A philosophical discussion between Tom Campbell, Brian Whitworth and John Ringland

(John Ringland, 2014-06-06, PDF version)

Following is an email discussion on the topic of the nature of reality and consciousness from the perspective of computational metaphysics (virtual / simulated reality). It delved deeply at times; clearly elucidating core features of each of our ways of thinking.

The discussion eventually become bogged down by misunderstandings; the differences were so profound that communication became difficult and necessitated constant meta-analysis of why and how the misunderstandings were happening. This process was very informative however it likely also broke the rapport, thus the discussion ended.

I feel that important points were raised which were not properly addressed. It wasn't a personal conversation; the topics under discussion were of significant philosophical and scientific interest. Hence in the interests of the broader dialogue I now publish a transcript of the entire discussion (except for irrelevant emails, e.g. about whether some file contains a virus or not, and so on). I do this in the hope that these ideas will not simply lie dormant on an email server, but will spark off further discussions that will eventually lead people to a deeper and clearer understanding of these topics.

From: John Ringland
Date: Sun, Nov 17, 2013 at 11:07 AM

Hello Tom,

Firstly, thank you for the paradigm shifting work that you have done!

I believe that you would be interested to know of some other work on a similar theme: http://anandavala.info/SystemSimulation.pdf

It constructs a mathematical model of a general system simulator by successive refinements. This process naturally results in the derivation of the core dynamical equation of quantum mechanics (Schroedinger's equation). This suggests that the quantum field is functionally equivalent to an advanced general system simulator - thus the classical universe is functionally equivalent to a virtual universe.

If the work is accurate (which I believe it is) it would be a useful piece of the puzzle. That work has been seeking peer review for several years. However so far I have been unable to bring it to the attention of anyone who is both capable of entertaining the possibility that we are virtual beings in a virtual universe and also understanding the mathematics and quantum mechanics.

I hope that this may be of some use to you, and if you are able to provide any peer review or pass it on to someone who can I would greatly appreciate it.

Warmest regards,
John Ringland

From: Tom Campbell
Date: Sun, Nov 17, 2013 at 4:25 PM

Brian,

Take a look at John's email to me (below my response to John). I think you will find John Ringland's link to present a very interesting and worthwhile perspective that adds another logical argument to our cause … and it falls squarely in your field of expertise.

John,

Thanks for the link. I think you have done some really excellent work here. It does indeed seem fundamentally accurate. A top down approach that fits my own top down approach perfectly. I see no logical discrepancies between us. You approach the reality problem with the mathematical logic supporting individual experience within one (or a set of) VRs while I approach the same problem with experience in multiple interactive VRs that supports the inference of a mathematical information-based logic at the root. And both of us derive quantum mechanics and special relativity as a result [c being constant falls out easily from considering the local VR time loop]. You derive QM through the logic of general simulation math and I get there by deriving the logically necessary result that there are no physical particles, only probability distributions. And we both find consciousness an inevitable result of emergent information processing.

I would like to connect you with Brian Whitworth. He may be able to give you advice on how to find a peer-reviewed publication source.

Brian has worked the same reality problem as we have, but from the opposite end – the bottoms up approach. We three come to the same fundamental conclusions about the nature of reality. He starts with fundamental structures of information processing within a hyper-sphere to produce our "seemingly physical" VR universe on the inner surface of that hyper-sphere. From his fundamental information processing he derives light, mass, force, energy, quantum Mechanics, relativity, and all the rest of physics as well as all the details of the "standard model" of particle physics, filling in many current "unknowns" and solving many physics mysteries as he goes (same as we do but more specifically PMR rule-set focused). Unlike us, he focuses on a model of the computations and information processing taking place at the bottom layer of this particular "physical" universe ….. but the neat thing is, we all match up perfectly wherever our radically different approaches intersect.

You and Brian do the math on opposite ends of the same problem and I fill in the middle with the description of the experiential process within the larger consciousness system's (LCS's) evolution toward lower entropy states (based on a physicists exploration of, and research within a set of VRs within the LCS) and exactly how and why we the people personally fit into, draw purpose from, and interact with, all this abstract theory. We three just about have this whole thing tied up from end to end… together, it makes a very compelling theory.

Tom

From: John Ringland
Date: Tue, Nov 19, 2013 at 10:30 AM

Hello Tom,

I'm really happy to have made contact with you :)

Your email was the first informed response that I have received regarding that work - it really took me by surprise.

I see what you mean by "*we all match up perfectly wherever our radically different approaches intersect... We three just about have this whole thing tied up from end to end together, it makes a very compelling theory.*"

I have been reading sections of your "My Big TOE" and also Brian's "The physical world as a

virtual reality" and the following papers. I'm very impressed!

Forgive me for not being intimately familiar with your work. I really should be. However I have mostly worked in isolation, in an unorthodox manner and under unorthodox conditions... However I am quickly getting up to speed on yours and Brian's work - this has been easy so far because we are converging on the same paradigm, just approaching it from different angles.

If you have the time and inclination I would be very happy to discuss anything with you, we have a lot that we could potentially talk about. Although for now I'll just keep reading into your work and waiting for some indication of Brian's impression...

All the best! :)
John

From: Tom Campbell
Date: Tue, Nov 19, 2013 at 12:44 PM

John,

A good introduction to the MBT books is “The Calgary Workshop” Friday (intro), Saturday (Theory), Sunday(Applications) That and 200 + videos are on YouTube: www.youtube.com/user/twcjr44 (most of the science is spelled out in these videos – more so than in the books. The books logically derive the basic theory in much more detail.

It may take you three or four months, but once you are familiar with my work and Brian’s work, you will immediately see how all three fit very tightly together…each delivering an important part of the story that the other two ignore. There is no rush…take your time.

Tom

From: John Ringland
Date: Tue, Nov 19, 2013 at 3:43 PM

Tom, thanks for the leads, I'll look into them...

Yes, it will take time, however most of what I have seen of Brian's work so far I have already considered and discussed in places but I haven't pulled it all together like he has, or gone as deep. So the connection with his work is starting to become clear. I have yet to figure out the exact nature of your angle. The size of your book means that time is needed for that, but the videos should provide a good short-cut :)

Regarding my work, that link that I sent you is just a final report on some of the core features that are least likely to trigger the prejudices of a typical scientist. There are whole areas of work that are not even mentioned there, and many details also omitted. These are on my website: http://anandavala.info

From my reading of section 5 of "My Big TOE" so far, some connections are apparent...

Regarding TBC, the main product of my work (SMN) is in a sense a proto-type of the kind of software that the TBC is running. SMN is a fixed algorithm that iteratively processes a system model. All evolution and change occurs within the model. Within that model are all of the worlds within worlds and levels of interacting systems that constitute 'manifest' existence. The TBC and SMN-like-simulator do not change and are without beginning or end; it is within the model that virtual universes and virtual systems come and go as the patterns of information that define them arise and dissipate.

Regarding PMR and NPMR, that distinction is implied by the concept 'system' (as I have formulated it). All systems are non-physical in the sense that they are virtual phenomena, in fact nothing is 'actually' physical. However systems can experience each other as seemingly physical when they interact within a common systemic context, thereby experiencing each other's appearances as 'tangible' objects in each other's experiential context. This avoids any conceptual reliance on 'our' particular experience of whether things are physical or non-physical (because we are just one type of system amongst many).

I'm sure that this is also what you are getting at when you say: "*Both PMR and NPMR are real physical places from the point of view of the consciousness beings that inhabit them... The apparent difference between nonphysical and physical is relative to the observer. From within a given local reality, everything within that reality appears physical while everything outside of that reality appears nonphysical.*"

Note, many other common distinctions are naturally implied by system theory (as I have formulated it), e.g. mind / body. All systems have an inner animating process and an outer observable appearance. This arises naturally from the functioning of the system simulator. Due to meta-system transitions, complex systems have complex animating processes (such as our minds) and complex outer appearances (such as our bodies).

John

From: John Ringland
Date: Thu, Nov 21, 2013 at 4:35 PM

Hello Brian,

Whilst reading your paper "Simulating Space and Time" I came across statements regarding static and dynamic information, which I believe are true but only a partial truth. Given that this could be a significant obstacle to understanding my paper on SMN I have written a critique (attached) which I hope may be useful to you.

I have also sent this to Tom because of its relevance to psi phenomena.

Regards,
John Ringland

From: Brian Whitworth
Date: Fri, Nov 22, 2013 at 12:02 PM

Hi John,

Thanks for that I will read it. Its exam time here in NZ right now so am just wrapped up finalizing all the results. I dont know why Kaspersky came up as it did, but it did, and so I guess it doesnt hurt for you to know that.

Will get back to you soon - PS I also got your other email re dynamic information and will read that too! Thank you.

all the best
Brian

From: John Ringland
Date: Sat, Nov 23, 2013 at 1:20 AM

Thanks Brian,

I understand that you are busy.
I'm eager to hear your opinion on that work but I'll be patient.

All the best

John

From: Brian Whitworth
Date: Tue, Dec 3, 2013 at 1:10 PM

Hi John,

Thanks for so carefully raising the issue you do, which is a critical one, and sorry to be so long responding. It has also taken me a while to think about it, which I try to outline below. Please note that this is still just first thoughts as it is a very complex issue. I copy also to Tom as you included him too.

all the best,
Brian

Hi John,

I have not yet read your main work yet, but the idea of trying to specify the simulator logically is laudable and your distinction between information within the simulation and the simulator is relevant. Yet if the simulation is like those we develop in our department, it assumes an observer, which a simulator generating our world cannot do. Please bear with me as I outline my caveat of the assumption that there is:

> "*the same kind of information operating in two different contexts (computational and virtual)*".

In a nutshell, if this were true, then quantum computing would be like physical computing just in another context and the argument would work, but let me now make the case that it does not operate the same way.

Certainly we can *measure* quantum and physical information in the same way in the simulator and in the simulation, with information being a choice from a set of options. If processing *operated* the same way, then as you say, the only difference would be that the simulator options are not visible to us in the simulation. However I argue in Ch1 that quantum processing cannot operates like physical processing because what quantum theory describes cannot be achieved by physical operations:

> "The quantum reality proposed to create our physical world can't possibly be physical as quantum states appear and disappear in a way that physical states can't, entangled quantum entities ignore the speed of light constraint that binds all physical entities, quantum entities "tunnel" past barriers that no physical particle can pass and quantum currents can even go both ways round a circuit *at once*. *The world that quantum theory describes isn't physically*

possible, so physicality can't be its base."

The second argument for a difference is that quantum processing is so powerful, as I say in Chapter 3:

> "Yet our processing is just a feeble analogy, as even to simulate the behavior of a few hundred atoms a conventional computer:
>
> "… *would need more memory space that there are atoms in the universe as a whole, and would take more time to complete the task than the current age of the universe.*" (Lloyd, 2006) p53.)"

The final argument is logical, that the processing generated within a simulation can *never* be equivalent to the processing creating it, but must be more primitive. Conversely, there is no evidence that the simulator generates information as we do, that quantum processing is just our processing in a different context. Rather, what allows outcomes like quantum collapse, entanglement and superposition seems to be a different type of processing entirely.

So if the assumption that quantum processing operates like physical processing doesn't hold, that the physical world, or any part of it, such as my body or brain, can be saved and restored in the "*transcendental computational context*" as we do in our computing becomes less likely. I am sorry if this doesn't support the idea of us being "saved", etc. and restored either in a western heaven or an eastern reincarnation.

The idea of dynamic information proposed aims to describe how information is *generated* not how is *stored*. The static information we use, defined as an option from an option set like the alphabet of letters, implies the linear processing of options, but it need not be so. In our terms, a bit is a choice between two options, so choosing from say billions of options takes a lot more processing. In contrast, dynamic processing is the choice itself, regardless of how many options there are, so while a bit is one choice from two options, a qubit is a choice from *all* the options, two qubits is two choices, and so on. Imagine checking all the points in the universe for a given match in a single operation! This is why a few qubits can do what bit-based computing can't do in a million years, including break "unbreakable" codes.

By "*information that exists entirely within the simulator*" I think you mean that we cannot measure the information in quantum event as information because we don't know how many choice options, e.g. what is to us a random quantum event like say beta decay, could be generated by quantum processing unknown to us, as I also suggest in ch1. Yet this may not be entirely true.

In quantum theory, an electron quantum wave function spreads at the speed of light, so it could spread over a galaxy. If it then collapses to a physical electron at a random point, the processing in our terms is the galaxy volume divided by a Planck volume multiplied by the quantum rate per second. So a Milky Way volume of 1.6 $x10^{60}$ cubic meters divided by a Planck volume of 4.2 $x10^{-105}$ cubic meters gives at least 10^{164} bits which times by a refresh rate of 10^{43} seconds gives 10^{207}Hertz of processing power in our terms. If *a single quantum event* can involve more processing than all the computing on the planet today, we must be very careful when trying to generalize from our processing to it[1].

Chapter 2 suggests that perhaps this processing has no static memory at all, either primary (RAM) or secondary, and that the physical world *is* the database that stores what is now and thus also what was. The physical world *is* the "hard drive" that stores our choices. It does this by passing information from one quantum cycle to the next in an unbroken chain. If at any instant the chain stops, whatever it represents "disappears" forever, which is what Ch3 proposes happens to quantum states in a quantum collapse restart. The physical world by its virtual nature can only be stored in a flux.

I am still working this out, so let me ask you a question. I am creating these email words by dynamic choice but the words themselves are static, or "in the simulation", as you say. Conversely,

you are also reading these words dynamically, and could interpret them in many ways by your choice. So are you in the simulation or in the simulator? It makes a difference to the saving issue that we are clear on what is being saved.

All the best

Brian Whitworth

1. Current estimates are 6.4 x 10^{18} operations a second, see here.

From: John Ringland
Date: Tue, Dec 3, 2013 at 10:30 PM

Hello Brian (and Tom)

Tom, I believe that the second last link at the bottom may interest you, and the discussion just above it...

Thank you Brian for your thoughtful response. It gives me a much clearer understanding of your approach. It is a very thorough treatment, however I noticed what seemed to me to be some factual errors which I addressed. I wonder to what extent each of us may be correct and how that might change things. Either way it is very stimulating discussing these issues with you.

Quantum or classical processes

A classical computer, given sufficient capacity and time, can implement quantum processes with full fidelity. It is known that using a *doubly stochastic matrix* (which is mathematically equivalent to the causal matrix in my model as well as the unitary evolution operator in QM) and a *stochastic vector* (which is mathematically equivalent to the state vector in my model as well as a wavefunction in QM) a classical computational process can simulate quantum processes with complete accuracy.

For example, towards the end of my ebook “System Science of Virtual Reality” I build a system model of a quantum computer using SMN. That quantum computer is then used to simulate two quantum logic gates as well as the “program counter” states according to the method of Feynman. This results in a working simulation of a quantum computer. The simulation is evolved and the final results were as expected from a quantum logic circuit and from a quantum computer.

I did an internet search hoping to find some papers that explicitly address this equivalence between classical and quantum computation, however the best I found from a quick search was this quote:

> “Quantum Turing machines can be related to classical and probabilistic Turing machines in a framework based on transition matrices, shown by Lance Fortnow.” Wikipedia

And this paper which sort of addresses it but not directly: One complexity theorist’s view of quantum computing

And this discussion on physics forums: http://www.physicsforums.com/showthread.php?t=97148

Entanglement and superposition are directly implemented by the matrix computations. These are not a problem because it is only the virtual systems that exhibit entanglement and superposition. The classical information processes just move information around in a manner that implements the virtual entanglement and superposition. The classical information isn't itself entangled or superposed.

Wavefunction collapse is a little more subtle, because it is only in some interpretations of QM that the wavefuntion actually collapses. To simulate this one squares the *stochastic vector* (state vector or wavefunction) which represents the probability amplitude. This produces a probability

distribution. We then use a source of randomness to sample from the distribution. Thus randomly selecting a particular observable state in accord with the distribution. The probability amplitude is then set to a pseudo-classical state where the selected state has amplitude one and all other states have probability amplitude zero.

However in other interpretations (such as coherent histories and multiverse) the collapse isn't an actual collapse of the wavefunction, it is a subjective phenomenon along a particular information stream that informs successive subjective experiences. Thus the apparent collapse propagates as systems experience each other. This can be directly implemented by the matrix computations without any extensions. It also seems the more likely implementation due to the quantum erasure experiment, however I don't know all the subtleties of that topic.

The only difference between a quantum process and virtual quantum processes simulated by a classical computation is that there is an exponential increase in complexity for the classical computation. This is however only an issue when thinking about using existing computing facilities. In a metaphysical or cosmological scenario this is not a problem. I will explain why.

Computational capacity

Consider what it is like to be a virtual being within a virtual context. Each moment of awareness occurs within a moment of virtual time. Thus 'between' moments of virtual time, when the next moment is being computed by the simulation process, the virtual beings have no awareness at all. So the simulation process may take an arbitrarily long period of time to compute the next moment of virtual existence and the virtual systems will still experience that simply as their next moment. To them their situation always seems to be running in “real time”.

One could run the same simulation on a desktop computer and a vast super-computer, where the times to compute each moment of virtual time are 1 year and 0.0001 seconds respectively in our time frame. However for the virtual systems within those virtual contexts there would be no discernible difference. Each moment would immediately follow the next, seamlessly.

Furthermore, the computational capacity of the transcendent context cannot be meaningfully compared to the available complexity of the virtual context, except to place a lower bound, whilst saying nothing about an upper bound. The transcendent complexity could be any finite yet unimaginably large capacity.

Ontology or modelling

An important question to consider is, when postulating or constructing a simulator are we trying to define *what is*, or are we just *making models* that exhibit or reproduce some relevant features of what we wish to study. For example, in the early days of physics there was the plum pudding model and the ball and spring model of the atom. These weren't literally true, but they allowed certain features of the atom to be ascertained which led on to more sophisticated models.

I don't claim that my model is literally correct, however I have reasons to suspect that it is sufficient because it can simulate quantum processes and thereby also physical phenomena. I also have reason to believe that it is the simplest sufficient model currently available, which I will discuss next.

Contexts within contexts

A simulation process can animate multiple virtual context in which there may operate multiple simulation processes that each animate multiple virtual contexts and so on. Thus there is a tree like structure of nested virtual contexts (the virtual tree).

The virtual tree is of interest when we are talking about 'our' particular universe and wondering where it may be in that tree. However in the more general issue of the nature of reality, what is of most interest is the nature of the context that serves as the ultimate root of that tree. Hence the tree of virtual contexts can be collapsed and we can consider only a single virtual context (which may or may not be nested) and a single root context. This is the approach that I take.

The root context does not exist within any containing context, hence there can be no outside observers and it has no outer appearance or phenomenal form. Everything that exists does so within that context.

This root context is the only one that objectively exists and it cannot come into being or go out of being – it is eternal. The question then is, what is the likely nature of that context? On what plausible basis could we decide on an answer?

For me, I use consistency, durability and simplicity.

Is it an objective physical context?

The many problems and paradoxes that arise when we try to formulate a consistent understanding of an objective physical universe count against its consistency. The fact that our physical universe seems to have come into being via a big bang and could likely go out of being in some later big crunch counts against its durability. The myriads of individual particles jostling about in space-time, and the many forces and other factors count against its simplicity.

Is it a quantum computational context?

That is consistent and as far as we know it is durable. However it is quite complex and we have no real understanding of how a purely quantum computational context is structured and how it operates.

Is it a classical computational context?

That is consistent, durable and very simple, the principles of classical computation are very simple and well understood. Furthermore it can simulate a quantum context, which can further simulate a physical context (the classical universe).

This isn't proof, but Occam's razor would tend to cut in favour of a root context that is a classical computational space.

But that is not a big concern to me, my main interest is what the model can teach us about the whole process of cosmological simulation and the nature or ourselves and our place in reality, rather than whether a particular model is literally true or not. However, lets explore a little deeper anyway.

The implementation of the root context

When we think of classical computation we think of physical electronic computers, hence it is natural to ask how a classical computational space could exist without a physical implementation.

However, consider that each of the three contexts can simulate the others.

- A physical process can implement classical computation which then simulates quantum processes.
- A quantum process can simulate physical processes, which implements classical computation.
- A classical computation can simulate a quantum process that simulates physical processes.

As well as:

- A physical process can implement quantum processes (a quantum computer, yet to be seen).
- A quantum process can simulate a classical computation (yes, but why do it?).
- A classical computation can simulate a physical processes (molecular dynamics simulation).

Hence each of them can be experienced to be supervening upon another substrate of some kind. Thus perhaps it is just the fact that we exist in a context when classical computation is implemented by physical processes that leads us to assume that this is essential?

If we let go of that assumption and allow ourselves to be guided by consistency, durability and simplicity, then a classical computational context is plausible. Or perhaps it is neither and there is something even simpler that underlies these - is that perhaps what you mean by dynamic information? Is it simpler?

Saving information

> Re: “let me ask you a question. I am creating these email words by dynamic choice but the words themselves are static, or “in the simulation”, as you say. Conversely, you are also reading these words dynamically, and could interpret them in many ways by your choice. So are you in the simulation or in the simulator?”

If I am understanding you correctly, you are using our computers/internet as an analogy for a simulator, thus cyberspace is the simulation and the emails are virtual systems. In that situation I am in neither the simulation nor the simulator, I am in the context that contains the simulator and I am interacting with it externally in order to access the embedded simulation through a screen. Personally I find physical computer analogies to be limited because they tend to introduce a lot of assumptions that we have from using computers from an outside perspective, rather than experiencing computation from a virtual perspective emergent from the information processes.

Re: static / dynamic information

Given what I have said earlier, perhaps now you can see why I understand there to be only one type of information in operation, however it can seem very different depending on one's perspective.

Regarding saving the state of a virtual context, I believe that it is technically feasible however I doubt if it is actually implemented in reality. I see no purpose for it other than as a hypothetical of what might be possible.

Finally, re: “being 'saved', etc. and restored either in a western heaven or an eastern reincarnation.”

The model that I describe and the VR hypothesis in general is fully consistent with mystic principles, however not with the more popular religious reinterpretations.

For instance, in eastern philosophy it is not the manifest form (mind/body) that is reincarnated, that is just a virtual construct and has no deep reality (it is sunnyata or devoid of self nature, the Jiva) and is destroyed at death, in fact many claim that it doesn't ever live, it only 'seems' to. What persists is the inner-most stream of awareness (true Self, Atman), which is the simulation process itself (Brahman, absolute reality) as it animates a virtual being and its world-experience (Maya, relative reality). Mind/bodies come and go, like garments, but the inner-most process is eternal and universal. That same process animates all beings. Hence at the deepest level we are all One. Although via naïve realism and the resulting identification with forms we come to believe that we are the mind/body.

> "What is it that had birth? Whom do you call a human being? If, instead of seeking explanations for birth, death and after-death, the question is raised as to who and how you are now, these questions will not arise... The body is born again and again. We wrongly identify ourselves with the body, and hence imagine we are reincarnated constantly. No. We must identify ourselves with the true Self. The realised one enjoys unbroken consciousness, never broken by birth or death - how can he die? Only those who think 'I am the body' talk of reincarnation. To those who know 'I am the Self' there is no rebirth. Reincarnations only exist so long as there is ignorance. There is no incarnation, either now, before or hereafter. This is the truth." (Sri Ramana Maharshi)

> “The real does not die, the unreal never lived. Once you know that death happens to the body and not to you, you just watch your body falling off like a discarded garment. The real you is timeless and beyond birth and death. The body will survive as long as it is needed. It

is not important that it should live long." (Sri Nisargadatta Maharaj)

> "That in whom reside all beings and who resides in all beings, who is the giver of grace to all, the Supreme Soul of the universe, the limitless being – I am That." (Amritbindu Upanishad)

BTW in Eastern yogic philosophy the mind is considered to be a part of the body. It is only the foundations of consciousness that is universal and eternal.

For more on the mystic perspective and its parallels with the VR perspective, see the quotes in here: http://anandavala.info/article/What-can-be-learned-from-video-games-that-is-hard-to-learn-any-other-way.pdf

BTW here is something that I wrote, which was inspired by the example of your papers. It clarifies terms and lays down more philosophical foundations for the VR hypothesis and some cautions on hidden pitfalls. It serves as a prelude to "System Science of Virtual Reality". I didn't send it to you before because I thought I'd already sent you enough reading, but it does clarify where my thinking is coming from and might save time in the long run when you come to take a look at my work. http://anandavala.info/OIPVSE.pdf

All the best - its funny that we both have the habit of saying that :)

John

From: Tom Campbell
Date: Wed, Dec 4, 2013 at 5:25 AM

John and Brian,

Thank you for keeping me in the loop. I am enjoying this conversation immensely and trying very hard to keep silent for a while until you two work out definitions and logical structure -- since each interprets what he reads in his own unique way, a three way conversation becomes 3 times more complicated than a two way conversation [(n-1) (n) = 6 different communication threads instead of 2] with the consequence that the probability of convergence to a mutual understanding drops precipitously.

However, just one comment: in agreement with John, the huge computational load that one imagines would burden a classical computational process hosting and generating our VR universe, melts away to something hundreds, if not thousands, of orders of magnitude smaller when one allows the simulation to be probabilistic rather than deterministic. Such a simulation need only compute the results individually required (measured/observed) by each "player" while any hidden macro as well as assumed molecular, atomic, and sub-atomic quantum complexity underlying those results can be represented stochastically at no higher level of fidelity than required by each player. Also, saving data is only required to serve the purpose, not the function of the VR. The VR could run just fine without saving any data, but it would be much less effective. Without purpose (criteria defining evolutionary value), it could never have evolved in the first place.

Tom

From: John Ringland
Date: Fri, Dec 6, 2013 at 9:05 PM

Thank you Tom for that input. I'm glad that you are enjoying this. I am to :)

Brian, I hope you are as well. I genuinely respect the work that you have done! I realise that being contradicted can be disconcerting, however if my intentions count for anything, I was only seeking to clarify the enquiry.

However I often tend to focus on the subject matter and neglect the inter-personal dimension, which has broken the rapport in the past. I hope we can continue this most interesting conversation.

Optimisations

Tom, I think the point that you raised is very relevant. For example, when implementing the SMN model in software I found two optimisations. These lead to an exponential increase in efficiency when animating system models where the virtual systems are 'mostly' localised, such as is the case with "our universe". Due to these optimisations closed interaction channels and static states require no processing and the computational load depends on the density of open interaction channels between virtual systems and the rate of change of virtual systems. This may have some relevance to relativistic effects within the virtual context.

All the best!
John

From: Brian Whitworth
Date: Mon, Dec 9, 2013 at 12:05 AM

Hi John,

Thanks for the clarification - dont worry I will get back to you shortly!

all the best
Brian

From: John Ringland
Date: Wed, Dec 11, 2013 at 10:42 AM

Hi Tom and Brian,

Tom, I have watched some of your videos over the last few weeks and enjoyed them a lot :)

There are many ways to encourage the emergence of the new paradigm, we seem to have several of them covered quite well between us. There is another approach that I would like to bring to your attention, it involves the deconstruction of the currently dominant paradigm, using its own methods, to highlight a profound inconsistency at its core. This aims to reveal, explain and overcome the obstacles that prevent many people from understanding the emerging paradigm and to motivate people to be open to alternatives to the currently dominant paradigm.

This aims to provide an opening within which the emerging paradigm can find its niche and currently ostracised fields of research can become recognised, e.g. consciousness research and psi-phenomena, as well as those working at the boundary between science and spirituality.

I have recently written a series of articles that implement this approach and they are already starting to be passed around some circles of researchers involved in fields that would benefit from the paradigm shift.

So I thought I'd bring it to your attention as well. There is an entry point here:
http://anandavala.info/article/Are-we-today-as-wrong-about-any-scientific-fact-that-is-widely-accepted-as-geocentrism.pdf

All the best! :)

John

From: Tom Campbell
Date: Fri, Dec 13, 2013 at 8:35 AM

John,

The approach you bring to my attention is one I have been using (effectively, I think, especially for the non-techies) for some time. We are on the same sheet of music – indeed, singing in two part harmony. I say most all the same things – and mostly in the same way as you do -- in your linked paper. If you have watched the "Calgary Workshop" (particularly the three Saturday videos describing MBT theory), then you have already heard me speak to the same issues – using most of the same arguments. [You might also look at the three Sunday videos for a few applications to show how anyone can directly experience the larger consciousness system personally.]

The only sentence in your linked document that did not seem as if it could have been derived from my own conceptual process is this: Whereas the information theoretic interpretation proposes that what we observe are the subjective phenomenal contents of our stream of experience and that these arise due to lower level interactions (entanglement) between the 'subject' quantum information process and the 'object' quantum information process. If I take what you say (yellow highlight) as a metaphor I am OK with it but even then it is not a great metaphor because it seems to me that it is more misleading and confusing that elucidating. "Entanglement" and "quantum" are very specific physics words and using them as metaphors to mean something other than the common physics sense of those words is therefore confusing. Indeed, it is true: "that what we observe are the subjective phenomenal contents of our stream of experience" And it is also true that: "Due to this interaction observables are experienced however these observables are not the true reality of the situation; they are better described as virtual". However, "this interaction" is, in my point of view, not best describes as quantum entanglement between the subject and object information processes – a confusing metaphor at best -- that to many readers, makes consciousness sound as if it were a physical process based on tiny entangled physical particles – or to a more savvy reader – tiny entangled virtual particles. Neither is necessarily true. It seems to me that a description of consciousness (or our interaction with the larger consciousness system) in terms of entangled particles represents an unsupported logical leap in your discourse and is not particularly useful as a metaphor. At a more easily understood higher level description (using MBT terminology), the larger consciousness system simply provides a data stream to an individuated unit of consciousness (participating in a particular multi-player virtual reality "game") who, by necessity, must interpret that data subjectively. Of course, MBT terminology is not at all suitable to your purpose, but, if you had said:

Whereas the information theoretic interpretation proposes that what we observe are the subjective phenomenal contents of our stream of experience that arises from the source of our information based (i.e., virtual) reality. However, these observables (that we call our physical experience) are not the true reality of the situation since the information itself and its source must be considered more fundamentally real.

I would have resonated right along with your description. My point is not to edit your words here, this is just the simplest way I can explain my conceptual issue with this one line that that did not strongly resonate with me.

Perspective: This issue represents a very small point as seen from a much bigger picture where it appears that we agree completely at the interface between our different approaches.

Tom

From: John Ringland
Date: Fri, Dec 13, 2013 at 3:47 PM

Hi Tom,

It's a pleasure to sing in harmony with you Tom :)

It is interesting that you picked up on that statement. Perhaps it is just a difference in terminology although it may go much deeper than that... it might be fruitful to examine :)

When you reworded the statement I can easily agree with that too, i.e. "Whereas the information theoretic interpretation proposes that what we observe are the subjective phenomenal contents of our stream of experience that arises from the source of our information based (i.e., virtual) reality. However, these observables (that we call our physical experience) are not the true reality of the situation since the information itself and its source must be considered more fundamentally real."

However my original statement said the same thing only giving some more detail that I believe to be relevant in that context. I'll endeavour to explain why...

Re: "makes consciousness sound as if it were a physical process based on tiny entangled physical particles – or to a more savvy reader – tiny entangled virtual particles. Neither is necessarily true. It seems to me that a description of consciousness (or our interaction with the larger consciousness system) in terms of entangled particles represents an unsupported logical leap in your discourse..."

I agree that neither is true and I in no way intended to imply either. What you have interpreted here is not a part of my discourse at all. Perhaps you and I have different memory associations to the term 'entanglement' or different understandings of quantum mechanics, which has led to a misunderstanding here...

To me quantum mechanics doesn't just apply to the microscopic scale, it applies at ALL scales. However it is easier to discern at the microscopic scale, hence that is where it was first discovered. For example, it is easy to discern that an image is digital when looking up close, but hard to discern when viewed from a distance - but just because it doesn't look digital from a distance doesn't mean that it ceases to be digital. The same applies to quantum phenomena.

So when I talk about a quantum system I am not specifically talking about systems that have particle-like observables, I am talking about ANY quantum system, some of which have observables that portray to us an organism, or planet, or galaxy, or the whole universe.

I also meant the term 'entanglement' in its full quantum sense. Not just in the limited case of EPR pairs that are strongly entangled in relation to particular measurements, but in the wider sense that the probability amplitudes of the two quantum systems cannot exist in isolation, instead the superposition of joint states is important. For any quantum systems to interact they must be entangled, otherwise they cannot have any affect on each other and they cannot experience each other.

My reason for explicitly mentioning entanglement was to counter the popular belief in a "collapse of the wavefunction" as if it is an objective event at the level of the quantum information process when in fact it is a resonance between the subject and object systems. Hence it only appears to be a collapse along a particular consistent history and different consistent histories can exist.

BTW I at no time meant to imply that I was talking about 'particles' or about any observables at all. I was explicitly talking about quantum information processes or quantum systems, which are themselves inherently unobservable although they do give rise to observables when they interact.

In the current paradigm we have the habit of thinking about systems as if they are defined by their observables (this is due to classical objectivism), however I am saying that underlying these

observables is a quantum information process and underlying the observer is a quantum information process and when these quantum information processes interact the observer apprehends observables within its stream of consciousness. This is not a physical process or a virtual process, it is an information process operating at a very deep level, underlying the emergence of the virtual context (underlying both observers and observables).

