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Good evening, I'm Andrew Kennedy, an independent researcher, Fellow of the British Interplanetary Society, a member of the Society for Social and Conceptual Issues in Astrobiology, and author of the *Cosmology of People* Series and the related Chronolith Observatory project.

Book covers

Tonight I am going to talk about themes from the the first volume of my book published last year, *The Cosmology of People and the time travel solution: An astrobiological Proposal* (2020, UK), and from the second volume in the series, *the kinship of coincidence and the simulated universe*, which will appear next year.

Astrobiology is turning out to be enormously significant discipline when it comes to Humans in space and I am going to discuss some interesting propositions prompted by the astrobiological viewpoint, one of which is time travel. I am going to talk about the idea that to understand consciousness we have to understand time travel. By considering time travel we must accept that Humans may not actually be fit for their life in this Universe. That their existence is so unlikely that it has surprised even whatever process created us and suggests that perhaps life is the result of a simulation.

I shall introduce the idea of the kinship of coincidence and how it fits in with mind, with time travel and what it might mean if humans are really part of a simulated universe.

First let's get ourselves into the right frame of mind. Lennart Green is a phenomenal Swedish card magician He gives talks and often begins with some crazy hand movements for the audience to try and copy, here's one of them.

Especially favoured

Let's go back to the Middle Ages where we thought that Humans lived in the centre of Creation, placed there deliberately by the Creator. Even today these thoughts affect our Cosmology. We still believe ourselves to be specially favoured by our Creator and placed, if not in the centre of its universe, at least in the centre of the Creator's regard. The Universe is suitable for us and could not be any other way.

But suppose I were to tell you that humans are the only intelligence in the galaxy, perhaps, in the universe. Would that change your perception of the value of a human life? Would you want to preserve every unique Human life whatever it takes? Suppose I were to tell you that life isn't even meant to be here. Would that change your notions of what being Human means? Would that make you think that humans are therefore obliged to compete with one another to survive? In a kind of Squid Game where others are just a threat to your survival.

Should we winnow humans down to a small number so that there is more for each one of us remaining, just like the movie tale of *The Purge*?

Would you reconsider things like war, or capital punishment? Take global warming seriously?

What would your ideas of the Creator be if this universe is essentially hostile to our kind life? And that we are here and hanging on to life because of a never to be repeated freak of circumstances? If the Creator created true probability, which it seems to have done with the quantum world, then even it would have to accept that the kind of life it doesn't want might still arise within its creation.

So far Humans have resisted such thoughts. The old medieval way of looking at humans as being deliberately placed here to enjoy the Creator's work, and to think that humanity is the very objective of creation is hard to shake off. We find these ideas emerging in the Anthropic principles of the cosmologist, in the discussions of 'life friendly' parameters to the universe.

Contrast this psychological neediness with a purely material and atheistic interpretation of life. Which is likely to be a fair appraisal of the situation? Can we find out?

I'm not going to consider a religious approach to the dualistic nature of our Cosmos, but to see if there are pointers in what we observe that may leads us in the direction of the simulation hypothesis.

Fine tuning

We have discovered that the parameters or the constant ratios of numerical values of energy and matter which define how our universe works, like gravity and electricity and magnetism, appear to lie within very tight ranges. A small change in any one of them and we would not be here discussing the matter since the universe would have developed in an entirely different way.

The fine-tuning argument also bears a familiarity with the argument of God-the-clock-maker put forward by Paley (Paley, 1802) building upon the arguments by design of the medieval theologian St. Thomas Aquinas, where the universe shows 'obvious signs' of being fabricated by a designer. At the time of Paley, the biological realm of species and function provided the most compelling evidence he had for the notion of a 'planned' creation. Aquinas argued similarly from the teleological perspective that the beauty and purposeful arrangements of creation signified it was designed by a mind (Davies, 1992).

This fine-tuning of the parameters leads physicists to talk of 'life-friendly' parameters in the same old medieval frame of mind.

But these notions suffer from first-person bias, or anthropocentrism, in that observing an ordered world in which we live does not automatically signify a world ordered just for us (Stenger, 2001).

In contrast, approaches by others suggest that life-friendly constants are so improbable in that it is irrational to expect them especially in a single universe (Monton, 2006). And we can agree with this by considering another anthropomorphic bias, often considered in our world, namely the creative or artistic act which we view as a singular, original act, not already existing, unpredicted and unpredictable. The conditions in which we find ourselves, as the result of a creative act, are therefore precisely those that will not be copied or repeated, and where the fine-tuning of conditions simply signify this unique act of creation and do not imply anything else like other universes. Meaning also that the single act of creation by definition is not fully explained by other stuff pre-existing.

