

## Free Will: Real or Illusion?

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If you are a regular reader of popular science writings, the chances are that you have come across articles or books arguing that free will is an illusion. Writers such as Sam Harris, Michael Gazzaniga, and Jerry Coyne, among others, have influentially claimed that the notion of free will – a person’s capacity to choose and control his or her own actions – is refuted by modern science. They argue that human actions are caused not by people’s conscious mental states, but by physical processes in their brains and bodies and the world at large, processes over which people have no control. If this is right, the idea of free will is a remnant of a superseded, unscientific worldview.

Although such free-will skepticism is not yet the established view in society, nor dominant in academic philosophy, it is gaining prominence, and if it became accepted as the truth, it would raise significant questions about the picture of humans as choice-making agents, and it would cast into doubt society’s practices of assigning responsibility to people for their actions. It seems problematic to hold a person responsible for something he or she did not freely do. Some skeptics are untroubled by these implications or even find them congenial. Given the problems with many of the world’s criminal justice systems, they think that we should focus less on responsibility and blame and more on rehabilitation and reintegration of offenders. But one can reject the traditional retributivist approach to punishment and support criminal justice reform without abandoning the idea of free will. There are better arguments for a more humane criminal justice system, based on considerations of dignity and restorative justice. Abandoning the idea of free will would have far-reaching implications for our human self-understanding as autonomous agents, independently of any implications for criminal justice. How could we genuinely deliberate about important decisions – such as which career to pursue, whom to marry, which ideology to endorse – if we didn’t view ourselves as free in making those decisions? The free-will skeptics would have to conclude that no such decisions ever involve real choices.

I think that free will can be defended against this growing skepticism, and in particular without denying science or redefining free will itself. My thesis, developed in my book *Why Free Will is Real*, is that, far from being undermined by a scientific worldview, the idea of free will is actually supported by it.

To sketch my argument, let me say more about the challenge. A reasonable starting point for any discussion of free will is the assumption that free will requires some or perhaps all of the following properties:

- intentional, goal-directed agency,
- alternative possibilities among which we can choose, and
- causation of our actions by our mental states, especially by our intentions.

To be sure, not every proponent of free will thinks that all three properties are needed. Some argue that we could have free will without alternative possibilities to choose from; intentional endorsement of our actions may be enough. But I want to grant that free will, properly understood, requires all three properties: agency, choice, and control. So, I agree that free will would stand on shaky ground if one or more of these properties turned out to be illusory.

Now the skeptics argue: if we look at the world through a scientific lens, such as that of fundamental physics or perhaps neuroscience, then we find no support for agency, choice, and control. None of these properties are among the physical features of the world. At a physical level, there are only particles and molecules, fields and forces, and maybe neurons firing in the brain, all inexorably governed by the laws of physics. Agency, choice, and control are outdated fictions. And so, there is no free will.

Although the popular-science arguments against free will are seldom articulated fully rigorously, one can disambiguate different versions of the challenge, depending on whether the point of contention is intentional agency, alternative possibilities, or causal control. One kind of argument derives the unreality of free will from the claim that there is no room for intentional agency in a physical world. The idea that humans are agents with goals and intentions is an illusion. In reality, the argument goes, human beings are just bio-physical machines. I call this the “argument from radical materialism”. In academic philosophy, Patricia and Paul Churchland have developed such an “eliminativist” view about intentional agency.

A second kind of argument derives the unreality of free will from the claim that the laws of physics may be deterministic, meaning that the initial state of the universe, say at the Big Bang, pre-determined all subsequent events; so, there would be no room for alternative possibilities to choose from. You may think that you had a choice whether to read this article or not, but in reality, your decision was made for you by the world’s initial conditions. I call this the “argument from determinism”. An academic version of it is Peter van Inwagen’s so-called “consequence argument”.

A third kind of argument, finally, derives the unreality of free will from the claim that when any of us act, it is our brains that make us do it; we have no causal control over our actions. Our intentions, or any conscious mental states, are only by-products of subconscious physical processes, and those physical processes are the real causes of our actions. It is a mistake to attribute our actions to our intentions. I call this the “argument from epiphenomenalism”. Proponents of this argument often cite Benjamin Libet’s famous experimental study suggesting that voluntary movements, such as hand or finger movements, are caused by neuronal readiness potentials in the brain rather than any conscious decisions to perform those movements. More theoretically, Jaegwon Kim has argued that postulating mental causes of human actions, as distinct from physical causes, goes against some core principles of a “physicalist” worldview (such as the principle that every physical event has a physical cause or that a physical event cannot simultaneously have a physical cause and a non-physical one).

