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Semiclassical Theism and the Passage of Planck Times

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Abstract
This paper models God and time in the framework of modern physics. God bridges and simultaneously exists in (1) a universe with infinite tenseless time and (2) a created parallel universe with tensed time and a point origin. The primary attributes of God are inexhaustible love, inexhaustible perception, and inexhaustible force. The model also incorporates modern physics theories that include relativity, the conservation of energy, quantum mechanics, and multiverse geometry. For example, creation out of nothing and divine intervention are subject to physical processes and likewise nomological possibility. I will call this model *semiclassical theism*.

Key Words
Natural Theology, God and Time, Relativity, Conservation of Energy, Quantum Mechanics, Big Bang, Multiverse

1 Introduction

Philosophers debate about the nature of time while theologians and philosophers of religion debate about the relationship of God and time. Obviously, different models of time impact the debate about God and time. Also, many Christian philosophers agree that the Bible never teaches a definitive model of God and time apart from general parameters, which opens the door to philosophical debate within biblical parameters.

Augustine in the fourth and fifth century set the stage for over a millennium of Western Christian theologians and philosophers nearly unanimously holding to a model of God's *unqualified timelessness*, which means that God exists without temporal properties such as a tense and dimension. Augustine did this while establishing Christian classical theism that combines Christian theology with Platonic classical theism. Also, Aquinas in the thirteenth century established a version of Christian classical theism that combines Christian theology with Aristotelian classical theism. However, the majority of contemporary Christian philosophers hold that God's time is *unqualified temporality*, which means that God's time is always tensed time without origin. Additionally, some propose models of God and time in-between unqualified timelessness and unqualified temporality.

William Lane Craig proposes an in-between model that says God was timeless before creation and God is tensed since the origin of creation. Craig also rejects that God is timeless

while simultaneously tensed. Craig furthermore says that any proposal that says God is simultaneously timeless and tensed would require an appropriate explanation.[1]

This paper is a model of God bridging and simultaneously existing in (1) a universe with infinite tenseless time and (2) a created parallel universe with tensed time and a point origin. The model is framed by modern physics theories that include relativity, the conservation of energy, quantum mechanics, and multiverse geometry. The model also states that the primary attributes of God are (1) inexhaustible love, (2) inexhaustible perception, and (3) inexhaustible force. I will call this *semiclassical theism*. Furthermore, in the case of Trinitarian doctrine, I will call this *semiclassical Christianity*.

In the rest of this paper, section 2 defines important terms; section 3 summarizes semiclassical theism; section 4 models God in tenseless eternity; section 5 models God in tensed time; section 6 discusses divine attributes; section 7 concludes with notes about competing models of God and time.

2 Terms

What is *time* and what is *timelessness*? The terms *time* and *temporality* typically refer to *tensed time* with a tangible present while the past and the future do not tangibly exist. Likewise, the terms *timelessness* and *atemporality* mean without temporal properties such as change, tense, and dimension. However, the B-theory of time refers to *tenseless time* that by definition exists without change while the so-called past, present, and future are equally tangible. Important terms in this essay include:

1. *Tensed time* means "time elapses from the tangible present to the future while the past and future are intangible."
2. *Tenseless time* means "a time dimension without tense while the past, present, and future are equally tangible."
3. *Timelessness* means "no temporal properties such as change, tense, and dimension."
4. *A-theory of time* means that time is tensed.
5. *B-theory of time* means that time is tenseless.
6. A *physical entity* is "an entity that contains or is caused by the fundamental forces of physics.
7. A *nonphysical entity* is "an entity that does not contain or is not caused by the fundamental forces."
8. The *observable universe* means "the physical universe that is potentially observable from Earth regardless if technology permits the observation."
9. A *Planck time* is the smallest possible unit of measurement for time in a physical universe; one Planck time equals 5×10^{-44} seconds, which is the time required for light in a vacuum to travel the distance of one Planck length.
10. A *Plank length* is the smallest possible unit of measurement for length of visible space in a physical universe; one Planck length equals 1.6×10^{-35} meters.
11. An *event* is a single point in spacetime.
12. A *light cone* is a shape in spacetime for a path of light emanating from a single event and traveling in all directions.

13. A *singularity* is a dimensionless point with infinite curvature.
14. *Extra dimensions* are invisible spatial dimensions beyond the three visible spatial dimensions.
15. The *Standard Model* indicates that elementary particles are dimensionless points that vibrate in three spatial dimensions.
16. Self-consistent s*tring theories* indicate that elementary particles are one-dimensional strings that vibrate in nine spatial dimensions.
17. *M-theory* can possibly unify all self-consistent string theories and indicates that elementary particles are two-dimensional membranes that vibrate in ten spatial dimensions.
18. *Indeterministic* refers to a process with a potential outcome that has a probability which is greater than 0 and less than 1.

