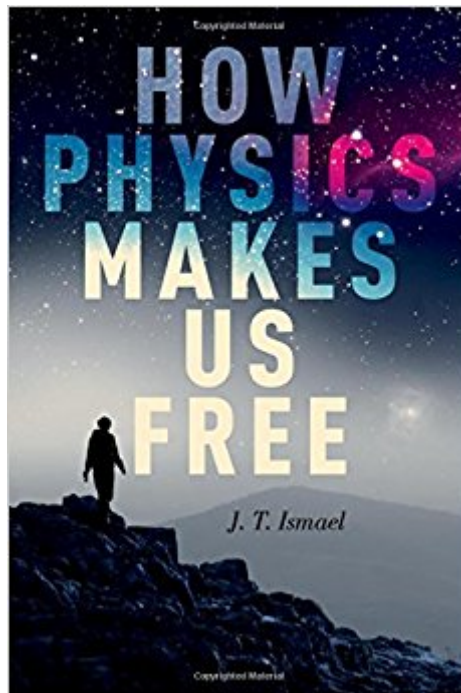




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# How Physics Makes Us Free



## Synopsis

In 1687 Isaac Newton ushered in a new scientific era in which laws of nature could be used to predict the movements of matter with almost perfect precision. Newton's physics also posed a profound challenge to our self-understanding, however, for the very same laws that keep airplanes in the air and rivers flowing downhill tell us that it is in principle possible to predict what each of us will do every second of our entire lives, given the early conditions of the universe. Can it really be that even while you toss and turn late at night in the throes of an important decision and it seems like the scales of fate hang in the balance, that your decision is a foregone conclusion? Can it really be that everything you have done and everything you ever will do is determined by facts that were in place long before you were born? This problem is one of the staples of philosophical discussion. It is discussed by everyone from freshman in their first philosophy class, to theoretical physicists in bars after conferences. And yet there is no topic that remains more unsettling, and less well understood. If you want to get behind the façade, past the bare statement of determinism, and really try to understand what physics is telling us in its own terms, read this book. The problem of free will raises all kinds of questions. What does it mean to make a decision, and what does it mean to say that our actions are determined? What are laws of nature? What are causes? What sorts of things are we, when viewed through the lenses of physics, and how do we fit into the natural order? Ismael provides a deeply informed account of what physics tells us about ourselves. The result is a vision that is abstract, alien, illuminating, and-Ismael argues-affirmative of most of what we all believe about our own freedom. Written in a jargon-free style, *How Physics Makes Us Free* provides an accessible and innovative take on a central question of human existence.

## Book Information

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## Customer Reviews

"Jenann Ismael's book is a strikingly original monograph that somehow manages to be perfectly relevant and highly engaging to both the intelligent lay reader and the professional philosopher. It shows how well done philosophy of science can be relevant for the public at large, even when treating questions that have, of late, suffered from the ravages of analytic metaphysics. The book may be more widely read inside the academy than outside, but those on the outside who read it in full will surely come away with a better opinion of philosophy than they had at the start. Ismael's prose is beautiful, evocative, and full of helpful metaphors and analogies...It is a book that nobody who cares about how human freedom squares with modern physicalism can afford to ignore." -- Notre Dame Philosophical Reviews Online

J.T. Ismael is Professor of Philosophy at the University of Arizona. She is the author of *The Situated Self* (OUP, 2007) and *Essays on Symmetry* (2001).

Jennan unpacks her ideas in a way that makes you feel like you are part of the discovery process. She explains each argument and counter argument in an elucidating way, building from simplicity to complexity, and by the time she gives her final account, it doesn't feel like a revelation, but a conclusion which agrees with the one you were leaning towards. I cannot say whether my views have shifted one way or the other, because I was a bit undecided on the subject of free will, but I think that Jennan's explanation makes the most sense, given what we know right now.

The title foreshadows this, but to be explicit, I wouldn't recommend this read to someone that isn't already well-versed in both philosophy and physics. Even then, it is a difficult read -- but perhaps necessarily so. Regardless of the merit of Ismael's arguments, she certainly shows that the issues that are present in this debate are far more complex than our untrained intuition is prepared to deal with. Before reading this book, I often made light of arguments in favor of compatibilism. I now definitely regret doing so. I find myself mostly swayed by Ismael's conclusions -- and while there are several components of her arguments that I am still mulling over and processing, I at least now see a possible avenue for the defense of free will in a deterministic universe. And importantly, her arguments don't hinge on vague, unexplained, and misguided appeals to the randomness of quantum processes. I certainly did not expect to leave this book with an entirely redefined

conception of causality, but that is something any future readers should expect. This book is incredibly comprehensive, very well explained, and very profound. I highly recommend the read to anybody interested in these topics, so long as they're aware that reading it requires a lot of prerequisite knowledge in the area (or a lot of dedication). While I'm still uncertain about the conclusion, my current answer to "Does free will exist?" is, for the first time in quite some time, "Yeah, I think so"