From here we can consider what is called the Anthropic Principles which fall in into two main classes of Principle.

Two Anthropic Principles

Out of this idea come the extreme interpretations of Barrow and Tipler who claimed that, since we arise in a universe that is finely tuned to be just right for us, the universe was designed or 'compelled' to bring conscious life into existence. Which suggests of course that either all universes have life or there needs to be only one universe in which life is present. This version is called the Strong Anthropic Principle, and it is easy to see that this idea is functionally the same as saying we live in a simulation.

Enter the weak anthropic principle (WAP).

The Weak Anthropic arguments were developed by Brandon Carter from some ideas he presented to a conference in 1973 celebrating the anniversary of Copernicus. Where he suggested a statistical argument that there was a raft of universes with different make-ups and ours was that one of the set of different universes which turned out to be suitable for our kind of life, since we could not be living in any other kind of universe (although other kinds of observers could be). But, if we follow the logic of the creative act through we are led to the conclusion that **if** parameters of the universe are indeed coordinated enough to bring humans into being – those life friendly – constants – then the very lack of uniqueness suggests something other than a singular creative act, aimed at making humans in this universe.

The Weak AP proposal was strengthened with the arrival of the Chaotic Eternal Inflation theory of the Universe's origins, producing Big Bangs all over the place where each Big Bang or space-time bubble is a smaller universe expanding with different parameters. Some sets of parameters mean a short lived universe with hot stars quickly evolving and dying out; others mean slowly expanding universes with little helium and little secondary manufacturing of elements required to make planets and life. Our universe is just a statistical result where all the parameters come together to allow Humans to arise.

However, the weak AP requires that there are enough universes to make our existence probable. Not really nailing it as a scientific theory. If the statistical assumption is designed to ensure there is at least one universe with life then really we are back to the strong AP and /or the simulation hypothesis.

So even the WAP is representative of the idea that our life is properly adapted to this universe, and that humans are inevitably present somewhere in the mix of the entire cosmos, or omnium, of chaotic inflation.

That is, of course, if you believe that life is a consequence only of the material world where it is found. But suppose that the principles of life itself have some independence of the material worlds in which it is found. This is the key to the simulation argument which we will get back to after we try and answer the following question.

Are the universe we observe and the essential components to life obliged to have the same cause?

Different ways of thinking about life in the universe

We can think about it this way:

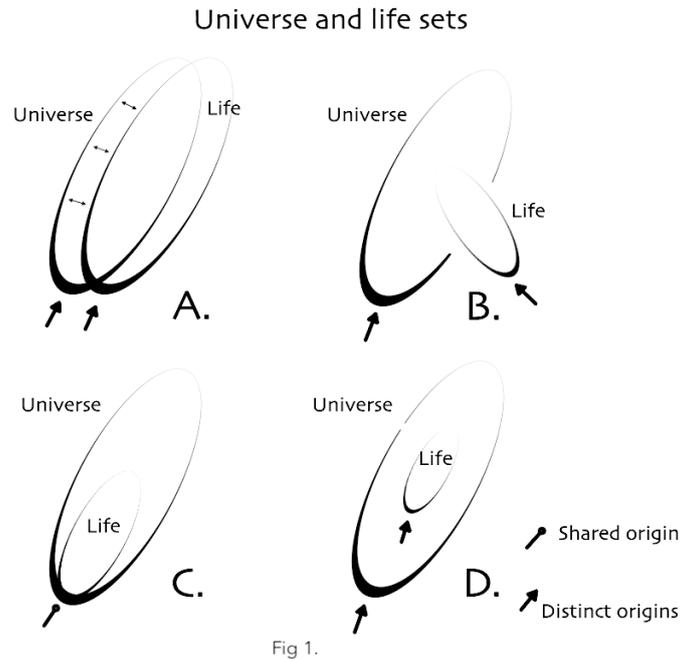


Fig. 1. Origins of life and Universe scenarios

There are at least four ways to think about life arising in a universe.

