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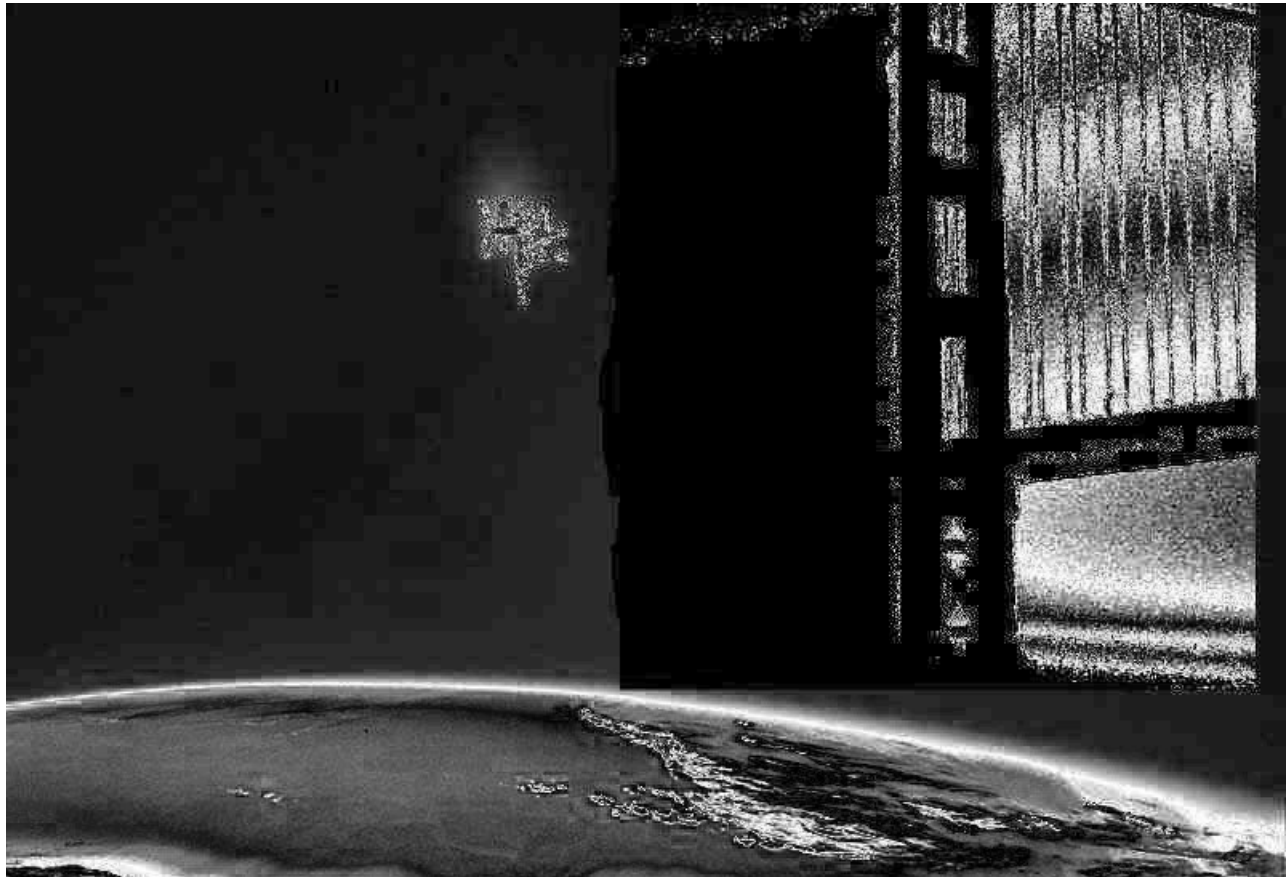
## Selecting the Right Lens

*Recovering the Deep Logos:*

*Accidental Goodness and Meaning Detection*

**By**

**Jay B. Gaskill**



When we cut through the post-modern cultural fog, two competing world pictures emerge on front stage.

They differ greatly in the details, of course, but the two categories that contain and define these competing camps become obvious once you stop to examine the overall pattern.

The essential conflict is between a vision of reality governed by random accidents, one in which meaning and purpose are evanescent bubbles in space-time, only fleetingly real and arbitrarily meaningful. In this world model, all our notions of good, bad, holy, evil, beauty and ugliness are mere projections, even delusions.

There is another world view (and it includes both secular and spiritual versions). In its various forms, it presents us with a reality picture that is embedded with meaning and purpose, one in which accident and randomness operate within the larger framework of creation engendering order. This is a universe whose deep meaning, beauty, goodness and purpose remain open to discovery; they are unfolding – a process that is visible with the right lens.

Each view is the product of a different lens. With the right “viewing equipment”, we can see the universe wherein meaning is discovered rather than invented and where accident and randomness operate as the necessary preconditions of ongoing creation processes. It is an unfinished universe, wonderful and shot through with new and old meanings, awaiting our attention and discovery.

For many of us, the random and indeterminate elements in our physical universe are a good thing. They are strictly necessary if the world is to remain hospitable to creation. Random variation permits the emergence of novelty. The random events in the universe engender the ongoing processes of creation by breaking through that which would otherwise be a fixed and rigid realm (dead, really), a world of utter predictability.

Of course, a third world view exists, as well, but it is now “out of the running”. I make this claim in spite of its millions of adherents. It presents the unsettling picture of a universe riddled with an essential contradiction. Based on (what I believe to be a misreading of scripture and of the accumulating evidence) these adherents imagine that we live in a world that was created instantly in finished form, a fractured and “fallen” realm whose imperfections cast doubt on the goodness and even the reality of the agency of creation itself. I believe that this view has been pushed backstage by the current drama. The conflict between the two views I’ve just described is the new game in town.

As I will develop in this essay, whether you can accommodate and “live into” the second view of things – we’ll call it the meaningful and good universe - depends on what you are able to “see” operating in the world around you. This requires a special lens...