Also, the term *relativity* refers to the combination of *special relativity* (*SR*) and *general relativity* (*GR*). The following subsections are extended definitions for (1) SR, (2) GR and quantum gravity, and (3) an Einstein–Rosen bridge.

2.1 Special Relativity (SR)

SR is based on the special case of a gravity-free observer and has two primary principles. First, the laws of physics never change. Second, the speed of light is the same for all observers regardless of their acceleration. A major indication of SR is that there is no Newtonian absolute time for the universe while each light cone has its relative timescale.[2]

2.2 General Relativity (GR) and Quantum Gravity

GR is the theory of gravity in the framework of SR. Einstein's GR says that gravity is not a force field but only the warping of spacetime.[3] However, many physicists discovered that Einstein's GR fails to cohere with quantum mechanics and concomitant particle physics.[4] This discovery prompted the search for a theory of quantum gravity, which is a theory of gravitational force. For example, self-consistent string theories predict the existence of gravitons, which are theoretical bosonic particles. Also, attempts to unify all self-consistent string theories point to M-theory while M-theory can cohere to all of the discoveries in the Standard Model. One difficulty is that nomological limits prevent physicists from the direct detection of gravitons, which confines the search to coherent theory and detecting quantum gravitational effects. For instance, coherent physics theory needs self-consistency and consistency with the rest of physics. In any case, massless gravitons would cohere with Einstein's gravitational field equations.

2.3 Einstein–Rosen Bridge

Einstein and Rosen calculated that GR predicts the potential existence of bridges between distant points in spacetime.[5] These bridges are called *Einstein–Rosen bridges* or *wormholes*. Also, extra-dimensional models predict the potential existence of matterless bridges.[6]

In cases of a tenseless universe, Einstein–Rosen bridges could result in time travel.[7] But in cases of tensed universes, there is no tangible past or future so time travel is logically impossible.

3 Semiclassical Theism in Sum

Semiclassical theism assumes relativity and the conservation of energy while proposing that God bridges and exists in (1) a universe with infinite tenseless time and (2) a created parallel universe with tensed time and a point origin. The universe with infinite tenseless time is tenseless eternity. Also, tenseless properties include inexhaustibility. In this case, the tenseless eternity of God includes inexhaustible love, inexhaustible perception, and inexhaustible force. Additionally, since the origin of creation, God also exists in a temporal mode that directly perceives all creation and potentially interacts with creation inside nomological limits. The eternity is internally tenseless while the changes of tensed creation are external to eternity.

How could tenseless time and tensed time possibly coexist? One model is Andre Linde's theoretical physics theory of steady-state eternal inflation in a multiverse with an inanimate tenseless region and an infinite number of parallel tensed universes.[8] For example, a steady-state region is a tenseless region. Linde's theory incorporates relativity and Riemannian geometry to depict a tenseless region of a multiverse. The steady state is internally tenseless while new universes are external to the steady state. However, Guth notes two fatal drawbacks in Linde's model: (1) the inanimate steady state has a zero probability for generating a single tensed universe; (2) eternal inflation requires a finite past.[9] Nevertheless, Linde's use of Riemannian geometry helps to picture the possible coexistence of parallel universes in a multiverse that respectively include a tenseless universe and a tensed universe.

Semiclassical theism also assumes that God's inexhaustible perception includes (1) perception of all possibilities and (2) tensed perception of real indeterministic processes such as quantum vibrations and Galton board experiments. This divine perception of possibilities and indeterministic processes suggests that semiclassical theism is a model of *open theism*.[10]

Semiclassical theism could adapt to various theistic traditions. For example, semiclassical theism is compatible with the Christian doctrine of the Trinity, which says that the three divine persons are one God.[11] In the case of semiclassical Christianity, the three divine persons inexhaustibly love each other in tenseless eternity and tensed time. God also directs this same inexhaustible love to all rational creatures such as modern humans.

4 Tenselessness

Augustine and Aquinas taught that God is completely timeless. Augustine suggested that tensed time in the created universe is an illusion,[12] and Aquinas said that God solely and altogether exists in timeless eternity that is a simultaneous whole while creation is tensed.[13]

Augustine's suggestion of illusory tensed time compares to the tenseless universe models of Parmenides and McTaggart. For example, Parmenides proposed that the observable universe is motionless and an undivided whole while all appearance of motion is an illusion. Similarly, McTaggart defined two models of a tenselessness: (1) the B-theory and (2) timelessness. For instance, McTaggart developed A-theory based on observation and B-theory based on an interpretation of SR. But he ultimately rejected both A-theory and B-theory while concluding that the entire universe is timeless and all appearance of temporal properties such as dimensionality and tense is an illusion.[14]

The rest of this section (1) outlines a model on tenseless eternity, (2) comments on tenseless dimensionality, (3) comments on tenseless perception and knowledge of all possibilities, (4) comments on tenseless triune love, and (5) comments on tenseless force.

