

## What I Believe

1. Causation and the transfer of physically conserved quantities—momentum, energy, charge and the like—are inseparable: wherever you have the one, you have the other. Moreover, this is not just a local fact about the actual universe: there is no possible world in which causation and transfer of physically conserved quantities come apart. Doubtless, there is some sense in which it is consistently conceivable or coherently imaginable that there is causation without transfer of physically conserved quantities; but these consistent conceivings and coherent imaginings do not have real or genuine possibilities as their objects.
2. Causally related objects and events have entirely physical constitutions. Again, this is not just a local fact about the actual universe: there is no possible world in which there are causally related objects and events some of which do not have entirely physical constitutions. Of course, as before, there is *some* sense in which it is consistently conceivable or coherently imaginable that there are causally related objects and events some of which do not have entirely physical constitutions; but these consistent conceivings and coherent imaginings do not have real or genuine possibilities as their objects.
3. Where there is causal relationship, there is spatio-temporal relationship, or something very much like spatio-temporal relationship—a comprehensive network of external relationships that coincides with the network of causal relationships. Every object or event that enters into causal relationships is uniquely located in this co-extensive network of external relationships; thus, for example, where this network is spatio-temporal, every object or event has a unique spatio-temporal location. Yet again, this is not just a local fact about the actual universe: there is no possible world in which there are causally related objects and events some of which do not have unique locations in the appropriate co-extensive network of external relationships.
4. Our universe has an entirely physical constitution: our universe is constituted by a distribution of physical objects and physical events—and, though I shall omit further mention of them, physical states, physical properties, etc.—over a network of external relationships. Indeed, at least to a reasonably good approximation, our universe is constituted by a distribution of physical objects and physical events over a network of spatio-temporal relationships (a spatio-temporal manifold). Moreover, this, too, is not just a local fact about the actual universe: there is no possible world in which the constitution of that world’s universe is anything other than a distribution of physical objects and physical events over a network of external relationships.
5. Whether we should identify possible worlds with their associated physical universes depends entirely upon the view that we take about abstract objects. If we think, for example, that numbers are necessarily existent entities that are not causally related to objects and events in the physical universe, then we shall wish to allow that a possible world is the sum of two parts: a physical domain and a domain of abstract objects. On the other hand, if we are thorough-going nominalists, then we shall suppose that a possible

world is nothing more than a physical universe. For the purposes of the overall view being developed here, it makes no difference which of these options is adopted.

6. Given the views expressed in 1-4 above, it is clear that, if there is an all powerful, omniscient, omnipotent, and perfectly good being running our universe, then that being is a denizen of our universe and occupies a particular location within it. If we suppose that it is at least approximately true that our universe obeys the field equations of Einstein's General Theory of Relativity, then we shall also suppose that it is at least approximately true that our universe has a light-cone structure, and that it contains no signals that travel faster than the speed at which light travels in *vacuo*. But we can be quite sure that, if there are no signals that travel faster than the speed at which light travels in *vacuo*, then there is no being in our universe that is either omnipotent or omniscient. Moreover, for the same reason, it seems that we can be quite sure that there is no being who 'runs' the universe, however the notion of 'running' might here be understood.

7. That our universe has an entirely physical constitution does not decide the question whether it is deterministic. If we suppose that it is at least approximately true that our universe is a quantum-mechanical universe, then we have some *prima facie* reason to suppose that our world is not deterministic: we have some *prima facie* reason to suppose that it exhibits objectively chancy features. However, at least until we have developed a fully satisfying quantum theory of gravitation, we are not well-placed to decide whether our universe is deterministic.

8. That every possible universe has an entirely physical constitution entails that there is a sense in which the truth about our world *reduces to* the physical truth about our world: any world that is a physical duplicate of our world is an exact duplicate of our world. However, that it is true *in this sense* that the truth about our world reduces to the physical truth about our world does not rule it out that there are *other senses* in which the truth about our world does not reduce to the physical truth about our world. Given only that any physical duplicate of our world is an exact duplicate of our world, it does not follow that all truths about the world have finite translations into the language of physics, let alone that all truths about the world have finite translations into our current physical language. Given only that any physical duplicate of our world is an exact duplicate of our world, it does not follow that there are possible worlds in which there are creatures like us who have the capacity to give translations of all of the truths about that world in the language of their best physics. Thus, the claim, that any world that is a physical duplicate of our world is an exact duplicate of our world, is consistent with the autonomy of other disciplines—chemistry, biology, psychology, economics, etc.—both as a matter of practice and as a matter of theory.