- Scenario A, Overlap; where the physical universe has a distinct origin while the processes required for life has another, and the two 'sets' interact over time. The information required for Life could be a separate field in the Omnium which provides the informational energy need to begin self-replication and therefore life. The fact that we are observers in this universe or that there is some congruence between the two does not prove that the universe's constants are required to be the cause of our life since the two origins are distinct. It could also be the case that the set of properties of life or consciousness is a set greater than our universe and that only a subset of life is in correspondence with the fabric of the Universe. This only requires that the observation of fine-tuning in our universe is sufficiently close to that needed by life to allow life to correspond with it. The situation might also occur in cosmic inflation where, for example, two vacuum states overlap. This scenario supports the matter / life dichotomy, the philosophy of dualism, and the simulation scenarios (Bostrom, 2003) as well as Boltzmann brains (de Simone, 2010).
- Scenario B, Interpenetration; similar to A., where both universe and life have distinct origins but life penetrates the physical universe over some region from a narrow source. If there is congruence then it could be coincidental or intentional, but either way it implies that life requires a certain preparedness in the material universe like the fine-tuning of parameters and not in the other order required for the WAP. For example, it may be the case that the universe has to first evolve in a certain way and reach a certain point in development before it produces conditions where life can seed itself and take root. That is, life exists somewhere else like a field of consciousness and is ready to grow in or attach itself to a universe when conditions are sufficiently right in that universe. Either way, it suggests only that the material nature of our universe can accept life in some form or other, and not that life is dependent on it. If matter requires an input from somewhere else, either from a simulator's program or from a source in other dimensions, to accommodate life, and it cannot on its own produce life, then the repercussions are enormous. Life is not a natural or full consequence of the behaviour of matter and energy as we observe them in our universe. The improbabilities of life beginning could be understood then, as a consequence of life not being supervenient upon increments of organisation of matter. It returns us to the classical problem of matter / life dualism, or that we are in a simulation.

- Scenario C, Conjunction; where the origins to life and the origins to the physical universe are the same as the logic of the SAP. I exist therefore the universe exists. This case may be a simulation but where there is no separation of life from the material universe. The causes for life proceed from the cause of the universe, and the material world and the world of sentience are mutually involved. This is essentially the strong AP.
- Scenario D, Predisposition; where life and the universe do not share an origin in time, but have a statistical distribution, and where life has a later origin within the physical universe. Supports dualism and the weak AP.

Scenarios A. and B. definitely require dualism to be a fact. Scenarios C. and D. suggest a materialist explanation for life. This scenario supports the simulation scenario and demand an explanation of precisely how the dependency of life on the material universe works.

Does dualism make much sense. Materialism appears to be sufficient to explain life. We can see from the study of history that our experience of life appears to have evolved through an incalculable series of logical steps whose physical record we can trace and extrapolate from empirical evidence within our universe, and that consciousness is the culmination of these steps such that it would appear to arise as a result of the architecture of the universe and not as a separately featured insertion as scenario B.

However we don't have all the steps by which the material world creates life. We do not know how self-replication began or how the transition to multicellular life began. Is the logical gap a permanent one or just temporary failing of our knowledge acquisition?

Is life a natural consequence of matter?

The puzzlement over why we have life at all if it is just a random phenomenon and could die out just as easily as it arises still occupies our minds, even though of course, single instances of life do die.

Some have turned this point around and think that it is natural, but solely, it must be granted, in an anthropomorphic sense, for a universe designer to create life-supporting universes (This is the Tipler and Barrow argument for the SAP in essence). What else would the function of a creator be? And while the multiverse argument needs sufficient multiverses to make our universe appear, with us in it, naturally likely, it disguises the real problem of what there is about life that requires a plurality of attempts (or coin tosses) to make it appear as if its appearance is natural. If it is a natural sequential result of matter then why isn't it everywhere? If it is just a question of time then we are back to the especially favoured position of Humans in the scheme of things. We are here because somebody has to be first and it's us. But even if this fact is true, it does not necessarily mean that this universe is the perfect one for us.

The argument that fine-tuning implies a 'Goldilocks' environment for us is entirely anthropomorphic, in that we do not know whether life is fully actualised in this universe with the constants we have. Life may be too fragile in principle, and its under-pinning feature, namely its exponential growth possibility, may always produce poor or short-lived outcomes for its potential in this kind of universe. Observers may therefore be extremely rare. Life may need to attempt evolution many times over in many different universes before its lifetime can be commensurate with the universe it which it lives. Humans may not only be the first intelligence in this universe, but perhaps the first over all creation, and that rather than thinking of life as a generalised construct running simultaneously in parallel in other universes, it is more reasonable to consider it a single evolving process emerging repeatedly in cycles of birth and destruction, over unimaginable timescales to eventually spread throughout the omnium, and that we Humans are simply at the first stage in this process.

Is there any evidence for such a view? Is this why the Fermi paradox exists?

