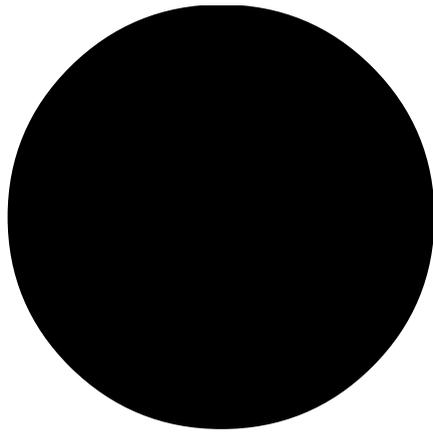


DECISIONS
OF
NATURE



A Story
about God

by Chongo in collaboration with José

**“What is the deepest
truth in nature?
Is there a truth even
deeper than God?”**

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about
God**

FOREWORD

This is a book about science, and about God, which is a topic that science seems to ordinarily exclude, outside of its conclusion that there is none (ignoring the fact that scientists compromise and lie for the sake of self-interest no differently than do most humans). That this is a book about both science and God, together, begs the obvious question, which is, what does one have to do with the other? What does the notion of God have anything whatsoever to do with real and genuine science, and visa versa, since the latter does not include any mention of the former in any of its descriptions and explanations, nor in its practice, does it not? That is to say, nowhere in any real, genuinely scientific explanation anywhere is God ever specified as demonstrably participating in nature as an active agent in physical phenomena, is it? Indeed, if such an exceptional case actually existed, would that single exceptional case by itself thereby demonstrably not prove the very existence of God, as a real, physical entity? Would that not thereby be real, physical proof of God's actual existence? Again, only a single example is needed.

So, does proof of God really exist, within the realm that is science? Does any real scientific explanation or description include God as an element in the accuracy of genuine scientific prediction, in any science? Furthermore, if such is truthfully the case, why has hard science not so announced but instead claims otherwise. If it were true, surely religion would want such a scientific fact as one scientifically justifying their point of view revealed to all, would it not? Albeit so recognized by few, scientific proof does exist for a "metaphysical" hand participating as an agent, actively deciding what the history of the universe is with every passing moment. This book explains the seemingly real God that real science uses.

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A Story about God

January 2019

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DEDICATION

This work is dedicated to the memory of Darrin Carter, one of the greatest highliners and in particular, one of the greatest highline *pioneers* that ever lived, and someone with whom I shared so great many adventures involving the outdoors, rockclimbing, walking on nylon, and just living life.

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“Imagine imagining God and creation, or better yet, imagine *not* imagining either.” – Eric Ladizinsky

I. DEFINING GOD SCIENTIFICALLY

In nearly every religion on Earth (while still assuming that exceptions must surely exist), that is, among religious believers in the world, there are very few who cannot 'define' what it is that 'God' is, however vague the meaning of that definition might happen to be. Always, irrespective of this believer being capable of specifying to anyone else what God *is*, every believer seems to have a pair of ideas about what it is that God *does*, and hence what God has done before and what God is capable of doing at any time in the future.

Almost universally, for religious and nonreligious believers alike, God has two distinct roles. First, God is the "creator" of everything, initiating both time and space, together, at once, along with everything that fills time and space. Creation occurred in a spectacular event of cosmic genesis, creating nature itself, in a single 'miraculous' act. With the advent of modern scientific discovery, many believers now often erroneously attribute 'creation' of the universe corresponding to the Big Bang, by mistakenly misunderstanding the Big Bang as a singular event occurring 'at once', in the context of ***universally absolute*** time, by not recognizing that the Theory of Relativity indisputably invalidates of universally absolute time measures altogether, along with that of absolute space measures too (as will be explained).

The second power that believers attribute to God is that of an all-powerful "manipulator." That is to say, that once events have been initiated by God having done so, God thereafter has also the power to manipulate these events, and in so

doing, shape the very future of the universe itself, manifest as the events that this manipulator chooses to have happen, by means of his will; thereby excluding a variety of other futures that could have happened instead, but did not, because such was the *will* of God, choosing the future that was to be, to the exclusion of any and all others. According to most believers, God accomplishes this by no other means aside from merely exercising his (or its) 'will' upon nature, meaning according to what happens to be the desire that this God happens to be embracing (or entertaining) at the time he (or its) will decides what will be. So, according to most, God created the world, is capable of manipulating it as this God happens to wish, and regardless of whether he (or it) do or do not interfere with its progress, the whole of the future is known by God, in every minute detail, and albeit endless, this future is always of finite spatial and temporal extent, despite erroneously mislabeling the endless perpetuity of eternity, as being infinite, when, in practice, it means something else.

