



The long read

The clockwork universe: is free will an illusion?

A growing chorus of scientists and philosophers argue that free will does not exist. Could they be right?

by [Oliver Burkeman](#)

Illustration: Nathalie Lees

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Towards the end of a conversation dwelling on some of the deepest metaphysical puzzles regarding the nature of human existence, the philosopher Galen Strawson paused, then asked me: “Have you spoken to anyone else yet who’s received weird email?” He navigated to a file on his computer and began reading from the alarming messages he and several other scholars had received over the past few years. Some were plaintive, others abusive, but all were fiercely accusatory. “Last year you all played a part in destroying my life,” one person wrote. “I lost everything because of you - my son, my partner, my job, my home, my mental health. All because of you, you told me I had no control, how I was not responsible for anything I do, how my beautiful six-year-old son was not responsible for what he did ... Goodbye, and good luck with the rest of your cancerous, evil, pathetic existence.” “Rot in your own shit Galen,” read another note, sent in early 2015. “Your wife, your kids your friends, you have smeared all there [sic] achievements you utter fucking prick,” wrote the same person, who subsequently warned: “I’m going to fuck you up.” And then, days later, under the subject line “Hello”: “I’m coming for you.” “This was one where we had to involve the police,” Strawson said. Thereafter, the violent threats ceased.

It isn’t unheard of for philosophers to receive death threats. The Australian ethicist Peter Singer, for example, has received many, in response to his [argument](#) that, in highly exceptional circumstances, it might be morally justifiable to kill newborn babies with

severe disabilities. But Strawson, like others on the receiving end of this particular wave of abuse, had merely expressed a longstanding position in an ancient debate that strikes many as the ultimate in “armchair philosophy”, wholly detached from the emotive entanglements of real life. They all deny that human beings possess free will. They argue that our choices are determined by forces beyond our ultimate control – perhaps even predetermined all the way back to the big bang – and that therefore nobody is ever wholly responsible for their actions. Reading back over the emails, Strawson, who gives the impression of someone far more forgiving of other people’s flaws than of his own, found himself empathising with his harassers’ distress. “I think for these people it’s just an existential catastrophe,” he said. “And I think I can see why.”

The difficulty in explaining the enigma of free will to those unfamiliar with the subject isn’t that it’s complex or obscure. It’s that the experience of possessing free will – the feeling that we are the authors of our choices – is so utterly basic to everyone’s existence that it can be hard to get enough mental distance to see what’s going on. Suppose you find yourself feeling moderately hungry one afternoon, so you walk to the fruit bowl in your kitchen, where you see one apple and one banana. As it happens, you choose the banana. But it seems absolutely obvious that you were free to choose the apple – or neither, or both – instead. That’s free will: were you to rewind the tape of world history, to the instant just before you made your decision, with everything in the universe exactly the same, you’d have been able to make a different one.

Nothing could be more self-evident. And yet according to a growing chorus of philosophers and scientists, who have a variety of different reasons for their view, it also can’t possibly be the case. “This sort of free will is ruled out, simply and decisively, by the laws of physics,” says one of the most strident of the free will sceptics, the evolutionary biologist Jerry Coyne. Leading psychologists such as Steven Pinker and Paul Bloom agree, as apparently did the late Stephen Hawking, along with numerous prominent neuroscientists, including VS Ramachandran, who called free will “an inherently flawed and incoherent concept” in his endorsement of Sam Harris’s bestselling 2012 book *Free Will*, which also makes that argument. According to the public intellectual Yuval Noah Harari, free will is an anachronistic myth – useful in the past, perhaps, as a way of motivating people to fight against tyrants or oppressive ideologies, but **rendered obsolete** by the power of modern data science to know us better than we know ourselves, and thus to predict and manipulate our choices.

Arguments against free will go back millennia, but the latest resurgence of scepticism has been driven by advances in neuroscience during the past few decades. Now that it’s possible to observe – thanks to neuroimaging – the physical brain activity associated with our decisions, it’s easier to think of those decisions as just another part of the mechanics of the material universe, in which “free will” plays no role. And from the 1980s onwards, various specific neuroscientific findings have offered troubling clues that our so-called free choices might actually originate in our brains several milliseconds, or even much longer, before we’re first aware of even thinking of them.