Fermi Paradox

I am sure most of you are aware of the Fermi paradox. But I'll briefly re-cap. In 1950, Fermi, the great physicist was on his way to lunch with other physicists and a discussion arose as to the likelihood of aliens and faster than light travel allowing them to cross the galaxy in relatively short time. Fermi, quietly mulling these ideas over, suddenly announced during the lunch, *Well, where is everybody?* And it's for this remark that Fermi, Nobel laureate, discoverer of the weak nuclear force, creator of the world's first atomic pile, is mostly remembered in general culture.

What his remark points out is that there is an incompatibility between our estimation of the probability of life arising, and the results of exponential growth, which would allow advanced societies to travel the galaxy and visit us many times over, even at sub-light speeds, and the lack of evidence of their presence, even though Life appeared to have arisen on Earth a mere billion years after its formation which, for many, suggests that there is little to inhibit life from forming once new planets have cooled down and the rain of meteorites thinned out.

So where are all these advanced civilisations if the material universe is so conducive to life?

Let us make some calculations about other civilisations.

Drake Equation

Frank Drake, so the story goes, had arranged a summer workshop to discuss how to search for extra-terrestrial civilisations. The workshop was the beginnings of SETI. As the date of the workshop arrived Drake had nothing to present to the team to kick start the discussion. On the eve of the conference he scribbled down his 'rough' idea for calculating the numbers of likely civilisations there would be to talk to, and the rest, as they say, is history. The Drake equation, simple though it is, is inescapable when it comes to thinking about aliens.

1st three parameters

The first three parameters are in fact quite well established by now and most astrobiologists agree that there are at least 100 billion planets in the galaxy. If we take an average radius of our solar system as the orbit of Neptune, at 4.5 billion kilometers, then the greatest average distance between planetary systems them will be something of the order of 76 light years. At 10% the speed of light this represents a maximum voyage time of 760 years. Not unimaginable. We currently know of 26 planets lying in the goldilocks zone of their stars within this distance from Earth.

Is life everywhere?

Even with current telescopes we have seen close to the beginnings of the Big Bang. Yet we do not observe any civilisations.

The last four Parameters

The last four parameters of the Drake equation therefore have to combine to a small number to bring N down near to the value we observe which is 1. The key value to the last four parameters of the equation is L , the lifetime of a communicating civilisation, which has to be pretty short to make N a believable number. We know that it is likely to be short from our own experience coming up against resource limits and climate change. It has been suggested that an advanced civilisation will be able to solve all its existential problems let's say about runaway climate effects and resource depletion, and so be in essence immortal. Numbers of successful civilisations should grow over time. We don't observe this. The lifetimes of civilisations are either very short indeed and or the chances of civilisations even starting are very low.

People are reluctant to give up on the Drake equation so another idea presents itself in order to make civilisations probable. Perhaps there can be more than one civilisation arising on a planet even if their lifetimes are short. Would we even find evidence of such a likelihood?

skip

Civilisation lifetimes are short

This idea was indeed looked at recently, by two authors, Frank and Schmidt, who decided to examine more rigorously the idea that advanced civilisations could arise more than once on a single planet given the long development time of life. In their case, they looked at Earth.

The Silurian Hypothesis

The notion is called the Silurian Hypothesis, after a science fiction tale about intelligent Lizards. They observed particularly periods of climate change, especially in levels of carbon dioxide, in the past, similar to now and considered whether they could be the result of an advanced civilisation, but concluded that while there may remain traces of certain industrial effects like plastics and unusual radioactive products and different proportions of Carbon isotopes, it would be difficult to precisely attribute these to an epoch of industrialisation. Although they suggested that sudden rises in carbon dioxide leading to a burst of vegetations before anoxia kicked in would lead to the laying down of fossil fuels ready to fuel the next rise in civilisation would lead to cyclical patterns of civilisation and extinction. They also noted, however, that the longer a civilisation survives the more it would shift to a self-sustaining model and thus leave even fewer traces in the historical record than earlier. However this model suggests that advanced civilisations will never get out into the Universe at large unless they make some remarkable discoveries (like manipulating space-time) which nullify the vast distances that this universe has been imbued with. Humans may be the ones to make these discoveries but are unlikely to do so unless they sort Earth out first.

So, to recap where we are:

Thus the lack of evidence of other civilisations in the galaxy brings us to a three pronged conclusion. The first two express the two destinies confronting every advanced civilisation: Commit to survival without significant space travel, or risk self-destruction attempting to go for it. Either way civilisations end up being unobservable. The third prong brings us back to the propositions I made at the beginning of the talk. Could there be something really unusual about the presence of Humans arising in our Universe, or something really unusual is required of them to make the next step to interstellar voyages.

