

**Chat Room Replies from December 16<sup>th</sup> ITEST Webinar,  
Bridging the Chasm: Quantum Mechanics and Christian Spirituality**

Dr. Lagerlund's responses are included below in [blue](#).

To learn more, consider purchasing the soon-to-be-published book,  
***Brain, Soul, Artificial Intelligence, and Quantum Mystery: The Neurophysics of Consciousness, Free Will, Reasoning, and Synergistic Brain-Soul Interaction***  
by Terrence D. Lagerlund, MD, PhD

Dr. Sebastian Mahfood, OP:

Dr. Kurland's book may be found at <https://enroutebooksandmedia.com/mysteries/>

**Dr. Lagerlund:**

I apologize that I have been away for a couple of weeks, but I have at last had time to review the webinar chat room comments and questions and will belatedly answer some of the excellent questions that were submitted to the best of my ability. Clearly some of my ideas are controversial but I will attempt to explain my reasoning.

Mattheus:

What about the position of Von Neumann that the quantum 'measurement problem' is just the expression of our free will?

**Dr. Lagerlund:**

I think that the 'measurement problem' can be expressed as "how/why does performing a measurement collapse the state vector of a quantum system, while other interactions with a quantum system do not?" Human free will is certainly involved in deciding to make a measurement and deciding what to measure and how to measure it. Thus, for example, human free will can determine if a system manifests particle-like or wave-like behavior depending on how the experiment is carried out. But this doesn't explain how something that a *human* does to a quantum system is fundamentally different (in terms of the basic principles of quantum mechanics) from, as an example, something a gamma ray photon does to a quantum system. So, I would tend to disagree with the idea that the measurement problem is 'just' the expression of our free will.

Mattheus:

Wouldn't claiming that there is no free will be philosophically meaningless?

Dr. Robert Kurland:

Replying to "Wouldn't claiming that..."

that's true...but there are still many philosophers who maintain there is no free will.

Mattheus:

I only see the first slide of the presentation, is that only me?

Mattheus:

I think a lot of confusion about quantum mechanics would be removed if one realizes that point particles do not exist as detectors always are of finite size.

**Dr. Lagerlund:**

A point particle is an idealization which is valid for most purposes but presumably breaks down at the scale of the Plank length. In any event the size of detectors doesn't seem directly relevant to quantum measurements (for example, the detectors at CERN and other such laboratories are HUGE), but their finite spatial resolution may become relevant at the very high energy (short wavelength) limit.

Mattheus:

How can one claim that state vectors only represent possibilities when they're the things that cause actual interference?

Dr. Lagerlund:

A state vector does indeed lead to real interference effects in the mathematics of state vector evolution. I was merely pointing out that, mathematically, a state vector is represented as a sum (linear superposition) of all the eigenstates of a particular observable (such as position); each of these eigenstates is associated with a *possible* value of that observable. Thus, in the case of position states, the linear superposition is, loosely speaking, a sum over all possible positions of the particle, each represented as a particular "position eigenvector" multiplied by a complex number coefficient representing the relative contribution of *that* particular position to the overall state vector. Using the Born rule, one can calculate from this coefficient the probability of finding the particle in that *particular* position out of all possible positions. The sum of the probabilities of all possible positions must add up to 1 (certainty) since the set of position eigenvectors is *complete* (it includes all possibilities). So, in general a state vector represents a superposition of an infinite number of different *possible* positions (which are, of course, mutually exclusive) whose probabilities all add up to 1. When the state vector collapses, one particular eigenstate (corresponding, for example, to one particular position) is chosen at random and all other possibilities disappear.

Mattheus:

All the 'arguments' against the conscious-causes-collapse interpretation can easily be refuted. Moreover, John von Neumann himself was an advocate of this.

Dr. Lagerlund:

Perhaps one can refute the arguments by assuming everything somehow gets observed by *someone who is conscious*, but I find it hard to believe that all instances of state vector collapse (which can be thought of as quantum-to-classical transitions) in the vast universe require a conscious physical observer to bring about the collapse. As Roger Penrose and others have carefully explained, decoherence cannot theoretically lead to state vector collapse because decoherence proceeds via the U process, which (being unitary) cannot cause any part of the state vector to disappear as needed for state vector collapse. The von Neumann hypothesis has led to some odd ideas such as Wheeler's idea of the Participatory Universe, or "It from bit" (the idea that the entire physical world owes its existence to posing questions and registering the responses). See Dr. Robert Kurland's critique of this idea at this website: [here](#) . Like Dr. Kurland, I also personally prefer the "God hypothesis."

Mattheus:

Moreover, all other interpretations don't make sense at all in my opinion...

Mattheus:

I think it is very bad practice to introduce God into quantum mechanics in this way.

Mattheus:

Wouldn't it mean that his creation is imperfect since He needs to interfere all the time?

Mattheus:

God could easily influence creation via classical chaos and initial conditions, He is outside of time anyhow.

