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*“To bake an apple pie, you must first invent the universe.” – Carl Sagan*

*“The Cosmos is all that is or ever was or ever will be. Our feeblest contemplations of the Cosmos stir us – there is a tingling in the spine, a catch in the voice, a faint sensation as if a distant memory, of falling from a height. We know we are approaching the greatest of mysteries... The size and age of the Cosmos are beyond ordinary human understanding. Lost somewhere between immensity and eternity is our tiny planetary home. In a cosmic perspective, most human concerns seem insignificant, even petty. And yet our species is young and curious and brave and shows much promise. In the last few millennia we have made the most astonishing and unexpected discoveries about the Cosmos and our place within it, explorations that are exhilarating to consider. They remind us that humans have evolved to wonder, that understanding is a joy, that knowledge is prerequisite to survival. I believe our future depends powerfully on how well we understand this Cosmos in which we float like a mote of dust in the morning sky.” – Carl Sagan, Cosmos, p. 4*

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**Humbug:** I don’t know anything about “*there is a tingling in the spine, a catch in the voice, a faint sensation as if a distant memory, of falling from a height*” – maybe when I was young – but when I think about the Cosmos now, I usually get angry, sad, depressed, disgusted, alienated. Mr. Sagan must be living in another cosmos as noted in 2112 Absurd Words, *supra*.

**Smokos and Nag-a-Ram:** Merriam-Webster online dictionary Editor’s Note to Definition of *cosmos*: “*Cosmos* often simply means ‘universe.’ But the word is generally used to suggest an orderly or harmonious universe, as it was originally used by Pythagoras in the 6th century B.C. Thus, a religious mystic may help put us in touch with the cosmos, and so may a physicist. The same is often true of the adjective *cosmic*: Cosmic rays (really particles rather than rays) bombard us from outer space, but cosmic questions come from human attempts to find order in the universe.” Thus are there any cosmic questions except the ones humans ask? Can there be a concept of objective, inherent cosmic questions?

- ✓ “The universe – a vast expanse of space and matter. It includes all that we see, and all that we know. Since the beginning of time, we have wondered how it came to be? A gloriously orchestrated plan? A chance series of events? Or something much, much dumber?” – Opening Narration, “Ice Age: Scrat Spaced Out” (animated short, 2016).

**Six Pieces of Parchment:** Moses and his brother were in a cave on Mt. Sinai; Moses, having just received the Word of God, was tasked with writing down the story of creation he had received from God. Moses began reciting, “Approximately fourteen billion years ago, there was a big bang...” His brother interrupted, “Moses, we only have six small pieces of parchment! Can we shorten this?” Moses sighed, “Oh, very well. Write this down then. In the beginning God created the heavens and the earth. Now the earth was formless and empty, darkness was over the surface of the deep, and the ....”

- ✓ I do not believe I invented this story. I think I read it long ago, I have it associated in my mind with Isaac Asimov, possibly it was in *Microcosmic Tales*. But I cannot seem to find the source now. Biblical text was adapted from an online Bible.

*“Did you know Voltaire was the first to suggest that the universe was created by a gigantic explosion? ... And then Goethe was the first to suggest that spiral nebulae were swirling masses of stars. We now call them galaxies. It’s kind of funny how often new concepts of science find their first tentative forms of expression in the arts.” – John, The Man from Earth (2007) <sup>1</sup>*

**Crack in the Door:** The only Voltaire work I have read was Candide (1759), in college long ago (after 1759). But considering that Aristarchus of Samos suggested that the Earth went around the sun (heliocentrism), it is not beyond possibility that Voltaire might have suggested the explosive origin of the universe. Carl Sagan discusses Aristarchus in *Cosmos*, Episode 7.

**Big Bang Theory:** In the beginning of our current universe was the Big Bang. At the moment of the Big Bang, the old universe was destroyed by the contradiction of its truths and falsities, and the new universe was created; at the moment of the Big Bang, the truths and falsities of the new universe were defined in the form of the physical laws of the universe. In the moments following the Big Bang, the truths were absolutely true, and the falsities were absolutely false; however, as the universe expands outward at greater than the speed of light over eons, the truths become a little less true and the falsities become a little less false.

