

**KEITH WARD****Why God Must Exist<sup>1</sup>**

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There is one fundamental dogma in modern science which cannot be proved, but without which science cannot exist. It is the dogma that there is an explanation for everything. If anything exists for which there is no explanation, science is stumped. If rabbits, flies and top hats just started appearing in the universe for no reason at all, just coming into existence out of nowhere, physical science would virtually break down. One would never know just when a rabbit was going to appear in the laboratory, and ruin all one's carefully planned experiments. The irrational, the inexplicable, the totally random, puts an end to science.

This belief that nothing happens without some explanation, some reason or cause for its existence, has its roots in religion. Or rather, one of the roots of religious thought is just the same as this root of scientific thought. Science and religion are united at this very basic level. Isaac Newton remarked that his search for simple underlying laws of nature was prompted by the belief that a wise creator would have designed the universe to run on such simple principles. The reason events happen in intelligible, largely predictable ways, is that they act in accordance with general principles, laws of nature. The laws of nature look just as if they have been selected as the most simple and elegant principles of intelligible change by a wise creator. Belief in the intelligibility of nature strongly suggests the existence of a cosmic mind, who can construct nature in accordance with rational laws.

Thus appeal to the general intelligibility of nature, its structuring in accordance with mathematical principles which can be understood by the human mind, suggests the existence of a creative mind, a mind of vast wisdom and power. Science is not likely to get started if one thinks that the universe is just a chaos of arbitrary events, or if one thinks there are many competing gods, or perhaps a god who is not concerned with elegance or rational structure. If one believes those things, one will not expect to find general rational laws, and so one will probably not look for them. It is perhaps no accident that modern science really began with the clear realisation that the Christian God was a rational creator, not an arbitrary personal agent, who leaves many events to the whims of angels and demons, and interferes in unpredictable ways every now and then. The best breeding ground for science, in its modern sense, is the idea of one God who creates the universe on principles of wisdom and reason. This is exactly the Christian idea of God, a God who does not create through arbitrary

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or irrational acts of will, but who creates through the Logos, the Word, the principle of true reason or wisdom ('Christ is the wisdom of God', 1 Corinthians 1, 24). It was, however, not until the High Middle Ages that Christian theologians were knowledgeable and self-confident enough to begin to see the implications of this idea of God.

If one believes in such a creator, one will be able to proceed on the assumption that the mind may discover the basic structures of nature if it works on principles of true reason, seeking some rational explanation for the occurrence of every event. This is just what modern science does, and its studies have proved remarkably successful. The assumption of one rational and wise creator is in this way strongly confirmed by the success of science.

### **Creation Out of Nothing**

Explanations in science usually work by showing how complex and often seemingly chaotic processes are the result of the operation of general laws on simpler elements. Thus the transformation of water into steam is explained by the increased motion of the molecules which make up water, due to the application of heat. We explain a change from one state to another by referring to smaller constituents of matter, atoms and electrons, and the general laws of their interaction. In recent decades, we have seen how the structure of atoms can in turn be explained by reference to even smaller particles, quarks, and how general laws of interaction can be subsumed under four basic natural forces. Some physicists search for an ideal 'Theory of Everything', which would unify these basic forces under one general law of interaction, which might even explain how quarks arise in the primal energy-exchanges of the early universe. In quantum cosmology, quantum theory and relativity theory are both used to try to show how this universe might be generated by quantum fluctuations 'in a vacuum', where all electrons are in their ground state.

Some physicists speak of this as 'creation out of nothing', but this is a misleading expression in two main ways. First, the word 'creation' is misused by such writers, because they are talking about the origin of the universe, the first microseconds of its existence, not about the creation of the universe by the intentional action of God. It is true that Christians have usually used the term 'creation' to refer to the beginning of this space-time universe. But they have only used the word 'creation' to refer to a certain sort of origin, an origin which is due to the intentional act of a divine being. To 'create' is to make something exist, knowing what it is going to be, and intending to make it. The simple fact that the universe may have started with the Big Bang does not mean that it was created at all. It may have just started, or come into being in some other way. For Christians, it explains the origin of the universe well to say that it was created, but that has to be established.