4.1 Outline of Eternity

This model of tenseless eternity assumes the reality of particle vibrations in tensed time and that SR indicates the nomological possibility of tenseless dimensionality. Given these assumptions, below are nine propositions about a tenseless entity:

> P1. A tenseless entity contains no vibrating particles or possible vacuum fluctuation, which indicates that the tenseless entity is a nonphysical entity.
> P2. The tenseless, nonphysical entity with the capability of generating measurable tensed activity indicates that the nonphysical entity is animate and possesses nonphysical force that can generate physical dimensionality and physical force.
> P3. The tenseless, animate, forceful, nonphysical entity possesses mental capacity that includes perception.
> P4. The tenselessness of the nonphysical entity indicates that the perception and force are inexhaustible.
> P5. Inexhaustible perception plausibly knows all possibilities.
> P6. A nonphysical entity with inexhaustible perception and force is plausibly called God.
> P7. The tenseless dimensions of God are plausibly a single infinite tenseless act without internal change.
> P8. The origin of tensed activity necessitated new dimensionality while any tensed activity is external to the tenseless dimensionality.
> P9. In the case of semiclassical Christianity, the three persons of God love each other in tenseless eternity.

4.2 Tenseless Dimensionality

Semiclassical theism proposes that God tenselessly exists with infinite dimension. This is different than classical theism such as Thomism that says God is completely timeless and dimensionless. Also, contemporary models of complete divine timelessness include Leftow,[15] Stump and Kretzmann,[16] and Helm.[17] However, most contemporary Christian philosophers such as Wolterstorff reject that God exists without tensed time while they support that God's time is always tensed time without origin, which is called *unqualified divine temporality*.[18] The unqualified divine temporality before creation was *pure duration* without origin. For example, pure duration is the flow of tensed time with no measurable cyclic processes such as elementary particle vibrations. Also, since the origin of creation, unqualified divine temporality has been physically measurable. Padgett alternatively says that God's time is always pure duration with no origin and no end while the pure duration was nonfinite before creation.[19] I agree with Wolterstorff and Padgett that God is not completely timeless. However, I support that God originally exists with infinite tenseless dimension instead of infinite or nonfinite pure duration.

4.3 Tenseless Perception

God's tenseless and likewise inexhaustible perception includes the knowledge of all possibilities that is common in all models of theism. The many-worlds interpretation of quantum mechanics (MWI) helps to picture all possibilities. For example, MWI proposes that every possible history actually exists in an indefinite number of parallel world histories.[20] For instance, every Planck

time, a world faces an indefinite number of different outcomes. According to MWI, these outcomes are actually deterministic while each outcome occurs in its own parallel world and people in each world see only what looks like an indeterministic outcome in their own world. This indicates that every world branches into an indefinite number of new worlds during the passage of every Planck time. Setting aside debate about the pros and cons of MWI, hypothetical MWI (HMWI) helps to picture all *possible worlds* instead of all *actual worlds* if MWI were real. HMWI also includes all possible histories starting from all possible different parameters for the fundamental forces of physics.

Consider the case of HMWI and any given possible initial conditions of a spacetime universe that expands forever. After the first Planck time interval at the origin of creation, there are an indefinite number of different world branches; after the second Planck time interval, each world branch from the previous Planck time interval has an indefinite number of different world branches; after the third Planck time interval, each world branch from the previous Planck time interval has an indefinite number of different world branches; and *ad infinitum*.

Consider another angle of HMWI and the actual world at any given time (WT_0) and at WT_0 plus 1 Planck time (WT_1). The actual world of 10^{80} particles faces an indefinite number of possible outcomes during the passage of time from WT_0 to WT_1. Also, in the history of the actual world, there is an indefinite number of possible worlds where *one* outcome is different than the actual world; there is an indefinite number of possible worlds where *two* outcomes are different than the actual world; there is an indefinite number of possible worlds where *three* outcomes are different than the actual world; and so on indefinitely.

In the case of divine perception containing HMWI, then divine perception includes all possibilities at the level of elementary particles and the levels of macroscopic phenomena. For instance, quantum mechanics indicates that the quanta of elementary particles vibrate according to a probability distribution. Other than the quantum level, examples of indeterministic processes include Galton board experiments and free human choices.

In sum, God tenselessly perceives self and the knowledge of all possibilities that is pictured above in HMWI. This also suggests that God tenselessly knows loving divine responses for any circumstance that might arise.

4.4 Tenseless Triune Love

Assuming the existence of the Trinity and the possibility of tenseless perception including self-awareness, then tenseless infinite love between the three divine persons is possible. Likewise, semiclassical Christianity proposes a tenseless infinite love between the three divine persons.

4.5 Tenseless Force

As previously mentioned, Linde proposed a theoretical physics theory called *steady-state eternal inflation* that included an *inanimate* tenseless region which generated an infinite number of parallel tensed universes while Riemannian geometry helps to model the multiverse. One implication of the theory is that an infinite number of universes have always existed while the generation of new universes never ceases. Despite the success of the Riemannian geometry, one failure of the theory is that an inanimate tenseless region has a zero probability for generating a single tensed universe. Nevertheless, semiclassical theism proposes an *animate* tenseless entity called God had generated the origin of the physical universe.