Dr. Lagerlund:

I think that perhaps you are rejecting the idea of God causing state vector collapse and choosing the outcome because it seems to be a form of "God of the gaps". Most examples of "God of the gaps" start with some *particular* phenomenon or class of phenomena that current scientific theory cannot explain, so some people give up on a scientific explanation and say "Well, God could have done it". Usually this seems to involve some sort of miraculous explanation. I think that the idea I am promoting is subtly different, since modern physics (quantum

mechanics) seems to be *fundamentally* indeterminate or probabilistic at its core. (See the excellent talk by Stephen Barr about how probabilities necessarily appear when radiation, like light, gets quantized, i.e., are given a particle aspect: Barr, Stephen M. 2018. [The Role of the Observer in Quantum Mechanics – The Society of Catholic Scientists](#) ). As long as fundamental physical theory remains probabilistic (and for some 100 years now no experiment or theory has removed that indeterminacy without introducing unacceptable non-local or faster-than-light-speed phenomena), it is necessary to look for a *complete* causal explanation of physical phenomena (at least in quantum systems) *outside* of physics. If one only believes in the physical world, there can be *no* causal explanation outside of physics, but if one believes in God, then He can exert a causative effect on physical systems (what Smith calls “vertical causation”). That is, God can be the cause of the seemingly “uncaused” process of state vector collapse and the cause of one particular outcome being chosen out of all potential outcomes. The reason I like this theory is that it also provides a way to restore the Judeo-Christian belief in God’s providential guidance of all creation, a belief that was largely lost among scientists when classical physics was developed due to the principle of causal closure of the universe. Thus, combining belief in God’s providential direction of events (which, to my thinking, is an essential Judeo-Christian belief based on Scripture) with quantum uncertainty and probabilities can simultaneously explain how God acts in the physical world and restore the *full* causal explanation of all physical processes that Einstein longed for. Quantum indeterminacy is replaced by ultimate *determinacy* that comes from God’s decrees (but see below for more about how human free will fits in). C. S. Lewis, expressing traditional Judeo-Christian beliefs about providence, wrote:

“Unless we are to abandon the conception of providence altogether, and with it the belief in efficacious prayer, it follows that all events are equally providential. If God directs the course of events at all then he directs the movement of every atom at every moment; ‘not one sparrow falls to the ground’ without that direction. The ‘naturalness’ of natural events does not consist in being somehow outside God’s providence. It consists in their being interlocked with one another inside a common space-time in accordance with the fixed pattern of the ‘laws.’” (Lewis, “Miracles”, p. 174). He gives the example of the evacuation of British and other Allied forces during the Battle of Dunkirk being facilitated by the weather conditions and says: “The weather we actually had is therefore in the strictest sense providential; it was decreed, and decreed for a purpose... Thus, God must be supposed in pre-determining the weather at Dunkirk to have taken fully into account the effect it would have not only on the destiny of two nations but (what is incomparably more important) on all the individuals involved on both sides, on all animals, vegetables, and minerals within range, and finally on every atom in the universe. This may sound excessive, but in reality, we are attributing to the Omniscient only an infinitely superior degree of the same kind of skill which a mere human novelist exercises daily in constructing his plot.” (C. S. Lewis, “Miracles”, p. 175).

C. S. Lewis himself thought that God could determine all the initial conditions of the universe and thereby bring about his providential plan. However, I personally have some difficulty imagining that setting initial conditions *alone* could have produced *exactly* the desired course of future events for all time without further choices of events being made along the entire course of time (especially since after humans came to be, God needed to consider human free choices). Since quantum mechanics provides an opening for God to work through quantum indeterminacy without *violating* the laws of physics, I find *that* hypothesis to be the most attractive explanation of how God providentially governs the universe throughout all time.

Mattheus:

On the other hand, we do need quantum indeterminacy to express our free will via the quantum zeno effect.

Dr. Lagerlund:

The idea of *God* working through quantum indeterminacy to freely choose and enact his providential plan in the physical universe throughout time is essentially similar to other people’s ideas about *human free will* working

through quantum indeterminacy. Regarding human free will and quantum indeterminacy, Physicist Stephen Barr wrote that:

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*The great mathematician and physicist Hermann Weyl described our situation well in a lecture delivered at Yale University in 1931:*

*'We may say that there exists a world, causally closed and determined by precise laws, but...the new insight which modern [quantum] physics affords...opens several ways of reconciling personal freedom with [the laws of physics] .... We must await the further development of science, perhaps for centuries, perhaps for thousands of years, before we can design a true and detailed picture of the interwoven texture of Matter, Life, and Soul. But the old classical determinism of Hobbes and Laplace need not oppress us longer.'*

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Mike Oslance:

1. The dismissal of the multiverse concept seems arbitrary. Is the doctrine of heaven also to be dismissed because it is merely speculative?

Mattheus:

Some years ago, there was an interesting paper exactly discussing the possibility of the quantum zeno effect in our brain, called Quantum Cognition: The possibility of processing with nuclear spins in the brain by Matthew P. A. Fisher from September 2015.