When Christians, and most other believers in God too, talk about creation, they do not just mean that God started the universe going. They mean that the whole of space-time, from beginning to end, depends in every detail on the con-

scious and purposive act of God. One can believe the universe is created even if it never had a beginning, a first moment of time, and even if it will never have an end. As a matter of fact, most physicists think that our universe has both a beginning and an end. But that fact in itself does not make creation more or less likely. Augustine thought, long ago, that God might create other universes before and after this one, so time might never have begun. But all time would still be created, purposively made, by God.

It is also wrong to think that God might have started the universe going, and then left it to fend for itself. The universe could not exist even for a second without God, because on the hypothesis of creation the whole universe, from beginning to end, and everything in it, depends for existence on God. There is no creation, if there is not a God who intends created things to exist. And, for most believers in God, only God is uncreated. Everything else is brought into being by a conscious, intentional act of God.

The universe might, according to some cosmologists, just come into existence by chance, for no reason, or it might do so by some sort of inner necessity, because it has to do so. That would be an origin of the universe, but it would not be creation. Those cosmologists who say that the universe just comes into being out of nothing, without being intended by any God, vacillate between chance and necessity, as the origin of the universe. They often envisage a sort of fluctuation of energy, in accordance with basic quantum theory, which produces successively all sorts of configurations of space, time and fundamental forces. This fluctuating process just happens on its own, without direction or purpose, necessarily running through all the possible combinations allowed by the theory. Out of these fluctuations, sooner or later it is bound to happen, by chance, that a coherent universe like this one is generated. So this universe is generated by chance, not intentionally. But it will necessarily be generated sometime, as the quantum fluctuations run through all the possibilities open to them.

In this way, it might be said that the universe does not need a creator. It emerges by a combination of chance and necessity, 'out of nothing', blindly and without purpose. This, however, is the second misleading way of speaking about the origin of the universe. 'Nothing' is lack of everything, complete emptiness. But on this sort of quantum cosmological theory, this space-time emerges, not from complete emptiness, but from a very full and complex set of quantum fields, constantly fluctuating in regular and systematic ways – so that every possibility is realised in time. Where do the laws of nature which regulate the fluctuations of quantum fields, come from, and in what sense do they really exist, even when there are no material particles for them to order? Where does the primal energy come from, that acts in accordance with quantum laws? And what ensures that every possible state will sooner or later be actualised?

There is no intrinsic likelihood that every possible state will sooner or later be realised. In fact, there is absolutely no reason why the whole array of possible states should ever be realised at all. Just one or two states might repeatedly be realised, while all others remain forever unrealised. If all possibilities are to be realised, there needs to be some law which ensures that this will be so. But how

could one be sure that such a law would continue to exist, or that events would actually occur in accordance with it? It seems that all the questions are being begged, if all this is put down to pure chance. Proponents of such a view simply have not considered how radical a 'pure chance' explanation really is. It allows absolutely anything to happen, for no reason at all. So in fact it precludes all events being guaranteed to follow some law of successive realisation. For on the pure chance theory the laws themselves could change or cease to exist at any moment. Then, of course, no-one could be sure that every possibility would be realised in accordance with some general law. So the 'quantum fluctuation' view fails to justify the belief that this universe is bound to be realised sometime. We have to return to the hypothesis that it just does exist by chance, that is, for no reason at all, and without any possible explanation.

Such a hypothesis amounts to a rejection, at the last moment, of the quest for intelligibility which is the very foundation of science. It seems odd if science ends with the final rejection of its own most fundamental dogma. It might be said that these are the ultimate brute facts, the simplest possible set of consistent laws and energy states that could exist. Once we have got down to this simplest possible level, we can go no further. We have reached the bedrock of all possible explanation. When we try to explain a phenomenon, we try to do so in terms of simpler elements and more general laws. When we get down to ultimate simplicity, we can do no more. Explanation, it might be said, has to stop somewhere, and this is it. Many physicists are dissatisfied with such a disappointing result, and rightly so. If only, they think, there was some absolute explanation, something that explained its own existence as well as the existence of everything else. What would such a thing be like? It would not be just a contingent thing, something which happened to exist, but which could easily have not existed. That would need an explanation of why it exists. It would have to be something which has to exist, something to which there is no alternative. That is what philosophers have called a necessary or self-existent being, a being which exists by its own nature, is not dependent on anything else, and does not simply exist by chance. Some physicists think that perhaps there is a necessary being, which is some amazing mathematical equation. Mathematics, after all, is necessary, so it fulfils that requirement. And it might somehow inevitably give rise to the physical universe. Yet it is very hard to see how mathematical equations can exist just on their own, and even harder to see how they can give rise to a physical universe. This is where theism has the advantage. For theists, God is the one and only ultimately necessary being. If there are necessary mathematical equations, existing even before this universe comes into being, the obvious place for them to exist is in the mind of God, the supreme cosmic intellect. It is God who can select a world from all the available possibilities, and so God's creative choice can explain how a physical universe comes from a set of ideas, mathematical or otherwise, in the mind of God. For theists, God, the cosmic intelligence, is not just a contingent, accidental, reality. God is the one and only necessary being. God cannot fail to exist and be the general sort of being God is. That is the one huge difference between God and every created thing, and it enables God to be the finally satisfactory explanation of the existence of the universe in a way that nothing else could be.

