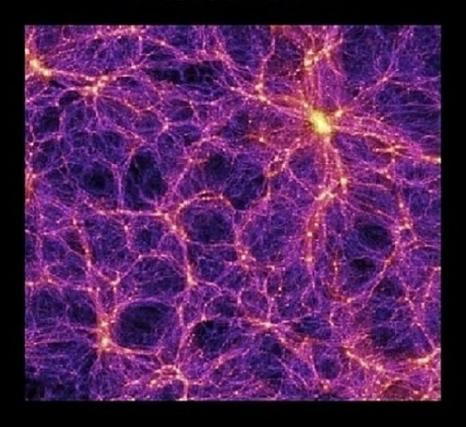
The Mathematical Universe



Mike Hockney

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 \mathbf{BY}

MIKE HOCKNEY

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Introduction

The universe is a mathematical hologram. It's made of ontological mathematics. It's a *living*, *thinking*, self-optimising holographic organism composed of immortal, indestructible, ontological mathematical units called *monads*, defined by the most powerful and beautiful equation in the whole of mathematics: Euler's Formula.

Monads have a much more resonant name: *souls*. We all inhabit *Soul World*, a wondrous Singularity outside space and time. Our souls are individual mathematical singularities: autonomous, uncaused, uncreated, dimensionless frequency domains. Via Fourier mathematics, these imperishable, immaterial monadic souls can collectively create the spacetime domain of the material world. Where each soul is a single frequency domain, the material world of space and time is their *collective* Fourier output. What is "matter"? It's simply *dimensional* energy: energy existing in the Fourier spacetime domain rather than in the Fourier *dimensionless* frequency domain.

Souls are immense mathematical vibrations, based on precise, analytic cosine waves and imaginary sine waves (hence are defined by complex numbers rather than the real numbers of scientific materialism). From these waves, we get wave mechanics (quantum mechanics) and holography, i.e. a complete explanation of the material world.

Fourier mathematics solves the previously intractable problem of Cartesian dualism (the famous mind-body problem), i.e. how unextended minds can interact with extended matter. Minds are just Fourier frequency domains and bodies Fourier spacetime domains. Bodies are nothing but an alternative mathematical way of representing mental information. They are mental constructs or projections, and have no independent existence.

What was the Big Bang? It was a purely mathematical operation in which a frequency domain of mathematical souls (a Singularity), outside space and time, generated a Fourier spacetime domain: a cosmic hologram grounded in quantum mechanics. It really is as simple as that.

As Plato recognised, true reality belongs to the *intelligible* domain (which, mathematically, is an eternal, immutable frequency domain based on Euler's Formula). Illusory, contingent reality constitutes the *sensible* domain studied by scientists.

It's the rational mind, not sensory experiments, that reveals the eternal, intelligible "truths of reason". The sensible world is all about "truths of fact", which have no eternal necessity.

Reality is defined by a single mathematical law: the *God Equation*, derived from Euler's Formula. This single equation generates and controls the entire universe. It's the True God — an all-powerful ontological equation, but it's certainly not a person. It's outside space and time and yet can create space and time. It's the uncaused cause of everything, the Prime Mover.

What, at root, are mind and life? They are simply the eternal flow of structured information — mathematical waves. Consciousness is what arises when this information flow becomes self-aware and can attach "I" to itself. Information is all about numbers. As Pythagoras said, "All things are numbers; number rules all." He was asserting that we inhabit a universe of information, of ontological mathematics.

Leibniz was the greatest of all the inheritors of Pythagoras's mathematical legacy. His principle of sufficient reason is the quintessence of ontological mathematics. With this principle and the Leibnizian doctrine of *compossibility*, it can be shown that Max Tegmark's Mathematical Multiverse and indeed all Multiverse theories are fallacious.

Ontological mathematics shows how quantum indeterminacy can be overcome and replaced with deterministic quantum mechanics of the kind of which Einstein dreamt. There are no such things as randomness and acausality in a universe of cause and effect: everything has a precise reason why it is thus and not otherwise. Through ontological mathematics, the dice-playing God is abolished and the God of Reason and causality is restored.

Only one subject is necessarily eternally valid, and that is mathematics. Nothing and no one can create mathematics. It, however, creates everything else. Without mathematics, existence doesn't have an answer. A universe without an answer is an *impossible* universe. Scientific materialism is an irrationalist claim that the universe exists for no reason at all. The next scientific revolution will see empiricist science replaced by rationalist ontological mathematics.

Pythagorean Illuminism

Professor Brian Cox, the British media's science darling, regularly scoffs

at philosophy and presents it as the perfect time-wasting device for intelligent people. For Cox, the scientific method is the only path to knowledge.

Where did it all go wrong for philosophy? How did it become a joke? Today, philosophy divides into the tedious pedantry and falsehoods of analytic philosophy and the cynical, nihilistic social criticism of postmodernism. Philosophy has fled the battlefield as far as the big questions go. Where once it thought it could answer everything, now its ambitions have shrunk to analysing whether the "King of France is bald", or deconstructing the "agenda" served by such a question, or revealing the unstable meaning of the words involved.

Philosophy's problems can be traced to one fateful choice. Science made the right call and philosophy didn't ... because science embraced *mathematics* and philosophy didn't. Think of science without mathematics: it would simply be soothsaying, astrology and alchemy.

The only thing that gives science its power is mathematics.

Oscar Wilde observed, "We are all in the gutter, but some of us are looking at the stars." Thanks to mathematics, it's Brian Cox looking at the stars, and the philosophers studying the gutter. Yet it could all have been so different. Pythagoras was the first person to call himself a philosopher – *a lover of wisdom* – yet he was also the first recognisable mathematician, and the forefather of natural science. Above all, he was the first person to understand the staggering *ontological* significance of mathematics, proclaiming, "All things are numbers." He gave as the motto of his Pythagorean sect, "Number rules all."

Bertrand Russell said that the vast majority of Plato's monumental philosophy had its roots in Pythagoreanism, and commented, "The whole conception of an eternal world, revealed to the intellect but not to the senses, is derived from him [Pythagoras]." This in fact sums up the difference between ontological mathematics and science. Ontological mathematics places the intellect over the senses, and science does the reverse. Ontological mathematics says that reason alone reveals the secrets of existence, while science says the senses (via experiments and observations) accomplish this. This should make it clear that science is a fundamentally irrational and anti-intellectual undertaking designed for those for whom "seeing is believing" and "rational unobservables" (hidden variables) are inconceivable.

For science, anything upon which experiments cannot be performed cannot exist. This, ironically, is a metaphysical (hence unscientific)

assertion since there's no proof that it's true, no compelling argument why it should be true, and there's no sufficient reason for it whatsoever. It's simply a dogmatic assertion of materialism and empiricism and constitutes a faith-based position.

Science places experiments at its core, which is reasonable enough, but then goes on to conclude that if experiments can't be performed on something then that thing can't exist, which is utterly *unreasonable*. Even worse, a huge amount of advanced science, especially cosmology, hypocritically revolves around metaphysical speculations concerning such pseudo-mathematical concepts as the Multiverse and "strings" that will *never* be amenable to direct experimental verification.

The Grand Unifying Element

The pre-Socratic philosophers of ancient Greece were obsessed with the *arche* – the fundamental substance from which everything else is said to be made (and which thus provides the unseen unity of things). Their various answers are usually misrepresented because the context is never properly explained. The ancient Greeks were typically *hylozoists*, i.e. they believed that matter is alive in some way. They were also *organicists*, insisting that reality must be considered holistically (in terms of all of its parts at once rather than its individual parts one at a time). Organicism asserts that systems are either outright living organisms, or ought to be treated that way (in contrast with the mechanistic, reductive approach of scientific materialism).

Thales said that the arche was water but he meant "living" water, possessing mind, spirit, reason, or some such ordering, animating quality. Aristotle reported Thales as having declared, "All things are full of gods", and Hippolytus wrote that Thales said, "This principle [water] is god, and it has neither beginning nor end." So, we have to forget any modern notions of water, and the same goes for all of the other substances proposed by other Greek philosophers as the arche.

Anaximander said the arche was the *apeiron* (an infinite, unbounded substance which maintained a perfect rational balance between everything); Pythagoras said it was numbers (mathematics); Anaximenes said it was "air" (although "breath", implying life, is probably more accurate); Heraclitus said it was fire (but with "fire" being strongly linked to the cosmic, rational soul and what we might call mathematical energy). In all cases, no one was thinking of a matter-only world: a

reductive world, a dead, mindless, pointless, mechanistic world of the type envisaged by modern scientists.

Ontological Numbers

Pythagoras taught that the number one was a point. Joining two points produced a straight line (so "two" was a line), three a plane, and four a three-dimensional solid. Therefore, everything comes from points ("ones"), and builds up through twos, threes and, especially, fours (in a 3D world). The sum of these first four numbers is ten and, for Pythagoras, ten (the decad) was the divine number, the one he and his sect held in especial reverence. The decad was the cosmic number enshrined in the divine triangle, the *tetraktys* of the decad:



The tetraktys is formally an equilateral triangle formed from the first four numbers (1, 2, 3 and 4) arrayed in four rows, and with a total sum of ten (1 + 2 + 3 + 4). It's both a mathematical and metaphysical symbol that (so the Pythagoreans believed), conveyed the basic secrets of the universe. In seedlike form, it contained the principles of the Creation (from a point), the harmony of the cosmos, emanation, and the return (ascent) to the divine.

When swearing their most solemn oaths, the Pythagoreans declared, "I swear by Him who has revealed to our soul the divine tetraktys which contains the fount and root of eternal nature."