Dr. Lagerlund:

Yes, that is a most interesting paper about how certain phosphorus-containing molecules in the brain may act as qubits that undergo quantum processing or computing and ultimately influence neuron firing rates. This paper suggests that some type of quantum computing may be going on in brains. Ultimately, though, I do not see how this explains the most fundamental questions about the human mind, such as where does a sense of self come from? and how can people have free will? since physically there is no explanation for a "self" that can make free decisions, and also how can people understand abstract concepts or reason abstractly. These topics I will discuss in my next webinar concerning the brain and soul. But let me quote from my book concerning why I think that all such physicalist theories of the human mind ultimately must fail:

*"Attempts to circumvent determinism and computability by invoking a form of quantum computing involving superpositions of quantum states in the brain (qubits) run into the problem of scale. At what scale would we be likely to find a conscious "self" capable of making free decisions? Quantum phenomena occur at the subatomic, atomic, and molecular scale and involve basic processes like the movements of electrons, atoms, and molecules; such processes would seem incapable of generating consciousness at that level, let alone a conscious "self" making free decisions. Rather, based on neurophysiologic experiments and functional studies (fMRI scans, EEG and MEG studies), the phenomena of consciousness and free will seems most likely to pertain to large regions of the brain, perhaps related to processing occurring in large neural networks; yet the behavior of networks is deterministic and computable. It is exceedingly difficult to imagine how physical processes occurring in large neural networks involved in consciousness and decision-making could influence or determine the outcome of quantum processes (such as the R process) occurring at the atomic and molecular level. Furthermore, since all physical processes are governed by laws of physics that (as far as currently known) are computable and algorithmic (even if they involve randomness), any such physical influence would not escape the limitations of Gödel's incompleteness theorems or permit human free will. Thus, despite valiant attempts such as the Penrose-Hameroff theory, it seems likely that some aspects of human consciousness and decision-making (such as free will, genuine understanding, self-awareness, and abstract reasoning) will never be fully explained by any merely*

*physical theory of neurophysiology, whether involving quantum or classical mechanics, intracellular organelles like microtubules, membrane proteins, synaptic proteins, or networks of neurons involved in computational activities.”*

Mike Oslance:

2. How does your probability explanation explain the exponential growth and progress of modern civilization in the past 100 years? The probability of such incredible developments over such a short period of time seems impossible.

Dr. Lagerlund:

I was hypothesizing specifically that God can *predict* the probability of various specific behaviors when a person is placed in various potential situations. The growth and progress of human civilization is largely a consequence of the human abilities of reasoning and understanding and the exercise of free will, though divine inspiration at certain times may have played a role. My belief is that these human abilities require a nonphysical aspect (a soul). But I'll speak more about that in an upcoming webinar.

Mike Oslance:

3. How does the concept of love fit into the premise that God's will determines everything? It would seem that everyone has a free pass to heaven. How can you separate human free will (based on the tangible aspects of a human brain) from the tangible aspects of the universe?

Dr. Lagerlund:

I am basing my thoughts on traditional Christian beliefs as set forth by Augustine and St. Thomas Aquinas. St. Thomas notes that “the will of God is the universal cause of all things” (Summa Theologica Pt. I, Q. 19, Art. 6). Nevertheless, St. Thomas recognizes a difference between God’s consequent (or “simple”) will (that which is the cause of all things) and his antecedent will (essentially, what God would *like* to have happen). For example, God permits evil so as to bring about greater good. God does not desire an act that is evil (that is, evil is never part of God’s “antecedent will”) but the action involved in the evil act may be permitted and, in that sense, willed by God. For example, his “simple” or “consequent” will is carried out by *permitting* a free human agent to move or speak in such a way as to commit the evil act, thus preserving the creature’s free will, which is a greater good. Per St.

Thomas:

“According to [Damascene](#) (De Fide Orth. ii, 29), they are understood of the antecedent will of [God](#); not of the consequent will. This distinction must not be taken as applying to the divine will itself, in which there is nothing antecedent nor consequent, but to the things willed. To understand this we must consider that everything, in so far as it is [good](#), is willed by [God](#). A thing taken in its primary sense, and absolutely considered, may be [good](#) or [evil](#), and yet when some additional circumstances are taken into account, by a consequent consideration may be changed into the contrary. Thus that a man should live is [good](#); and that a man should be killed is [evil](#), absolutely considered. But if in a particular case we add that a man is a murderer or dangerous to society, to kill him is a [good](#); that he live is an [evil](#). Hence it may be said of a just judge, that antecedently he wills all [men](#) to live; but consequently wills the murderer to be hanged. In the same way [God](#) antecedently wills all [men](#) to be saved, but consequently wills some to be damned, as His [justice](#) exacts. Nor do we will simply, what we will antecedently, but rather we will it in a qualified manner; for the [will](#) is directed to things as they are in themselves, and in themselves they [exist](#) under particular qualifications. Hence we will a thing simply inasmuch as we will it when all particular circumstances are considered; and this is what is meant by willing consequently. Thus it may be said that a just judge wills simply the hanging of a murderer, but in a qualified manner he would will him to live, to wit, inasmuch as he is a man. Such a qualified will may be called a willingness rather than an absolute will. Thus it is clear that whatever [God](#) simply wills takes place; although what He wills antecedently may not take place.” (Summa Theologica Pt. I, Q. 19, Art. 6).

Analogy: think of a mother who desires that her son clean up his room, but she doesn't force him to do so even though she would be capable of forcing him, and she doesn't clean up the room herself, because she wants him to experience the adverse consequences of having a messy room and thereby learn a lesson. Regarding love:

Because He loves them, God grants rational creatures free will in order that they may freely choose to love God and their neighbor. Yet, he permits them to NOT do so (that is, he permits sin) because free will is a good that he confers on rational creatures, and his providential plan allows for good to come out of evil acts. In the old classic book, *Trustful Surrender To Divine Providence: The Secret of Peace and Happiness*, Fr. Jean Baptiste Saint-Jure starts out by saying that the will of God made and governs all things: "All that the Lord wills he does in heaven and on earth, in the seas and in all the deeps." (Psalm 124). Regarding separating or combining human free will with the tangible aspects of the universe, I will discuss this more fully in a subsequent webinar about the brain and soul.