The observables are only the "outer appearance" of a quantum system. Aside from this a quantum system also has an "inner experiential aspect". Hence there is no separation between physicality (virtual observables) and subjective experience (virtual observers). The quantum system underlies both the observer and the observed; the quantum information processes are what animates both of these aspects. However traditionally the 'inner' aspect is not recognised or is poorly understood, hence it is understandable that some people will think that I am only talking about the 'outer' aspect, but that is not the case.

The idea of quantum systems having both inner and outer aspects is supported by the mathematical model described in "System Science of Virtual Reality", which shows that virtual systems inherently have both an inner experiential process and outer observable appearance. This applies to all virtual systems. Very primitive systems have very primitive experiential processes and observable appearances. More complex systems have more complex variants of these.

BTW that linked document was just a few words to introduce the details, which are given in the links in that document. The issues that I discussed above I tried to make clear in those details, however those documents are just an initial outline of what is a rather complex and subtle train of thought.

Having explained myself a little, I'd be interested to know if you think this is a surface difference in our thinking or something deeper... I have yet to notice any deep conflicts although there are some surface differences.

All the best :)
John

From: Tom Campbell
Date: Sat, Dec 14, 2013 at 11:26 AM

Brian, you probably don't want to take the time to read all this – it is probably way off your track. John and I are trying to figure out what each other means by the words we use.

John, I commented as I read -- so what you will find is a stream of consciousness – thinking out loud -- as I read your email. At the end, I did come to a conclusion about "our differences". As it turns out, none appear to be fundamental.

Tom

From: John Ringland
Sent: Thursday, December 12, 2013 11:48 PM

Hi Tom,

It's a pleasure to sing in harmony with you Tom :)

It is interesting that you picked up on that statement. Perhaps it is just a difference in terminology although it may go much deeper than that... it might be fruitful to examine :)

When you reworded the statement I can easily agree with that too, i.e. "Whereas the information

theoretic interpretation proposes that what we observe are the subjective phenomenal contents of our stream of experience that arises from the source of our information based (i.e., virtual) reality.

However, these observables (that we call our physical experience) are not the true reality of the situation since the information itself and its source must be considered more fundamentally real."

However my original statement said the same thing only giving some more detail that I believe to be relevant in that context. I'll endeavour to explain why...

Re: "makes consciousness sound as if it were a physical process based on tiny entangled physical particles – or to a more savvy reader – tiny entangled virtual particles. Neither is necessarily true. It seems to me that a description of consciousness (or our interaction with the larger consciousness system) in terms of entangled particles represents an unsupported logical leap in your discourse..."

I agree that neither is true and I in no way intended to imply either. What you have interpreted here is not a part of my discourse at all. Perhaps you and I have different memory associations to the term 'entanglement' or different understandings of quantum mechanics, which has led to a misunderstanding here...

To me quantum mechanics doesn't just apply to the microscopic scale, it applies at ALL scales. However it is easier to discern at the microscopic scale, hence that is where it was first discovered. For example, it is easy to discern that an image is digital when looking up close, but hard to discern when viewed from a distance - but just because it doesn't look digital from a distance doesn't mean that it ceases to be digital. The same applies to quantum phenomena. Of course, I agree completely: that reality is fundamentally probabilistic and statistical at all scales – but that concept is not commonly accepted in physics and calling it “quantum mechanical” as opposed to “probabilistic and statistical” (though perhaps technically correct if one has an expanded understanding of the universality of the QM process) is bound to create confusion among the majority of readers. Perhaps the issue boils down to this: Explaining something in such a way that the explanation can only be understood if no explanation is needed.

So when I talk about a quantum system I am not specifically talking about systems that have particle-like observables, I am talking about ANY quantum system, some of which have observables that portray to us an organism, or planet, or galaxy, or the whole universe. Defining ANY system as a quantum system may be true from a bigger picture of a VR, but, I think, rather confusing to those who do not already understand what you are talking about.

I also meant the term 'entanglement' in its full quantum sense. Not just in the limited case of EPR pairs that are strongly entangled in relation to particular measurements, but in the wider sense that the probability amplitudes of the two quantum systems cannot exist in isolation, instead the superposition of joint states is important. For any quantum systems to interact they must be entangled, otherwise they cannot have any affect on each other and they cannot experience each other. I agree: everything is entangled with everything else – nothing significant transpires in total isolation. However, if not for what I highlighted, I would have read this paragraph without a hiccup. Did you mean: that the probability amplitudes of interactive quantum systems (including macro systems) cannot exist in isolation? A tautology: if interactive, then not in isolation. Or did you mean something else by “the two quantum systems”? (presumably the two are: “subject” and “object”) I am trying to discover if there is a fundamental difference between us or only a language usage difference. What is your reason for breaking interactive systems into two types “subject” and “object” systems – how that metaphor is applied depends on one’s point of view of which is which and is not clear to me.? [**Note: No need to answer that last sentence, your paragraph below makes it clear**]

My reason for explicitly mentioning entanglement was to counter the popular belief in a "collapse of the wavefunction" as if it is an objective event at the level of the quantum information process when in fact it is a resonance between the subject and object systems. Hence it only appears to be a collapse along a particular consistent history and different consistent histories can exist. I agree that

"collapse of the wave function" is only a metaphor and not an objective event, however, I would also say that calling it "a resonance between the subject and object systems" is also only a metaphor. The first metaphor, being less abstract, is much easier for non-techies to comprehend, but, I agree, is more prone to "taking it literally" (non-techies believing it is actually an objective physical event and not just a metaphor). The second metaphor of a "resonance" is more abstract and therefore more difficult for non-techies to take literally, but it is no problem for techies to take it literally, thereby creating a similar problem at a different level of abstraction – it is still not an objective physical event. In this case, any descriptive word (wave function collapse, resonance, or anything else) will simply be a metaphor i.e., a physical-experience-based word-symbol from our PMR language that can only metaphorically describes a fundamentally mathematical, probabilistic, **non-physical** process that takes place outside of our VR. Most people will still have a belief that it is something physical that happens inside our VR no matter what you call it – and, if that is **not** true, because it is well understood that this interaction is a non-physical, informational, calculational process with no exact physical descriptor, then, either metaphor will do just fine.

BTW I at no time meant to imply that I was talking about 'particles' or about any observables at all. I was explicitly talking about quantum information processes or quantum systems, which are themselves inherently unobservable although they do give rise to observables when they interact. I wonder how the term "quantum system" would be defined? What makes a "quantum system" a quantum system and not just an interactive probabilistic virtual informational system? A quantum informational process vs. just a digital informational process? Because everything is "entangled"? – that's another metaphor describing an interactive probabilistic process that we borrow from QM (and greatly generalize). "Quantum" infers that reality is discrete. "Virtual reality" -- an information based computed (digital) reality -- infers exactly the same thing – and much more. Perhaps we would do better to simply describe our reality as a digital computation and leave the word "quantum" to the "naïve realist" physics community -- rather than hijack the word "quantum", in order to sound more scientifically legitimate by association with the very concepts we wish to replace. QM, as it is understood by physicists today, is just a tiny logical subset of our bigger picture. Should we try to build on that brand of tiny limited understanding or just subsume it in a paradigm shift to a bigger, more accurate, more inclusive picture? The answer to that question underlies out two different approaches.

In the current paradigm we have the habit of thinking about systems as if they are defined by their observables (this is due to classical objectivism), however I am saying that underlying these observables **(object)** is a quantum information process and underlying the observer **(subject)** is a quantum information process and when these quantum information processes interact the observer apprehends observables within its stream of consciousness. This is not a physical process or a virtual process, it is an information process operating at a very deep level, underlying the emergence of the virtual context (underlying both observers and observables). **OK, now I see what you mean.** From my perspective, I don't see two different interacting quantum information processes, but rather one computational process that takes place within the Larger Consciousness System (my own metaphor) that generates the results of the interaction between an individuated unit of consciousness "player" (another of my metaphors) and the VR (including other players). Does a VR game have two separate information processes called the "player or user process" and the "server process" that has to be combined in some way? Perhaps one could make a metaphor like that but, in my mind, it would complicate rather than simplify a description of what is actually happening between the user and the server. My language: There are users, a rule-set that defines the game play, and a server that does the information processing. A server computes the outcome of the intent of the users as constrained by the rule-set. Or, equivalently (your language): a server processes multiple object-subject quantum information systems to generate an overall outcome. Conclusion: It looks like my issue with your descriptions is not substantial – primarily just a use of language. Different usage because we have different approaches.

The observables are only the "outer appearance" of a quantum system. Aside from this a quantum

system also has an "inner experiential aspect". Hence there is no separation between physicality (virtual observables) and subjective experience (virtual observers). The quantum system underlies both the observer and the observed; the quantum information processes are what animates both of these aspects. However traditionally the 'inner' aspect is not recognised or is poorly understood, hence it is understandable that some people will think that I am only talking about the 'outer' aspect, but that is not the case. Yes, I think you will confuse most of those caught in the "classical objectivism" belief trap. If they are your primary audience, that fact is something to think about.

The idea of quantum systems having both inner and outer aspects is supported by the mathematical model described in "System Science of Virtual Reality", which shows that virtual systems inherently have both an inner experiential process and outer observable appearance. This applies to all virtual systems. Very primitive systems have very primitive experiential processes and observable appearances. More complex systems have more complex variants of these. Yes, that is a powerful argument and more or less defines your approach through the language and metaphors of traditional QM – showing how their own formalism leads to a bigger picture. However, as you have no doubt found out, almost all working physicists will simply deny that it shows any such thing without ever needing to say why or logically justify their blind belief. That is why, being a physicist and knowing that community, I took a different approach. However, your approach is important and needs to be taken – I will support you however I can.

BTW that linked document was just a few words to introduce the details, which are given in the links in that document. The issues that I discussed above I tried to make clear in those details, however those documents are just an initial outline of what is a rather complex and subtle train of thought. I understood, no additional clarification is needed.

Having explained myself a little, I'd be interested to know if you think this is a surface difference in our thinking or something deeper... I have yet to notice any deep conflicts although there are some surface differences. All superficial differences. We have no fundamental conflicts that I see.

From: John Ringland
Date: Sat, Dec 14, 2013 at 5:29 PM

Brian, you could probably skip this as well, although it does contain a high level overview of some aspects of the SMN algorithm if your are interested. Hope you are enjoying whatever it is that you are doing :)

Tom, I thought it was probably just a surface difference, everything else seems *remarkably* consistent between us. We seem to be inspired by the same underlying vision and finding our own ways to express it.

BTW last night I watched the first of your Calgary Saturday videos, somehow I missed those, I had watched the Friday overview and then got sidetracked onto other videos. It is uncanny just how much we are "singing in two part harmony"! I'll watch the other two Saturday videos very soon :)

You raised another difference in your last email (i.e. the number of processes) which I think it might be interesting to examine because it is just a surface difference but it brings to light some deep issues...

"*one computational process that takes place within the Larger Consciousness System (my own metaphor) that generates the results of the interaction between an individuated unit of consciousness "player" (another of my metaphors) and the VR (including other players)...*

My language: There are users, a rule-set that defines the game play, and a server that does the information processing."

I can agree with that wording / metaphor :)

"*From my perspective, I don't see two different interacting quantum information processes... Does a VR game have two separate information processes called the "player or user process" and the "server process" that has to be combined in some way? Perhaps one could make a metaphor like that but, in my mind, it would complicate rather than simplify a description of what is actually happening between the user and the server.*"

I'll explain why I describe it that way and how I think it relates to your description. Basically what I say arises from my interpretation of the mathematics of SMN hence I can point to specific features of the mathematics to explain why I say various things. The mathematics is what got me involved in this subject and it is at the core of everything that I think and say about the subject.

[A one paragraph historical aside about the mathematical model] It's not that I got interested in the idea that our universe might be virtual, then made lots of observations and then formulated a model to explain those observations. Instead I had an interest in the computer simulation of physical systems, which took me to uni to study physics and computer science for 5 years, and I had prior involvement in ritual high magic and other 'occult' practices which prepared the "inner ground". However it had never occurred to me that the universe might itself be virtual. Then I had an epiphany (in early 2000), for weeks I saw everything as information flows rather than as objects, then I started to compulsively write down mathematical structures to describe what I had seen. I thought I was probably going nuts but I was inspired to go with the flow, so I dropped out of uni, threw myself on the mercy of the universe (which supported and guided me very nicely) and after a couple of years the mathematics came together and made sense in its own way. Then I learnt a lot from contemplating the mathematics and synchronistically connecting it with other world-views such as physics, system theory, VR, mystic wisdom, yoga, personal experience, psi-research, etc, etc. This blew my mind! I don't have unshakeable faith in the SMN model, it is "just a model", however it has served me well so far, so I have developed quite a degree of trust in it. Hence most of what I say is really just an interpretation of the mathematics.

One of the things that the SMN algorithm does is that it takes a single simple computational process and enables it to generate myriads of more complex parallel processes. Each of those parallel processes animates a primitive virtual system. These virtual systems operate and interact "as if" they are separate entities encountering each other within a virtual universe. More complex systems supervene on multiple primitive systems and thus have multiple animating processes but these are coordinated so they are effectively a single more complex process (e.g. a mind).

Hence on the deepest level there is only one process but on other levels there are many seemingly separate processes that interact within a common virtual context. Exactly how many such processes depends on how one defines the system boundaries. None of these are objectively separate because they all emerge from the same underlying process, however in many ways they behave "as if" they are separate processes so this can be a useful distinction in some contexts (e.g. when discussing the phenomenal contents of a mind).

In summary, I think of 'process' in a similar way to how I think of 'system' - the two are very closely related in SMN. A typical process is composed of sub-processes and is integrated into super-processes. Whilst sometimes it is useful to define process-boundaries in places, none of these boundaries are objective. Underlying these complex processes there is a field of interacting primitive processes, and underlying this there is just one process that creates the primitive processes and the context in which they interact.

Some possible parallels in terminology:

- Server = single simple computational process
- rule-set? = system model aspect of the SMN algorithm (the evolving aspect)
- rule-set? = simulation engine aspect of the SMN algorithm (the changeless aspect)

(Does the rule-set evolve or remain constant in your thinking? Or does it have aspects of both?)

- Larger Consciousness System = the running SMN simulator as a whole
- VR = virtual systemic context (which is generated by the SMN simulator)
- players / users = virtual systems (which are emergent within the virtual systemic context)

Given the many deep parallels in our thinking, I am starting to synchronistically dip into your work and see what I can learn from it. In particular I am interested in the possibility that it might show me where my own work can be extended or refined or explicitly connected with yours.

One approach is for me to give more thought to ways in which the system model (and resulting virtual systems) might evolve to lower their entropy. At present that aspect is still theoretical in my work but it would be nice to create running simulations of virtual contexts in which systems actively evolve into more complex systems.

If you have any suggestions about this or about other aspects of your work that might be good points of contact between our approaches then I would very much appreciate it. Or if there is anything you wish to discuss then by all means, fire away. I find that meeting you has been very inspirational Tom! And these conversations are very enjoyable too :)

All the best! :)
John

From: Tom Campbell
Date: Mon, Dec 16, 2013 at 7:31 AM

John,

See blue below

From: John Ringland
Sent: Saturday, December 14, 2013 1:29 AM
Brian, you could probably skip this as well, although it does contain a high level overview of some aspects of the SMN algorithm if your are interested. Hope you are enjoying whatever it is that you are doing :)

Tom, I thought it was probably just a surface difference, everything else seems *remarkably* consistent between us. We seem to be inspired by the same underlying vision and finding our own ways to express it.

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"*one computational process that takes place within the Larger Consciousness System (my own metaphor) that generates the results of the interaction between an individuated unit of consciousness "player" (another of my metaphors) and the VR (including other players)...*

My language: There are users, a rule-set that defines the game play, and a server that does the information processing."

I can agree with that wording / metaphor :)

"*From my perspective, I don't see two different interacting quantum information processes... Does a VR game have two separate information processes called the "player or user process" and the "server process" that has to be combined in some way? Perhaps one could make a metaphor like that but, in my mind, it would complicate rather than simplify a description of what is actually happening between the user and the server.*"

I'll explain why I describe it that way and how I think it relates to your description. Basically what I say arises from my interpretation of the mathematics of SMN hence I can point to specific features of the mathematics to explain why I say various things. The mathematics is what got me involved in this subject and it is at the core of everything that I think and say about the subject.

[A one paragraph historical aside about the mathematical model] It's not that I got interested in the idea that our universe might be virtual, then made lots of observations and then formulated a model to explain those observations. Instead I had an interest in the computer simulation of physical systems, which took me to uni to study physics and computer science for 5 years, and I had prior involvement in ritual high magic and other 'occult' practices which prepared the "inner ground". However it had never occurred to me that the universe might itself be virtual. Then I had an epiphany (in early 2000), for weeks I saw everything as information flows rather than as objects, then I started to compulsively write down mathematical structures to describe what I had seen. I thought I was probably going nuts but I was inspired to go with the flow, so I dropped out of uni, threw myself on the mercy of the universe (which supported and guided me very nicely) and after a couple of years the mathematics came together and made sense in its own way. Then I learnt a lot from contemplating the mathematics and synchronistically connecting it with other world-views such as physics, system theory, VR, mystic wisdom, yoga, personal experience, psi-research, etc, etc. This blew my mind! I don't have unshakeable faith in the SMN model, it is "just a model", however it has served me well so far, so I have developed quite a degree of trust in it. Hence most of what I say is really just an interpretation of the mathematics.

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In summary, I think of 'process' in a similar way to how I think of 'system' - the two are very closely related in SMN. A typical process is composed of sub-processes and is integrated into super-processes. Whilst sometimes it is useful to define process-boundaries in places, none of these boundaries are objective. Underlying these complex processes there is a field of interacting primitive processes, and underlying this there is just one process that creates the primitive processes and the context in which they interact.

Some possible parallels in terminology:

- Server = single simple computational process Server = that small subset of the larger consciousness system (LCS) that is dedicated to running the VR we call our universe. In my books I call that: TBC (The Big Computer)
- rule-set? = system model aspect of the SMN algorithm (the evolving aspect) There are the

rules that describe “The Fundamental Process” which is my phrase for the process of evolution.

- rule-set? = simulation engine aspect of the SMN algorithm (the changeless aspect) The rule-set defines the “fundamental physics” or the allowed energetic interactions, or the constraints that enable the VR we call our universe to evolve in the form of a simulation from a set of initial conditions.

  (Does the rule-set evolve or remain constant in your thinking? Or does it have aspects of both?) My sense of the term “rule-set” is probably better suited to the “simulation engine aspect of the SMN algorithm” although it doesn’t change very much and certainly not quickly, it can still evolve on a grand scale both here (our VR universe) and in producing other VR.

- Larger Consciousness System = the running SMN simulator as a whole Yes, the only thing that is real and not virtual, i.e., the one source from which all virtual realities are generated
- VR = virtual systemic context (which is generated by the SMN simulator). Yes, an evolving Virtual Reality simulation based upon initial conditions and a specific rule-set. Each VR contains its own clock (the outer time loop of its simulation. The LCS is generating many different VRs of various types – all dedicated to the same purpose.
- players / users = virtual systems (which are emergent within the virtual systemic context)

Given the many deep parallels in our thinking, I am starting to synchronistically dip into your work and see what I can learn from it. In particular I am interested in the possibility that it might show me where my own work can be extended or refined or explicitly connected with yours. Perhaps our scope is significantly different. After finishing the “Calgary videos” take a look at the “London Lecture” video – it is much shorter and does talk about scope (it is the first, and thus the oldest video in the collection). I derive system (LCS) direction, purpose and goals, thus defining morality and “right” and “wrong” and the qualitative relationship between us (each individual) and the LCS . These attributes are difficult to infer from an equation. However, your scope is fully scalable and can easily expand up or shrink down to any size picture. I also see reality as fractal in nature – because the processes (fundamental process) is applied iteratively (the output of past processes serves as input to future processes. Also, I define time (both fundamental and local -- but you perhaps do that as well) and develop the mechanics of we VR characters interacting with the LCS (modifying future states, “mind over matter”, and such.)

One approach is for me to give more thought to ways in which the system model (and resulting virtual systems) might evolve to lower their entropy. At present that aspect is still theoretical in my work but it would be nice to create running simulations of virtual contexts in which systems actively evolve into more complex systems. Evolving to more complex systems is the definition of lowering entropy – Evolution is a process that lowers system entropy.

If you have any suggestions about this or about other aspects of your work that might be good points of contact between our approaches then I would very much appreciate it. Or if there is anything you wish to discuss then by all means, fire away. I find that meeting you has been very inspirational Tom! And these conversations are very enjoyable too :)

That we (and Brian) have reached the same conclusions from three widely different independent paths gives much support to all paths and strongly suggests that each of our theories will fill in some of the yet unappreciated logical foundations and consequences of the other two theories.

Tom

From: Brian Whitworth
Date: Mon, Dec 23, 2013 at 2:06 PM

Hi John,

Sorry to be so long responding, but I was finishing a rewrite of Chapter 1 to more simply introduce and link it to the other chapters. What you wrote was helpful to understand your point of view, and in the rewrite! Most people accept that classical computing *could* create the physical world:

"*The calculable universe hypothesis,* that information processing *could* simulate physical reality, is accepted by most scientists, by the Church-Turing thesis, that a finite program can simulate any output that can be specified (Tegmark, 2007)." (Chapter 1, p9)

Yet science is not about proving a position is *possible* but that it is *probable*, e.g. many worlds theory is possible, but not probable. For example, suppose:

> We are on one side of a wall we cannot see beyond, when over it comes a many tons of earth. If the only tool we have to move earth is a teaspoon, our scientists could show that many teaspoons could produce the effect observed, given enough of them and enough time. So this is possible, but it is more likely that there is a big dump-truck on the other side.

It is possible that classical computing (based on the bit "teaspoon") could take a thousand years to generate one second of our time, then put our virtual reality on hold, take another thousand years (of its time) to calculate the next second, then run it, and so on, but it is unlikely. It is possible that the simulating world could be a lot vaster than ours, but if you do the calculations, it will be of the order that many worlds theory proposes – of infinities upon infinities. Again, parallel worlds are possible, but not likely.

You say your model may not be literally correct, but to say it is sufficient is to claim exactly that. Given an "other" world with unbelievable unlimited resources, classical computing *could* create our world, but it is not the simplest option. It is the simplest *theory,* as earth-centred geocentrism was, but not the simplest *practice,* as the Ptolomeic epicyclists found out.

The feature of our definition of computing that McCabe points out is that information has a context. As you correctly state, there must be a root context that is not within a context, but a classical simulation *defined* in contextual terms can't be it, *by definition*. That classical computing could be non-physical is irrelevant, *as information is not defined physically anyway* (see the new Ch1), e.g. processing running processing doesn't have an immediate physical base. That classical computing could be implemented without a physical base doesn't alter the problem, that classical simulations imply a context.

If classical computing is contextual by definition, making quantum processing classical just defers the context problem of our world to another. Every classical simulation has an observer-programmer context, so Ramana's question remains – "Who is the 'I' creating the simulation?" Passing the observer-observed dualism of our world on to a higher level is not his answer.

My question was along the same lines. I agree computer analogies are limiting, but they let us talk on a practical level. Your answer "*I am in the context that contains the simulator*" was insightful. I presume the same answer would apply in the case you propose, that you are in the context that contains the simulator? If so, can you see the dualism? Ramana is not talking about this, nor are the Vedas, nor am I. Is Brahman, the creator of worlds, a simulation created? Shankara has made the case for monism in Hinduism, so I stop.

The dynamic information solution is to base quantum processing on dynamic processing itself, not static information, on the choice not the options. So without the hassle of storage, the process is more effective not less, and without the restriction of a purpose, it can explore every option, as evolution implies. Evolution **is** the purpose.

Perhaps at this point all the cards are on the table, so to pursue it further is just to shuffle them

about. So hopefully I have given you something to think about, as you have for me. If we agree that the physical world is a virtual reality but disagree on how, that is something. Chapter 7, if it happens, will address all the bigger theological issues. As Tom says, I am working bottom-up not top-down, so it will take a while.

Kindest regards,
Brian Whitworth

From: Tom Campbell
Date: Wed, Dec 25, 2013 at 4:53 AM

Comments in blue.

From: Brian Whitworth
Sent: Sunday, December 22, 2013 10:06 PM

Hi John,

Sorry to be so long responding, but I was finishing a rewrite of Chapter 1 to more simply introduce and link it to the other chapters. What you wrote was helpful to understand your point of view, and in the rewrite! Most people accept that classical computing *could* create the physical world:

"*The calculable universe hypothesis,* that information processing *could* simulate physical reality, is accepted by most scientists, by the Church-Turing thesis, that a finite program can simulate any output that can be specified (Tegmark, 2007)." (Chapter 1, p9)

Yet science is not about proving a position is *possible* but that it is *probable*, e.g. many worlds theory is possible, but not probable. For example, suppose:

We are on one side of a wall we cannot see beyond, when over it comes a many tons of earth. If the only tool we have to move earth is a teaspoon, our scientists could show that many teaspoons could produce the effect observed, given enough of them and enough time. So this is possible, but it is more likely that there is a big dump-truck on the other side.

It is possible that classical computing (based on the bit "teaspoon") could take a thousand years to generate one second of our time, then put our virtual reality on hold, take another thousand years (of its time) to calculate the next second, then run it, and so on, but it is unlikely. It is possible that the simulating world could be a lot vaster than ours, but if you do the calculations, it will be of the order that many worlds theory proposes – of infinities upon infinities. Again, parallel worlds are possible, but not likely. That is only true if one assumes that the virtual reality is a deterministic simulation. If it is instead, a probabilistic model that stays at the highest level possible while still maintaining consistency and rule-set logic within the VR. This will depend only on the level of detail needed by each of its users – each user receiving an independent data-stream defining multiplayer VR interaction. In this case, the simulating world does need to be "a lot vaster" than ours, but nowhere near the "infinities upon infinities" that are required by a nearly infinite number of deterministic worlds – in fact, the amount of vastness required to produce our VR probably has to be no greater that the exceedingly finite but still vast increase in "computer power" that is likely to occur during the hundred years between 1950 and 2050 (no big deal…almost trivial … just one century (in which computing was a new born infant barely able to crawl) in the big scheme of things that will eventually cover tens of thousands of centuries yet to come. (OK, I will butt out now, this letter wasn't addressed to me and I need to read the rest of it)

From: Brian Whitworth
Date: Fri, Dec 27, 2013 at 2:13 PM

Hi Tom,

No problem, please feel free to comment, and by the way, hope you both had a great Christmas!

What you say might be true if the model's probabilities were just given but they aren't. In this system they have to be calculated, and quantum theory tells us just how it is done. The only problem is that what it describes is unbelievable, physically anyway. You will struggle to find a single physicist who believes that quantum theory describes what is real in any way whatsoever. The Copenhagen "received" view specifically states that what is described is a mathematical model, tool, fiction etc., *and that is all*.

Because probabilities still have to be calculated, a probabilistic virtual model based on physicality faces exactly the same problem that a deterministic model based on physicality does - that the calculations for only a few hundred atoms take more computing power than a computer the size of our universe.

That each user creates "an independent data-stream defining multiplayer VR interaction" is also a problem, as a central processing control managing many interactions is an NP-complete problem which can quickly take billions of years to solve by bit-based computing. In Chapter 1, the idea that the millions of years of dinosaurs are just a history made up is a version of solipsism.

So it is not hard to fault Matrix type theories that a physical world generates our physical world.

This approach is that quantum theory is *literally true,* so why assume it works like the simulation it creates? It could be based on processing not information, i.e. the choice not the storage of the choice, a flux that doesn't bother storing anything because it is everything. Likewise, a central system *could* generate player data streams like our multi-player games, but think about it, are animals players too? What about plants? It is like the old "Who has a soul?" issue. As Conway says, it is either all conscious or all unconscious, so in this model every photon, electron and quark is a "player".

Bear in mind that I don't know what is true, so you might be right. I am just trying to go with the flow of what we know and logic, to see if it leads anywhere consistent.

All the best
Brian

From: John Ringland
Date: Mon, Jan 6, 2014 at 8:01 PM

Hope you both had a great festive season - I certainly did.

Tom I'm glad that you are part of this conversation :)
That was a valid point you made - the only time that a 'world' needs to be rendered is when an observation is made from a perspective and only those features that are observable need to be rendered.

Brian, from your comments I see that there are significant misunderstandings between us. You seem to think that I have expressed some position, which when you describe it and argue against it, it bares no resemblance to any position that I have expressed. It feels as if this communication is tangled in knots so I have taken some time to contemplate how this might have happened and how it can be disentangled. Here are some thoughts on this...

You seem to be thinking that I am talking about physical computation that is happening in some

other world. For instance:

- "*Given an 'other' world with unbelievable unlimited resources, classical computing could create our world, but it is not the simplest option.*"
- "*a probabilistic virtual model based on physicality faces exactly the same problem that a deterministic model based on physicality does*"
- "*So it is not hard to fault Matrix type theories that a physical world generates our physical world.*"

I am not talking about any such thing. We both agree that the ongoing process of the real is not running on some 'hardware' because that just leads to an infinite regress and has all sorts of other problems as well.

For the record, my view on physicality is that there is no such thing as actual physicality - what we know as 'physicality' is just virtuality misunderstood. The foundations of reality are processual rather than physical. To understand this we need to put aside the entire paradigm that is based on ideas of actual physicality otherwise we will be unable to comprehend virtuality.

A major point of misunderstanding between us seems to revolve around the fact that we have very different ways of understanding processes and their contexts. I'll explain the difference and why it leads to the particular misunderstandings occurring between us.

It seems to me that you analyse a process into a dynamic aspect and a static aspect. You think of the dynamic aspect as entirely unstructured and unbounded, whilst you think of the static aspect as a physical or 'worldly' manifestation, and the world in which this manifestation exists is what you call the 'context'.

However I analyse a process into an implementation aspect (a particular representation of the structural aspect), a structural aspect (the logical structure of the process), a dynamic aspect (the raw processual 'happening') and other aspects that are not directly relevant to characterising the misunderstanding so I will leave them out for now. These aspects collectively comprise the context of a process.

For example consider a computer program. The binary code executed on a computer is the implementation aspect, it encodes the algorithm or program logic, which is the structural aspect. The running application is the dynamic aspect.

As another example, consider the ongoing process of the real. That which is revealed by quantum mechanics gives us insight into the structural aspect. Our existence / consciousness and the constantly changing phenomena are features of the dynamic aspect. Notice that I neglected to mention the implementation aspect - the reason why is discussed in the next two paragraphs.

Reason 1: It is a general principle that any virtual perspective that is emergent from a process can only know that process from 'within', hence it can never know the implementation aspect. The deepest it can directly experience is the dynamic aspect and the deepest it can know is the structural aspect. There is nothing that can be known about the implementation aspect from a virtual perspective. To understand why, consider the problem of trying to write a computer program that runs only in memory and has no access to external peripherals (such as cameras) and yet it can determine if a coffee cup is sitting on top of the computer box. This is impossible because the program can only process information within the computer's information space and it has no access to information outside of that. Similarly, from our virtual perspective (emergent within the ongoing process of the real) there is NOTHING that we can say about the implementation aspect of the ongoing process of the real - we simply have no information about it and no way of obtaining information about it. Hence all talk about it is just unsupported conjecture.

Reason 2: The implementation aspect is *independent* of the other aspects. I.e. so long as an

implementation encodes the structural aspect then all of the other aspects will emerge the same. For example, think of a Java program, which can run on various different platforms, but it is still essentially the same program on each. Because the same overall process can operate using different implementations we can discuss or analyse the other aspects and how they relate without having to understand which particular implementation is being used or even if there is a particular implementation. So the issue of what particular implementation exists is not an important issue when trying to understand the other aspects.

Now to discuss why these different ways of understanding processes leads to the particular misunderstandings...

The difference between us is that you combine the structural and implementation aspects together and call them static information, whilst I keep them distinct.

This leads to several misunderstandings;

1. when I say things about the structural aspect of the ongoing process of the real, you think I am also talking about the implementation aspect, which leads you to think that I am talking about a "Matrix type theory".
2. some of what you say about static information only applies to the implementation aspect and not the structural aspect, hence I feel motivated to dispute some of your claims about static information.
3. some of what you say about dynamic information relies upon the structural aspect yet denies its existence, hence I feel motivated to dispute some of your claims about dynamic information (see the next point).
4. to you the dynamic aspect of a process is context free, to me absolutely NO process can be context free. For example, you think of the act of making a choice as context free, however when making a choice there is a context in which there are choosers, various choices that can be made, ways of making choices and sequences of choice-making events. These are all part of the structural aspect.
5. when we discuss 'contexts' or talk about the root 'context' many misunderstandings occur because we each have entirely different meanings for that term. To you 'context' seems to have physical or worldly connotations whilst to me it doesn't.

We both agree that there is no implementation aspect to the ongoing process of the real - although you thought that I believe that there is. We also agree that there is a dynamic aspect. However we disagree about whether or not there is a structural aspect.

In other words, we seem to agree that existence is a process with no hardware. However does this process have a structure or is it devoid of structure (totally random)? In other words, there is no hardware, but is there software? You seem to claim that there is no structural aspect hence the dynamic aspect cannot be analysed further but only accepted as a given. Whilst I claim that there is a structural aspect hence the dynamic aspect can be analysed and described. This was initially done using various mystic metaphors and more recently using the language and methods of information science, which gives rise to approaches such as quantum mechanics and SMN that provide insights into the structure of the dynamics of the ongoing process of the real.