9. That every possible universe has an entirely physical constitution entails that there could not be a duplicate of our world populated by zombies, i.e. populated by creatures identical to actual human beings except for the fact that they lack consciousness. Indeed, given that every possible universe has an entirely physical constitution, it follows that *all* mental states, including conscious states, have entirely physical constitutions. However, that all mental states have entirely physical constitution is not inconsistent with the claim

that mental states can have diverse physical constitutions: the claim that each of our conscious states has a complete physical constitution is consistent with the claim that there is a perfectly good sense in which animals, androids and aliens have similar conscious states.

10. There is nothing in the best current science of the mind—neuroscience, cognitive psychology, artificial intelligence, linguistics, social psychology, etc.—that conflicts with the claim that all mental states, including all conscious states, have entirely physical constitutions. Moreover, there is nothing in that best current science of the mind that conflicts with the claim that all *agents* have entirely physical constitutions. Indeed, the claim that every possible universe has an entirely physical constitution in no way disturbs either scientific or commonsense claims about human agency or human freedom. Of course, this is not to say that we already know everything that there is to know about human agency, human freedom, human consciousness, and the like: on the contrary, it is agreed on all sides that many of the relevant sciences are still in their infancy. But, as things stand, what we do know about human agency, human freedom, human consciousness and the like gives us no reason at all to deny that the universe has an entirely physical constitution.

11. Given 4 and 5, it follows that it is impossible for a universe to have a cause of its coming into existence. That it is impossible for universes to have such causes does not entail that, for example, that there is no cause of the initial singularity from which—at least according to the best general relativistic models—the local space-time in which we are embedded arose. I have been using the word ‘universe’ to refer to the sum of *all* causally related entities; hence, I have not been using the word ‘universe’ in the way in which it is standardly used in modern cosmology. (By contrast with accepted usage in modern cosmology, on my stipulative use of the word ‘universe’, there could not be many universes that have a common causal origin.)

12. It is not a defect in my view that it entails that it is impossible for universes to have a cause of their existence or of their coming into existence. In any consistent theory, explanation eventually terminates in brute facts, i.e. in facts that have no explanation. Moreover, in any consistent theory in which it is allowed that not all facts are necessary, explanation of contingent facts terminates in brute contingent facts, i.e. in contingent facts that have no explanation. There are only advantages in supposing that the existence—or the coming into existence—of the universe is the ultimate brute contingent fact.

13. Given 4, 11 and 12, it is clear that mind and purpose are not ground-level ingredients of the universe: the universe is not the product of intelligent design, and there is no underlying reason or purpose that is served by the existence of the universe. The denial that mind is a ground-level ingredient of the universe entails rejection of the claim that quantum mechanics is a true theory that postulates a key role for consciousness in ‘the collapse of the wave packet’. This seems to me to be a negligible cost: there are better interpretations of quantum mechanics; and, in any case, quantum mechanics will one day be eclipsed by a quantum theory of gravitation. The denial that the universe is the product

of intelligent design entails that some other explanation must be given of other cases in which it is alleged that the universe exhibits the appearance of intelligent design. While evolutionary theory handles alleged cases of the appearance of intelligent design in biology, this explanation does not happily extend to the case of fine-tuning of cosmological constants. In the case of fine-tuning, it is too early to say what is the correct account—but there are several promising approaches that are consistent with the claim that every possible universe has an entirely physical constitution. Of course, the denial that purpose is a ground-level ingredient of the universe does not require repudiation of talk of ‘function’, etc. in biology—cf. the observations in 8 concerning the autonomy of the disciplines.

14. Given that there is no underlying reason or purpose that is served by the existence of the universe, it follows that there is no underlying meaning to the existence of the universe. But, of course, it simply does not follow from the fact that there is no underlying meaning to the existence of the universe that the individual lives that people lead are meaningless, and that the sum of the lives that we collectively lead is meaningless. It is an evident truth that many people lead meaningful lives—lives filled with meaningful activities and meaningful relationships—and this is true no less of those who believe, as I do, that there is no underlying reason or purpose that is served by the existence of the universe, as it is of those who disagree with me on this matter.