Ismael's book offers a fascinating and, to my knowledge, novel approach to the problem of free will. The standard problem is: How can we be free in a deterministic universe? The answer which has for a long time seemed to me inescapable (and also fascinating) is that we can't be and hence aren't. To realize that one is an automaton may seem shockingly disappointing – analogous to Rachel's revelation in *Blade Runner* – but I for one simply luxuriate in the amazingness of it all. Not for me are the ingenious efforts of so many other analytic philosophers, such as Daniel Dennett, to demonstrate that free will is not only compatible with determinism, and in fact does exist and serves useful purposes in human affairs, but also that the very notion of free will implies determinism. The latter idea is that if our willings were not caused by our beliefs and desires, which have in turn been caused by our reflections and ultimately by the external world, and did not themselves cause our actions, they would not be willings but merely random outbursts. So it is downright unintelligible to suppose we could be missing out on some kind of freedom that did not involve determinism (just as absurd as supposing one were imagining a 4-sided triangle). But folks like myself object that this determinist or compatibilist free will does not give us real freedom, because it implies that everything one does – including your reading this passage right now – was pretty much pre-determined to happen thirteen billion years ago; in other words, anything that happens, including human actions, had to happen. So it is an illusion that we are in control. Thus, the free will debate can be summed up in two words: unintelligible and illusory. The pro-freewillists (like Dennett) argue that indeterministic free will is the former, while the anti-freewillists (like me) argue that deterministic free will is the latter. But Ismael pulls the rug out from under this debate by refuting the conception of determinism it presumes. She does this by taking a close look at what physics really means by determinism, and it turns out to be nothing like what both the pro- and anti-freewillists in the classic debate have in mind. There are two points of divergence. One is that the determinism of physics is indifferent to the direction of time. Usually we laypersons with some knowledge of science accept the idea that if you knew the initial conditions of the universe and the laws of nature, you would, in theory, be able to predict the whole

future. But Ismael points out that, according to contemporary physics, you could say the same in reverse as well; that is, if you knew the end state of the universe and the laws of nature, you could retrodict the whole past. The relevance to free will? Well, it undercuts the idea that nature is pushing us from behind, as it were. The second point of divergence between the determinism of physics and the lay conception thereof is that this very notion of pushing or otherwise exerting force that infuses our idea of causation is the real illusion. This is only a projection of how we experience certain sequences of events in time. But, again, physics itself postulates no such phenomenon; physical determinism is not causation of this kind. Where does this leave us? Ismael argues for a robust notion of free will that operates at the macro level, allowing the determinism of physics to govern the micro level of reality. The main constructive task of the book is to explain how these two co-function, with a surprising degree of both independence and influence in both directions. My admiration for Ismael's project is unbounded. I am not so enthusiastic about her writing style, or perhaps the problem is that she was writing for a mixed audience. Despite the fascinating nature of the topic, I found myself becoming impatient with the exposition on many occasions, perhaps simply because so much of it was old news to me. For the curious layperson, however, this might be ideal. And, of course, as I have indicated, I myself found the very idea of the book exciting. In the end was I convinced by Ismael's argument? Yes and no. I think she has without a doubt deepened the analysis a pro-freewillist must and can make. But it still seems to me that she is carrying on essentially the same project of attempting to demonstrate the compatibility of free will with determinism (now more fully and accurately understood); and for all her strenuous and explicit efforts to show how this explodes the idea that free will is merely an illusion, I just don't see that she has done it. The key issue may be the status of laws of nature. Do the laws govern the behaviors of things, or do they only describe the behavior of things, with those things calling the shots? But even if the latter were the case, the things physics provides laws for are microparticles and microevents, not human decisions and willings and actions. Of course that objection could backfire, since it might then seem to offer an opening for free will to govern human events, precisely because they are not the sorts of things physics provides laws for. And Ismael does sometimes seem to be saying something of that sort, as if to say that the micro world, strictly governed by (time-indifferent) laws, is like the tool kit a carpenter can use to build something: The tools do not govern the carpenter's behavior, but only constrain and in fact enable it. Just so, the world of physics describes the tool kit or resources that limit the range of our actions but also enable them to occur; and where is there a denial of freedom in that? Plato's Socrates said much the same in the Phaedo: 'It may be said, indeed,

that without bones and muscles and the other parts of the body I cannot execute my purposes. But to say that I do as I do because of them, and that this is the way in which mind acts, and not from the choice of the best, is a very careless and idle mode of speaking. I wonder that they cannot distinguish the cause from the condition, which the many, feeling about in the dark, are always mistaking and misnaming. (99). I understand Ismael's (and Socrates' point: that human actions are an essential component of what happens in the universe, helping to determine what happens forwards and, mirabile dictu, even backwards in time, and even at the micro level. And her articulation of all these connections is her real contribution to the debate; it sets the bar higher for any future discussions. But for all that, it seems to me, a cog is still a cog. P.S. I do want to mention another aspect of the free will debate, which I think Ismael's book simply ignores. One gets the impression from this book that at the human level, freedom reigns; that is, the norm is that we feel free (yet physics tells us the universe is determined in some sense). But it seems to me that it is precisely at the human level that the problem of determinism has arisen. (Indeed, if anything, the more micro physics get, the less deterministic the world seems to be.) Thus, for me it is not so much that atoms or whatever are doing their lawful thing that creates the paradox of my feeling free, as that social science, and just plain everyday observation, are so good at predicting our behaviors under specified circumstances. Compared to the (often dreary) facts of human automaticity, the phenomenological feel of controlling my own actions seems paltry.

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