The former bleak world view is still alive and well in the world, still popular - even dominant - among the intelligentsia. It holds that we humans are here only because of a string of accidents. Beyond this facile observation, some intellectuals have almost gloatingly carried the implications further into very bleak territory indeed. For example, in a 1997 article in the *New York Review of Books*, Stephen Jay Gould, the late humanist

atheist, captured the spirit and content of contemporary Darwinist accidentalism in this passage:

**“The radicalism of natural selection lies in its power to dethrone some of the deepest and most traditional comforts of Western thought, particularly the notion that nature’s benevolence, order, and good design, with humans at a sensible summit of power and excellence, proves the existence of an omnipotent and benevolent creator who loves us most of all (the old-style theological version), or at least that nature has meaningful directions, and that humans fit into a sensible and predictable pattern regulating the totality (the modern and more secular version).**

**“To these beliefs Darwinian natural selection presents the most contrary position imaginable. Only one causal force produces evolutionary change in Darwin’s world: the unconscious struggle among individual organisms to promote their own personal reproductive success—nothing else, and nothing higher (no force, for example, works explicitly for the good of species or the harmony of ecosystems)....**

**“Darwin’s system should be viewed as morally liberating, not cosmically depressing. The answers to moral questions cannot be found in nature’s factuality in any case, so why not take the ‘cold bath’ of recognizing nature as non-moral, and not constructed to match our hopes? After all, life existed on earth for 3.5 billion years before we arrived; why should life’s causal ways match our prescriptions for human meaning or decency?”**

But surely the actual world, the real universe, cannot be fully or completely described in purely mechanical terms. Meaning is real to those of us who are endowed with the capacity for meaning detection. It is palpably evident that we are not “making this up” any more than Isaac Newton and Gottfried Wilhelm Leibniz independently “made up” the calculus. To deny the “objective” reality of meaning requires a sort of self induced blindness. This is *subjective* only in the sense the detection of meaning requires a mind, but *objective* in the larger sense that that meaning is independent of any individual person, place or circumstance – it is found, not invented.

The world-without-meaning picture makes little “sense” – especially when seen from a moral and esthetic perspective – unless it is observed exclusively through an *arch-materialist* lens. This is the kind of arch-materialism that can only “see” a Chopin polonaise as air pressure variations that affect electrochemical changes in the brain. By arch-materialist *lens*, I refer to something that actually gets in the way of our cognitive window into the full nature of things. Arch-materialism is really a mental filter that denies and therefore filters out, *a priori*, any aspect of the non-material realm – including meaning and beauty. It denies the domain of reality that includes form, order, and – as I propose - the very architecture of space-time, matter and energy and the form/design of all complex living organisms in the biosphere, except as mental inventions. [And note that this view has strangely edited us out of the universe, as if we are some alien

observers instead of integral and central foci of ongoing creation. In the natural realm, we are the awake, sentient, morally aware parts of the universe, not some bizarre epiphenomena.] And – and this is perhaps the most important “view-blockage” it denies the reality of the underlying moral order upon which we are able to erect civilization itself.

The materialist mindset (really the materialist ideology/ontology) represents a stubborn denial indeed because it persists even when these non material existents tend repeatedly to manifest in nature.

As I will outline in a moment, the overall arc of evolutionary development is almost unmistakable: From non-life, life emerges; from non-conscious life, conscious life emerges; from morally unconscious states, moral consciousness emerges; from brutal and disorganized exchange relationships among people, the morally ordered relationships of civilization emerge.

### ***The Matter of Emergence and the Emergence of Matter***

Emergence describes the development of novel complex entities from simpler ingredients. In human activity, the process is as familiar as bread making. In nature, the process is familiar in biological development, and somewhat less familiar in evolution.

Emergence typically is the process in physical reality whereby a particular novel organization, configuration or arrangement of elements or sub-systems can be said to represent a new existent not otherwise present in the (now) subordinate elements prior to the emerged novel organization, configuration, or arrangement. There are other definitions, but the idea closely parallels that of design, where the process is very clear. For example, the painting is a result of the artist’s configuration of paint. The artist’s vision is an emergent property of the paint configuration.

The central idea is that complex organization cannot be reduced to simplicity without destroying part of its essential nature. This statement is the same as saying that novelty exists. All novelty results from a combination or organization of existing simpler elements. For example, the constituent elements of a functioning toy wagon might be the contents of a bag of plastic parts; a complex organic molecule is composed of a large number of simpler atoms from as few as four chemical elements; a Bach fugue is constructed from a simple set of scales the individual note intervals of which represent discrete frequency relationships. To acknowledge that novel, complex organization is the result of the combination or recombination of less complexly organized elements is not the same thing as saying that reduction to the constituent elements preserves the complex order.

Organization adds a “something” to disorganized elements that was not present before. To watch the death and decomposition of a fellow creature is to see this principle, starkly, in reverse operation. This lost “something” represents an additional level of organized complexity that was neither inherent nor necessary to the existence of the various disorganized constituent elements. In a word, it is novel.

The appearance of new order, seemingly a “mere” reordering of existing elements, is an instance of the emergence of novelty (and heightened overall organized complexity). Reductionism simply cannot account for this process. The miracle of existence is that novelty continues to emerge. Where does novelty come from? What is the mechanism for its emergence?

If, in nature, the new existent simply develops (here the metaphor of a photographic image, emerging in a pan of developing fluid, is helpful) we prefer to use the term of emergence, because there is no “designer.” For example, a group of birds suddenly acts in such a coordinated way that the flock becomes a sort of sky squadron. This dynamic organization is an emergent property of the interaction of the individual birds. In another example, scientists believe that the first multi-cellular animals were the emergent product of colonial organizational patterns of individual cells. In popular parlance, emergence is usually the explanation when “the sum is greater than the parts.”

In this view, a number of organizational or systemic properties or entities are seen to *emerge* in physical reality as the combinations and relationships among potentially constituent elements achieve a critical developmental stage. Emergence is the converse of reduction. But in physical reality, emergent entities and their reductions are not time reversible. Schrödinger’s cat may be poisoned, then reduced in a crucible to constituent elements, but the process cannot be reversed in real time. No one would seriously contend that the defining elements of *cat* are captured in the reduced description, ten ounces fur, etc.

Conscious intelligence itself can be understood as just such an emergent existent (either in the evolutionary context, as successive species developed the capacity to think and feel or in the biological development context, as an embryo progresses to baby, child and recalcitrant teenager).

Science is discovering that the relationships between physical “law” (or law-like tendencies) and the special properties of random / chaotic processes routinely lead to the emergence of novel organization in nature. This is a highly significant feature of the physical universe. And it suggests to many of us that the Darwinian description of evolutionary development, while certainly valid as a narrow, physical description of the processes of biological evolution, is incomplete as a meta-theory.