The concepts of (1) an animate tenseless entity and (2) the origin of tensed activity contain mystery. For example, all activity of a tenseless entity is simultaneous while the first new activity is the origination of tensed activity. In this case, what are the mechanics that caused the first new activity? Alternatively, a semi-infinite past succession of physical activity such as quantum vibrations or quantum fluctuations is logically impossible, which is a propositional tautology. For instance, this tautology indicates that a tensed universe had an origin of tensed activity. Evidently, tensed activity originated whereas *completely* understanding the origin's mechanics is beyond human comprehension.

Some mechanics of tensed activity's origin are understandable. For example, some skeptics ask, how could tenseless deity cause the origin of a tensed universe while a cause is always *before* its effect? In this simplified model, the first effect is the origin of the physical universe at time 0 (T_0). For instance, semiclassical theism agrees with the traditional view that says the first tensed cause and effect occurred at T_0 while the cause was *logically before* the effect that cascaded into the passage of tensed time. Also, God can deliberate and act without measurable passage of time. Furthermore, semiclassical theism adds that the cause was *relatively before* the effect. For instance, subsection 5.1 outlines how GR predicts a universal chronology of otherwise causally disconnected events while nevertheless there is no universal timescale. Likewise, understanding the concepts of (1) relatively before, (2) logically before, and (3) divine ability to deliberate and act without the passage of time helps to explain the mystery for the origin of T_0 and the bridge from animate tenseless deity to tensed time.

5 Tensed Time

The following subsections outline (1) bridge observation, (2) the incoherence of B-theory, (3) God and the observable universe, (4) possible physical multiverse, and (5) possible nonphysical creation.

5.1 Bridge Observation

Tensed time progresses from the present to the future while the present becomes the past. As previously defined, modern physics measures time in units called *Planck time* and length in units called *Planck length*, which are the smallest possible measurements of time and space in a physical universe. For example, one Planck time equals 5×10^{-44} seconds, which is the unit of time required for light in a vacuum to travel the distance of one Planck length that equals 1.6×10^{-35} meters. Relativity indicates complexity to tensed time because there is no absolute time for the observable universe while each light cone has its relative timescale. For example, SR predicts the *relativity of simultaneity*, which indicates no absolute simultaneity of events in distant light

cones because they are causally disconnected events. However, a matterless Einstein–Rosen bridge predicted by GR can enable an observer to have zero distance between two events that are distant in space. Furthermore, an observer in a hypothetical omni-cluster of matterless bridges can observe the present of tensed time in all respective light cones in a universe or multiverse.

Remarkable properties belonging to the cluster of matterless bridges include that the cluster has no timescale and no dimensions of its own while the cluster has a universal chronology of all events that occur. For example, the cluster chronologizes every event that occurs in spacetime, which makes it a universal chronology without a universal timescale. Also, the cluster chronologizes every relative timescale of every light cone.

One might suspect that an observer in a cluster of bridges would not cohere with relativity that states absolute time does not exist. For example, the predicted relativity of simultaneity indicates no absolute simultaneity for causally disconnected events. For instance, two events are causally disconnected when the distance between them is more than the change of time between them multiplied by the speed of light. In the case of causally disconnected events, the chronology of the events sometimes depends on the location of the observer. So the concepts of *before*, *during*, and *after* re causally disconnected events are relative to the location of the observer. However, all observers in an omni-cluster of bridges will observe the same chronology for all events. This coheres with the relativity of simultaneity which is an inconsequential point in the light of the GR prediction of Einstein–Rosen bridges. Also, a cluster of bridges has no timescale of its own, which coheres with the nonexistence of absolute time.

5.2 The Incoherence of B-theory

A prima facie paradigm of physics indicates that elementary particles such as photons exhibit real tensed activity in the form of vibrations. However, B-theory challenges the realism of tensed photon vibrations. For example, B-theory proposes that anything that looks like tensed activity such as photon vibrations are a tenseless illusion that involves no actual tensed activity.

Consider B-theory that focuses on SR such as the nonexistence of absolute time, the relativity of simultaneity, and the use of a spacetime coordinate grid. For example, the relativity of simultaneity indicates that no causally disconnected events have an absolute chronology for every possible observer. Also, a spacetime coordinate grid has no indication of differences between the space dimensions and the time dimension. Moreover, B-theory proposes the following:

> B1. The nonexistence of absolute time and the lack of difference between the space dimensions and the time dimension in a spacetime coordinate grid indicate that spacetime has no physical difference between the space dimensions and the time dimension.
> B2. The lack of physical difference between the space dimensions and the time dimension indicates that the the past, present, and future are equally tangible.
> B3. The tangible equality of the past, present, and future indicates the tenseless coexistence of all events in the universe.
> B4. All supposed human experience and empirical observation of tensed activity are an illusion.