Although exceptions must surely exist, generally, religious believers are almost universally creationists. Even those who deny this association seem to believe, at least in word, that God is still somehow responsible for the state of the universe, notwithstanding always the belief in the "corrupting" influence of humans upon nature, while these believers may ironically deny being *believing* creationists.

Religious believers are almost universally creationist because religious believers almost universally see time in the same way that everyone else pondering it did, prior to the discovery of the Theory of Relativity by the great thinker Albert Einstein, in 1905, at the age of nineteen. Before Einstein's discovery, everyone in the world, including every scientist that had ever lived along with every scientist then still alive at the time, saw time as being purely linear, that is, according to an abso-

lute, universal sequence of events, that is likewise absolutely invariant (unchanging). That is to say, ordered according to an absolute progression of invariant time, everywhere, happening upon (within) the "stage" of a three-dimensional, absolute, and universal "stage" of a three-dimensional, absolute and invariant space. Again, according to this picture, measures for time and space are permanent (Newtonian), set for all eternity in their absolute invariance, fixed forever on an unchanging and mostly empty stage of seeming three-dimensional space, with a material world within it. A common, universal yet still-not-yet-existent future awaits all, a now nonexistent past lies in oblivion, existent only in the ashes of memories, and the full extent of *all* actually existent reality is confined by the fleeting temporal extent of a lonely present moment of actual, real existence, with nothing else existent except it, everything else lying outside of the present moment, either gone forever in the past, or hidden somewhere in a single, imperceptible future, that is presently wholly nonexistent.

Absolute, invariant time and space implies a distinction between the two. That is, what seems immediately clear to anyone who has no reason or sound basis to think otherwise (as a consequence of science demonstrating otherwise, which is precisely what relativity does) is that the order of progression that time so obviously seems to be is wholly distinct from the void (emptiness) that space is, being therefore something that is clearly "different" from the void of space. They are unmistakably two different things, are they not? How could they not be distinct, physical entities? It seems so blatantly clear, time is unquestionably not space, and space, unquestionably not time. Surely this is how science must see it too? Indeed, science once agreed, meaning that scientists thought it to be the same time everywhere, across the entire cosmos, irrespective of anything. Yet, they were totally wrong.

As stated before, with the discovery of the relativity of space and time measures, the idea of any absolute and invariant standard for either time or for space was demonstrated to be an idea that flatly contradicted relativity, along with all of the principles that relativity incorporated, in order to explain what had before been incapable of being explained in a logically consistent and meaningfully coherent way, before the discovery of space and time's relativity of changing measures. Simply stated, relativity is true. Absolute time and space are *not* true, because they are logically inconsistent, while nature is not. To the contrary, nature is universally logically consistent, (for scales larger than the size of an atom or the duration of detectable motion) relativity being among the most stunning of examples of logical consistency (when combined with the Theory of Quantum Mechanics, the theory of energy, the scientific theory that *is* wholly logically consistent, being altogether lacking of any contradiction whatsoever, in either form or application. Together these two theories describe everything in nature, at any scale, from the smallest fundamental subatomic particles, up to scales of size that encompass the enormity of the entire cosmos as a whole. The more fundamental and inclusive theory, the Theory of Quantum Mechanics, excludes initiation of energy, or its mention. Relativity does not apply because it is the theory of time and space and is not the theory of energy, which is what it was that was initiated: energy. So, science can go back only so far and can only say what could NOT have happened, like, for example, physical singularities existing for the sake of nature emerging from one, creating energy from an empty space devoid of time (something that quantum theory says can flatly never be true). Moreover, instead of presuming universally absolute time, relativity, needless to say, says that time, like space, is relative; indeed, that one is physically (identical to) the other, or stated in

another way, relativity says that the universe is four-dimensional, not three, **meaning that the future is *physically* existent, and likewise that the past is too.** The future physically existing excludes creation, because future events already exist physically, which would allow them, at best, to be only recreated, not created for the very first time, “from nothing,” as there would be no such thing as nothing because that would require the future not existing, and relativity says that nowhere ever is that true!

So, according to science, specifically, according to the most fundamental scientific theories of all, the Theory of Relativity and the Theory of Quantum Mechanics, the universe having been initiated can never be true. Furthermore, physical existence being four-dimensional, minimally, as it is according to relativity, the universe could likewise never have been created, with the future already existing. Existence, according to quantum theory, is endlessly perpetual. According to the most foundational theory of all, the universe can have never been created, namely, quantum theory, being endlessly perpetual (according to the Schroedinger equation), there could never have been any beginning. Science provides no suggestion of beginning. Hence, it would seem that according to science, either no beginning is allowed, as is the case for quantum theory, or none is meaningful, as is the case for relativity.