## **A Better Lens**

Music, the arts, spiritual awareness itself, all are emergent properties – or faculties – of living conscious being. The materialist filter is a major blinder; when it is in place, the human mind finds the (otherwise miraculous and joyful) arrival in the material/physical realm of event space of a vast variety of very complicated, fine tuned, clever and well functioning systems (of which we homo sapiens are the most amazing local examples) essentially inexplicable -- except as the outcome of “blind luck”.

Put on the lens that exposes a reality teeming with unexpressed, pregnant order and creative novelty opportunistically poised to emerge on the stage of mere” physicals reality. It becomes apparent that random events always precede the emergence of unexpected order in nature. Even natural “design” emerges via a series of incremental

steps, each one of which is first presented for “selection” as a result of some random variation.

Our very intelligence – after all, we are the design that is also a designer – provides us with a much more nuanced and penetrating lens. Our lens is the information-interpretive, pattern-recognition, meaning-detection cognitive suite of human consciousness. It is the very same set of mental faculties that enables us to detect, discern, recognize and communicate with other intelligent, feeling beings. Without this set of abilities, Steven Jay Gould, of blessed memory, would not have learned physics in the first place and certainly wouldn’t have bothered to convey his bleak thoughts to the rest of us.

Where do all these “clever” designs reside before they are manifest in our space-time bounded material/physical reality? Where did the topological form of the bubble reside before it first manifested in space-time? Where were the harmonic relationships characteristic of a Helmholtz resonator -- it generates the musical sounds that a bottle of air can make when you blow on it – before the differentiation of the Big Bang plasma into gases capable of propagating musical sound waves?

All the questions of this form are essentially endless. But note that the very form of each question contains a bias, because “where” is a space-time locator and “before” is a temporal locator. Those of us who use the “meaning detection lens” are forced to conclude that what we are looking for must necessarily reside outside where and when, with the patterns, rules’ laws, order and necessary relationships that govern space-time itself. These non-material (or perhaps para-material would be a better term) existents are located out of time and beyond space. Surely, Plato and Pythagoras would be comfortable with this notion, as are many mathematical physicists.

But if non-biological “form” can reside outside (again the term “outside” is metaphorical) regular space-time, why not biological form? And if biological form (*qua form*) can reside outside regular space-time, then why cannot the very architecture of conscious being? If the architecture of consciousness can reside outside space time (at least as the archetype of a potential consciousness operating in event space), then why not the architecture of functioning models of civilization? Why not the very normative architecture necessary for civilizations to function? Why should we not seriously entertain the notion that the good, the beautiful and the true are all prefigured in a realm outside regular space time?

Enter information theory – a nascent discipline whose subject, *information*, can be understood as an existent that is expressed in or carried by matter or energy **but is not either**. It has properties - such that of absolute communication, movement and duplicability - that strongly suggest that information, *qua information*, is weightless, mass-less, a-temporal and a-spatial, perhaps in the very same sense that mathematical relationships are.

There are essentially two paradigms here, competing for our attention and allegiance: ***discovered meaning and revealed purpose*** vs. ***grafted meaning and imposed purpose***.

The second of these is the particular human response to a purposeless universe, a universe exclusively composed of matter and energy occupying space and time, a domain that has only accidentally spawned creatures capable of imputing or assigning meaning to things. The first paradigm is based on the detection of meaning by thinking, feeling beings whose very minds were pre-equipped by nature to discern meaning in a universe well tuned for our arrival. The two lenses are deep meaning detection and deep meaning blind. The materialist lens weighs the painting, cataloguing its pigments and bit mapping the brush strokes. The deep meaning lens detects the painter's vision, evaluates it in an esthetic context and – in great art – it enables us to use the occasion to illumine the whole of the human condition.

### ***Seeing the Meta-Trend as Unfolding Embedded Meaning***

Cosmology takes seriously the Big Bang as central to the cosmological narrative. Cosmologists have identified the pre-Big Bang *singularity* as the beginning point of physical existence, itself - so far as physics and cosmology can venture to answer the Origin question. The mother-singularity is usually described as that state of matter-energy so dense and infinitesimal that all known laws of physics, include quantum relationships, completely break down. So do all the current the mathematical models. The situation seems to point to an *infinitely tiny* point of *infinite energy density*. If so, it was a singular object indeed.

There is trend in human technology over the last several decades towards information storage in denser and smaller media. Now, consider a thought experiment: Think of this trend toward increasingly compact information storage in the context of that singularity that immediately preceded the “Big Bang”. Let's imagine running the creation movie in reverse. We would see our universe contracting over 15 billion years or so, the process accelerating at the end until we are to envision a physical object so small and dense that all of the differentiation and order in matter and energy quanta, photons, baryons, proto-atoms, really everything that will later constitute the universe has somehow lost its complexity – at least on any imaginably detectable level.

Seen that way, it seems to be a portrayal of information compression. Gordon E. Moore, Intel's co-founder, posited that the number of transistors on a chip can be expected to double every two years. So far his prediction has worked out. The industry refers to his conjecture as “Moore's Law”. But because of the known physical limitations, no serious physicist takes Moore's Law completely seriously. For Moore's law to really hold over time (a doubling every two years is a rapid acceleration), it must be possible to achieve something like infinite transistor density. But that would be a singularity. Moore's conjecture is about information processing density, but also by extension it is about information storage density. I propose that Moore's law amounts to a parable about the mother-singularity.

I note with interest that some quantum physicists have speculated that the entire universe, starting with the cosmic mother-singularity, was the product of a random fluctuation in

the void. Compare this observation with the behavior of biological evolution and of complex “chaotic” systems. **In nature, randomness precedes creative emergence.**

Here is what we are asked to assume, if we are to follow the strict “everything-is-physics” / “all is matter and energy” paradigm: that all of the vast arrays of emergent order in the universe over the last 15 billion years or so were necessarily “held-for-later release” in some *purely physical* medium. Then as our imaginary movie of the universe runs backward, we would be witnessing an information compression sequence leading to the *singularity*, now defined as the maximum possible information stored in the minimum possible singular space-time location. But we have every suggestion that the mother-singularity was non-physical. To my naïve sensibilities, this singularity looks very much like part of a domain where infinite information storage in an infinitesimal point, a perfect geometric point is actually possible – or something breathtakingly similar.