What can be said in response to these arguments? The first thing to say is that all three arguments take a reductionistic, physical perspective on human beings. They understand humans essentially as bio-physical systems: conglomerates of interacting particles. And when one takes this perspective, it is no surprise that one finds little support for agency, choice, and control. Physical descriptions of things, such as those given by fundamental physics or even by neuroscience, are unlikely to refer to intentional agency, alternative possibilities to choose from, and causal control over our actions. Physical descriptions refer instead to particles and molecules, fields and forces, and perhaps signal transmission between neurons in the brain. Crucially, however, this does not imply that agency, choice, and control are unreal. They are emergent, higher-level properties: properties that result from physical processes but which cannot be described in physical terms alone. We can identify them only if we take a sufficiently non-reductionistic perspective on human beings, such as that of psychology or the human and social sciences. To be sure, taking that perspective involves no denial of fundamental physics; it just cannot be reduced to it.

To give an analogy: think of organisms, universities, or economic growth. If we look at the world solely through the lens of physics, such entities or properties will remain hidden from view. Biological and social features are absent from fundamental physical descriptions of the world. Yet it would not occur to us to deny their reality. From the fact that there are no universities in, say, particle physics, or that there is no economic growth in, say, chemistry, it doesn't follow that there are no universities or no economic growth at all. They are higher-level entities or properties: complex products of underlying physical processes but not reducible to them. What is true about those other higher-level entities or properties is equally true about agency, choice, and control. These, too, emerge from physical processes, but do not feature in fundamental physical descriptions of the world.

So far, I've suggested that some of the skeptical arguments against free will misfire because they take a perspective on human beings that is too reductionistic, seeing humans simply as bio-physical machines. But can one also say something positive in defence of agency, choice, and control?

Let's take a step back and ask how we usually determine whether something is or is not real. Why, for instance, do we think protons, electrons, and neutrons are real, while ghosts are not? The reason is that our best scientific theories support the existence of protons, electrons, and neutrons, while they don't support the existence of ghosts. A generally accepted method for establishing whether certain entities or properties are real is to consult our best scientific theories of the relevant domain. If postulating the entities or properties is indispensable from the perspective of those theories – that is, the theories couldn't explain their target phenomena without postulating those entities or properties – then this gives us good reasons to accept the entities or properties as real. If postulating them is not needed, then we have good reasons to doubt their existence. Postulating protons, electrons, and neutrons is indispensable for explaining many natural phenomena, and so they pass this “reality test”. Postulating ghosts is explanatorily useless, and so they fail the test. In philosophy, these ideas characterize the naturalistic approach to ontology defended by W. V. Quine and Arthur Fine, but they go back to William of Ockham.

It should be obvious that the present reality test can be applied not just to the physical sciences, but also to other domains. Organisms, universities, and economic growth, my earlier examples of higher-level entities or properties, easily pass the test. Biologists couldn't adequately explain the living world if they didn't recognize the existence of organisms, and social scientists couldn't explain social phenomena if they didn't recognize the existence of universities or economic growth. Of course, the test allows that new discoveries lead us to revise our views on what is or is not explanatorily needed. Our ontology is not dogmatically fixed but remains open for revision.

Now comes an important point: the test just described supports not only the reality of protons, electrons, and neutrons, or of organisms, universities, and economic growth, but also that of human agency, choice, and causal control. First consider intentional agency. Although the various human and social sciences – from anthropology and psychology to sociology and economics – differ widely in their methods, one feature they have in common is that they understand humans as intentional agents: beings with goals and beliefs and a capacity for perception and thought, who act in intentional ways. By understanding people like this, we can make sense of their behaviour and explain many social phenomena. Why do people show up for appointments? Why do they vote the way they do? Why do they respond to incentives? All these questions can be answered if we understand people as intentional agents. If, instead, we took a reductionistic view and saw people as mere conglomerates of interacting particles, we would fail to understand their behaviour, missing important behavioural patterns while getting lost in an overload of micro-level information. We would miss the forest for the trees. At most,

we might be able to explain some details of the neural functioning of the brain. But physics and neuroscience aren't remotely capable of explaining human behaviour in its breadth and flexibility. As Daniel Dennett has noted, we need to take an "intentional stance" towards humans, not a "physical stance", to make sense of their behaviour. Postulating intentional agency is explanatorily indispensable.

