

Snappy Answers to Rather Profound Questions 2: Philosophy & Theology

This topic provides plenty of opportunity to explore the profound questions relating to existence and our place in the universe. Such discussions should be encouraged, without promoting any specific set of beliefs. The topic of creation is often covered in RE and Philosophy so students studying these subjects will naturally wish to explore the interconnections. This resource contains some considered replies to typical questions that can arise. Hopefully, they provide sufficient material for teachers to consider their own responses and personal views.

1. Did God create the universe in the Big Bang?

The word creation can mean many different things. When scientists and theologians have discussions, they can disagree because they are using the same words in different ways (this is can be a common problem in life!).

A cosmologist speaking about creation is often referring to some trigger for the Big Bang, or the 'moment' at which the universe started (which is a tricky concept in itself). To a Christian theologian, God's creation of the universe relates to His continual support, without which it would cease to exist. The notion that God's creative activity is continually sustaining and working within the universe has been promoted by scientist/theologians such as Arthur Peacocke.

The belief that God acted simply to trigger the Big Bang, and then left the universe to get on with its own independent existence is related to Deism. Such a theological view was popular in Newton's time, but leads to problems. For example, a Deistic God that simply lights the universe's blue touch paper (so to speak), and then does not interact or sustain it in any further manner, starts to fade into a God that in day-to-day terms may as well not exist.

Some scientists propose that the Big Bang invalidates a belief in God. This is certainly not the case in practice, as many scientists working in cosmology are religious believers. The Big Bang is a self-contained explanatory framework that does not need to reference God as a causal factor. In that sense it is religiously neutral. The physics of the actual origin 'moment' is obscure at present, but it would be theologically unsound to ascribe this to God's action: this would be a 'God of the gaps' approach.

2. Is God the cause of the universe?

Much of the approach in science is founded on the basic notion of cause and effect: for something to happen, some prior cause must have taken place. In many branches of science, this is a truism that is amply borne out. However, in physics we have learned that sub-atomic (quantum) processes do not always have a cause.

A radioactive atom decays at a specific moment without any antecedent physical change or cause. The study of complex systems interacting with the environment has also shown that surprising and 'unpredictable' outcomes can arise from what appear to be simple causes. The philosophical view of cause and effect needs to adapt to take account of these scientific insights.

The notion of a 'cause' for the universe has scientific problems as well as theological ones. All the causes that we know and understand take place within the already existing universe. If nothing else, they have time 'going on' in which to happen. Any cause for the universe must happen outside of time, as time was created with space and matter. Some scientists have speculated that the universe is like a radioactive atom, in that it does not need a material cause to come into existence. To the theologian, the idea that God caused the universe to come into being and then left it to get on with things has problems. Such a notion of God would be supplanted if the causeless scientific thinking turned out to be right!

Physicist Stephen Hawking proposed a speculative model of the Big Bang in which there was no well-defined moment of creation. He went on to suggest that without such a beginning moment, there was nothing left for God to do. Actually, his model encourages believers to the view that God's sustaining creation is acting at all times, not specifically at the start of the Big Bang. If there is no way to single out a moment of creation, then there is no 'button' for God to push at that moment: each moment is as good as any other. Hence God's creative action must be acting at all moments.

Another way of looking at it is to compare the creation to a game of chess. Saying that God acted at the 'moment' of creation is a bit like saying that God moved the first pawn in a game of chess and then left the rest of the moves to the players involved. What would be the point of that? A more credible theological view would be that God sustains the board and the rules by which we play.

3. If God caused the universe, what caused God?

This relates to (2) in that the notion of cause as we understand it is embedded within the universe and its scientific description. It may be philosophically possible to extend the idea of cause outside of this natural domain, but it must be done carefully. Many theologians suggest that God is a 'cause' of a very different type to the causes found within the universe. God is a necessarily existing cause, whereas the other causes within the universe are contingent. However, to an atheistic scientist, this sounds like hedging: God is not doing anything that has not been accounted for by science already. The theologian does not have a problem with that: God created and maintains the laws of nature by which material causes act. That in itself has to be a very different process and possibly not amenable to science. However, if God is not to be reduced to a Deistic cipher, then the laws of nature must be subtle enough to allow for God to act in the world. Scientist/theologian John Polkinghorne has suggested that this is very similar to the need for a flexible enough understanding of natural law to accommodate our own action in the world.