But few know much about either relativity or quantum mechanics. So naturally, religious believers are almost universally creationist because religious believers almost universally see time in the same way that everyone else pondering it did, prior to the marvelous discovery of the Theory of Relativity by the great thinker Albert Einstein, at the age of nineteen, in 1905. Before Einstein's discovery, everyone in the world, including every scientist that had yet ever lived, saw time as purely linear, and invariant (unchanging). That is to say, being absolute, everywhere, meaning that it

was thought to be the same time everywhere across the entire cosmos, irrespective of anything. Again, because so few know much about either relativity or quantum mechanics, it is very uncommon for people to know that no basis exists in science for the creation of energy, or why. (Einstein, in the same year, 1905, that he discovered relativity, explained the quantum nature of energy in the photoelectric effect, laying the foundation for the development of the Theory of Quantum Mechanics, for which he received a Nobel prize, while ironically never receiving one for relativity.)

So, minimally, by virtue of seeing time as an absolute, sequential progression and likewise as a result of not understanding why the future preexists, much less knowing that it truly does preexist, most believers would seem to be left with little alternative other than doing what one seems that one must do in the stark absence of understanding why it is that such must be done, that is, to agree with common convention. That is, one is either, admits that one does not know and is thus left to one's own devices to discover and thereby learn, or instead, one simply *believes*, out of convenience; which, in the case of religion, means believing that the universe itself was somehow initiated, indeed, that its contents were somehow metaphysically (in the nonscientific sense) created, from absolutely nothing. Because religious believers feel so justified in presuming creation, they feel equally justified in next presuming a creator, most often as an ethereal entity, God, to whom power over all of the forces of nature can be assigned.

Religious believers seem generally to justify God's absolute power over the forces of nature by virtue of presuming this creator to have created these forces in the first place. Having creating them, God obviously must have power 'over' them, the power to command them to operate according to this God's will, or, equally, the

power to rescind or alter these forces as this God might happen to see fit, at whatever time, because again, having created these forces in the first place, this God surely must have absolute authority over them, to either alter them, rescind them, or circumvent them, at will. God created them, hence God commands them, hence God can manipulate them or, if this God so wishes, suspend them altogether, so as to circumvent them, apparently selectively, according to its momentary 'will'.

Since science provides no basis for God as a creator and this being a book based upon science, God as a creator is not a part of this work, because such a perspective is not a part of real and genuine scientific fact for the scientific reasons stated previously. This is a book about scientific fact, of which the creation of energy, again, according to the latest current science, can never be a part (if, for no other reason, energy having been created from "nothing" violates what is among the most basic physical symmetries in nature, namely, the conservation of energy, codified formally as the first law of thermodynamics). No violations of this symmetry have ever been observed by science, in any experiment or observation ever done in physics. According to the conservation of energy, a principle so fundamental that there could be no laws of physics in the first place (not to mention no life either) if this physical symmetry were not true, energy can no more ever be created, any more than it can be destroyed. Thus, because no energy can ever actually be created or destroyed, it never is, which is all that the conservation of energy need do, in order for the laws of physics to exist. They do because the amount of energy in the universe as a whole absolutely never changes (relativity providing the how and why).

So it would seem that if, according to science, the universe was never created, then no God created that which was never created to begin with, and hence, surely no

God can therefore be manipulating the forces of nature, as there seems no reason for presuming the power to manipulate the laws of nature in the absence of an entity powerful enough to create such laws as all of those in nature. And that would seem to be the end of any story about God in science were it not for, a single and solitary yet **monumental** scientific detail, a detail found only within the deepest and most fundamental of all sciences, the physical Theory of Quantum Mechanics. The traditional approach to this theory incorporates an *actual, physical manipulator* as a *demonstrably real "agent"* in nature, manifest in every last decision that is ever made in the universe, no differently than if this actual, physical agent indeed were God, or at least did what God is believed to be capable of doing; which is a fact that nearly all of those who are unfamiliar with quantum theory could hardly be aware of, much less of its truth (validity). Yet, astonishingly, it *is* true. According to the historically traditional, convention explanation of quantum mechanics, a "decider" exists, deciding what will happen next, anywhere. It is this great decider of nature that is the subject of this work, a great decider that decides everything in the universe. Although it may not be God, it sure seems to be doing exactly what God would be doing if there were one. This God is the subject that this book about science explores. This is the God that science, within its deepest and most fundamental of foundations, seems to "believe" in, wholeheartedly, and its existence can be demonstrated, physically, in any quantum experiment, not the least of which is the experiment that is described in Appendix A, starting on page 56, the most famous and significant of all experiments testing and demonstrating the validity of the Theory of Quantum Mechanics, namely, the two-slot experiment, perhaps the most important experiment in physics.