There are numerous other things that you said that I could comment on however many of those are likely to be artefacts of the misunderstanding, i.e. because you are arguing against the position that you erroneously believe that I am espousing - hence I will let those slide for now.

All the best :)
John

From: Brian Whitworth
Date: Mon, Jan 13, 2014 at 3:36 PM

Hi John,

Yes I did and having a bit of a Christmas break, doing things around the house. Thanks for your useful thoughts, as you raise issues I have skipped over a bit. In general, it is interesting how many new ideas this has thrown up! In general I proceed carefully, trying not to bring a preformed view, but to tease out likely alternate solutions, but obviously a project like this, by consistency, must either carry forward previous ideas or abandon them. Let me try to review where we are so far to go further. Feel free to correct me, especially on your ideas or positions:

1. We agree that a virtual reality created by something else is not an inherent or objective reality.

2. In current physics, the algorithms of quantum theory let us calculate the probability of quantum events, but are said to represent nothing real. Quantum processes just happen to predict physical events, but do not actually occur because *there is no quantum world*.

3. In our view, the physical world is a construct created by quantum processes that actually runs, so there is a quantum world, although we cannot by definition perceive it.

4. However the issue is, if the physical world is virtual, what is doing the processing?

5. One option we explored is that another physical world creates this physical world, a la The Matrix. I gather we have now dismissed this option, because:

    a. *Performance problems*. It would take a supercomputer the size of a universe to handle the quantum processing of even a few molecules, so there *could* be an unbelievably large super-universe generating ours, but it isn't likely. Equally it *could* take bit-based process a million years to process a second of our time, but again it is not likely. That only some results must be *rendered* doesn't alter the *processing* needed to do what quantum theory describes.

    b. What quantum theory describes, like collapse, entanglement etc, isn't physically possible, i.e. quantum reality does not have the properties of physical reality.

    c. Every simulation has a myriad of options, e.g. the game worlds we create are very different, so it is unlikely by chance to match its creator world, and it is not clear why beings in a physical-based quantum world would create a virtual world that was just like their own. After all, our game worlds are not replicas of our world but variants of it.

6. The option you espouse is that quantum processing is classical bit-based processing, but implemented on something unspecified *not* physicality, given a process has:

    a. An *implementation* aspect, or reality base, e.g. hardware in our world

    b. A *structural* aspect, or software logic, e.g. a program in our world, and

    c. A *dynamic* "happening", which gives consciousness of an observed occurrence.

7. These aspects match the *reality levels* given in Figure 1.5, of:

    a. *Physical* or hardware,

b. *Informational* or software, and

c. *Personal* or observed reality.

However in figure 1.5, personal reality emerges from an information reality that emerges from a physical reality as different *world views* of the same reality, not separate realities. So all of these aspects/levels require an observer, which in Figure 1.6 is provided by a quantum reality.

8. You then suggest that quantum processing is classical processing without an implementation aspect, noting that:

a. *Implementation*. Those within a virtual world can know NOTHING of its implementation, as they cannot see it.

b. *Quantum processing couold be classical at its base*. Quantum theory describes the structural aspect of the processing, and as SMN can describe a quantum logic gate in classical terms, quantum processing could be like classical processing in its structure.

c. *Every process has a context.* Classical processing by definition has a context, so if quantum processing as classical processing must also have a context. You suggest that the act of choosing has the context of a chooser, a choice set and a choice method.

d. *Consciousness*. Consciousness is an aspect of classical processing *somehow*.

e. In this approach a universal program somewhere running on a big CPU creates the physical universe as a virtual reality. So if we could in some way alter the program, anything is possible, including the paranormal. It implies a programmer "God", in our terms, who coded the system and started it up at the big bang. He/she then apparently let it run, perhaps occasionally tweaking it to improve the results. When we die, we will presumably wake up to find it was all a game, maybe get a debrief, then go on another virtual "expedition", or maybe "retire" to a rest home, hopefully the "heaven" good one, but maybe the "hell" bad one.

9. The third option, which I espouse, is that quantum processing is not a variant of classical processing but operates quite differently, giving a different take on various points in #8:

a. *Implementation*. If the physical world is a quantum output, *some* implementation must exist, even if we can't perceive it. So we know *something* about it, not NOTHING. Lest this seem trivial, note that current physics denies that a quantum reality exists at all. Given something is there, this theory calls it *the grid*, but it isn't "hardware" in our sense just as quantum processing isn't processing in our sense. A project that aims to *reverse engineer* the physical world doesn't agree that what can't be seen can't be known, and Chapter 2 concludes that it is a *network* and describes its *architecture* in some detail.

b. *Software without hardware*? To suggest there is software without hardware is to think the levels of Figure 1.5 are realities in themselves, but this monism has only one base reality. As discussed in more detail here, *there can be no software without hardware,* and in general, emergent reality levels depend on the previous levels. Processing is *never* independent of what it emerges from.

c. *Quantum processing* is not like classical processing because.

i. *Performance problems*. The performance problems of #5a still apply, so that our bit-based "teaspoons" explain the "quantum dump truck" is still unlikely. Quantum processing does what classical processing could *in theory* do, but *in practice* can't do.

ii. *Software emerges from hardware,* so the nature of software is affected by the nature of the hardware, e.g. physical things that adopt one state in one place at a

time allow a classical bit, which is the choice of *one* of two physical states for a physical entity at one time. The *structure* of classical processing is defined by the nature of physical reality.

iii. *By quantum theory, quantum processing works differently.* In quantum theory, entities can be in many places and adopt many states at once, so the quantum processing qubit is the choice of *both* quantum states at once. Classical processing cant do this.

d. *A simulation is not evidence*. A simulation is not a *theory of reality* unless it exposes itself to the rigor of scientific prediction. To say a simulation "could represent" reality if it works, but tweak it when it doesn't, is not testing a theory, which the standard model forgot (see 4.6.4). So that SMN can describe a quantum logic gate in classical terms is useful to know, but until it submits to testing, it is not evidence in support of any theory of reality.

e. *Quantum processing has no context.* A thing has a context if something outside itself defines it, e.g. a newspaper needs a reader. Static information implies a context because of how a bit is defined. A bit, as the OR choice of two alternate states, exists relative to the state(s) *not chosen*. If the choice was four options, the same physical state would be two bits. So a bit needs an observer who is also contextual, as the section on dynamic information explains. In contrast, a qubit is the AND of the choice options, so has no choice set context.

f. *The observer context.* All static information has an observer context, but in this theory the quantum level *is* the observer context, so the dynamic *choice itself* has no context. To say it has the context of a chooser, choice set, choice method, etc. confuses the *aspects* of a thing with its *context*. A context is always *outside* that described, so a nail can have the context of a carpenter but not of its head, point and stem parts, nor of its hardness, etc. aspects. Likewise, the chooser, the choices and the choice method are *parts* of the act of choosing, not *contexts*. Quantum reality *is* the observer level, so has no observer context.

g. *Consciousness*. In this approach, consciousness is inherent to the quantum level.

h. *Storage.* In this theory, the system doesn't store anything at all, in any static program or data. There is only dynamic processing, based on one command, a Planck program that everything from space to light to matter, derives from.

i. *Decentralization.* In this theory, all processing is distributed so there is no CPU and no time central, as each grid node has its own cycle. The orchestra has no conductor, as each grid node acts autonomously. So there is no programmer, no program and no central control.

j. In this approach, what generates reality is embedded in it, not a programmer who wrote some code then walked away, to let it run. The reality that creates our reality is near not far away. It is the observer that enables not only the physical construct but all the levels that emerge from it (Figure 1.5). It is not passively watching a program written long ago from afar, but actively processing all things right now in a program that is being dynamically written from moment to monent. There is no "other" place where a programmer, program, or storage resides, except the ever-present here and the eternal now, where we may continue to dream until we wake up.

I am exploring an option less traveled, but don't ask me what it all means, as I don't know. Religious people who think in physical terms suppose that if they live after death it will be in another place, a heaven apart from this earth, but this *monism* has no reality but the here and now. Scientific people who think in physical terms suppose that the physical world is all there is, so when

they die they are no more, but in this *monism* the body that "dies" is virtual and the observer continues. So this approach has no traction, as it appeals to neither the religion nor the science, but what if it is so? It is an option worth considering is my only point.

Probably we will still have different views (indeed hopefully so!) but perhaps you now better see why I have gone this way, even if you don't agree. Again, thanks for raising issues that needed to be raised, and dont worry if we come at things from different perspectives, as it is all part of the rich tapestry of life.

All the best,
Brian

From: Tom Campbell
Date: Thu, Jan 16, 2014 at 1:12 PM

Hi Brian and John,

Sorry to be silent for so long. I had some "natural disaster" work distracting me over the last few weeks. The coldest day in over 30 years (in my part of the planet) caused a water pipe to freeze, split, and pour several thousands of gallons into my home while I slept. Everything is back to normal now. See blue comments below.

From: Brian Whitworth
Date: Mon, 13 Jan 2014 18:36:30 +1300

Hi John,

Yes I did and having a bit of a Christmas break, doing things around the house. Thanks for your useful thoughts, as you raise issues I have skipped over a bit. In general, it is interesting how many new ideas this has thrown up! In general I proceed carefully, trying not to bring a preformed view, but to tease out likely alternate solutions, but obviously a project like this, by consistency, must either carry forward previous ideas or abandon them. Let me try to review where we are so far to go further. Feel free to correct me, especially on your ideas or positions:

I am afraid I missed a few things by being distracted. I will try to get back in the conversation by responding in blue.

1. We agree that a virtual reality created by something else is not an inherent or objective reality.
Yes, agreed.

2. In current physics, the algorithms of quantum theory let us calculate the probability of quantum events, but are said to represent nothing real. Quantum processes just happen to predict physical events, but do not actually occur because *there is no quantum world*

3. In our view, the physical world is a construct created by quantum processes that actually runs, so there is a quantum world, although we cannot by definition perceive it. . Quantum events do indeed represent something real, but that does not necessarily imply the existence of a "quantum world" created by "quantum processes". It simply implies that "quantum processes" represent a particular method for a probabilistic description of some parts of the world (as opposed to a **physical** description of the world). If we call "the world" our so called physical universe which we all agree is actually virtual (information based) then one can say that the world is a **probability based** VR. "Probability based" is a more general term or concept than "quantum based" and thus allows a more general big picture to emerge. "Quantum based" represents a limited subset of "probability based". What the Hubble sees and what you find in the attic of a long abandoned house are determined by the exact same probabilistic process that is used to determine the results of a subatomic collision --

and that process is only **indirectly** connected to atomic scale causality processes in most cases. Physicists would not consider determining what was in the attic a quantum process (they would believe it to be a historical physical process) but the attic's contents follows the same probabilistic process used in QM but applied more generally. Thus I see "quantum process" as a much more narrowly defined term than the more general concept of a probabilistic process.

4. However the issue is, if the physical world is virtual, what is doing the processing? Indeed! "What" is the proper question, not "who".

5. One option we explored is that another physical world creates this physical world, a la The Matrix. I gather we have now dismissed this option, because: This whole semantic issue between "physical" and "nonphysical" and "informational" realities is nonsense in a VR context. There is no such thing as fundamentally physical or nonphysical worlds. An experiential VR **appears** physical to an observer within it (an observer defining a local VR reality from the VRs data-stream) and **appears** nonphysical to an observer outside of it (an observer defining a local reality **from some other** VRs data-stream). If there is no VR, then there is no experience, because there is no data-stream (information) to define an apparent reality. All experiential realities are virtual realities. Or, since the physicalness of a perceived "Physical reality" is only in the mind (data processor) of the observer, one could just as easily say that all experiential realities are **apparently** physical realities (to the observers within the VR who are experiencing the information flow which defines that local VR).

a. *Performance problems*. It would take a supercomputer the size of a universe to handle the quantum processing of even a few molecules, so there *could* be an unbelievably large super-universe generating ours, but it isn't likely. Equally it *could* take bit-based process a million years to process a second of our time, but again it is not likely. This is just not true. A probabilistic VR can accomplish this VR and much more without breaking a sweat. Probabilistic processing will have a much, much smaller processing load than the quantum processing you are imagining A probabilistic simulation does not model causality it simply models the results of causality based on what is likely and not likely. It randomly draws results from statistical distributions that represent the probability of what an underlying causality might produce. The results do not have to be exact, only representative of what is both possible and likely according to the rule-set driving the VR. After a result is delivered to the VR (becomes a historical fact in that VR), historical consistency (rule-set consistency) is required – thus any result imposes constraints on any following results by modifying the working statistical distributions. Such distributions may be very high fidelity or very low fidelity depending on how much uncertainty is natural to the result. Most distributions need only be created from a knowledge of detailed causality (the VRs rule-set) once or updated occasionally. After that they are modified, as necessary, on the fly. I have worked for 40 years making very complex models of dynamic systems. A high fidelity "physics model" may take a hundred thousand lines of code and take a month of continuous number crunching to produce an answer while an equivalent statistical model takes only a hundred lines of code and can produce an equally **acceptable** answer in a millisecond. Of course, creating the statistical distributions to support that statistical model requires a lot of up front work – but it only has to be done once. Having said that, some problems are best modelled statistically while others are best modelled with detailed physics. Our VR (probably any VR) is one of the former. That only some results must be *rendered* doesn't alter the *processing* needed to do what quantum theory describes. That only some results must be rendered, and to only the fidelity needed, hugely affects the required processing.

b. What quantum theory describes, like collapse, entanglement etc, isn't physically possible, i.e. quantum reality does not have the properties of physical reality. I agree, a reality based on probability does not have the properties of physical reality.

c. Every simulation has a myriad of options, e.g. the game worlds we create are very

different, so it is unlikely by chance to match its creator world, and it is not clear why beings in a physical-based quantum world would create a virtual world that was just like their own. After all, our game worlds are not replicas of our world but variants of it. Various reality frames (VRs) are not programmed or **created** as you use the word, instead they are evolved from initial conditions and a rule-set. Only certain conditions and rule-sets produce (evolve) results that are long term stable enough to allow the slow process of evolution to develop an interesting VR system. The process of evolution produces a "process fractal" The output of the last evolutionary process becomes the input of next evolutionary process. The generic or fundamental process of evolution is a simple process that gets reapplied to succeeding levels and scales (as demonstrated by cellular automata). One should expect repetition within fundamental VR processes.

6. The option you espouse is that quantum processing is classical bit-based processing, but implemented on something unspecified *not* physicality, given a process has: [The probabilistic processing creating our VR universe is a classical bit-based processing, implemented within an evolving much larger information system to serve a specific evolutionary function for that evolving larger information system. No infinite regression of larger systems is logically implied (except in baseless conjecture) because of the limitation of fundamental knowledge that can be shared between systems]

a. An *implementation* aspect, or reality base, e.g. hardware in our world yes

b. A *structural* aspect, or software logic, e.g. a program in our world, and yes

c. A *dynamic* "happening", which gives consciousness of an observed occurrence. yes

7. These aspects match the *reality levels* given in Figure 1.5, of:

a. *Physical* or hardware, yes

b. *Informational* or software, and yes

c. *Personal* or observed reality. yes

I have no figure 1.5 so I am lost here.

However in figure 1.5, personal reality emerges from an information reality that emerges from a physical reality as different *world views* of the same reality, not separate realities. So all of these aspects/levels require an observer, which in Figure 1.6 is provided by a quantum reality.

8. You then suggest that quantum processing is classical processing without an implementation aspect, noting that:

a. *Implementation*. Those within a virtual world can know NOTHING of its implementation, as they cannot see it. Yes

b. *Quantum processing could be classical at its base*. Quantum theory describes the structural aspect of the processing, and as SMN can describe a quantum logic gate in classical terms, quantum processing could be like classical processing in its structure. Yes

c. *Every process has a context.* Classical processing by definition has a context, so if quantum processing as classical processing must also have a context. You suggest that the act of choosing has the context of a chooser, a choice set and a choice method.

d. *Consciousness*. Consciousness is an aspect of classical processing ***somehow***. Consciousness is an aspect of classical processing because it has evolved its awareness much as frogs, dogs and humans evolved a capacity to support awareness within this evolving VR. Call it emergent complexity if you wish, but it is simply the result of an iterative application of the fundamental process of evolution within an information system

that has sufficient potential.

e. In this approach a universal program somewhere running on a big CPU creates the physical universe as a virtual reality. [...allows the "physical universe to evolve as a virtual reality.] So if we could in some way alter the program, anything is possible, including the paranormal. [As it turns out, our ability to modify the probability distributions is a feature of the VR (provides feedback to facilitate the purpose of the larger system] It implies a programmer "God", in our terms, who coded the system and started it up at the big bang. [No programmer God (as most people think of it) is implied. The larger system is an entirely a natural information system of sufficient potential, trying to evolve (lower its system entropy) in order to avoid extinction, which follows from de-evolution.] He/she then apparently let it run, perhaps occasionally tweaking it to improve the results. When we die, we will presumably wake up to find it was all a game, maybe get a debrief, then go on another virtual "expedition", or maybe "retire" to a rest home, hopefully the "heaven" good one, but maybe the "hell" bad one. [Nobody retires – evolution is an open-ended process]

9. The third option, which I espouse, is that quantum processing is not a variant of classical processing but operates quite differently, giving a different take on various points in #8:

a. *Implementation*. If the physical world is a quantum output, *some* implementation must exist, even if we can't perceive it. So we know *something* about it, not NOTHING. Lest this seem trivial, note that current physics denies that a quantum reality exists at all. Given something is there, this theory calls it *the grid*, but it isn't "hardware" in our sense just as quantum processing isn't processing in our sense. A project that aims to *reverse engineer* the physical world doesn't agree that what can't be seen can't be known, and Chapter 2 concludes that it is a *network* and describes its *architecture* in some detail. [You are deriving what I call "the rule-set" for our "physical" universe VR from basic processing concepts]

b. *Software without hardware*? To suggest there is software without hardware is to think the levels of Figure 1.5 are realities in themselves, but this monism has only one base reality. As discussed in more detail here, *there can be no software without hardware,* and in general, emergent reality levels depend on the previous levels. Processing is *never* independent of what it emerges from. Yes

c. *Quantum processing* is not like classical processing because.

i. *Performance problems*. The performance problems of #5a still apply, so that our bit-based "teaspoons" explain the "quantum dump truck" is still unlikely. Quantum processing does what classical processing could *in theory* do, but *in practice* can't do. Bit based probabilistic processing is a huge strip mining mountain mover vs. a dinky little quantum dump truck J vs. a micro teaspoon of physics based modelling trying to model causality from the ground (elementary particles) up.

ii. *Software emerges from hardware,* so the nature of software is affected by the nature of the hardware, e.g. physical things that adopt one state in one place at a time allow a classical bit, which is the choice of *one* of two physical states for a physical entity at one time. The *structure* of classical [physics based modelling] processing is defined by the nature of physical reality. That is true as amended. However the structure of probabilistic based modelling allows quantum processing as well as much more efficient processes for the application at hand.

iii. *By quantum theory, quantum processing works differently.* In quantum theory, entities can be in many places and adopt many states at once, [yes, it is a matter of probability] so the quantum processing qubit is the choice of *both* quantum states at once. Classical processing can't do this. ...but classical processing implementing a probability model can.

d. *A simulation is not evidence*. A simulation is not a *theory of reality* unless it exposes itself to the rigor of scientific prediction. Yes! And I submit that my theory does that very well – explains much unexplained research (like PEAR Labs results) and predicts new results that can be tested. Any "living" theory might be tweaked (expanded) as new information becomes available. A "dead" theory (what naive physicists in Newton's time used to call "laws") that by definition can never change are either a theory of something very simple or are likely to one day be found to be incomplete. That is why scientists use the word "theory" now instead of "laws". To say a simulation "could represent" reality if it works, but tweak it when it doesn't, is not testing a theory [that is absolutely correct], which the standard model forgot (see 4.6.4). So that SMN can describe a quantum logic gate in classical terms is useful to know, but until it submits to testing, it is not evidence in support of any theory of reality. Not entirely by itself, I agree. But as the front end to larger model of reality, it is superb.

e. *Quantum processing has no context.* A thing has a context if something outside itself defines it, e.g. a newspaper needs a reader. Static information implies a context because of how a bit is defined. A bit, as the OR choice of two alternate states, exists relative to the state(s) *not chosen*. If the choice was four options, the same physical state would be two bits. So a bit needs an observer who is also contextual, as the section on dynamic information explains. In contrast, a qubit, [because it is probability based], is the AND of the choice options, so has no choice set context.

f. *The observer context.* All static information has an observer context, but in this theory the quantum level *is* the observer context, so the dynamic *choice itself* has no context. To say it has the context of a chooser, choice set, choice method, etc. confuses the *aspects* of a thing with its *context*. A context is always *outside* that described, so a nail can have the context of a carpenter but not of its head, point and stem parts, nor of its hardness, etc. aspects. Likewise, the chooser, the choices and the choice method are *parts* of the act of choosing, not *contexts*. Quantum reality *is* the observer level, so has no observer context.

g. *Consciousness*. In this approach, consciousness is inherent to the quantum level. [Consciousness, as an evolved awareness within an information system, represents the fundamental attribute of the larger system, which creates VRs for its own use to facilitate system entropy reduction – evolution vs. de-evolution, i.e., survival]

h. *Storage.* In this theory, the system doesn't store anything at all, in any static program or data. There is only dynamic processing, based on one command, a Planck program that everything from space to light to matter, derives from. [In my system, all processing of VRs also runs without any **requirement** to store data, however, to **optimize** the purpose and function of the system (e.g., employing various VRs, like out universe, to facilitate system survival) requires some modest amount of storage.]

i. *Decentralization.* In this theory, all processing is distributed so there is no CPU and no time central, as each grid node has its own cycle. The orchestra has no conductor, as each grid node acts autonomously. So there is no programmer, no program and no central control. No doubt decentralization is the most efficient and robust way to define a VRs rule-set

j. In this approach, what generates reality is embedded in it, not a programmer who wrote some code then walked away, to let it run. The reality that creates our reality is near not far away. It is the observer that enables not only the physical construct but all the levels that emerge from it (Figure 1.5). It is not passively watching a program written long ago from afar, but actively processing all things right now in a program that is being dynamically written from moment to moment. There is no "other" place where a programmer, program, or storage resides, except the ever-present here and the eternal now, where we may continue to dream until we wake up. Likewise, in my approach, what generates reality is embedded in every VR subset – all is of one source, and there is no programmer...only the general process of evolution acting on a natural information system with sufficient potential to eventually

evolve awareness.

I am exploring an option less travelled, but don't ask me what it all means, as I don't know. Religious people who think in physical terms suppose that if they live after death it will be in another place, a heaven apart from this earth, but this *monism* has no reality but the here and now. Scientific people who think in physical terms suppose that the physical world is all there is, so when they die they are no more, but in this *monism* the body that "dies" is virtual and the observer continues. So this approach has no traction, as it appeals to neither the religion nor the science, but what if it is so? It is an option worth considering is my only point. It is definitely so, I have been there and watched it work as well as participated in the process. Also it is a logical requirement that leads to my theory's ability to explain research paradoxes in physics, and metaphysics.

Probably we will still have different views (indeed hopefully so!) but perhaps you now better see why I have gone this way, even if you don't agree. Again, thanks for raising issues that needed to be raised, and don't worry if we come at things from different perspectives, as it is all part of the rich tapestry of life. Here! Here! Well said! I couldn't agree more.

Tom

From: John Ringland
Date: Tue, Jan 21, 2014 at 11:53 AM

Wonderful! This is getting very interesting :)

Brian, I think we have a lot in common which enables us to understand each other (with some care) yet we have some significant differences that motivates us to dig deep into some profound issues. I have found this conversation to be very fruitful! My comments are below in magenta.

On Thu, Jan 16, 2014 at 1:12 PM, Tom Campbell wrote:

Hi Brian and John,

Sorry to be silent for so long. I had some "natural disaster" work distracting me over the last few weeks. The coldest day in over 30 years (in my part of the planet) caused a water pipe to freeze, split, and pour several thousands of gallons into my home while I slept. Everything is back to normal now. See blue comments below.

From: Brian Whitworth
Date: Mon, 13 Jan 2014 18:36:30 +1300

Hi John,

Yes I did and having a bit of a Christmas break, doing things around the house. Thanks for your useful thoughts, as you raise issues I have skipped over a bit. Likewise, this whole issue of the nature of the root is not something I have given much thought to other than to note that it cannot ever be ascertained, however it is interesting to examine the peripheral issues surrounding this. Also, the exploration of processes and contexts has been very useful to me! In general, it is interesting how many new ideas this has thrown up! I too have found this to be very fruitful :) In general I proceed carefully, trying not to bring a preformed view, but to tease out likely alternate solutions, I have some strong hunches but I also don't have a preformed view, it is evolving along the way as I encounter the many alternate solutions.

but obviously a project like this, by consistency, must either carry forward previous ideas or abandon them. We do have to rely to some extent on prior knowledge however we must be wary of the fact that most of it is distorted (and distorting) because its meaning has its roots in a physicalist /

objectivist paradigm. Most of this physicalist prior knowledge is back-to-front or inside-out because the virtual perspective was assumed to be an objective perspective. It is not so much that these concepts need to be entirely abandoned (because they do have meaning from a virtual perspective) but rather that they need to be re-imagined or re-understood in a new way (as epiphenomena of the virtual perspective rather than as objectively real).

The biggest problem is our habit of assuming that anything that is real must be manifest (able to be experienced) – this arises from naïve realism, it is institutionalised as empiricism and it permeates and confuses the discourse on the nature of reality. Whereas in the VR paradigm anything that can be experienced is virtual whilst that which is real is unmanifest (can never be experienced).

At the core of the many mystic perspectives they have things conceptually around the right way (because they understand that the person's perspective is a virtual perspective rather than an objective perspective). However many mystic philosophies have been misunderstood and misrepresented and distorted in many ways, giving rise to fantasy, superstition and exoteric religion. So it can be hard to discern exactly what the mystic paradigm is.

Let me try to review where we are so far to go further. Feel free to correct me, especially on your ideas or positions. Great review :) I think we are making some really good progress in developing a bridge of understanding! :

I am afraid I missed a few things by being distracted. I will try to get back in the conversation by responding in blue.

Nice to have you back Tom :)

1. We agree that a virtual reality created by something else is not an inherent or objective reality. Yes, agreed. Certainly, it is an epiphenomenon of an information process.

2. In current physics, the algorithms of quantum theory let us calculate the probability of quantum events, but are said to represent nothing real. Quantum processes just happen to predict physical events, but do not actually occur because *there is no quantum world*

This is instrumentalism, which has been the predominant attitudeso far but it is shifting. There are notable physicists who are taking a more scientific-realist view rather than naive realist view, and accepting that quantum phenomena (such as wavefunctions) are not just mathematical tools for empiricists, they are in fact real (although non-physical) phenomena that are revealed by a rationalist science.

3. In our view, the physical world is a construct created by quantum processes that actually runs, so there is a quantum world, although we cannot by definition perceive it. . Quantum events do indeed represent something real, but that does not necessarily imply the existence of a “quantum world” created by “quantum processes”. It simply implies that “quantum processes” represent a particular method for a probabilistic description of some parts of the world (as opposed to a **physical** description of the world). Yes! Agreed. If we call “the world” our so called physical universe which we all agree is actually virtual (information based)
IMHO the term 'world' is a concept that needs to be reinterpreted as the paradigm shift unfolds. Traditionally it means something objective, however from the perspective of the VR paradigm that which we are referring to when we say "the world" is really an imaginative construct derived from our subjective virtual experiences. Each virtual perspective experiences its own world or has its own world-experience, however we imaginatively assume that we are all experiencing the same world (in most circumstances this is an adequate and useful approximation). To be clear when I mention the concept 'world' I sometimes use the term "world-experience" to make it clear that I am not speaking about anything that could be misconstrued as being objective.

then one can say that the world is a **probability based** VR. “Probability based” is a more general

term or concept than “quantum based” and thus allows a more general big picture to emerge. “Quantum based” represents a limited subset of “probability based”. I see the sense in this... the space of possible probabilistic processes is much broader than the space of possible quantum processes. However, it seems to me that at the level at which our classical (VR) universe comes into being, i.e. through the apprehension of classical observables, these are only ever generated by quantum processes (at all scales). More on this point shortly...

What the Hubble sees and what you find in the attic of a long abandoned house are determined by the exact same probabilistic process that is used to determine the results of a subatomic collision -- and that process is only indirectly connected to atomic scale causality processes in most cases. Physicists would not consider determining what was in the attic a quantum process (they would believe it to be a historical physical process) but the attic’s contents follows the same probabilistic process used in QM but applied more generally. Thus I see “quantum process” as a much more narrowly defined term than the more general concept of a probabilistic process. Traditionally that was the attitude (that QM only applies at small scales) however there is no scientific foundation for this attitude (it is mostly an attempt to avoid having to face the implications of QM on our world-view and to preserve naive realism at larger scales). In all those situations that you mentioned the probabilistic process is a quantum process.

If an image is digital then at small scales it can be seen to be pixelated, however it is also still digital at large scales even though it doesn't look pixelated. The same applies to QM; at larger scales the “spooky” effects aren't as noticeable but the whole experienced phenomenon (at any scale) is still a construct of quantum generated classical observables. Gradually more physicists are starting to accept this. For instance, nowadays people regularly consider the wavefunction for the whole universe, which is also related to the multiverse or state space of all possible universal configurations or many-worlds.

So it seems to me that so long as we accept that QM applies at all scales then QM suffices for a slice of the reality-stack, i.e. the whole of the classical universe can supervene on quantum processes. Hence although QM may be a sub-set of the set of all probabilistic processes, it does seem to be a sufficient sub-set for the generation of the observable universe. There may be other processes than can also suffice however they would need to be equivalent to QM.

This is not to say that QM as it is currently understood by academia is the “final answer” or anything. What I mean is that at the core of QM is a sufficient mathematical characterisation of a particular level of reality, with a set of corresponding concepts that make sense (only when reinterpreted within the VR paradigm). Hence it can be a useful component of the theory. I realise that there are connotations attached to the term 'quantum' that could create confusion during the early stages of the paradigm shift, however QM does seem to be a relevant component of the VR paradigm and these connotations will fade as the shift progresses. For instance, once 'computer' referred to a human being employed to perform routine calculations, however the connotations of words change over time as the circumstances change.

4. However the issue is, if the physical world is virtual, what is doing the processing? Indeed! “What” is the proper question, not “who”.

This point raises a very complex and subtle issue that impacts on most of the other points as well! I took a few days to contemplate what to write regarding these issues...

Firstly, the only way a manifest context (such as a universe of places, times, objects, events, observers, experiences, etc) can exist is as a virtual construct animated by an underlying information process. (This is a stronger form of point 1 from above. Do you both agree with it? I see from later comments that Tom does.) It is the claim that all manifest contexts supervene on an underlying process. Hold that thought...

The question “what is doing the processing?” presuposes that there must be 'something' that is doing the processing. Or in other words, it assumes that all processes must supervene on an underlying manifest context. But if we were to look into that manifest context (that 'something') we would see that there were changes, entities, behaviours and interactions within that something that could only be explained by suposing that this something was also animated by an underlying process. Which leads to infinite regression.

All processes supervene on an underlying manifest context.

+

All manifest contexts supervene on an underlying process.

= Infinite regression.

Either at some point there is a manifest context that is not animated by an underlying process or there is a process that is not implemented by some manifest context. Or these concepts break down into something else more basic.
This leads to two possible paradigms, which could be called the manifest and processual paradigms:

> 1) The " manifest paradigm" in which processes are understood to be epiphenomena of interactions occuring between manifest forms and the manifest forms are primary or apriori. (All processes supervene on an underlying manifest context.)
>
> 2) The "processual paradigm" (which was most notably espoused by A.N. Whitehead but also developed by many others, and is present at the core of ancient mystic philosophies especially Daoism, Advaita Vedanta and Kabbalah). In the processual paradigm processes are primary or apriori, whilst what we experience as objects are virtual epiphenomena, they are objects of perception, which are resolved from the phenomenal contents of an experiential process when it is apprehending some set of observables. (All manifest contexts supervene on an underlying process.)

A fundamental principle of the VR paradigm is that manifest contexts are virtual epiphenomena of information processes. This concurs with the processual paradigm, which suggests that the processual paradigm is naturally implied by the VR paradigm. Thus from the perspective of the VR paradigm there is no manifest context underlying the root animating process and there is no need for one. So the root process has no manifest context because all manifest contexts exist within the root process. Because all perspectives are virtually emergent 'within' the root process there is no perpsective 'on' the root process hence it has no manifest form or manifest context.

The processual paradigm is looking fairly convincing to me and within this paradigm there is no issue of “what is doing the processing?” because the processing is what is doing everything. The very act of 'doing' is a virtual manifestation of the processing. Without the processing there would be no things and no doing, so there cannot be something that is doing the process.

However I strongly suspect that it is neither one nor the other paradigm, it is more a case that our concepts which have been derived from our worldly experiences break down at this deep level. In a sense there is an implementation aspect but in a very real sense it is enitrely unmanifest, so in a sense there is no implementation aspect. The Kabbalah speaks of the deepest levels of reality as “negatively existent” and the Buddha says that even concepts such as being and non-being break down at the deepest levels however there is a deeper truth that can only be realised intuitively as the essence of one's own inner most nature.