The tetraktys is the fourth triangular number and symbolizes Unity, Power, the Limited, the Unlimited, Harmony and the Cosmos. If "one" is the basic unity, "ten" (the number of the tetraktys) is a higher order unity.

The tetraktys also symbolizes the four classical elements: fire, air, water, and earth. In another sense, it symbolizes dimensionality and how space is organized. The number one, the first row of the tetraktys,

represents the zero-dimensional point. The second row of the tetraktys represents a one-dimensional line (of two points). The third row represents a two-dimensional plane (exemplified by a triangle of three points), and the fourth row represents three-dimensions (exemplified by a tetrahedron defined by four points).

With the tetraktys, we see a point (the apex) giving rise to two points, then three, then four, in an increasingly "solid" cascade, and it's easy to imagine the whole material world emerging or emanating from that initial point.

Taoism employs a remarkably similar idea:

The Tao begot one.

One begot two.

Two begot three.

And three begot the ten thousand things.

The ten thousand things carry yin and embrace yang.

They achieve harmony by combining these forces.

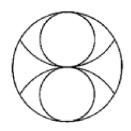
(*Tao Te Ching* – chapter 42: Lao Tzu)

Pythagoras taught that each number had its own special attributes, and these became highly influential in terms of numerology (which is to number theory what astrology is to astronomy):

Number	Attribute	Diagram
1	Monad (unity): the number of reason, the generator of numbers; stability; the origin of all thoughts in the universe; Apollo, the sun, Jupiter, Reason.	

2 Dyad (diversity, opinion, otherness): the first female number; audacity; the first number separated from the Divine One.

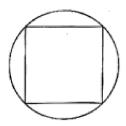
Monad = father while Dyad = mother; Monad = wisdom while Dyad = ignorance. Dyad is the Demiurge, the False God.



Triad (harmony = unity + diversity): first male number; the first authentic number; Chronos, ruler of time; the number of knowledge comprising music, geometry and astronomy (making up the science of the celestials and terrestrials).



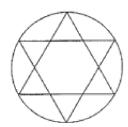
Tetrad (justice, retribution): squaring of accounts; the root of all things; the fountain of nature, the most perfect number; defining the four powers of the soul of man.



Pentad (marriage): the union of the first female (2) + first male (3); the union of an odd and even number; the symbol of health, vitality and light; the mysterious fifth element unifying the four elements of earth, water, air and fire.



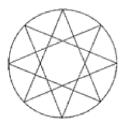
6 Hexad (creation): first female + first male + 1; perfection of all parts; harmony. A mathematically perfect number. 1 + 2 + 3 = 6; 1 x 2 x 3 = 6.



7 Heptad: number of the law; we are ruled by seven celestial spirits (gods) – the planets.



8 Octad (ogdoad): number of the first cube (with eight corners); symbol of love, prudence and solidity.



9 Ennead: first square of an odd number; symbolic of failure and shortcomings because it falls just short of the perfect, cosmic number of ten (the sum of the first four numbers).



Decad (the universe): the greatest of numbers because it reflects all harmonic and arithmetic proportions; both heaven and the world; the Tetraktys (closely related to the Tetrad).

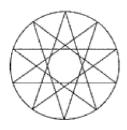


Diagram Source: Kenneth Sylvan Guthrie and David Fideler: *The Pythagorean Sourcebook and Library*

The Pythagorean Big Bang

Imagine a point – a Singularity – comprised of infinite points (since any number of points can be superimposed on one point given that none of them occupies any physical space). From this Singularity (the supreme Monad), endless points (individual monads) can emerge to create all of the mathematical objects of the world through their various combinations and relations.

The Neoplatonists relied on a similar scheme. The ineffable "One" was the origin, the "Nous" (Mind/Spirit) was its first emanation, the "Psyche" (Soul) was its second emanation, and "Nature" its final emanation (we thus have the four levels of the Pythagorean tetraktys). Each emanation contemplates the level above it.

With the notion of everything pouring from a dimensionless point ("nothing"), we have no less than a prototype Big Bang theory – a whole universe being generated by mathematical points emanating from a Singularity outside space and time.

Pythagoras provided a complete mathematical explanation of the nature of reality, but the world simply wasn't ready for him. He was thousands of years ahead of his time. In fact, the world still hasn't caught up with Pythagoras. Science – mathematics *lite* – has stolen the crown of its master. Science is the false claimant, the impostor.

Getting to the Point

Pythagoras's system has the mathematical point (the unit; the monad) as its basic element. Everything else is derived from it. However, this is no lifeless point. It's a *mind*. Thus, Pythagoras's world is a) mathematical, b) mental, and, c) alive.

Not only did Pythagoras state that all things are numbers, he also taught the transmigration of souls. Souls, therefore, must also be understood as numbers. In fact, they are monads and are associated with the unit number (one).

Pythagoras was asserting that the material world of things results from countless minds (monads). This was exactly the position advanced by Leibniz over two thousand years later and Leibniz made no secret of his admiration for Pythagoras by writing, "I have the highest opinion of

Pythagoras, and I almost believe that he was superior to all other ancient philosophers, since he virtually founded not only mathematics, but also the science of incorporeals, having formulated that famous doctrine, worthy of a whole hecatomb, that all souls are immortal." (quoted in G. MacDonald Ross's *Leibniz*, Past Masters, Oxford University Press, 1986. MacDonald Ross describes Leibniz's philosophy as "largely an updating of the Pythagorean and Platonic traditions, using the concepts of Aristotelian scholasticism.")

"The science of incorporeals" is the mathematical study of the soul. It's the most important but, as yet, least studied of all mathematical subjects.

Few people notice how uncannily similar Pythagoras's system is to Leibniz's. Both are based on monadic dimensionless points that also serve as minds, ruled by mathematics. Minds are unextended and from them come extended, material things, via mathematical relations.

Whereas the ancient Greek Atomists spoke of indivisible, materialist atoms which travelled through the mysterious and rather inexplicable "void" (after all, if void, in a strictly atomic system, isn't made of atoms then it isn't made of anything, hence can't exist at all!), Pythagoras (and Leibniz) invoked indivisible mathematical monads, which formed a mental plenum ("fullness"), and thus abolished any baffling void.

The question of whether the basic "atoms" of existence are mathematical points (hence mental) or something larger (hence materialist) goes to the heart of reality. Materialism relies on atoms being dimensional rather than dimensionless, extended rather than unextended. Materialism's ultimate theory (so-called M-theory), is based on one-dimensional strings rather than zero-dimensional point particles. Science provides no sufficient reason why these strings should not be further divisible, although it tries to invoke, rather unconvincingly, the Heisenberg Uncertainty Principle, which serves as a convenient dumping ground for all the toxic waste that science can't adequately explain.

The Music of the Spheres

Pythagoras was the first thinker to relate music to mathematics, discovering, in particular, that the chief musical intervals are expressible in simple numerical ratios involving the first four integers, the same four integers that constitute the tetraktys.

Aristotle wrote, "[The Pythagoreans] saw that the ... ratios of musical scales were expressible in numbers [and that] .. all things seemed to be modelled on numbers, and numbers seemed to be the first things in the whole of nature, they supposed the elements of number to be the elements of all things, and the whole heaven to be a musical scale and a number." (Aristotle, *Metaphysics*)

The Pythagoreans expected the distances between the planets to reflect, on a cosmic scale, the most harmonious notes of a plucked string. The Pythagorean solar system consisted of ten spheres (the perfect number of the tetraktys), revolving in perfect circles around a central fire (the World Soul – something akin to what the Neoplatonists would later call the "One"), with each sphere emitting a note, the slower, near spheres producing low notes and the faster, far spheres generating higher pitched notes. All together, they combined to create a transcendent harmony, the sublime Music of the Spheres. However, mortal ears could not hear it because the notes were continuous and human ears can discern only those discrete notes that contrast with the surrounding silence. The gods alone could hear this incomparable, heavenly symphony.

Beyond the ten spheres was infinite space (which might be equated to

infinite monadic minds taking no part in material existence).

For the Pythagoreans, wisdom and reason lay in Number and beauty in Harmony. The mathematical law of Harmony controlled the universe.

Genesis

In the beginning, the Monad (the number One) and Chaos were all that existed. Chaos might be associated with some vague, unformed, indeterminate infinity (*apeiron* in Greek). Or we might say that the Monad was God while "Chaos" comprised all other monads, currently disordered, but waiting to be organised and ordered by the Monad God.

The Monad used the countless monads to create all of the lines, planes

and solids that constituted the ten spheres of Creation and all their contents. Harmony delivered everything in their proper proportions and relations, and conferred perfect beauty (thus generating what Leibniz would later call "the best of all possible worlds").

Thus was produced the Cosmos (the "Ordered Whole"), and it was a living creature with a soul at its centre (the Monadic Soul, the World Soul – God). The whole universe was literally made of souls. This was the same vision that inspired Leibniz when he produced his remarkable *Monadology*.

Perfect Solids

Since the Pythagoreans were obsessed with geometrical perfection, they especially loved the so-called perfect solids. Perfect solids have faces that are all regular and identical, and display wondrous symmetries. There are five such solids. Each can rest within a sphere, with each of its corners touching the sphere. Alternatively, a sphere can be placed inside every such solid and touch every face.

The Pythagoreans said that the four natural elements (earth, water, air and fire) were composed of atoms of these perfect solids. Thus, earth atoms were cubes (like building bricks), water atoms were icosahedrons, air atoms were octahedrons, and the light fire atoms were tetrahedrons. Plato described this scheme in the *Timaeus*, a book named after an Italian Pythagorean.