In some ways, it seems incontrovertible that all civilisations reach a make or break point where they need to understand the world differently. It gives us a model where successive attempts at solving the near unsolvable seems to agree with the experience of a practical universe, and closer to the principles of evolution that we do know about, such as trial and error, and agreeing somewhat with the idea of evolutionary progress towards the Teilhard de Chardin Omega point where human consciousness and that of the Creator merge into one.

The notion that mind and consciousness is only the result of the steady growth of material evolution is highly questionable.

I am not going to go into all the complicated reasons why the occurrence of life could be so very special and that traditional calculations of probability don't really work with a single example. For the time being, I just want to point out that our belief in the fecundity of the Universe is simply a variant of the same medieval fallacy I mentioned at the beginning that Humans are meant to be here because we assume that their presence comes into being logically and through a sequential set of steps from a base of matter.

Even if this is true, our universe may still not be the best universe for our kind of life and that our lifetime in it is destined to be short unless we get to grips with the idea that humans need to make serious adjustments to the way they live if they want to persist.

And then we have lurking in the background the notion that we are not living in a true universe at all, but one that only looks like one. A simulation. And what we see of this simulation is very little of what is actually the whole situation. The content of the simulation exists not to satisfy the beings within it, us, but to satisfy some process entirely outside of it and which we beings inside will never see.

(It could also be that the material universe exists but without life and someone has tried to introduce a simulation that can be 'run' within it.)

If we put aside the idea of logical sequence of steps as being all that is required to create life, we can start to consider other ways in which consciousness works.

I am going to argue that the reason we have life is because of coincidences. Not just any old accident or freak of circumstance but a specific type of coincidence.

If you look at the history of life on our planet, it's the history of accident and fluke that is the determinant. This is not just probability. Events occur for which no genuine probability exists. Events occur in the ebb and flow of energy and matter but which impart information outside of any particular flow. Outcomes that can be imagined but not calculated, estimated but not based on any deterministic process.

Coincidence list

Now some would say that through all the accident and fluke, life still won out. Therefore it is a normal property of the universe. This is a commendable point of view but it's an attitude not a scientific fact. If the universe is riddled with genuine probability, then life is not a *necessary* outcome at all. That's the point of probability. Furthermore, life should have no necessary capability to resist the effects of the probability of dissolution.

And yet life does have this capability. The resistance to the reversible effects of probability *is life*. One wonders where it came from. This capability I will define as *coincidence*.

The word coincidence is used in a slapdash way. It hides three distinct meanings. The first, is just chance. Events occur with their own probability and unmodulated by environment. For example a ball tossed onto a roulette wheel.

Then we have Type 1 coincidence, which is what we call accident or contingency, where the probability in the environment interacts with the contingent probability. For example, a bet on which 'home' the ball on a roulette wheel settles in.

We tend to call the situation a coincidence where the accident is rare or difficult to assess probabilistically. But where its probability is still a matter of outcome frequency.

The third, which I will call a Type 2, includes a repetition of information. That is to say, something happens *again*, or has a predetermined capability to make use of a specific event.

Previous Ideas about coincidence

Paul Kammerer

Law of Series

Carl Jung

Synchronicity

Konrad

Apophenia

Dice table universe

For example, throwing a double six with two dice. Now the odds of this happening can only ever be approximate. Each face turning up is independent of the other. The expectation of the odds is derived from the boundaries to the event from the limitations of 6 faces, but the expectation of the frequency cannot be an absolute value. A double is a type 1 coincidence since the dice are independent of each other.

There is no compulsion in the dice to make sure that the spread of faces turning up in continual throws fits the expectation. But throw a double six again and that is a coincidence. It is an even more meaningful coincidence if in a set of events occurring in several locations repeat in the same locations, i.e. where two sequences match. You do not need infinity to have repetitions. What you need is a growing universe which we will come to.

Now our world lives by coincidences, by the repetitions occurring between parallel developing paths of probability which cannot be predicted and they do not need infinity or any large number of universes to account for their existence because they occur between outcomes that already exist.

The coinciding of the so-called life-friendly parameters cannot be assumed by appealing to the statistical range of universes. Repetitions like type 2 coincidences are outside of Anthropic statistics. They may never occur in an infinite universe.