Despite the criticism that this is all just armchair philosophy, the truth is that the stakes could hardly be higher. Were free will to be shown to be nonexistent – and were we truly to absorb the fact – it would “precipitate a culture war far more belligerent than the one that has been waged on the subject of evolution”, Harris has written. Arguably, we would be forced to conclude that it was unreasonable ever to praise or blame anyone for their actions, since they weren’t truly responsible for deciding to do them; or to feel guilt for one’s misdeeds, pride in one’s accomplishments, or gratitude for others’ kindness. And we might come to feel that it was morally unjustifiable to mete out retributive punishment to criminals, since they had no ultimate choice about their wrongdoing. Some worry that it might fatally corrode all human relations, since romantic love, friendship and neighbourly civility alike all depend on the assumption of choice: any loving or respectful gesture has to be voluntary for it to count.

Peer over the precipice of the free will debate for a while, and you begin to appreciate how an already psychologically vulnerable person might be nudged into a breakdown, as was apparently the case with Strawson’s email correspondents. Harris has taken to prefacing his podcasts on free will with disclaimers, urging those who find the topic emotionally distressing to give them a miss. And Saul Smilansky, a professor of philosophy at the University of Haifa in Israel, who believes the popular notion of free will is a mistake, told me that if a graduate student who was prone to depression sought to study the subject with him, he would try to dissuade them. “Look, I’m naturally a buoyant person,” he said. “I have the mentality of a village idiot: it’s easy to make me happy. Nevertheless, the free will problem is really depressing if you take it seriously. It hasn’t made me happy, and in retrospect, if I were at graduate school again, maybe a different topic would have been preferable.”

Smilansky is an advocate of what he calls “illusionism”, the idea that although free will as conventionally defined is unreal, it’s crucial people go on believing otherwise – from which it follows that an article like this one might be actively dangerous. (Twenty years ago, he said, he might have refused to speak to me, but these days free will scepticism was so widely discussed that “the horse has left the barn”.) “On the deepest level, if people really understood what’s going on – and I don’t think I’ve fully internalised the implications myself, even after all these years – it’s just too frightening and difficult,” Smilansky said. “For anyone who’s morally and emotionally deep, it’s really depressing and destructive. It would really threaten our sense of self, our sense of personal value. The truth is just too awful here.”

he conviction that nobody ever truly chooses freely to do anything – that we’re the puppets of forces beyond our control – often seems to strike its adherents early in their intellectual careers, in a sudden flash of insight. “I was sitting in a carrel in Wolfson

T College [in Oxford] in 1975, and I had no idea what I was going to write my DPhil thesis about,” Strawson recalled. “I was reading something about Kant’s views on free will, and I was just electrified. That was it.” The logic, once glimpsed, seems coldly inexorable. Start with what seems like an obvious truth: anything that happens in the world, ever, must have been completely caused by things that happened before it. And those things must have been caused by things that happened before *them* – and so on, backwards to the dawn of time: cause after cause after cause, all of them following the predictable laws of nature, even if we haven’t figured all of those laws out yet. It’s easy enough to grasp this in the context of the straightforwardly physical world of rocks and rivers and internal combustion engines. But surely “one thing leads to another” in the world of decisions and intentions, too. Our decisions and intentions involve neural activity – and why would a neuron be exempt from the laws of physics any more than a rock?

So in the fruit bowl example, there are physiological reasons for your feeling hungry in the first place, and there are causes – in your genes, your upbringing, or your current environment – for your choosing to address your hunger with fruit, rather than a box of doughnuts. And your preference for the banana over the apple, at the moment of supposed choice, must have been caused by what went before, presumably including the pattern of neurons firing in your brain, which was itself caused – and so on back in an unbroken chain to your birth, the meeting of your parents, their births and, eventually, the birth of the cosmos.