5. One option we explored is that another physical world creates this physical world, a la The Matrix. I gather we have now dismissed this option, because: This whole semantic issue between “physical” and “nonphysical” and “informational” realities is nonsense in a VR context. There is no such thing as fundamentally physical or nonphysical worlds.Agreed Tom!! We didn't really 'explore' this option; it was briefly raised due to a misunderstanding. Although I'm sure we have each explored it before and found it inadequate. However I am glad that we can now all agree that

there is no actual physicality, there is just virtuality that has been misunderstood because the virtual perspective has been assumed to be an objective perspective. This means that a lot of terms need to be reevaluated and habitual ways of thinking reassessed. Including the criteria by which we assess viable theories.

BTW re "Matrix type theories", it is true that the first two Matrix movies implied that the virtual manifest context had an underlying physical manifest context. However in the third movie, when Neo visits the Architect, he is informed that the whole physical manifest context, with the Machine City and Zion etc is itself a simulation. Exactly what that simulation supervenes upon is not specified.

An experiential VR **appears** physical to an observer within it (an observer defining a local VR reality from the VRs data-stream) and **appears** nonphysical to an observer outside of it (an observer defining a local reality **from some other** VRs data-stream). This is an important point! It is central to understanding how processes can seem very abstract (and therefore intuitively 'unreal') when they are considered from the outside, however they can seem very 'tangible' (and therefore intuitively 'real') when one's perspective is an epiphenomenon that is emergent within that process. It is our physicalist (naïve realist) habits that cause us to feel that something must be tangible in order to be real.

If there is no VR, then there is no experience, because there is no data-stream (information) to define an apparent reality. Exactly! That is also why there is no perspective from which the implementation aspect (if it exists) of reality can be apprehended, because at that level there is no VR; no experiential processes, so no phenomenal contents of awareness, so no objects of experience and no 'world' within which these objects appear. This is why there is no manifest context at the root level (in either manifest or processual paradigms) because either there is no implementation (processual paradigm) or there is some implementation (manifest paradigm) however it is forever and utterly concealed from apprehension because there are no perspectives from which it can be apprehended, hence it is not 'manifest' even though it does exist in an 'unmanifest' manner.

BTW here's a relevant quote re these issues (from the Kabbalah, the mystic roots of Judaism):

"God, the most Holy One ... is called the Living One.
He hath been formed, and yet as it were He hath not been formed. He hath been conformed, so that He may sustain all things; yet is He not formed, seeing that He is not discovered.
He is that highest Light concealed with all concealments and He is not found.
... He is only symbolised as a head alone [consciousness] without body [not situated in a world], for the purpose of establishing all things [is the foundation of all manifest contexts].
(Kabbalah Denudata, Lesser Holy Assembly)

All experiential realities are virtual realities.This is the strong form of point one that I mentioned earlier, glad you agree. Or, since the physicalness of a perceived "Physical reality" is only in the mind (data processor) of the observer, one could just as easily say that all experiential realities are **apparently** physical realities (to the observers within the VR who are experiencing the information flow which defines that local VR). This also has implications regarding the many-worlds interpretation of QM, where there are many data streams within the multiverse that represent transitions within the space of all possible states of being. Each of these data streams can be experienced as a virtual seemingly physical universe but it is not the case that there are many "actual worlds", it's just that there are many data streams which can be experienced as worlds.

> a. *Performance problems*. It would take a supercomputer the size of a universe to handle the quantum processing of even a few molecules, so there *could* be an unbelievably large super-universe generating ours, but it isn't likely. Equally it *could* take bit-based process a million

years to process a second of our time, but again it is not likely. Given that we are talking about a computational process and not about a physical computer there is no physical size to consider, there is only computational capacity. Regarding this capacity, observations about a virtual universe only provide a lower bound on the computational requirements of the animating process and say nothing about an upper bound or about likely or unlikely capacities.

This is just not true. A probabilistic VR can accomplish this VR and much more without breaking a sweat. Probabilistic processing will have a much, much smaller processing load than the quantum processing you are imagining A probabilistic simulation does not model causality it simply models the results of causality based on what is likely and not likely. It randomly draws results from statistical distributions that represent the probability of what an underlying causality might produce. The results do not have to be exact, only representative of what is both possible and likely according to the rule-set driving the VR. After a result is delivered to the VR (becomes a historical fact in that VR), historical consistency (rule-set consistency) is required – thus any result imposes constraints on any following results by modifying the working statistical distributions. Such distributions may be very high fidelity or very low fidelity depending on how much uncertainty is natural to the result. Most distributions need only be created from a knowledge of detailed causality (the VRs rule-set) once or updated occasionally. After that they are modified, as necessary, on the fly. I have worked for 40 years making very complex models of dynamic systems. A high fidelity "physics model" may take a hundred thousand lines of code and take a month of continuous number crunching to produce an answer while an equivalent statistical model takes only a hundred lines of code and can produce an equally **acceptable** answer in a millisecond. Of course, creating the statistical distributions to support that statistical model requires a lot of up front work – but it only has to be done once. Having said that, some problems are best modelled statistically while others are best modelled with detailed physics. Our VR (probably any VR) is one of the former. This sounds intriguing, I'd like to see more details about this idea! That only some results must be *rendered* doesn't alter the *processing* needed to do what quantum theory describes. That only some results must be rendered, and to only the fidelity needed, hugely affects the required processing.

b. What quantum theory describes, like collapse, entanglement etc, isn't physically possible, i.e. quantum reality does not have the properties of physical reality. I agree, a reality based on probability does not have the properties of physical reality. What quantum theory describes is a quantum information process generating a classical virtual reality. These things are not physically possible, they are either computational or virtual. I.e. wavefunctions are not physical waves, they are datasets that cycle in the manner of waves. Also, particles are not physical objects, they are virtual appearances in consciousness and hence exhibit non-locality, entanglement, etc.

c. Every simulation has a myriad of options, e.g. the game worlds we create are very different, so it is unlikely by chance to match its creator world, and it is not clear why beings in a physical-based quantum world would create a virtual world that was just like their own. After all, our game worlds are not replicas of our world but variants of it. Various reality frames (VRs) are not programmed or **created** as you use the word, instead they are evolved from initial conditions and a rule-set. Only certain conditions and rule-sets produce (evolve) results that are long term stable enough to allow the slow process of evolution to develop an interesting VR system. The process of evolution produces a "process fractal" The output of the last evolutionary process becomes the input of next evolutionary process. The generic or fundamental process of evolution is a simple process that gets reapplied to succeeding levels and scales (as demonstrated by cellular automata). One should expect repetition within fundamental VR processes.

6. The option you espouse is that quantum processing is classical bit-based processing Not quite, I first point out the known fact that quantum processes supervene upon classical processes. Along with this fact I note that classical processes are much simpler hence it is plausible that classical processes are primary and that quantum processes are an epiphenomenon of the classical processes. BTW by "classical process" I in no way mean to imply anything specifically like an electronic computer with a CPU, instruction set, etc. I simply mean an information process (or in other terms a dynamic self-reflexive field of discernible difference) in which there are definite states rather than distributions over a range of possible states. , but implemented on something unspecified *not* physicality, given a process has: [The probabilistic processing creating our VR universe is a classical bit-based processing, implemented within an evolving much larger information system to serve a specific evolutionary function for that evolving larger information system. No infinite regression of larger systems is logically implied (except in baseless conjecture) because of the limitation of fundamental knowledge that can be shared between systems]

   a. An *implementation* aspect, or reality base, e.g. hardware in our world yes (either it doesn't exist or it is unknowable or it is beyond these concepts, either way it is not a viable topic for enquiry)

   b. A *structural* aspect, or software logic, e.g. a program in our world, and yes yes

   c. A *dynamic* "happening", which gives consciousness of an observed occurrence. yes yes

7. These aspects match the *reality levels* given in Figure 1.5, of:

   a. *Physical* or hardware, yes

   b. *Informational* or software, and yes

   c. *Personal* or observed reality. yes

I have no figure 1.5 so I am lost here. I'm not sure which fig 1.5 either...

However in figure 1.5, personal reality emerges from an information reality that emerges from a physical reality as different *world views* of the same reality, not separate realities. I totally agree. Although we speak about them as separate aspects they have no separate existence, they are just different discernible features of the same thing and/or different ways of interpreting or conceptualising those features. In other words, the ongoing process of the real doesn't have any meriological parts, only discernible features.

Because I am talking about discernible features and not meriological parts, when I say that the ongoing process of the real has no implementation aspect I don't mean that a separately existing component is missing, I mean that there is no perspective from which to discern this feature - not just for us - there is fundamentally no perspective at all - all perspectives arise 'within' the ongoing process of the real so there is no perspective 'on' it. Since there is no perspective it has no manifest form.

So all of these aspects/levels require an observer, which in Figure 1.6 is provided by a quantum reality.

8. You then suggest that quantum processing is classical processing without an implementation aspect, noting that:

   a. *Implementation*. Those within a virtual world can know NOTHING of its implementation, as they cannot see it. Yes yes

   b. *Quantum processing could be classical at its base*. Quantum theory describes the structural aspect of the processing, and as SMN can describe a quantum logic gate in classical terms, quantum processing could be like classical processing in its structure. Yes

yes

c. *Every process has a context.* Classical processing by definition has a context, so if quantum processing as classical processing must also have a context. You suggest that the act of choosing has the context of a chooser, a choice set and a choice method. Yes, although I will clarify that not every process need have a “manifest context”. I guess by the "context of a process" I mean the set of necessary preconditions for it to exist. Perhaps we could call this the “existential context”, to distinguish it from manifest context.

BTW I can now understand our misunderstanding over contexts, I was talking about the existential context of processes and you thought I was talking about the manifest context. I think we both agree that there is no manifest context for the root process, however it does have an existential context.

My initial point regarding the root existential context is that it is most likely very simple (using Occam's razor and avoiding unnecessary complexity) hence the best model would be the simplest one that is sufficient for everything else to supervene upon. When defining the root existential context, if we are going to define things into existence as the axiomatic floor of our theory then it is best to define the minimal number and type of things possible.

For instance, I have recently been examining one model, I am not putting it forward as a candidate however it serves as an example of what I mean by existential contexts / root contexts / sufficiency / simplicity etc. The model consists of just two different states zero and one, as well as a matrix and a vector containing just zeroes and ones, as well as matrix/vector convolution (the basic process of matrix multiplication), as well as binary (modulo 2) addition and multiplication, as well as the tendency for the convolution to be applied repeatedly or iteratively. Note: I am talking about a particular implementation here, but only in order to model the structural aspect - I am not proposing that this is an actual implementation.

These relatively simple phenomena comprise an existential context (set of necessary preconditions) from which we can define an SMN based process that animates virtual networks of arbitrary logical circuits. It doesn't just create the full range of logical operations, it also provides a context in which they can be formed into networks and activated. These virtual logical networks can implement any form of classical or quantum information process.

It has a very simple set of necessary preconditions and yet the whole of known existence could potentially supervene on something as simple as this or even simpler. Another good example is cellular automata and the Game of Life, or fractals such as Mandelbrot sets, these are instances of how vast dynamic complexity can arise from very simple roots. In some sense it is likely that our virtual reality is a dynamic fractal animated much like a cellular automata. That is sort of what SMN describes.

d. *Consciousness*. Consciousness is an aspect of classical processing ***somehow***. Consciousness is an aspect of classical processing because it has evolved its awareness much as frogs, dogs and humans evolved a capacity to support awareness within this evolving VR. Call it emergent complexity if you wish, but it is simply the result of an iterative application of the fundamental process of evolution within an information system that has sufficient potential. Consciousness apprehends classical observables (we don't apprehend wavefunctions), however I would claim that consciousness itself is a quantum process. Consciousness is what it feels like to be a quantum process. When quantum systems apprehend each other they do so via classical observables that manifest within consciousness.

However, since quantum processes supervene on classical processes then ultimately consciousness is also a classical process. BTW what this equivalence between quantum and

classical processes shows is that in the context of the VR paradigm the distinction between quantum and classical is not as critical as it is in the physicalist paradigm. A more important distinction is between computational (either classical or quantum) and virtual. Within a processual paradigm it is not important whether the process is ultimately quantum or classical because they are both equivalent processes. It is only in a manifest paradigm that this distinction matters because their manifest forms are not equivalent.

e. In this approach a universal program somewhere running on a big CPU Those terms are too misleading. It is more accurate to say "information process" or to be more specific one could say, dynamic self-reflexive field of discernible difference. creates the physical universe as a virtual reality. [...allows the "physical universe to evolve as a virtual reality.] I would say; animates a network of virtual systems that have experiences that portray to them the appearance of a physical universe. So if we could in some way alter the program, anything is possible, including the paranormal.It's not so much "alter the program" but more a case of influencing the flow of the information process but not as something 'other' or 'external', rather as one's own inner most being – afterall the animating process is the inner most essence of all manifest forms. [As it turns out, our ability to modify the probability distributions is a feature of the VR (provides feedback to facilitate the purpose of the larger system] It implies a programmer "God", in our terms, who coded the system and started it up at the big bang. [No programmer God (as most people think of it) is implied.Agreed Tom! Reality is what it is and there is no 'other'. All that exists does so virtually within the ongoing process of the real. The virtual forms are ephemeral but the ongoing process of the real has always been what it is, it has no beginning or end. Furthermore, that which mystics refer to as God is the ongoing process of the real itself, not some external programmer. However this has become very misunderstood through popular religion. The larger system is an entirely a natural information system of sufficient potential, trying to evolve (lower its system entropy) in order to avoid extinction, which follows from de-evolution.] He/she then apparently let it run, perhaps occasionally tweaking it to improve the results. When we die, we will presumably wake up to find it was all a game, maybe get a debrief, then go on another virtual "expedition", or maybe "retire" to a rest home, hopefully the "heaven" good one, but maybe the "hell" bad one. [Nobody retires – evolution is an open-ended process] IMO the concepts of life and death are part of the physicalist paradigm and have very different meanings within the VR paradigm. In what sense are we alive now? To what extent can we ever die? What are we? All of these things need to be reevaluated. When speaking of an individual person it is accurate to say that they aren't really alive, they are just a virtual appearance. When speaking of our inner most Self, which is the ongoing process of the real itself, this is timeless and can never die. There is no virtual afterlife for virtual forms; once gone they become entropy (disordered information). That which lives on is the inner most Self (the ongoing process of the real), which then gives rise to other virtual forms. These ideas have been misunderstood by non-mystics and turned into fantasy, religious dogma or otherwise misunderstood, however the core of numerous mystic traditions concur with the VR paradigm regarding these issues.

9. The third option, which I espouse, is that quantum processing is not a variant of classical processing but operates quite differently, giving a different take on various points in #8:

a. *Implementation*. If the physical world is a quantum output, *some* implementation must exist (not according to the processual paradigm) , even if we can't perceive it. So we know *something* about it, not NOTHING. We can know about the other aspects of the process but not its implementation for reasons I have explained before. Lest this seem trivial, note that current physics denies that a quantum reality exists at all. Given something is there yes, something, but is it a manifest something (implementation) or a processual something (known via its structural aspect), this theory calls it *the grid*, but it isn't "hardware" in our sense okay so maybe we're not to talking about the implementation aspect after all, perhaps

we are talking about the structural aspect... in which case we are not talking about anything that is manifest, we are talking about the logical structure of the process, which is itself primary and needs no manifest implementation (according to the processual paradigm). just as quantum processing isn't processing in our sense. A project that aims to *reverse engineer* the physical world doesn't agree that what can't be seen can't be known Yes, that is why empiricism is insuficient and rationalism is needed. , and Chapter 2 concludes that it is a *network* and describes its *architecture* in some detail. [You are deriving what I call "the rule-set" for our "physical" universe VR from basic processing concepts] I use SMN to work with these concepts but on the surface it looks like we are basically talking about the same sort of thing.

b. *Software without hardware*? To suggest there is software without hardware is to think the levels of Figure 1.5 are realities in themselves, but this monism has only one base reality. Yes it has only one base reality but is that base reality a manifest context or a process? If it is a process then the structural aspect of that process effectively gives us the essence of software without any hardware. As discussed in more detail here, *there can be no software without hardware,* and in general, emergent reality levels depend on the previous levels. Processing is *never* independent of what it emerges from. Yes I disagree, a virtual construct animated by an information process is ALWAYS independent of how the information process is implemented. Consider a VR computer game that can run on many different machines (even experimental ones involving DNA in a test-tube or lasers and crystals or qubits or whatever). However once 'inside' that game-world it will appear exactly the same regardless of the implementation. So long as the structural aspect (program logic) is the same it doesn't matter what implementation happens to encode it, the resulting virtual manifest context will end up the same. From a perspective within that game-world it would be impossible to tell what type of implementation was being used – so in this sense the virtual manifest context is entirely independent of the implementation.

c. *Quantum processing* is not like classical processing because.

> i. *Performance problems*. The performance problems of #5a still apply, so that our bit-based "teaspoons" explain the "quantum dump truck" is still unlikely. Quantum processing does what classical processing could *in theory* do, but *in practice* can't do. Bit based probabilistic processing is a huge strip mining mountain mover vs. a dinky little quantum dump truck J vs. a micro teaspoon of physics based modelling trying to model causality from the ground (elementary particles) up.
>
> ii. *Software emerges from hardware,* so the nature of software is affected by the nature of the hardware, I disagree for the reasons I just explained above e.g. physical things that adopt one state in one place at a time allow a classical bit, which is the choice of *one* of two physical states for a physical entity at one time. The *structure* of classical [physics based modelling] processing is defined by the nature of physical reality. That is true as amended. However the structure of probabilistic based modelling allows quantum processing as well as much more efficient processes for the application at hand.
>
> iii. *By quantum theory, quantum processing works differently*. In quantum theory, entities can be in many places and adopt many states at once, [yes, it is a matter of probability] so the quantum processing qubit is the choice of *both* quantum states at once. Classical processing can't do this. ...but classical processing implementing a probability model can. Classical processing can implement quantum processing that can do this, so effectively classical processing can do this.

d. *A simulation is not evidence*. A simulation is not a *theory of reality* unless it exposes itself to the rigor of scientific prediction. Yes! And I submit that my theory does that very well – explains much unexplained research (like PEAR Labs results) and predicts new results that

can be tested. Any "living" theory might be tweaked (expanded) as new information becomes available. A "dead" theory (what naive physicists in Newton's time used to call "laws") that by definition can never change are either a theory of something very simple or are likely to one day be found to be incomplete. That is why scientists use the word "theory" now instead of "laws". A simulation is not empirical evidence however it is rationalist evidence. So long as it recreates conditions that accord with observation, it shows that the structural aspects of the simulation process correspond with the structural aspects of the ongoing process of the real. To say a simulation "could represent" reality if it works, but tweak it when it doesn't, is not testing a theory [that is absolutely correct] True, that is evolving the theory. When it finally manages to recreate observable conditions, then it is considered tested. , which the standard model forgot (see 4.6.4). So that SMN can describe a quantum logic gate in classical terms is useful to know, but until it submits to testing, it is not evidence in support of any theory of reality. Not entirely by itself, I agree. But as the front end to larger model of reality, it is superb. Once we step away from the physicalist paradigm with its foundations in naïve realism and empiricism we find that the nature of evidence changes, hence a rationalist science has a different approach to evidence than an emiricist science. Just because one can use quantum theory to calculate from first principles (ab initio) the properties of particles doesn't prove anything either – directly. However within the context of rationalist science these things do contribute to a growing weight of evidence that suggests that the structural aspects implied by the model do in some way correspond to the structural aspects of that which is being modelled. So if one can construct an information process that animates a virtual manifest context that is similar to our own in important ways then that does add weight to the idea that our context is also a virtual manifest context being animated by a process that is in significant ways similar to the constructed process. The only direct empirical evidence would be to create quantum simulations and use quantum teleportation to transport ourselves in and out, i.e. we move the information that underlies us in this virtual context to a different virtual context, thereby experiencing it as if it was physical.

e. *Quantum processing has no context.* I agree there is no manifest context but it does have an existential context A thing has a context if something outside itself defines it, e.g. a newspaper needs a reader. Static information implies a context because of how a bit is defined. A bit, as the OR choice of two alternate states, exists relative to the state(s) *not chosen*. If the choice was four options, the same physical state would be two bits. So a bit needs an observer who is also contextual, as the section on dynamic information explains. In contrast, a qubit, [because it is probability based], is the AND of the choice options, so has no choice set context. These states, choices, etc are part of the existential context of both classical and quantum processes, in particular they are part of the structural aspect.

f. *The observer context.* All static information has an observer context This is one of those statements about static information that really only applies to the implementation aspect and not the structural aspect. All implementation aspects have an observer by definition because the implementation aspect is a manifest context and wouldn't be manifest if it wasn't apprehended by some observer. However the structural aspect is without an observer because it is unobservable. Also, because at the root level there are no observers hence there is no root manifest context, hence no implementation aspect. The root process is what creates all the virtual perspectives from which virtual manifest contexts can be apprehended. There are no manifest contexts that are not virtual hence the root process that animates the virtual contexts cannot itself exist within a manifest context. , but in this theory the quantum level *is* the observer context, so the dynamic *choice itself* has no context it has no manifest context but it does have an existential context. To say it has the context of a chooser, choice set, choice method, etc. confuses the *aspects* of a thing with its *context*. No it addresses the existential context rather than the manifest context. A context is always *outside* that

described, so a nail can have the context of a carpenter but not of its head, point and stem parts, nor of its hardness, etc. aspects. Before the nail can exist there must already exist a set of necessary preconditions that includes the possibility of things existing that are pointed and hard. For instance, if we are considering a universe in which things can only be globular and soft, then it would be impossible to instantiate a nail. It is not that the particular instantiated point and hardness are part of the existential context, you are right that these are just parts of the instantiation. However the *possibility* for pointiness and hardness are not part of the instantiation, they are necessary preconditions and therefore part of the context of its existence. Likewise, the chooser, the choices and the choice method are *parts* of the act of choosing, not *contexts* They are part of the structural aspect of the existential context of the choice process. Quantum reality *is* the observer level, so has no observer context. Agreed. However that doesn't mean that it has no structural aspect and is purely dynamic (which your comment about static information implied). What it means is that it has no implementation aspect, no manifest context, no observable form, etc. However it does still have structure and it does still have an existential context.

g. *Consciousness*. In this approach, consciousness is inherent to the quantum level. [Consciousness, as an evolved awareness within an information system, represents the fundamental attribute of the larger system, which creates VRs for its own use to facilitate system entropy reduction – evolution vs. de-evolution, i.e., survival] Consciousness, in some form, is inherent to all levels. At the deepest level there is a kind of proto-consciousness – information is discernible difference, which requires discernment. This proto-consciousness is what drives the simulation process. The first level at which embodied or enworlded consciousness arises is when within the virtual context of the simulation process there arises a network of virtual systems, each with an experiential process and observable form. As they interact they experience a manifest (seemingly physical) context. Thus all systems (even ones as simple as particles) have at least a very primitive form of consciousness - otherwise they couldn't interact. As these systems interact they integrate into more complex systems and we end up with virtual systems with complex experiential processes (such as human consciousness) that experience a manifest context containing many complex manifest forms. At all levels that which is appehended is apprehended within consciousness (of some kind) and everything that happens involves apprehension in some way; from the discernible difference at the root, to the primitive system interactions, to complex human-like consciousness and so on.

h. *Storage.* In this theory, the system doesn't store anything at all, in any static program or data. There is only dynamic processing, based on one command, a Planck program that everything from space to light to matter, derives from. [In my system, all processing of VRs also runs without any **requirement** to store data, however, to **optimize** the purpose and function of the system (e.g., employing various VRs, like out universe, to facilitate system survival) requires some modest amount of storage.] In my approach the only 'data' is the information that is flowing as the information process itself – i.e. in order for there to be an information process there must be information. Aside from this there is no other data.

Thinking of it as 'storage' really draws on ideas related to the implementation aspect, which causes conceptual problems when applied to the ongoing process of the real (which has no implementation aspect). I tend to think in terms of state space, which is what it is in terms of the structural aspect of the process. I also think of these state spaces more in terms of advanced algebra and group theory rather than in terms of storage capacity of a machine. The structural aspects are more related to logic, symmetry, etc, whilst the manifest / implementation aspects are more related to ideas such as capacity. If the ongoing process of the real has no manifest context then manifest-based concepts don't really apply to it.

i. *Decentralization.* In this theory, all processing is distributed so there is no CPU and

no time central, as each grid node has its own cycle. The orchestra has no conductor, as each grid node acts autonomously. So there is no programmer, no program and no central control. No doubt decentralization is the most efficient and robust way to define a VRs rule-set
That describes the situation within the virtual context of the SMN simulation process, where there are virtual systems, each with its own independent animating process. Within this virtual context things seem entirely decentralised, however in order for multiple independent processes to exist and interact there needs to be a more basic underlying information process that makes this possible – which is what SMN does. In terms of a simplest possible root process (applying Occam's razor), myriads of independent yet interacting processes is not the simplest root process to "just exist", however a single simple process that naturally generates myriads of independent yet interacting processes is the simpler option.

j. In this approach, what generates reality is embedded in it, not a programmer who wrote some code then walked away, to let it run. Definitely, I don't think any of us are talking about that. The reality that creates our reality is near not far away The animating process is our inner most essence, it is our true Self, it is as near as can be. . It is the observer that enables not only the physical construct but all the levels that emerge from it (Figure 1.5). It is not passively watching a program written long ago from afar, but actively processing all things right now in a program that is being dynamically written from moment to moment. Definitely agree! There is no "other" place where a programmer, program, or storage resides, except the ever-present here and the eternal now , where we may continue to dream until we wake up. Likewise, in my approach, what generates reality is embedded in every VR subset – all is of one source, and there is no programmer...only the general process of evolution acting on a natural information system with sufficient potential to eventually evolve awareness. Likewise.

I am exploring an option less travelled, but don't ask me what it all means, as I don't know I think that goes for all three of us. Religious people who think in physical terms suppose that if they live after death it will be in another place, a heaven apart from this earth, but this *monism* has no reality but the here and now. Scientific people who think in physical terms suppose that the physical world is all there is, so when they die they are no more, but in this *monism* the body that "dies" is virtual and the observer continues. So this approach has no traction, as it appeals to neither the religion nor the science, but what if it is so? It is an option worth considering is my only point.That is the option that I am also exploring because it arises naturally from SMN. QM is also challenging us all to face it and it is espoused at the core of all mystic traditions. However there are factors that keep this paradigm misunderstood and suppressed – i.e. the cognitive habit of naïve realism and its consequences both individual and cultural. Religion and traditional science are both naïve realist whilst mystic wisdom and the new computational paradigms are non-naive realist. There is a slow paradigm shift happening in physics due to QM forcing people to face up to naïve realism – however the denial and avoidance tactics still predominate. It is definitely so, I have been there and watched it work as well as participated in the process. Also it is a logical requirement that leads to my theory's ability to explain research paradoxes in physics, and metaphysics.

Probably we will still have different views (indeed hopefully so!) but perhaps you now better see why I have gone this way yes I do , even if you don't agree. Again, thanks for raising issues that needed to be raised, and don't worry if we come at things from different perspectives, as it is all part of the rich tapestry of life. Here! Here! Well said! I couldn't agree more. Agreed! Great work fellas :)

John

From: Tom Campbell
Date: Wed, Jan 22, 2014 at 5:25 PM

I responded to John in this shade of light blue this go round – not so much to say this time.

Tom

From: John Ringland
Sent: Monday, January 20, 2014 7:54 PM

Wonderful! This is getting very interesting :)

Brian, I think we have a lot in common which enables us to understand each other (with some care) yet we have some significant differences that motivates us to dig deep into some profound issues. I have found this conversation to be very fruitful! My comments are below in magenta.

John

IMHO the term 'world' is a concept that needs to be reinterpreted as the paradigm shift unfolds. Traditionally it means something objective, however from the perspective of the VR paradigm that which we are referring to when we say "the world" is really an imaginative construct derived from our subjective virtual experiences. Each virtual perspective experiences its own world or has its own world-experience, however we imaginatively assume that we are all experiencing the same world (in most circumstances this is an adequate and useful approximation). To be clear when I mention the concept 'world' I sometimes use the term "world-experience" to make it clear that I am not speaking about anything that could be misconstrued as being objective. Yes, exactly so – every individual lives in his/her own personal reality, but because this is a multi-player VR "game" constrained by a rule-set, there appears to be what we call the "world"—a seemingly "physical" place wherein "the players" (conscious entities) evolve by making choices through interacting with each other and with an evolving "physical" set or environment (the universe).

then one can say that the world is a **probability based** VR. "Probability based" is a more general term or concept than "quantum based" and thus allows a more general big picture to emerge. "Quantum based" represents a limited subset of "probability based". I see the sense in this... the space of possible probabilistic processes is much broader than the space of possible quantum processes. However, it seems to me that at the level at which our classical (VR) universe comes into being, i.e. through the apprehension of classical observables, these are only ever generated by quantum processes (at all scales). More on this point shortly...

What the Hubble sees and what you find in the attic of a long abandoned house are determined by the exact same probabilistic process that is used to determine the results of a subatomic collision -- and that process is only **indirectly** connected to atomic scale causality processes in most cases. Physicists would not consider determining what was in the attic a quantum process (they would believe it to be a historical physical process) but the attic's contents follows the same probabilistic process used in QM but applied more generally. Thus I see "quantum process" as a much more narrowly defined term than the more general concept of a probabilistic process.

Traditionally that was the attitude (that QM only applies at small scales) however there is no scientific foundation for this attitude (it is mostly an attempt to avoid having to face the implications of QM on our world-view and to preserve naive realism at larger scales). In all those situations that you mentioned the probabilistic process is a quantum process.

If an image is digital then at small scales it can be seen to be pixelated, however it is also still digital

at large scales even though it doesn't look pixelated. The same applies to QM; at larger scales the "spooky" effects aren't as noticeable but the whole experienced phenomenon (at any scale) **is still a construct of quantum generated classical observables**. Perhaps one could say that theoretically but not actually. This discrepancy between us may be because I use the word "quantum" as most of today's physicists use the word. It is less confusing to use words as they are generally used and understood and "quantum" is a physics word, thus I let traditional physicists define it as they will. If I mean something different than they do, I will use/define a different words or make up a new word. Less confusion that way. Perhaps my lexicon is just old – I have been away from the bustling center of leading edge academic physics for 5 decades. What I get now is from the sidelines and some of the more well known published papers. This concept (that the macro world must be generated by the micro world) is left over from the Newtonian view of the clockwork universe. Macro and micro Things are as they are because of what is probable, not because they are built up in layers like Lincoln Logs (sub atomic àatoms à molecules à macro stuff) at the micro quantum level by either physical or virtual elementary particles or waves. The probability distribution only goes directly back to the quantum level if and when a micro level of fidelity is required – which is not often. The classical observables arise **as if** there were micro (quantum) causes not **because of** micro causes. There is a huge difference, the first (as if a quantum processes existed) is a statistical-probabilistic model of the second (a direct causal result of quantum processes). "What is in the attic" is not the result of a quantum process but rather the result of a quasi-random draw from a probability distribution of possible macro events (classical observables) that are consistent with the rule-set and preserve historical consistency. This is what makes the probability model a super fast and efficient process – it does not have to calculate causality from the micro to the macro except in the the few instances where that level of fidelity is required by a "player". We breathe and go on living because it is probable that sufficient oxygen is in the air, not because the system renders invisible oxygen molecules that attach to invisible hemoglobin in our invisible lungs. The system is **not** required to render virtual oxygen, virtual hemoglobin or virtual lungs – only the probable result of those things….**as if** those things existed – **unless** a virtual body is cut open exposing a virtual lung and a "player" observes an actual oxygen molecule in the process of respiration. Much calculation is avoided that way. All this is explained in detail in the Saturday videos of the Calgary Workshop on YouTube www.youtube.com/twcjr44 . Gradually more physicists are starting to accept this. For instance, nowadays people regularly consider the wavefunction for the whole universe, which is also related to the multiverse or state space of all possible universal configurations or many-worlds.

So it seems to me that so long as we accept that QM applies at all scales (as explained above: only theoretically, not actually, and not as an underlying real time chain of causality except in very rare situations when an individual player requires that level of detail because they are looking through a microscope.) then QM suffices for a slice of the reality-stack, i.e. the whole of the classical universe can [theoretically but not actually] supervene on quantum processes. Hence although QM may be a sub-set of the set of all probabilistic processes, it does seem to be a sufficient sub-set for the generation of the observable universe. [Only as the theoretical substructure of non-realtime calculation of successively higher level probability distributions. Not as the realtime causality chains imagined ever since Newton's time] There may be other processes than can also suffice however they would need to be equivalent to QM.

This is not to say that QM as it is currently understood by academia is the "final answer" or anything. What I mean is that at the core of QM is a sufficient mathematical characterisation of a particular level of reality, with a set of corresponding concepts that make sense (only when reinterpreted within the VR paradigm). Hence it can be a useful component of the theory. I realise that there are connotations attached to the term 'quantum' that could create confusion during the early stages of the paradigm shift, however QM does seem to be a relevant component of the VR paradigm and these connotations will fade as the shift progresses. For instance, once 'computer' referred to a human being employed to perform routine calculations, however the connotations of words change over time as the circumstances change.

4. However the issue is, if the physical world is virtual, what is doing the processing? Indeed! "What" is the proper question, not "who".

