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A Penny for your Thoughts

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Abstract

What if we could suddenly increase our intellect, would that solve the world's problems? Probably not, because that does not appear to be difficult to do if you believe this paper, and we still need social engineering to know what we need to do and how to do it, so let's look at the 'big' questions of Stephen Hawking in the light of this paper, and in particular the enigmas of the golden ratio, emotion, art and beauty etc., as well as why the mathematical concepts appear to be all expressible as infinite series of simple fractions? The answers are surprising and lead to the possibility of not only increasing our intellect, but also making mathematical physics a proper force in describing nature by completing our understanding of physics and mathematics. This incompleteness is due to our inability to understand the organisation and relativity that our universe is built upon and so we necessarily present a complicated view of science, to the consternation of people in general. This paper presents a simple view of the physical that is understandable, logical and seems to align with the physical and that is the context to the concept of the intellect that we need to improve to solve the big problems of society.

Keywords: Relativity; creation equation; the mind; fractal universe; social engineering

'If we do discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few scientists' (*A Brief History Of Time*, Stephen Hawking, p 209)

'People distrust science because they don't understand how it works. It seems as if we are now living in a time in which science and scientists are in danger of being held in low, and decreasing esteem.' (*Brief Answers To the Big Questions*, Stephen Hawking, p 241)

Preamble

Stephen Hawking suffered from motor neurone disease 'as someone who at the age of twenty-one was told by their doctors that they had only five years to live, and who turned seventy-six in 2018' (*Brief Answers To the Big Questions*, Stephen Hawking, p 146), he certainly showed the determination that is necessary to Life. After all, everyone of us came from an unbroken chain of ancestors over three thousand million years that invested their energy into having offspring. He 'was always attracted to big questions, whether they were deeply rooted in his science of not' (p xxiii) and this provides the relativity that defines the information space that we need to consider to provide answers for today's problems. The first quotation shows that there are problems in physics, that firstly, that there is no existing complete theory and secondly, that if one is discovered, it may not be understandable to everyone. On the other hand, this paper shows that physics is simple, but humans don't think well enough to understand it.

The second quotation suggests that ordinary people do not understand science because scientists are unable to explain things simply, which suggests that scientists are

not very intelligent and/or do not understand science because, I believe that the universe is simple. Unfortunately, it seems that scientists are: child-like, not sufficiently intelligent, and do not understand science well enough to make explanation simple. These claims are symptomatic of Homo sapiens in general: that evolved from the animals, is still predominantly animal, uses top-down thinking and are primarily specialists. Hence this paper aims to increase the intelligence of scientists by defining the software possibly used by the mind and upgrading that software by including the organisation behind the enigmas that have been ignored by scientists and so showing that science is simple. That scientists, as specialists, tend to be child-like is undeniable, but ignoring organisation is an omission that has cost humanity dearly [global warming, population growth etc.] and is a symptom of our immaturity as scientists, and in particular as social scientists.

Physics Revisited (Necessary for Relativity)

'In 1980 I said I thought there was a 50-50 chance that we would discover a complete unified theory in the next twenty years. We have made some remarkable progress in the period since then, but the final theory seems about the same distance away. Will the Holy grail of physics be always just beyond our reach?' (p 155) Now, 40 years later the situation has not changed because, I suspect, the 'business' of science does not want change and especially the journals that have rejected this approach, that is, my submissions. It is only now that Open Access has become available that allows new thinking to challenge the 'club-like' nature of the peer review system of determining acceptable scientific laws and this is shown by the necessity to include a disclaimer.