An astronomical clock in Prague, Czech Republic. Photograph: John Kellerman/Alamy

But if all that’s true, there’s simply no room for the kind of free will you might imagine yourself to have when you see the apple and banana and wonder which one you’ll choose. To have what’s known in the scholarly jargon as “contra-causal” free will – so that if you rewound the tape of history back to the moment of choice, you could make a different choice – you’d somehow have to slip outside physical reality. To make a choice that wasn’t merely the next link in the unbroken chain of causes, you’d have to be able to stand apart from the whole thing, a ghostly presence separate from the material world yet mysteriously still able to influence it. But of course you can’t actually get to this supposed place that’s external to the universe, separate from all the atoms that comprise it and the laws that govern them. You just *are* some of the atoms in the universe, governed by the same predictable laws as all the rest.

It was the French polymath Pierre-Simon Laplace, writing in 1814, who most succinctly expressed the puzzle here: how can there be free will, in a universe where events just crank forwards like clockwork? His thought experiment is known as Laplace’s demon, and his argument went as follows: if some hypothetical ultra-intelligent being – or demon – could somehow know the position of every atom in the universe at a single point in time, along with all the laws that governed their interactions, it could predict the future in its entirety. There would be nothing it couldn’t know about the world 100 or 1,000 years hence, down to the slightest quiver of a sparrow’s wing. You might think you made a free choice to marry your partner, or choose a salad with your meal rather than chips; but in fact Laplace’s demon would have known it all along, by extrapolating out along the endless chain of causes. “For such an intellect,” Laplace said, “nothing could be uncertain, and the future, just like the past, would be present before its eyes.”

It's true that since Laplace's day, findings in quantum physics have indicated that some events, at the level of atoms and electrons, are genuinely random, which means they would be impossible to predict in advance, even by some hypothetical megabrain. But few people involved in the free will debate think that makes a critical difference. Those tiny fluctuations probably have little relevant impact on life at the scale we live it, as human beings. And in any case, there's no more freedom in being subject to the random behaviours of electrons than there is in being the slave of predetermined causal laws. Either way, something other than your own free will seems to be pulling your strings.

By far the most unsettling implication of the case against free will, for most who encounter it, is what it seems to say about morality: that nobody, ever, truly deserves reward or punishment for what they do, because what they do is the result of blind deterministic forces (plus maybe a little quantum randomness). "For the free will sceptic," writes Gregg Caruso in his new book *Just Deserts*, a collection of dialogues with his fellow philosopher Daniel Dennett, "it is never fair to treat anyone as morally responsible." Were we to accept the full implications of that idea, the way we treat each other - and especially the way we treat criminals - might change beyond recognition.

Consider the case of Charles Whitman. Just after midnight on 1 August 1966, Whitman - an outgoing and apparently stable 25-year-old former US Marine - drove to his mother's apartment in Austin, Texas, where he stabbed her to death. He returned home, where he killed his wife in the same manner. Later that day, he took an assortment of weapons to the top of a high building on the campus of the University of Texas, where he began shooting randomly for about an hour and a half. By the time Whitman was killed by police, 12 more people were dead, and one more died of his injuries years afterwards - a spree that remains the US's 10th worst mass shooting.

Within hours of the massacre, the authorities discovered a note that Whitman had typed the night before. "I don't quite understand what compels me to type this letter," he wrote. "Perhaps it is to leave some vague reason for the actions I have recently performed. I don't really understand myself these days. I am supposed to be an average reasonable and intelligent young man. However, lately (I can't recall when it started) I have been a victim of many unusual and irrational thoughts [which] constantly recur, and it requires a tremendous mental effort to concentrate on useful and progressive tasks ... After my death I wish that an autopsy would be performed to see if there is any visible physical disorder." Following the first two murders, he added a coda: "Maybe research can prevent further tragedies of this type." An autopsy was performed, revealing the presence of a substantial brain tumour, pressing on Whitman's amygdala, the part of the brain governing "fight or flight" responses to fear.