The Cosmos "atom" (the whole finite universe) was characterised as a *dodecahedron* (the regular polyhedral shape closest in volume to a sphere fitted around it), with its twelve sides matching the twelve signs of the zodiac.

The dodecahedron, with its twelve regular pentagons was, to ancient mathematicians, the most mysterious and amazing of the perfect solids. Being the most difficult to construct, it was also deemed the one the Divine Mind would surely have employed to act as the "hull" of the cosmic sphere.

The dodecahedron is not known to occur in nature (suggesting that it's therefore supernatural, or divine, in some sense). It was a cult object of veneration for the Pythagoreans.

The Demi God

Pythagoras's students considered him a supernatural being and a demigod. They said, "There are in the universe men and gods and beings like Pythagoras." A biographer called him the "harmonic deity, halfway between gods and men."

Pythagoras was named after *Pythios*, one of the identities of Apollo, God of Reason, and it was even said by some that Apollo was his real father, making him the "son of God" (or the son of Reason itself).

Iamblichus depicted Pythagoras as a messenger sent from the gods to enlighten humanity and who was persecuted by his ignorant enemies and finally martyred. That story sounds familiar, doesn't it?

Learners and Listeners

Plato half-understood Pythagoras; no other prominent thinker did. It wasn't philosophy that carried forward Pythagoras's ideas, but his own secretive sect. As far as the world is concerned, the Pythagoreans simply faded into oblivion. What actually happened was that they were absorbed by the world of mystery schools, mystery religions and secret societies. Freemasonry, for example, often cites Pythagoras as one of its founders.

Pythagoras's philosophy was mixed with Hermeticism, Gnosticism, Neoplatonism and, for most of its adherents, took on an increasingly mystical and magical character.

When Pythagoras addressed his followers, it was from behind a curtain. Only the inner circle, called *mathematikoi* – the learners – were ever admitted to his presence. The outer circle were known as the *akousmatikoi* ("listeners"; those who "heard things").

The mathematikoi studied Pythagorean proofs and treatises. The akousmatikoi typically had neither the time, inclination nor ability for such work. Pythagoras — like a prophet — simply gave them oral instructions on how to act, without explaining the reasons. The akousmatikoi were "believers" rather than thinkers.

As time went on, Pythagoreanism diverged along two clear paths. The mathematikoi were far more interested in rational knowledge — in mathematics, science and philosophy — while the akousmatikoi were drawn to ritual, magic, numerology, and mysticism. Each group developed its own inner and outer circles, and each claimed it represented the true path of Pythagoras.

The akousmatikoi were those who created various Gnostic, Hermetic and Neoplatonic secret societies. The mathematikoi, on the other hand,

turned mathematics into a fully fledged religion known as Pythagorean Illuminism (because it involved the search for illumination/enlightenment) or simply *Illuminism*, and their secret society became known as the Illuminati, about which all sorts of absurd myths have grown up, to the extent that conspiracy theorist David Icke calls them alien, pan-dimensional, shape-shifting lizards from another world!

Those who like well-documented evidence will of course treat all claims of secret societies with a pinch of salt. Naturally, such claims are highly speculative because there is little or no documentation available in the public arena. However, anyone interested in the influence secret societies may have exerted on towering thinkers would do well to read *Hegel and the Hermetic Tradition* by Glenn Alexander Magee (Cornell University Press, 2001).

The mathematikoi and akousmatikoi did not part company entirely. The various secret societies that grew from them remained in close contact and engaged in a continual exchange of ideas. The Neoplatonist religious philosophy of Ammonius Saccas and Plotinus was used by the Illuminati for the initial development of a sophisticated mathematical religion. The religion did not reach its culmination until the work of Leibniz. The Leibnizian *Monadology* is now the basis of Illuminism. However, several key mathematical and philosophical modifications have been made to Leibniz's published work.

Illuminism is a religion that involves no saviours, messiahs, popes, prophets, priests, holy books or divine revelation. It rejects faith and does not look to any Creator. What it does have at its centre is an indestructible, indivisible, immortal mathematical soul (monad) which travels from 100% potential and zero actualization to zero potential and 100% actualization. To put it another way, Illuminism is about souls evolving – via dialectical mathematics – into Gods! God does not create the universe. The universe creates God. God is the evolutionary climax of existence. God is simply mathematics that has become conscious of itself.

The universe is conceived as a living, self-optimising, self-solving mental equation, composed of infinite nodes — *souls*. The cosmos is a living computer calculating its own optimal state — it's Omega Point, its Absolute state of perfection ... its *divinity*.

The Monad

Leibniz's first definition in his *Monadology* of 1714 was: "The monad, of which we will speak here, is nothing else than a simple substance, which goes to make up compounds; by simple, we mean without parts."

In Illuminism, the addition of a single qualifying word radically changes the meaning of "monad". Instead of a monad having no parts, it has no *resultant* parts. A monad in fact has *infinite* parts, but they are mathematical and they perfectly balance to zero (via equal amounts of positive and negative frequencies, real and imaginary), meaning that the monad remains what it always was — a dimensionless point. From monads and their contents, and nothing but monads and their contents, the whole of reality is derived. The monads in Illuminism are not Leibniz's "windowless" monads, but are interactive ("windowed").

The monad comprises "numbers" (frequencies), meaning that all things are numbers, just as Pythagoras said so long ago. Each monad contains *all* positive real numbers, *all* negative real numbers, *all* positive imaginary numbers and *all* negative imaginary numbers, meaning that the entire laws of ontological mathematics are encoded inside each and every monad. Numbers are carried ontologically by sinusoidal waves (sines and cosines).

Mathematically, a monad is an expression of *complex numbers*, i.e. it has real and imaginary parts. (Moreover, it also has positive and negative parts.) Scientific materialism is, conversely, based on positive real numbers alone, though it provides no sufficient reason for why imaginary numbers or negative numbers should be ontologically excluded. In fact, imaginary numbers are present throughout science but they perform the curious role of serving as "scaffolding". They are used to construct elegant and manageable equations, but are removed at the end by squaring them (to create a negative number, since $i^2 = -1$) and then taking an absolute value (i.e. changing negative to positive since negative numbers are generally as unwelcome in physics as imaginary numbers). By the end of the procedure, only nice, safe positive real numbers remain.

In other words, science is a continual "fiddling of the books" to exclude numbers that scientists don't like! (Yet note that Paul Dirac discovered antimatter precisely because he didn't perform the usual trick of ignoring a negative solution of an equation.)

In Illuminism, all such dubious and inconsistent mathematical operations are forbidden. All numbers must be embraced ontologically since there's no sufficient reason, beyond the prejudices of scientific empiricist materialism, to exclude them and thereby reduce mathematics to a bizarre and unjustifiable subset of what it ought to be. Illuminism concerns "complete" and consistent mathematics, while science is based on incomplete and inconsistent mathematics.

Illuminism begins with the simplest possible thing — a single mathematical point. This is the monad, the basic unit of existence. Being unextended, it conforms with Descartes' definition of a thinking *mind*. However, as per Leibniz, its mental activity is by default *unconscious* (consciousness is something that a mind evolves).

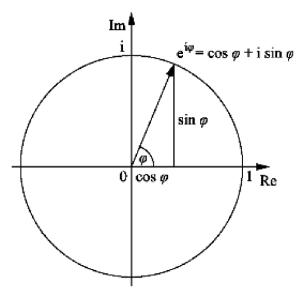
Does this mathematical point consist of anything? In fact, as already stated, it contains all the numbers between zero and infinity in all directions, signs and orientations. These numbers exist in an extremely precise way, guaranteed to produce a net result of nothing so that the point is ultimately defined by the number zero, the inverse of which is infinity.

Where the Pythagoreans originally defined "one" as the basic unit of existence (associated with the point and zero dimensionality), modern Illuminism assigns that role to zero. The dimensionless point (monad) is not an instance of the number one but of the number zero. The number one is divisible; the number zero isn't – therefore zero is the true indivisible, immaterial, unextended, immortal point with no resultant parts.

In order for zero to be the inevitable and inescapable net result of the combination of infinite numbers, all of the numbers must conform with the most powerful analytic formula in the whole of mathematics – Euler's Formula, the great jewel of mathematics:

$e^{ix} = \cos x + i \sin x$

This formula generates a unit circle (i.e. with radius 1) in the complex plane (diagram courtesy of *Wikipedia*):



By introducing the imaginary number to the exponential function, exponential growth is tamed and converted into an eternal circle. We might say that exponential growth, in this context, happens circularly and reaches infinity. Moreover, perfect periodic cosine and (imaginary) sine waves are generated, which, like the circle, go on forever.

What's so remarkable about Euler's Formula is that it produces *perfect* balance between negative and positive numbers, between real and imaginary numbers and between zero and infinity. No element is privileged over any other. The net ontological effect of the formula is zero (since the circle's negative half perfectly cancels its positive half), yet this is an "infinite" zero, a structured "nothing" that goes on forever!

Leibniz famously asked why there is something rather than nothing. The answer is that something *is* nothing – thanks to Euler's Formula. Via this formula, existence can be maintained at its *necessary* ground state of zero (*nothing*), while always being *something*. (Any non-zero resultant cosmic energy is forbidden. There is no sufficient reason why the cosmos should have any arbitrary energy, and why such an energy should be above the ground state.)

In order to include all possible ontological numbers, it's necessary to introduce a more generalized form of Euler's Formula:

A
$$e^{i(fx + \varphi)} = A \cos(fx + \varphi) + i A \sin(fx + \varphi)$$

where A is amplitude, f is frequency and ϕ = the phase angle (phase shift).

In the frequency domain, the three elements necessary to specify a wave are amplitude, frequency and phase, so this generalized formula allows *all possible waves* to be accommodated.