Surely, there is a more elegant explanation for this seeming paradox. I propose we resurrect Plato’s realm of forms, but suitably update that conception so that Plato’s realm of forms now includes all possible form, information, and design, including that of ultra-complex systems (after all Plato understood little about how complex dynamic systems can be captured as “form”), and the entire domain of natural law. The insight seems inescapable – when we reject materialism as a complete account of reality- that there really is another domain or reality as well – one that contains relationship, form, design and variegated order, a domain that holds all of the possible templates, architecture and designs that may ever emerge in a space time bounded universe whenever and wherever conditions allow.

Of course Plato was overly impressed by the seeming “purity” of simple, elegant form. As a result he (and some of his followers) tended to see the “natural” world as “corrupt”. We 21<sup>st</sup> century dwellers have a new respect for the “messiness” of complex systems and we have learned through computer modeling of dynamic systems and the mathematics of chaos that the “messiness” of the natural world is a product of seemingly simple forms and relationships as they play themselves out in space-time. So we are now able to understand, as Plato could not, how the realm of “form” can indeed contain a great deal more than Euclidian geometry and the music of the spheres. In this paradigm, the natural world is less describable as corrupt than as merely incomplete, a work in progress.

From what we think we know about the pre-Big Bang singularity’s properties, it belongs more in this expanded “form” domain than space-time bounded materiality. This paradigm shift elegantly explains the apparent paradox: All the known physical laws don’t work because *the singularity is not physical*. I would go further: This view allows us to see the singularity before the Big Bang as a *domain portal*. The universe began under special conditions that created a singular domain-to-domain interface. A random fluctuation in the void created an opening, and infinite order began to leak in. This was our beginning. As we enter this new paradigm, our “new lens” illuminates a number of other implications.



But first, we need to use terms appropriate to the new paradigm. Assume we name the domain of physical reality, the “messy” realm of matter, energy and complex interactions “*event space*”. If we lived in ancient times, freshly inspired by the discoveries of geometry and the music of the spheres, we might be content to call that “other” domain “*form space*”. Is that term really adequate for the linked realm of all non-material form/design/order/natural law/the architecture of everything?

Now, some necessary background: Among the most important seminal thinkers of the 20<sup>th</sup> century, was the physicist David Bohm (1917-1992); his was a truly extraordinary mind. Dr. Bohm discovered the equations that describe the diffusion of a plasma across a magnetic field (“Bohm diffusion”); he discovered how an electro-magnetic field could affect a region of space in which the field had been shielded (“The Aharonov-Bohm effect”). Yet, while Bohm was leaving a large mark in his field, he ventured into natural philosophy. I was there that I first discovered him

I was deeply impressed by his seminal work, *Wholeness and the Implicate Order*. (Routledge, 1980. ISBN 0-7448-0000-5)

One of the “spookiest” discoveries of quantum physics (Einstein’s word) was the phenomenon of quantum entanglement. Two quanta (say photons) can become “entangled” (or coupled) in such a way that no matter how far they are separated in space, an action affecting a property of one will *instantly* created a complementary change in the other. These entangled particles were said to have exhibited “non-local” relationship, such that they behaved as if there were a non physical link between them, defying all *physical* theories about travel – or communication across great distances. Quantum entanglement is now accepted as a fact of nature. In Dr. Bohm’s discussion of the “non-local” relationships between entangled quantum particles in the famous EPR experiment (Einstein, Podolsky, and Rosen), Bohm wrote: “...we may regard the particles constituting projection of a ‘higher dimension reality, rather than a common three dimensional space.” *Wholeness*, at page 188.

Bohm coined the term “implicate order” to describe a possible mechanism by which the form and order of particle physics, then chemistry and so on, was able to emerge from seemingly simple precursors. And he added, “basically the implicate order has to be considered as a process of enfoldment and unfoldment in a higher dimensional space.” *ID*, page 189. Later, in describing biological evolution, he writes: “...various successive living forms unfold creatively...The law of this unfoldment cannot be properly understood without considering the immense multidimensional reality of which it is a projection...” *ID*, page 212.

Forgive these abbreviated, perhaps cryptic, excerpts. Bohm was suggesting that the emergence of novel design in biological evolution and the mysteries of quantum entanglement are both related to a property of nature that involves a realm or domain outside that of normal, classical physical reality. His use of a “higher dimensional space” to fulfill that role is actually very close to the notion I’ve advanced here of a Platonic realm of form, whose contents are seen as greatly expanded. I have come to believe that

these early insights of Bohm’s foreshadowed the notion that all form / relationship / information are somehow encoded in or reside in a separate domain that is tied to physical reality. Dr. Bohm was very, very close to a fully integrated view, one that captures both reality domains (material and formal, if you will), by linking the purely physical with the non-physical. But I suspect he was held back, perhaps by the lingering pull of the older materialist mind set, hence the language of “multi-dimensional space” instead of the language of information storage.

I must note that Bohm was among the quantum physicists who strongly resisted the idea that quantum states represented indeterminacy, since he – like Einstein and Newton – clung to the view (now mostly discredited) that the course of events in the universe was fully predetermined. Like Einstein, he would probably have asserted “God doesn’t play dice.”

Allowing for these understandable limitations, we need to acknowledge Bohm’s enfoldment and unfoldment conception as an early description of information (in the largest Platonic sense of the term) as it *changes phase* between the material and non-material domains. Such a phase change inaugurated the current universe. In a larger work (*The Ghosts Outside Plato’s Cave*), I’ve developed the notion that all material reality is essentially relational, differentiating from the larger “form” realm by sets of separation relationships, spatial, temporal and “history” creating.

## ***What’s in a Name?***

***Or...***

### ***Was Plato Describing a Universal Hard Drive?***

I propose that we name the domain of form, order and design, that realm of pure, yet unexpressed information and design, the “***Bohm Plato Information Reservoir***” or the “**BPIR**”. The unfolding of order and novel design features in the universe is the product of the underlying tension between two linked domains of reality, event space (the realm of space, time, energy and ordering laws) and the *Bohm Plato Information Reservoir*, the full contents of which can never be fully expressed within any space-time continuum. The BPIR tends to partially and opportunistically emerge whenever circumstances allow. The operation of random chaotic processes are essential to this because emergence is only stochastically predetermined, not pre-programmed. Therefore, in an essential sense, randomness is the handmaiden of creation.