As the free will sceptics who draw on Whitman's case concede, it's impossible to know if the brain tumour caused Whitman's actions. What seems clear is that it certainly *could* have done so - and that almost everyone, on hearing about it, undergoes some shift in their attitude towards him. It doesn't make the killings any less horrific. Nor does it mean the police weren't justified in killing him. But it does make his rampage start to seem less like the evil actions of an evil man, and more like the terrible symptom of a disorder, with Whitman among its victims. The same is true for another wrongdoer famous in the free-will literature, the anonymous subject of the 2003 [paper](#) Right Orbitofrontal Tumor with Paedophilia Symptom and Constructional Apraxia Sign, a 40-year-old schoolteacher who suddenly developed paedophilic urges and began seeking out child pornography, and was subsequently convicted of child molestation. Soon afterwards, complaining of headaches, he was diagnosed with a brain tumour; when it was removed, his paedophilic urges vanished. A year later, they returned - as had his tumour, detected in another brain scan.

If you find the presence of a brain tumour in these cases in any way exculpatory, though, you face a difficult question: what's so special about a brain tumour, as opposed to all the other ways in which people's brains cause them to do things? When you learn about the specific chain of causes that were unfolding inside Charles Whitman's skull, it has the effect of seeming to make him less personally responsible for the terrible acts he committed. But by definition, anyone who commits any immoral act has a brain in which a chain of prior causes had unfolded, leading to the act; if that weren't the case, they'd never have committed the act. "A neurological disorder appears to be just a special case of physical events giving rise to thoughts and actions," is how Harris expresses it. "Understanding the neurophysiology of the brain, therefore, would seem to be as exculpatory as finding a tumour in it." It appears to follow that as we understand ever more about how the brain works, we'll illuminate the last shadows in which something called "free will" might ever have lurked - and we'll be forced to concede that a criminal is merely someone unlucky enough to find himself at the end of a causal chain that culminates in a crime. We can still insist the crime in question is morally bad; we just can't hold the criminal individually responsible. (Or at least that's where the logic seems to lead our modern minds: there's a [rival tradition](#), going back to the ancient Greeks, which holds that you *can* be held responsible for what's fated to happen to you anyway.)



Illustration: Nathalie Lees

For Caruso, who teaches philosophy at the State University of New York, what all this means is that retributive punishment – punishing a criminal because he deserves it, rather than to protect the public, or serve as a warning to others – can’t ever be justified. Like Strawson, he has received email abuse from people disturbed by the implications. Retribution is central to all modern systems of criminal justice, yet ultimately, Caruso thinks, “it’s a moral injustice to hold someone responsible for actions that are beyond their control. It’s capricious.” Indeed some psychological research, he points out, suggests that people believe in free will partly *because* they want to justify their appetite for retribution. “What seems to happen is that people come across an action they disapprove of; they have a high desire to blame or punish; so they attribute to the perpetrator the degree of control [over their own actions] that would be required to justify blaming them.” (It’s no accident that the free will controversy is entangled in debates about religion: following similar logic, sinners must freely choose to sin, in order for God’s retribution to be justified.)

Caruso is an advocate of what he calls the “public health-quarantine” model of criminal justice, which **would transform** the institutions of punishment in a radically humane direction. You could still restrain a murderer, on the same rationale that you can require someone infected by Ebola to observe a quarantine: to protect the public. But you’d have no right to make the experience any more unpleasant than was strictly necessary for public protection. And you would be obliged to release them as soon as they no longer posed a threat. (The main focus, in Caruso’s ideal world, would be on redressing social problems to try stop crime happening in the first place – just as public health systems ought to focus on preventing epidemics happening to begin with.)

It’s tempting to try to wriggle out of these ramifications by protesting that, while people might not choose their worst impulses – for murder, say – they do have the choice not to succumb to them. You can feel the urge to kill someone but resist it, or even seek psychiatric help. You can take responsibility for the state of your personality. And don’t we all do that, all the time, in more mundane ways, whenever we decide to acquire a new professional skill, become a better listener, or finally get fit?

But this is not the escape clause it might seem. After all, the free will sceptics insist, if you do manage to change your personality in some admirable way, you must already have possessed the kind of personality capable of implementing such a change – and you didn’t choose that. None of this requires us to believe that the worst atrocities are any less appalling than we previously thought. But it does entail that the perpetrators can’t be held personally to blame. If you’d been born with Hitler’s genes, and experienced Hitler’s upbringing, you would be Hitler – and ultimately it’s only good fortune that you weren’t. In the end, as Strawson puts it, “luck swallows everything”.