In the first moments of the new universe, it was absolutely true that all things in the universe had a physical form, and nothing more or less, and that nothing could travel faster than the speed of light. Except that the universe itself may have been expanding at faster than light speed.

As the universe expanded, the physical laws changed slowly so that more and more complex molecular structures developed until eventually, structures developed which were ‘more’ than mere physical forms. These we call Life, and over time, greater structures developed which were more than just feeding and reproductive drives, these we call Intelligent Life.

In the first moments of the new universe, it was absolutely true that nothing could travel faster than the speed of light (except apparently the expansion of the universe), and nothing new could exist which did not previously exist in another form in the universe at the time of the Big Bang. As the universe expands and the laws weaken, Intelligent Life bends the local universe to its own reality, and it becomes possible to travel faster than light. At first, the first scientists to begin to understand the universe in a technological-scientific manner, noticed that apparently information travels faster than light in certain limited circumstances, but later, it is found to be possible for Life and Matter to travel faster than light if you just know the right ‘tricks,’ i.e. Faster Than Light (FTL) technology develops. And interstellar culture, the mixture of Intelligent Life Forms that should never have met, becomes possible, then becomes Real.

- ✓ “We live in a universe that is, by some estimations, too good to be true. The fundamental constants of nature and the cosmological constant, which drives the accelerating expansion of the universe, seem ‘fine-tuned’ to allow galaxies and stars to form. ... Why do these numbers, which are essential features of the universe and cannot be derived from more fundamental quantities, appear to conspire for our comfort? One answer goes: If they were different, we wouldn’t be here to ask the question. This is called the ‘anthropic principle,’ and if you think it feels like a cosmic punt, you’re not alone. Researchers have been trying to underpin our apparent stroke of luck with

hard science for decades. String theory suggests a solution: It predicts that our universe is just one among a multitude of universes, each with its own fundamental constants. If the cosmic lottery has played out billions of times, it isn't so remarkable that the winning numbers for life should come up at least once." – Kate Becker, "Does Science Need Falsifiability?" NOVA, February 11, 2015.

- ✓ "I think the real interest in arguing Boltzmann Brains is as a lesson in caution – caution in arguing probabilities before really understanding the prior assumptions. In this case, there is no evidence that the Big Bang arose from a random fluctuation." – Matt O'Dowd (City University of New York), "Are You a Boltzmann Brain," PBS Space-Time Channel, April 26, 2017.
- Or Just a Blown Lightbulb: Entertain for a moment the idea that the universe is a holographic projection of sorts; an idea that has gained traction and the fascination of physicists and philosophers. See e.g., Michelle Starr, "Is the universe a 2D hologram? Fermilab intends to find out," August 26, 2014, CNET, and Nick Bostrom, "Are You Living in a Computer Simulation," *Philosophical Quarterly* (2003), Vol. 53, No. 211, pp. 243-255, both quoted in 1 Information, p. 1327, *infra*. Philosophers will talk about what it means, regardless of whether it is objectively true or otherwise, while physicist will attempt to find out if it is objectively true, and leave the 'meaning' to everyone else. Thus the divide of modernity:
  - ✓ "Where religion addresses ontology, science is concerned with ontic description." – Michael Robbins, "Atheists Used to Take the Idea of God Seriously. That's Why They Mattered." *Slate Magazine*, July 8, 2014.

If the universe is expanding, are 'pixels' being added to the hypersphere or whatever to compensate, and if so, how? Think of a television screen, envision how the picture loses definition if you either get too close, or if an old movie is projected on a screen that is too large. If 'pixels' are not being added to the universe, then it will lose cohesion as it expands?