4. How does the Big Bang relate to the Genesis account?

Firstly it is important to realise that there is no single Genesis account. The book of Genesis contains two separate creation stories melded together in the first few chapters. As a result, there are inconsistencies as the accounts make different theological and mythic points. The unevenness of the editing suggests that the book was never intended to be a scientific description, still less a diary of what God did during his creative days. Genesis is a poetic story of the relationship between God and the created order and especially the relationship between God and humanity. Some of the material in Genesis can be seen as a correction to Babylonian beliefs that the Sun, Moon and stars were divine creatures. Consequently, it would be simplistic to say that the Big Bang contradicts Genesis. This would be rather like saying that the Toy Story movies have no value as we can scientifically establish that toys do not talk...

5. How does the Big Bang relate to other creation accounts in different religions?

This can only be tackled by discussing each different account separately and approaching them in a similar way to the Genesis account in (4). The science of cosmology is well established, but still speculative, when it comes to the very early universe and its 'creation'. At the moment, the scientific evidence strongly favours the Big Bang with a universe that will extend into the future with no end. There are more speculative models involving cutting edge hypotheses about the nature of gravity, some of which allow for a cyclic universe (expand, collapse and re-expand again), but there is no evidence for this in the data and the theories are not well established as yet.

6. Can you understand the science of the Big Bang and still believe in God?

The simple answer is yes, as many scientists, including some who work in cosmology, do believe in God. Indeed, their understanding of the beautiful physics at work in creation is in many cases seen as a reflection of the underlying nature of God. A more nuanced answer might suggest that religion and science are complementary ways of studying the world. While science does not directly reference theology¹, theology needs to absorb scientific discovery in the light of a wider understanding of the nature of God.

7. So, what's all this about parallel universes?

Often there are two separate physical ideas getting mixed up when people talk about parallel universes.

One interpretation of quantum theory suggests that whenever a quantum event happens, the universe 'splits' so that in one 'parallel universe' one possible outcome happens, while in another the alternative is played out. Of course, as there are a vast number of quantum events happening all the time, this means that there are multiple branching universes spawning off each other.

This rather strange-sounding interpretation of quantum theory is popular among cosmologists who wish to apply quantum theory to the whole universe. However, from an experimental point of view it is difficult to see what to make of such an idea. Philosophically, it is also hard to evaluate. The quantum world has many mysteries, physical and philosophical, but perhaps introducing infinitely branching universes that are inaccessible from ours is to add rather more ontological burden than it dissolves.

Another multiple universe theory has grown up out of the idea of *cosmological inflation*. Many cosmologists believe that early in the history of the universe (specifically about 10^{-30} seconds after the Big Bang) the universe underwent a period of rapid expansion called inflation. This theory conveniently explains some otherwise puzzling features about the universe. However, the price is that the universe would be many orders of magnitude bigger than we previously thought. Also, the physics leading to inflation can be seen as slightly contrived, requiring a very specific sort of field to exist without any obvious natural justification. If inflation turns out to be correct, and there is some encouraging observational evidence, it is possible that different regions of the early universe could have inflated at different times and ended up with slightly different laws of physics. This is not so much producing parallel universes as many different domains within the same universe.

8. What's a 'multiverse'?

This is the rather over-the-top name given to the hypothetical collection of different universes. Mostly it is used to refer to the various inflated regions of this universe. The idea has become popular in some circles as an answer to the issues raised by the so-called Anthropic coincidences in the universe. This is the notion that the universe seems remarkably well attuned for life to evolve. One answer is clearly that the universe was so created; another is that there is a multiverse of different possibilities and we happen to occupy the universe that is conducive to life.

¹ We are entitled to demand that scientific theory must be consonant with personal experience, to a degree. Our personal convictions of free agency and creative action in the world must surely provide a constraint on the nature of acceptable explanation. A rigid causality that reduces our intentions to chemical processes is not consistent with our daily experience. Indeed, such a view must surely 'cut off the philosophical branch on which it is sitting'. How would you set about convincing me that my intentions are simply chemical, if they are simply chemical and hence not subject to persuasion?