Even how watertight the case against free will can appear, it may be surprising to learn that most philosophers reject it: according to a 2009 survey, conducted by the website PhilPapers, only about 12% of them are persuaded by it. And the disagreement can be fraught, partly because free will denial belongs to a wider trend that drives some philosophers spare – the tendency for those

Gtrained in the hard sciences to make sweeping pronouncements about debates that have raged in philosophy for years, as if all those dull-witted scholars were just waiting for the physicists and neuroscientists to show up. In one chilly exchange, Dennett paid a backhanded compliment to Harris, who has a PhD in neuroscience, calling his book “remarkable” and “valuable” – but only because it was riddled with so many wrongheaded claims: “I am grateful to Harris for saying, so boldly and clearly, what less outgoing scientists are thinking but keeping to themselves.”

What’s still more surprising, and hard to wrap one’s mind around, is that most of those who defend free will don’t reject the sceptics’ most dizzying assertion – that every choice you ever make might have been determined in advance. So in the fruit bowl example, a majority of philosophers agree that if you rewind the tape of history to the moment of choice, with everything in the universe exactly the same, you couldn’t have made a different selection. That kind of free will is “as illusory as poltergeists”, to quote Dennett. What they claim instead is that this doesn’t matter: that even though our choices may be determined, it makes sense to say we’re free to choose. That’s why they’re known as “compatibilists”: they think determinism and free will are compatible. (There are many other positions in the debate, including some philosophers, many Christians among them, who think we really do have “ghostly” free will; and others who think the whole so-called problem is a chimera, resulting from a confusion of categories, or errors of language.)

To those who find the case against free will persuasive, compatibilism seems outrageous at first glance. How can we possibly be free to choose if we aren’t, in fact, you know, free to choose? But to grasp the compatibilists’ point, it helps first to think about free will not as a kind of magic, but as a mundane sort of skill – one which most adults possess, most of the time. As the compatibilist Kadri Vihvelin writes, “we have the free will we think we have, including the freedom of action we think we have ... by having some bundle of abilities and being in the right kind of surroundings.” The way most compatibilists see things, “being free” is just a matter of having the capacity to think about what you want, reflect on your desires, then act on them and sometimes get what you want. When you choose the banana in the normal way – by thinking about which fruit you’d like, then taking it – you’re clearly in a different situation from someone who picks the banana because a fruit-obsessed gunman is holding a pistol to their head; or someone afflicted by a banana addiction, compelled to grab every one they see. In all of these scenarios, to be sure, your actions belonged to an unbroken chain of causes, stretching back to the dawn of time. But who cares? The banana-chooser in one of them was clearly more free than in the others.

“Harris, Pinker, Coyne – all these scientists, they all make the same two-step move,” said Eddy Nahmias, a compatibilist philosopher at Georgia State University in the US. “Their first move is always to say, ‘well, here’s what free will means’” – and it’s always something nobody could ever actually have, in the reality in which we live. “And then, sure enough, they deflate it. But once you have that sort of balloon in front of you, it’s very easy to deflate it, because any naturalistic account of the world will show that it’s false.”



Daniel Dennett in Stockholm, Sweden. Photograph: Ibl/Rex/Shutterstock

Consider hypnosis. A doctrinaire free will sceptic might feel obliged to argue that a person hypnotised into making a particular purchase is no less free than someone who thinks about it, in the usual manner, before reaching for their credit card. After all,

their idea of free will requires that the choice wasn't fully determined by prior causes; yet in both cases, hypnotised and non-hypnotised, it was. "But come on, that's just *really annoying*," said Helen Beebe, a philosopher at the University of Manchester who has written widely on free will, expressing an exasperation commonly felt by compatibilists toward their rivals' more outlandish claims. "In some sense, I don't care if you call it 'free will' or 'acting freely' or anything else - it's just that it obviously does matter, to everybody, whether they get hypnotised into doing things or not."