Disclaimer

This paper is an 'opinion piece' and not scientific because the scientific method [as stipulated by Francis Bacon] contains measurement only and lacks relativity between two measurements [the theory], and secondly, the scientific principle is flawed because it relies on peer review of previous work and I believe that Newtonian physics is correct, but too complicated to allow modern theoretical physics to be seen. Because this approach is so new, it does not build on the peer reviewed work of others [energy plus organisation is nothing versus force equals mass times acceleration] and fills a hole in our thinking that currently lacks relativity by being top-down only. Thirdly, physics retreated back into Newtonian physics and measurement 100 years ago and is possibly resistant to change, and on understanding this paper, your mind may be changed [irrevocably] and that may jeopardise your standing in the physics' community because physics does not include organisation explicitly. Fourthly, mathematics is considered to be a product of the mind, but the mind is shown to be a product of the same organisation that produces the universe and that should be recognised and appreciated, and it does answer the enigma that mathematical operators [concepts like pi etc.] equal an infinite series [entanglement] of fractions [destroying relativity] of numbers [organisation]. Fifthly, mistakes [contextual] may occur because I am a generalist, whereas a specialist is a specialist [conceptual] in a subject and would not be expected to make mistakes. This state of affairs is relativity and cannot be eliminated.

The reason that scientists cannot explain science is simply because physics, in particular, does not contain reasoning [theory or organisation that explains measurement] and that is because the scientific principle is based on Francis Bacon's edict of measurement only. Newtonian physics started 400 years ago based on energy only and that thinking led to picturing the origin of the universe as the Big Bang hypothesis where energy was created [from nothing], cosmic inflation occurred, then stopped, all about 14 billion years ago. This is a typical creation myth that we are asked to believe, even though it is ridiculous [negative energy is a postulate that foreshadows organisation]. Let's put some reason [which is organisation] into the discussion and say that nothing split into two things, a concept and a context [energy and organisation] that has the equation *energy plus organisation equals nothing*, which is a fractal because every concept must be related to every other concept in an organisation through contexts. For example, it is an enigma in mathematics that every operator [such as pi] is equal to an infinite sum of fractions, but this is an example of concept-context [1] and further, a fractal is simple and similar [because it is derived from a simple equation] and that requires everything to be simple.

Notice that energy and organisation have a relationship in the proposed creation equation that I call relativity, and multiplication is the *functioning* [of the relativity] and division shows the *form* [of the functioning] in a fractal. This is completely different to the normal use of multiplication [axb= a lots of b, or b lots of a] and division is just division and it is a property of relativity that emerges from the necessity of two things being created at the same time [one cannot exist alone]. Organisation also requires that a space be bounded and continuous and that everything in that space be entangled, and further, that energy and organisation must always be minimal in the physical [absolute 5 [1,2,3], principle of least action]. With organisation being infinitely complex [context], it is small wonder that physicists chose to consider the energy [concept] on it's own, but unfortunately, they still do ignore organisation for a number of reasons as well as the top-down child-like thinking that homo sapiens inherited from the animals [8].

So [3], the form of the creation equation is E/O=i(squared) where E is energy, O is organisation and i is the square root of -1, denoting relativity. Off the particle, we can only measure with a photon [whose speed is c] the measurement is E/O=c(squared), with the relativity of measurement [between the measurer and organisation] being c(squared) [Einstein's equation] and within this interval [0 and c] is the realm of energy and organisation E/O=v(squared), where v is the speed of the particle, which is the equation of movement due to gravity. Thus, there is no need for gravitons, gravity waves

or attraction, just the movement that is required by relativity [on both energy and organisation]. If it seems strange that organisation has gravity, Einstein suggested that space is curved [organisation] to double Newton's attraction to get the correct answer [Eddington's experiment].

The creation equation only exists in an accelerating space [otherwise it would self-annihilate[1]] and it has been found that our universe is accelerating, much to the dismay of physicists [Hubble]. An expanding universe requires distance and time to begin, so, looking at the form of the creation equation [the equation is the functioning] by dividing the orthogonals [the independent dimensions of energy, organisation, time and distance] gives the speed of energy and organisation to be constant to the measure, which happens to be the result of the Michelson-Morley experiment [much to the consternation of physics]. Energy and organisation divided by time is hyperbolic and is extremely large at small time creating cosmic inflation [another enigma of physics] as well as the everlasting acceleration [of the universe] that tends to zero [2]. The form of energy and organisation with respect to separation [division] is another hyperbola [3] [quantum gravity], with gravity decreasing with distance and increasing to an organisational state at very small separation [quarks]. These absolutes [forms that remain constant] of particles [(E plus O)/separation] can be multiplied [for relativity] and this multiplied form is the law of gravity, which was 'inspire guessed' by Newton 400 years ago and has not been derived by physics over this time in spite of it's use in astronomy, satellites etc. [1]. Physics gave away theoretical modern physics a 100 years ago and retreated back to Newtonian physics, and used the absolute F/m=a, where F is force, m is mass and a is acceleration, which is probably a generalisation of Galileo's absolute [F/m=g, where g is the acceleration due to the earth's gravity] that is valid, but too complicated, but what else could it do?

