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Determinism

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Synonyms

[Fatalism](#); [Pre-determinism](#)

Definition

Determinism is a metaphysical view on which every event or state of affairs results inevitably and necessarily from the chain of antecedent events unfolding under the laws of nature.

Introduction

In metaphysics, determinism holds that every state of the world is fixed by the chain of antecedent events that develop necessarily and inevitably in accordance with the laws of nature.

For example, we assume that today's weather was determined or fixed by a chain of events in the past that unfolded in accordance with universal laws. Determinism is often tacitly assumed in the behavioral and social sciences where the goal is typically to identify the principles that fix relevant phenomena in predictable ways. But whether determinism is true of this world remains

controversial for reasons that will be discussed below. Still, the general consensus is that some physical systems bear the mark of determinism and that raises a variety of concerns about free will, moral responsibility, and meaning.

Determinism

The observation that the world might be deterministic has concerned thinkers since antiquity, largely because it suggests that human thought – our beliefs, emotions, desires, and, most worryingly, our choices – is fixed by states of the world that are out of our control.

Since the eighteenth century, the attention to determinism has focused primarily on its implications for free will and moral responsibility. As scientific explanations of mental phenomena became increasingly accepted, the unavoidable implication was that human thought is bound by the same causal laws that fix the outcome of all natural events. If the past fixes the future state of all physical entities, then individuals cannot be the sole or ultimate originators of their choices, and so they are decidedly not free to select outcomes that circumvent the chain of events fixed by the past. Since we are reluctant to hold people morally responsible for things they cannot control, determinism threatens to undermine our conception of humans as morally responsible agents who are appropriate targets of praise, blame, and punishment. As such, determinism challenges our

justification for many of the accountability practices that make human social life possible.

The related worry is that determinism also poses an existential threat to the idea that our lives can be genuinely meaningful. If the outcomes of our life paths are a mere contingency, it may be difficult to perceive our existences as purposeful enterprises. As a result of these concerns, a vast body of contemporary philosophical research aims at exploring ways in which human free will and moral responsibility might nonetheless be compatible with determinism (for various attempts, see Frankfurt 1971; Dennett 1984; Fischer and Ravizza 1998).

It is important to draw a distinction here between determinism and fatalism. Fatalism is a widely discredited view that the universe has a predetermined outcome that will obtain no matter what choices we make. For example, in the story of Oedipus, the titular character is fated to kill his father and marry his mother *despite* his efforts to the contrary. Unlike fatalism, determinism entails that our decision-making processes are a crucial part of the causal nexus, not circumvented by it as fatalism would suggest. Nonetheless, they both share the view that the outcome of our choices is, in some sense, already fixed by previous states of affairs.

It is common to associate deterministic systems with predictability, since this is the basis of much scientific research and technology. For example, we are able to successfully land a rocket on the moon because the past reliably fixes the future in predictable ways that we can discover and exploit. The more information we have about the initial conditions of some past time, t , the better positioned we are to predict the future state of that system. The predictability of human choices, in particular, has been supported by a variety of empirical studies since the 1980s. These studies show that we can reliably predict the outcome of some simple human choices (such as which finger to move) up to several seconds before individuals become consciously aware of having the intention (Libet et al. 1983). However, these studies remain controversial, given the inherent difficulties in using self-reports of conscious willing. Nonetheless, the seeming

predictability of certain conscious choices in laboratory settings underscores the challenge that determinism poses to free will, since it suggests that the outcome of our choices could not be otherwise.

Importantly, however, not all deterministic systems are predictable. For example, some chaotic systems, such as the weather, cannot be perfectly predicted because their outcomes are extremely sensitive to small changes in the initial conditions such that nearly identical initial conditions can lead to very different outcomes. But the physical systems described by chaos theory are still properly deterministic in the sense that the outcome of any chaotic event is still *fixed* by the previous state of affairs unfolding under natural laws, regardless of whether those initial conditions can be sufficiently measured by us or not. So while predictability is often a mark of a deterministic system, it is not a necessary feature.

A more promising example of a genuinely indeterministic system is found at the subatomic realm described by quantum mechanics. One popular interpretation of quantum mechanics (the Copenhagen interpretation) suggests that the universe is fundamentally indeterministic at the atomic scale. On this view, the position of a subatomic particle can only be specified stochastically until it is measured. When these particles are measured, the resulting “collapse of the wave function” is thought to be genuinely random and thus not determined by any previous event. But there are competing interpretations of quantum mechanics, such as the Bohmian interpretation, that do not rely on this controversial notion of an uncaused collapse triggered by observers. The latter interpretation conceives the evolution of the wave function as perfectly deterministic. So whether determinism is true or not turns on highly contentious interpretative issues in contemporary quantum mechanics.

Even if indeterminism is true at the subatomic level, it remains unclear whether these indeterminacies manifest themselves at the scale of human psychology. Because of the sheer number of particles that make up the nervous system, the indeterminacies are largely washed out. In mass, the stochastic facts favor very reliable outcomes such

that, at the cellular level, neurons behave like the deterministic entities described by classical physics. So even if indeterminism is true at very small scales, it may well be that the brain operates like a deterministic system, and indeed neuroscience largely works under that tacit assumption. However, some recent empirical work has suggested that indeterminacies in the nervous system may indeed impact decision-making, perhaps as a way of introducing strategic randomness, as seen in the way a fly selects a random flight trajectory to avoid predators (Maye et al. 2007). But even if indeterminacies do manifest at the scale of human psychology, most agree that this fact will not save free will, since if our choices are ultimately random events, they are hardly paradigmatic of a freely made decision.

Whether determinism is true or not, there are some reasons to worry that it is psychologically damaging to believe it. For example, it is known that individuals with a more internal “locus of control” (the sense in which we see our actions as caused by internal versus external forces) do better on a wide variety of welfare indicators (e.g., achievement, self-control, happiness). Moreover, some recent studies suggest that deterministic worldviews may even undermine prosocial behavior, making individuals less helpful and more aggressive (Vohs and Schooler 2008; Baumeister et al. 2009). On the other hand, some thinkers have suggested that a deterministic view of human action can instead promote more compassionate responses to criminality and mental health and likely have already done so over the past century. Relatedly, the increase in tolerance of homosexuality may be attributed to a greater social understanding of genetic determinism. The more we come to understand the deterministic basis of human action, the more compassionate we become to seemingly aberrant behavior, and the less justification we have to implement retributive rather than preventative measures, where appropriate.

Conclusion

Determinism holds that all states of the world are fixed by the chain of preceding events that unfold inevitably in accordance with natural laws. Coupled with a naturalistic conception of the human mind, the view presents a philosophical challenge to the idea that humans are capable of the kind of freely willed action that renders them appropriate targets of praise, blame, and punishment. However, the truth of determinism remains highly contentious, as it turns on delicate interpretive issues in contemporary quantum mechanics. Nonetheless, at the scale of human neurons, the brain appears to operate largely as a deterministic system. As deterministic views of human behavior enter the mainstream, there is reason to worry about its psychological impact on individuals, though much work remains to be done to assess the extent and scope of the consequences for human motivation and pro-sociality.

Cross-References

- ▶ [Free Will](#)
- ▶ [Morality](#)
- ▶ [Personal Responsibility](#)
- ▶ [Responsibility](#)

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