Mattheus:

Replying to "1. The dismissal of..."

The multiverse concept cannot even be called scientific as it proposes unobservable things. Heaven on the other hand is not part of science and so does not need to be directly observable.

Dr. Lagerlund:

I agree that the inability to refute or establish the existence of a multiverse by the scientific method makes the Many Worlds interpretation of quantum mechanics empirically problematic. It is also theoretically problematic because it can't really explain the Born probability law which is one of the foundational predictions of quantum mechanics. It also can't explain the measurement problem. Regarding the Many Worlds interpretation of quantum mechanics, Physicist Roger Penrose said:

"This is hardly the most economical of viewpoints, but my own objections to it do not spring from its lack of economy. In particular, I do not see why a conscious being need be aware of only 'one' of the alternatives in a linear superposition... I do not see what relation there is between the 'true' (objective) state-vector of the universe and what we are supposed actually to 'observe.' Claims have been made that the 'illusion' of  $\mathbf{R}$  can, in some sense, be effectively deduced in this picture, but I do not think that these claims hold up... It seems to me that the many-worlds view introduces a multitude of problems of its own without really touching upon the *real* puzzles of quantum measurement."

Dr. Sebastian Mahfood, OP:

We'll schedule another webinar with Dr. Lagerlund in 2024 to share his new book, *Brain, Soul, Artificial Intelligence, and Quantum Mystery: The Neurophysics of Consciousness, Free Will, Reasoning, and Synergistic Brain-Soul Function*. The book will be published by En Route Books & Media this month. Please stay tuned for the date. See <https://enroutebooksandmedia.com/brainsoul/> for a description of the book.

Mike Oslance:

4. How does this deterministic image of God fit with the image of "Father" that Jesus presented to us?

Mike Oslance:

5. God alone causes state vector collapse. If this is so, is God simultaneously interacting throughout the entire universe to "will" what he wants? Frankly, why would God have created the universe at all if his ultimate goal was to "will" what happens?

Dr. Lagerlund:

My belief is that God causes state vector collapse (vertical causation), but he allows humans to participate in this process when it comes to their own brains (not in the external world), thus preserving human free will. Also, as I mentioned during the Q & A session, I think that God, who foresaw that humans would sin, created the physical universe as a place where humans can learn of God's existence and learn to trust in God by interacting with the things that He created, and a place where humans can learn the consequences of their actions and gradually learn to conform their will to God's will by experiencing the adverse consequences of sinful acts for themselves and for others. I envision that the physical world is a place where we are tested and judged by our ultimate responses to

God's grace (that is, by our actions of faith and love) and thus "sorted" into those who can be saved and those who cannot be saved. To quote from my book: "Given that this universe is a testing ground, it is likely that discovering God gradually from studying and interacting with his creation is part of the test, and every teacher knows that a test is useless if all the answers are supplied to the students taking the test! Presumably, God has provided just enough evidence of his existence that those who desire to know, love, and serve him indeed discover and believe in him, while those who prefer to serve their own interests and to avoid conforming themselves to God's plan for them cling to the belief that there is no God. This physical universe which God created is certainly not a perfect world, but it is perfectly designed for God's purpose: to make saints who will someday share eternal life and perfect joy with him in heaven."

Mike Osance:

6. If humans are truly made in the image of God and if humans possess a brain with trillions of neurons--could you explain why God would not allow his own children to have the privilege of causing state-vector collapse at the local level?

Dr. Lagerlund:

Actually, I think that he *does indeed* allow humans, alone among all physical creatures, the ability to participate in "vertical causation" which is God's own prerogative, but only in our own brains and bodies. In this way he allows the human soul to be an efficient agent within the human brain and body so that the free choices of the soul are translated into physical action in the brain and body.

Mike Osance:

7. "Some suffering is necessary for salvation." Exactly why would a loving God require people to suffer?

Dr. Lagerlund:

Again, God "willing" what happens doesn't mean that what happens is in accord with His antecedent will (what would most please Him). His *antecedent* will is certainly *not* done on Earth as it is in heaven, but his simple (consequent) will is done, in that he always permits humans to choose freely and never abrogates free will. Much suffering comes about because humans abuse their free will and do what is sinful. But God is constantly guiding humans toward heaven by the actual graces he gives to them, and by His providential plan, a plan by which God decrees our life circumstances and the situations that we will face in life (always taking into account the choices we make and those around us make, and using even evil acts of humans to bring about greater good). I believe that the universe was designed to be a didactic environment, a sort of "boot camp" or "training wheels" universe, for humans to (hopefully) grow in faith in God and love for God and neighbor and ultimately to become saints who will live forever with God in heaven, and suffering is a necessary ingredient. C.S. Lewis said that "pain is God's megaphone to rouse a deaf world". The Book of Ecclesiastes is all about the ups and downs of life, the so-called "wheel of fortune"—God doles out to us both good times and bad times, and we should learn to accept whatever God sends our way because it *IS* God's will for us. In this way we learn that God is in control and we are not, and we learn to trust God because He is God (compare the lesson of the Book of Job) and because everything He does is motivated by love for us, like a perfect Father. This trust in God regardless of what happens is one of the chief characteristics of all the great saints. Think of Maximilian Kolbe, and you can understand how God can bring great good (Kolbe's voluntary sacrifice of his life to save another man) out of great evil (a Nazi concentration camp). That is also the theme of many works of fiction, like stories about superheroes who are willing to sacrifice their own lives to save others. Speaking of fiction: who grew up to be the better man in the Harry Potter books, Harry or his cousin Dudley? Dudley had everything handed to him on a silver platter and it made him selfish and mean, while Harry suffered a lot and in the end was willing to give up his life to save his friends (imitating his own mother). Jesus himself said that suffering is a necessary path for His followers to take (all because of original sin, of course). A quote from my book: "Suffering itself has didactic value, since by learning what acts cause suffering