This theory is possibly the one that is needed [as an orthogonality with Newtonian physics] to satisfy the wants of the quotation because it is simple, and for that reason is probably correct [Occam's razor] and it can be understood by a logical mind. Further, it shows the magnitude [50%] that is the present incompleteness that hides the organisation behind social science and the possible means of controlling our present society and it's disastrous effect on the environment [4, 5, 6].

Mathematics and Measurements

If physics is about natural processes, mathematics is about counting them, and it is not surprising that in a fractal [exhibiting simplicity and similarity], mathematics is based on the creation equation [*concept plus context equals nothing*] and the equation of mathematics is *a number plus the organisation to every number on the number-line equals zero* [7]. The Fibonacci series is well known to underlie Life, in particular in the packing of sunflower seed, reproduction of rabbits etc., but more importantly, it is recurrent and shows that the future is built on the sum of the present and past. This simple statement underlies all planning organisation and is written into every evolution and could define evolution because in evolution, the future is either better of worse than the past. If the future is better, the species improves, if not, the future is extinction and this is known mathematically as differences.

In terms of relativity, it is saying that our present is based on the past [a past goal] and that we must have a future goal, otherwise our presence is merely random-walk. This is a profound organisational statement that underlies our evolution because survival of the fittest says that we are the fittest, but the current lack of an organisational selection criterion is degrading us [as a species], as is obvious from the news reports [increasing allergies, diabetes etc.]. This presumably was the concern of Stephen Hawking in proposing the questions and these questions hinge on whether the universe is considered to be 'real' or an organisation, and that requires looking at it's makeup. The theory above, suggests that the universe is an organisation that is built on goals and requires goals [Fibonacci series] and that those goals require social engineering to be used.

The question becomes, 'is the universe "real" as religion teaches us and physics appears to agree with?', and we are stuck with that 'realness', or 'is the universe an organisation?' and we can influence ourselves by using goals? The enigma that I choose, to enter this question, is that all of the operatives [concepts] in mathematics appear to be represented by an infinite series of fractions, such as pi [equals an infinite sum of simple fractions [pi = 4-4/3+4/5-4/7+4/9 …. (*Alex's Adventures In Numberland*, Alex Bellos, p 153)], and these fractions [divisions] represent the *form* [used in the sense of division] of the number-line that must be infinite [completely entangled], and further, the form of the Fibonacci series [dividing the Fibonacci series by itself] tends to the golden ratio [p 290]. The golden ratio was found to be a continued fraction that provides 'mathematicians with a way of rating how irrational a number might be. Since the expression for phi contains only 1s, it is the "purest" continued fraction that there is, and hence is considered the "most irrational" number.' (p 423)

Hence, given that phi is the 'most irrational number', any affordance [1] associated with viewing an artwork should provide the commensurate [large] emotional response and any refusal to accept this means that art has no worth [or basis in fact, which might anger art-lovers], thus our universe would appear to be an organisation [8]. Traditionally, the golden ratio has been associated with increased emotion that, I believe, is generated [affordances] from the presence of increased organisation [such as golden ratios, colour relationships etc.] placed in the work of art, elegance, beauty etc. and seems to firstly, justify the assertion that the universe is an organisation based on the creation equation and our thinking. Secondly, we can change the organisation by using social engineering and, thirdly, recognise a superior organisation by listening to our emotion. Thus, there is a way to manipulate organisation within our society that is vastly superior to the set organisation of a 'real' world.