Granted, the compatibilist version of free will may be less exciting. But it doesn't follow that it's worthless. Indeed, it may be (in another of Dennett's phrases) the only kind of "free will worth wanting". You experience the desire for a certain fruit, you act on it, and you get the fruit, with no external gunmen or internal disorders influencing your choice. How could a person ever be freer than that?

Thinking of free will this way also puts a different spin on some notorious experiments conducted in the 80s by the American neuroscientist Benjamin Libet, which have been interpreted as offering scientific proof that free will doesn't exist. Wiring his subjects to a brain scanner, and asking them to flex their hands at a moment of their choosing, Libet seemed to show that their choice was detectable from brain activity 300 milliseconds before they made a conscious decision. (Other studies have indicated activity up to 10 seconds before a conscious choice.) How could these subjects be said to have reached their decisions freely, if the lab equipment knew their decisions so far in advance? But to most compatibilists, this is a fuss about nothing. Like everything else, our conscious choices are links in a causal chain of neural processes, so of course some brain activity precedes the moment at which we become aware of them.

From this down-to-earth perspective, there's also no need to start panicking that cases like Charles Whitman's might mean we could never hold anybody responsible for their misdeeds, or praise them for their achievements. (In their defence, several free will sceptics I spoke to had their reasons for not going that far, either.) Instead, we need only ask whether someone had the normal ability to choose rationally, reflecting on the implications of their actions. We all agree that newborn babies haven't developed that yet, so we don't blame them for waking us in the night; and we believe most non-human animals don't possess it - so few of us rage indignantly at wasps for stinging us. Someone with a severe neurological or developmental impairment would surely lack it, too, perhaps including Whitman. But as for everyone else: "**Bernie Madoff** is the example I always like to use," said Nahmias. "Because it's so clear that he knew what he was doing, and that he knew that what he was doing was wrong, and he did it anyway." He did have the ability we call "free will" - and used it to defraud his investors of more than \$17bn.

To the free will sceptics, this is all just a desperate attempt at face-saving and changing the subject - an effort to redefine free will not as the thing we all feel, when faced with a choice, but as something else, unworthy of the name. "People hate the idea that they aren't agents who can make free choices," Jerry Coyne has argued. Harris has accused Dennett of approaching the topic as if he were telling someone bent on discovering the lost city of Atlantis that they ought to be satisfied with a trip to Sicily. After all, it meets some of the criteria: it's an island in the sea, home to a civilisation with ancient roots. But the facts remain: Atlantis doesn't exist. And when it felt like it wasn't inevitable you'd choose the banana, the truth is that it actually was.

It's tempting to dismiss the free will controversy as irrelevant to real life, on the grounds that we can't help but feel as though we have free will, whatever the philosophical truth may be. I'm certainly going to keep responding to others as though they had free will: if you injure me, or someone I love, I can guarantee I'm going to be furious, instead of smiling indulgently on the grounds that you had no option. In this experiential sense, free will just seems to be a given.

But is it? When my mind is at its quietest - for example, drinking coffee early in the morning, before the four-year-old wakes up - things are liable to feel different. In such moments of relaxed concentration, it seems clear to me that my intentions and choices, like all my other thoughts and emotions, arise unbidden in my awareness. There's no sense in which it feels like I'm their author. Why do I put down my coffee mug and head to the shower at the exact moment I do so? Because the intention to do so pops up, caused, no doubt, by all sorts of activity in my brain - but activity that lies outside my understanding, let alone my command. And it's exactly the same when it comes to those weightier decisions that seem to express something profound about the kind of person I am: whether to attend the funeral of a certain relative, say, or which of two incompatible career opportunities to pursue. I can spend hours or even days engaged in what I tell myself is "reaching a decision" about those, when what I'm really doing, if I'm honest, is just vacillating between options - until at some unpredictable moment, or when an external deadline forces the issue, the decision to commit to one path or another simply arises.