A "simple" point is therefore nothing of the kind. It's an infinite information system, based on a superposition of infinite waves of every conceivable permutation, all of which put together produce a sum of zero (total and infallible balancing to zero).

Simply by defining a wave as the mathematical basis and definition of *energy*, a point is transformed into a repository of infinite, balanced energy. And bear in mind that this energy is *necessarily* eternal. Euler's circle never stops spinning. Nothing can ever halt it – because ultimately there's nothing there! An Euler circle is simply an ingeniously ordered and structured nothingness that can never perish. It's always rotating and can never stop. Energy is just eternal motion.

One of the most baffling mysteries of physics is why "space" – which, according to most theories, contains infinite energy – does not produce catastrophic gravitational effects (via Einstein's mass-energy equivalence). In Illuminism, there are two easy answers: all of the energy balances to zero, hence has no net effects, and the energy in any case exists *dimensionlessly*, hence is not part of the material world at all. The Fourier frequency domain, outside space and time, is gravity-free. Only the Fourier spacetime domain (the material world) is gravitational. Scientific materialism has no such dimensionless escape routes, which is why the problem is known as the "vacuum catastrophe", which has been described as the biggest discrepancy between theory and experiment in the whole of physics.

How many monads are there? If one monad can exist with no net energy, what sufficient reason could prevent the existence of others, also with zero net energy? In fact, what could prevent the existence of infinite such "nothings"? There's nothing obvious to prevent it, hence there are infinite monads, as Leibniz insisted. (The only potential obstacle is the possibility that there is in fact an ontologically highest number — an enormous but nevertheless finite number. This question will be explored later.)

All of these monads can exist together, within a single point. So, there's a Singularity, composed of infinite singularities, each singularity being composed of infinite balanced energy defined by the generalised

Euler Formula. That — mathematically — is the dimensionless world of mind. That's the domain that existed prior to the birth of space, time and the material world. It's wholly immaterial and undetectable by any scientific experiment. It's the "intelligible world" and is reached by reason alone, as Plato always said (as opposed to the "sensible world", which can be explored experimentally). This majestic, *well-defined* Singularity is the critical, analytic mathematical entity that has been disastrously missing from philosophy and science. This is the *noumenal* universe, and from it, via strict mathematical operations, comes the *phenomenal* universe.

How, then, did the Singularity generate the familiar, extended, phenomenal world? In physics, there's a crucial distinction between bosons and fermions, the two fundamental classes of particles. The *bosonic* wavefunction is said to be *symmetric* with regard to particle exchange (meaning that infinite bosons can occupy the same quantum state). The *fermionic* wavefunction on the other hand is *antisymmetric* with regard to particle exchange (meaning that no two fermions can occupy the same state).

If there are infinite monads all occupying the same Singularity, they can all be regarded as mental bosons. However, the application of a simple antisymmetry operation converts them into mental fermions. This has the most astounding consequence: it confers unique coordinates on each of the monads and instantly creates an extended Cartesian coordinate grid.

The monads haven't actually moved anywhere – they are still inside the Singularity – but they now have unique identifiers (coordinates) and this produces the effect (illusion) of all monads now being separated from each other. To put it another way, they now have *extended* (fermionic) relations with each other. A Cartesian extended world has come into being. Yet the remarkable thing is that it's entirely constructed from points (from minds) and their mathematical relations.

The "Big Bang" was simply a mathematical antisymmetry operation that instantaneously turned a Singularity into an infinite Cartesian grid universe. In fact, in Illuminism, 4D spacetime (involving three space axes and one time axis) is replaced by an enormously more elegant, productive and symmetrical 6D spacetime (involving three space axes and three time axes). The space axes are defined by real numbers, and the time axes by imaginary numbers, meaning that spacetime involves complex numbers. Space and time are dynamically, and inversely,

coupled. As an object moves faster through space, it slows down in time. As it speeds up through time, it slows down in space. A spatially stationary object moves at maximum speed through time (i.e. at the speed of light).

The Singularity is a dimensionless Fourier frequency domain. The extended Cartesian coordinate grid is the dimensional Fourier spacetime domain that is generated by it through an inverse Fourier transform on a cosmic scale.

For those who want to object to this scheme on the basis of the "expanding universe", suffice to say that an infinite grid can nevertheless expand thanks to the mathematics of "Hotel Infinity". This Hotel Infinity expansion is the basis of "dark energy"! (This has been described in detail elsewhere in the *God Series*.)

The infinite Cartesian grid is still wholly contained within the Singularity and is thus a mathematical illusion. Existence can only ever take place within a single point (*everything* that exists is contained within the Singularity: we live *inside* the Big Bang Singularity, and the Big Bang itself took place within that Singularity, and remains contained within it). At no point does anything ever leave. The Big Bang was nothing but an internal mathematical restructuring of the Singularity via an antisymmetry operation and Fourier mathematics.

All individual monads are able to release a small amount of their energy (a low energy band) into the shared space — the Cartesian grid formed by all active monads — and the whole material universe we experience is simply the interaction of all of that mind energy in an arena of mathematical extension. Matter, to state it bluntly, is produced by mind energy through Fourier mathematics and has no independent ontological status. It's wholly derived from mind. Scientific materialism is therefore the inverse of reality!

Only a sliver of monadic energy frequencies are compatible with a material domain. To see why, consider a black hole singularity. When a star of suitably enormous mass implodes, it collapses all the way down to a point. High-energy frequencies within monads similarly collapse straight back into themselves: they cannot enter the shared physical world (and would destroy it if they could). This means that the mental domain is infinitely "deep" while the material domain is, conversely,

almost infinitely "shallow". True reality belongs to the mental, not the physical, domain. All sorts of things can happen mentally that will not be reflected physically. This means that minds can potentially control bodies in all manner of extraordinary ways, but bodies cannot dictate to minds except at a shallow level of mere physical causality.

All monads are uncaused causes. They do not depend on anything else for their existence (they have no Creator), hence they are not determined by any causal chains. That means that they are causal initiators (causal agents), but themselves are inherently uncaused. *That* is what it means to be free, to be capable of exhibiting free will and free choice.

A universe of monads made of sine and cosine waves is nothing other than a universe of countless musical notes. The cosmos, exactly as Pythagoras said, is a great musical symphony producing the music of the heavens. The material world is just one of its notes. We inhabit a living, cosmic organism of music playing every conceivable note!

Two Worlds

Illuminism is based on two worlds: one *inside* space and time (the material world; the phenomenal world) and one *outside* space and time (the mental world; the frequency world; the noumenal world). Yet the phenomenal world is simply a low-energy mathematical construct of the noumenal world.

The mental, noumenal world is the one wholly denied by scientific materialists. However, for idealists, it's Kant's noumenal domain where freedom, the soul and God reside; it's where Hegel's *Geist* is truly found; it's where Schopenhauer's Will exists; it's where Nietzsche's Will to Power logically resides (though Nietzsche would no doubt disagree since he condemned all "two worlds" solutions); it's where Eduard von Hartmann's Unconscious is; and it's the home of the Jungian Collective Unconscious. Looking back to the ancients, it's the physically unchanging world Parmenides had in mind; it's Plato's domain of perfect, immutable Forms; and it's the One, the Nous and the Higher Psyche of Neoplatonism.

This is the domain that has always been at the heart of metaphysics, but whose nature has never been meaningfully defined – because pure, analytic mathematics was never brought to bear on it.

This is the domain of instantaneous, non-local connections (of the sort that define quantum mechanics). It's the arena through which Jungian Synchronicity operates. It's how intuition is possible. It's where all the "woo woo", religious and paranormal experiences occur. It permits homeopathy (which is a non-local, "information-based" rather than "physical" system of medicine). Yet there's nothing obscurantist concerning any of this – it's all about analytic mathematics.

There is only one *true* world (a mental Singularity) but it's experienced in two ways: mentally and physically. The Singularity, the mind domain, is the unextended origin which is able to generate an extended Cartesian grid world – perfect for physics – simply by executing an antisymmetry operation. Yet each point in the grid is itself an unextended point, meaning that "space" is fundamentally mental. That's why no scientist could ever find the "ether".

It turns out that the metaphysicians (or should we say *metaphysicists*) were right all along in their broad thrust. All they lacked was the

mathematical knowledge to clarify and precisely define their concepts. They could not find a way to explain an unextended world - a Singularity - and give it the analytic mathematical structure it needed to become anything other than a source of vague speculation, intuition and mysticism (as in Eastern religion).

Kant believed that "pure reason" strayed when it departed from the phenomenal world. However, no such problem occurs if pure reason is exercised according to the strictest mathematical considerations (of exactly the kind Kant held in such high regard as far as the phenomenal world was concerned).

Illuminism — ontological mathematics — provides the missing mathematical infrastructure for the mental domain and thus ushers in a new Copernican Revolution. Religion gave way to science and science must now give way to mathematics. Yet, astoundingly, mathematics can raise religion from the dead, but now as a rational, Logos subject rather than an absurd, irrational, superstitious, faith-based Mythos subject.

Scientific materialism has enjoyed a great deal of pragmatic success, but you learn as much about true reality from it as someone trapped in *The Matrix*, i.e. none at all. Mind is all that exists. Its mathematical properties give rise to the illusion of materialism.

Illuminism is the true grand unified theory of everything since it unites mathematics, science, philosophy, religion and psychology.

The Two Pills

The red pill = mathematics.

The blue pill = science.

Well, which pill will you take? Do you want to inhabit the intelligible world of truth (mathematics) or the sensible world of illusion (science) – the Matrix? Your choice.