However, consider four major drawbacks to B-theory:

> D1. The lack of absolute time does not necessitate the tenseless coexistence of all events in the observable universe.
> D2. The GR prediction of an Einstein-Rosen bridge indicates that the SR prediction for the relativity of simultaneity is inconsequential.
> D3. Despite the lack of difference between the space dimensions and the time dimension in a spacetime coordinate grid, there is physical difference between a Planck length and a Planck time which indicates physical difference between the space dimensions and the time dimension.
> D4. B-theory contradicts the strong evidence of tensed causality in empirical observation and human experience.

The above drawbacks indicate the incoherency of B-theory. Alternatively, the only nomologically possible tenseless universe is a nonphysical universe.

5.3 God and the Observable Universe

This subsection summarizes God's relationship to the physics of the observable universe. The following outlines a simplified version for the origin of tensed time, the creation of elementary particles, agent authority, divine perception of creation, and divine intervention in creation.

For the sake of simplicity, this model assumes (1) the first second of Big Bang cosmology, (2) the existence of massless gravitational force, and (3) a flat Friedmann universe. For example, a flat universe expands forever.[21] Also, other theories for the first second of the universe might cohere with semiclassical theism.

At T_0, God made a singularity that possessed a 1:1 ratio of negative gravitational force and positive strong-electroweak force. After the first Planck time, the singularity produced a 1:1 ratio of negative gravitational force and positive strong-electroweak force in an expanding universe, which is a zero-energy universe.[22] For example, the emergence of a zero-energy universe from nothing coheres with the conservation of energy. Also, the conservation of energy might have lacked effect during the first Planck time.

After 10^7 Planck times (10^{-36} of a second), the strong force and the electroweak force separated from each other. After 10^{37} Plank times (10^{-6} of a second), the electromagnetic force and the weak force separated from each other. For example, the electromagnetic force is made of photons while there are 10^{89} photons.

Some or all of the photons annihilated into a pair consisting of an elementary fermion and an elementary antifermion such as a respective quark and antiquark or an electron and positron, which are also respectively called *matter* and *antimatter*. Each new elementary fermion and antifermion oscillated between existing as matter and antimatter until the oscillation quickly ceased.[23] The brief oscillation resulted in roughly 10^{80} more elementary fermions than elementary antifermions.[24] All of the antimatter collided with matching matter while all colliding matter and antimatter annihilated back into photons. The remaining 10^{80} fermions eventually filled the galaxies in the observable universe. For example, quarks started to form into protons and neutrons after 10^{43} Planck times, which is one second.

God also lovingly made agents of authority such as humans. For example, God originally possessed sole authority and desired loving relationships with progeny who possessed authority. The creation of these agents with authority and responsibility had logically necessitated that God's original sole authority transitioned to supreme authority.

Since the first Planck time, God's inexhaustible perception perceives all new dimensionality. Also, God's perception of tensed creation indicates that God perceives new actual events while the perception of new actual events is a change in perception. Likewise, divine perception is subject to change, which indicates a tensed mode of divine existence that is external to the original tenseless dimensionality. In this case, God's perception bridges and exists in both tenseless eternity and tensed time.

Additionally, God's inexhaustible force that created the original singularity in the context of the conservation of energy can potentially intervene in the observable universe within the conservation of energy by utilizing matterless Einstein-Rosen bridges, energy fluctuation, spacetime fluctuation, nuclear transmutation, and microscopic reversibility. For example, all divine intervention is subject to nomological possibility. Furthermore, nomologically possible divine intervention in synergism with agents could cause biblical miracles such as healing the sick, resurrecting the dead, multiplying loaves of bread, walking on water, and calming dangerous weather.

5.4 Possible Physical Multiverse

One might consider that God has created or will create physical universes other than the observable universe, which results in a multiverse. This simplified multiverse model considers the generation of a flat Friedmann universe that by definition has a density parameter = 1 while the distance between galaxies expands forever. Friedmann models of a universe are standard in physics cosmology while an amazing property of Friedmann universes is the generation of new space from a point origin. For example, such a Friedmann universe could form by the generation of a singularity depicted in subsection 5.3. In a multiverse scenario, God creates multiple singularities while each one produces its own spacetime universe that is parallel to and never overlaps other spacetime universes. Also, the parameters of fundamental forces and likewise the Planck time value might have exotic differences from one physical universe to another.

5.5 Possible Nonphysical Creation

One might imagine that God possibly created nonphysical realms and nonphysical entities that by definition contain no vacuum energy and no vibrating particles. For example, one might imagine that various animate spirit beings contain no vibrating particles in their original nonphysical realm. Any such nonphysical realm would have no Planck time measurements of its own while any successive activity in the realm would have a timescale relative to any physical universe. Also, a nonphysical realm might possibly have its own measurable time units.