This is what Harris means when he declares that, on close inspection, it's not merely that free will is an illusion, but that the illusion of free will is itself an illusion: watch yourself closely, and you don't even *seem* to be free. "If one pays sufficient attention," he told me by email, "one can notice that there's no subject in the middle of experience - there is only experience. And everything we experience simply arises on its own." This is an idea with roots in Buddhism, and echoed by others, including the philosopher David Hume: when you look within, there's no trace of an internal commanding officer, autonomously issuing decisions. There's only mental activity, flowing on. Or as Arthur Rimbaud wrote, in a letter to a friend in 1871: "I am a spectator at the unfolding of my thought; I watch it, I listen to it."

There are reasons to agree with Saul Smilansky that it might be personally and societally detrimental for too many people to start thinking in this way, even if it turns out it's the truth. (Dennett, although he thinks we do have free will, takes a similar position, arguing that it's morally irresponsible to promote free-will denial.) In one set of studies in 2008, the psychologists Kathleen Vohs and Jonathan Schooler asked one group of participants to read an excerpt from *The Astonishing Hypothesis* by Francis Crick, co-discoverer of the structure of DNA, in which he suggests free will is an illusion. The subjects thus primed to doubt the existence of free will proved significantly likelier than others, in a subsequent stage of the experiment, to cheat in a test where there was money at stake. Other research has reported a diminished belief in free will to less willingness to volunteer to help others, to lower levels of commitment in relationships, and lower levels of gratitude.

Unsuccessful attempts to replicate Vohs and Schooler's findings have called them into question. But even if the effects are real, some free will sceptics argue that the participants in such studies are making a common mistake - and one that might get cleared up rather rapidly, were the case against free will to become better known and understood. Study participants who suddenly become immoral seem to be confusing determinism with fatalism - the idea that if we don't have free will, then our choices don't really matter, so we might as well not bother trying to make good ones, and just do as we please instead. But in fact it doesn't follow from our choices being determined that they don't matter. It might matter enormously whether you choose to feed your children a diet rich in vegetables or not; or whether you decide to check carefully in both directions before crossing a busy road. It's just that (according to the sceptics) you don't get to make those choices freely.

In any case, were free will really to be shown to be nonexistent, the implications might not be entirely negative. It's true that there's something repellent about an idea that seems to require us to treat a cold-blooded murderer as not responsible for his actions, while at the same time characterising the love of a parent for a child as nothing more than what Smilansky calls "the unfolding of the given" - mere blind causation, devoid of any human spark. But there's something liberating about it, too. It's a reason to be gentler with yourself, and with others. For those of us prone to being hard on ourselves, it's therapeutic to keep in the back of your mind the thought that you might be doing precisely as well as you were always going to be doing - that in the profoundest sense, you couldn't have done any more. And for those of us prone to raging at others for their minor misdeeds, it's calming to consider how easily their faults might have been yours. (Sure enough, some research has linked disbelief in free will to increased kindness.)

Harris argues that if we fully grasped the case against free will, it would be difficult to hate other people: how can you hate someone you don't blame for their actions? Yet love would survive largely unscathed, since love is "the condition of our wanting those we love to be happy, and being made happy ourselves by that ethical and emotional connection", neither of which would be undermined. And countless other positive aspects of life would be similarly untouched. As Strawson puts it, in a world without a belief in free will, "strawberries would still taste just as good".

Those early-morning moments aside, I personally can't claim to find the case against free will ultimately persuasive; it's just at odds with too much else that seems obviously true about life. Yet even if only entertained as a hypothetical possibility, free will scepticism is an antidote to that bleak individualist philosophy which holds that a person's accomplishments truly belong to them alone - and that you've therefore only yourself to blame if you fail. It's a reminder that accidents of birth might affect the trajectories of our lives far more comprehensively than we realise, dictating not only the socioeconomic position into which we're born, but also our personalities and experiences as a whole: our talents and our weaknesses, our capacity for joy, and our ability to overcome tendencies toward violence, laziness or despair, and the paths we end up travelling. There is a deep sense of human fellowship in this picture of reality - in the idea that, in our utter exposure to forces beyond our control, we might all be in the same boat, clinging on for our lives, adrift on the storm-tossed ocean of luck.

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