Metaphysics // Fall 2016

Handout 18

Determinism, freedom: Earman

Determinism and causation. The vision of determinism is encapsulated in the James quotation: the past determines the future. Given a certain state of the universe at t the state of the universe at $t' > t$ is fully determined. But this is just a vision—it needs to be spelled out.

And once there is talk about past and future, you may think that a paraphrase can be found in the talk about causes and effects. Hence the proposal:

> The world is *deterministic* if and only if every event has a cause. (18-1)

From left to right this looks plausible. You cannot have a determination of the future state by the past state without causation. The past state itself can be taken to be the cause. But from right to left there is no immediate plausibility. It is perfectly possible for the same cause to have different possible effects.

Earman eventually concedes that the notion of cause can be reformulated so that determinism would follow (in the intuitive sense of Jamesian vision). But that does not do any useful work for understanding determinism, since the notion of cause so rephrased would not bring with it any benefits.

Laplacean determinism. One of the most famous formulations is due to Laplace. In a deterministic world, an infinitely powerful intelligence (the demon) endowed with the knowledge of the minutest features of the universe at t would be able to compute the state of the world at t'.

Some problems bear mentioning. (1) The formulation tells us nothing about the constituents of the world that make it deterministic. (2) It is unclear whether the successful computation is due to the world's determinism or to the demon's capacities. Once a godlike demon begins computing, you may think he will compute the future state no matter what. (3) We are not told how to distinguish between admissible and inadmissible computations 'in a single formula'. For instance, the demon may simply be lucky hitting upon the right result every time.

Popperian determinism. An obvious way to deal with some of the problems of the Laplacean determinism is to replace infinite intelligence with finite intelligence. Popper in particular insists on the finitely precise descriptions of the initial conditions achievable by a finite intelligence. But this creates a different problem. Small variations in initial conditions can result in large variations in the outcome. The world may still be James-deterministic (i.e. ontically deterministic, in some sense), but the predictions will fail.

Example 1. Suppose I drop a hundred olives from the plane and try to predict the precise locations of their fall. There is no reason to suspect, at least from the outset, that the system is non-deterministic. But if my description of the initial conditions is not fully precise, my predictions may well be *widely* off the mark.

Remark 2. The phenomenon we have just described is usually called 'chance', a notion that does not imply metaphysical determinism.

The threat of triviality. Another proposal is due to Russell. We give up on linking determinism to predictability. We are now supposed to consider states of the world at different times and then claim that any state of the world is functionally determined by those states.

Question 3. Russell's formulation relies on the concept of function. How?

But this proposal is threatened by triviality. For simplicity, we can imagine a world of one particle. Then its progress in space can be given as a function of time. Yet nothing in the example indicates that this world is deterministic.

The modal formula of determinism. A flaw in Russell's formula may be that it fails to take into account possibilities. We can functionally chart the progress of the particle, and so we can say that the particle had a unique actual path. But we fail to say whether the particle had a unique possible path. We can remedy this flaw by using the machinery of possible worlds. Consider the set of all physically possible worlds $\mathscr{W}$. Then:

> The world $W \in \mathscr{W}$ is *deterministic* if and only if for any $w \in \mathscr{W}$, if w and W agree at any time, then they agree at all times. (18-2)

Formal considerations suggest that agreement can be total or partial. Two worlds W and W' can agree on on all physical properties, or they can agree on just some. Thus you can have determinism with regard to some properties, but not to others. Yet is this a cogent option? Suppose we had a class of deterministic properties and a class of non-deterministic ones. Should we allow causal interactions between them? If we do, deterministic properties may lose their determinism. And you can prevent their *actual* interaction only by fiat. And if we do not allow their interactions, then those properties become suspect, being as they are beyond the purview of science.

WHEN I WAS JUST A LITTLE GIRL... Is the future inevitable? Is there an inescapable fate? Let us ask first whether individual events are inevitable. Thus:

> An event E is *naturalistically fated* if and only if it occurs in every physically possible world. (18-3)

That is, you can vary the state of the world as you please, but E will occur come what may.

Fatalism so understood does not entail determinism. The occurrence of E is compatible with the violation of (18-2). Indeed, if you take E to be a state of the world at t, then fatalism would entail a negation of determinism. Nor does determinism entail fatalism. The truth of (18-2) is compatible with there being no event occurring in every physically possible worlds (it is enough to consider one world with different initial conditions).

MORAL RESPONSIBILITY. It is a long tradition in philosophy to attempt to combine determinism with free will and imputation of responsibility. It is generally agreed that moral responsibility entails the existence of free will, as in Earman's claim (C2). Thus, if one negates free will, one negates responsibility.

Question 4. Does free will entail moral responsibility?

But what is free will? Well, we can understand it as the absence of coercion or compulsion, as in Earman's claim (C4). In this way we maintain that determinism is compatible with freedom. And yet, if every feature of human organism belongs in a deterministic system, freedom seems to disappear.

In general, suppose we allow mental states to be in some way determined by physical states. This is a doctrine of materialism, or 'parasitism', as in Earman's claim (P). Then in a fully deterministic system ostensibly free choices become an illusion. For *you* may believe, on reflection, that your actions are determined by your beliefs and deliberations. However, if all of these mental states are determined by (or worse, identified with) physical states, then this belief is an illusion.

Suppose we reject materialism, but continue affirming determinism. Then it is still possible for us to say that earlier physical states determine later physical states, and that mental states are simply impotent for producing any kind of action (i.e. a physical motion of an outward action).

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