6 Divine Attributes

Aquinas asserted that God Almighty cannot change the past because the past no longer tangibly exists.[25] This indicates the Thomistic philosophy that God and the universe have no absolute contradictions. Likewise, Christian tradition supposes that the divine attribute of *omnipotence*

involves no contradictions. For example, the divine attribute of omnipotence is *qualified* because it never involves nomological impossibility such as changing the past.

In the case of semiclassical theism, the divine attribute of inexhaustible force is consistent with the traditional use of the term *omnipotence* because the force is limited to nomological possibilities. For example, the term *omnipotence* is qualified by the limit of nomological possibilities such as the conservation of energy and the consequences of created agents with authority. Similarly, other traditional divine attributes such as omnibenevolence, omniscience, immutability, incorporeality, transcendence, and immanence are consistent with semiclassical theism. Consider the following *qualified* propositions:

1. God's inexhaustible love and perception indicate divine *omnibenevolence*.
2. God's inexhaustible perception indicates divine *omniscience* that perceives all reality and all possibilities.
3. *Immutability* refers to God's tenseless nature.
4. *Incorporeality* refers to God's tenseless and likewise nonphysical nature.
5. *Transcendence* refers to God's tenseless nature.
6. *Immanence* refers to God's tensed modes of existence.

7 Competing Views of God and Time

This concluding discussion briefly compares the semiclassical model of God and time to competing Christian models of God and time, respectively Thomism, "ET-simultaneity" by Stump and Kretzmann, "divine timeless eternity" by Helm, "eternity as relative timelessness" by Padgett, "timelessness and omnitemporality" by Craig, and "unqualified divine temporality" by Wolterstorff.

7.1 Thomism

Aquinas's monumental *Summa Theologica* exemplifies the synthesis and limits of Christian classical theism and the existence of tensed time. For example, Aquinas asserts the following eleven points:

1. God is perfect.[26]
2. God is love.[27]
3. God is completely unchangeable.[28]
4. God is completely timeless and likewise a simultaneous whole without succession.[29]
5. God is completely nondimensional and indivisible.[30]
6. God is inexhaustible power without contradiction.[31]
7. Creation exists in tensed time.[32]
8. God is omniscient of self, all possibilities, and the origin to the end of tensed creation.[33]
9. God is omnipresent in tensed creation.[34]
10. God specially manifests in tensed creation.[35]
11. God incarnated in tensed creation.[36]

Analysis of these eleven points indicates strained logic. For example, Aquinas says that God timelessly perceives all tensed creation from the origin to the end while there is no tensed mode of divine perception.[37] This indicates that God is omniscient while God has no actual tensed experiences. However, experiences are a type of perception and knowledge. Likewise, God's omniscience is qualified because God has no actual tensed experiences.

Semiclassical theism has similarities to Thomism such as the coexistence of eternity and tensed time. However, semiclassical theism proposes that God tenselessly exists in an infinite time dimension as opposed to timeless existence and that God has actual modes with (1) tensed perception and (2) tensed special divine manifestations.

7.2 ET-Simultaneity

Stump and Kretzmann brilliantly advocate Christian classical theism while proposing the simultaneity of timeless eternity and tensed time, which they call *ET-simultaneity*.[38] A controversial supposition of ET-simultaneity is the assertion that God is completely timeless and "somehow" directly perceives actual events in tensed time. However, Stump and Kretzmann never explain *how* timeless deity who always exists at every point of tensed time is immediately perceptive of the actual events of tensed time.[39] Alternatively, semiclassical theism proposes that God exists in infinite tenseless eternity that includes a relative timescale for every possible light cone and that God has a tensed mode of perception that changes during the passage of time and actualization of new events.

7.3 Divine Timeless Eternity

Helm brilliantly identifies his "divine timeless eternity" with Augustine's classical theism.[40] Helm also recognizes that a timeless God could only relate to a tenseless creation while Helm defends B-theory. Despite the merits of Helm's classical theistic proposal, his B-theory lacks a realistic explanation for the strong evidence of tensed cause and effect in empirical science and human experience. For example, see the incoherence of B-theory in subsection 5.2.

7.4 Eternity as Relative Timelessness

Padgett brilliantly proposes "eternity as relative timelessness."[41] Four key points of his proposal follows:

> 1. God's time is always pure duration with no origin and no end; *pure duration* as previously defined means "the flow of tensed time with no measurable cyclic processes such as elementary particle vibrations."
> 2. God's pure duration is infinite.
> 3. Creation has measurable tensed time with an origin.
> 4. God's pure duration before creation was nonfinite.[42]

Strengths of this model include that God's time is infinite and creation exists in a parallel finite time dimension. The model also evades the logical impossibility for a past infinite passage of measurable time and rejects the coherence of B-theory.