This point raises a very complex and subtle issue that impacts on most of the other points as well! I took a few days to contemplate what to write regarding these issues...

Firstly, the only way a manifest context (such as a universe of places, times, objects, events, observers, experiences, etc) can exist is as a virtual construct animated by an underlying information process. (This is a stronger form of point 1 from above. Do you both agree with it? I see from later comments that Tom does.) It is the claim that all manifest contexts supervene on an underlying process. Hold that thought...

The question "what is doing the processing?" presuposes that there must be 'something' that is doing the processing. Or in other words, it assumes that all processes must supervene on an underlying manifest context. But if we were to look into that manifest context (that 'something') we would see that there were changes, entities, behaviours and interactions within that something that could only be explained by suposing that this something was also animated by an underlying process. Which leads to infinite regression. Not necessarily. It may simply regress until that underlying process is the process of evolution acting on a very simple unknown system of sufficient potential. That unknown system may be theoretically beyond our knowing, beyond our limited understanding and beyond our limited sense of causality. Ignorance of that unknown does not necessarily imply infinite regression.

All processes supervene on an underlying manifest context.

+

All manifest contexts supervene on an underlying process.

= Infinite regression.

Either at some point there is a manifest context that is not animated by an underlying process or there is a process that is not implemented by some manifest context. Or these concepts break down into something else more basic. Yes.

> This leads to two possible paradigms, which could be called the manifest and processual paradigms:
>
> 1) The " manifest paradigm" in which processes are understood to be epiphenomena of interactions occuring between manifest forms and the manifest forms are primary or apriori. (All processes supervene on an underlying manifest context.)
>
> 2) The "processual paradigm" (which was most notably espoused by A.N. Whitehead but also developed by many others, and is present at the core of ancient mystic philosophies especially Daoism, Advaita Vedanta and Kabbalah). In the processual paradigm processes are primary or apriori, whilst what we experience as objects are virtual epiphenomena, they are objects of perception, which are resolved from the phenomenal contents of an experiential process when it is apprehending some set of observables. (All manifest contexts supervene on an underlying process.)

A fundamental principle of the VR paradigm is that manifest contexts are virtual epiphenomena of information processes. This concurs with the processual paradigm, which suggests that the processual paradigm is naturally implied by the VR paradigm. Thus from the perspective of the VR paradigm there is no manifest context underlying the root animating process and there is no need for one. So the root process has no manifest context because all manifest contexts exist within the root process. Because all perspectives are virtually emergent 'within' the root process there is no perpsective 'on' the root process hence it has no manifest form or manifest context [from our point of view].

The processual paradigm is looking fairly convincing to me and within this paradigm there is no issue of “what is doing the processing?” because the processing is what is doing everything. The very act of 'doing' is a virtual manifestation of the processing. Without the processing there would be no things and no doing, so there cannot be something that is doing the process.

However I strongly suspect that it is neither one nor the other paradigm, it is more a case that our concepts which have been derived from our worldly experiences break down at this deep level. In a sense there is an implementation aspect but in a very real sense it is enitrely unmanifest, so in a sense there is no implementation aspect. The Kabbalah speaks of the deepest levels of reality as “negatively existent” and the Buddha says that even concepts such as being and non-being break down at the deepest levels however there is a deeper truth that can only be realised intuitively as the essence of one's own inner most nature. Since I mainly talk to non-technical, non-philosopher folks, I put the same thing more concretely. The larger consciousness system LCS may be described as an aware consciousness, and as an information system. It evolved its present potential from a single binary awareness. Because it is real, it is natural and finite. It is the source of our VR and many other VRs – it is an evolving self-sufficient system that has evolved an “operating system”, executive planner, memory, applications (processes), as well as all the content. We, as individuated units (subsets) of consciousness (IUOCs) existing as “cells” of consciousness within the LCS can explore (experience) any of the VRs within the LCS because we are of the LCS. We, as subsets of aware consciousness, may connect to other VR datasteams besides the one describing our VR “world”. Other datastreams define other evolving VR simulations or “reality frames” which have their own local rule-set and time (refresh rate). If an IUOC is experiencing, interacting, and making free will choices, it is a player in a VR. Without connection to a VR, there is no awareness, experience, choice, or free will and an IUOC is only a data file with certain potential. The LCS, as an information system of sufficient potential, has **evolved** its own VR (context and processes) which forms the structure and infrastructure within which all other VRs are created. The purpose of the LCS and thus all IUOCs and VRs is to facilitate the continued evolution (entropy reduction) of the LCS – to avoid the other possibility which is de-evolving back to high entropy randomness without structure or content (death of the LCS). Because we are consciousness (defined by information within the LCS) we cannot perceive or exist outside the LCS. Thus, the LCS contains all that we may theoretically know. Our logic and sense of causality holds only within the LCS. We can only conjecture what may be beyond the LCS’s boundary, if anything.

5. One option we explored is that another physical world creates this physical world, a la The Matrix. I gather we have now dismissed this option, because: This whole semantic issue between “physical” and “nonphysical” and “informational” realities is nonsense in a VR context. There is no such thing as fundamentally physical or nonphysical worlds.Agreed Tom!! We didn't really 'explore' this option; it was briefly raised due to a misunderstanding. Although I'm sure we have each explored it before and found it inadequate. However I am glad that we can now all agree that there is no actual physicality, there is just virtuality that has been misunderstood because the virtual perspective has been assumed to be an objective perspective. This means that a lot of terms need to be reevaluated and habitual ways of thinking reassessed. Including the criteria by which we assess viable theories.

BTW re “Matrix type theories”, it is true that the first two Matrix movies implied that the virtual manifest context had an underlying physical manifest context. However in the third movie, when Neo visits the Architect, he is informed that the whole physical manifest context, with the Machine City and Zion etc is itself a simulation. Exactly what that simulation supervenes upon is not specified.

An experiential VR **appears** physical to an observer within it (an observer defining a local VR reality from the VRs data-stream) and **appears** nonphysical to an observer outside of it (an observer defining a local reality **from some other** VRs data-stream). This is an important point! It is central to understanding how processes can seem very abstract (and therefore intuitively 'unreal') when they

are considered from the outside, however they can seem very 'tangible' (and therefore intuitively 'real') when one's perspective is an epiphenomenon that is emergent within that process. It is our physicalist (naïve realist) habits that cause us to feel that something must be tangible in order to be real.

If there is no VR, then there is no experience, because there is no data-stream (information) to define an apparent reality. Exactly! That is also why there is no perspective from which the implementation aspect (if it exists) of reality can be apprehended, because at that level there is no VR; no experiential processes, so no phenomenal contents of awareness, so no objects of experience and no 'world' within which these objects appear. This is why there is no manifest context at the root level (in either manifest or processual paradigms) because either there is no implementation (processual paradigm) or there is some implementation (manifest paradigm) however it is forever and utterly concealed from apprehension because there are no perspectives from which it can be apprehended, hence it is not 'manifest' even though it does exist in an 'unmanifest' manner.

BTW here's a relevant quote re these issues (from the Kabbalah, the mystic roots of Judaism):

> "God, the most Holy One ... is called the Living One.
> He hath been formed, and yet as it were He hath not been formed. He hath been conformed, so that He may sustain all things; yet is He not formed, seeing that He is not discovered.
> He is that highest Light concealed with all concealments and He is not found.
> ... He is only symbolised as a head alone [consciousness] without body [not situated in a world], for the purpose of establishing all things [is the foundation of all manifest contexts].
> (Kabbalah Denudata, Lesser Holy Assembly)

All experiential realities are virtual realities.This is the strong form of point one that I mentioned earlier, glad you agree. Or, since the physicalness of a perceived "Physical reality" is only in the mind (data processor) of the observer, one could just as easily say that all experiential realities are **apparently** physical realities (to the observers within the VR who are experiencing the information flow which defines that local VR). This also has implications regarding the many-worlds interpretation of QM, where there are many data streams within the multiverse that represent transitions within the space of all possible states of being. Each of these data streams can be experienced as a virtual seemingly physical universe but it is not the case that there are many "actual worlds", it's just that there are many data streams which can be experienced as worlds. There is no "actual world" or "main world that spins off other datastreams that explore the "choices" of the main world. There is our VR and constantly modified possible future probability distributions that represent **most** everything significant that might happen in our VR and the probability that it will happen (out to some arbitrary number of time cycles). As time goes on and freewill choices are made in the present, these distributions eventually represent everything that did happen and everything that might have happened but didn't along with their relative likelihood of having happened. The distributions represent the possibilities and probabilities (to some level of credible guess) and these databases can be queried, but they do not represent datastreams, contain no "players" with freewill, nor any alternate worlds. They simply represent a large relational database that can be queried. The "many worlds" interpretation is so incredibly wasteful of informational resources, self focused (We, of course define the main reality – just like we once were at the center of the universe), and offers no advantages (but so many disadvantages) over other models as to approach being silly. It is, perhaps, not theoretically impossible, but supremely unlikely. I think "many worlds" is much less likely than a random meteor depositing a 1000 pound perfect cube of pure gold in your back yard tonight.

> a. *Performance problems*. It would take a supercomputer the size of a universe to handle the quantum processing of even a few molecules, so there *could* be an unbelievably large super-universe generating ours, but it isn't likely. Equally it *could* take bit-based process a million years to process a second of our time, but again it is not likely. Given that we are talking

about a computational process and not about a physical computer there is no physical size to consider, there is only computational capacity. Regarding this capacity, observations about a virtual universe only provide a lower bound on the computational requirements of the animating process and say nothing about an upper bound or about likely or unlikely capacities.

This is just not true. A probabilistic VR can accomplish this VR and much more without breaking a sweat. Probabilistic processing will have a much, much smaller processing load than the quantum processing you are imagining A probabilistic simulation does not model causality it simply models the results of causality based on what is likely and not likely. It randomly draws results from statistical distributions that represent the probability of what an underlying causality might produce. The results do not have to be exact, only representative of what is both possible and likely according to the rule-set driving the VR. After a result is delivered to the VR (becomes a historical fact in that VR), historical consistency (rule-set consistency) is required – thus any result imposes constraints on any following results by modifying the working statistical distributions. Such distributions may be very high fidelity or very low fidelity depending on how much uncertainty is natural to the result. Most distributions need only be created from a knowledge of detailed causality (the VRs rule-set) once or updated occasionally. After that they are modified, as necessary, on the fly. I have worked for 40 years making very complex models of dynamic systems. A high fidelity "physics model" may take a hundred thousand lines of code and take a month of continuous number crunching to produce an answer while an equivalent statistical model takes only a hundred lines of code and can produce an equally **acceptable** answer in a millisecond. Of course, creating the statistical distributions to support that statistical model requires a lot of up front work – but it only has to be done once. Having said that, some problems are best modelled statistically while others are best modelled with detailed physics. Our VR (probably any VR) is one of the former. This sounds intriguing, I'd like to see more details about this idea! A very short blurb that barely introduces the idea follows: The key concept is uncertainty. Where there is much uncertainty, probability models are very efficient. Quantum effects are most easy to notice at small scale because the uncertainty is relatively large and very obvious (such as the uncertainty in position of an electron headed toward double slits). In the macro world **everything** has some uncertainty. Almost everything thing important to our purpose is shrouded is lots of uncertainty. The only things (measurements) in the macro world that have relatively little uncertainty are simply and easily described by Newton's laws, inverse square law of gravitation, and Maxwell's equations. The computational load is defined by the 7 billion humans who each get a datastream. For most of them a low fidelity model of classical physics is adequate for the background environment. That is sort of what you get in World of Warcraft and The Sims, and multiplayer shoot em' ups. For example: Stars for 99.9999999% of us can be adequately modelled as points of light in the night sky at an average of 5 minutes per day – maybe, at any given time, only several dozen people on the planet need stars to be rendered at any higher level of fidelity. It is easy to emulate a computer with a computer. Satellite networks only have to be rendered as appropriate data flow on a screen What is inside the computer box on your desk never needs to be rendered again once the case is put on. What is under the hood of your car only needs to be rendered (to a small fraction of humans at any one time) as some nonspecific noise, heat, and vibration. Only what each individual is aware of must be rendered to that individual and much of that occurs at a very low level of fidelity and precision and with much uncertainty. What you find in that attic, if no specific historical data creates a constraint, is randomly pulled from a probability distribution of possibilities. In other words, rules for rendering work roughly like any multi-player VR computer game. Classical ruleset and lots of interaction and uncertainty to facilitate the creation of many interesting choices. When you get up in the morning almost everything that you will experience (at the minute detail of rendering requirements) is uncertain. A physics model

would be terribly inefficient at modelling your day. A complex probability and statistics model to generate your interactive day with others riding on top of a low resolution classical physics model to rough in the kinematics is perfect for the job. Computer games are made the same way – they never start with QM and calculate everything else – most of the time for most of the people that is totally unnecessary. That only some results must be *rendered* doesn't alter the *processing* needed to do what quantum theory describes. That only some results must be rendered, and to only the fidelity needed, hugely affects the required processing.

b. What quantum theory describes, like collapse, entanglement etc, isn't physically possible, i.e. quantum reality does not have the properties of physical reality. I agree, a reality based on probability does not have the properties of physical reality. What quantum theory describes is a quantum information process generating a classical virtual reality. These things are not physically possible, they are either computational or virtual. I.e. wavefunctions are not physical waves, they are datasets that cycle in the manner of waves. Also, particles are not physical objects, they are virtual appearances in consciousness and hence exhibit non-locality, entanglement, etc.

c. Every simulation has a myriad of options, e.g. the game worlds we create are very different, so it is unlikely by chance to match its creator world, and it is not clear why beings in a physical-based quantum world would create a virtual world that was just like their own. After all, our game worlds are not replicas of our world but variants of it. Various reality frames (VRs) are not programmed or **created** as you use the word, instead they are evolved from initial conditions and a rule-set. Only certain conditions and rule-sets produce (evolve) results that are long term stable enough to allow the slow process of evolution to develop an interesting VR system. The process of evolution produces a "process fractal" The output of the last evolutionary process becomes the input of next evolutionary process. The generic or fundamental process of evolution is a simple process that gets reapplied to succeeding levels and scales (as demonstrated by cellular automata). One should expect repetition within fundamental VR processes.

6. The option you espouse is that quantum processing is classical bit-based processing Not quite, I first point out the known fact that quantum processes supervene upon classical processes. Along with this fact I note that classical processes are much simpler hence it is plausible that classical processes are primary and that quantum processes are an epiphenomenon of the classical processes. BTW by "classical process" I in no way mean to imply anything specifically like an electronic computer with a CPU, instruction set, etc. I simply mean an information process (or in other terms a dynamic self-reflexive field of discernible difference) in which there are definite states rather than distributions over a range of possible states. , but implemented on something unspecified *not* physicality, given a process has: [The probabilistic processing creating our VR universe is a classical bit-based processing, implemented within an evolving much larger information system to serve a specific evolutionary function for that evolving larger information system. No infinite regression of larger systems is logically implied (except in baseless conjecture) because of the limitation of fundamental knowledge that can be shared between systems]

a. An *implementation* aspect, or reality base, e.g. hardware in our world yes (either it doesn't exist or it is unknowable or it is beyond these concepts, either way it is not a viable topic for enquiry)

b. A *structural* aspect, or software logic, e.g. a program in our world, and yes yes

c. A *dynamic* "happening", which gives consciousness of an observed occurrence. yes yes

7. These aspects match the *reality levels* given in Figure 1.5, of:

a. *Physical* or hardware, yes

b. *Informational* or software, and yes

c. *Personal* or observed reality. yes

I have no figure 1.5 so I am lost here. I'm not sure which fig 1.5 either...

However in figure 1.5, personal reality emerges from an information reality that emerges from a physical reality as different *world views* of the same reality, not separate realities. I totally agree. Although we speak about them as separate aspects they have no separate existence, they are just different discernible features of the same thing and/or different ways of interpreting or conceptualising those features. In other words, the ongoing process of the real doesn't have any meriological parts, only discernible features.

Because I am talking about discernible features and not meriological parts, when I say that the ongoing process of the real has no implementation aspect I don't mean that a separately existing component is missing, I mean that there is no perspective from which to discern this feature - not just for us - there is fundamentally no perspective at all - all perspectives arise 'within' the ongoing process of the real so there is no perspective 'on' it. Since there is no perspective it has no manifest form.

So all of these aspects/levels require an observer, which in Figure 1.6 is provided by a quantum reality.

8. You then suggest that quantum processing is classical processing without an implementation aspect, noting that:

a. *Implementation*. Those within a virtual world can know NOTHING of its implementation, as they cannot see it. Yes yes

b. *Quantum processing could be classical at its base*. Quantum theory describes the structural aspect of the processing, and as SMN can describe a quantum logic gate in classical terms, quantum processing could be like classical processing in its structure. Yes yes

c. *Every process has a context.*

Classical processing by definition has a context, so if quantum processing as classical processing must also have a context. You suggest that the act of choosing has the context of a chooser, a choice set and a choice method. Yes, although I will clarify that not every process need have a “manifest context”. I guess by the "context of a process" I mean the set of necessary preconditions for it to exist. Perhaps we could call this the “existential context”, to distinguish it from manifest context.

BTW I can now understand our misunderstanding over contexts, I was talking about the existential context of processes and you thought I was talking about the manifest context. I think we both agree that there is no manifest context for the root process, however it does have an existential context.

My initial point regarding the root existential context is that it is most likely very simple (using Occam's razor and avoiding unnecessary complexity) hence the best model would be the simplest one that is sufficient for everything else to supervene upon. When defining the root existential context, if we are going to define things into existence as the axiomatic floor of our theory then it is best to define the minimal number and type of things possible.

For instance, I have recently been examining one model, I am not putting it forward as a

candidate however it serves as an example of what I mean by existential contexts / root contexts / sufficiency / simplicity etc. The model consists of just two different states zero and one, as well as a matrix and a vector containing just zeroes and ones, as well as matrix/vector convolution (the basic process of matrix multiplication), as well as binary (modulo 2) addition and multiplication, as well as the tendency for the convolution to be applied repeatedly or iteratively. Note: I am talking about a particular implementation here, but only in order to model the structural aspect - I am not proposing that this is an actual implementation.

These relatively simple phenomena comprise an existential context (set of necessary preconditions) from which we can define an SMN based process that animates virtual networks of arbitrary logical circuits. It doesn't just create the full range of logical operations, it also provides a context in which they can be formed into networks and activated. These virtual logical networks can implement any form of classical or quantum information process.

It has a very simple set of necessary preconditions and yet the whole of known existence could potentially supervene on something as simple as this or even simpler. Another good example is cellular automata and the Game of Life, or fractals such as Mandelbrot sets, these are instances of how vast dynamic complexity can arise from very simple roots. **In some sense it is likely that our virtual reality is a dynamic fractal animated much like a cellular automata. That is sort of what SMN describes.** Yes. I agree.

d. *Consciousness*. Consciousness is an aspect of classical processing ***somehow***. Consciousness is an aspect of classical processing because it has evolved its awareness much as frogs, dogs and humans evolved a capacity to support awareness within this evolving VR. Call it emergent complexity if you wish, but it is simply the result of an iterative application of the fundamental process of evolution within an information system that has sufficient potential. Consciousness apprehends classical observables (we don't apprehend wavefunctions), however I would claim that consciousness itself is a quantum process. Consciousness is what it feels like to be a quantum process. When quantum systems apprehend each other they do so via classical observables that manifest within consciousness. How do you define "quantum process"? I would think consciousness is more than a quantum process, that quantum processes are a part but not all. I would say that awareness-consciousness is a rational, process that is the result of the evolution of an information system with much potential and few constraints. That consciousness employs quantum process – particularly when initiating the evolution of the more constrained type of VR like our universe.

However, since quantum processes supervene on classical processes then ultimately consciousness is also a classical process. BTW what this equivalence between quantum and classical processes shows is that in the context of the VR paradigm the distinction between quantum and classical is not as critical as it is in the physicalist paradigm. A more important distinction is between computational (either classical or quantum) and virtual. Within a processual paradigm it is not important whether the process is ultimately quantum or classical because they are both equivalent processes. It is only in a manifest paradigm that this distinction matters because their manifest forms are not equivalent.

e. In this approach a universal program somewhere running on a big CPU Those terms are too misleading. It is more accurate to say "information process" or to be more specific one could say, dynamic self-reflexive field of discernible difference. creates the physical universe as a virtual reality. [...allows the "physical universe to evolve as a virtual reality.] I would say; animates a network of virtual systems that have experiences that portray to them the appearance of a physical universe. So if we could in some way alter the program, anything is possible, including the paranormal.It's not

so much “alter the program” but more a case of influencing the flow of the information process but not as something 'other' or 'external', rather as one's own inner most being – afterall the animating process is the inner most essence of all manifest forms. [As it turns out, our ability to modify the probability distributions is a feature of the VR (provides feedback to facilitate the purpose of the larger system] It implies a programmer “God”, in our terms, who coded the system and started it up at the big bang. [No programmer God (as most people think of it) is implied.Agreed Tom! Reality is what it is and there is no 'other'. All that exists does so virtually within the ongoing process of the real. The virtual forms are ephemeral but the ongoing process of the real has always been what it is, it has no beginning or end. I think the LCS could and probably did have a beginning and is pursuing continuing evolution to avoid having and end. I see the LCS as an evolving, real (from our perspective the LCS is the only thing that is real since all else is virtual), finite, natural system and “no beginning and no end” seems illogical and unnecessary to a model of consciousness. Furthermore, that which mystics refer to as God is the ongoing process of the real itself, not some external programmer. However this has become very misunderstood through popular religion. The larger system is an entirely a natural information system of sufficient potential, trying to evolve (lower its system entropy) in order to avoid extinction, which follows from de-evolution.] He/she then apparently let it run, perhaps occasionally tweaking it to improve the results. When we die, we will presumably wake up to find it was all a game, maybe get a debrief, then go on another virtual “expedition”, or maybe “retire” to a rest home, hopefully the “heaven” good one, but maybe the “hell” bad one. [Nobody retires – evolution is an open-ended process] IMO the concepts of life and death are part of the physicalist paradigm and have very different meanings within the VR paradigm. Yes. There is no death, except virtual death within a VR – like when your elf dies in World of Warcraft.. In what sense are we alive now? To what extent can we ever die? What are we? All of these things need to be reevaluated. When speaking of an individual person it is accurate to say that they aren't really alive, they are just a virtual appearance. When speaking of our inner most Self, which is the ongoing process of the real itself, this is timeless and can never die. There is no virtual afterlife for virtual forms -- yes; once gone they become entropy (disordered information) (They become a part of the historical database in both the VR and in the LCS because the LCS database is useful to the evolutionary purpose of the LCS). That which lives on is the inner most Self (the ongoing process of the real), which then gives rise to other virtual forms. These ideas have been misunderstood by non-mystics and turned into fantasy, religious dogma or otherwise misunderstood, however the core of numerous mystic traditions concur with the VR paradigm regarding these issues.

9. The third option, which I espouse, is that quantum processing is not a variant of classical processing but operates quite differently, giving a different take on various points in #8:

a. *Implementation*. If the physical world is a quantum output, *some* implementation must exist (not according to the processual paradigm) , even if we can’t perceive it. So we know *something* about it, not NOTHING. We can know about the other aspects of the process but not its implementation for reasons I have explained before. Lest this seem trivial, note that current physics denies that a quantum reality exists at all. Given something is there yes, something, but is it a manifest something (implementation) or a processual something (known via its structural aspect), this theory calls it *the grid*, but it isn’t “hardware” in our sense okay so maybe we're not to talking about the implementation aspect after all, perhaps we are talking about the structural aspect... in which case we are not talking about anything that is manifest, we are talking about the logical structure of the process, which is itself primary and needs no manifest

implementation (according to the processual paradigm). just as quantum processing isn't processing in our sense. A project that aims to *reverse engineer* the physical world doesn't agree that what can't be seen can't be known Yes, that is why empiricism is insuficient and rationalism is needed. , and Chapter 2 concludes that it is a *network* and describes its *architecture* in some detail. [You are deriving what I call "the rule-set" for our "physical" universe VR from basic processing concepts] I use SMN to work with these concepts but on the surface it looks like we are basically talking about the same sort of thing.

b. *Software without hardware*? To suggest there is software without hardware is to think the levels of Figure 1.5 are realities in themselves, but this monism has only one base reality. Yes it has only one base reality but is that base reality a manifest context or a process? If it is a process then the structural aspect of that process effectively gives us the essence of software without any hardware. As discussed in more detail here, *there can be no software without hardware,* and in general, emergent reality levels depend on the previous levels. Processing is *never* independent of what it emerges from. Yes. I disagree, a virtual construct animated by an information process is ALWAYS independent of how the information process is implemented. Yes, I agree with this too but I think that you and Brian are talking about different things. Brian is referring to a causal chain and you are referring to the experiential nature of a VR. Consider a VR computer game that can run on many different machines (even experimental ones involving DNA in a test-tube or lasers and crystals or qubits or whatever). However once 'inside' that game-world it will appear exactly the same regardless of the implementation. So long as the structural aspect (program logic) is the same it doesn't matter what implementation happens to encode it, the resulting virtual manifest context will end up the same. From a perspective within that game-world it would be impossible to tell what type of implementation was being used – so in this sense the virtual manifest context is entirely independent of the implementation.

c. *Quantum processing* is not like classical processing because.

> i. *Performance problems*. The performance problems of #5a still apply, so that our bit-based "teaspoons" explain the "quantum dump truck" is still unlikely. Quantum processing does what classical processing could *in theory* do, but *in practice* can't do. Bit based probabilistic processing is a huge strip mining mountain mover vs. a dinky little quantum dump truck J vs. a micro teaspoon of physics based modelling trying to model causality from the ground (elementary particles) up.
>
> ii. *Software emerges from hardware,* so the nature of software is affected by the nature of the hardware, I disagree for the reasons I just explained above e.g. physical things that adopt one state in one place at a time allow a classical bit, which is the choice of *one* of two physical states for a physical entity at one time. The *structure* of classical [physics based modelling] processing is defined by the nature of physical reality. That is true as amended. However the structure of probabilistic based modelling allows quantum processing as well as much more efficient processes for the application at hand.
>
> iii. *By quantum theory, quantum processing works differently.* In quantum theory, entities can be in many places and adopt many states at once, [yes, it is a matter of probability] so the quantum processing qubit is the choice of *both* quantum states at once. Classical processing can't do this. ...but classical processing implementing a probability model can. Classical processing can implement quantum processing that can do this, so effectively classical processing can do this.

d. *A simulation is not evidence*. A simulation is not a *theory of reality* unless it exposes itself to the rigor of scientific prediction. Yes! And I submit that my theory does that very well – explains much unexplained research (like PEAR Labs results) and predicts new results that can be tested. Any "living" theory might be tweaked (expanded) as new information becomes available. A "dead" theory (what naive physicists in Newton's time used to call "laws") that by definition can never change are either a theory of something very simple or are likely to one day be found to be incomplete. That is why scientists use the word "theory" now instead of "laws". A simulation is not empirical evidence however it is rationalist evidence. So long as it recreates conditions that accord with observation, it shows that the structural aspects of the simulation process correspond with the structural aspects of the ongoing process of the real. To say a simulation "could represent" reality if it works, but tweak it when it doesn't, is not testing a theory [that is absolutely correct] True, that is evolving the theory. When it finally manages to recreate observable conditions, then it is considered tested. , which the standard model forgot (see 4.6.4). So that SMN can describe a quantum logic gate in classical terms is useful to know, but until it submits to testing, it is not evidence in support of any theory of reality. Not entirely by itself, I agree. But as the front end to larger model of reality, it is superb. Once we step away from the physicalist paradigm with its foundations in naïve realism and empiricism we find that the nature of evidence changes, hence a rationalist science has a different approach to evidence than an emiricist science. Just because one can use quantum theory to calculate from first principles (ab initio) the properties of particles doesn't prove anything either – directly. However within the context of rationalist science these things do contribute to a growing weight of evidence that suggests that the structural aspects implied by the model do in some way correspond to the structural aspects of that which is being modelled. So if one can construct an information process that animates a virtual manifest context that is similar to our own in important ways then that does add weight to the idea that our context is also a virtual manifest context being animated by a process that is in significant ways similar to the constructed process. The only direct empirical evidence would be to create quantum simulations and use quantum teleportation to transport ourselves in and out, i.e. we move the information that underlies us in this virtual context to a different virtual context, thereby experiencing it as if it was physical.

e. *Quantum processing has no context.* I agree there is no manifest context but it does have an existential context A thing has a context if something outside itself defines it, e.g. a newspaper needs a reader. Static information implies a context because of how a bit is defined. A bit, as the OR choice of two alternate states, exists relative to the state(s) *not chosen*. If the choice was four options, the same physical state would be two bits. So a bit needs an observer who is also contextual, as the section on dynamic information explains. In contrast, a qubit, [because it is probability based], is the AND of the choice options, so has no choice set context. These states, choices, etc are part of the existential context of both classical and quantum processes, in particular they are part of the structural aspect.

f. *The observer context.* All static information has an observer context This is one of those statements about static information that really only applies to the implementation aspect and not the structural aspect. All implementation aspects have an observer by definition because the implementation aspect is a manifest context and wouldn't be manifest if it wasn't apprehended by some observer. However the structural aspect is without an observer because it is unobservable. Also, because at the root level there are no observers hence there is no root manifest context, hence no implementation aspect. The root process is what creates all the virtual perspectives from which virtual

manifest contexts can be apprehended. There are no manifest contexts that are not virtual hence the root process that animates the virtual contexts cannot itself exist within a manifest context. , but in this theory the quantum level *is* the observer context, so the dynamic *choice itself* has no context it has no manifest context but it does have an existential context. To say it has the context of a chooser, choice set, choice method, etc. confuses the *aspects* of a thing with its *context*. No it addresses the existential context rather than the manifest context. A context is always *outside* that described, so a nail can have the context of a carpenter but not of its head, point and stem parts, nor of its hardness, etc. aspects. Before the nail can exist there must already exist a set of necessary preconditions that includes the possibility of things existing that are pointed and hard. For instance, if we are considering a universe in which things can only be globular and soft, then it would be impossible to instantiate a nail. It is not that the particular instantiated point and hardness are part of the existential context, you are right that these are just parts of the instantiation. However the *possibility* for pointiness and hardness are not part of the instantiation, they are necessary preconditions and therefore part of the context of its existence. Likewise, the chooser, the choices and the choice method are *parts* of the act of choosing, not *contexts* They are part of the structural aspect of the existential context of the choice process. Quantum reality *is* the observer level, so has no observer context. Agreed. However that doesn't mean that it has no structural aspect and is purely dynamic (which your comment about static information implied). What it means is that it has no implementation aspect, no manifest context, no observable form, etc. However it does still have structure and it does still have an existential context.

g. *Consciousness*. In this approach, consciousness is inherent to the quantum level. [Consciousness, as an evolved awareness within an information system, represents the fundamental attribute of the larger system, which creates VRs for its own use to facilitate system entropy reduction – evolution vs. de-evolution, i.e., survival] Consciousness, in some form, is inherent to all levels. At the deepest level there is a kind of proto-consciousness – information is discernible difference, which requires discernment. This proto-consciousness is what drives the simulation process. The first level at which embodied or enworlded consciousness arises is when within the virtual context of the simulation process there arises a network of virtual systems, each with an experiential process and observable form. As they interact they experience a manifest (seemingly physical) context. Thus all systems (even ones as simple as particles) have at least a very primitive form of consciousness - otherwise they couldn't interact. I do not define “consciousness” as you do or agree with you about how consciousness arises. However, these differences may be in large part our different use of words and metaphors (semantic issues). As these systems interact they integrate into more complex systems and we end up with virtual systems with complex experiential processes (such as human consciousness) that experience a manifest context containing many complex manifest forms. At all levels that which is appehended is apprehended within consciousness (of some kind) and everything that happens involves apprehension in some way; from the discernible difference at the root, to the primitive system interactions, to complex human-like consciousness and so on.

h. *Storage.* In this theory, the system doesn’t store anything at all, in any static program or data. There is only dynamic processing, based on one command, a Planck program that everything from space to light to matter, derives from. [In my system, all processing of VRs also runs without any **requirement** to store data, however, to **optimize** the purpose and function of the system (e.g., employing various VRs, like out universe, to facilitate system survival) requires some modest amount of storage.]

In my approach the only 'data' is the information that is flowing as the information process itself – i.e. in order for there to be an information process there must be information. Aside from this there is no other data. Thinking of it as 'storage' really draws on ideas related to the implementation aspect, which causes conceptual problems when applied to the ongoing process of the real (which has no implementation aspect). I tend to think in terms of state space, which is what it is in terms of the structural aspect of the process. I also think of these state spaces more in terms of advanced algebra and group theory rather than in terms of storage capacity of a machine. The structural aspects are more related to logic, symmetry, etc, whilst the manifest / implementation aspects are more related to ideas such as capacity. If the ongoing process of the real has no manifest context then manifest-based concepts don't really apply to it.

i. *Decentralization.* In this theory, all processing is distributed so there is no CPU and no time central, as each grid node has its own cycle. The orchestra has no conductor, as each grid node acts autonomously. So there is no programmer, no program and no central control. No doubt decentralization is the most efficient and robust way to define a VRs rule-set
That describes the situation within the virtual context of the SMN simulation process, where there are virtual systems, each with its own independent animating process. Within this virtual context things seem entirely decentralised, however in order for multiple independent processes to exist and interact there needs to be a more basic underlying information process that makes this possible – which is what SMN does. In terms of a simplest possible root process (applying Occam's razor), myriads of independent yet interacting processes is not the simplest root process to "just exist", however a single simple process that naturally generates myriads of independent yet interacting processes is the simpler option.

j. In this approach, what generates reality is embedded in it, not a programmer who wrote some code then walked away, to let it run. Definitely, I don't think any of us are talking about that. I agree none of us are on that path. The reality that creates our reality is near not far away The animating process is our inner most essence, it is our true Self, it is as near as can be. Yes, that is obvious. It is the observer that enables not only the physical construct but all the levels that emerge from it (Figure 1.5). It is not passively watching a program written long ago from afar, but actively processing all things right now in a program that is being dynamically written from moment to moment. Definitely agree! Definitely agree!