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GLOSSARY

actual – constituting observed reality;

axiom – a fundamental assumption based upon no other assumption or assumptions more fundamental than it;

Bell's Theorem – a very simple yet amazing mathematical theorem: using it, quantum theory specifies that there will be a difference between statistically formulated, classical experimental outcomes and those the actual outcomes that quantum solutions yield, creating a means to validate quantum outcomes over the classical (the actual experiment that validated quantum theory using John Bell's theorem was done by Alain Aspect in 1982);

collapse [of the wave function] – also called wave [function] collapse; the rendering of information as a constraint upon the many potential possibilities into a single actual reality;

continuity – a smooth, unbroken, and uninterrupted series of points adjacent in every linearly independent direction; space and time, together, each being inseparable from the other, constitute the space-time continuum;

continuum – the continuity of all space and time locations together, in smooth, continuous proximity, in every spatial and temporal direction, or in any combination thereof;

consciousness – a circuit that learned how to improve (evolve), and by improving, next learned how to think (recursion);

energy – everything lying within space and time that is not space and time; this includes all light (all radiation) and all matter; nature consists solely of energy and gravity (shaping space and time); in terms of energy, space and time are effectively made of light; this light and everything else in the universe, are shaped by space and time, which shapes the distribution of all energy within it (as a consequence of gravity);

ephemeral – of finite duration (all complex living patterns are ephemeral);

evolution [of the wave function] – the development of potential possibilities from an initial set of actualities;

explanation – the formalization of meaning (noting that meaning and scope of precision for it are based upon structural context);

[an] **infinity** – *effectively* an infinitude;

massive – having the property of mass (manifest as weight and inertia); matter has mass, light (radiation) and gravity do not have mass;

mathematics – a precise, formalized, universal *language*, based upon logic; math is the language of *genuine* science;

matter – energy that has *temporal* extent (mass); light and gravity are momentary and thus have no temporal extent (having only spatial extent);

nature – everything existent;

phase space – a finite dimensional geometry that accommodates an infinite number of trajectories, analogous to infinite-dimensional Hilbert space, which accommodates an infinity of trajectories into a single one;

pattern – repeating series of symmetrical transformations, with transformations being either translations (e.g. projections), rotations, reflections, scalings, or any combination thereof;

photon – a particle of radiation (light)

quantum mechanics/quantum theory – the theory of energy (as opposed to relativity, the theory of space and time: gravity); short for the Theory of Quantum Mechanics;

[quantum] state – in classical terms, an ‘events’ associated with motion;

radiation – any and all forms of light; (the term is also applied to high speed, massive particles of extraterrestrial origin, which, by virtue of being massive are not light);

science – the genuine pursuit of the identification of accurate truth in nature; effectively a synonym to epistemological pursuit;

sentient being – an active physical system capable of sustaining configurations corresponding to pleasure, pain, fear, or sorrow.

space-time – the four-dimensional, inseparable combination of spatial distance and temporal extent in our universe;

temporal – having to do with time; temporal displacements and locations are locations and distances in time, respectively;

theoretical physics – (also called physical theory or the theoretical model) a body of ideas that describes nature more accurately than any body of ideas ever conceived, and which underlies ANY and ALL *genuine* and accurate science; theoretical physics is based upon two foundational scientific theories, relativity, for space and time, and quantum mechanics, for energy (with anything else lying within the realm of statistical mechanics);

[scientific] theory – a body of ideas with demonstrable predictive power, that has never been demonstrated to have ever failed to accurately model reality, and which underlies ALL *genuine* science;;

three-dimensional – having length, width, and height; a spatial volume is an example of a three-dimensional object;

two-dimensional – having length and width; a surface is an example of a two-dimensional object;

uncertainty principle – the inescapability of an absolute limit upon precision;

understanding – a demonstrable isomorphic correspondence between that which happens and that which is imagined to;

virtual – constituting observed reality;

visible universe – the scope (i.e. physical extent) of our unique and individual light cone;

wave function – collection of potential quantum states corresponding to a system;

zero-dimensional – lacking length, width, and height, or any physical extent whatsoever; a point is an example of a zero-dimensional object;

~ The End ~

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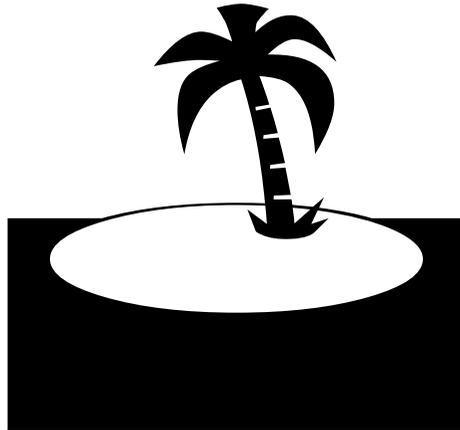
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