We humans are the best known examples in our corner of the universe of the thinking, feeling, plan-making “designs-that-are-also designers”. Seen as emergent exemplar of a universal embedded in the BPIR, we are not the bastard children of “blind chance; nor for that matter, in the larger “scheme of things” are we likely to be unique. When I assert that our emergence was prefigured in the BPIR, I mean that, given the right conditions, it really was just a matter of time. Recall the obvious here: This universe came equipped with all the necessary resources for our eventual emergence, not the least of which were a

lot of time and the right physical conditions -- a beautiful set of finely calibrated pre-anthropocentric parameters that virtually guaranteed our eventual appearance on the stage.

So here is the question of the day: If physics and chemistry – and their implications for biological function – were prefigured in the BPIR, Why stop there? Were the optimum properties of intelligent beings also prefigured? And if they were, then we must ask whether the architecture of civilizations of intelligent beings were also prefigured? And if that was prefigured, then why not also the optimum “normative architecture” on which the various civilizations are founded? What I am calling the normative architecture of civilization can also be described as the fundamental principles of inter-personal morality.

I am personally certain that these insights – assuming they take hold – will form a common ground that can be shared by enlightened theists and universal humanists. I am reasonably confident that, barring a new Dark Age, our species will be on the common ground by the latter part of this century.

And I have also proposed a name for this universe.

### **Do We Live in a “Generatropic” Universe?**

**tro·pism:**

*noun*

Etymology: International Scientific Vocabulary *-tropism*

**1 a :** involuntary orientation by an organism or one of its parts that involves turning or curving by movement or by differential growth and is a positive or negative response to a source of stimulation **b :** a reflex reaction involving a tropism

**2 :** an innate tendency to react in a definite manner to stimuli; *broadly* : a natural inclination, a propensity.

- **tro·pis·tic**

**Précis:** The “blind watchmaker” paradigm omits the impact of proto-intelligent systems that emerge in nature to supplement the “natural” selection process. “Blind” nature governs the challenge to a species of organisms, but not the response. Evolutionary development becomes less and less “blind”, as it is accelerated by incrementally “intelligent” selection processes. The emergence of proto-intelligence accelerates evolutionary development in bio-systems much like compound interest accelerates the return on an investment. *Think of a Lego piece as emblematic of a proto-intelligent multipurpose design element that can be utilized in several competing designs.* Once we can grasp how “natural” selection could “stumble” into the first Lego-like element, we can readily grasp how the evolutionary process is accelerated. The culmination of this process, inaugurating a profound speedup of creative innovation, was the arrival of conscious, reasoning bio-forms. This allowed millions of hypotheses and models to be sacrificed

in lieu of whole species. The arrival of “Mens Sapiens” about 750k years ago (the design that is also a designer) was prefigured by the pre-arrival of proto-intelligence.

When we observe the *outcomes* of evolution on the immense time scales of cosmology, an overall directionality becomes apparent, hinting at *purpose*. This observation always prompts a caution by skeptics. Their corrective rejoinders include:

*When you imply purpose, you are anthropomorphizing are you not?*

*So what is the mechanism that drives this proposed progressive directionality?*

*How can you prove purposive activity or meaningful direction, when this putative pattern is the product of a series of random events?*

But it was such a *huge* series of “random” events and such a transparent pattern. To any reasonable mind, at least on first impression, the overall pattern does suggest directionality. Given that circumstance, who has the burden of explanation? Questions as to the mechanism (in the second rejoinder) address possible tendencies that are effectively *invisible* at the smallest scales. Does that make the apprehension of an overall, large scale pattern unreasonable? And what exactly do we mean by *random*? What role, if any, could *micro-random* processes have in generating apparently non-random outcomes on the vastly larger scales? A survey of the overall pattern:

One infinitesimally tiny Singularity yields a “**Big Bang**” that in turn yields the rapid expansion of undifferentiated energy, followed by a pattern of emergence in which discrete interacting forms emerge from the undifferentiated flux:

Ω Emergence takes place at varying rates, but physical cosmology posits the very early, very rapid emergence of energy and matter quanta, and the various fundamental forces, including gravity. As energy density drops, the light elements emerge, followed by their gravity-driven coalescence into proto-stars, the ignition of fusion processes inside the stellar formations, the proliferation of new stars that “self-organize” into galaxies, the generation of heavy elements, the coalescence of planetary bodies and so on.

Ω On at least one planet (endowed with what we now know to be pre-biotic conditions) new discrete forms emerge from the pre-biotic soup, becoming proto-cellular structures that eventually “learn” to reproduce themselves, then aggregate into organisms which in turn appear to “self-organize” into ecosystems. Once a critical mass is reached, a huge acceleration of development takes place. Collectively the explosion of biology is “Big Bang” II or the “**Bog Bang**”.

Ω Within the planetary ecosystem, animals emerge, and from that group, the faculty for conscious decision making develops, and from that, the entire suite of cognitive faculties emerges. The “cog” list includes foresight, empathy, reason, and creative innovation. The

advent of cognition is huge: it inaugurates a third acceleration in innovation and development, “Big Bang III” or the “*Cog Bang*”.

Proto-intelligent systems boost evolutionary development along lines favorable to bio-intelligence. The anthropic configuration of physical law made the universe “life-friendly”. This further boost can be seen as a predictable outcome of the anthropic alignment and justifies the assertion that the universe is “generatropic” (using *tropic* in the sense that plants, for example, exhibit light-seeking tropisms).

By the time evolution had generated a self-reproducing information storage device (i.e., the DNA information-packing, self-reproducing cell or cellular organism or cellular component of a colony of cells as part of larger organism) the stage was set for a series of accelerations in bio-evolutionary processes.

The DNA carrying cell is an obvious “Lego”. But the detection of proto-intelligence at the pre-cellular stages is more difficult. I note that some molecular structures are more “development friendly” than others. For example, recent research has explained the evolution of certain matching pairs of protein molecules that act as hormone and hormone receptors respectively -- “key and lock” for unique “modern” bio-regulatory functions -- were prefigured in a more generic receptor molecule 450 million years earlier. This sort of analysis can be regressed indefinitely, all the way to the Big Bang. But the basic explanation still needs to include the underlying significance of a universe whose *organizational logic* leads to the gradual emergence of proto-intelligent modules.

