



My goal for this book is to provide you with a textbook/guide to the hundreds of pages on my INFORMATION PHILOSOPHER website (www.informationphilosopher.com). Information philosophy (I like to call it I-PHI) provides insights into some classical unsolved philosophical problems,¹ but of these the most important to society may well be the question of **free will**.

The free will problem has been uppermost in my mind since 1957, when I first read ARTHUR STANLEY EDDINGTON's 1927 book *The Nature of the Physical World*. Quantum mechanics had in that year just invalidated the deterministic physics of previous centuries, and Eddington thought that WERNER HEISENBERG's Uncertainty Principle might offer support for human freedom.

Eddington's hopes were dashed by his philosopher contemporaries. Quantum randomness is no more of a help to free will than EPICURUS' ancient notion of a "swerve" of the atoms, they said. If our willed decisions are made at random, we cannot be **morally responsible** for our actions.

In the 1960's I studied quantum physics. My Ph.D. thesis was on collisions of hydrogen, the simplest of atoms. I came to believe that the philosophers might be wrong, that quantum physics might do no harm to human responsibility. Random thoughts need not make our actions random, as most philosophers argued, and even Eddington had reluctantly accepted.

I began a serious study of all the philosophers and scientists that had written on the problem of free will. My library now has over 150 books specifically on free will, and I have access to many more through Harvard's Widener Library. David Chalmers' PhilPapers.org website provides access to over 2000 articles on free will.

In recent years I moved all my research onto the web, where it is open source and freely available. INFORMATION PHILOSOPHER has about 140 web pages on philosophers and 65 on scientists, with critical analyses of their views. My I-Phi website now shows up on the first Google page for many search terms, and is used in a number of philosophy courses.

1 See Chapter 31 for some of my I-Phi problems.



When I create new web pages, if the philosophers are alive, I write and ask for their criticisms, to ensure that my account of their views is as accurate as I can make it. In many cases, I add new material to their Wikipedia page, or create a page.

My email exchanges with dozens of philosophers have greatly enhanced my appreciation for the wide variety of their views, which you see I have arranged in a taxonomy of two dozen or so basic positions. Sadly, I can report little progress in changing the fundamental opinions of any philosopher over these years.

Most well-known philosophers have made up their minds long ago, and have been teaching their views for decades. But by corresponding with them for years, by writing and rewriting their positions, I have come to understand how they fit with one another in their various intellectual niches. And by meeting many in person in the last year or so, I now think my web site presents as comprehensive an overview of the free will problem as is available anywhere today.

My hope is that philosophy students who read this book, or the I-Phi website, will be more likely to arrive at their own views on free will, different from that of their professors.

I hope to publish a second volume titled *Free Will: The Philosophers and Scientists*, with extended analyses of over 200 thinkers. But to give you a picture of my methods, this volume will focus on my interactions with just four philosophers - ROBERT KANE, the world's leading **libertarian** on free will, TED HONDERICH, the leading **determinist**, who denies free will, DANIEL DENNETT, the leading **compatibilist**, who thinks that determinism gives us as much free will as we should want, and ALFRED MELE, one of whose free will models is much like my own.

Although I started building the information management tools for my I-Phi website in 1999, and began writing pages in earnest in 2004, my first philosophical publication appeared only in June of 2009, in *Nature* magazine.² I was responding to a May 2009 essay in *Nature*, "Is Free Will an Illusion," by the German neuro-

2 Doyle (2009)



geneticist MARTIN HEISENBERG. Heisenberg described two-stage freedom in lower animals that he thought might be the basis for free will in humans. I agreed, and noted that the two-stage idea had been put forward by a dozen thinkers since William James in 1884.

My second publication appeared in *William James Studies* in June 2010.³ It traced James' extraordinary insight into free will, as independently discovered by other philosophers and scientists down to Heisenberg. This paper led to an invitation to lead a 90-minute seminar at the William James Symposium (on the 100th anniversary of James' death) in August, 2010 at Chocorua, NH, and at Harvard.

Having seen my *Jamesian Free Will* paper, DANIEL DENNETT kindly invited me to participate in his graduate seminar on free will in the Fall term at Tufts University.

Then in October, 2010, an "Experts Meeting" on the question "Is Science Compatible with Our Desire for Freedom" was convened by the Social Trends Institute in Barcelona, Spain. Organized by ANTOINE SUAREZ of the Center for Quantum Philosophy in Zurich, Switzerland, the "experts" included several quantum physicists working with the exotic phenomena of nonlocality and entanglement to develop quantum cryptography, quantum computing, and possibly explain consciousness and free will.

The philosophers invited to Barcelona included myself, ROBERT KANE, the editor of the *Oxford Handbook on Free Will*, ALFRED MELE, who leads a four-year, \$4.4-million research effort at Florida State University on the Big Questions in Free Will, funded by the Templeton Foundation. MARTIN HEISENBERG attended by video conference from his lab in Würzburg, Germany.

My Harvard talk and all the Barcelona talks were videotaped and posted to YouTube in January, 2011.⁴ I then turned my attention to producing this printed book and e-book versions of the FREEDOM section of the I-PHI website.