An organisation [that contains us] must be fully bounded and continuous within those bounds and must answer our questions [measurement] uniquely [absolute 5] with a relativity, such as that pi is the relation between a radius and a circle [concept] as well as being an infinite series [context]. If we ask 'Why an infinite series?', the answer is that it must be irrational [not rational] to be infinite, and if we ask is it transcendental, the answer should be yes because there must not be repeats. In other words, we must get an answer if we seek it, and that answer must be to the question that we propose and it must be unique [the closer that we look, the more accurate that it becomes, but never gets there [compare the Heisenberg uncertainty principle, where you can't know two physical properties exactly [1]]]. For example, if we use a more powerful telescope, we can see further back in time and see more detail, but there is a relationship between time and space with a form that we call the speed of light that prevents us from influencing things possibly because the stars that we see are those that must have occurred to give the present day to us. In other words, what we see is what had to have occurred to produce the present using absolute 5 [8]. This does not make it 'real' in the sense of having existed. This is time travel, with the proviso that nothing can be changed because it is unreachable due to the speed of light.

Consider the question 'what are the chances that we will encounter some alien form of life as we explore the galaxy?' (*Brief Answers To the Big Questions*, Stephen Hawking, p 83). This would be a worry if the universe were 'real', but consider the answer 'I prefer a fourth possibility: that there are other forms of intelligent life out there, but that we have been overlooked' (p 85). I prefer the explanation that this universe is our Life's creation until we meet some other life-form and our universes combine. In other words, the universe is built on our measuring, which is our requirement and expands and contracts as we require it. The concept of a 'real' universe with billion upon billions of galaxies is simply unbelievable [and unnecessary because we are doing the measuring] and a product of the limited top-down thinking of Homo sapiens.

Thinking and Emotion

It is surprising that the creation equation is, I believe, the basis to thought, but then, over three thousand million years, we should expect that the simplest, most efficient thinking would have evolved, and what is simpler than the creation equation? We think in concepts and contexts [the mathematics of concept-context] and use affordances [the creation equation] to transfer the organisation of our surroundings into our mind, using a criterion [that the universe can answer] and recording the string of action potentials in the brain for comparison [1]. The comparison is presumably made between the levels of emotion [energy] that the recorded concepts evoke, and that is the thinking [top-down] that the Life around us uses [including the animals and Homo sapiens].

Stephen Hawking suggests that 'there is no time to wait for Darwinian evolution to make us more intelligent and better natured . . . . other qualities, such as intelligence, are probably controlled by a large number of genes . . . . once such superhumans appear, there are going to be major political problems with the unimproved humans, who won't be able to compete.' (p 80) In other words, Stephen Hawking realises that Homo sapiens cannot control society in the present [world wars, global warming, fuel and food shortages etc.], nor has been able to, in the past, and that changing genes requires a long time-frame [that we don't have]. However, there is one notable exception that has been slowly dying over the last 2,000 years, and that is the magnificent social engineering that we call Christianity that grew out of a general need for security [a basic trait]. This sentence is saying firstly, that change can be made rapidly by changing the software of thinking, secondly, it has been done before, but neglected recently, and thirdly, is available through understanding social engineering.

The answer to saving civilisation is, I believe, understanding social engineering and the papers [4, 5, 6] are being held back until later in the sequence, but we can look at another aspect that does not involve social organisation, but uses physical organisation. The brain consists of a large number of concepts that have a number of contexts between them on one level [top-down] and as we learn more facts [concepts], the linkages [contexts] are linear [between the concepts]. If we consider that the possible affordances of say 5 concepts is factorial 5 [5x4x3x2x1 = 120] and 6 concepts is factorial 6 [6x5x4x3x2x1x = 720, then if we use relativity and bottom-up as well, the contexts become roughly three times as great and the number of contexts become factorial 15, which is 1,307,674,368,000! This comparison is simplistic, but indicative of the scope that increasing the software of thinking can have. This process uses the existing brain and can be implemented in one generation with none of the problems envisaged by Stephen Hawking, especially as social engineering handles the implementation [4, 5, 6].