Many quantum cosmologists thus agree with theists in postulating a necessary being, with a certain sort of ultimate simplicity, out of which this universe arises in a non-arbitrary way. The crucial question is whether the universe arises purposively, by knowledge and intention, or blindly, by chance. The common faith is that events have an intelligible structure, that the quest for explanation should be pushed as far as one can go. The ideal explanation, both agree, would be one which left nothing unexplained, not even itself. But if that cannot be achieved, analysis might at least get to a level of irreducible simplicity and generality, where no possible further explanation could be given. That is the final aim both of fundamental science and of fundamental theology. They are not so far apart after all.

### **The Choice Between Chance and Design**

It is a very remarkable and unexpected fact about the universe that all its ordered complexity results from a cumulative construction out of ultimately rather simple principles. What is remarkable is that there should be such a simple structure which gives rise, through a cumulative and ordered organisation, to a level of complexity rich enough to generate such things as consciousness and free action. It is not at all likely that simple structures should generate ordered complexity in this way. The fact that they do so strongly suggests intentional design, rather than blind chance. It could be due to chance, but it is much more likely if it is due to design by a powerful and wise intelligence. This can be shown fairly readily.

There is a virtually infinite number of possible universes, with many possible combinations of kinds of elementary particles, basic laws and values like Planck's constant and the gravitational constant. Most physicists think that virtually none of them would give rise to a coherent and continuously existing universe, and perhaps only this one could give rise to rational sentient life. It is hard to show that there is only one possible universe which could give rise to rational life. Nevertheless, the physical conditions necessary to produce life in this universe will occur in very few of the huge number of possible universes there are, and it could well be true that human life, life very like ours, could only exist in a universe whose basic parameters were as ours are.

If our universe is just one out of a virtually infinite number, then its existence is almost infinitely improbable. Of course, it is no more improbable than the existence of any other possible universe, however short-lived or abortive, so we cannot say it is more improbable than other universes. But it is still hugely improbable that it should exist at all. If, however, we suppose that there is a God who creates a universe in order that conscious life should come to exist, then it is much more likely that this universe will exist than most other possible, abortive, universes. Moreover, given the existence of this universe in its earliest stages, it is immensely more likely that conscious life will evolve in it than not. Indeed, if God wills to create sentient life through a process of ordered evolution, it is virtually certain, it has a probability very near to 1, that this universe, or one very like it, will exist.

Given the hypothesis of God, the existence of a universe like this is really quite likely, or not at all surprising. Given the existence of a universe like this, it is virtually certain that sentient life will come to exist in it. Thus, on the hypothesis of God, the existence of this universe is quite probable, whereas on the hypothesis of chance, its existence is almost infinitely improbable. Since we should always choose the hypothesis which raises the probability of the facts it is posited to explain, it is more reasonable to think that the universe results from intentional creation than that it originates by blind chance.

## **The Necessity of God**

The hypothesis of God is a good explanation for the universe, since it makes the existence of the universe much more probable than it would otherwise be. But of course that will only be a convincing argument if the existence of God is not itself very improbable. If God was just as improbable, or even more improbable, than the universe, it would be useless to appeal to God to explain the universe.

So is the existence of God very improbable? The answer must be 'yes', if one thinks of God as a very complex person, who just happens to exist, and who decides to create a universe as a result of some arbitrary whim. Such a God would be as improbable as the universe God is supposed to explain, and since his reasons for creating the universe would be inscrutable, they would not explain why the universe is the way it is at all. It follows that God should not be thought of as a very complex person.