and what acts lead to avoidance of suffering, people learn how to behave in the way God wants, thus aligning themselves to God's will. By experiencing suffering in themselves and others, people can learn compassion for others and use their time and talents to alleviate other's sufferings, fostering love of neighbor. Pain and suffering also destroy our illusion of self-sufficiency and being in control and force us to reach out to others and to God for relief. Thus, suffering is a powerful antidote for selfishness and self-absorption and a necessary factor for humans to grow in virtue and in selfless love." Also, a couple of scripture passages regarding this: "You have also forgotten the exhortation addressed to you as sons: 'My son, do not disdain the discipline of the Lord or lose heart when reproved by him; for whom the Lord loves, he disciplines; he scourges every son he acknowledges.' Endure your trials as 'discipline;' God treats you as sons. For what 'son' is there whom his father does not discipline? If you are without discipline, in which all have shared, you are not sons but bastards. Besides this, we have had our earthly fathers to discipline us, and we respected them. Should we not [then] submit all the more to the Father of spirits and live? They disciplined us for a short time as seemed right to them, but he does so for our benefit, in order that we may share his holiness. At the time, all discipline seems a cause not for joy but for pain, yet later it brings the peaceful fruit of righteousness to those who are trained by it." (Heb. 12:5-11). "Whoever wishes to come after me must deny himself, take up his cross, and follow me." (Mat. 16:24).

Mattheus:

Replying to "5. God alone cause..."

Exactly

Mattheus:

Replying to "6. If humans are t..."

Yes

Mike Oslance:

8. "God knows the future." So---possibility is not really true if God can already determine the outcome. So, again I ask the question: why bother creating anything at all when you already know the outcome? Why does a loving God allow murder, death, war, etc.?

Mike Oslance:

9. Frankly, this presentation seems to render human beings to an almost robotic state. People are merely playing out a preset order of possibilities and clearly are NOT made in the image of God. Rather, we are mechanistic robots who are limited to a preset list of possible abilities. God is our sovereign lord who has wound us up and lets us operate via his preset engineering. This is hardly a providential plan. How do we really envision being a family of love who can creatively build a reign of truth, justice, peace, and inclusivity? The depiction presented seems to describe us as merely pawns in a predetermined game in which we might accidentally do a few things correctly. Furthermore, was Jesus himself the random collection of actions or did everything he do simply result from the will of his father?

Sorry for the rants.

Mattheus:

So HOW do we have free will then?

Dr. Lagerlund:

Great questions, which have been asked by the greatest theologians and philosophers for generations. How does one reconcile God's providence with human free will? Why does God permit pain and suffering? I think that the best answer that can be found is that God created humans with free will and in his providential plan he always takes into account human choices, but by doing so he necessarily must permit the adverse consequences of human choices, which include pain and suffering. That is what C. S. Lewis was getting at in his analogy of the black line (human choices) and the red lines (God's choices). Here is the C. S. Lewis quote from my slide:



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“Suppose I find a piece of paper on which a black wavy line is already drawn; I can now sit down and draw other lines (say in red) so shaped as to combine with the black line into a pattern. Let us suppose that the original black line is conscious... Let us also give this black line free will. It chooses the direction it goes in. The particular wavy shape of it is the shape it wills to have. But whereas it is aware of its own chosen shape only moment by moment and does not know at point D which way it will decide to turn at point F, I can see its shape as a whole and all at once. At every moment it will find my red lines waiting for it and adapted to it. Of course: because I, in composing the whole red-and-black design have the whole course of the black line in view and take it into account. It is a matter not of impossibility but merely of designer’s skill for me to devise red lines which at every point have a right relation not only to the black line but to one another so as to fill the whole paper with a satisfactory design. In this model the black line represents a creature with free will, the red lines represent material events, and I represent God. The model would of course be more accurate if I were making the paper as well as the pattern and if there were hundreds of millions of black lines instead of one.” (Lewis 1947, 177-178).

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Regarding God knowing the future, here is more from St. Thomas and from my book: “Things reduced to act in time, as known by us successively in time, but by God (are known) in eternity, which is above time. Whence to us they cannot be certain, forasmuch as we know future contingent things as such; but (they are certain) to God alone, whose understanding is in eternity above time. Just as he who goes along the road, does not see those who come after him; whereas he who sees the whole road from a height, sees at once all traveling by the way” (Thomas Aquinas, *Summa Theologica*, Pt I, Q 14, Art 13, Reply to Objection 3). To use an analogy, it is often stated that a person who has been married for many years knows what her spouse is about to do or say in a certain situation, since she knows her spouse so well. That does not mean that her spouse is not free to choose. Of course, human knowledge of another person is always limited, so someone cannot predict his spouse’s actions with certainty. God, on the other hand, knows the future completely, and therefore knows with certainty what each person will choose to do. However, the choices are still made freely. It is for this reason that we can be considered culpable for actions that are morally wrong, and for this reason that a government can justly punish wrongful acts.