In other words, changing the software is *how* to change the mind quickly and easily, and that requires *believing* this method., but it needs social engineering to *control* the change, and control comes from the *goals* that must be in place [for relativity].The knowledge of how to proceed [in general] is to consider the orthogonality [as a parable because we are using organisation] of technology that has given many of us a much improved lifestyle. Technology [composed of energy] is based on physics and materials engineering without regard to the effect [organisation] on society, whereas social engineering is based on social science and then on the social engineering of society. Unfortunately, social science [based on organisation] presently is based on physics that does not consider organisation explicitly and could be in error with respect to this model.

The Dummy-spit (Quantum Mechanics and Fermat's Last Theorem)

It is against nature [and thus, against social engineering] that the old and experienced should change roles [it is the

offspring that should move into new niches while the parent remains successful in the old niche], so, let us work around this omission by considering the problems that have caused physics so much grief [quantum mechanics] and mathematics [they appear to be little aware of the significance of the golden ratio], which links the mind [mathematics] to the creation equation [physical]. The golden ratio is being used as a means to an end [in this paper] and it obviously can not be used as an example, so, I'll use quantum mechanics and Fermat's last theorem as well as the the two examples of the hyperbolae of time and distance in cosmology [1, 2, 3].

Because of relativity [orthogonality] there exists the necessity of a conceptual and contextual proof being available and because physics and mathematics are incomplete, they make life difficult for themselves because quantum mechanic is simple [1] and Fermat's last theorem, that took 200 pages of mathematical proof is obvious [physical, absolute 5] from the requirement of absolute 5 ['no three positive integers a, b and c satisfy the equation a(power n) +b (power n) = c (power n) for any integer power of n greater than two (Wikipedia, Fermat's Last Theorem)]. By an obvious proof, I mean a sufficient proof, in the spirit of the quotation, that Pythagoras' theorem has a unique answer, because absolute 5 is a prerequisite for the existence of an organisation, and I am assuming that the universe is an organisation and not 'real', a situation that is indeterminate except to measurement. So, the mathematical proof is valuable because it helps suggest that our universe is an organisation and that mathematics is rooted in the physical.

Consider Euler's equation (see below) that is enigmatic to mathematics by showing the relationship of concepts that shows the formation of the fractal that forms the universe [1, 2, 3]. Likewise, I believe that the golden ratio provides the maximum emotional energy of the spread [from zero to the affordance of the golden ratio] that is the segment of organisation that controls the mathematics of the mind-brain [mathematics of concept-context] and is the maximum link to mathematics [7], see below. Homo sapiens has been happily cruising, but now it is time to understand what is making the social problems, which Homo sapiens seem unable to control. Physics ran into it 100 years ago, called it quantum mechanics, and said 'use it, but don't try to understand it', and went back to Newtonian physics. Physics does not want to look at itself because it's mental attitude is based on specialists [concepts], whereas this paper is built on context [which are orthogonal and independent to concepts] and quantum mechanics is simply the ramifications of the creation equation [1, 8].

Mathematics has it's own problems, which it ignores and says that mathematics is a product of the mind [only] and that subsets are independent of the set that contains them and just like physics [that came up against restrictions [of the creation equation]], mathematics has just motored on oblivious to the enigmas that it uncovers and then conveniently forgets. This behaviour, with it's short attention span is typical of specialists that can put aside the hard problems and seek the pleasure of solving the easy ones and basking in the praise of peers [peer review]. [Notice that the pleasure in playing with mathematics is possibly the emotional energy produced in the brain by the organisation of an excessively complicated mathematical organisation [affordances]]. Physics has it's Newtonian physics, that works, but is too complicated to show the modern physics that came from the Michelson-Morley experiment [a very large pothole that the speed of light was constant to every measurer]. How can pi [concept] be equal to a series of numbers [context]? Equals is actually an orthogonality seen by y=x on the two axes.