From: Brian Whitworth
Date: Mon, Feb 3, 2014 at 1:06 PM

Hi Guys,

Just to let you know that I am currently trying to clarify the alternatives in general terms, to make it easier to consider them, and making some progress. Will pass my analysis on to you shortly.

Brian

From: Brian Whitworth
Date: Wed, Feb 12, 2014 at 2:03 PM

Hi Tom and John,

Based on your comments I attach an outline of the options of virtualism in general as I see them. Let me stress that for me this is a work in progress and all questions are still open, as no-one really knows what quantum theory means. Virtual realism implies that Maharshi's "*Who am I?*" and the "*What does quantum theory describe?*" are one and the same question, i.e. if you answer one then you answer the other.

I don't agree that what is real can't be experienced, as onecan see the world in a new way. I define the term "world" as way to view all reality in our 2013 book here, so one can say see a social world based on social constructs like democracy and fairness.

"Probabilistic" is not a replacement for "quantum", as classical bit-based processing can be probabilistic. Quantum events are no more a sub-set of probabilistic processes than physical events are, i.e. bit-processing can easily be probabilistic. You are perhaps thinking that processing is mechanistic, but a processor can easily cast a number that is random *to the simulation*, which can then only see it as a probabilistic process. Probabilistic processing is not a distinguishing feature of quantum events.

Equally, if you just "model the results", it is just another form of fitting the answer to the problem. I know it is done all the time, but it doesn't answer the question of how the results are defined in the first place. Anyone can fit up outputs to match results, and a lot of so-called artificial intelligence, like Siri say, is doing just that, i.e. trying *appear* intelligent. In virtual realism, every electron is a "player", so that the system feeds us simple data-streams then invents quantum details when needed doesn't fly. This mind virtualism assumes someone out there who can be bothered to make up a big multi-player story to fool us all. The alterernate view is that this system got along fine for billions of years before we came along and will carry on when we go. We are an experiment of the universe, not the centre of its attention.

Equally, classical processing can't exist without a physical state implementation, so to talk of it in the abstract is not possible. Processing cannot occur without an implementation base. So again, this is, in my view, a doomed avenue of argument.

"*quantum processes are an epiphenomenon of the classical processes*" OK, that is one view, but note that in Figure 5, it is the other way around.

Re context, what creates context cannot itself have a context, just as what creates mass cannot itself have mass, despite the Higgs nonsense, since as you say, this gives an infinite regression. It also can't be a *manifest* context, as again you say. In my view, the ultimate context is the observer.

"*This whole semantic issue between "physical" and "nonphysical" realities is nonsense in a VR context. ...Agreed Tom!!*" Not really. That physics describes something and calls it the physical world is not nonsense. When I say the physical world is a virtual reality I mean that what physics describes is a processing output. When I say that the quantum world is not physical I mean it is not part of the virtual physical world. There is no illogic there. In no VR is the observer "in" the VR, so there must be something "non-physical", or as the Kabbalah says unmanifest. One must not forget that there is an observer who is not in the experienced physical reality.

"*If there is no VR, then there is no experience, because there is no data-stream (information) to define an apparent reality.... Exactly! That is also why there is no perspective from which the implementation aspect (if it exists) of reality can be apprehended, because at that level there is no VR; no experiential processes, so no phenomenal contents of awareness, so no objects of experience and no 'world' within which these objects appear*."

The philosophical implication is that *every* reality we can possibly know, whether heaven or hell, is

a data-stream and so a *fake reality* fed to us by a reality we can never understand, so *trying to know reality is hopeless*. The Buddha, among others, explicitly denies such nihilisms, and says there is a way, but it does not lie in the manifest world. In virtual realism, the manifest world is locally real not fake as it *mediates* the real, just as an informational email can mediate a real friend. Further, the observer is not fake either, and it the possibility that it can observe itself gives both hope and a back door to reality.

If you can't see the figure, the attached file reproduces the figures. It is pdf so you should be able to open it ok.

"*If there is no VR, then there is no experience*" This is a very narrow definition of experience. Are you saying that all imagination comes from sensory experience? Aristotle would not agree. What about the experience of being? When Maharshi pursued "*Who am I?*" did he stop experiencing when he stopped processing the manifest world? The whole point is that he didnt. I conclude that there is something not dependent on the physical world because the latter was created. It is not progress to replace physical determinism by informational determinism!

All this is jumping ahead a bit faster than usual, so I had better move on to Chapter 5 now, on gravity and movement.

Kind regards
Brian

From: John Ringland
Date: Thu, Feb 20, 2014 at 5:43 PM

Hi Tom and Brian :)

I hope you've been having a wonderful time!

I'm really sorry I haven't responded for a while... I've been engrossed in exploring an extremely interesting line of research, which was largely inspired by our conversation. I've stopped for a bit of a breather... I can get very single minded when examining a particularly compelling idea... sorry I haven't responded for so long. I'll give you a very brief update on this latest research because I think you might also find it interesting.

I've been exploring along the line of: what is the simplest possible computational process that is sufficiently powerful to implement or simulate any/all computational processes.

In my last email I mentioned one model that I discovered, which can implement any binary logic circuit, however I have discovered a couple of others. One is of purely theoretical interest and the other could have practical uses...

One model is vastly simpler than a Turing machine and yet it can simulate a Turing machine (with a finite but unbounded tape that can grow if needed but is always finite). This is only of theoretical interest rather than practical use because it is exponentially less efficient than a Turing machine, but nevertheless it can still simulate one.

The other discovery is a regular Turing machine however its implementation is astoundingly simple - it is basically just a resonance between two information spaces (inner and outer) - which combine with a subtle twist. It also strikes me as a simple model of a mind engaging with a world.

The implementation is so simple that I first doubted if it had enough complexity to be able to work so I built a software simulation (using Java classes to represent the various components) and it functions perfectly as a very compact and efficient implementation of a Turing machine.

It is so simple that I then used Multisim (an integrated circuit design and simulation program) to design and simulate a printed circuit board that is really just two memory chips and a few small circuits of binary logic - yet it functions as a very compact and efficient Turing machine. This could also be implemented very easily as a single chip on a very small amount of silicon - or there could be large numbers of these machines on the one chip.

It might turn out that this technology has some practical use. It is a Turing machine after all, which is capable of performing arbitrary computations. Furthermore because it is so simple it can run on hardly any power. It would also be extremely cheap; it consists of only a very small number of basic digital components. It can implement very complex computational processes because it utilises regular memory as its tape and state space - which can be expanded as needed. These could be useful low-power circuit boards or chips embedded in devices where low power and price are important.

The current prototype has a memory capacity of just 8KB but it can still handle tapes up to 4096 symbols long, with 4 types of symbols and 1024 head states. This can be expanded and sped up with larger and faster memory and made even lower power with floating-gate transistors. There are also some optimisations that may be possible.

The next step is to iron out the bugs and get some exact figures on how fast it runs and how much power it consumes. The indications are that is could perform a around a million Turing machine steps per second and consume less than a micro-Watt. But I'm not certain about those figures yet...

The next big step is to figure out how to use a Turing machine within the context of practical applications... searching around there has been a vast amount of theoretical work involving Turing machines but almost no thought given to practical applications - probably because there wasn't a practical implementation of it before.

I have already given the software version the ability to iteratively receive input, process it and then provide output; so it can interact with external systems and be integrated as a small component within larger systems. As an example I have a palindrome detector that can be given strings which it tests and then reports the result at the head of the tape. I can imagine something like this being used to do address parsing on a web server or something like that - the server could have lots of parallel Turing machines allowing it to parse large numbers of incoming service requests - taking a lot of the load off of the microprocessor. They would also be especially useful in mobile devices due to their low power consumption.

Anyway, that's where I'm up to now.

I hope you found this interesting - it's got me quite excited...BTW I have read your emails and I really appreciate the depth of the conversation - thank you! I'll reply to them soon. For now I've been putting off writing to you for long enough - I'll just say hi and give you this update.

All the best!
John

From: Brian Whitworth
Date: Fri, Feb 21, 2014 at 12:09 AM

Hi John,

Thanks for the update. The main thing for me was if you get some understanding of where I am coming from in this I will be happy.

The simulations you are doing are very important because they are practical. Bearing this in mind I

have worked out a way to simulate (on an ordinary computer) Einsteins special relativity, to explain why the speed of light is always fixed, no matter how objects move, based on simple bitshifting. I will write out the spec as an Annex to Chapter 5, which is by the way going to take a while to write, and send it to you when done. Maybe you can make it work! If so, it will be an impressive demonstration to see displayed on a screen a simulation showing why the speed of light is constant for every object, moving or not!

all the best
Brian

From: Tom Campbell
Date: Tue, Feb 25, 2014 at 1:27 PM

Thanks Brian, these are good comments.

Sorry to take so long – it has been a very busy time for me.

Good work John! Sounds like you are on to something. I hopes it works and you and Brian can collaborate on a demo.

See my comments in blue below

Tom

From: Brian Whitworth
Sent: Tuesday, February 11, 2014 10:04 PM

Hi Tom and John,

Based on your comments I attach an outline of the options of virtualism in general as I see them. Let me stress that for me this is a work in progress and all questions are still open, as no-one really knows what quantum theory means. Virtual realism implies that Maharshi's "*Who am I?*" and the "*What does quantum theory describe?*" are one and the same question, i.e. if you answer one then you answer the other. Yes, that is true. MBT theory, as it has developed (mostly delivered in videos over the last several years) explains exactly what quantum theory describes, what it means, why it is as it is, why experiments come out as they do, and also much of what remains a mystery to traditional science (like PEAR. Labs research and the placebo effect) It also explains Who am I and who are you, even who the Maharishi is J. The theory matches all current data points and makes new falsifiable predictions.

I don't agree that what is real can't be experienced, as one can see the world in a new way. I define the term "world" as way to view all reality in our 2013 book here, so one can say see a social world based on social constructs like democracy and fairness.

Yes, but all that is semantics and not fundamental. In a conversation about reality, one could as easily define "world" as the experiential VR one happens to be in at the time. Then, one cannot **experience** social constructs like democracy or fairness until these conceptual constructs are implemented within a specific experiential virtual reality that contained the observer. What is real is fundamental consciousness which is the creator or source of the virtual reality and that it is a logical tautology that no virtual character in a virtual reality can experience the source of the virtual reality he is in. It all depends on how one defines "real", "virtual", "world", and "reality".

A **world** (or even a "level") should be a noun, the contained bounded by a container, an interactive thing, not a process or an approach ("a way to view") as you say. As best I can tell you don't directly define the word "world" in your book, but rather a "world view": "A level is now formally defined as a world view, a way of *seeing* reality that is complete and consistent in itself". And you

say that a world view describes a world…. then one ends up with a world actually being a level such that: "Levels affect design because how we see the world affects how we act in it". That may be handy for defining levels within the larger computing world (information sharing) but not so handy for describing the much larger world that in a tiny fraction of its vast content, contains all the levels (or worlds in your terminology) of the computing-world. J That was fun. – evidently there are worlds within worlds within worlds and we are talking about the outermost world of consciousness that has spawned the VR we call our local world. As long as our awareness is 100% in the VR we call our physical universe, we cannot directly observe the lager consciousness system any more than an elf in the World of Warcraft VR can directly experience (see) the server that hosts his game.

Brian, I did really enjoy you book – it was great, and so very necessary and important – I have been trying to get Pamela to read it.….I only wish every software writer and every software company would be required by law to read it at least twice.

"Probabilistic" is not a replacement for "quantum", I couldn't agree more. as classical bit-based processing can be probabilistic. Yes. Quantum events are no more a sub-set of probabilistic processes than physical events are That depends on you look at it, i.e. bit-processing can easily be probabilistic. Yes. You are perhaps thinking that processing is mechanistic, but a processor can easily cast a number that is random *to the simulation*, which can then only see it as a probabilistic process. Probabilistic processing is not a distinguishing feature of quantum events. More semantics. You are correct here because of what you mean by "quantum event" (like spin up) and "processing" as in "computer processing". Quantum mechanics is fundamentally about probability. The wave function represents a probability wave not a physical wave. The square of the wave function represents a probability of an event occurring in our VR. Feynman diagrams sum up probability. Quantum mechanics computes quantum events -- that is why I said above that "Quantum events are no more a sub-set of probabilistic processes than physical events are" depends on how you look at it. From my view, quantum events are the direct result of probabilistic processes. And that quantum events are probabilistic events. My original statement that you have responded to here was that if I replaced the word "quantum" with the word "Probabilistic" what you and John were saying made more fundamental sense to me. That is still true. I did not say that the word "probabilistic" was a replacement for the word "quantum" -- the two words obviously mean very different things. I see the word " "quantum" being terribly overused by almost everyone in our culture. It is the latest cool word that magically makes anything sound more scientific. "Quantum computing" – if it means computing with q-bits instead of bits -- is clearly defined but waving around terms like "quantum processing" and "quantum effects" and "quantum fields" in general ways is more confusing than clarifying for me. Instead, getting back to the basics of quantum mechanics and seeing that we are really talking about probability "waves" and the probability of events happening in this VR adds clarity for me. It just so happened that most of the time if I reframed your use of "quantum this or that" in terms of the underlying quantum mechanics, I could imagine a line of reasoning that made better sense (was less airy) to me.

Equally, if you just "model the results", it is just another form of fitting the answer to the problem. I know it is done all the time, but it doesn't answer the question of how the results are defined in the first place. Anyone can fit up outputs to match results, Yes this is true, that is generally the way science works. One looks at facts and then tries to explain them (e.g., atomic model, theory of evolution, quantum mechanics, Newtonian mechanics, medical models, almost every major theory in science with a few exceptions). Yes, anyone can do this (husbands who forget anniversaries and birthdays do it all the time) but it is only good science (one only has a useful **scientific** model) IF there are very few assumptions, those assumptions are reasonable, the model can explain **all** the known information, and the model can make predictions of new information, and that experiment eventually verifies these predictions. If the model or theory does all that, it is considered a good scientific model. Not an unscientific failure because everything did not flow first from theory. It is a historical fact that theory is generally created to explain experiments. and a lot of so-called artificial intelligence, like Siri say, is doing just that, i.e. trying *appear* intelligent. Siri has way too many

assumptions (to fill in for lack of information) to prop it up – same goes for string theory. In virtual realism, every electron is a "player", so that the system feeds us simple data-streams then invents quantum details when needed doesn't fly. This is the only game that has a chance of flying. If every electron, atomic, and subatomic particle in all of their possible states are players, then the one falls in the same hole as "many worlds". Efficiency, parsimony (minimum energy configurations) are violated and Occam's razor is buried in a avalanche of unnecessary complexity since an equivalent result can be achieved with 60 orders of magnitude less complexity. This is the old view of material reductionist physical causality being replicated in a virtual reality – a nonmaterial reductionist nonphysical causality in a virtual reality – same game, same result, same brick wall – probably filled with virtual dark nonphysical quanta, and dark computer cycles. J

This mind virtualism assumes someone out there who can be bothered to make up a big multi-player story to fool us all. No, not a someone, a something that is an evolving information system – a product of emergent complexity. And we are not being fooled. We, as subsets of it, are given the gift of experience within a virtual reality to help lower the entropy (evolve) of the whole. The alternate view is that this system got along fine for billions of years before we came along and will carry on when we go. We are an experiment of the universe, not the centre of its attention. That is not an alternate view, that is exactly my view.

Equally, classical processing can't exist without a physical state implementation, so to talk of it in the abstract is not possible. Not so, there is no such thing as a physical state. Al that classical processing requires is a differentiation between two states, a 1 and a 0. A binary source that can be replicated. This digital information "some-thing" I call it the larger consciousness system (LCS) can easily accomplish that. Remember that we call it nonphysical but that is just a prejudice from our point of view here in the VR. The elf calls the World of Warcraft (WOW) server nonphysical for the same reason. Saying that "processing can't exist without a physical state implementation,…" makes no sense. "physical" and "nonphysical" are not fundamental attributes but simply an expression of local viewpoints. The elf thinks he and his WOW world is physical and the server is not. The people working on the server think that they are physical and that the LCS and the elf are not. Processing cannot occur without an implementation base. So again, this is, in my view, a doomed avenue of argument. There is no reason that the LCS cannot provide any implementation base that is required. If we can within our VR, as the superset, it certainly can.

"*quantum processes are an epiphenomenon of the classical processes*" OK, that is one view, but note that in Figure 5, it is the other way around. Theoretically and logically, one view is as valid as another. From a practical sense it doesn't matter all that much, quantum processes can model classical processes and classical processes can model quantum processes. If quantum processes lurk at the bottom most level of the LCS instead of classical processes, it makes no difference to me – the wash comes out looking the same either way. Since this is a probabilistic model and every electron is not modeled unless someone make the measurement (a user needs to see some data) [this is what the double slit experiment tells us] then crunch power is not so big a deal… but I am all in favor of better efficiency of process.

Re context, what creates context cannot itself have a context, just as what creates mass cannot itself have mass, despite the Higgs nonsense, since as you say, this gives an infinite regression. It also can't be a *manifest* context, as again you say. In my view, the ultimate context is the observer. Yes.

"*This whole semantic issue between "physical" and "nonphysical" realities is nonsense in a VR context. …Agreed Tom!!*" Not really. That physics describes something and calls it the physical world is not nonsense. I agree, this VR has evolved, is evolving. It is a dynamic simulation with a rule-set – So is WOW, and so is The Sims and all other VRs of this type. What the physicist describes is a result of the rule-set. When I say the physical world is a virtual reality I mean that what physics describes is a processing output. I mean the same thing. When I say that the quantum world is not physical I mean it is not part of the virtual physical world. (I have a problem with this. Another fuzzy quantum thingy. What is a "quantum world"? If the double slit experiment and

particle entanglement takes place in a "quantum world" then it is indeed a part of this VR. Or are you saying that the processes of these quantum experiments take place in a "quantum world". If so I disagree, these "quantum processes" are simply probability computations that come from the same computer that performs the computations that define our VR and all experiments performed in our VR including classical experiments. There is no illogic there. In no VR is the observer "in" the VR, I really don't get that. I must not understand how you are using the words. The guys programming the WOW server are in the server VR reality (what we call our physical reality), the elf is in the WOW VR reality. Each lives and observes in its own VR and sees its own VR as physical and sees the other VR as nonphysical. so there must be something "non-physical", or as the Kabbalah says unmanifest. One must not forget that there is an observer who is not in the experienced physical reality. I think I see what you are getting at and if I am right I agree with it. Every VR must have a creator or superset reality that is running the simulation which creates the VR. One may have VRs within VRs but eventually at the beginning of the causal string one has the mother of all VR which I call the LCS which is a self aware, self contained evolving digital information system-thing trying to evolve by decreasing its entropy (develop more useful, more functional, content). Now the LCS evolved from a little bit of nothing – a potential that got lucky and began to pull itself together (emergent complexity). Where that potential came from is theoretically unknowable by us. Consciousness (particularly our chip of consciousness), though a finite system, cannot get outside of consciousness. Thus we can say **nothing** about it. No infinite series is required (that would require an assumption about it). No magical appearance is required (that would require an assumption. We can say nothing about it and any assumption about it is nonsense/conjecture. It is simply beyond our knowing. You have to know what your limits are -- when to quit rather than drift off into conjecture.

"*If there is no VR, then there is no experience, because there is no data-stream (information) to define an apparent reality.… Exactly! That is also why there is no perspective from which the implementation aspect (if it exists) of reality can be apprehended, because at that level there is no VR; no experiential processes, so no phenomenal contents of awareness, so no objects of experience and no 'world' within which these objects appear*."

The philosophical implication is that *every* reality we can possibly know, whether heaven or hell, is a data-stream and so a *fake reality* fed to us by a reality we can never understand, so *trying to know reality is hopeless*. Absolutely not so! – in several ways. First: Virtual realities are not fake realities. That sounds like something the material reductionists would say – evidently the nonmaterial reductionists as well. J The only thing that is real is the LCS, everything else is virtual. However, the LCS is also a computed reality, and it is our source, if not **the** source. (**The Source** (a larger system that contains the LCS) can only be meaningless conjecture from our view.) **There is no non computed reality**. All reality is computed. Reality does not get any realer that a computed reality. "fake" and "real" are in the mind of the beholder just like "physical" and "nonphysical". All reality is fake = all reality is real. Second: we are pieces of consciousness, chips off the old block, and as such, we can experience any virtual reality within the LCS and the LCS itself. We, as chunks of consciousness, are not trapped in this VR, however our virtual bodies are. We are not our bodies. The simulation (our VR) is also evolving under its rule-set and it provides the constraints by which the information in our data stream must abide. WOW and The SIMS work exactly the same way except you at the computer terminal, are your avatars (elf's) consciousness. You call the shots according to the rules of the game and you can get up and go get a sandwich any time you want to (you can move about in reality that contains the server. I have been do this sort of exploration for over 40 years. The Buddha, among others, explicitly denies such nihilisms, so do I and says there is a way, but it does not lie in the manifest world. In virtual realism, the manifest world is locally real not fake as it *mediates* the real, just as an informational email can mediate a real friend. Further, the observer is not fake either, and it the possibility that it can observe itself gives both hope and a back door to reality.

If you can't see the figure, the attached file reproduces the figures. It is pdf so you should be able to

open it ok.

"*If there is no VR, then there is no experience*" This is a very narrow definition of experience. No, I think it is a very broad definition of VR. Are you saying that all imagination comes from sensory experience? No, of course not. What you imagine is a VR of your own creation (after all consciousness can obviously produce VRs). When you dream, you are in another VR. After you die, you wake up in another VR. When you go OOB or remote view you are in a VR. These VRs are not necessarily all independent but they do have different rule-sets (different physics) and different purposes. And defined connections Like the virtual extension worlds that you can add to you WOW game. Aristotle would not agree. What about the experience of being? When Maharshi pursued "*Who am I?*" did he stop experiencing when he stopped processing the manifest world? The whole point is that he didnt. I conclude that there is something not dependent on the physical world because the latter was created. It is not progress to replace physical determinism by informational determinism! Yea verily! It is so. The mind, consciousness, self, or bring is free to experience itself anytime it so chooses. When it does so it is in the simplest of all virtual realities with only a few, if any, rules and no computer generated characters If it wishes to exchange information with another, then it must do so within a VR that defines the rules of exchange. As it wants more complex interaction, then there must be more rules, say to define energy exchanges or environments. And so it goes from contemplating your navel, to dreaming, to typing on a computer in our VR. There are also other VR (other physical universes) much like ours in function but different in execution. We are not the center or the only one – it's a big system.

Tom

From: John Ringland
Date: Fri, Feb 28, 2014 at 3:19 PM

Hi Tom and Brian :)

Fabulous comments Tom - thanks for addressing those issues so well - that's basically what I would have said had I not been so distracted...

IMHO it is impossible to adequately comprehend an information based paradigm whilst hanging on to ANY aspect of the physicalist paradigm. Every last shred of belief in matter and objective perception, and all the related beliefs such as 'world', "something doing the processing", etc need to be carefully recognised and overcome before one can think clearly about virtual reality within a metaphysical context.

Another major obstacle is not just erroneous beliefs about the "outer" appearances (that which we think of as a 'world'), but also erroneous beliefs about the "inner" appearances (that which we think of as "my consciousness" or simply "me"). Not only do the experienced 'outer' phenomena have no fundamental existence, so too for the experienced 'inner' phenomena - i.e. our sensory impressions, thoughts, dreams, imaginings and including the individual 'self' that we tend to believe ourselves to be. All of these things are virtual and have no fundamental existence of their own, they are all emergent from underlying information processes. So it is not just the physicalist paradigm that needs to be overcome, but also the egoic paradigm; one accords fundamental reality to outer appearances and the other accords fundamental reality to inner appearances, thus both are entirely incompatible with the VR paradigm.

BTW my current project is gradually progressing - the present simulation (in Multisim) suggests that the CPU-like component runs at 5MHz and uses only around 1nW of power, however the memory component will use around 15uW to 500mW. So there is still a sizeable power drain due to memory. However in cases where this technology can be applied the CPU related power

consumption can essentially be eliminated, leaving only the memory related power consumption. So it might have a niche... if so I will pursue it because I could do with some funding to sustain my research. I'm currently rebuilding the design in another simulator (Proteus) to test the accuracy of the measurements.

All the best :)
John

From: Tom Campbell
Date: Sat, Mar 1, 2014 at 6:32 AM

John, Brian,

See my comments in blue below

Brian, I hope this top level description helps form up my approach for you.

Tom

From: John Ringland
Sent: Thursday, February 27, 2014 11:20 PM

Hi Tom and Brian :)

Fabulous comments Tom - thanks for addressing those issues so well - that's basically what I would have said had I not been so distracted...

IMHO it is impossible to adequately comprehend an information based paradigm whilst hanging on to ANY aspect of the physicalist paradigm. Every last shred of belief in matter and objective perception, and all the related beliefs such as 'world', "something doing the processing", etc need to be carefully recognised and overcome before one can think clearly about virtual reality within a metaphysical context. Yes. Agreed. A nonphysical reductionist paradigm will run into many of the same problems as the physical reductionist paradigm.

A photon is not defined in PMR until someone in PMR measures it (until some virtual avatar requires information in their data-stream to define what they are looking at). There is really no such thing as a photon – a photon is something we event out of thin air, it represents a model that we construct in our heads to help us understand certain measured effects (like the photoelectric effect). **We can only measure effects** and then, because it makes us feel better to posit a material cause, we invent/assume a photon – same for an electron and for all atomic and subatomic particles).

A virtual reality game/simulation/world simply puts data in an virtual players data-stream that describes an effect, a result of a measurement – the **underlying cause** is not rendered, not does it need to be calculated from sub-atomic particles – higher level representations (like Newton's Laws) is usually good enough (even a flat earth is plenty good enough for short distances). "**Good enough**" means that any errors are covered by the natural uncertainty inherent in the measurement. **There is never a reason to provide more accurate information to any individual (in their data-stream) than what is required by that individuals personal measurement at a practical level**. In general, the "underlying causes" are defined by the simulation's rule-set (which is a set of conditions, relationships, and constraints) which determines how the simulation (potential virtual world) **evolves** from initial conditions and constants to eventually form an "inhabitable" virtual world.

An "inhabitable" virtual world represents a usable multi-player virtual reality like, for example, our PMR or World Of Warcraft (WOW). Our PMR interactive, multiplayer, VR simulation, and its

underlying rule-set, define the content and constraints placed upon the data streams sent to individuated units of consciousness (IUOC) – just as WOW's rule-set defines the content and constraints placed upon the data streams sent to the computer of human players engaged in the WOW game. Just like in the PMR (our seemingly physical universe) game, the WOW server only represents effect and ignores underlying causes except that the rule-set must be obeyed. Until an elf invents an electron microscope, the WOW server has no interest in particles smaller than a pebble….and then only has an interest in sending the appropriate data (according to the WOW rule-set) to that one elf. Everybody else gets much higher level representations like flat earth for short distances that never require any underlying detail (likewise for the scientist elf as soon as he looks away from the microscope). Instead, they require a probability distribution that represents "good enough" from which random draws are taken. The WOW server does not have to provide oxygen for its virtual characters to breathe any more than the PMR server has to provide oxygen for its virtual characters (us) to breath. Yet in both VRs, a player's avatar can drown if the probability of having enough oxygen is low enough e.g., if your head is under water).

The fundamental difference between the PMR VR and the WOW VR is that the PMR VR evolved (an ongoing open-ended process that includes evolving our avatars). In contrast, the WOW VR was programmed (much simpler and more shallow and limited process -- limited by the time, energy, knowledge, and imagination of the programmers).

Where the rule-set allows multiple possible results for a given measurement (almost all the time), a probability distribution is generated to represent the likelihood of each result. When the measurement is made, a random draw is made from that probability distribution and a specific result for that measurement is selected – thus, more likely results are more likely to be selected.

Note that much of the implied computation for a PMR VR inhabited by 7 billion virtual avatars does not require a quantum computer…indeed, to compute the data-stream for the average avatar, a quantum computer would be overkill. The computations generating the simulation VR, and the computations generating the data-streams going to each IUOC player (who is playing an avatar in the game), are **two very different set of computations**. The first computes the VR's possibilities, form, and function, while the second computes the probable results of measurements by avatars within the simulation. The simulation producing the evolving VR serves as a source of constraints to place upon the data-streams sent to each player.

Double slit experiment: There is no such thing as particles… only more or less probable potential particles until an avatar requires some information about the effects of these assumed particles. Nevertheless, using standard vernacular that assumes that atoms, electrons, and photons actually exist: The devices that produce photons just randomly pop them off as atoms decay. They (atoms, electrons, or photons) don't exist in PMR until someone measures the effects of one. So, according to the rule-set and probability, they pop out of atoms and are moving toward double slits. The so called "photons" exist only as a potential particle described by probability since they are as yet unmeasured. When they get to the two slits no measurements are being made so they must continue on their probable journey as probability functions until they get to the screen where a measurement is made. There they distribute themselves according to their probability of being any particular place. Here is how a given particle ends up in a specific place on the screen: at the screen, there exists a probability distribution that was computed from unique interference pattern of the probabilities passing through each slit. A random draw from this probability distribution selects a position on the screen and the particle lands (is placed) there. Then another particle and then another, etc., until a diffraction pattern emerges

Since we are the ones that make up the fiction of photons existing, we confuse ourselves. The LCS indulges in no such fiction (does not share the human's illusion) and simply produces a virtual particle according to whatever falls out of random draws from the probability distribution computed

when and where a measurement is finally made.

Another major obstacle is not just erroneous beliefs about the "outer" appearances (that which we think of as a 'world'), but also erroneous beliefs about the "inner" appearances (that which we think of as "my consciousness" or simply "me"). Not only do the experienced 'outer' phenomena have no fundamental existence, so too for the experienced 'inner' phenomena - i.e. our sensory impressions, thoughts, dreams, imaginings and including the individual 'self' that we tend to believe ourselves to be. All of these things are virtual and have no fundamental existence of their own, they are all emergent from underlying information processes. So it is not just the physicalist paradigm that needs to be overcome, but also the egoic paradigm; one accords fundamental reality to outer appearances and the other accords fundamental reality to inner appearances, thus both are entirely incompatible with the VR paradigm. Yes. Exactly so. All the “nonphysical structure” found in Eastern and Western esoteric traditions, and New Age books: levels, OOB realms, higher-selves, over-souls, nonphysical bodies, etc. are all simply metaphors constructed out of our own PMR experience, beliefs, and imagination. To oversimplify: The LCS (a digital information system) is real, everything else is virtual (a construct of the LCS). What is outside of the finite LCS is simply unknown and unknowable to us.

BTW my current project is gradually progressing - the present simulation (in Multisim) suggests that the CPU-like component runs at 5MHz and uses only around 1nW of power, however the memory component will use around 15uW to 500mW. So there is still a sizeable power drain due to memory. However in cases where this technology can be applied the CPU related power consumption can essentially be eliminated, leaving only the memory related power consumption. So it might have a niche... if so I will pursue it because I could do with some funding to sustain my research. I'm currently rebuilding the design in another simulator (Proteus) to test the accuracy of the measurements. Power consumption, though very important, is not the biggest constraint facing computer designers. A related, but, I think, more important constraint in hardware designs requiring lots of cycles (high throughput) is heat dissipation and most of that heat is generated by the CPU. A low power CPU would greatly reduce if not outright solve that problem. Whether or not your idea would support high throughput processing is yet to be demonstrated but if it can, it should be a big winner.

Tom

From: John Ringland
Date: Sat, Mar 1, 2014 at 7:59 PM

Hi Tom and Brian,

Interesting points Tom! I agree with you that information is only processed when the result is experienced from some perspective and the result only needs to be sufficient to the needs of that perspective.

However your comments raise a significant point of difference between us, which it might be interesting to explore. Perhaps I could call it the issue of "the degree of perspective occupation". I'll explain what I mean by that...

I know from my own experience that I experience things, and what I experience implies that there are others who also experience things. This is what I mean by a 'perspective', i.e. it seems to me that there are some others that behaves as if they experience things and respond to them so it seems that they have a perspective. If I accept that they do in fact experience things then I consider that perspective to be 'occupied' by some experiential process. If I believe that the other only 'seems' to

experience things but in fact doesn't then I consider the perspective to be unoccupied. This forms a spectrum of propositions...

At one extreme are ideas such as behavioural psychology, which proposed that all perspectives are unoccupied in the sense that it may appear that we experience things and respond to them, however that is just an appearance and really there is no experiential process at all so nobody ever experiences anything, we only seem to. Although our own experiences contradict this so the idea didn't last very long...