The Mystery of Scientific Laws

What and where were the laws of physics before the physical universe came into being? What laws were controlling the Big Bang as it happened? What laws caused it in the first place? Whatever caused and controlled the Big Bang must, of necessity, have preceded the Big Bang, yet scientists openly say that space, time and matter did not exist prior to the Big Bang. In which case, there's nothing left within the empiricist, materialist paradigm to account for how the Big Bang happened.

Scientific laws themselves are no part of the empiricist materialist Meta Paradigm of science since laws are not themselves either material or directly observable. You can see their effects, but you can't see *them*. They are immutable and eternal, and have no known origins. No scientist has ever plausibly explained where scientific laws come from, how they interact with mutable, material things and how they exist at all.

Scientific laws are science's "magic wand". They are an appeal to something outside science. Remarkably, science's greatest challenge isn't to create a Grand Unified Theory of Everything, but to explain its own laws! If it can't explain those then it can't, ultimately, explain anything at all.

Rationalism is about revealing those elements of reality that have compulsory existence. *Hyperrationalism* adds one element rationalism: all rational statements must be viewed through the prism of ontological mathematics. The foundational, uncaused causes of reality must be mathematical and they must have the property of being "nothing" since nothing is the compulsory rational ground state of existence. Mathematics has the ultimate rational trick up its sleeve – because "nothing" can also be something. It's precisely because something and nothing can be equated (via an equation as simple as, for example, 2 - 1 - 1 = 0) that we are all here at all; that anything is here. If this weren't so, non-existence would be the ground state of "reality" and so there would be no sufficient reason for anything to exist. The universe would comprise eternal void, eternal oblivion in which nothing could ever be and nothing could ever happen. It's only the miraculous properties of mathematics that spare us that fate. To put it another way, you can never beat nothing, but mathematics allows us to arrange nothing so ingeniously that an entire, infinite universe of "something"

can exist! (But it's still just nothing when all's said and done.)

Why are souls immortal and indestructible? Because they are *nothing*. You can't annihilate nothing, can you? The first law of thermodynamics (stating that energy can be neither created nor destroyed) is, rationally, a statement that the energy of the universe is always zero (because there could never be a sufficient reason for the energy to be greater than zero, and if the energy of the universe is always zero then it automatically follows that there can't be any more or less of it). The first law of motion states that a moving body, subject to no external force, will continue in a straight line at a constant speed forever (i.e. it's inherently a perpetual motion machine). The reason it moves forever is that it uses *zero* energy. If it had non-zero energy, it would expend it until it had zero (ground state) energy, and then it would stop. Think about that – an independent object moves forever precisely because its energy expenditure is *always* zero. Movement is an inherent part of existence precisely because nothing can stop it since it requires nothing.

Why can science never find the soul? Because there's literally "nothing" to find! The soul – the Leibnizian monad – is an infinite, mathematically structured nothingness. Thanks to mathematics, that also makes it an infinite something. "Something" is just "nothing" existing in a certain way. It's a special arrangement of nothing. Nothing is not "simple"; nothing is the most complex thing there is. "Nothing" is the soul – the fundamental unit of reality. Existence comprises nothing but mathematical souls and their mathematical interactions.

"Bless us, divine number, thou who generated gods and men!" – Pythagorean declaration

The Fear

Why have philosophers been so afraid to expose the charlatanry of scientific materialism, its nostrums, quackery, half-baked, ad hoc ideas, its lack of internal consistency, its sheer sensory irrationalism? It's because just as Bertrand Russell was famously intimidated by Wittgenstein (since he didn't understand much of what Wittgenstein was saying but assumed it must be very "deep"), philosophers are intimidated by scientists. They don't understand science well enough to challenge it. The mathematics bamboozles them. They don't realize that science operates like the Wizard of Oz. Behind the show of power is a feeble brain, committing outrageous error after outrageous error, and committed, if truth be told, to a clunky process of trial and error. Scientific papers are just presentations of educated guesses, and most are soon forgotten.

There is no "clear thinking" in science. Science proceeds by way of individuals proposing ad hoc hypotheses. Some of these become popular and prosper; others fade away. Science therefore operates according to Darwinian natural selection, not reason. It's about memes instead of eternal truths of reason. The whole enterprise is a grand exercise in provisionalism and contingency. It's utterly false that science is objective and factual. As Max Planck so damningly said, "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it." That's just the same as religion! And Darwinism.

Science invokes a falsification principle (a statement is not "scientific" unless it is capable of being falsified) that is itself non-falsifiable, hence non-scientific by its own criterion. But if a statement must be capable of being falsified then it cannot be true – because truth is by definition *not false*. 1 + 1 = 2 is not falsifiable and where would science be without it?

Some scientists look to a verification principle (a statement is not "scientific" unless it is capable of being verified) that is itself non-verifiable, hence non-scientific by its own criterion. But if a statement is in need of experimental verification then it cannot be *true* – because where would the verification process ever end? Verification can increase

confidence in a statement; it cannot *prove* it. Is 1 + 1 = 2 in need of verification?

Science is a process of approximating truth through well-tested hypotheses, models and simulations (all of an ad hoc nature). It has absolutely no connection with actual truth, which can't be falsified or verified, only analytically proved.

Quantum mechanics, according to the mainstream interpretation of the Copenhagen school, is based on an unreal, unobservable wavefunction that is everywhere, is non-local, features imaginary numbers and mysteriously collapses when an observation takes place, but not otherwise.

This, the establishment view, is an extremist empiricist stance, and asserts (just as the fanatical idealist empiricist Bishop Berkeley did) that to be is to be perceived. Things are real only when they are being perceived, and, when they are not being perceived, they are not real. Thus, the moon doesn't exist when you're not looking at it, atoms don't exist when you're not performing observations and measurements on them, and things (such as Schrödinger's cat) exist in a superposition of states (including being simultaneously both dead and alive!) prior to observation. (Note that if Niels Bohr and Werner Heisenberg – the main authors of the Copenhagen Interpretation – were being consistent then they would have asserted that it was meaningless to ask about the ontological condition of the cat since, formally, within their paradigm, nothing at all can be said about anything unobserved. If the moon doesn't exist when no one is looking at it, nor does Schrödinger's cat when it's locked in its box! Superposition states are no part of conventional science since they are wholly unobservable, hence "metaphysical".) Isn't it somewhat comical that a fanatical empiricist science is based on an unempirical quantum mechanical wavefunction? How can anyone take it seriously? It fatally contradicts itself.

The Copenhagen Interpretation is a complete repudiation of objective reality and the reality principle (which asserts that the world is there regardless of any conscious observers). Einsteinian relativity also destroys the reality principle since it's no longer possible to say what's moving and what isn't, and what size and mass anything truly has (because of time dilation, length contraction and mass increase as relative speed increases).

Consider the extraordinary mismatch between Einsteinian relativity and quantum mechanics. These two ad hoc theories are the most successful in scientific history, yet they are incompatible in almost every way — which is why a theory of quantum gravity remains so elusive despite having had more elite intellectual effort expended on it than anything else *ever*. The problem cannot be solved for the simple reason that the underlying paradigm is false (in particular in how it rejects the rational unobservables, or "hidden variables" of mathematics), but no scientist is willing to abandon the paradigm, so the futile exercise goes on.

In fact, the irreconcilable differences between the two leviathan theories of science prove how flawed the scientific method actually is in terms of truth content. The scientific method produces *successful* theories; it does not produce *true* theories. (As Nietzsche said, "Success has always been the greatest liar.") If these two successful theories were true, they would blend seamlessly. In fact, only mathematics delivers seamless truth since it's based on analytic *a priori* truths and not on contingent, ad hoc hypotheses subjected to unreliable experimental verification. "Unreliable" because many failed theories have been successfully verified experimentally — until new experiments falsified them. Think of how successful and dominant Newtonian physics was despite its description of reality being almost wholly false (there is no Newtonian absolute time, no Newtonian absolute space, gravity does not operate instantaneously across the "void", the speed of light is not variable, and mass, length and time are not fixed).

Scientific materialism is absurdly incoherent. It invokes all sorts of dubious concepts such as Multiverses and "many worlds" in which all possible events occur ("anything not forbidden is compulsory"), while at the same time saying that unobserved cats are both alive and dead.

In a Multiverse where every possibility is realised, there is no meaning. Meaning is about choices, about non-inevitability, about free will rather than determinism, about the possibility of our being independent causal agents not invariably subject to other causes and the pawns of other causes. It's about life rather than machinery.

The Multiverse is the ultimate Doomsday Machine, the most terrible Death Star – because all it does is exterminate meaning. It relentlessly converts every possibility into actuality at every instant. Absolutely nothing is omitted. All processes occur. All possible effects take place with absolute inevitability, even if they have no causes (!). At no point does choice or free will take place.

Strange though it may seem, this is the supreme dream of scientific

materialists. They *despise* meaning. All they want is for *everything* to happen according to inescapable scientific determinism (even though modern science is indeterministic!), and the Multiverse is the perfect mechanism for achieving that goal. With the Multiverse, you don't have to answer any questions, or explain anything – because everything that is not forbidden is sure to happen, come what may.

Why have philosophers allowed these endless contradictions and bogus claims to go unchallenged? For the simple reason that they don't understand what is being asserted, and don't want to embarrass themselves by wandering into territory where they feel distinctly out of their comfort zone. It's not at all hard to understand why the Emperor is allowed to parade around stark naked without prompting a single titter. All he has to do is have his invisible suit weaved for him by scientific materialists, and all philosophers will be cowed into selective blindness. Wake up! Scientific materialism is a joke. It's now much closer to Berkeleyan empiricist idealism than it is to any kind of materialism.