Space dependent probability

Here's the problem specifically. Suppose I had a machine that could shoot out ping-pong balls into infinity forever. Well, however long I ran the machine there would always be an infinite amount of space still to fill. Infinity is not a place where everything happens; it is mostly empty. Probability in an infinite universe is really the *time to when*. A time to when you have shot out the thousandth pingpong ball. And if that time hasn't passed then the outcome won't happen. So, the question arises of *when* we are among all the other universes, and not that we are already among many universes.

So the statistical Anthropic argument is therefore not a realistic aid in understanding the origins of the universe.

Quantum probability avoids this problem by having all probabilities coexist in the same time, but in different places, different universes. This is the many world theory. All the things that don't happen here actually do happen only in another universe not in ours. The many worlds theory implies that all the other universes come into being to 'soak up' the unused probability from ours. But this does not occur with coincidences which contain more information than a usual observation. Coincidences involve outcomes that have already given up their multiworld potential. The observer and the observed exchange more information stored from a past encounter. The information is here. It's concrete. The coincidence is energy and probability 'free'. It is costless.

If we posit an infinite universe then the coincidental repetitions should out eventually number the non-coincidental events eventually.

Every time there is a coincidental repetition the numbers of non-repetitions fall. Coincidences mean the revisiting of events or the repetition of events within a new context is an essential component to our world, and which will grow over time.

Coincidence and organisation

All this is to say that Coincidences are crucial to life.

We can see this easily in the human realm. Here are three stories that describe the types of incalculable coincidences I am talking about relevant to life which standard statistics can not describe.

Clock La Serena Peter.

Coincidences drive evolution between the inner random changes of alleles and the exterior circumstances occur initially without reference to each other and it is only the 'interferences' between them that drives evolution.

Coincidence is God's way

Coincidence re-cap

Hold these coincidences in mind while we consider consciousness.

I shall describe some rather special forms of coincidence in consciousness.

Deja Vu

Now deja vu is probably something everyone here has experienced. The sensation of realising that you have seen the scene before you at some prior moment. There is a coinciding of memory and event. The typical explanation is that it arises in some glitch between laying down short term and long term memories, where your mind returns to your conscious perception of what you are seeing as if it were a memory. Do you feel this explains deja vu? Maybe it does.

Here's something harder to explain, *deja reve*? That is, realising that you have already dreamed the events happening to you. That you have had a fully formed set of memories embedded in your cognitive past that are a copy of an entire narrative repetition of what is happening now.

The glitch between long and short term memories don't apply here. I call these dreams *real dreams*. What kinds of coincidences are *real dreams*? What do they signify in the evolution of mind? Suppose they are happening all the time and we just interpret the effect as finding events, people, ideas, as not just familiar but acceptable. They somehow *fit* us.

The deja vu explanation doesn't work for real dreams. then we have to explain how the length of time the narrative takes as well as its complexity is first taken in by the mind turned around and mirrored in consciousness at the same time as it is happening. All the while giving additional coding to the memory stream that gives the impression that this 'memory' came from long established memories made not by real life but by a brain dreaming them in the past. Something weirdly unlikely about that proposal.

Is a real dream a premonition, then?

Well let us think about this: Boltzmann Brains

Boltzmann brains

This dependency of life on the material arrangements of the universe is expressed in the concept of Boltzmann brains. Boltzmann Brains were put forward by Boltzmann himself when he suggested that random departures from any thermal equilibrium in the universe could produce an energy distribution that was equivalent to thoughts and that a disembodied brain could emerge quite randomly in a universe. Indeed, if there are infinite universes then there are an infinite number of Boltzmann brains in operation. However this idea fails when you consider that consciousness is made up of thoughts in motion, and that the random fluctuations creating this flash appearance of mind would have to go on randomly fluctuating in a precise pattern through time to actually create a mind and self awareness (Just like infinite monkeys writing

Shakespeare). So rather than expecting an infinite number of Boltzmann brains there may only be one in an infinite universe or indeed none if the numbers of universes are some countable distance from the beginning of infinity.

Sudden Savant

People have been known to become savants without trauma or neurological damage which are usually responsible for the savant syndrome. Darold Treffert is a psychiatrist who studied this phenomenon He died last year but catalogued 42 cases so far. A lawyer sudden gets a moment of lucidity where he can play the piano at concert level where before he could only pick out the odd tune without any musical training at all. An estate agent becomes an intricate painter with no previous interest in or or training in art. Most cases known have been in art, but they are also, interestingly, in mathematics and music usually considered to be foundational activities for the mind..

How is it possible that such skills can appear without any of the conventional change in entropy required? It is not just about suddenly knowing something but also requires complex physical changes things like muscle memory and nerve and perception coordination.

Is this be the same kind of effect as *deja reve*?