What, however, is the alternative? In fact the classical Christian idea of God offers a very attractive alternative. It may seem rather abstract and difficult to understand, but it repays careful study, since it is a useful corrective to the popular (mis)understanding of God as an external interfering person. The classical Christian belief is that God exists by necessity, that is, with a probability of 1. What makes any actual being improbable is that there are many alternative possible beings. The existence of just one being out of millions of alternatives is very improbable, though no such being is more improbable than any other. What would eliminate the improbability is if there was a being to which there are no real alternatives at all, a being which cannot fail to exist. Such a being is beyond human comprehension – as surely one might expect God to be – but I think we can at least dimly grasp the idea of such a being. It is the idea of a cosmic intelligence which is omniscient, which always knows every possible state of affairs there could ever be. In fact, possible states only exist insofar as they exist in something actual, insofar as they are in the consciousness of God. If God was not thinking of them, they would not exist, even as possibilities. So if God did not exist, there would be no possibilities. Nothing ever would be possible, and if nothing was possible, obviously nothing would ever be actual. It looks as though, since many things are actual, God must exist. Furthermore, since these things must always have been possible, God must exist anyway, even if there is no actual universe. There is no alternative to the existence of God. That is how God can be a necessary being. God is the actual being in which all possibilities exist, the ground of all possibility, which cannot be thought away without destroying

every possibility of being. Perhaps I should just point out that this does not prove that God exists, as if by some conjuring trick of logic. It just says that we can get a vague idea of a necessary being by thinking of a being in which all possibilities exist, precisely as possibilities. If the idea of such a being is coherent, then we can see how an omniscient cosmic intelligence could be the necessary being which provides an absolute explanation for the universe. What we cannot prove is that the idea is coherent – some people would think that the idea of possibilities somehow existing is too odd. Nevertheless, from Plato onwards many philosophers have considered that ‘possible worlds’ exist in some sense. To do what St. Augustine did, and put them into the mind of God, seems plausible, and it seems to be a coherent idea. The point is that God is not just one more being who happens to exist, and who needs explaining just as much as the universe does. If God really is a necessary being, then God is self-explanatory, and the explanation is that, if we really understood what God was, we would see that God cannot fail to exist. God has to exist, if anything at all is possible.

We can now think of God as a being who conceives the idea of all possible states, as an omniscient mind. This mind is complex, in containing an uncountable number of ideas. But it is simple, in being one mind, containing an exhaustive and necessary set of ideas. God is being postulated as the cause of this universe. God selects from the total set of ideas a particular sub-set, and gives them actual existence. Why should God do this? There is one fully intelligible reason for choosing something to exist, and that is to choose something for the sake of its goodness, or value. Some possible states are of more value than others, and it is rational to choose possible states of more value and cause them to exist. The best explanation for the existence of the universe is that it is selected for the sake of its goodness from the total set of possible universes which exist in the mind of God.

Thus the simplest explanation of a complex contingent universe is that it is given existence by just one being which exists by necessity, and causes the universe to exist by choice from a necessary set of possibles. God is not a very improbable being who just happens, by chance, to exist. God is a being which, uniquely, exists by necessity. If one is able to have some grasp of this idea, one begins to see the sublimity of the Christian idea of creation, and the way in which the cosmos depends on the existence of a self-existent God.

### **Creating a Contingent Universe**

God’s existence is explained because it exists by necessity. The universe is explained as chosen for the sake of its goodness by God. Some philosophers have thought that there is one possible world which is the best of all possible worlds. So a rational God is bound to choose it. That is Leibniz’ hypothesis, and it is a good one. Except that there is not just one best possible world. There are many very different sorts of good things, which cannot be measured against one another on a common scale. Is a universe containing more Beethoven symphonies better or worse than a universe containing more Mozart sonatas, or more snowy mountains, or more football games? The question is unanswerable, because one

simply cannot compare these good things. So if there are many good possible worlds, which cannot be compared with one another on a common scale, there is bound to be an indeterminacy of choice.

What Leibniz failed to see is the true contingency of the universe. This universe does not have to exist. It is only one of many possible universes. Though it contains sorts of goodness that other universes do not contain, it also lacks many goods that other universes would contain. It is not the best possible universe, and unlike God, it does not have to exist. If one believes that there is a creator of a truly contingent universe, then the act of creating that universe must also be contingent, it must be a matter of free choice. If God creates this universe, God does something that God does not have to do. God could have acted otherwise, could have created a different universe, or not created any universe at all. That means that though God exists necessarily, God must have the power to act freely. This idea of God as having some necessary powers – existing, having the power to create, and knowing all possibilities, for example – and as having some contingent powers – the ability to create a contingent world, for example – is a perfectly coherent idea, but it did not occur to Leibniz.