Pythagorean Illuminism, being rationalist rather than empiricist, places complete reliance on Leibniz's principle of sufficient reason, which states that for every fact there is a reason why it is so and not otherwise. There are no arbitrary, ad hoc elements. Everything has an exact cause. Nothing is probabilistic. This is the only meaningful way forward.

The Sensory Delusion

It's irrelevant how much sensory-obsessed empiricists rail against rational unobservables. Why should the human senses be accepted as the arbiters of what exists and what doesn't? Human reason — within the strict context of mathematics — is always right and always superior to empiricism. The ad hoc, contingent, provisional, mutable, temporal, inductive, synthetic, *a posteriori* hypotheses of science could never satisfy *any* rational person. Science doesn't even claim to be about truth. It's simply a pragmatic method that generates models (simulacra!) of reality that may prove useful in certain circumstances.

Certain people, as they read this, will be suffering apoplexy. They will be Jungian thinking-sensing types, who use their rationality to validate their sensory experiences. These people are "scientists", who conceive of "evidence" strictly as that which is available to the senses. They cannot conceive of *rational unobservables* that are undetectable by the senses or by any experiments, but are available solely to intellect.

Another group of people – thinking-intuitives – might experience an incredible thrill because their long-held intuition that scientific materialism comes nowhere near explaining reality is being vindicated. It's an astonishing truth that how we understand the world is dependent on our psychological type. Sensing types can never get beyond their senses, but intuitives can. Thinking-sensing types are natural empiricists, and thinking-intuitives are natural rationalists.

Science is a subject for people heavily invested in their sensory apparatus, who cannot conceive that their senses are revealing an ingenious mathematical illusion to them. You have to be intuitive to escape from the sensory jail. The Pythagoreans used the expression *soma sema*, meaning that the body is the prison or tomb of the soul (literally "body tomb"). Scientists are those who can never escape from the tomb, or the Platonic Cave of Ignorance and Delusion.

Sensing types outnumber intuitives three to one — which is why our world subscribes to the many false doctrines (produced by sensory thinking) with which we are all so familiar. Even the story of "God" incarnating as a human being (Jesus Christ, allegedly) is designed to pander to sensory types, and is a central reason why Christianity has been so successful.

With Jungian feeling types, thinking is barely engaged at all. They judge according to how something makes them feel, not according to its rationality. With Jungian sensing types, thinking is used as a servant of sensory experience (and produces empiricists and materialists), while with Jungian intuitive types, thinking is invoked to validate non-sensory ideas (and produces rationalists and idealists).

These key differences in how various psychological types process ideas and information, and what biases they exhibit, are never taken into account in conventional thinking. All hypotheses, theories and philosophies ought to be stamped with what paradigm they belong to, and what psychological type they reflect. They are not neutral and dispassionate — they all arise from specific attitudes and cognitive patterns and inclinations.

As Nietzsche said. so tellingly, "There are no facts, only interpretations." Even more cuttingly, he declared, "What, ultimately, are man's truths? Merely his irrefutable errors." That's especially relevant to both mainstream religion and scientific materialism. Faith allows errors to become "irrefutable" (a person of faith never attempts to refute what he believes, and considers such a refutation inherently impossible). Scientists, when they proclaim that anything not amenable experimentation does not exist, are making their sensory dogmatism their sensory *error* – "irrefutable" because they have rejected any means by which it could ever be refuted. Scientists could easily adopt the stance of Leibniz, which combined the physical and metaphysical, but they refuse to do so. They have staked everything on the physical, and everything physical can of course, in principle, be subject experimentation. However, what will science do when it asserts the existence of things such as strings that will never be accessible to any experiments? At that stage, science has refuted itself (though it will never admit this).

The famous Higgs boson was, in terms of science, metaphysical (hence not scientific), until its existence was experimentally vindicated. Einstein's theories were metaphysical until experimentally supported. Science simply cannot escape metaphysical assertions. If science ever proclaims a final theory of everything, you can be certain it will contain elements beyond the reach of any experiments, hence it will actually be a metaphysical theory. That being the case, why doesn't science accept the logic of its own position and proclaim that experiments will never reveal the final truths of science, hence it has to abandon the defining role of

experiments in its paradigm and method.

Why aren't experiments regarded as simply useful tools for gathering data? Why are they taken as ontological filters, with anything not available to experiment, such as the dimensionless soul, ipso facto being deemed unreal and non-existent?

As Leibniz demonstrated, no one rationally requires science to make this assertion. It *chooses* to do so because it's a quasi-religion of materialism and empiricism, with its own fanatical Church, priesthood, popes and prophets, all fanatically defending their dogmatic paradigm.

The Rebirth of Philosophy

Pythagorean Illuminism can straightforwardly – mathematically – explain all of the great mysteries: free will, mind-body dualism, consciousness versus the unconscious, tensed versus tenseless time, and so on. It's all in the math!

It's time for philosophy to regain its former glories and concern itself once more with the big questions of existence. It cannot hope to compete with science unless it uses the same core engine – mathematics – but it should then turbo-charge that engine by using *all* of it, including zero, infinity, negative and imaginary numbers.

Mathematical metaphysics goes *beyond* mathematical physics – and explains that which physics cannot by using those rational mathematical "unobservables" that science disdains because of its all-consuming empiricist, materialist bias.

Mathematical metaphysics is the science of the *mind*, and mind is the origin of all. Mind is unextended, dimensionless, immaterial and outside space and time. Science will *never* know anything of it. No experiment will ever probe it. But philosophy – rationalist mathematical metaphysics – can know all of it.

It's time to jettison Newton and embrace Leibniz. It's time to cast down scientific empiricist materialism and raise up scientific rationalist idealism. Or shall we rational metaphysicists go on being mocked forever by Professor Cox and his Philistine ilk and consign ourselves to intellectual irrelevance and oblivion? Is philosophy the ultimate way to waste a good mind, or the ultimate means for unleashing the mind's full power?

The False Dichotomy

Scientists often set up a false dichotomy, asking people to choose between "evidence" (science) and faith (religion), as if these were the only two options. What about rational mathematical proofs, wholly outside sensory experience and experiment? These are used all the time in science, and yet they form no part of the materialist, sensory, empiricist, experimental Meta Paradigm of science. Science has *never* defined what mathematics is ontologically, and, given that mathematics is at the core of meaningful science and the formulation of scientific laws, that's an *extraordinary* omission. As ever, scientists, as shameless instrumentalists and pragmatists, don't care about the catastrophic philosophical contradictions, inconsistencies and absurdities at the heart of their discipline.



People have four primary, Jungian ways of understanding the world:

- 1) Faith (feelings) mainstream Western religion.
- 2) Experiments and experience (senses) science.
- 3) Mysticism (intuition) mainstream Eastern religion.
- 4) Rationalism (thinking) mathematics and metaphysics.

The question is which of these is best, which is most suited to discovering the ultimate truths? Intuition, if were accurate and powerful enough, would be the best. Unfortunately, it isn't, and usually degenerates into Mythos mysticism, as in the case of Hinduism and Buddhism.

No sane person would ever rely on feelings (faith and revelation) to yield infallible truth. Feelings are spectacularly subjective, unreliable, biased and irrational. Nor would any sane person rely on their senses to disclose ultimate truth. The senses are horribly fallible, subjective, unreliable and easy to deceive. In these regards, they are not greatly different from feelings. Scientists have elevated sensory "evidence" to the pinnacle of their subject – an absurd act since the senses have nothing

to do with ultimate truth. Ultimate truth isn't something that can be seen, heard, smelt, tasted, touched, felt, or anything of the kind. Ultimate truth is solely rational, intelligible, intellectual, and noumenal. We work out ultimate truth using our reason. We don't encounter it with our feelings or our senses.

We might intuit much of the ultimate truth, but it's reason that makes our intuitions robust, systematic and integrated. In the end, we always come back to reason. That's why Illuminism is the doctrine of hyperrationalism. The language of hyperrationalism is ontological mathematics and the logic and ontological dialectics which flow from it.

You will never attain the ultimate truth unless you know what you're looking for and how to look for it. That was the solution to the quest for the Holy Grail.

People of faith (of feelings) hope to meet some superbeing who *feels* like God. People of intuition hope to encounter some superforce that *intuitively* seems divine. People of the senses want to be presented with sensory evidence of God-knows-what (!). Does the fact that the Higgs boson has purportedly been discovered make you think you are one jot closer to the ultimate truth of existence? You certainly can't directly sense the Higgs boson. You have to take its existence on trust – trust in CERN's Large Hadron Collider and the scientists and engineers operating it and interpreting its output.

The only thing that we rationalists trust is reason itself. We completely reject feelings and the senses, and intuition too when it dissolves into mysticism. No one can deny that 1 + 1 = 2. That, itself, is ultimate, incontestable truth, and the whole of mathematics flows from it.

Mathematics is eternally and immutably true, hence is the basis of existence. Science most certainly isn't eternal and immutable. Mathematical theories are additive and cumulative. Scientific theories, on the other hand, refute and replace earlier ones. There's a graveyard for countless discredited scientific theories. There's no graveyard for mathematical theories. All valid mathematical theories were correct in the past, are correct now and will always be correct. Mathematics and science belong to wholly different categories of knowledge. Mathematics is all about eternal truths of reason. Science is about provisional interpretations of "fact". It's a category error to have rationalist mathematics at the heart of empirical science.

Frankly, if you want ultimate truth, you have nowhere else to turn

than ontological mathematics and the principle of sufficient reason enshrined by it.

Reason – mathematical reason – is truth. Nothing else is. Everything else is mere opinion, belief, conjecture, feeling or interpretation.