In general, the operation of selection processes (think of semi-blind “choices”) that benefit the survival of any reproduction line will eventually experience a positive feedback. So we would expect to see a subtle, *innate* “evolutionary pressure” favoring innovations that fulfill the following two criteria:

- (a) no negative survival load;
- (b) utility as a multi-purpose adaptation socket (“plug in”) for more than one possible line of development, even in the absence of an immediate survival advantage.

We can expect the bio-form “strategies” that foster future adaptation flexibility will do better than the “all eggs in one basket” strategies. Otherwise the set of developments that eventually produced you and me, the information exchange in this and other mind-to-mind exchanges, could not have taken hold.

When we examine the large scale cosmological pattern (Big Bang to Big Civilization), played in fast-forward, the sense that we are observing something like a tropism is compelling. The emergence of proto-intelligence seems to lead directly to the emergence of the real thing. Random processes are involved, but it does not seem to be an *arbitrary* development. Why? Generative changes are taking place in a universe that allows randomness and indeterminate processes in the context of an overall governing order. Why?

A lot of keyboard strokes have been expended on the topic on the anthropic configuration of natural law. [I recommend Barrow & Tipler’s, “The Anthropic Cosmological Principle” and Michael J. Denton’s “Nature’s Destiny”]. But there has been little understanding of the crucial role of

*randomness*. And there has been no serious attempt (so far as I can discern) to integrate Plato’s original insights about the a-temporal realm of form/order with the observed generative processes in nature. I believe that we are witnessing a stochastic generative tendency in nature that is linked to Plato’s non-material realm of form/design.

The anthropic discussion should be expanded. Random or indeterminate processes (sometimes described as chaotic indeterminacy) can readily be integrated into the overall picture once we allow that a *non-material realm of form-design* (think of the realm of Plato’s forms updated here) exists *in a state of full, interactive co-existence with the realm of physical-materiality*, (space-time, particles, waves and energy). I refer to the former realm as Form Space and the latter as Event space. [A more extended treatment of this idea is in my MS, “The Ghosts Outside Plato’s Cave”.]

Latent design innovations resident in Form Space opportunistically slip through into Event Space, aided by random fluctuations that disturb the conservative tendencies of an otherwise rigidly deterministic regime. Generative processes utilize random disruptions that create a virtual grid that sorts for design elements. The grid is heuristic, becoming more and more “intelligent”. Seen in this context, evolutionary acceleration via emergence is probably affected by at least three clusters of factors:

- *Form/design adjacency* is the notion that, in Plato’s “Form Space”, similar “designs” are nestled along a solution continuum, with adjacencies that link to development pathways. Form/design adjacency posits design precursors coupled with optimal pathways to that design’s expression in Event Space. These pathways include “smart links”, i.e., potential evolutionary steps that (like a Lego piece) exhibit a generic capability to accommodate more than the design “plug in”. These “Lego” elements can be visualized as multi-design-friendly modules that, once emergent in Event Space, profoundly accelerate evolutionary development.
- *Increasingly “smart” natural selection filters*: (a) Given a steady stream of random variation, with occasional spikes, “smart filters” (operating as the natural selection process augmented by “self-training”) opportunistically generate spikes in development. (b) The proto-intelligence embedded on these filters (and their associated, but yet-to-be-fully-expressed designs), partly stored in Form Space (more on storage below), tends to emerge over time.
- *Subtle (and essentially undetectable) probabilistic effects converge* to accelerate the process. The directionality of evolution strongly implies minute probabilistic shifts that favor the opportunistic emergence of intelligence. [Whether this is an embedded “anthropic” feature of physical “law”, an emerging intelligent agency or an operating external one is a separate class of issues.] Sudden emergence of generative design can easily represent very tiny changes in effective probability over very long time frames. Suppose that unaided “blind” random processes in nature can yield an operating neuro-optical processing system in not less than 100 trillion years. To telescope this development time frame to 14.5 billion years would only require a *probability tweak* well below the detection threshold if it operated with a “compound interest effect”. That effect would be expected when the *tweak* favors development that facilitated further development. And the amplified

cumulative probabilistic effect is strengthened when it couples with the design acceleration strategies sketched in the first two paragraphs above.

It is appropriate to posit a Genesis of All Beginnings in which a threshold “natural selection” event took place: Being was preferred against non-being, and the direction of all subsequent events was set. [Reference my Article “2-Be or Not, The Designs of Intelligence” posted at <http://www.jaygaskill.com/Designofintelligence.htm>.] This First Event inaugurated and revealed the generative principle. That principle or innate tendency gave birth to all form so far expressed in the universe and all that remains as yet unexpressed. From the realm of all form (the term is used here in an expanded sense), there emerged space-time as the venue for the expression of form/design in Event Space. The ongoing tension between form-order and random, order-disturbing processes in Event Space has allowed the generative principle continued scope of operation.

In the universe, we still observe the lingering effects of this pre-Big Bang in the persistence of a *stochastic creation* tendency. In this paradigm, our universe (possibly one of several) is an Event Space realm linked to Form Space in much the same way that various matter-energy phases are linked. The generative tendency can be understood as the outcome of the tension between infinite, latent, unexpressed form/design and the impossibility of its complete expression in Event Space within any finite temporal span. The generative principle continues to operate in the background, where it gradually promotes a sequential development path to unfold, resulting incrementally and eventually in the emergence of:

- ∞ Self-reproducing bio-form – *life*;
- ∞ Life’s greatest generative adaptation, *conscious, creative intelligence*;
- ∞ The support infrastructure for the foregoing, to wit:  
→ *bio-ecology* and the organized *social ecology* that we call *civilization*.

This view fits into a meta-reality model that explains and incorporates the random and indeterminate features of reality within the predominantly but not absolutely law driven realm of Event Space.

Our generation, equipped with the insights generated by computer and information science, is better able than the minds of Plato’s generation to understand how the realm of Form Space can encode all the features of the most complex *dynamic* processes, including the system designs of biology and the various developmental paths leading to their incremental development in the realm of Event Space (the space-time, energy-matter domain).

When creative innovation and ordering alignments seem to emerge in Event Space, our natural inclination is to ask ourselves, “Where did *that* come from?” The very notion of emergence implies a “coming out” (or even a phase change), the uncovering of something that was hidden or latent. The metaphysical view that Form Space is linked to Event Space supplies a particularly powerful explanation for the emergence of novel design in the latter realm (since it was encoded within the former).