One step away from this extreme we have solipsism, where only "my perspective" is occupied and all other perspectives are unoccupied - every 'other' is just an appearance that I apprehend from my perspective and although they appear to experience things that is just an appearance. Due to our social nature this is very rare because we cannot help but believe that other humans experience things.

A very common variant is the idea that only humans experience things from their perspective and all other perspectives are unoccupied. E.g. it might look as if animals experience things but really they are just 'automatons'.

Another common variant is that all biological organisms experience things from their perspective whilst all other 'inanimate' perspectives are unoccupied.

Then there is the idea that sophisticated technological devices could also experience things so they too could have an occupied perspective.

Then finally at the other extreme is the idea that ALL systems have experiences (not necessarily like us, but appropriate to their nature), hence there are no unoccupied perspectives at all. Thus it is impossible for something to be 'inanimate' or an 'automaton'.

This is a difficult issue to approach because we can only ever experience our own experiences and we can never know for certain if there are any others who also experience. If we were to devise theories based solely on what can be proven to be true we would all have to become solipsists and my theory would only need to account for my experiences.

However it seems quite reasonable to go beyond that and infer that others do in fact experience things. However which 'others' we accept as having experiences determines where along the spectrum our ideas fit.

I'm not exactly sure where your ideas fit along this spectrum, however your comment about "PMR VR inhabited by 7 billion virtual avatars" implies that you are suggesting that only humans experience things and all other perspectives are unoccupied. I'd be interested to know more about how your ideas relate to this issue.

My ideas stem from SMN, which requires that all virtual systems have both an observable appearance and an experiential process - and all system interactions are driven by the system's experiences and reactions. Thus if systems could not experience each other then there would be no system interactions and nothing could happen within the VR. Thus I propose that all virtual systems have experiences from their perspective and there is no such thing as an unoccupied perspective or an inanimate system or an automaton.

I don't suggest that the experiential process of a complex system has fundamental reality - it is an emergent phenomenon due to many meta-system transitions, which lead not only to more complex outer appearances for complex systems, but also to more complex experiential processes for complex systems. Thus my experiential process is emergent from the integrated experiential processes of the cells in my body. Likewise, when we integrate into complex societies and organisations, these complex systems that we form into also come to experience things from their own perspective. I find that this approach helps me to make sense of the global politics between nations, the actions of corporations and so on.

Both of you have suggested that this approach would lead to too much computation but I don't see why. It does lead to a lot of computation but there is nothing that we can observe about this universe or infer from fundamental principles that suggests anything about the maximum capacity of the animating process. We can infer its **minimum** capacity but there is nothing at all that can tell us anything about its maximum capacity.

In the materialist paradigm we don't say there is some maximum size to the physical universe beyond which it is just too big. Instead we infer how big the universe appears to be and we accept that, even if it is vastly bigger than anything we have previously imagined. Some might feel that it is too big but there is no rational reason for that, it is just that it is bigger than anything they are used to thinking about. The same applies to the computational paradigm - it doesn't make sense to draw a line and say that beyond that it is just too much computation - instead we infer how much computation is required and we accept that, even if it is vastly more than anything we have previously imagined.

Anyway, that is where my ideas currently fit along the spectrum. I'm interested to know more about where your ideas fit... both Tom and Brian...

All the best :)
John

From: Tom Campbell
Date: Sun, Mar 2, 2014 at 12:58 PM

John, Brian

See blue below.

Tom

From: John Ringland
Sent: Saturday, March 01, 2014 4:00 AM

Hi Tom and Brian,

Interesting points Tom! I agree with you that information is only processed when the result is experienced from some perspective and the result only needs to be sufficient to the needs of that perspective.

However your comments raise a significant point of difference between us, which it might be interesting to explore. Absolutely! It is the differences that produce our opportunity to learn. Exploring them is an imperative – never waste such an opportunity. Perhaps I could call it the issue of "the degree of perspective occupation". I'll explain what I mean by that...

I know from my own experience that I experience things, and what I experience implies that there are others who also experience things. This is what I mean by a 'perspective', i.e. it seems to me that there are some others that behaves as if they experience things and respond to them so it seems that they have a perspective. If I accept that they do in fact experience things then I consider that perspective to be 'occupied' by some experiential process. If I believe that the other only 'seems' to experience things but in fact doesn't then I consider the perspective to be unoccupied. This forms a spectrum of propositions...

At one extreme are ideas such as behavioural psychology, which proposed that all perspectives are unoccupied in the sense that it may appear that we experience things and respond to them, however that is just an appearance and really there is no experiential process at all so nobody ever

experiences anything, we only seem to. Although our own experiences contradict this so the idea didn't last very long...

One step away from this extreme we have solipsism, where only "my perspective" is occupied and all other perspectives are unoccupied - every 'other' is just an appearance that I apprehend from my perspective and although they appear to experience things that is just an appearance. Due to our social nature this is very rare because we cannot help but believe that other humans experience things.

A very common variant is the idea that only humans experience things from their perspective and all other perspectives are unoccupied. E.g. it might look as if animals experience things but really they are just 'automatons'.

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This is a difficult issue to approach because we can only ever experience our own experiences and we can never know for certain if there are any others who also experience. If we were to devise theories based solely on what can be proven to be true we would all have to become solipsists and my theory would only need to account for my experiences.

However it seems quite reasonable to go beyond that and infer that others do in fact experience things. However which 'others' we accept as having experiences determines where along the spectrum our ideas fit.

I'm not exactly sure where your ideas fit along this spectrum, however your comment about "PMR VR inhabited by 7 billion virtual avatars" implies that you are suggesting that only humans experience things and all other perspectives are unoccupied. I'd be interested to know more about how your ideas relate to this issue. No. the 7 billion where just a small slice of conscious entities, a stand in or symbol for all the rest – I couldn't list them all without creating a rather long clunky sentence.:-)

Definitions: I define a conscious entity as an awareness that has a finite decision space (has significant choices that it can make and the free will to make them). A tree may have a rudimentary awareness but it has no decision space that I know of, so I do not call it conscious. A rock has no awareness and no decision space. Both a man, a dog, and a bumblebee have awareness and a finite decision space so I call them conscious entities. Social constructs don't qualify as conscious except metaphorically speaking (see below for more detail)

My ideas stem from SMN, which requires that all virtual systems have both an observable appearance and an experiential process - and all system interactions are driven by the system's experiences and reactions. Thus if systems could not experience each other then there would be no system interactions and nothing could happen within the VR. Thus I propose that all virtual systems have experiences from their perspective and there is no such thing as an unoccupied perspective or an inanimate system or an automaton. I think we may disagree over rocks since rocks make no freewill choices. Plants and other living things that have no decision space (their actions are hardwired and not a result of free choice) may have a rudimentary awareness and thus may receive a vague datastream (something we would associate more with feeling than intellect), but their reactions to (interactions with) that data stream are never manifest in freewill choices. We can only share their feelings. Yes my definition of consciousness requiring a finite free will decision space is entirely arbitrary. But I find it very useful and easy to explain and it keeps the definition of

consciousness crisp, clear and clean. No arguments about what plants think about the double slit experiment. J

I don't suggest that the experiential process of a complex system has fundamental reality That depends on how you define "fundamental" and whether the "complex system" of which you speak is fundamental under your definition. The complex system (C) may be a derivative of another more fundamental complex system (subsystem B). Also complex system (C) may derive another less fundamental complex system (D). **Thus, it may be that:** From the perspective of D, C is fundamental and B, if it exists, is unknown and theoretically unknowable. Likewise, From the perspective of C, B is fundamental, D is a known derivative of itself (a subsystem of C) and A, if it exists, is unknown and theoretically unknowable. From the perspective of B, there may or may not be anything more fundamental than itself – there may or may not be a complex system A. B may have simply **evolved**, pulled itself up by the bootstraps of its inherent potential, and was not derived from a more complex system but rather from a much simpler but more fundamental and pervasive one. Here the existence of A is only hypothetical i.e., entirely the product of (self-referential) conjecture from B and wild meaningless guessing from C or D. B is the LCS, C is us in the PMT VR, and D is an advanced future WOW game with conscious elves. From D's view, C is correctly defined as fundamental (the potential existence of A and B is theoretically unknowable). From C's view, B is correctly defined as fundamental (A is theoretically unknowable). How I, from my perspective, define the words "fundamental" and "virtual") is that the LCS is fundamental and all else causally downstream is virtual – and that no intelligent comment can be made about the causal upstream without assuming that it must be like us which I see as logically unsupportable since, by definition, the subsystem cannot know everything about the supersystem or it wouldn't actually be a subsystem (and we know very, very little of our supersystem.). - it is an emergent phenomenon due to many meta-system transitions, which lead not only to more complex outer appearances for complex systems, but also to more complex experiential processes for complex systems. Thus my experiential process is emergent from the integrated experiential processes of the cells in my body. The cells of your body aren't living physical cells. You have a virtual body. Your cells are bits of information and those cells that aren't being measured (looked at) are only potential information. Thus, Your awareness, your consciousness, is emergent from potential information that has never been computed yet and for the most part will never be computed. The cells of your body are, for the most part, like the cells of anything else that doesn't exist in PMR (isn't being measured so doesn't exist in any conscious beings datastream)– like the cells of T-Rex or flying pink elephants. . Reality in a VR is defined only by the information in the datastreams of its players.) are Likewise, when we integrate into complex societies and organisations, these complex systems that we form into also come to experience things from their own perspective. I find that this approach helps me to make sense of the global politics between nations, the actions of corporations and so on. I define a conscious entity as one that has a finite decision space (has significant choices that it can make and the free will to make them). The systems we form, like nations, have zero decision space, it is the people within those systems who make the decisions. Yes, such systems can take on a "life of its own" but that is a metaphor not a fact. This metaphorical life is animated by all the consciousness being in that system and it is these beings who are modified by the choices, decisions, and attitudes of all those who have come before them and all those with which they interact. The life of a nation is created and carried forward by the lives of its people. Eliminate all the people and what sort of free will choices will the nation (which no longer exists) make?

Both of you have suggested that this approach would lead to too much computation I don't relate to this comment, probably because I don't really understand what your position is. but I don't see why. It does lead to a lot of computation but there is nothing that we can observe about this universe or infer from fundamental principles that suggests anything about the maximum capacity of the animating process. We can infer its **minimum** capacity but there is nothing at all that can tell us anything about its maximum capacity. I agree with all that. I don't mind big, even much bigger than big is ok with me, but I do mind big and unnecessary. Evolved systems are seldom wantonly

wasteful (like many worlds or both physical and nonphysical reductionism) spending zillions of cycles computing wholly unnecessary (useless) information.

In the materialist paradigm we don't say there is some maximum size to the physical universe beyond which it is just too big. Instead we infer how big the universe appears to be and we accept that, even if it is vastly bigger than anything we have previously imagined. Some might feel that it is too big but there is no rational reason for that, it is just that it is bigger than anything they are used to thinking about. The same applies to the computational paradigm - it doesn't make sense to draw a line and say that beyond that it is just too much computation - instead we infer how much computation is required and we accept that, even if it is vastly more than anything we have previously imagined. No problem there.

From: John Ringland
Date: Tue, Mar 4, 2014 at 12:58 PM

Hi Tom and Brian,

See my comments in purple...

Ciao :)
John

On Sun, Mar 2, 2014 at 12:58 PM, Tom Campbell wrote:
John, Brian

See blue below.

Tom

From: John Ringland
Sent: Saturday, March 01, 2014 4:00 AM

Hi Tom and Brian,

Interesting points Tom! I agree with you that information is only processed when the result is experienced from some perspective and the result only needs to be sufficient to the needs of that perspective.

However your comments raise a significant point of difference between us, which it might be interesting to explore. Absolutely! It is the differences that produce our opportunity to learn. Exploring them is an imperative – never waste such an opportunity.

Excellent! It is interesting territory to explore :)

Perhaps I could call it the issue of "the degree of perspective occupation". I'll explain what I mean by that...

I know from my own experience that I experience things, and what I experience implies that there are others who also experience things. This is what I mean by a 'perspective', i.e. it seems to me that there are some others that behaves as if they experience things and respond to them so it seems that they have a perspective. If I accept that they do in fact experience things then I consider that perspective to be 'occupied' by some experiential process. If I believe that the other only 'seems' to experience things but in fact doesn't then I consider the perspective to be unoccupied. This forms a spectrum of propositions...

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This is a difficult issue to approach because we can only ever experience our own experiences and we can never know for certain if there are any others who also experience. If we were to devise theories based solely on what can be proven to be true we would all have to become solipsists and my theory would only need to account for my experiences.

However it seems quite reasonable to go beyond that and infer that others do in fact experience things. However which 'others' we accept as having experiences determines where along the spectrum our ideas fit.

I'm not exactly sure where your ideas fit along this spectrum, however your comment about "PMR VR inhabited by 7 billion virtual avatars" implies that you are suggesting that only humans experience things and all other perspectives are unoccupied. I'd be interested to know more about how your ideas relate to this issue. No. the 7 billion where just a small slice of conscious entities, a stand in or symbol for all the rest – I couldn't list them all without creating a rather long clunky sentence.:-)

Definitions: I define a conscious entity as an awareness that has a finite decision space (has significant choices that it can make and the free will to make them). A tree may have a rudimentary awareness but it has no decision space that I know of, so I do not call it conscious. A rock has no awareness and no decision space. Both a man, a dog, and a bumblebee have awareness and a finite decision space so I call them conscious entities. Social constructs don't qualify as conscious except metaphorically speaking (see below for more detail)

Thanks for clarifying that. We have very different definitions in this regard so we will have to be careful not to misunderstand each other too much. Firstly, I agree with what you say within the context of your definitions, it seems quite reasonable to me too - from that perspective.

However the mode of consciousness that you describe is to me a very particular, high level mode of consciousness, which is exhibited by very complex systems such as ourselves. However there is a whole spectrum of consciousness that stretches right down to that "rudimentary awareness" that you acknowledge that trees exhibit, and deeper - down to the level of systems and interactions that we tend to think of as 'forces' or 'mechanical' interactions (for instance, between the molecules within a rock). That level is an even more basic level of consciousness. And it goes deeper still - right to the Source.

Most people only ever experience the most complex and high level states of consciousness - e.g. everyday mind. However we can experience the deeper levels (samadhi) through meditation however the deepest levels are only ever aperceived by a very few. The complex mind is like a hall of mirrors, or an echo chamber filled with a crowd of voices. In comparison the deeper levels of consciousness are pure, direct awareness, without even awareness of awareness (no feedback loops of complexity or tangential perspectives) - no diffusion of the intensity. It is direct, raw awareness. It is this that is the thread out of which all the more complex variants of consciousness are woven.

If by the term "consciousness" we are talking about just the high level modes exhibited by complex systems such as ourselves then I agree with you that trees aren't conscious in that way, let alone rocks... In this context I would also agree with those who say that consciousness is an epiphenomenon of the brain (a virtual brain of course).

But if by the term "consciousness" we are talking about the whole spectrum of consciousness, from its most primal roots to its most familiar manifestation as everyday mind, then I would disagree that trees and rocks are devoid of that type of consciousness. Every manifest form is woven out of consciousness. Consciousness is the animating process that enlivens all virtual forms so no virtual form can exist without it.

My definition is common in Eastern culture (Yogic, Vedic, Buddhist, Taoist, etc) and your definition is common in Western culture (Descartes, cognitive science, mind/body dilemma, hard problem of consciousness). The different definitions often lead to confusion between the two cultures. Hopefully we can be alert enough to avoid the worst of that.

My ideas stem from SMN, which requires that all virtual systems have both an observable appearance and an experiential process - and all system interactions are driven by the system's experiences and reactions. Thus if systems could not experience each other then there would be no system interactions and nothing could happen within the VR. Thus I propose that all virtual systems have experiences from their perspective and there is no such thing as an unoccupied perspective or an inanimate system or an automaton. I think we may disagree over rocks since rocks make no freewill choices. Plants and other living things that have no decision space (their actions are hardwired and not a result of free choice) may have a rudimentary awareness and thus may receive a vague datastream (something we would associate more with feeling than intellect), but their reactions to (interactions with) that data stream are never manifest in freewill choices. We can only share their feelings. Yes my definition of consciousness requiring a finite free will decision space is entirely arbitrary. But I find it very useful and easy to explain and it keeps the definition of consciousness crisp, clear and clean. No arguments about what plants think about the double slit experiment. J

As you've probably already gathered from my comments above, its a difference in definitions... In the context of your definitions I too would disagree with my statement there. However in the context of my definition, do you now see what I was saying?

I'll rephrase it... obviously rocks have no decision space or free will - neither do they have a neocortex or other subsystems to give them such functionality. Likewise, we don't have terrabytes of RAM-like memory but if we gave ourselves the right implants we could enable that mode of consciousness for ourselves as well. Systems such as trees and rocks are a much more basic manifestation of consciousness. It is only via many levels of meta-system transitions that the higher levels of complex consciousness emerge -with sub-systems interacting and integrating into super-systems - eventually resulting in systems such as ourselves which are capable of experiencing ourselves as individual entities, with perceptual fields, memory, identity, self-image, life story, world-view and all manner of other complex functionality. Note: a meta-system transition is not an objective process - it too is virtual, different perspectives will perceive different system boundaries.

If a virtual system that I think of as "a rock" had no consciousness at all (using my definition here), if it has no primal awareness at all, then when I try to kick it, the fragments, molecules, atoms (or

any systems within that part of the holarchy) wouldn't even notice the kick. There would be no force transfer, no shockwave travelling through the rock, no displacement, simply nothing would happen, in fact I wouldn't even be able to see the rock, let alone kick it - it simply wouldn't exist in the virtual space if it had no animating process animating it into existence within the virtual space. Consciousness is the animating process of all systems so all systems must have consciousness of at least some basic form in order to exist in and participate in the VR.

I don't suggest that the experiential process of a complex system has fundamental reality That depends on how you define "fundamental" and whether the "complex system" of which you speak is fundamental under your definition.

When I say that SMN requires that all systems have an experiential process (raw, direct, primal awareness), this is the lowest level of 'manifest' consciousness, upon which all higher levels supervene. All of these separate streams of consciousness, from the most primitive to the most complex are virtual processes that are animated by a single unified process, which is the animating process of the whole show. That's what I mean by saying they lack fundamental existence - all the separate individual processes are virtual - only the unified process is actual. Any form of individual consciousness is a virtual process - the true Source, that which does fundamentally exist, is the unified consciousness which is not individual and not associated with any 'entity' - it is the "ground of being".

The complex system (C) may be a derivative of another more fundamental complex system (subsystem B). Also complex system (C) may derive another less fundamental complex system (D). **Thus, it may be that:** From the perspective of D, C is fundamental and B, if it exists, is unknown and theoretically unknowable.

Those systems are all virtual - none of them have fundamental existence. That can be said of any manifest system whatsoever. In order to 'manifest' it must do so in a virtual context, hence it is a virtual system, hence it lacks fundamental existence - what the Buddhists call 'sunnyata' (trans. emptiness).
Likewise, From the perspective of C, B is fundamental, D is a known derivative of itself (a subsystem of C) and A, if it exists, is unknown and theoretically unknowable. From the perspective of B, there may or may not be anything more fundamental than itself – there may or may not be a complex system A. B may have simply **evolved**, pulled itself up by the bootstraps of its inherent potential, and was not derived from a more complex system but rather from a much simpler but more fundamental and pervasive one. Here the existence of A is only hypothetical i.e., entirely the product of (self-referential) conjecture from B and wild meaningless guessing from C or D. B is the LCS, C is us in the PMT VR, and D is an advanced future WOW game with conscious elves. From D's view, C is correctly defined as fundamental (the potential existence of A and B is theoretically unknowable). From C's view, B is correctly defined as fundamental (A is theoretically unknowable). How I, from my perspective, define the words "fundamental" and "virtual") is that the LCS is fundamental and all else causally downstream is virtual – and that no intelligent comment can be made about the causal upstream without assuming that it must be like us which I see as logically unsupportable since, by definition, the subsystem cannot know everything about the supersystem or it wouldn't actually be a subsystem (and we know very, very little of our supersystem.). - it is an emergent phenomenon due to many meta-system transitions, which lead not only to more complex outer appearances for complex systems, but also to more complex experiential processes for complex systems. Thus my experiential process is emergent from the integrated experiential processes of the cells in my body. The cells of your body aren't living physical cells.
Quite right! Nothing is physical - or needs to be. They are living virtual cells. Just as I am a living virtual person. Neither of these are any more real than the other. They are just different perspectives within the holarchy (the hierarchy of systems within systems within systems... not objectively 'within' of course, but virtually). We humans fixate of the human perspective because that is our perspective - but it is not "the perspective" on reality, it is just our perspective. The cells in my body

also experience themselves as individual living beings, with their own perspective from which I am just a remote abstract sense of some unifying order - they don't know about my life - just as I don't know about the "inner life" of the 'beings' that are emerging out of us, which we think of as 'nation' or 'corporation' but that is just our way of seeing it from our perspective. In other words, what we experience as the "growth of civilisation" is a meta-system transition analogous to the Cambrian explosion during which single cells integrated for mutual benefit and formed into multi-cellular organisms. We are the new Eukaryotes, forming into multi-organism organisations or super-organisms. These have their own primitive urges and instincts, and they can develop higher levels of consciousness, just as we did over the past 550 million years. They already show marked signs of their progress - with advanced macro-cognitive processes, such as public consensus, media manipulation, politics, diplomacy, "the market", academia, focus groups, activist groups, and countless other factions that all contribute to a very complex decision space in which the collective identity emerges, collective norms are established, collective agendas form, and so on. How that feels to the 'nation' is as beyond us as a neuron trying to grasp how we feel when we have thoughts, emotions, desires, fears, etc. Those collective phenomena are emergent on a higher level thus many aspects of them seem abstract to us, but that is just an illusion that happens because we only ever consider the situation from one level within the holarchy. To understand the whole situation all levels of the holarchy need to be considered.

You have a virtual body. Your cells are bits of information and those cells that aren't being measured (looked at) are only potential information. Thus, Your awareness, your consciousness, is emergent from potential information that has never been computed yet and for the most part will never be computed. The cells of your body are, for the most part, like the cells of anything else that doesn't exist in PMR (isn't being measured so doesn't exist in any conscious beings datastream)– like the cells of T-Rex or flying pink elephants. . Reality in a VR is defined only by the information in the datastreams of its players.

I agree with all of that - but it comes down to perspective occupation... you are saying that when you perceive cells, they appear in your stream of awareness, yet they have no stream of awareness of their own - so their perspective is unoccupied...

But why don't you say the same about me??? Perhaps I only appear to exist to you when you pay me attention and other than that I don't have any experiences of my own - I only appear to do so. If you claim that about cells then why not about people?

When I see cells I see living beings, with complex lives, complex social structures and interactions, forming into complex societies. Societies so complex that they can form into things like me.

I don't see any reason to assume that the cellular perspective is unoccupied. It seems undeniable to me that it is occupied, and that my perspective is emergent from their perspectives. I would propose that any theory of reality needs to not only take account of "our perspective" (the one that you currently recognise) but it also needs to take account of the cellular perspective and the perspective of all systems at all levels of the holarchy. Anything less would not be a complete or a unified theory - it would just be a theory appropriate to a small subset of perspectives.

Likewise, when we integrate into complex societies and organisations, these complex systems that we form into also come to experience things from their own perspective. I find that this approach helps me to make sense of the global politics between nations, the actions of corporations and so on. I define a conscious entity as one that has a finite decision space (has significant choices that it can make and the free will to make them). The systems we form, like nations, have zero decision space, it is the people within those systems who make the decisions.

I could also say that I have no decision space - it is the neurons within me that make the decisions. But that is only part of the story... Of course neurons only make synaptic level decisions, but these integrate into emergent decisions at the level of the 'person' - which is a cognitive myth just like the

'state' is to us. Those "people within those systems" are just making human level decisions, but these integrate into emergent decisions at the level of the 'state' (or organisation in general). That is why so often there are unintended outcomes that nobody wanted, but came about anyway - like wars, depressions, pogroms, consumer fads, etc.

Yes, such systems can take on a “life of its own” but that is a metaphor not a fact.

No! It is a fact and we multi-cellular organisms are all living proof of the fact. We have had our meta-system transition (Cambrian explosion) and had 550 million years to settle into our niche, to develop complex functionality and refine this into a fine art. However these emergent super-organisms are having their own meta-system transition now (for the past 20,000 years or so but it started slow) and are forming their own higher level ecosystem, in which we are either part of them like how the Eukaryotes live their lives within us (like well schooled, media conditioned, suburbanites) or we are like bacteria to them (wild anarchists, a potential cancer).

Of course it is impossible to talk directly about many aspects of this issue because the entire language is expressed from and able to comprehend only a particular level of the holarchy - the human level. Thus the other levels seem abstract and less real - but from their perspective our level seems just as abstract and less real.

This metaphorical life is animated by all the consciousness being in that system and it is these beings who are modified by the choices, decisions, and attitudes of all those who have come before them and all those with which they interact. The life of a nation is created and carried forward by the lives of its people. Eliminate all the people and what sort of free will choices will the nation (which no longer exists) make?

Quite true, however this flow stems from the source, via the experiential processes of the most primitive virtual systems, through the experiences of many levels of complex systems within systems, through our cells, through us, into society, and beyond... Of course it doesn't objectively flow through objective entities that were labelled... those are all virtual systems, they exist from some perspectives and not from others. However they also experience from their own perspectives, as virtual as those perspectives are. Our own perspective is just one of those virtual perspectives, from a particular level of the holarchy. It doesn't give us a privileged view of reality. We have the same general relationship with our sub-systems and super-systems and any other system does. We succumb to the same perceptual illusions regarding them and ourselves.

The flow is NOT centred on the human level - it is just our perspective that is - hence that is the level we experience the most and which seems the most real to us. I assure you, to a cell in your elbow you are no more real to it than "the nation" is to you. You are both aspects of a fractal, systemic, holarchic virtual process that is experiencing itself from different perspectives... neither perspective is "the perspective".

Both of you have suggested that this approach would lead to too much computation I don’t relate to this comment, probably because I don’t really understand what your position is. but I don't see why. It does lead to a lot of computation but there is nothing that we can observe about this universe or infer from fundamental principles that suggests anything about the maximum capacity of the animating process. We can infer its **minimum** capacity but there is nothing at all that can tell us anything about its maximum capacity. I agree with all that. I don’t mind big, even much bigger than big is ok with me, but I do mind big and unnecessary. Evolved systems are seldom wantonly wasteful (like many worlds or both physical and nonphysical reductionism) spending zillions of cycles computing wholly unnecessary (useless) information.

Okay, you might not say "too much computation" Brian seems to, but you mean a similar thing (to me at least) when you say "wholly unnecessary". We seem to have very different ideas about how much is necessary. Much of what you call "wholly unnecessary" is to me totally necessary.

I agree that if we are only going to account for a small subset of perspectives within the holarchy then much of that processing that I suggest would be unnecessary. However if we are to account for all perspectives then it is entirely necessary. IMHO that is exactly what is required of a complete, unified process that animates all perspectives. In fact that is what SMN is, it is a mathematical algorithm that defines the minimum information processing required to animate all perspectives throughout a virtual system holarchy. I believe that anything less is incomplete and is certainly not a BIG picture unified theory of everything - only of some perspectives.

A few related questions for you Tom; if we are to propose that various perspectives are unoccupied, by what criteria do we decide which are occupied and which unoccupied? Is it even possible to discern this regarding any perspective other than one's own? What reasons might there be for us to propose that any perspectives are unoccupied? Why would such a proposition survive Occam's razor? Why is it necessary?
This is a very interesting topic to discuss, I hope you are enjoying this as much as me ;)
All the best! :)

From: Tom Campbell
Date: Thu, Mar 6, 2014 at 10:25 AM

John, Brian.

Brian, though these comments are in direct response to John, I believe they will answer many of your issues as well.

See below in red

Tom

From: John Ringland
Sent: Monday, March 03, 2014 8:59 PM

If by the term "consciousness" we are talking about just the high level modes exhibited by complex systems such as ourselves then I agree with you that trees aren't conscious in that way, let alone rocks... In this context I would also agree with those who say that consciousness is an epiphenomenon of the brain (a virtual brain of course). The virtual brain is not the source of anything. It stores nothing and processes nothing. It is a virtual brain, exactly like the virtual brains that are in the virtual heads of virtual elves in WOW. You, the player of WOW on your computer, are the consciousness of your elf. Thus, to be consistent, you must believe that you are an epiphenomenon of your elves' virtual brain? That surely is a strange position for you to take J. You say that your WOW elf is not conscious like you are? That is not true, you are its consciousness and you exist in a reality frame outside of the WOW reality frame. Your IUOC, your personal consciousness whose VR avatar is named John Ringland also exists in a reality frame that lies outside John Ringland's virtual body's reality frame (your virtual body & brain are in the **exact same** virtual state as the elves virtual body & brain – just data in a computer – neither are conscious in and of themselves – both are animated by a consciousness that resides in a reality frame that appears to be non-physical from the perspective of their body's and brains). Furthermore, your consciousness is not an epiphenomenon of the data that you and other PMR players get in your datastreams that defines your virtual body with its assumed brain.

The WOW rule-set does not allow you to open an elf's head, if it did, you would no doubt see the elf's brain because the programmers would be obliged to program something there for you to see and a brain would be the most likely thing. Wow is a programmed VR -- the programmers make up the rules and the players get a datastream from the server that must abide by the rules. PMR is an evolved VR -- the rules are a logical result of the rule-set and the players get a datastream from the

server (LCS) that must abide by the logical results of these rules. In PMR the rules do allow you to open up a human's head and you do find a brain in there because the PMR VR simulation evolved one under the rule-set. The PMR player (consciousness that resides in the LCS server) gets a datastream that renders a brain when an animal's head is opened but that does not have to render a brain when no head is opened. In PMR, when no head is open, no brain need be rendered or calculated – only the results of a brain need to be simulated – just like the elf. In both VRs, the simulation, under the logic of the rule-set, sets the constraints that limit what is allowed in the datastream that goes to each player (consciousness). Bash a human or an elf in the head and new constraints, according to the rule-set, will force new constraints to be applied to what that brain damaged human or elf can now do. The VR only has to calculate probable results, not specific results and whatever that probable result is (whatever is drawn randomly from the probability distribution) becomes the specific result. In the small number of cases where an autopsy is done, then at every step requiring more information, another random draw is taken from the appropriate probability distribution and new information (new rendering) is added to the surgeon's datastream.

Only effects are ever rendered in PMR or WOW. Causes are always assumed based on the measured effects. The underlying rule-set gives consistency to the effects and their assumed causes. The WOW VR is crude and high level because it is programmed with a crude and high level rule-set. The PMR VR is extremely detailed because it was derived from a set of initial conditions that evolved under the logic of a rule-set that specified interactive energy exchanges at a very fundamental level (Big Digital Bang). Once certain conditions, circumstances, or events happen millions of times, the ability to represent these certain conditions, circumstances, or events in terms of probability distributions becomes both easy and accurate enough such that extremely detailed assessments of causality, according to the rule-set, are rarely needed.

But if by the term "consciousness" we are talking about the whole spectrum of consciousness, from its most primal roots to its most familiar manifestation as everyday mind, then I would disagree that trees and rocks are devoid of that type of consciousness. Every manifest form is woven out of consciousness. Consciousness is the animating process that enlivens all virtual forms so no virtual form can exist without it. I would say that every rock and virtual brain and body is a **product of consciousness** in that consciousness is the server that produces virtual world by creating a process (initial conditions, constants, and a rule-set) and letting it evolve in the computer. Your body and the rocks and your brain are all the same sort of products of consciousness – all are virtual. All are simply data in a computer. None are more or less alive or real than any other. A brain and a rock are just different data in a computer, neither thinks, stores data, or has awareness of any kind. However a conscious player (IUOC) will not likely choose the rock as an avatar because of its rather severe constraints (what the rule-set says a simulated rock can do and the freewill choices it can make). A player (IUOC) might choose a monkey, dog, or human as an avatar depending on its evolved capacity and ability. Like, the rock, the bumble may have to be a CGC (computer generated character) if there were no players interested in experiencing at that low a level of applied consciousness. However, perhaps a low level player would be interested in controlling the free will choices of an entire hive of bees. Nobody wants to play (make the free will choices for) a rock as an avatar because the rock has no interesting choices to make. Thus the rock as a potential avatar draws no player and remains a part of the environment generated by the computer (a CGC with no consciousness). My definition of consciousness is logically consistent with my understanding of the mechanics of a VR which we mostly seem to agree on .

My definition is common in Eastern culture (Yogic, Vedic, Buddhist, Taoist, etc) and your definition is common in Western culture (Descartes, cognitive science, mind/body dilemma, hard problem of consciousness) In my theory, there is no mind body dilemma and there is no hard problem – those issues are both conclusively solved. The different definitions often lead to confusion between the two cultures. Hopefully we can be alert enough to avoid the worst of that.

