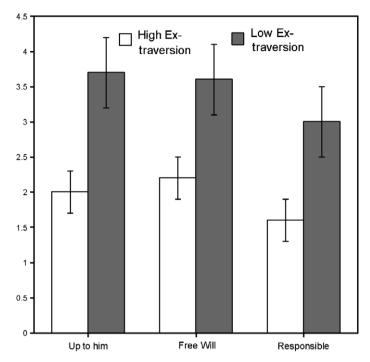


Fig. 1. Low (bottom quartile) and high (top quartile) extraversion scores by level of agreement with up to him, free will, and responsible statements. Error bars represent the standard error of the mean.

4. Discussion

The data presented suggest that stable psychological traits predict compatibilist and incompatibilist intuitions. Specifically, these differences are predicted by the general personality trait extraversion. We think the findings reported here are important for several reasons. First, they extend what we and others have argued in philosophical domains such as intentional action, ethics, and epistemology: There is not necessarily any "the folk" and thus there may not be any single set of folk intuitions (Cokely & Feltz, submitted; Cushman & Mele, 2008; Feltz, 2007; Feltz & Cokely, 2007; Feltz & Cokely, 2008; Feltz et al., in press; Nichols & Ulatowski, 2007). As in other domains, we find evidence that stable individual differences relate to folk intuitions about philosophically important issues. In the present domain, we find individual differences in intuitions about determinism's relation with free will and moral responsibility. Indeed, these data broadly suggest there are different, potentially stable sets of individual differences about compatibilism and incompatibilism. While this may not be surprising in the light of the previous studies that have revealed a consistent and sizable dissenting minority, what is surprising is that we can predict in significant part and *a priori* those who have compatibilist and incompatibilist intuitions using a measure of general psychological personality traits. Those who are high in extraversion tend to express compatibilist intuitions and those who are low in extraversion tend to express incompatibilist intuitions.

We think that identifying groups of people who have either compatibilist or incompatibilist intuitions will serve as a useful and necessary tool for future work attempting to understand the exact proximal cognitive processes that generate folk intuitions (Cronbach, 1957). In particular, we argue that progress in experimental philosophy depends in part on the extent to which we understand specific variation in intuitive judgment processes. As we have noted, extraverts differ from introverts in a number of ways. Extraverts are more social, find social interaction rewarding, and less tightly regulate emotional expressions. Because extraverts are more social and expressive, it seems likely that they have developed various social skills, sensitivities, and strategies that introverts may lack (or that are otherwise harder to trigger in introverts). As a result of these differences, extraverts' perceptions and intuitions predictably and systematically vary compared to those of introverts.

Given that there is empirical evidence indicating that different groups of folk have different intuitions about the same scenarios, there are at least two possibilities: (1) there is a single, homogeneous set of folk intuition about free will and moral responsibility that is obscured; or (2) there is no single, homogeneous set of folk intuitions about free will or moral responsibility. On one hand, there could be a single, homogeneous set of folk intuitions about free will or moral responsibility in the sense that once motivation, knowledge, and processes are equalized, then almost all people will have the same intuitions about the scenarios. That would provide some evidence that there is a single set of folk intuitions about free will and responsibility. On the other hand, it might turn out that even once we understand and equate the variation in processes, skills, motivations, and knowledge different intuitions about free will and moral responsibility will persist. This would provide some evidence that there is no single set of folk intuitions about free will and moral responsibility. So where do we go from here?

The possibility that extraverts and introverts use different sets of processes in generating their intuitions about free will and moral responsibility is theoretically and empirically important. If one is concerned with determining what the folk concepts of free will and moral responsibility are and intuitions provide evidence for these concepts, then it will be *necessary to determine the processes that generate intuitions* about free will and moral responsibility.¹³ As research now demonstrates, it is very difficult to directly measure folk concepts. In contrast, researchers have been successful in observing, manipulating, and measuring the cognitive judgment processes (e.g. heuristics) and the internal and external environments that elicit various intuitions and decisions (Gigerenzer, 2008; Gigerenzer, Todd, & the ABC Research Group., 1999; Kahneman, 2003; Payne, Bettman, & Johnson, 1993). Indeed, there are a number of finer grained process tracing techniques available that might provide some insight (Ericsson & Simon, 1980; Ericsson & Simon, 1993; Ford, Schmitt, Schechtman, Hults, & Doherty, 1989).¹⁴ In order to develop a complete understanding of folk intuitions, future research must focus not only on the intuitions of the folk, but also on the processes and environments (both internal psychological and external task structures) that generate judgments and intuitions (Gigerenzer & Goldstein, 1996).