Or is this some kind of proof of the Boltzmann brain scenario? Some sudden re-arrangement of neurons and bingo you have a complex new skill? Or is there a way that brains can access complex information states another way.

I have another proposal about how the brain functions that is perhaps even weirder.

The I(eye)

When we talk about the mind body duality there is something about consciousness that we do not find in the material world. Consciousness is an entire and complex quantum system that retains its identity over time. Certainly simple quantum systems like subatomic particles like electrons have parameters to define them but they do not preserve themselves in interactions. We cannot point to an electron in a drop of water and say oh there is that electron I saw in that plant leaf again. It has no distinct identity that it keeps with it.

You can say of a rock from its composition that it once belonged to a bigger rock but that rock itself has no distinct character that it keeps as you prod it and poke it and turn it into powder. Identity is not preserved in the material world, except perhaps of the universe itself, A mind, however, remains as a continuous quantum system over it's entire worldline, that is, its progress through space-time, from birth to death.

The quantum patterns of the brain may all interfere with each other but they do not convert themselves into other forces, or transfer their coherence to other systems, or dissipate into the environment. The brain's past and future must all be simultaneously represented by the quantum nature of its function. In spite of its ever changing wave function and its ever changing perceptions, at same time it retains the identity of the consciousness that it creates. Disturb it somewhere and that disturbance is reflected in the entire system through time without changing the underlying identity, without changing the self.

There are illnesses and traumas which often expose the persistence of an identity to the consciousness of a brain. Equally there are effects which appear to undermine it and alter it. But mysteriously, factual memory is not as strictly connected to identity as we might expect. Which is odd if our personalities rely mostly on the accumulated and consistent data of a life. Forgetting something does not alter who you are. Even changing your likes and dislikes has little effect on who you seem to be. Removing bits of a brain does have an effect of course. I am tempted to think that any giant disturbance in the quantum system impedes the brain's coherence.

However, it is certainly true that a brain is not a sequentially organised lump of energy and matter. It is not like the aggregations of matter in the universe we find it in. It is something different.

How is this difference expressed? Well, When a brain remembers something, it travels in time. It travels back in time to point where the event recorded in memory happened.

And in fact all the brains recording that memory return to it when they remember. Every time. So the happening of the event actually also records something of the future state of the minds involved. And every time the brain goes back to it there is a residual influence of any other brain that is remembering it.

Memory is a shared experience continually being revised over time, and thus the brain will contain influences from many a shared memory revisited by the brains involved.

Of course the brain doesn't travel in time for every memory. It is laying down basic operational memories in the ordinary fashion that neuroscientists can observe. It is also the case that the time travel effects are lost in the fog of day-to-day operations. Almost all actual precognition we may have is swamped by the decision-making demands of the present and disguised by things like affection and the unspoken understandings in relationships.

But memories that specifically involve other brains can cut through this fog from time to time. And of all these memories, memories of type 2 coincidences are the most significant because, as we mentioned before, they are outside of typical predictive methods used by the brain to consider future-leaning decisions (Bayes) and are the most potent in terms of information transfer because they do not require energy expenditure. They are in fact moments of negentropy

So is there evidence of time travelling brains?

Well there is certainly some evidence for precognition which we will come to in a moment but perhaps all sorts of other evidence may also point to this interpretation.

The sudden savant syndrome as already described, perhaps, but also features of our social life like the way we choose our friends. What could that binding of friendship actually be?

Self-fulfillments in learning things. Even Plato thought that experience was simply remembering things already existing. Was that because he experienced real dreams or *deja vu*?

Daryl Bem

Daryl Bem is a psychologist who studied many experiments on precognition or presentiment from 2000 onwards

For example, he subliminally showed images to subjects. Among them were Randomly selected by computer emotionally charged images. Signs of arousal were observed in subjects prior to these images being shown and even before the computer had selected the image.

In other versions of arousal experiments, subjects chose one of two locations that hid images and tended to avoid those locations which hid unpleasant images.

In another test subjects were given a list of common nouns and then later asked to recall as many as they could by typing them out. Later still, the computer randomly selected half the words from the list and made the subjects rehearse memorising them. A distinct correlation was found suggesting that the rehearsed words were more easily recalled before the rehearsal took place.

This research has been criticised but a metastudy of 90 experiments show the effects appear to genuine, and have been reproduced.

So what does it mean?

It is highly suggestive of time travelling brains.

The Kinship of coincidence

So let us now consider the following

If you share a coincidence with someone younger than you, then that person is likely to live on in the future beyond your death. When that person time travels to the memory of the coincidence they will be carrying modulations of the brain made by that future.