Consider '*whatever* two numbers you start with, the ratio of consecutive terms always converges to phi. I find this a totally enthralling mathematical phenomenon' (p 291). Alex Bellos's book is excellent, especially for an author that is not a practising mathematician [and is an example from the previous paragraph of a generalist] and the book is best summed up on the back-cover that 'Alex Bellos explodes the myth that maths is best left to the geeks'. Indeed, this is a tidy summation, but it does not go far enough because what it should be saying is that generalists are needed to insert mathematics into the rest of science with more intelligence than mathematical physics combines mathematics and physics [compare multiplication and division, orthogonality etc.]. Alex Bellos still has one foot in the geek's world with the comment 'I find this a totally enthralling mathematical phenomenon'. The golden ratio might be a phenomenon, but it needs understanding, and it is not solely mathematical, but also physical [see Euler's equation, below, and Fermat's last theorem, above], and while totally enthralling, it needs a goal of what it is and what to do with it. This is why we need to use the goal of Homo completus and that goals [themselves] come from relativity. We need a new way of thinking because stupidity is not an endearing trait to find in anyone, especially in leadership, but that is wandering into social science, so, this is where mathematics gets 'under the car and gets dirty' and leaves it's ivory tower.

The Nuts and Bolts of Mathematics

The aim is to show that mathematics cannot escape from the construction of the universe and shows the relativity of the creation that produces the basis of life, namely that goals are the basis of Life. In other words, the Fibonacci series [mathematical concept] shows the form [by division] of an infinite series [context] that equates to an absolute [unchanging] concept [golden ratio] of Life that shows that goals [past, present and future] are the drivers of evolution. Or simply, the pursuit of mathematics is a fractal equivalent of evolution and we need to recognise goals for it to become useful in a field.

Firstly, the form of the concept [division of Fibonacci series by itself (p 290)] produces an infinite series of fractions [forms of the number line] that are the organisation of the number line which converges to a constant [phi] the golden ratio (p 291).

Secondly, the form of the Fibonacci series contains the context of past and future goals (p 285) relative to the present that is, I believe, the driving force of evolution for our species [at least] and is our organisational driver.

Thirdly, the golden ratio is the maximum organisation that equates [creation equation] to the maximum emotional energy that, through affordances, regulates our thinking [segment 0 to phi].

Fourthly, physics, mathematics and mathematical physics need to recognise the relativity [orthogonals] and bottom-up organisation to produce a truly descriptive theory.

'The form of the Fibonacci sequence is shown by division of the terms:

F2/F1, F3/F2, F4/F3, F5/F4 .....

'or (to three decimal places): 1, 2, 1.5, 1.667, 1.6, 1.625, 1.615, 1.619, 1.618 ...

then the values of these terms gets closer and closer to phi, the golden ratio.' (p 291) If we apply relativity to the sequence, such that:

F1/F2, F2/F3, F3/F4, F4/F5 .....

'or (to three decimal places): 1, .5, .67, .6, .625, .63, .62 ...

Thus the form of the Fibonacci sequence shows the relativity, and further, 'the angle of 137.5 is known as the golden angle. It is the angle we get when we divide the full rotation of a circle according to the golden ratio.' (p 296) thus, the form of the reciprocals are :

222.5/137.5 =1.62 and 137.5/222.5=.62

The golden rectangle 'has the convenient property that if we were to cut it vertically so that one side is a square the other side is also a golden rectangle. . . . . we can continue this process to create granddaughters, great-granddaughters, ad infinitum. . . . A true logarithmic spiral will pass through the same corners of the same squares . . . the logarithmic spiral is one of the most bewitching curves in maths. In the seventeenth century Jacob Bernoulli . . . called it the *spira mirabilis*, the wonderful spiral . . . The fundamental property of the logarithmic spiral is that it never changes shape the more it grows. Bernoulli expressed this on his tombstone with the epitaph: *Eadem mutata resurgo*, or "Although changed, I shall arise the same"'(p 293) In other words, the concept of the logarithmic spiral is a mathematical absolute [does not change] and absolutes are the basis of organisation and the key to understanding the structure [form] of an organisation. For example, a business makes a product and in top-down thinking, that is it, but a business has a place that is a part of a bottom-up organisation.

