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## The free will inventory: Measuring beliefs about agency and responsibility



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### ABSTRACT

In this paper, we present the results of the construction and validation of a new psychometric tool for measuring beliefs about free will and related concepts: The Free Will Inventory (FWI). In its final form, FWI is a 29-item instrument with two parts. Part 1 consists of three 5-item subscales designed to measure strength of belief in free will, determinism, and dualism. Part 2 consists of a series of fourteen statements designed to further explore the complex network of people's associated beliefs and attitudes about free will, determinism, choice, the soul, predictability, responsibility, and punishment. Having presented the construction and validation of FWI, we discuss several ways that it could be used in future research, highlight some as yet unanswered questions that are ripe for interdisciplinary investigation, and encourage researchers to join us in our efforts to answer these questions.

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## 1. Introduction

Philosophers have long debated the nature of free will and moral responsibility. Psychologists have more recently joined the fray. While some researchers have tried to shed empirical light on the debate concerning whether we have free will, typically concluding that we do not (e.g., Bargh, 2008; Harris, 2012; Libet, 1999; Wegner, 2002), others have focused instead on exploring our *beliefs* about free will and the role they play in our daily lives (e.g., Alquist, Ainsworth, & Baumeister, 2013; Bergner & Ramon, 2013; Haynes, Rojas, & Viney, 2003; Nettle, 1959; Nettle, 1961; Ogletree & Oberle, 2008; Pronin & Kugler, 2010; Schooler, Nadelhoffer, Nahmias, & Vohs, in press; Stillman & Baumeister, 2010; Stillman et al., 2010; Stroessner & Green, 1990; Viney, Parker-Martin, & Dotten, 1988; Viney, Waldman, & Barchilon, 1982; Waldman, Viney, Bell, Bennett, & Hess, 1983). Each of these two projects is interesting and important in its own right. For present purposes, we focus on the psychology of believing in free will—a topic that has received increasing attention in the wake of gathering evidence that challenging people's beliefs about free will may influence their behavior in surprising and sometimes alarming ways. For example, telling people they do not have free will has been shown to increase cheating (Vohs & Schooler, 2008) decrease helping behavior and increases aggression (Baumeister, Masicampo, & DeWall, 2009), reduce self-control (Rigoni, Kuhn,

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Gaudino, Sartori, & Brass, 2012), and impair detection of errors (Rigoni, Wilquin, Brass, & Burle, 2013). These findings suggest that *believing* in free will may be instrumentally valuable from the standpoints of positive psychology and public morality. This is true regardless of whether or not we *actually* have free will, a related but orthogonal issue that we will not be exploring here.

These recent findings also highlight the importance of having valid and reliable tools for measuring beliefs about free will and related concepts. For while the gathering data suggest that diminishing people's belief in free will may lead to increased cheating, decreased helping, lower punishment judgments, and the like, the validity of these findings depends in part on the validity and reliability of the scales used to measure people's beliefs about free will, determinism, and responsibility. As such, these otherwise exciting findings have highlighted a problem that has hindered empirical research on free will beliefs from the outset—namely, that while researchers have developed several scales during the past thirty years for measuring beliefs about free will (e.g., Paulhus & Carey, 2011; Paulhus & Margesson, 1994; Rakos, Laurene, Skala, & Slane, 2008; Stroessner & Green, 1990; Viney, McIntyre, & Viney, 1984; Viney et al., 1982), each of these tools is problematic. The main goal of our project was to develop a new psychometric instrument that would have greater validity than previous scales while at the same time yielding more fine-grained data concerning how people think about the complex relationships among free will, responsibility, dualism, choice, determinism, and related concepts.

In this paper, we first discuss the extant tools that have been developed for measuring free will beliefs, and we identify some of their limitations. Then, we present the results of the construction and validation of a new psychometric tool for measuring beliefs about free will: The Free Will Inventory (FWI). The FWI is a 29-item instrument with two parts (which can be given together or separately). Part 1 consists of three five-item subscales designed to measure strength of belief in free will, determinism, and dualism. Part 2 consists of a series of 14 statements designed to further explore people's associated beliefs and attitudes about free will, (in)determinism, choice, the soul, predictability, responsibility, and punishment. After presenting the construction and validation of FWI, we (a) discuss several ways that it could be used in future research, (b) highlight some as yet unanswered questions that are ripe for interdisciplinary investigation, and (c) encourage researchers to join us in our efforts to answer these questions.

### 1.1. Measuring beliefs about free will: An overview

Most of the earliest work on the psychology of believing in free will focused on the relationship between beliefs about free will, determinism, and punishment (e.g., Nettler, 1959; Nettler, 1961; Stroessner & Green, 1990; Viney et al., 1982; Viney et al., 1988). Though groundbreaking, the results were often mixed and hard to interpret. For instance, in one of the first studies on free will beliefs, Nettler (1959) claimed to have found that believing in free will is correlated with cruelty, retribution, and revenge and that believing in determinism is correlated with people being less punitive and treating others with more dignity. In response, Viney et al. (1982) first reported data that seemed to support the opposite conclusion—namely, that people who believe in free will are less rather than more punitive—before later finding “neither reliable correlations between punitiveness and beliefs in free will or determinism nor reliable correlations between rationales for punishment and beliefs in free will or determinism” (Viney et al., 1988, p. 20).

Looking back on the early empirical work on free will beliefs with the benefit of hindsight, there are at least two lessons to learn. First, what researchers find when it comes to beliefs about free will can depend a great deal on how the researchers conceptualize and think about free will. Not only can researchers' own free will beliefs influence how they design their experiments, phrase their questions, etc., but these beliefs may also color how the findings are analyzed and interpreted. Let us call this the *problem of theory contamination*—i.e., when researchers' own theoretical commitments unduly influence or bias their findings. While it may be impossible to keep one's theoretical commitments *entirely* at bay while designing studies and analyzing data, it is important for researchers to make a concerted effort to avoid theory contamination as much as possible. One strategy that we adopted was making sure we had both psychologists and philosophers on our team, as well as people with competing views about free will and its relationship to determinism.

A second lesson to be learned from the early research on free will beliefs is that researchers should have a shared vocabulary (or lexicon) when exploring these types of complex beliefs and attitudes. Instead, much of the early empirical work in this area contains conflicting definitions of key terms (or usages of key terms) such as determinism, libertarian free will, choice, dualism, fatalism, and the like. Moreover, not only are key terms used in ways that differ from one researcher to the next, these terms are often defined in ways that most philosophers who specialize in the free will debate would reject. This generates worries about both content and criterion validity. While philosophical experts on free will should not have *carte blanche* to define contested terminology however they see fit, the long and deep engagement of philosophers with the question of free will should be taken into consideration during empirical investigations of free will beliefs.

At least some of these methodological worries might be alleviated if psychologists and philosophers worked together rather than laboring individually on their own respective sides of the disciplinary divide. For while psychologists do not appear to have a shared lexicon when it comes to free will and related concepts, philosophers have developed a common vocabulary for talking about these issues. Take, for instance, the concept of *determinism*. While the term has a variety of meanings and uses (both in everyday life and amongst psychologists), philosophers typically have one thing in mind when they discuss determinism—namely, the thesis that given the actual past and the laws of nature, there is only one possible future at any moment in time (e.g., van Inwagen, 1983).

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