3 Doyle (2010)

4 <http://www.socialtrendsinstitute.org/Activities/Bioethics/Is-Science-Compatible-with-Our-Desire-for-Freedom/Free-Will-Debate-on-YouTube.axd>



After the introductory Chapter 1, Chapter 2 makes the case why the current situation is a scandal in philosophy, not only because of the lack of progress, but because of grave implications for **moral responsibility** and **creativity** in young people.

Chapter 3 explores the reasons why the free will problem has been so intractable for millennia. In chapter 4, I identify the main reason for intractability as a **standard argument against free will** that has been used for centuries, but which is flawed.

The standard argument has two parts, each of which independently denies free will. It follows that each needs to be addressed on its merits, and this gives rise to two independent **requirements** that any satisfactory model of libertarian free will must meet. These are set out in Chapter 5.

Chapter 6 gives names and brief descriptions for the most common positions on free will taken over the centuries. This prepares us for a lengthy history of the free-will problem in Chapter 7, where we can put up milestones and signposts giving credit to the original thinkers behind the different positions we identified in Chapter 6.

Chapter 8 introduces actualism, possibilism, and probabilism, with a discussion of quantum probabilities.

Chapters 9 and 10 review the many different kinds of **determinism** that have been invented, and what it means for the different kinds of compatibilist “free will” that they entail.

In Chapter 11, I consider some theories of **libertarian** free will that postulate noumenal realms, non-causal events, and metaphysical or supernatural mystical gifts of freedom that remain mysteries, even for their proponents.

When the two requirements for libertarian free will of Chapter 5 are satisfied by a theory, it results in a **two-stage model**, each stage satisfying one of the requirements. The dozen or so thinkers who have proposed such a two-stage model are described in Chapter 12, and the most plausible and practical current version that I call the **Cogito** model is developed in Chapter 13.

Chapter 14 is a blow-by-blow discussion of the many objections levelled by philosophers against the two-stage model



Chapters 15 to 17 investigate the physics, the biology, and the neuroscience of free will. All three are being actively used to develop strong arguments in favor of **determinism**. They deserve careful examination. Chapter 18 explores the significance of the **Cogito** model for the traditional problem of consciousness.

From the very first debates, free will has been connected tightly to **moral responsibility**. Many modern thinkers equate, or at least conflate the two, making free will nothing but the control condition for moral responsibility. Chapter 19 describes the problem of moral responsibility and Chapter 20 makes the case for separating free will from moral responsibility. Indeed, I also propose separating “moral” from “responsibility,” like the clear separation of “free” from “will” in my two-stage model.

Chapter 21 is devoted to Naturalism, a well-intentioned but misled movement that emphasizes the animal nature of human beings. Naturalists properly reject anything supernatural that separates humans from animals. But they also reject the idea of free will, perhaps because it is often said to be a gift of God, and therefore nonexistent for naturalists, who are atheists.

Free will involves bringing new **information** into the universe. I argue in Chapter 22 that **creativity** would not be possible in a deterministic universe, where the future is “already out there.” Free will is a precondition for creativity.

Chapters 23, 24, 25, and 26 discuss my exchanges with TED HONDERICH on determinism, ROBERT KANE on libertarianism, DANIEL DENNETT on compatibilism, and ALFRED MELE on his modest libertarianism. In all these chapters, the fundamental question is the role of quantum **indeterminacy** in these philosophers’ models for free will.

In Chapter 27, I imagine how different the history of free will would have been if Dennett and Kane had reached a compromise position. Instead of helping to make the history of philosophy today, I would be just writing the history of philosophy.

In Chapter 28, I make the case for reconciling free will with the **indeterminism** of quantum physics. Here I follow in the footsteps of DAVID HUME, who reconciled freedom with the determinism of



classical physics. Hume's **compatibilism** is fine if by **determinism** we mean the "**adequate determinism**" of classical physics, the one that emerges as the asymptotic limit of quantum mechanics in objects with large numbers of material particles.

I therefore invite all compatibilist philosophers to consider a new "**comprehensive compatibilism**" that reconciles free will with *both* limited determinism *and* limited indeterminism.

Most philosophers today think of themselves as compatibilists, and for understandable if somewhat misguided reasons. As R. E. HOBART wrote in his 1934 *Mind* article, "Free Will As Involving Determination, and Inconceivable Without It," our character, values, motives, and feelings must determine our willed decisions, or we could not be morally responsible for our actions.⁵ But Hume was not happy with his determinism, and Hobart, if we read him carefully, did not deny the existence of irreducible **chance**, although he could not see, as we can today, how it is that **indeterminacy** helps to solve the problem of free will.

Chapter 29 summarizes the key points that you can use to help end the scandal of teaching that free will is an illusion.

Chapter 30 examines the cosmic information creation process that underlies information processing in the body and mind.

Chapter 31 has brief comments on some more unsolved problems in philosophy and in physics that may yield to an information philosophy analysis.

Join me on the I-PHI website to explore the work in progress on these problems. I look forward to your critical comments on problems that interest you. Your input will help to make the INFORMATION PHILOSOPHER as accurate a resource for twenty-first-century philosophy as we together can make it.

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5 See the Hobart's Determination sidebar on page 23.