Finally, we would like to mention that our findings about individual differences might in part explain why the "free will problem" is such a persistent and intractable philosophical problem. It might be that different philosophers, because they have different personalities, motivations, and sensitivities, simply experience different intuitions about free will and moral responsibility's compatibility with determinism. It follows from research in the psychology of intuitive judgment that these differences in intuitions are likely to be mediated by different judgment processes. Thus, these different processes could generate different intuitions about the same philosophical example. For example, take Frankfurt Style Cases. Frankfurt-Style Cases challenge the principle that one is morally responsible for an action only if one could have done something other than that action. Consider the following shortened version of Frankfurt's (1969) case:

Suppose someone—Black, let us say—wants Jones to perform a certain action. Black is prepared to go to considerable lengths to get his way, but he prefers to avoid showing his hand unnecessarily. So he waits until Jones is about to make up his mind what to do, and he does nothing unless it is clear to him (Black is an excellent judge of such things) that Jones is going to decide to do something other than what he wants him to do. If it does become clear that Jones is going to decide to do something else, Black takes effective steps to ensure that Jones decides to do, and that he does do, what he wants him to do. Whatever Jones's initial preferences and inclinations, then, Black will have his way... [However] Black never has to show his hand because Jones, for reasons of his own, decides to perform and does perform the very action Black wants him to perform. (Mele & Robb, 1998, p. 97).

There are a plethora of objections and replies to Frankfurt-style cases. However, the main point is that we are supposed to have the intuition that even though Jones could not have performed a different action from the one he in fact does, he is nonetheless responsible for performing that action. Indeed, several philosophers do not share these intuitions about Frankfurt style cases (Kane, 2003; Widerker, 1995; Ginet, 1990). However, many philosophers do agree that Frankfurt style cases show that alternative possibilities are not necessary for moral responsibility (Fischer, 1994; Frankfurt, 1969; Mele & Robb, 1998).

Our suggestion is that these different intuitions may in part be explained by individual differences in skills, traits, mental models, or judgment processes that influence different intuitions in professional philosophers. Accordingly, we argue that we may also be able to identify the judgment processes that lead professional philosophers (e.g., possible "experts") to have the intuitions that they do about free will and moral responsibility (see Ericsson & Lehmann, 1996; Ericsson, Prietula, & Cokely, 2007 for an introduction to process tracing and verifiable expertise). This sort of higher fidelity data could help illuminate what otherwise might seem to be an "intuitional stalemate" among philosophers. As is the case with folk intuitions, we might then be able to better map out the psychological landscape (e.g., the cognitive representations, mental models, and heuristic judgment processes) of different philosophers to assess whether key differences lay, at least in part, in more global and potentially heritable individual differences. Alternatively, we may find evidence that even controlling for various psychological factors there is still no single set of philosophical intuitions about free will and moral responsibility for professional philosophers. However, in any case, a necessary next step is to continue to identify sources of individual differences and the associated judgment processes that give rise to diversity in folk and skilled intuitions. Our belief is that these efforts will shed considerable light on the many sources of conflicts and the opportunities for reconciliation.

5. Conclusion

Our main goal in this paper was to present new data about folk intuitions concerning the relationship of determinism with free will and moral responsibility. Following the work of other experimentalists who find that specific individual differences play a substantial role in folk intuitions, we found that those who were high in the general personality trait extraversion were much more likely to give compatibilist answers to questions concerning free will and responsibility. We argue that identifying these groups of people is an important step toward a more comprehensive model of folk intuitions and judg-

¹³ It is controversial whether one's intuitions reflect one's concept (see Machery, 2008 for a fuller discussion). If one finds this worry compelling, one could interpret the results that people respond "as if" they had the relevant concept.

¹⁴ For an excellent example from experimental philosophy, see Shuan Nichols and Joseph Ulatowski (2007) who analyzed written justifications of participants' intuitions.

ment processes. Examining and identifying more of the many sources of variation in folk judgment and intuitions offers the possibility of a greater understanding of the folk as well as a disambiguation of disagreements in some of our classically intractable philosophical debates.

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