Marvin:

Dr. Lagerlund: What are your thoughts on Dr. Wolfgang Smith’s repudiation of evolution (theistic and otherwise, as well as Teilhard’s heretical teachings) and relativity (special and general), and his endorsement of recent 6-day creation and geocentrism?

Dr. Lagerlund:

As I said in the Q & A session, I respect Dr. Wolfgang Smith greatly and appreciate his immense knowledge of physics and theology and his insightful ideas about quantum mechanics. Nevertheless, I don’t personally agree with his repudiation of evolution and Einstein’s relativity.

Mattheus:

That’s not an answer because our soul is then separated from our physical body...

Mike Oslance:

10. How can our decisions matter if God already knows what we will do? If we are predestined, why "play out" the hoax? God already knows. Furthermore, why would an all-knowing God permit to run amok on a world and allow for murders, mayhem, etc.? The entire premise of a God who allows evil to run amok when he knows the horrific consequences to follow makes no logical or plausible sense!

Dr. Lagerlund:

I realize it is a difficult concept to get one's mind around, but God *knowing* the future doesn't take away human free choices. If it helps, think of God as having a time machine so he can travel to the future and observe it. (Though this is not a correct theological concept, it may be easier to conceptualize than God being "outside" time). The act of observation doesn't affect the fact that people make free choices. And regarding why God permits pain and suffering, see my previous comments. Of course, humans must actually *experience* making choices in reality before they can be judged regarding unrepented sinful choices. Would you think it fair if God excluded someone from heaven based on what God knew about the choices the person was *going* to make, without the person *actually* choosing and doing those things? Also, here are some quotes from my book regarding Gerald Schroeder's ideas:

Schroeder states that "In his popular book, *When Bad Things Happen to Good People*, Harold Kushner claimed that...there are regions into which God's power cannot extend and that is why bad happens. Biblically there is no foundation for such an idea. Famines and holocausts do not occur because God is limited. The Bible itself informs us repeatedly that through...the occasional hiding of the divine presence, God allows them to happen as part of the divine scheme. What seems to be divine indifference lies not in some inherent limit to the Creator. Rather it is the foundation of our free will." (Schroeder 1997, 171). Similarly, the *Catechism of the Catholic Church* states: "But why did God not create a world so perfect that no evil could exist in it? With infinite power God could always create something better. But with infinite wisdom and goodness God freely willed to create a world 'in a state of journeying' toward its ultimate perfection. In God's plan this process of becoming involves the appearance of certain beings and the disappearance of others, the existence of the more perfect alongside the less perfect, both constructive and destructive forces of nature. With physical good there exists also *physical evil* as long as creation has not reached perfection. Angels and men, as intelligent and free creatures, have to journey toward their ultimate destinies by their free choice and preferential love. They can therefore go astray. Indeed, they have sinned. Thus has *moral evil*, incommensurably more harmful than physical evil, entered the world. God is in no way, directly or indirectly, the cause of moral evil. He permits it, however, because he respects the freedom of his creatures and, mysteriously, knows how to derive good from it." (CCC 310-311). *The physical world thus has a didactic and formative purpose, as well as being a testing ground to sort those who want to know, love, and serve God and other people from those who ultimately want to serve only their own interests.*

Gerald Schroeder gives an explanation based on the Jewish rabbinic (Kabbalist) tradition of how God allows room for natural causes (horizontal causation) and eventually for human free will to work in his creation: "Biblically, creation is a divine act of *tsimtsum*, contraction—a spiritual contraction by which the Creator removes part of Its infinite unity ('Hear O Israel! the Lord our God the Lord is One,' Deut. 6:4). Complexity now appears where there had been the undifferentiated simplicity of One. The greater the *tsimtsum*, the more extensive the complexity and the greater the corresponding potential for imperfection. Isaiah in two sentences clarifies this concept: 'I am the Lord, there is nothing else. I make light and create darkness, I make peace and create evil' (Is. 45:6,7). The infinite source of light withdraws and darkness is created. The infinite source of peace (*shalom*, from the root *shalaim* meaning whole, complete) withdraws and evil (lack of perfection) is created. The first biblical *tsimtsum* (Gen 1:1) allowed the physical complexity of the universe with its laws of nature to emerge. Then followed the creation of the *nefesh*—the soul of animal life—allowing animals choice strongly dictated by instinct and inclination (Gen 1:21). The third and final creation was the human soul—the *neschama*—instilling free will in humans (Gen 1:27). We humans choose within constraints contingent upon our surroundings. The meanderings of nature and of society produce challenges to each person contingent upon her or his locale. How we react to those challenges provides them with spiritual significance... Though man cannot control his environment or even his destiny, his conduct is altogether in his hands. With each act of *tsimtsum*, the Bible tells us, the channel through which all nature flows broadened. Its license to meander increased." (Schroeder 1997, 16-17).