Many people believe that "God" is the ultimate answer. This is absurd. The only True God is reason itself. It alone is all-knowing, eternal, flawless and infallible.

In Illuminism, Abraxas is the ancient name given to reason itself, hence is the True God of Illuminism. Abraxas is also the name given to the first mind – the first person – to become the conscious expression of mathematical rationalism.

All objective knowledge is contained within mathematics. Yet mathematics also provides subjectivity (the "living thinking" of monadic souls), and it's subjectivity that is associated with feelings, the senses and mystical intuitions. Subjectivity provides the "irrational", interpretive aspect of existence, the aspect of opinions, beliefs, the senses and feelings.

You are being subjective if you expect the ultimate answer to existence to lie in any way outside objective mathematical reason. Subjectivity is how we *experience* existence – it's *life!* – and objectivity is how we *know* existence – it's *knowledge*.

Subjectivity is the "withinness" of mathematics, the interior, the internal experience of mathematical information. We gain objective knowledge when we transcend our subjectivity and engage with mathematical reason — which is true at all times for everyone, for all species, for all intelligent beings. The same cannot be said for science. Intelligent alien beings with very different senses from our own wouldn't understand our science at all — but they would have no difficulty in understanding mathematics.

Objectivity is the only route to ultimate truth and objectivity is all about mathematical reason. Subjectivity provides all the "colour" of existence – and all the irrational madness – but is inherently incapable of bringing us into contact with ultimate truth. Faith is subjective nonsense, as the countless different religious faiths demonstrate. The senses are wholly unreliable and we can have no certainty that they aren't revealing a "Matrix world" to us. Intuition, if not guided by reason, is mystical claptrap, as we see in Eastern religion.

The only objective, universal tool we have is mathematical reason. Nietzsche said we have no "organ for truth". He's right in relation to

feelings, the senses and mystical intuitions, and to reason also whenever it's applied to anything non-mathematical. He's wrong in relation to mathematical reason itself. This is indeed the human — in fact the *universal* — "organ" for eternal truth!!

If you want truth, you have no option but to get onboard with ontological mathematics. Everything else is subjective nonsense, illusion and self-delusion.

This is the gospel of the Illuminati.

Fourier Mathematics

There's an astonishing branch of mathematics, based on Euler's Formula, that's all about linking two radically different domains, one inside space and time, and one outside space and time, one dimensional and one dimensionless. It's *Fourier Analysis*.

Joseph Fourier asserted that it was possible to expand *any arbitrary function in the form of a trigonometric series*. Any ontological pattern can be made by adding, or superposing, sinusoidal basis waves. That is, any complex pattern you will encounter in the real world can be broken down into a collection of simple sinusoidal waves. The complex pattern is *inside* space and time; the simple sinusoids correspond to eternal, immutable frequencies *outside* space and time (somewhat like Platonic Forms, and each soul has a full set of these Platonic frequencies).

The key point to grasp is that the spacetime function is showing the same information as is contained in a combination of basis frequencies that *do not belong to spacetime*. So, we have a means of depicting the *same information* in two different ways, in terms of two radically different mathematical domains (the spacetime domain and the frequency domain). A Fourier transform converts a complex spacetime function into its underlying frequencies. An inverse Fourier transform performs the reverse process.

The whole mystery of existence is contained within Fourier mathematics because it's none other than the means by which unextended Cartesian minds (frequency domains) communicate with extended Cartesian bodies (spacetime entities). Fourier mathematics is the solution of the most intractable problem of all: Cartesian dualism. The Illuminati alone saw that the concept of the mathematical *transform* unravelled the Gordian Knot created by Descartes' dualism. It allowed *one thing* (hence a monism, not a dualism) to be presented in *two different ways*, thus creating the *illusion* of dualism, whilst being a monism all along, and avoiding the problem of how two different substances could possibly interact.

Monads are composed of nothing but eternal, immutable sine and cosine waves of every conceivable type (via the generalized Euler Formula). The monadic domain — the domain of mind — is the ontological realisation of the Fourier frequency domain.

Via inverse Fourier transforms, this monadic frequency information can be combined to create *any* spacetime representation. In other words, mental "ideas" can be converted into physical "bodies" via Fourier mathematics. Mind is the basis of matter, not the other way around (as scientific materialists have always claimed). The phenomenal world is simply a mathematical way of presenting noumenal frequency (mental) data. Every phenomenal object is nothing but a representation of an underlying noumenon (which could be interpreted as the correct way to understand Kant's philosophy, with the noumenon no longer being an unknowable mystery but a well-defined mathematical frequency function outside space and time). Noumena are immaterial and outside space and time; their associated phenomena are material and inside space and time. That's the ontological essence of Fourier mathematics. Kant was wholly wrong that the noumenal domain is unknowable: it's fully knowable via ontological mathematics.

Science is clueless about the true nature of Fourier mathematics, despite using it all the time. Fourier mathematics is the *proof* of idealism and the refutation of materialism. The reason for that is simple. Fourier mathematics depends on a frequency domain of perfect, immutable, eternal sinusoidal signals outside space and time. Fourier mathematics fundamentally relies on frequencies of pure sinusoidal waves that are not in the material world, have nothing to do with the material world (insofar as they are eternal and immutable) and are not impacted by anything taking place in the material world.

A frequency "mind" cannot die when a body dies because the frequency mind, being a singularity, is not in space and time at all. It's linked to it, but not determined by it. This, of course, is the basis of the immortal soul linked to a body. The soul is not some fantastical and silly religious idea reliant on desperate faith: it's the purest expression of analytic mathematics. If you wanted to bet your life on the certainty of anything, it would on your own imperishable soul.

Fourier mathematics is at the root of quantum mechanics, hence of the most successful scientific theory of all time. Fourier mathematics also underlies the extraordinary phenomenon of holography. A hologram – just like the Cartesian mind-body – is a quasi-dualistic system. At one level, it's an incomprehensible wave interference pattern. At another level, the proper illumination of this pattern by a laser gives rise to a beguiling 3D spacetime lifelike image. The *same information* therefore exists in two radically different forms.

The interference pattern is the wave representation of the information, and the image is the spacetime representation. It's well-known that every part of a true hologram contains the whole image. So, if you take a suitably prepared hologram and smash it into pieces, you will be able to reconstruct the whole from any of the pieces. If you could reduce the smashed pieces all the way down to dimensionless points, each point would still contain the whole! In other words, the physical world is fully captured in the dimensionless world (the domain of the singularity).

Anyone familiar with Leibniz will know that each of his dimensionless monads was said to reflect the entire universe, meaning that Leibniz understood holography some two hundred and fifty years before it was invented. Leibniz was the first holographer, and the hologram, based on Fourier mathematics (which is based in turn on the Euler Formula), is the perfect means to understand reality. The universe is nothing but a self-generating, living hologram, composed of infinite, interacting, living monads. The universe is alive! Mathematically alive.

That's the strangest thing of all. Who would ever have imagined that mathematics is the source of life, the origin of all living things, the root of mind, consciousness and free will. Yet, if you think about it, it's the only conceivable answer. Why? Because mathematics is all about *information* and life is nothing but information – receiving it, processing it, generating it, experiencing it, feeling it, sensing it, intuiting it, thinking about it, rationalising it, giving it meaning, desiring information that leads to increased power, dreaming of having infinite information (thus of knowing everything and being God!)

Each of us is simply a self-contained, uncaused, uncreated mathematical information system that goes on forever. We are information *experiencers*. That's the difference between us and soulless androids. Androids can detect information and process information but what they can *never* do is subjectively experience information. They can never have *qualia*. The transhumanism project is absurd because it seeks to make us live forever in a single body that never perishes.

Our journey to divinity actually *relies* on reincarnation — on continual physical death followed by rebirth. Our bodies die, our minds do not. If you stopped your body from dying you would stop the natural progression and evolution of the mind and remain fixed forever in a low-efficiency state, while those who accepted bodily death would keep advancing and transmuting until their minds were capable of divine expression. Nothing could be more foolish — and show less

understanding of true reality – than atheistic transhumanism. Bodily death and reincarnation is nature's greatest gift to us because it's the sole

means by which we can become Gods and fulfil our destiny.

The "immortal" transhumanists will be like the Struldbrugs of *Gulliver's Travels*. As Wikipedia says, "In Jonathan Swift's novel *Gulliver's Travels*, the name struldbrug is given to those humans in the nation of Luggnagg who are born seemingly normal, but are in fact immortal. However, although struldbrugs do not die, they do nonetheless continue aging. Swift's work depicts the evil of immortality without eternal youth." Struldbrug children are born with a red spot on their foreheads and it progressively changes colour until it hits black at age forty. Transhumanists should all bear such a mark.

The transhumanists would inevitably become Struldbrugs – hideous creatures, patched up like Frankenstein monsters. And if they ever solved the problem of eternal youth, they would simply become the miserable,

suicidal "Eternals" of the sci-fi movie Zardoz.

The Material World

We inhabit an enormous wave interference pattern. Thanks to holographic Fourier mathematics, part of this pattern is able to manifest itself as what we perceive as the material world. That's it. That's the whole basis of "science".

The "Experiment" Fallacy

Scientists set huge store by experiments. In fact, it's the core of their method and defines their whole enterprise. But *why* do they have such attachment to experiments? Is it rational? Quantum mechanics is the most successful theory in human history. It has been experimentally validated countless times. Yet here's the rub. Not a single scientist knows what quantum mechanics means. There is no agreed understanding of what quantum mechanics says about reality. There are many conflicting interpretations which have radically different implications for the nature of reality, and none of these interpretations can be experimentally proved or disproved.

