

Essay

God, Spacetime & Quantum Entanglement

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Abstract

Rather than calling God a supernatural being, it is better to acknowledge that God is also a part and parcel of this vast universe, and that he is not an entity outside of this universe, which is why natural science has a scientific explanation for his properties. Since God exists, space and time must be relative because God is omnipresent - Science has also shown that this is indeed the case. Further, the picture that emerges from all the experiments on quantum entanglement is that there is no such thing as space-time in the deeper layer of the universe. As long as two quantum particles remain entangled, no matter how distant they are from each other, the distance between them will still be zero. That is because an observation made on one particle will immediately affect the other.

Keywords: God, omnipresent, timeless, spaceless, spacetime, quantum entanglement.

1. Natural-Supernatural

Thanks to scientists we now know that massless particles have some strange properties. Time stops completely in the case of massless particles, and massless particles do not have to travel any distance at all, as all distances in their case shrink to zero. For example, for massless particles the distance from one end of the universe to its other end is zero. So massless particles can be present at both ends of the universe at the same time. What are these properties of massless particles to be called? Are they to be called natural characteristics, or supernatural characteristics? If these are called natural features, a problem of some sorts will arise; again, if these are called supernatural properties, then another kind of problem will arise.

We all know that God is said to be timeless; it is also said about him that he can be present at both ends of the universe at the same time due to his omnipresence. God is also said to be a supernatural being. So it turns out that it has been said about a supernatural entity called God that it has just the same properties as those of massless particles. If God exists (here I am not saying that God exists, I am saying if God exists), and if we call these properties of massless particles natural properties, then the question that will naturally arise will be: how can a supernatural being have any natural properties? Supernatural beings are supposed to have supernatural characteristics only, how can supernatural beings have natural characteristics? Again, if we call these properties of massless particles supernatural properties, then this time the question will be: as science is supposed to deal with the natural world only, then how is it that science has also begun to deal with the supernatural as well?

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How can this problem be solved? It can be solved in this way: if God exists, then rather than calling him a supernatural being, it is better to acknowledge that God is also a part and parcel of this vast universe, and that he is not an entity outside of this universe, which is why natural science has a scientific explanation for his properties.

2. A new argument for the relativistic spacetime

If there is a God, and if that God is omnipresent, then God being omnipresent will be present at each point of the universe at the same time. Let's assume for the sake of argument that the universe is infinite, so the distance from one end of the universe to its other end will also be infinite. But for God, this infinite distance will not remain an infinite distance, it will amount to zero distance, since God will be present at both ends of the universe at the same time. But to us human beings, this infinite distance will remain an infinite distance. So the question that will arise here is this: can the distance which is infinite for one being, be reduced to zero for another being?

Again it takes an eternity to travel an infinite distance, which is true for us, but not true for God. The truth about God is that God would require no time, because that infinite distance will be zero for God. So here the pertinent question will be: can the amount of time that is an eternity for one being, be reduced to zero for another being? If Newton's theory were the last word of science, then scientists would answer both the above questions in the negative, because in Newton's theory both space and time are absolute. But science did not stop with Newton alone; Einstein came and changed the whole picture. In his theory, space and time are relative. Special theory of relativity has shown what is an infinite distance to us, becomes zero distance for massless particles; again, what is an eternity for us, becomes zero time for those particles.

Therefore, if God exists, then space and time must be relative because God is omnipresent. And science has also shown that this is indeed the case.

Here, one question may arise as to why only massless particles have these strange properties, and why not any other particle? This question can also be answered. Many years ago, in another of my writings (*Who created God?*), I have shown that if God is there, then that God will have zero mass, because the total energy of the universe is zero. God is massless, so it is quite natural and expected that only massless particles would manifest God's attributes.

3. Quantum entanglement

Almost all physicists who work on quantum gravity state that space-time is emergent, not fundamental. If space-time is emergent, what does it mean? Since space-time could not exist before the emergence of space-time, the emergence of space-time means that there is another layer in the universe below the layer of space-time where there is no space-time, and from which layer space-time has emerged. If two points are in the layer of the universe where space-time is real, there will be some distance between those two points. That distance can be one light-year,

that distance can be 1 billion light-years, and again be 93 billion light-years if the two points are at the two ends of the universe. But in the layer of the universe where there is no space-time, the distance between those two points will be zero in all three cases because there is no space-time at that layer. When two quantum particles are entangled, if their position after entanglement is in a layer of the universe where there is no space-time, no matter how far the two particles are from each other, the distance between them will always be zero. In this situation, why should we be surprised if an observation made on one entangled particle will affect the other particle instantaneously?

However, we can draw two conclusions from the claim that space-time is emergent. I have drawn one so far, but not the other one. The conclusion is that if space-time is emergent, then space-time was also emergent at the time of the beginning/birth of the universe. Scientists cannot say that space-time was fundamental at that time and that space-time has somehow become emergent at some point later. If scientists admit that space-time was emergent at the beginning/birth of the universe, they must say that the layer from which space-time emerged was also present before the beginning/birth of the universe. Otherwise, where did space and time come from when the universe was born? And if scientists can't admit that, then let them stop saying that space-time is emergent; they should say that space-time is fundamental.

Now, we can come to what Einstein stated about his theory of general relativity: if we solve the equations of GR without energy and matter, then flat space-time would obtain, and special relativity would govern that flat space-time. So, according to him, this world was eternal, but there was a time when there was no energy and matter, and then the world was flat. I have used the word world here but not the word universe. However, Einstein forgot to mention one thing here. His GR had shown that space-time could not exist without matter. That is, what Einstein said about his theory of general relativity can be expressed as follows: before the appearance of energy and matter, that is, before the beginning/birth of the universe, there was always a world, that world was flat, and in that flat world there was no space, no time, no energy, and no matter. I would request the readers to consider whether they can find any similarity between the conclusion drawn from what Einstein said about GR and the one drawn from the statement that space-time is emergent.

Now, we can talk about quantum entanglement. The picture that emerges from all the experiments on quantum entanglement is this: there is no such thing as space-time in one layer of the universe. As long as two quantum particles remain entangled, no matter how distant they are from each other, the distance between them will still be zero. That is because an observation made on one particle will immediately affect the other.

Now, if we put these three together and come to the conclusion that there is no such thing as space-time in one layer of the universe and that this layer where there is no space-time was present before the beginning/birth of the universe, is still present, and will be present in the future as well, then will it be very absurd? And if there is such a layer in the universe where distance and time have no meaning at all, then it is natural that phenomena like quantum entanglement should be a common occurrence there. So, there is no reason for us to be surprised by the phenomenon of quantum entanglement, and there is no reason for scientists to worry about being unable to explain that phenomenon. So, what is the use of all those sayings that there

is spooky action at a distance, or that quantum entanglement violates special relativity, or that the wave function exists in reality when we can provide a simple explanation of it based merely on the fact that space-time is emergent?

All we need now is a scientist who, with great courage and despite all the cynicism of all the scientists on earth, can forcefully demand that we should draw the conclusion that emergent space-time is forcing us to and admit that a non-spatiotemporal layer predates the beginning/birth of the universe from which space-time emerged at the time of the beginning/birth of the universe, and which layer still exists, as evidenced by all the experiments on quantum entanglement.