Bringing it Together

The derivation of the physical universe was included, above, for a reason, just as the golden ratio, rectangle, angle and logarithmic spiral have been discussed. The former to show the organisation of gravity, which arises from the restriction to the existence of the creation equation, that builds a fractal universe from absolutes, the latter to do the same for mathematics and to show the bottom-up interaction that is supposedly shown by the top-down logic that mathematics is a creation of the mind. This is a dementia every bit as ludicrous as Newtonian physics' attempt to represent modern physics and also mathematical physics to describe physics in mathematical terms [without orthogonality]. This is a dementia, not from a failing of the mind-brain, but because the mind-brain is incapable of understanding this model until it is pointed out [measured] and the software of the brain [that we use] is made complete and is synchronised with the construction of the brain [the bottom-up organisation of the physical]. This is the same building on measurement that created the universe and mathematics is apparently a universe with the creation equation *a number plus the organisation to every number on the number-line equals zero* [7]. The point of the logarithmic spiral is that it is an organisational absolute and it reminds us that there is a restriction that we assume in the organisation of the number-line, and that is that the organisational separation between all numbers is the same, namely 1.

Hence, considering Euler's equation [9] from a physics point of view, which is claimed by Mathematics as the enigmatic relationship between the fundamental mathematical quantities pi, e, i, 1 and 0, though what 1 has to do with the others appears a little strange. However, as a description of the physical universe [as a fractal], it makes more sense because it reflects the form of the universe [(e to the power i times pi +1) = 0 can be written (e to the power i times pi + e to the power 0) = 0, which is an expression of orthogonality and describes an expanding [e, simple interest expansion] sphere [pi] from 0 symmetrical [i] through the centre (reflecting the lack of relativity)]. This 'subsuming' is the expected result in a fractal and Euler's equation appears enigmatic because of the appearance of i [the square root of '-1'], but it's appearance becomes obvious due to relativity. Now, from a mathematical point of view, the 1 does have importance as the separation of the numbers on the number-line, which is a basic restriction that must be observed.

Conclusion and Prediction

Homo sapiens has evolved from the animals by the use of intelligence that has grown with an increasingly larger brain over millions of years, but the process is coming to an end through physical limitations and our intelligence is not sufficient to prevent us from wrecking Life on this planet. Clearly we need a new type of software that increases our intelligence without demanding a bigger brain, and this can be done because some birds are surprisingly intelligent with a brain the size of a walnut, due presumably to the limitations of weight for flying, and we need to bow to similar limitations. Instead of genetically changing the brain, we can improve the software that we use. We need more responsible people that have better personalities that don't need a horde of public servants that try to control our every move by petty laws etc.

We need to mature our personalities and our way of life for the future by genetic selection based on a rational brain to make Homo completus and that requires social engineering built on organisational absolutes.

That aim [for the future] needs a relativity in the present and, it has been said that pure research is justified in the future, so, when do we fix the miss-direction of past research if not as soon as possible? Consider that 'the *Journal of Mathematical Physics* defines the field as "the application of mathematics to problems in physics and the development of mathematical methods suitable for such applications and for the formulation of physical theories".' (Wikipedia, Mathematical physics) This definition *assumes* that physics and mathematics are complete, reliable and useful and the above shows that this statement is possibly wrong. Even worse is the lack of organisation that we need to describe a complete mathematics and physics that is also crucial to a properly functioning society.

As a generalist I can say that the way to future goals is the recognition of relativity [the goals] and orthogonality in the present top-down disciplines coupled with the bottom-up organisation offered here. Generalists are necessarily orthogonal to specialists and both are needed because they represent different aspects [concept and context] of any problem. A proper mathematical physics must be constructed without these artificial boundaries of history because we live in a fractal with simplicity and similarity underlying the whole [not particular divisions]. In the light of this, I think that we need a goal of Homo completus with relativity and bottom-up organisation as well as the historical advances.

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