If we were to take seriously the materialist view of reality, the pre-Big Bang Singularity, as a sub-atomic quantum entity, somehow “encoded” all the form/design of physics, literally holding the pattern of every aspect of the forms that could emerge in the universe over time. Quantum physicists and cosmologists simply throw up their hands at this point. How *small* was this object? Were its boundaries less than Plank limit? If so, it would defy classical space-time physical description. Did it have boundaries *at all*?

The information storage density in the pre-Big Bang Singularity would be infinite in any meaningful sense of the term. If it *was* a geometrical point, *infinitely* small, then we have really passed out of the purely physical realm into Plato’s territory. Any such a \*Point would not be “locatable” in space-time at all; more properly understood, it would be a purely Platonic form.

Given the modern trend toward greater and greater information storage in smaller and smaller media, the idea of something approaching infinite information storage in a single point is possible to entertain. But the existence of a pure *geometric* point endowed with *infinite information storage* would necessarily represent an entirely different realm or domain of reality, one that the followers of Plato would recognize. All the available evidence (though incomplete) is consistent with that recognition. We may not yet be able to answer the question: How does the compressed and stored “Platonic” form/design “leak” from Form Space into Event Space? Observation trumps the “How” question: Over large time frames, it has; it continues to do so. This is why I’ve chosen the metaphor of a *phase* change to describe the transition from form to instantiation. Early science was able to discover the fact that steam, ice and water were phase changes of a single substance long before an adequate account of the mechanism was developed.

I propose that creative emergence occurs in Event Space where-and-when-ever that \*Point is circumstantially located at an intersection of Form Space and Event Space. The Singularity that prefigured the Big Bang was one such \*Point. Within the turbulence of Event Space, chaotic indeterminacy provides other such micro-intersections, offering the occasional opportunity for the emergence of novelty.

But not all novelty “takes”. The survival and endurance of novelty depends on the robust character and situational relevance (or lack thereof) of the emergent design feature. Randomness operates as midwife in the processes of creative emergence; without random, indeterminate processes, the existing, law-driven order would otherwise have remained too rigid to accommodate creative change. We wouldn’t be here.

The progressive overall pattern of evolutionary processes on the cosmic scale reflects the extraordinary potency of certain clever processes whose designs, once permitted to emerge, acquire a stubborn, self-replicating foothold in Event Space. When this is followed by self-replicating designs endowed with a heightened sensitivity to further creative emergence, the generative processes greatly accelerate. I see all these potent designs as stored in Form Space. Their opportunistic emergence is *effectively inevitable*, given sufficient time. This is why, given the immense resources of space-time in the current universe (and the inexhaustible reservoir of clever designs), random processes will eventually generate life forms and intelligence in any universe with a similar latent developmental architecture. See my article “2-B-or-Not” *The Designs of Intelligence* posted at: <http://www.jaygaskill.com/Designofintelligence.htm> .



## ***Exercising the New Lens***

We live in a universe governed in part by a generative principle or tendency. The generative principle as *creative tendency* emerges and takes root in the venue of conscious intelligence as a primal motivation. As motivation, the creative tendency manifests in three forms:

- (a) The *Survival Imperative*;
- (b) The *Reproduction Imperative*, and (when our creative & imaginative capabilities reach critical mass);
- (c) The *Creation Imperative*.

Below, I begin to sketch how these developments complete a circle, knitting together Descartes/Kant/Hume fact-value fissure, and opening the path to our species' rediscovery of its universal ethical foundations. The topic of ethics, contents and origin, is far too large for anything but a sketch. My purpose here is to suggest that there is a convergence of social utility, evolutionary direction and ultimate "rightness" that takes on an entirely different – and much more encouraging – color when we take off the arch-materialist filter and see reality with the New Lens.

### ***One: A Cohort of Thieves Exposes Latent Ethical Precepts***

I would open this topic by posing one simple question: *Why are there reasonably consistent rules that apply within a working cohort of thieves?*

I submit that thieves are really hunting teams, predator cohorts that cooperate in a common endeavor – to acquire resources by a combination of force and stealth. Because of the inherent danger of the operation, a certain basic trust must be established, and a division of spoils agreed to.

While actual thieves tend (in my professional experience) to screw up, this happens most often because they tend to violate their own agreed norms.

But the nature of the rules they apply to themselves is surprisingly instructive. Five simple rules are rationally necessary to the success of any criminal enterprise.

Here they are:

1. Veracity

Without some minimum truth fidelity and avoidance of significant deception, the baseline cooperation for the enterprise would quickly disintegrate. In fact there is a kind of Darwinian selection in operation here: The criminals who fail to follow such norms are usually the first ones caught.

2. No theft from fellow thieves
3. No serious assault on fellow thieves
4. Promise fidelity among fellow thieves
5. Obedience to leadership

Like all rules, this “thieves’ honor” set of precepts is sometimes observed in the breach, but that begs the point:

By no coincidence at all, these five norms are also at the core of all moral systems that support civilization.

Think about it: The cohort norms needed for the close cooperation of a predator-hunter team or for a criminal gang (indeed for the accomplishment of any similar, survival-related task among otherwise independent, intelligent actors) belong essentially to the same set and:

The rules that make up civilization’s necessary moral architecture are “thieves honor” writ large.

Within the given cohort, the essential norms apply equally to all members, but are subject to an agreed or imposed leadership principle. In primitive cohorts, this is the alpha - follower model. There are other more sophisticated models as well, especially for larger, community-based cohorts.

My proposal in a nutshell:

Any working civilization represents, at a minimum, the extension of the theft-cohort norms to the entire civilization’s scope of authority; and therefore represents at least a partial universalization of that set of cohort norms. This creates an expectation of equality of norm application within specific

## ***Two: Evolution Has Prepared Humans for Ethics***

Using our New Lens, I invite you to tease out the deeper implications of the recently discussed contributions of Jonathan Haidt of the University of Virginia. Dr. Haidt has theorized that evolution has pre-equipped our species for morality. His insights were sparked by a study of the psychological phenomenon of “dumfounding” moral reactions. This led him to posit that we are equipped with a form of moral intuition. A study of moral disgust led him to identify five moral systems in play at once.

“Of the moral systems that protect individuals, one is concerned with preventing harm to the person and the other with reciprocity and fairness. Less familiar are the three systems that promote behaviors developed for strengthening the group. These are loyalty to the in-group, respect for authority and hierarchy, and a sense of purity or sanctity.”