Next, let's turn to alternative possibilities. Once we explain people's behaviour by viewing them as agents, the idea that they make choices between different actions becomes indispensable too. When we answer questions such as "why does a particular person act in such-and-such a way?" or "what would he or she do in such-and-such a situation?", we suppose that the person is faced with some options, which are his or her possible choices, then deliberates about them, and eventually selects one option among the possible ones, in a way that makes some sense in light of the person's beliefs, goals, and preferences. This way of explaining behaviour would not get off the ground if we didn't suppose that people make choices. Even in economics, with its seemingly mechanistic picture of people as maximizers of utility, the notion of choice between different options is absolutely central. I call the idea that agents face choices among several possible options "agential indeterminism". Agential indeterminism does not mean that people's choices are random or arbitrary. After deliberation, they may well find some actions more rational than others.

However, even if you are persuaded that the idea of choice-making is indispensable in the human and social sciences, you might still worry that this idea conflicts with the notion that the physical universe is deterministic, a scenario that physicists have not yet ruled out (roughly speaking, classical physics implies determinism, while quantum physics can be interpreted one way or another). Recall that physical determinism means that the initial state of the universe was sufficient to pre-determine all subsequent events. Just as the precise date and time of the next solar eclipse in London is already fixed by the current configuration of the sun and other celestial bodies, so, the reasoning goes, all future human actions are fixed.

My response is that, surprisingly, indeterminism at the level of agency is compatible with determinism at the level of physics. The point is subtle and somewhat technical, but as I show in my book and in earlier work with Marcus Pivato, the distinction between determinism and indeterminism is a level-relative one. It is not meaningful to ask: is the world deterministic or indeterministic "as such"? The question becomes meaningful only once we specify the level of description relative to which we are asking it. A system can be deterministic at one level, such as the level of fundamental physics, and indeterministic at another, such as that of some special science, like biology, psychology, or sociology. When we move from a lower, microscopic level to a higher, macroscopic one, we may see a kind of phase transition from deterministic to indeterministic dynamics. A system's micro- and macro-level dynamics need not "mesh", as Jeremy Butterfield puts it. So, the agential indeterminism we find in the human and social sciences does not conflict with physical determinism.

Finally, consider the idea of causal control over our actions. The skeptics say that when we act, it is our brains that make us do it; we are not in control. But those skeptics seldom define precisely what they mean by "causation" and instead employ the notion in relatively vague terms. I argue in my book that if we are careful in defining the idea of causation, the skeptical conclusions can be avoided. In the special sciences – from biology and medicine to the social sciences – causes are usually defined as systematic difference-making factors for the resulting effects, which remain in place even when we control for possible confounders. In line with this, it can be argued that the most systematic difference-making causes of human actions are often found at the intentional, psychological level, not at the sub-intentional, physical one. For instance, the causal model that attributes my choice of coffee over tea

at breakfast to my preference for the former over the latter is likely to offer a better (more parsimonious, more robust) explanation of my behaviour than any rival causal model that searches for the cause at the level of neural firing patterns. Even in Libet's experiments of voluntary hand or finger movements, it is doubtful whether the neuronal readiness potentials in the brain qualify as difference-making causes of the subjects' actions. Subjects can still abort an initially intended action after the onset of the readiness potential. And in the case of more complex actions, involving deliberation and planning, it is implausible to search for causal regularities exclusively at the level of the physical brain. The intentional, mental level remains a site of causal relations. The bottom line is that, even if neuroscience has shed some light on the neural mechanisms that underpin human agency, the idea that people have some intentional control over their actions remains scientifically viable.

It's time to conclude. My case for free will rests on an indispensability argument. Its first premise is that the picture of human beings as choice-making agents is central to the human and social sciences; postulating intentional agency, alternative possibilities to choose from, and causal control over the resulting actions is explanatorily indispensable. My second premise is that if postulating certain entities or properties is explanatorily indispensable in a particular domain, then this gives us good reasons to accept those entities or properties as real. These two premises together imply that we have good reasons to accept agency, choice, and control as real. And since these are the core requirements for free will, we have good reasons to accept free will as real too. My argument is contingent on the nature of our best explanations in the human and social sciences. Should we ever arrive at a compelling reductionistic or deterministic theory of human behaviour – one that dispenses with the idea of humans as choice-making agents while still properly explaining their behaviour – then my first premise would no longer be true, and my conclusion would no longer follow. For the time being, however, I maintain that free will is no less real than other higher-level properties or entities, like organisms, universities, or economic growth, whose reality people seldom doubt.

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