Similarly that person will have coincidental memories with individuals themselves modulated by a future of coincidences even further off.

Each of those coincidences will have participants who are also bringing to the memory modulations from other times. Every type 2 coincidence that we experience contains information from a connected network of people stretching into the future.

I suggest that friendship arises in the subtle binding of people with similar experiential coincidence make ups.

What they may be I wont go into right now except to say that Humans clearly fall into experiential types and that these types help form lasting bonds in the human sphere and therefore have an evolutionary significance. Survivors are lucky and may be able to transmit that luck to others.

Kinship of coincidence

This network is the Kinship of Coincidence, and every coincidence can count as a source of precognition about a future event. Precognition that is difficult to unpick from everything else happening in the brain but which nevertheless provides some kind of steering momentum to one's navigation through life.

Whether they are aware of it or not, Humans are time travelling with every coincidental experience.

If we can learn to read these modulations then Humans may be able to gain information about our Human future.

But it is also clear how distinct Human consciousness is from the material universe around them. There is no quantum system remotely like the brain which retains its patterns of identity throughout its life, except perhaps one – a simulated reality.

This kinship cannot be mapped onto genealogy very easily since a huge amount of cognition is shared through familiarity with family members which swamps these effects. But it doesn't really coincide well to locations like villages or regions since informative encounters are the rarer ones not predicted by one's presence in any particular place.

The network of kinship is a tenuous, ethereal and dispersed one, tracing a barely substantial path through the cognitive universe. It is fairly robust against damage but still large scale events like warfare or natural disasters could break some branches of the network, and lead to a reduction in forward looking information This is the reason why most possible premonitions are swamped by the larger more powerful information flows of the day-to-day. And for this separating out of influences the Chronolith Experiment, soon to be implemented, has been designed to separate out.

End

So, why does it matter?

There are a number of reasons why I think these investigations matter.

Firstly, I return to the question at the beginning, are we really children of this universe? Are we meant to be here? If we are not really children of this universe then, in order to survive we will really have to work hard to survive, and to change our attitudes towards the expendability of our surroundings.

Secondly, the existence of **The Kinship of Coincidence** may in fact answer the question of the nature of our universe: That we are indeed in a simulation. Given that then it may be possible to work towards understanding the construction of our universe and to tweak it to our greater advantage.

The recent idea of humans being the result of a computing simulation has been put forward by philosophers, extending Descartes notion of his demon tricking humans with a false reality. Bostrom, of the Oxford Human Future foundation, is the person most responsible for the notion of our universe being merely a simulation on a computer. However, a simulated universe suggests immediately that Humans, or at least we live in the here and now, are *not* the real purpose of the universe at all, not at all the objective, and that our existence is only a by product of a search for something else, like a different answer to the questions posed by the possibility of life? Humans are no longer in the centre of the Creator's regard, but are a temporary design, an intermediary entity, on the way to something else.

Nick Bostrom put forward the idea of 'ancestor simulations' where the growth level of future humans has taken their computing power to such a level that they can simulate the Human past with AI avatars and suchlike. This idea makes no sense whatsoever. For one thing, from where does that information and detail of past minds come from? Any computing simulation of life is likely to be an investigation that would help Humans going forward.

However, The question would then arise, is knowing the simulation an allowable outcome of the simulation?

What happens when the simulated reality realises that its life is simulated? Would the simulator have to end the simulation and try something else? Or is the self-referential actualisation precisely what the simulator wants to observe?

Will the results of the Chronolith experiment lead to significant changes to our Universe by the great simulator in the sky if this is the case. Only more observations will tell us?

Thirdly, interstellar travel, when it becomes possible, will be travel into the past. That is to say Human life will have gone on and developed way beyond what the crew know and understand. Further because of the huge velocities, say 1/10 light speed, then, because of time dilation, the perceptions of the outside and decision making with respect to the environment will slow by about 5% a quite considerable amount when travelling at that speed. This would also be true for any AI on board. Being able to see better forward into the future would help that decision making process and may in fact be an essential factor in choosing a crew. Since AI will not have the same kinship of coincidence as Humans, a human crew well trained in premonition navigation would be an asset. This is what the video we played earlier is about.

So, to sum up, we should pay lots of attention to the type 2 coincidences in our lives and use them to extract as much information from them as we can. We should listen to our minds when the voice of prediction or premonition breaks through the noise of the day-to-day.

Be alert to news of the Chronolith Observatory. Seeing the future is coming to a Plaza near you.