A September 18<sup>th</sup> New York Times article about Dr. Haidt’s ideas is linked below with extensive excerpts.

**September 18, 2007 Is ‘Do Unto Others’ Written Into Our Genes? By NICHOLAS WADE**

Link:

[http://www.nytimes.com/2007/09/18/science/18mora.html?\\_r=1&ref=science&oref=slog in](http://www.nytimes.com/2007/09/18/science/18mora.html?_r=1&ref=science&oref=slog in)

EXCERPTS:

[Deleted material ...]

“At first glance, natural selection and the survival of the fittest may seem to reward only the most selfish values. But for animals that live in groups, selfishness must be strictly curbed or there will be no advantage to social living. Could the behaviors evolved by social animals to make societies work be the foundation from which human morality evolved?”

[... ] “Jonathan Haidt, a moral psychologist at the University of Virginia, has been constructing a broad evolutionary view of morality that traces its connections both to religion and to politics.

[...] “Testing people’s reactions to situations like that of a hungry family that cooked and ate its pet dog after it had become roadkill, he explored the phenomenon of moral dumbfounding — when people feel strongly that something is wrong but cannot explain why.

“Dumbfounding led him to view morality as driven by two separate mental systems, one ancient and one modern, though the mind is scarcely aware of the difference. The ancient system, which he calls moral intuition, is based on the emotion-laden moral behaviors that evolved before the development of language. The modern system — he calls it moral judgment — came after language, when people became able to articulate why something was right or wrong.

‘The emotional responses of moral intuition occur instantaneously — they are primitive gut reactions that evolved to generate split-second decisions and enhance survival in a dangerous world. Moral judgment, on the other hand, comes later, as the conscious mind develops a plausible rationalization for the decision already arrived at through moral intuition.

“Moral dumbfounding, in Dr. Haidt’s view, occurs when moral judgment fails to come up with a convincing explanation for what moral intuition has decided.

“So why has evolution equipped the brain with two moral systems when just one might seem plenty? ‘We have a complex animal mind that only recently evolved language and language-based reasoning,’ Dr. Haidt said. ‘No way was control of the organism going to be handed over to this novel faculty.’

“He likens the mind’s subterranean moral machinery to an elephant, and conscious moral reasoning to a small rider on the elephant’s back. Psychologists and philosophers have long taken a far too narrow view of morality, he believes, because they have focused on the rider and largely ignored the elephant.

[...] “In Bhubaneswar, in the Indian state of Orissa, Dr. Haidt saw that people recognized a much wider moral domain than the issues of harm and justice that are central to Western morality. Indians were concerned with integrating the community through rituals and committed to concepts of religious purity as a way to restrain behavior.

“On his return from India, Dr. Haidt combed the literature of anthropology and psychology for ideas about morality throughout the world. He identified five components of morality that were common to most cultures. Some concerned the protection of individuals, others the ties that bind a group together.

“Of the moral systems that protect individuals, one is concerned with preventing harm to the person and the other with reciprocity and fairness. Less familiar are the three systems that promote behaviors developed for strengthening the group. These are loyalty to the in-group, respect for authority and hierarchy, and a sense of purity or sanctity.

“The five moral systems, in Dr. Haidt’s view, are innate psychological mechanisms that predispose children to absorb certain virtues. Because these virtues are learned, morality may vary widely from culture to culture, while maintaining its central role of restraining selfishness. In Western societies, the focus is on protecting individuals by insisting that everyone be treated fairly. Creativity is high, but society is less orderly. In many other societies, selfishness is suppressed “through practices, rituals and stories that help a person play a cooperative role in a larger social entity,” Dr. Haidt said.

“He is aware that many people — including “the politically homogeneous discipline of psychology” — equate morality with justice, rights and the welfare of the individual, and dismiss everything else as mere social convention. But many societies around the world do in fact behave as if loyalty, respect for authority and sanctity are moral concepts, Dr. Haidt notes, and this justifies taking a wider view of the moral domain.

“The idea that morality and sacredness are intertwined, he said, may now be out of fashion but has a venerable pedigree, tracing back to Emile Durkheim, a founder of sociology.

[...]

“The emotion of disgust probably evolved when people became meat eaters and had to learn which foods might be contaminated with bacteria, a problem not presented by plant foods. Disgust was then extended to many other categories, he argues, to people who were unclean, to unacceptable sexual practices and to a wide class of bodily functions and behaviors that were seen as separating humans from animals.

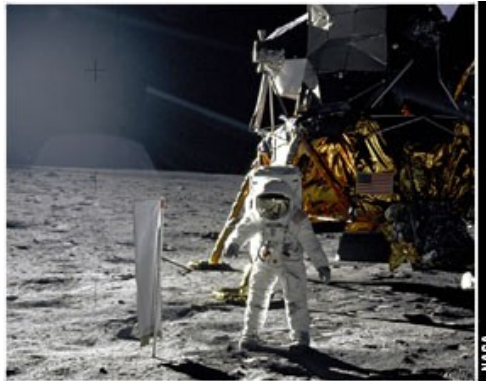
“Imagine visiting a town,” Dr. Haidt writes, “where people wear no clothes, never bathe, have sex ‘doggie style’ in public, and eat raw meat by biting off pieces directly from the carcass.”

“He sees the disgust evoked by such a scene as allied to notions of physical and religious purity. Purity is, in his view, a moral system that promotes the goals of controlling selfish desires and acting in a religiously approved way.”

[...]

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When these remarkable developments are examined with the new lens, the origin of ethics can be seen as emergent design, much as the geometry of cells, the designs of life and conscious being can be understood. The further implication that normative truth, the “oughtness” of relationships between persons, was prefigured in the “universal hard drive” is far more reasonable than the notion that all this, from bacillus to Bach, from protozoa to Plato, was an absurd cosmic accident.



## ***Recovering the Logos***

Seen through the lens of meaning detection, there is a deep logic visible in nature that, over time, tends to favor the development not only of life forms, but of intelligent value making life forms, *persons* who form civilizations founded on moral precepts and principles. The universe was “wired” with a soft, stochastic bias sufficient to virtually guarantee the staged emergence of Homo sapiens as a morally aware being. This deep logic or soft wiring was the **Logos**.

JBG

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