The first *tsimtsum* (contraction, or limitation, of God's control) can be identified with the fact that God limits his choice of actions in the universe (other than miraculous events) by preserving all the underlying principles of order and deep symmetries inherent in the physical laws governing forces and quantum fields and by ensuring that the results of quantum processes *in total* (averaged over ensembles of many quantum systems or over many

successive quantum processes) follow the probabilities predicted by the Schrödinger equation. The second *tsimtsum* can be identified with God allowing the deterministic algorithmic processing in animal brains to control most animal behavior based on genetically determined instincts and life experiences. The third *tsimtsum* can be identified with God allowing and always preserving human free will.

Jerry LR Chandler:

QM presupposes the Kantian notion of two independent units of meaning, space as a state measure and time as a dynamic measure. This grounding is often called “efficient causality”. Would the same conclusions follow from material causality as the grounding logical premise of all numbers and calculations?

Dr. Lagerlund:

You’re right that in quantum mechanics, time is a special parameter like its role in classical mechanics, while spatial position is an *observable* like momentum or angular momentum and therefore spatial position is indeterminate until measured. However, in special and general relativity, time and spatial coordinates are mixed into 4-dimensional space-time. This is one reason why it has been so hard to come up with a quantum version of general relativity (quantum gravity). But in general relativity, things *do* evolve and have causal effects on other things as time advances (for example, the universe expands over time, and gravitational waves originating from a black-hole merger have a later effect on the LIGO detector on earth).

Marvin:

The Wigner interpretation says a "conscious" observer is required to collapse the wavefunction. Could angels play the role of the conscious observer?

Dr. Lagerlund:

Yes, perhaps. I have wondered whether God may delegate responsibility for “vertical causation” in part to the good angels, who always obey God’s will. Particularly, one might attribute this function to the “Virtues”. But I decided to leave this out of my book since it may be controversial especially for non-Catholic Christians. If interested, see the following taken from Catholic.Chat (an online AI):

The traditional hierarchy of angelic choirs, as described by St. Thomas Aquinas, is as follows:

1. Seraphim: The highest choir of angels, characterized by their intense love and burning desire for God. They are described as having six wings and are closest to God's presence.
2. Cherubim: The second highest choir, known for their profound knowledge and contemplation of God. They are often depicted as having four wings and are associated with the guardianship of God's glory.
3. Thrones: The third choir, associated with God's justice and judgment. They are described as having a special role in upholding divine order and are often depicted as thrones or wheels.
4. Dominions: The fourth choir, responsible for the regulation of the duties of lower angels. They are associated with the exercise of authority and governance.
5. Virtues: The fifth choir, associated with the control and ordering of the natural elements and miracles. They are often depicted as being involved in the transmission of God's power to the physical world.
6. Powers: The sixth choir, responsible for the defense of the divine realm against evil forces. They are often depicted as warriors and are associated with the protection of the faithful.
7. Principalities: The seventh choir, entrusted with the task of guiding and protecting nations, cities, and institutions. They are associated with the governance of the world.
8. Archangels: The eighth choir, known for their special role as messengers and heralds of important divine messages. They are often mentioned by name in Scripture, such as Gabriel and Michael.
9. Angels: The lowest choir, assigned with various tasks and missions on Earth. They are often depicted as messengers, protectors, and guides for individuals.

It is important to note that the specific categorization and names of the angelic choirs may vary in different theological traditions, and the Church does not provide an official dogmatic teaching on this matter.

Dr. Sebastian Mahfood, OP:

For more on causation - vertical and horizontal - see the September 2023 webinar at <https://faithscience.org/crucial-choice/>

Mattheus:

Replying to "The Wigner interpr..."

Then angels would have a physical body...

Mike Oslance:

11. The multiverse is truly a transcendent-level solution to the problem of evil and the concept of free will. A loving God makes true and love possible---and yet does not doom someone to a single opportunity of happiness or hell. Your rejection of the multiverse seems very arbitrary. Why wouldn't a transcendent-level God create a transcendent-level universe? Would that not truly be a representation of a loving God who trusts in his children and (literally) turns them loose to live and accomplish things on their own merit? Furthermore, the idea of God absolutely knowing infinite possibilities is, at best, a divine-circular conclusion or (at worst) a gratuitous assumption that renders all of creation to the level of game pieces on a colossal board of life.

Dr. Lagerlund:

I am not sure how the existence of a multiverse would help with the problem of evil and the concept of free will. I find it quite adequate to assume that human free choices and the divine decrees of Providence taken together create the actual universe in which we live, and I don't see a need to postulate other causally disconnected universes in which different things happen from what happens in "our" universe. My analogy of Providence being like God playing a game is not to be taken too literally. It is a way to conceptualize how God may make choices of alternate potential space-time events that he might enact by choosing the outcome of state vector collapse while always considering human free choices, just as one player in a game must anticipate and deal with her opponent's free choices.

Dr. Sebastian Mahfood, OP:

For more on the nature of time in relation to God, see Tom Sheahen's presentation on his book *Everywhen: God, Symmetry, and Time* at <https://faithscience.org/everywhen/>

Mattheus:

Replying to "11. The multiverse..."

It seems you confuse freedom with the multiverse idea.

Dr. Sebastian Mahfood, OP:

For more on the multiverse, see Stephen Barr's presentation at <https://youtu.be/Y0M4k4qvGa0?si=sqGDISXmwC4Hfjft>. Dr. Barr is a physicist who founded and presides over the Society of Catholic Scientists.