Experiments don't help one iota since each interpretation is consistent with all known experimental results and with the basic mathematical formulation of quantum mechanics. What this definitively tells us is that experimental science is useless at explaining reality. It simply can't do so. The quagmire of quantum mechanical interpretation shows that science has reached its limit. To go beyond, it must reject experimental science and embrace rational science based on the Leibnizian principle of sufficient reason.

Scientists are living in a fantasy world if they think they will ever explain reality. No amount of experiments and no amount of Large Hadron Colliders will help them.

Science's central problem is that it uses instrumental rather than analytic definitions. For example, it says that time is what you measure with a clock, which tells you what instrument you require to measure time, but signally fails to tell you what time actually is (and indeed what a clock actually is). It's not enough to know how to measure something, you also need to know what the something is.

Science doesn't know what anything is. It's just a set of measurements with labels attached. Science can't define space, time, mass, energy, speed, motion, or anything else. It can certainly provide equations into which you can slot numbers (measurements) and get out different numbers ... but that's not going to help you explain ultimate reality.

As Leibniz alone realised, the essence of truth and explanation is the analytic definition. Analytic definitions tell you what things are in their essence, while the instrumental definitions of science don't tell you what

The extended arena of matter is simply the Cartesian coordinate grid, made of ordered mathematical points and reflecting inverse Fourier transforms. Mind and matter (non-extension and extension) are hardwired into Descartes' great mathematical innovation of the mathematical grid.

A divine human race would be one in which INTJ and INTPs were extremely common. As it is, they are exceptionally rare ... which accounts for why the world is the irrational mess it is.

The simple fact is that some human beings are immensely more highly evolved than others (mentally rather than physically; physical evolution has more or less ended for humanity). We all belong to the same physical species, but we are radically different in terms of our mental species. Some of us – such as the Abrahamists – are closer to the beasts than to humans. And some of us, especially the INTJ and INTPs are on the verge of divinity!

In our world, Gods and beasts mix together, but the beasts are in charge because they are in the overwhelming majority, and the Gods have not yet realised their own powers. But one day they will, and then everything will change. The task of the Illuminati is to hasten that glorious day, the Day of Reason when humanity finally enters its divine phase.

Reason transcends our mortal lives because it's eternal. That's why all intelligent species in the universe necessarily share the same mathematical truths. All intelligent species, however, have different versions of science because science is based on empiricism, contingency and ad hoc hypotheses ... and these differ for every different species depending on how their senses are configured.

Nothing is more foolish than for any thinking person to worship empiricism over rationalism. It's inherently irrational to do so, and all scientists are inherently irrational.

Humanity becomes more conscious and more divine the more it turns to rationalism rather than empiricism, to mathematics and metaphysics rather than physics.

A substance depends on nothing else for its existence. The "essence" of something is the element of it which makes it part of a class. So, all monads are unique substances, but all share the same essence, hence belong to the same class. In terms of substances, there are an infinite number of them. In terms of essence, all of these substances belong to the same class.

In Descartes' system there are countless mental substances and one material substance. All of the mental substances have the same essence and belong to the same class. However, they have a wholly different essence and class in relation to the material substance. This is therefore a dualistic system with an enormous problem of how mind and matter can interact. It's a category error to imagine that they have anything in common.

In Leibniz's system, there are infinite mental substances (monads), but they all have the same essence and belong to the same class. There is no material substance. This is therefore a monistic system and there's no problem of Cartesian dualism.

What is the essence of a mind? That it thinks. Descartes thought that thinking must be conscious. Leibniz realized that it could also be unconscious and, in fact, most thinking in the universe is unconscious. Unconscious thinking is the default mode of thinking, and conscious thinking is a relatively rare type of thinking that evolves from it via dialectical evolution.

The first glimpses of consciousness arise through feelings and sensations, through Mythos – emotive, simplistic stories. Then intuitions become possible. Finally, rationalism is born. The more rational you are, the more conscious you are.

Rationalism – Logos – appeared on Earth at a very specific time – in ancient Greece with the pre-Socratic philosophers, including Pythagoras. This was the most miraculous event in human history, the moment it became possible for humans to become Gods. Pythagoras identified the answer to existence 2,500 years ago when he announced, "All things are numbers; number rules all." This was the single greatest insight of all time.

Living Reason

Living reason has two aspects — objective and subjective, outer and inner, external and internal, a without and a within. Its objective character is Aristotelian. Its subjective character follows the Hegelian dialectic.

Wittgenstein

Wittgenstein, a great admirer of natural science, condemned mathematics as "empty" and devoid of descriptive content because it was all about analytic tautology. This is perhaps the biggest blunder in philosophical

and metaphysicians while materialism and empiricism morphed into science. Science embraced mathematics and started measuring things, making things and predicting things – with great success. Philosophy produced wondrous ideas, but in the manner of the impractical denizens of the floating island of Laputa in *Gulliver's Travels*.

Mathematics is the difference between success and failure. Only mathematics provides the tracks that keep reason on the straight and

narrow.

Why did philosophy fail to embrace mathematics? After all, Pythagoras, Plato, Descartes, Leibniz and others were brilliant mathematicians *and* philosophers. It's because people largely understand mathematics in terms of measuring distances between things, i.e. in terms of *extension*. How do you apply mathematics to a Singularity with no extension at all, and no matter? What would you be measuring?

A Singularity is the most feared entity in physics because, as any physicist will tell you, it's where the laws of physics fall apart. Why? Because the Singularity is the creature of zero and infinity – the two numbers that are fatal to the empiricist materialist paradigm of science.

To reconcile mind and matter (the non-local and dimensionless on the one hand, and the local and dimensional on the other), it's imperative to grasp the mathematics that define each situation. This has *never* been done in the mainstream; only within secret societies. It's not that the relevant mathematics doesn't exist. It does, and is extremely well known (it's just Fourier mathematics). The problem lies in the resistance to using it and understanding it.

The Scientific Excess

There are more scientists working today than in the whole of human history, and they are better educated than at any time in history – so why haven't they produced a final scientific theory of everything? It's because it's *impossible* within the prevailing Meta Paradigm of science. Scientists, being fundamentally irrational and philosophically illiterate, simply can't grasp this. They keep retreading the same old materialist and empiricist ground, hoping, like Mr Micawber in Dickens' *David Copperfield*, that "something will turn up". It won't.

Einstein said, "Insanity is doing the same thing over and over again and expecting different results." Yet that's exactly what science does. It's *insane*!

Science is now the proof that more is less. Most scientists are on the autistic spectrum. They have no imagination, no intuition and are locked into the sensory world. They see reality in machinelike terms rather than living terms. Science suffers from catastrophic groupthink, conformism and careerism. Scientists are terrified of saying anything heretical for fear of being shunned and having their funding cut off. Science is controlled not by any quest for truth but by those holding the purse strings, who reflect bureaucratic concerns.

Russian sci-fi writer Yevgeny Zamyatin said, "True literature can exist only where it is created, not by diligent and trustworthy functionaries, but by madmen, hermits, heretics, dreamers, rebels, and skeptics."

True science has exactly the same requirement. Instead of that, it's *wholly run* by dull, unimaginative, diligent and trustworthy drudges and functionaries. Many of them are even proud of that and boast about it. Truth is more or less their lowest priority, and "success" their highest. ("Success has always been the greatest liar." – Nietzsche.)

Science now operates by a consensual principle of the "wisdom of the crowd". Geniuses who cause paradigm shifts are not required. In fact, they're regarded as nutcases. Science crawls along incrementally, like a slug, allowing dim-witted careerists to think they understand their subject and are masters of it. In fact, they are as clueless about the true nature of reality as Abrahamists.

Science has no central authority. Instead, it has a central Meta

Paradigm. Science has placed the scientific experimental method on its highest pedestal, and this is worshipped as the God of Science. Yet it's a false God. The true God of science is mathematics, and mathematics has no need at all of experiments!

In order for science to undergo its necessary Reformation, it must relegate the scientific method and elevate mathematical rationalism. It must stop being materialist and empiricist and become idealist and rationalist. It must stop being obsessed with observation and start being obsessed with reason. Physics must bow to metaphysics.

Traditionally, metaphysics has been associated with unverifiable philosophical speculation while the scientific method has provided the link between hypotheses and the "real world". Yet, true metaphysics isn't philosophy. Rather, it's *mathematics*. And mathematics (metaphysics) is the foundation of physics. What lies beyond physics isn't speculation but mathematics, the essence of rationalism. As long as metaphysics sticks to mathematics alone, it can reveal every authentic secret of existence.

Physics and metaphysics must merge under one umbrella: ontological mathematics, thus linking mind and matter, noumenon and phenomenon, the intelligible and the sensible, the rational and the empirical, the unobservable and observable.

Kant claimed that mathematics and science were "synthetic *a priori*". In fact, mathematics is analytic *a priori* and science is synthetic *a posteriori*. Mathematics tells us all about the intelligible world and science about the sensible world. Mathematics deals with eternal truths of reason, and science with contingent truths of fact.

The Universe

Schopenhauer thought that the universe was ultimately just one thing – the Cosmic Will, outside space and time; a single Mind, so to speak. Schopenhauer had a wholly negative view of this Mind, seeing it as irredeemably malevolent and evil. If anything, he regarded it as the Devil, the *unconscious* Devil. In Schopenhauer's system, there's no "God" to make things better. The universe proceeds on its evil way forever, producing nothing but evil, wickedness and suffering. In many ways, this is the most pessimistic Gnostic vision of reality. There's only a monstrous Demiurge and no True God.

Schopenhauer's philosophy is Buddhism treated negatively rather than positively, pessimistically rather than optimistically. Why *should*