- ✓ "In recent years, the search for the fundamental laws of nature has forced us to think about the Big Bang much more deeply. According to our best theories – string theory and M theory – all of the details of the laws of physics are actually determined by the structure of the universe; specifically, by the arrangement of tiny, curled-up extra dimensions of space. This is a very beautiful picture: particle physics itself is now just another aspect of cosmology. But if you want to understand why the extra dimensions are arranged as they are, you have to understand the Big Bang because that's where everything came from." – Neil Turok, "The Cyclic Universe," *Edge* (edge.org), May 16, 2007.
- Moonwalking to the Stars: Most people assume, without thinking, that the laws of the universe have always been the same since inception. It's a model that makes things simple, just simply rewind the universe clock using current knowledge of physics, and the movements of the stars, back to the beginning. It gets several orders more complicated if we discovered that the universe hasn't always had exactly the same physical laws – that there is a kip in the clock – because it would be very difficult to determine, experimentally, what changed, what was before. We have stuck with the model because, for the most part, it is correct, but not exactly correct, we have not been able to explain everything.
  - ✓ People think we walk by pushing against the Earth. Science tells us that we walk by pushing against the Earth, which then pushes back against us propelling us forward.

This is one of the reasons why walking on concrete is faster than walking on grass; the push-pushback is more efficient. This seemingly trivial difference is a critical shift in frames from a human-centric view of walking to a view of walking that is part of a more complex interaction with the environment. Think for a moment the effect of this simple, yet not simple, cognitive difference? Likewise, it seems that human existence requires us to push against the universe so that the universe pushes back.

*“Query: what are the three parts of wisdom according to philosophy? To be wise one must know what is real, what is good, and how to think. These three parts of wisdom correspond to the three parts of philosophy, namely Metaphysics, Ethics, and Logic.”*

– Robert Wesley Angelo, “The Origins and Branches of Philosophy,” captured July 29, 2018 from <https://www.roangelo.net/logwitt/philosophy-origin.html>

**Fourth Question:** In the early 20<sup>th</sup> Century, Albert Camus added a fourth question:

- ✓ “‘There is only one really serious philosophical problem,’ Camus says, ‘and that is suicide. Deciding whether or not life is worth living is to answer the fundamental question in philosophy. All other questions follow from that’ (MS, 3). One might object that suicide is neither a ‘problem’ nor a ‘question,’ but an act.” – Stanford Encyclopedia of Philosophy article, “Albert Camus.”

It is not clear to me into which of the three traditional questions or areas of philosophy the question of suicide belongs to the exclusion of the others. One could stuff part of it into each, but the whole discussion will never fit correctly under any of the three questions. I do therefore, believe it is a fourth question, and in that sense, Albert Camus accomplished something extraordinary in the history of philosophy. I believe that Albert Camus did state a problem because it must be decided whether or not to act (i.e. commit suicide) and how does one go about that?

*“...since philosophy is divided into three branches, which respectively deal with the mysteries of nature, with subjects of dialectic, and with human life and conduct...”*

– Marcus Tullius Cicero, *Of Oratory* (55 B.C.), Bk. 1 (trans. E. W. Sutton and H. Rackham) from Patricia Bizzell and Bruce Herzberg, *The Rhetorical Tradition* (1990), p. 209

## Endnotes.

<sup>1</sup> **Commentary & Citation:** I have not found any direct evidence to support this movie dialogue’s assertions, but this *might* be close: What better cure for a mechanist view of the universe than a big frakk’n explosion to start things?

- ✓ “In the last fourteen years of his life, Voltaire ... showed a keen interest in biological subjects, especially those having to do with the nature of generation. He supported the doctrine of preformation, the popular eighteenth-century view that all organisms had preexisted before the Creation... The belief that the clock-work universe had been created by an intelligent and all-powerful God demanded that God’s involvement in the creation of living creatures play a fundamental role in explanations of their generation. For there was always the danger in the mechanist world view that God as Creator might be a superfluous entity and *that matter and motion themselves might be responsible for all of the phenomena of the universe*, including creation of life and the existence of the human soul.” – Shirley A. Roe, “Voltaire Versus Needham: Atheism, Materialism, and the Generation of Life,” *Journal of the History of Ideas*, Vol. 46, No. 1, Jan. - Mar. 1985, pp. 65-87 (emphasis added) (preview page on <https://www.jstor.org/stable/2709776?seq=1>).