Mike Oslance:

12. If God absolutely knows that someone is a murderer---how is that love? If God knew that the holocaust was going to happen, how is that love? Sending someone to hell doesn't help the dead. And calling the creation of an entire universe as a "training ground" makes no plausible sense! God created an entire universe as a practice field? Really?

Dr. Lagerlund:

The creation of the universe may certainly have multiple purposes, such as to show forth God's knowledge, power, and goodness and for human edification and delight in its beauty (in fact, scientists like Einstein have called the equations of physics beautiful). However, primarily the universe was made as a home for humans (and possibly for other rational creatures with souls, if one believes there may be ensouled creatures elsewhere in the universe). God is a perfect Father, and as a good Father he makes a place for His children to grow up until they are ready for "adult life." God's ultimate goal for humans is eternal life with him in heaven. To me a "training" universe or

“disciplinary” universe makes a lot of sense, given the reality of original sin. In heaven we will continue to have free will, but how could heaven be a place of complete happiness and complete lack of suffering unless those eventually admitted to heaven have learned how to conform their will to God’s will in all things by loving and trusting God above all, and loving other humans as themselves? Remember Jesus’ final command before his death: Love one another as I have loved you. (Of course, He doesn’t expect 100% perfection in faith, hope, and charity before we die; He just wants to see that we have made good progress, and there is purgatory for those who need a bit more training before they’re fully ready.) For creatures like us plagued by original sin and concupiscence, it just seems natural to believe that considerable remedial “training” in self-sacrificial love is necessary. It was different for the angels, for they are superintelligences who knew exactly from the beginning the consequences of their free choice to either serve God or serve themselves, so no lengthy “training” was possible. But we humans are in the dark about many things and have to figure it all out gradually through our life experiences, although Christians do have an enormous advantage in that we know a lot about God’s ultimate plan for us and what we need to do to please God and conform our deeds to His will. (By the way, our limited knowledge and experience is also why God shows us so much patience, grace, and mercy. Jesus on the cross pleaded with God the Father: “Forgive them for they do not know what they do.”)

Dr. Robert Kurland:

Replying to "12. If God absolutely..."  
if

Dr. Sebastian Mahfood, OP:

One of the Patristic Fathers, St. Basil the Great, once opined that God allows children to die because he knows they'll be criminals later and wants to save their souls early.

Mattheus:

Replying to "11. The multiverse..."  
The multiverse gives meaninglessness not freedom.

Dr. Robert Kurland:

Replying to "12. If God absolutely..."  
God made us to do just the right things we would be automatons, robots, and what would be the good.

Marvin:

Dr. Lagerlund: Like you, I've read most of Dr. Smith's books. Where, specifically, does Smith attribute God as the conscious observer Who collapses the wavefunction? (I'm not questioning that Smith does say this, just can't recall reading that) Thank you.

Dr. Lagerlund: I must apologize since I have indeed extrapolated from what Wolfgang Smith *actually* wrote to what I think he was getting at. Namely, since the “orthodox” interpretation of quantum mechanics says that an observation collapses the state vector and Smith says that God is the cause of state vector collapse, I put 2 and 2 together and concluded that Smith meant that God is doing the observing; but alternatively, he may have meant that no observation at all is necessary for state vector collapse, but only an Act of God. Here are two quotes from his books:

“For as the resolution of the measurement problem has brought to light, *vertical causation trumps horizontal*: has power, namely, to abrogate or ‘reinitialize’ the Schrödinger equation. And this is a game-changing discovery, for it tells us that quantum physics is not in truth the absolutely ‘fundamental’ science one has taken it to be but is in fact restricted in its scope to an ‘underworld’ of mere *potentiae*.” (Smith 2019, 80).

“The marvel of state vector collapse lies in the fact that, in a way, it ‘detects’ the radial action of *natura naturans* [God], and thereby ‘picks up,’ if you will, the creative act itself. The cosmogenetic act, in other words, can in a way be observed ‘here and now’ by means of a transition from a sub-existential plane to the corporeal, by

virtue of the fact that such a transition—which is perforce instantaneous—cannot be attributed to any secondary cause. What confronts us here is an instance of ‘vertical’ causation, the mode which acts ‘outside’ of time and derives directly from the metacosmic Center [God]. In a word, we are witnessing ‘an act of God.’ We must however remember that God acts ‘but once’..., which is to say that multiplicity pertains, not to the transcendent Cause, but to the created effects, precisely. Once again: *Qui vivit in aeternum creavit omnia simul* [He who lives forever created all things but once, Sir. 18:1, translation from the Latin Vulgate]. And thus, what we are in a sense witnessing is not simply ‘an act of God,’ but indeed ‘the Act of God’: the unique and indivisible Act of creation. And therein, finally, lies the miracle of state vector collapse” (Smith 1995, 112-113, [with explanations in brackets added](#)).

Mattheus:

But elements of physics are considered real, right?

Dr. Lagerlund:

Wolfgang Smith would say that the *horizontal causation* of physics brings about an ‘underworld of mere *potentiae*’ but vertical causation (an act of God) is needed to create a space-time event in the real universe. These correspond to the metaphysical categories that Kastner et al. postulated, namely *res potentia* and *res extensa*. But Kastner et al. *do* say that quantum *potentiae* are ‘real’, but they are not elements of the physical universe (*res extensa*) that can be perceived by our senses.

Marvin:

Thank you both for excellent presentations!

Dr. Lagerlund:

Thank you all for your excellent questions.