A grave problem is that the model lacks consistency when Padgett says that God's time is "infinite" while God's time before creation was "nonfinite."[43] For example, if God's time was

nonfinite during the origin of creation, then God's time will also be nonfinite during any event that actually occurs in creation. This problem might be related to confusion between a *potential infinite duration of time* and an *actual infinite duration of time*. In any case, eternity as relative timelessness fails to consistently model that God's time is infinite while semiclassical theism proposes that God's original time is an infinite tenseless time dimension.

7.5 Timelessness and Omnitemporality

Craig brilliantly proposes "timelessness and omnitemporality."[44] He says that God's original existence was completely timeless and that God switched to existing in physical tensed time since the origin of creation. This helps to explain how God perceives and manifests in tensed creation. The original timelessness also coheres with an origin for the physical universe that Craig supports in the second premise of his Kalam cosmological argument.[45]

Despite the merits of his model, his concept of timelessness with no origin and an end has major problems. From the perspective of language, his concept of *timelessness* is more accurately called *qualified timelessness* or *semi-timelessness*. Also, his concept of qualified timelessness lacks a nomological explanation while SR supports the possibility of tenseless dimensionality in semiclassical theism.

7.6 Unqualified Divine Temporality

Wolterstorff brilliantly proposes "unqualified divine temporality,"[46] which is the most popular model of God and time among contemporary Christian philosophers. He agrees with Padgett while saying that God's time before creation was pure duration with no origin. Wolterstorff also says that God's time since the origin of creation is physically measurable, which is similar to Craig's view. For example, this divine measurable tensed time helps to explain how God relates to tensed creation. Additionally, Wolterstorff agrees with Padgett when saying that God in some ways transcends the tensed time of creation.

One weakness of Wolterstorff's view is that he says that God "transcends" the tensed time of creation, while—unlike semiclassical theism—he never models that transcendence.[47] Also, pure duration with no origin lacks nomological explanation. For example, pure duration with no beginning and a terminal end is *semi-infinite* pure duration. Granted, the theory of semi-infinite pure duration avoids the logical impossibility for a semi-infinite passage of measurable time, but the theory nonetheless lacks nomological explanation.

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[1] William Lane Craig, "Timelessness and Omnitemporality," in *God and Time: Four Views*, ed. Gregory E. Ganssle (Downers Grove, IL: InterVarsity Press, 2001), 129.
[2] Albert Einstein, *Relativity: The Special and the General Theory; A Popular Exposition*, trans. Robert W. Lawson (New York, Crown Publishers, 1961).
[3] Einstein, *Relativity*.
[4] Freeman Dyson, "Is a Graviton Detectable?" 2012, http://publications.ias.edu/sites/default/files/poincare2012.pdf.
[5] Albert Einstein and Nathan Rosen, "The Particle Problem in the General Theory of Relativity," *Physical Review* 48, no. 73 (1935), doi: 10.1103/PhysRev.48.73.
[6] Elias Gravanis and Steven Willison, "'Mass Without Mass' From Thin Shells In Gauss-Bonnet Gravity," 2007, arXiv:gr-qc/0701152v3.
[7] However, see the incoherence of a tenseless physical universe in subsection 5.2.
[8] The term *eternal* in "eternal inflation" refers to the potential infinity of generating new universes by inflation. For example, the process of generating new universes never ceases. In models of *steady-state eternal inflatio*n, there is (1) tenseless region, (2) an actual infinite past of universe generation, and (3) a potential infinite future of universe generation.
[9] Alan H. Guth, "Eternal Inflation and Its Implications," 2007, http://arxiv.org/abs/hep-th/0702178v1.
[10] Alan R. Rhoda, "Open Theism and Other Models of Divine Providence," in *Models of God and Alternative Ultimate Realities*, ed. Jeanine Diller and Asa Kasher (New York: Springer, 2013), 287–298.
[11] Thomas Aquinas, *Summa Theologica*, trans. Fathers of the English Dominican Province, 1.27–43, http://www.ccel.org/ccel/aquinas/summa.toc.html; James Goetz, "Identical Legal Entities and the Trinity: Relative-Social Trinitarianism," *Journal of Analytic Theology* 4 (2016): 128–146, http://journalofanalytictheology.com/jat/index.php/jat/article/view/jat.2016-4.181919061425a/283.
[12] Aurelius Augustine, *Confessions*, trans. J.G. Pilkington, in *The Confessions and Letters of St. Augustine, With a Sketch of His Life and Work*, ed. Philip Schaff, 11:31, http://www.ccel.org/ccel/schaff/npnf101.vi.html.
[13] See subsection 7.1 and Aquinas, *Summa Theologica*, 1.10.1, 1:10:4, 1:25.4.
[14] J. Ellis McTaggart, "The Unreality of Time," *Mind* 17, no. 4 (1908): 457–474, doi: 10.1093/mind/XVII.4.457.
[15] Brian Leftow, *Time and Eternity* (Ithaca: Cornell University Press, 1991).
[16] Eleonore Stump and Norman Kretzmann, "Eternity," *Journal of Philosophy* 78, no. 8 (1981): 429–458, http://www.jstor.org/stable/2026047; Stump and Kretzmann, "Atemporal Duration: A Reply to Fitzgerald," *Journal of Philosophy* 84, no. 4 (1987): 214–219, http://www.jstor.org/stable/2027159; Stump and Kretzmann, "Eternity, Awareness, and Action," *Faith and Philosophy* 9, no. 4 (1992): 463–482, doi: 10.5840/faithphil19929433.
[17] Paul Helm, *Eternal God: A Study of God Without Time* (Oxford: Clarendon Press, 1988); Helm, "Divine Timeless Eternity," in *God and Time*, ed. Ganssle, 28–60, 79–91.
[18] Nicholas Wolterstorff, "God Everlasting," in *Contemporary Philosophy of Religion*, ed. Stephen M. Cahn and David Shatz (Oxford: Oxford University Press, 1982), 77–98;