15. That every universe has an entirely physical constitution gives us no reason to deny that there are values: moral values, aesthetic values, and the like. Following the line taken in 8, there is no reason to deny that the claim, that any world that is a physical duplicate of our world is an exact duplicate of our world, is consistent with the autonomy of familiar moral and aesthetic discourse, both as a matter of practice and as a matter of theory. Of course, there is considerable disagreement amongst philosophers about the nature of moral and aesthetic values, and about the proper location of these values in a world with an entirely physical constitution: but that disagreement does not provide a serious reason for thinking that there just is no place to be found for moral and aesthetic values in a universe with an entirely physical constitution.

16. For similar reasons, that every possible universe has an entirely physical constitution gives us no reason to deny that there are moral and political norms: moral and political obligations, moral and political rights, and the like. Again, following the line taken in 8, there is no reason to deny that the claim, that any world that is a physical duplicate of our world is an exact duplicate of our world, is consistent with the autonomy of a broad range of normative discourses, both as a matter of practice and of theory. Of course, there is considerable disagreement amongst philosophers about the nature of moral and political (and linguistic and rational) norms, and about the proper location of these norms in a world with an entirely physical constitution: but that disagreement does not provide a serious reason for thinking that there is no place to be found for moral and political (and linguistic and rational) norms in a universe with an entirely physical constitution.

17. Again, the supposition that every possible universe has an entirely physical constitution gives us no reason to suppose that there is no answer to the question of how

best to live; and nor does it give us reason to deny that there are comprehensive systems of views that one might reasonably take on as frameworks for the important judgments and decisions that one makes in the course of one's life. Moreover, the supposition that every possible universe has an entirely physical constitution gives us no reason to suppose that there is nothing to be learned from the ways in which other people in other times have answered the question of how best to live: tradition can be an important source of information and instruction even in universes that have entirely physical constitutions.

18. Some claim to find evidence for the existence of supernatural entities and the occurrence of supernatural events in experience, or traditional testimony, or scripture, or some combination of these. If we suppose that every possible world has an entirely physical constitution, then we are required to tell a different kind of story about this alleged evidence. While stories, beliefs, and conjectures about supernatural entities and supernatural events clearly have strong appeal for many people, it seems pretty clear that we can explain the appeal and persistence of these stories, beliefs and conjectures without supposing that there is a supernatural reality that answers to them. Of course, there is much detail to fill in for each of the many actual but mutually conflicting systems of claims about supernatural entities, supernatural events and supernatural powers: but none of us doubts that such detail is available in at least the *vast majority* of cases. Indeed, it is plainly a commonplace to observe that, for many of us, superstition just is *other* people's beliefs in the supernatural.

19. It is well-established that human rationality is highly fallible. We are—all of us—prone to patterns of reasoning and judgment that are not conducive to reaching the truth. Moreover, the history of speculative thought—and, in particular, the history of philosophy—makes it clear that we are eminently capable of constructing elaborate and systematic theories that are based on utterly false foundations. While there are many lessons that one might draw from reflections upon the fallibility of human rationality, the first point that I wish to make here is that, in spelling out the consequences of the assumption that every possible universe has an entirely physical constitution, I make no claims about the rationality of those who deny this claim. I say that it is *true* that every possible universe has an entirely physical constitution; I do not say that it is *irrational* to dispute or deny this claim. Moreover, of course, I do not claim that it is *certain* that every possible universe has an entirely physical constitution; and nor—perhaps—do I claim that I *know* that every possible universe has an entirely physical constitution (though I certainly *do* claim that my belief that every possible universe has an entirely physical constitution is both true and justified).

20. I close with a second point that might also be taken to be a consequence of serious reflection upon the fallibility of human rationality. Clearly, the thoughts that I have developed here depend upon assumptions that are highly controversial—and, in some cases, they depend upon assumptions that I have myself denied at other times and in other places. Consequently, I do not here pretend to be offering an *argument* on behalf of the views that I hold. Rather, I have offered the barest outlines of a view which I claim is capable of almost indefinite consistent refinement and development, and which I think is

capable of standing with *any* of the competing worldviews that have been offered by those who believe in supernatural entities.