The nearest parallel to this idea is in quantum physics. The fundamental particles of quantum physics have some necessary properties. They cannot just all disappear at once or turn into quite different sorts of particles at random. They necessarily obey the general laws of physics like the conservation of energy laws. Yet their behaviour is not necessary in all respects. According to most interpretations of quantum theory, there is an area of indeterminacy, within which the behaviour of particles is not completely determined by any laws or initial conditions. So fundamental particles are partly governed by necessity and partly contingent in their behaviour. This is only an analogy for a God who is necessary in existence and general character, but contingent in many particulars. But it may help to show that the idea of a God who is both necessary (in some respects) and free (in others) is an entirely coherent idea.

It is just the idea that is required for a free creator God. So we can say that God exists by necessity, necessarily conceives all possible worlds, and contingently selects one for the sake of its distinctive goodness. God is a being who unites the apparently contradictory powers of necessity and freedom. This is another very important sort of simplicity. The divine necessity defines unchangeably the nature of God and the possible worlds which God can create. The divine freedom selects an actual world by an act of sheer creativity. The insight Leibniz did not have is that creativity is a great intrinsic value, something worth actualising just for its own sake. Indeed, one might expect that if God is the creator of all, it would be obvious that creativity is a great good. As human beings are created in the image of God, and called to shape their lives in the likeness of God, one of the greatest values in human existence also will be the value of free creativity. That will have major implications for the sort of Universe a God who creates beings in the divine image will create.

If the universe is such as to generate freely creative beings, its principles of necessity (the laws of nature) must be non-deterministic. There must be room for



creative freedom to operate. That means that the laws of nature must not determine every outcome in a predictable and unchangeable way. And that means that, even before rational freedom comes to exist, many natural processes will have the appearance of randomness or indeterminacy. But this will not be total randomness, since it will be finely tuned to produce just that degree of indeterminism which will allow free actions to come to exist within a suitably developed physical structure.

Does that mean the exercise of such free and creative powers cannot be explained, either in humans or in God? They cannot be explained in terms of determining or necessary causes, by definition. But they can be explained by final or axiological causes, that is, in terms of their goals or purposes. God acts for the sake of goodness. One intrinsic good is creativity, the sheer creation of the new. Creative action is a good, and it excludes determining causality. God is therefore the freely creative cause of the universe, not a being who has to create exactly this universe out of necessity.

The quest for explanation is, in principle, at an end. In principle, but not in fact, for humans will never, on earth, have the intimate understanding of God which would actually enable them to explain why everything is as it is. But they can understand enough to know that there is such an explanation. God knows what it is, and we know that God knows. That makes a tremendous difference, for it means that nothing in the universe is arbitrary, that the whole cosmos is intelligible, a work of divine wisdom. But it also prevents us from claiming that we can actually provide the final explanation for everything. Only the Holy Spirit can search the mysteries of the divine mind.

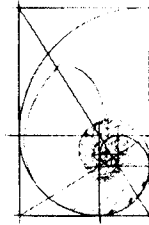
We can say, though, that the universe is best explained as generated by a wise and powerful God for the sake of the distinctive sorts of goodness it alone can realise. God is explained as a being which exists by necessity, as necessarily all-knowing and capable of creative action, and who acts freely and creatively to bring about some universe of finite creatures because such action is itself a great good. On such a hypothesis, the probability of the existence of God is as high as it could possibly be. That is, since it is not possible for God not to exist, the divine existence is certain. The probability that a universe producing sentient beings will exist, if any universe at all exists, is extremely high. So the hypothesis of theism must be given a very high probability, as long as it is coherent.

The Christian will not base faith on such a highly speculative argument, but on the living presence of Christ as the manifestation of God. Yet it is an important fact that belief in the existence of God is not a mere fideistic leap in the dark. From the standpoint of modern science, it seems to be deeply reasonable. If that is so, it will be important to take seriously Christian claims that God has revealed the divine nature and purpose in Jesus Christ. For they will not fly in the face of science; on the contrary, they may disclose the ultimate meaning of the universe which the sciences seek to understand.

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