Wolterstorff, "Unqualified Divine Temporality," in *God and Time*, ed. Ganssle, 187–213, 225–238.

[19] Alan G. Padgett, *God, Eternity and the Nature of Time* (London: Macmillan, 1992); Padgett, "Eternity as Relative Timelessness," in *God and Time*, ed. Ganssle, 92–110, 124–128.

[20] Hugh Everett, "'Relative State' Formulation of Quantum Mechanics," *Review of Modern Physics* 29 (1957): 454–462, doi: http://dx.doi.org/10.1103/RevModPhys.29.454.

[21] NASA Science Team, "Will the Universe Expand Forever?" 2012, http://map.gsfc.nasa.gov/universe/uni_shape.html.

[22] For a zero-energy universe, see Guth, "Eternal Inflation and Its Implications."

[23] For example, high energy accelerator research indicates that each new fermion or antifermion formed by the annihilation of a photon will oscillate between existing as matter and antimatter while having a 0.5 probability of settling into matter and a 0.5 probability of settling into antimatter. For matter/antimatter oscillation, see CERN, "Matter/Antimatter Asymmetry," accessed July, 24, 2015, http://press.web.cern.ch/backgrounders/matterantimatter-asymmetry.

[24] Each new elementary fermion and elementary antifermion evidentially had a 0.5 probability of settling into matter and a 0.5 probability of settling into antimatter. If all 10^{89} photons had annihilated into fermions and antifermions, then the normal distribution indicates that matter/antimatter asymmetry was likely because of the unlikely probability of the matter and antimatter randomly settling back to an exact 1:1 ratio. Also, if all 10^{89} photons had annihilated into fermions and antifermions, then the normal distribution indicates that 1 standard deviation from an exact 1:1 ratio equals 10^{44}. This indicates that 10^{89} photon annihilations resulting in 10^{80} more fermions than antifermions would have been unlikely and nonetheless nomologically possible. In this case, the 0.5 probability for the matter/antimatter settlement could have been tilted by 10^{-9}. Additionally, physical intelligent life would invariably refer to their particles as matter.

[25] Aquinas, *Summa Theologica*, 1.25.4

[26] Ibid., 1.4, 1.9.1.

[27] Ibid., 1.20.

[28] Ibid., 1.9.

[29] Ibid., 1.10.

[30] Ibid., 1.3.

[31] Ibid., 1:25.4.

[32] Ibid., 1:10:4, 1:25.4.

[33] Ibid., 1.14.

[34] Ibid., 1:8.

[35] Ibid., 1.43.

[36] Ibid., 3.2.1.

[37] Ibid., 1.14.7.

[38] Stump and Kretzmann, "Eternity"; Stump and Kretzmann, "Atemporal Duration"; Stump and Kretzmann, "Eternity, Awareness, and Action."

[39] Stump and Kretzmann, "Eternity, Awareness, and Action," 477–478.

[40] Helm, *Eternal God*; Helm, "Divine Timeless Eternity."

[41] Padgett, *God, Eternity and the Nature of Time*; Padgett, "Eternity as Relative Timelessness."

[42] I suppose that Padgett's word *nonfinite* is synonymous with *semi-infinite*. For example, Padgett indicates that God's pure duration before creation had no beginning and yet a terminal end.
[43] Padgett, "Eternity as Relative Timelessness," 108–109.
[44] William Lane Craig, *Time and Eternity: Exploring God's Relationship to Time* (Wheaton, IL: Crossway Books, 2001); Craig, "Timelessness and Omnitemporality."
[45] William Lane Craig and James D. Sinclair, "The Kalam Cosmological Argument," in *The Blackwell Companion to Natural Theology*, ed. Craig and J. P. Moreland (Oxford: John Wiley and Sons, 2009), 101-201.
[46] Wolterstorff, "God Everlasting"; Wolterstorff, "Unqualified Divine Temporality."
[47] Wolterstorff, "Unqualified Divine Temporality," 235–236.