I would say that Eastern religions have taken the fact that everything is a product of consciousness (created by consciousness, generated form consciousness) – the fact that consciousness is the one ultimate source, and then jumped to the erroneous belief that therefore everything must **be** conscious. Given how the process of communicating with the LCS or void or NPMR or whatever actually works, such misunderstandings are extremely easy to make and extremely common. Once made, they tend to be justified. Once justified (particularly within religion) they tend to eventually become unquestionable dogma. If everything is conscious, then what does the word "**conscious**" mean. It certainly doesn't mean "aware" unless you change the definition of "aware" to accommodate the belief. It certainly doesn't mean interactive or sentient. A rock or molecule certainly has no decision space, no free will choices unless you change the definitions of "interactive", "sentient", "free", "will", and "choice" to fit the belief. If the word "conscious" doesn't mean aware, interactive, sentient and has a free will (at least a tiny intellectual capacity to choose among alternatives), then what does it mean to call something conscious?... Or to ask: "Is he conscious? The word "conscious" (as opposed to consciousness) is rendered meaningless. One is forced to create a new definition for "conscious" that props up one's belief even though rocks that are conscious (Eastern viewpoint?) delivers nothing to the Theory of Everything that can't more simply and directly be achieved without stretching the word "conscious" to include rocks. I invoke Occam's razor -- Anyway, that is my reasoning. I will respect your take on it. The value you bring to the table is in no way dependent on your definition of the word consciousness.

My ideas stem from SMN, which requires that all virtual systems have both an observable appearance and an experiential process - and all system interactions are driven by the system's experiences and reactions. Thus if systems could not experience each other then there would be no system interactions and nothing could happen within the VR. Thus I propose that all virtual systems have experiences from their perspective and there is no such thing as an unoccupied perspective or an inanimate system or an automaton. I think we may disagree over rocks since rocks make no freewill choices. Plants and other living things that have no decision space (their actions are hardwired and not a result of free choice) may have a rudimentary awareness and thus may receive a vague datastream (something we would associate more with feeling than intellect), but their reactions to (interactions with) that data stream are never manifest in freewill choices. We can only share their feelings. Yes my definition of consciousness requiring a finite free will decision space is entirely arbitrary. But I find it very useful and easy to explain and it keeps the definition of consciousness crisp, clear and clean. No arguments about what plants think about the double slit experiment. J

As you've probably already gathered from my comments above, its a difference in definitions... In the context of your definitions I too would disagree with my statement there. However in the context of my definition, do you now see what I was saying? Yes, I can appreciate different definitions. But all definitions are not equally useful. I can understand what you are saying, but I cannot see any logical reason behind it. It seems to me to be a statement of belief that is contrary (or at least confusing) to the basic nature of a virtual reality. I don't see its logical necessity and it seems to make more of a jumble to explain (conscious rocks) than it creates elegant simplicity.

I'll rephrase it... obviously rocks have no decision space or free will Check - neither do they have a neocortex or other subsystems to give them such functionality. Check Likewise, we don't have terrabytes of RAM-like memory but if we gave ourselves the right implants we could enable that mode of consciousness for ourselves as well. Check, the rule-set did not evolve that characteristic in humans and if it had, we would have fewer constraints and be cognitively different than we are now. But, in generating a model of reality that describes PMR we must remain consistent with the logical results of the rule-set. Systems such as trees and rocks are a much more basic manifestation of consciousness. Yes "manifestations of consciousness" I agree completely, they are generated by (manifested by) the Larger Consciousness System (LCS – our server) just as we are, and just as everything else is, however, that fact does not make them conscious. It is only via many levels of meta-system transitions that the higher levels of complex consciousness emerge -with sub-systems

interacting and integrating into super-systems - eventually resulting in systems such as ourselves which are capable of experiencing ourselves as individual entities, with perceptual fields, memory, identity, self-image, life story, world-view and all manner of other complex functionality. No, that is a virtual cousin to the old consciousness rises out of physicality story. This process: "via many levels of meta-system transitions…" sounds like "smoke and mirrors"…."…and then, a miracle occurred" J. Note: a meta-system transition is not an objective process - it too is virtual, different perspectives will perceive different system boundaries. That statement gets you out of an obvious bind J but it doesn't explain the logical necessity for conscious rocks. One could take it to mean that the larger consciousness system as we know it today evolved from a simple potential that had the ability to define bits.

Consciousness is a large, finite, self-organizing digital information system. It began as a field of potential (primordial consciousness) that developed to be able to perceive two different states, on and off, 1 and 0… Following the typical evolution paradigm, random mutation eventually leads to complexity which eventually leads to purposeful evolution..lower entropy states..[which eventually leads to what we think of today as consciousness and to Virtual realities such as PMR].

In the beginning, there was only a field of potential that we choose to call "primordial consciousness" because one day consciousness (as we know it today will evolve out of this potential. This "field of potential" is called that because it had the potential to discriminate one state of its being from another i.e., to evolve information in the form of bits (1 and 0). This system of potential that is able to evolve bits (one may call it an information field now if one wants to -- or, equivalently, one may call it primordial consciousness) continued evolving to form patterns of its bits and more bits and more patterns of patterns and then sequences of patterns as it lowered its entropy (gained useful information, structure, and complexity). Consciousness, being a data system, and thus, an information system, and eventually a social system (as it evolved to a many "celled" thing), defines a much lower entropy configuration of bits than any other arrangement. In other words, the LCS evolved, from a simple but large potential with only a few bits, to be what it is today. We know that consciousness "cells" or IUOCs can come in a wide range of capacities and capabilities. VRs like our PMR were created to provide interactive experience with feedback to facilitate the process of consciousness evolution (to lower entropy states)

Think of the LCS digital information system as a superset that contains all IUOCs, as well as additional functional capacity to serve as the executive element creating, implementing, and managing the operating system, I/O coordination, network management, VR development, Virtual reality rendering engines, rule-sets and technology development, and various other optimization, and maintenance functions as required to maximize its continuing evolution. It is not credible to think that all these system services and functions are hard wired and require no decision space. Thus, it is very likely that the executive function of the LCS represents a consciousness that functions with a much higher level of capacities and capabilities than the IUOC consciousness we are familiar with.

The possibility of a more highly evolved consciousness functioning at the executive level of the LCS is supported by the many ways that the LCS reaches in to touch our individual experiences in PMR with well thought out and well timed synchronicities, nudges, information, and opportunities. In addition, there is obvious organization, coordination, and purpose to most of our NPMR personal experiences as well (such as dreaming and intuition for most people) -- at least to the extent that we are ready to use these experiences to further our consciousness evolution. Where does this interactive personal support structure come from if not from a LCS system consciousness with a bigger picture than ours? Brian, you can call it "god" if you want, but it is a natural self-changing, evolving digital information system that is finite and imperfect and just trying to stay alive by continuing to evolve. It eventually evolved a finite decision space and a free will that enabled it to choose from a limited set of known alternative possibilities. (Usually there is not enough information for a definitive solution). To create diversity and novelty and many more channels of evolution, it created more or less independent interactive subsets of itself which I call individuated

units of consciousness (IUOC). Eventually, it evolved many experiential VRs, of which our PMR is one, to aid the IUOC's and thus its own evolution process.

This is a very rough and quick summary with lots of holes purposely left in to keep it short. It is all laid out in detail in both books and videos that I know you don't have time, or perhaps the interest, to read. Yes, I know Brian, it is surprising to realize that religion actually has a fairly thick thread of truth running through the middle of all that dysfunctional nonsense. J

The point was to show a different model that has no need for conscious rocks or "via many levels of meta-system transitions…" in order to arrive at what we normally call consciousness in the West. Hopefully this will allow John to see where I am coming from and to perhaps (hopefully) find connections between his story and mine – that we are just calling the same concepts by different names. If you want the long version and all of the logical consequences, read the books and look at the Calgary Workshop" video (Saturday for most of the science) on YouTube www.youtube.com/twcjr44

If a virtual system that I think of as "a rock" had no consciousness at all (using my definition here), if it has no primal awareness at all, then when I try to kick it, the fragments, molecules, atoms (or any systems within that part of the holarchy) wouldn't even notice the kick. There would be no force transfer, no shockwave travelling through the rock, no displacement, simply nothing would happen, in fact I wouldn't even be able to see the rock, let alone kick it - it simply wouldn't exist in the virtual space if it had no animating process animating it into existence within the virtual space. Consciousness is the animating process of all systems so all systems must have consciousness of at least some basic form in order to exist in and participate in the VR. IN my theory, the rock is visible and there because that is the way our PMR evolution worked out (digital simulation that started with the big digital bang when the "run" button was clicked and the rule set began working on the initial conditions -- high temp and pressure in a small volume….). The rock doesn't notice the kick because it isn't conscious, but it is a product of the simulation and must obey the rule-set as all things in the VR must. The rule set subsumes Newton's laws and computes the rocks reaction (actually it randomly selects from a probability distribution of possible/probable reactions – but that detail just complicates my answer and by now you know that is what I am talking about. The rock need no animating process and no consciousness – the rule set is the animating process. So far Science and I agree 100 % and rocks are just dead rocks (though virtual rocks) and nothing more. Saying that rocks move because they are conscious to anyone outside your inner circle would just ruin your credibility, minimize your audience, and provide no compensating benefit.

I don't suggest that the experiential process of a complex system has fundamental reality That depends on how you define "fundamental" and whether the "complex system" of which you speak is fundamental under your definition.

When I say that SMN requires that all systems have an experiential process (raw, direct, primal awareness), I would say that all systems are **part of** an experiential process, that they **have** an experience is an assumption that is not logically necessary. The VR is there to create an experiential experience for IUOCs (dogs men, and bumblebees) and everything in it is there to be experienced by the players. this is the lowest level of 'manifest' consciousness, upon which all higher levels supervene. All of these separate streams of consciousness, from the most primitive to the most complex are virtual processes that are animated by a single unified process, which is the animating process of the whole show. That's what I mean by saying they lack fundamental existence - all the separate individual processes are virtual - only the unified process is actual. Any form of individual consciousness is a virtual process - the true Source, that which does fundamentally exist, is the unified consciousness which is not individual and not associated with any 'entity' - it is the "ground of being". I would agree with that last statement completely except I would say that the reason that "consciousness which is not individual and not associated with any 'entity'" is because it is associated with, is part of, and one with, every conscious entity. The rest are CGCs. In my model, consciousness is

fundamental (including the LCS and the IUOC who are just subsets of the LCS, parts of the LCS – like arms are a part of your body. The IUOCs are one with the LCS but serve a specific fiction like arms serve a specific function for the body. The arms are part of the body and one with the body but also separate from other parts of the body like the legs or brain -- so "separateness" is only functional , not literal. All consciousness is one and all is fundamental. All else is virtual. My model is pretty close to your model in the most important ways, but we break things out differently and my rocks are dead. J

The complex system (C) may be a derivative of another more fundamental complex system (subsystem B). Also complex system (C) may derive another less fundamental complex system (D). **Thus, it may be that:** From the perspective of D, C is fundamental and B, if it exists, is unknown and theoretically unknowable.

Those systems are all virtual - none of them have fundamental existence. That can be said of any manifest system whatsoever. In order to 'manifest' it must do so in a virtual context, hence it is a virtual system, hence it lacks fundamental existence - what the Buddhists call 'sunnyata' (trans. emptiness). In my mind, those systems are all consciousness systems and therefore all fundamental since consciousness is fundamental. My model allows multiple consciousness systems. A consciousness system like the LCS can evolve to the point where the players evolve or develop a very advanced (evolving) WOW game with conscious elves (no outside people with computers needed – those elves are now directly connected with the LCS). Our LCS **may** be a VR developed as a subset within some other larger consciousness system. All of those separate **appearing** IUOC in all those different systems (whether superset or subset) simply belong to One Source, One real fundamental consciousness system with many arms (the one whose origin I described above). I find the exclusiveness of a one and only source that is the source of just our universe to be narrow and self focused.

Likewise, From the perspective of C, B is fundamental, D is a known derivative of itself (a subsystem of C) and A, if it exists, is unknown and theoretically unknowable. From the perspective of B, there may or may not be anything more fundamental than itself – there may or may not be a complex system A. B may have simply **evolved**, pulled itself up by the bootstraps of its inherent potential, and was not derived from a more complex system but rather from a much simpler but more fundamental and pervasive one. Here the existence of A is only hypothetical i.e., entirely the product of (self-referential) conjecture from B and wild meaningless guessing from C or D. B is the LCS, C is us in the PMT VR, and D is an advanced future WOW game with conscious elves. From D's view, C is correctly defined as fundamental (the potential existence of A and B is theoretically unknowable). From C's view, B is correctly defined as fundamental (A is theoretically unknowable). How I, from my perspective, define the words "fundamental" and "virtual") is that the LCS is fundamental and all else causally downstream is virtual – and that no intelligent comment can be made about the causal upstream without assuming that it must be like us which I see as logically unsupportable since, by definition, the subsystem cannot know everything about the supersystem or it wouldn't actually be a subsystem (and we know very, very little of our supersystem.). - it is an emergent phenomenon due to many meta-system transitions, which lead not only to more complex outer appearances for complex systems, but also to more complex experiential processes for complex systems. Thus my experiential process is emergent from the integrated experiential processes of the cells in my body. The cells of your body aren't living physical cells.

Quite right! Nothing is physical - or needs to be. They are living virtual cells. Ah, we finally get to the crux. There is no living virtual cell, a virtual cell is just information, just data in a computer like any data in a computer. Just as I am a living virtual person. You are not a living virtual person – "living" and "virtual" are mutually exclusive. Data sitting in memory registers within my computer or any computer is never living. You (the nonphysical you) are a piece of the LCS which is "living" fundamental conscious with free will and you are in a VR game playing with a virtual avatar body in order to exercise your ability to make low

entropy choices within a virtual experiential setting and thereby evolve yourself (you as consciousness) and the system (the LCS). Neither of these are any more real than the other. They are just different perspectives within the holarchy (the hierarchy of systems within systems within systems... not objectively 'within' of course, but virtually). We humans fixate of the human perspective because that is our perspective - but it is not "the perspective" on reality, it is just our perspective. The cells in my body also experience themselves as individual living beings, with their own perspective from which I am just a remote abstract sense of some unifying order - they don't know about my life - just as I don't know about the "inner life" of the 'beings' that are emerging out of us, which we think of as 'nation' or 'corporation' but that is just our way of seeing it from our perspective. In other words, what we experience as the "growth of civilisation" is a meta-system transition analogous to the Cambrian explosion during which single cells integrated for mutual benefit and formed into multi-cellular organisms. We are the new Eukaryotes, forming into multi-organism organisations or super-organisms. These have their own primitive urges and instincts, and they can develop higher levels of consciousness, just as we did over the past 550 million years. They already show marked signs of their progress - with advanced macro-cognitive processes, such as public consensus, media manipulation, politics, diplomacy, "the market", academia, focus groups, activist groups, and countless other factions that all contribute to a very complex decision space in which the collective identity emerges, collective norms are established, collective agendas form, and so on. How that feels to the 'nation' is as beyond us as a neuron trying to grasp how we feel when we have thoughts, emotions, desires, fears, etc. Those collective phenomena are emergent on a higher level thus many aspects of them seem abstract to us, but that is just an illusion that happens because we only ever consider the situation from one level within the holarchy. To understand the whole situation all levels of the holarchy need to be considered. Funny, I can fully agree with all the big picture results (observables) you mention above, I might have even written most of that paragraph myself with your “facts” being my “metaphors” but our sense of the mechanics of causality (where it all comes from and how it all works) is completely different. In my scheme living virtual beings and conscious rocks are complete nonsense -- but we end up with very similar views and attitudes about the macro world. The biggest difference is that my theory lines up perfectly with science (data in a computer (digital information system) is not living and rocks are not conscious) and yours lines up with Eastern Religious or metaphysical concepts.

I guess if one starts with the reality in front of you (PMR and NPMR) and works backward to develop a uniform causality to explain it, if one is intelligent and consistent one will develop a theory that explains the reality as we see it. One will have a theory that begins with an origin and derives the reality we experience. However each individual doing this process may work back to different assumptions and structure at the beginning and use compensating assumptions to get the right answers. I am a scientist with as much experience in NPMR as PMR so my theory matches perfectly from start to finish with science (given the concept of a virtual reality – which science is embracing more and more) and with the **observables** of metaphysics, theology, and the everyday world. Your theory also matches the **observables** of metaphysics and theology and the everyday world but ends up with conscious rocks and living datasets at the origin that are not necessary to a working virtual reality description, and are a hard sell to science. “Different strokes for different folks” My theory predicts and explains the detailed results of QM experiments like double slit, and PEAR labs, placebo effect, particle tunneling, and a whole host of experiments and experiences that have no explanation in “traditional” physics. Does your theory do that too?

You have a virtual body. Your cells are bits of information and those cells that aren’t being measured (looked at) are only potential information. Thus, Your awareness, your consciousness, is emergent from potential information that has never been computed yet and for the most part will never be computed. The cells of your body are, for the most part, like the cells of anything else that

doesn't exist in PMR (isn't being measured so doesn't exist in any conscious beings datastream)– like the cells of T-Rex or flying pink elephants. . Reality in a VR is defined only by the information in the datastreams of its players.

I agree with all of that - but it comes down to perspective occupation... you are saying that when you perceive cells, they appear in your stream of awareness, yet they have no stream of awareness of they own - so their perspective is unoccupied...

But why don't you say the same about me??? Perhaps I only appear to exist to you when you pay me attention and other than that I don't have any experiences of my own - I only appear to do so. If you claim that about cells then why not about people? Because you, a virtual person only because we interact exclusively through data exchange, appear to be conscious (have original ideas, respond to me both intellectually and emotionally, type on a keyboard. Cells don't have those same properties, so it is easy to distinguish the difference – they have no decision space. I knew you weren't a cell or a rock from the moment I first met you J

When I see cells I see living beings, with complex lives, complex social structures and interactions, forming into complex societies. Societies so complex that they can form into things like me. I see all that too. "**You" as the avatar** are indeed the result of all this complexity within the evolving virtual simulation. Don't confuse what is in the simulation with anything real or living. That is just your Avatar -- the image made by dead data that you animate with your consciousness – not living data that is animated by complexity. **You the consciousness** are an IUOC, the real fundamental thing. Your avatar body is virtual just like the people simulated in The SIMS. You don't think their data is living? Theirs is no different at all between them and your avatar except the quality and detail of the VR.

I don't see any reason to assume that the cellular perspective is unoccupied. It seems undeniable to me that it is occupied, and that my perspective is emergent from their perspectives. I would propose that any theory of reality needs to not only take account of "our perspective" (the one that you currently recognise) but it also needs to take account of the cellular perspective and the perspective of all systems at all levels of the holarchy. Anything less would not be a complete or a unified theory - it would just be a theory appropriate to a small subset of perspectives. The virtual cells in your virtual avatars body has no perspective because it does not exist as a living cell. It only exists as a collection of data in a computer – exactly like the SIMS character. That is what the word virtual means to me. Data in a computer has no perspective to occupy. Rocks have no perspective to occupy. Your avatars virtual body has no cells – no cells are ever computed. Only skin is sometimes computed, but individual cells never, unless you get put under a microscope. So why should a cell that is only a hypothetical cell that is never computed (like the cells in flying pink elephants) have a perspective? Cover yourself an no part of your Avatars body is computed since no part of your avatars body can be in any player's PMR datastream as part of their measurable reality.

Likewise, when we integrate into complex societies and organisations, these complex systems that we form into also come to experience things from their own perspective. I find that this approach helps me to make sense of the global politics between nations, the actions of corporations and so on. I define a conscious entity as one that has a finite decision space (has significant choices that it can make and the free will to make them). The systems we form, like nations, have zero decision space, it is the people within those systems who make the decisions.

I could also say that I have no decision space - it is the neurons within me that make the decisions. But that is only part of the story... Of course neurons only make synaptic level decisions, but these integrate into emergent decisions at the level of the 'person' - which is a cognitive myth just like the 'state' is to us. Those "people within those systems" are just making human level decisions, but these integrate into emergent decisions at the level of the 'state' (or organisation in general). That is why so often there are unintended outcomes that

nobody wanted, but came about anyway - like wars, depressions, pogroms, consumer fads, etc.

Yes, such systems can take on a “life of its own” but that is a metaphor not a fact.

No! It is a fact and we multi-cellular organisms are all living proof of the fact. We have had our meta-system transition (Cambrian explosion) and had 550 million years to settle into our niche, to develop complex functionality and refine this into a fine art. However these emergent super-organisms are having their own meta-system transition now (for the past 20,000 years or so but it started slow) and are forming their own higher level ecosystem, in which we are either part of them like how the Eukaryotes live their lives within us (like well schooled, media conditioned, suburbanites) or we are like bacteria to them (wild anarchists, a potential cancer). All that happened in a computer simulation game with IUOC making the choices.

Of course it is impossible to talk directly about many aspects of this issue because the entire language is expressed from and able to comprehend only a particular level of the holarchy - the human level. Thus the other levels seem abstract and less real - but from their perspective our level seems just as abstract and less real.

This metaphorical life is animated by all the consciousness being in that system and it is these beings who are modified by the choices, decisions, and attitudes of all those who have come before them and all those with which they interact. The life of a nation is created and carried forward by the lives of its people. Eliminate all the people and what sort of free will choices will the nation (which no longer exists) make?

Quite true, however this flow stems from the source, via the experiential processes of the most primitive virtual systems, through the experiences of many levels of complex systems within systems, through our cells, through us, into society, and beyond... Of course it doesn't objectively flow through objective entities that were labelled... those are all virtual systems, they exist from some perspectives and not from others. However they also experience from their own perspectives, as virtual as those perspectives are. Our own perspective is just one of those virtual perspectives, from a particular level of the holarchy. It doesn't give us a privileged view of reality. We have the same general relationship with our sub-systems and super-systems and any other system does. We succumb to the same perceptual illusions regarding them and ourselves.

The flow is NOT centred on the human level - it is just our perspective that is Yes, there is the perspective of dogs, foxes, worms, and bumblebee and every other type of avatar that is animated by a consciousness (IUOC).- hence that is the level we experience the most and which seems the most real to us. I assure you, to a cell in your elbow you are no more real to it than "the nation" is to you. I have no cells in my elbow. I am consciousness and I have no elbows. My avatar body theoretically has cells in its virtual elbow but none of them have ever been rendered in any reality. They are just hypothetical data in a computer simulation and have no perspective since no consciousness has chosen them as an avatar. You are both aspects of a fractal, systemic, holarchic virtual process that is experiencing itself from different perspectives... neither perspective is "the perspective".

Both of you have suggested that this approach would lead to too much computation I don’t relate to this comment, probably because I don’t really understand what your position is. but I don't see why. It does lead to a lot of computation but there is nothing that we can observe about this universe or infer from fundamental principles that suggests anything about the maximum capacity of the animating process. We can infer its **minimum** capacity but there is nothing at all that can tell us anything about its maximum capacity. I agree with all that. I don’t mind big, even much bigger than big is ok with me, but I do mind big and unnecessary. Evolved systems are seldom wantonly wasteful (like many worlds or both physical and nonphysical reductionism) spending zillions of cycles computing wholly unnecessary (useless) information.

Okay, you might not say "too much computation" Brian seems to, but you mean a similar thing (to me at least) when you say "wholly unnecessary". We seem to have very different ideas about how much is necessary. Much of what you call "wholly unnecessary" is to me totally necessary. Yes, I see that, and I am glad I am on the Occam's parsimonious end of that fact (the end that uses fewer computer resources and has fewer assumptions but still reaches the desired endpoint: a scientific model of reality that fits all the **directly observable** data points.

I agree that if we are only going to account for a small subset of perspectives within the holarchy then much of that processing that I suggest would be unnecessary. However if we are to account for all perspectives then it is entirely necessary. IMHO that is exactly what is required of a complete, unified process that animates all perspectives. In fact that is what SMN is, it is a mathematical algorithm that defines the minimum information processing required to animate all perspectives throughout a virtual system holarchy. I believe that anything less is incomplete and is certainly not a BIG picture unified theory of everything - only of some perspectives.

A few related questions for you Tom; if we are to propose that various perspectives are unoccupied, by what criteria do we decide which are occupied and which unoccupied? Is it even possible to discern this regarding any perspective other than one's own? What reasons might there be for us to propose that any perspectives are unoccupied? Why would such a proposition survive Occam's razor? Why is it necessary? I think I have answered all these above a few times over.

This is a very interesting topic to discuss, I hope you are enjoying this as much as me ;) Yes, very interesting. Our models are very different at the causal root. We understand the word virtual very differently. To me virtual reality is a computer simulation just like any other computer simulation (nothing in it is aware or has a perspective – all is just possibility and probability run by a rule-set -- CGC) until a consciousness (man or beast) chooses to play a virtual character. The LCS can generate as many IUOCs as necessary to populate its simulation and modify the simulation to fit the number of IUOCs such that only few characters above a certain level of interaction are CGC. The VR has a purpose to aid the evolution of consciousness and is configured and implemented to optimize that goal.

All the best! :) It has been fun…I think we have learned a lot about each other's approach. All the best to you also. Viva le difference!

From: John Ringland
Date: Fri, Mar 7, 2014 at 2:24 AM

Wow! I had no idea the difference was so profound! And so fertile :)

I hope you don't mind if I dig into this a little... pretty deeply in the end - this turned out to be a long email with some reiteration of points in different contexts but many essential points that I think need to be directly addressed with more than just some sweeping statements. Hence this is rather long and detailed, hopefully you don't mind... please take your time rather than just skim it - there are many subtle points discussed in detail.

I can immediately think of two metaphors that neatly capture each of our views, and that can help us to understand them in relation to each other and explain why we have so much in common yet such profound differences.

Your view I would liken to the metaphor of a multi-player VR game like WOW (I'll call this the game-model).

As you said: "To me virtual reality is a computer simulation... all is just possibility and probability run by a rule-set... until a consciousness (man or beast) chooses to play a virtual character."

An important characteristic of this game-model is that consciousness is injected into it from outside of it, hence the VR and its animating process must coexist in some manifest context with multiple streams of consciousness, which interact with it via some interface, much like how we play a VR game.

Meanwhile, a metaphor that illustrates my view is AR (artificial reality), in which all phenomena emerge within the virtual space of the computational process and there is no dependence upon or interaction with anything external to the animating process. For instance, an AR simulation doesn't need any interfaces with any external world, because everything of relevance to it is happening within it's own information space.

In the AR metaphysical context the animating process doesn't have any external world or external players; the whole of manifest existence arises within the animating process. It is entirely self contained. This means that all 'players' are virtually emergent from and wholly operating within the virtual context created by the animating process.

A question:

If we are external players then how do you explain why the VR is so tangible to us and not just like playing any other VR game? In other words, how do you bridge the gap between experiencing the interface and experiencing that which is portrayed through the interface.

My answer:

If we are emergent from and fully immersed within the animating process then tangibility is natural and inevitable because there is no separation and no gap that requires bridging. We experience things because our experiential process is an integral part of the dynamics within the virtual context, hence the information is flowing "through us" virtual systems. This is how all systems interact. If we have sufficient feedback loops and other complex functionality to allow us to feel that we feel and to know that we know we can even recognise that we feel it. We often take these advanced faculties for granted and assume that all systems that feel must be able to feel that and know that they feel, but that is a very complex cognitive function.

Quick comparison:

From your perspective I am a complex stream of consciousness controlling a virtual body from the outside and using it as an avatar in order to interact within a game world.

From my perspective I am a virtual process that is emergent from many levels of simpler virtual processes, and I am experiencing myself to be operating within a virtual body and interpreting this situation via the myth of "being a person in a world".

Explanatory power:

Both a game-model or AR-model are computational models and can thus be entirely compatible with the known scientific facts (but not with the traditional interpretations of those facts). It is not true that my perspective is incompatible with science. In fact, in terms of system theory, complexity theory, quantum theory, biology, cognitive science, etc it is in much closer agreement than the game-model (which I discuss in more detail shortly).

In regards to spirituality (here I'm talking about the mystic core, not the many 'religious' and 'new age' re-interpretations) the game-model succumbs to the same problems as materialism because consciousness is a separate, added extra - hence there is no real unity at the core of that view. Whilst AR corresponds perfectly with mystic philosophy and explains the possibility of mystic experience. I.e. we are all the Source in action, there is nothing other than that, thus underlying our virtual appearances the Source is our inner most nature. We are not separate from creation, we are it and "mystic experience" is a label we use to refer to instances where we slip beneath our everyday-

mind and catch a glimpse of that fact.

In regards to paranormal phenomena. How do you explain intentional influence from a consciousness that is only accessing the VR like an external player? Is there something equivalent to cheat-keys, which are written into the game's script?

In the AR-model, each player is emergent within the animating process, which is like a vast river of primal consciousness (or computation) in which the separate minds are like whirlpools, forming and dissipating. Because this is all one process, each part intimately influences each part and it is inevitable that phenomena such as intentional influence would occur.

Comments on comments:

Re: "The virtual brain is not the source of anything. It stores nothing and processes nothing. It is a virtual brain, exactly like the virtual brains that are in the virtual heads of virtual elves in WOW."

A better metaphor would be the virtual Windows OS that I run in VirtualBox on my Ubuntu OS. It isn't running on a 'physical' machine (although it thinks it is), it is running on a virtual machine. However it can still store information and process information just as well.

In fact, if I want to design a Multisim circuit (for example) I cannot manifest that mode of information processing or those virtual forms without using the virtual machine. It is not only functional, but also indispensable if certain modes of information processing and virtual forms are to occur.

Similarly, within our virtual context there are virtual systems, which interact in ways that implement certain modes of information processing. One of those virtual systems is the one we know as the brain. We have historically misunderstood it as a physical object due to the physicalist paradigm, however that is just our perceptions of the outer appearances of the virtual systems that interact to implement our minds. Just like with the OS's, without the right virtual machine (the brain) there wouldn't be certain virtual programs (such as individual human minds that experience themselves as "people in a world").

Re: "Thus, to be consistent, you must believe that you are an epiphenomenon of your elves' virtual brain? That surely is a strange position for you to take J."

No that is not my position at all. I really have no idea how you could think so - it indicates to me a significant misunderstanding between us and quite likely a significant misunderstanding of the nature of information processes and virtual contexts on your part.

I am an epiphenomenon of all of the levels of processes within processes that underlie my emergence into existence. I don't see how anyone could argue differently, yet you seem to say that existence comes in two different ingredients that are somehow combined to create both a consciousness and a world experience. I simply see these as mutually co-arising, evolving and emerging - stage by stage as a unified integrated process, with no added ingredients (or external peripherals).

If I am playing WOW and my elf blows its brains out that doesn't alter my state of consciousness because I am not emergent within that information space and that elf is not one of my cognitive sub-systems - I am just remotely interacting through it via an interface. However if I was to blow my brains out (the virtual ones that I think exist inside my virtual head) then that would alter my state of consciousness considerably, because in this "physical" space I am emergent within it and that brain is what implements the information processing that gives me various complex manifestations of cognitive functioning - I am not just remotely interacting with this body via an interface - I (the mind speaking at present) am emergent from it and intimately and tangibly inhabiting it. For these reasons yogic views consider the individual mind to be an epiphenomenon of the functioning of the body and not to have any deeper reality than that. Direct subjective observation of the mind during meditation makes this undeniably clear.

Consider, if a Multisim simulation (analogous to the elf) is running in the virtual Windows OS (WOW) and I kill the VirtualBox process (WOW server) then Multisim ceases to run (elf vanishes into entropy) because it was emergent in that virtual context, however the Ubuntu OS (surrounding world) still runs fine because it wasn't emergent within that virtual context. Any linux programs (players) that were interacting with the Windows OS (playing WOW) would not be affected because they are emergent within the Ubuntu context and not the Windows context.

I'm sure I recall you previously reminding Brian of these basic principles of information processes and virtual contexts... I am surprised that I should be reminding you now - but it seems central to this particular misunderstanding.

Re: "The WOW rule-set does not allow you to open an elf's head, if it did, you would no doubt see the elf's brain because the programmers would be obliged to program something there for you to see and a brain would be the most likely thing."

This points at a fundamental limitation of the game-model which is a major reason why I have previously passed it over. It is true that in virtual worlds built using contemporary game technology you cannot just pull things apart and re-fashion them, however in our experiences we undeniably do such things in the physical-game. Also in an AR-model this is a natural and inevitable feature of reality. In an AR-model the virtual beings can conduct science and technology (and skull cracking) without some illusion having to be conjured in order to create the appearance of deeper levels of complexity - because there really are deeper levels of complexity. We emerge from those deeper levels and we decay back into them - that underlies our birth and death. What we call science and technology is us exploring the structure of the holarchy of virtual systems of which we are a part. By operating at deeper levels of the holarchy we can more profoundly influence ourselves (e.g. with new drugs, implants, nano-technology and so on).

How do you explain the impact of drugs or brain surgery on ones experience of everyday mind? In the AR-model it is clear that cognitive science is discovering genuine causal relations between the virtual processes implemented by the "virtual machine" we call the brain and the operating system we call the mind. In terms of the game-model it seems utterly inexplicable... how do you explain it? How could you get drunk because your WOW elf drank too much WOW beer? You don't! But you can get too drunk if your 'physical' body drinks too much 'physical' beer. If we inhabit 'physical' bodies like a player inhabits a WOW elf, then how can we get drunk at all? Our consciousness would be totally independent of the cognitive functioning of any avatar that it was interacting through - but that is simply not the case with us - I know what it is like to get drunk!

Re: "In PMR the rules do allow you to open up a human's head and you do find a brain in there because the PMR VR simulation evolved one under the rule-set."

So do you suggest that there may be objects around that are inherently unable to be opened because their innards have yet to be written into the evolving script that is derived from the rule-set?

It seems to me that you are saying that virtual forms are simulated from the outside only, whilst I am saying that they are simulated from the inside-out.

From my perspective in order for something to exist it needs to have an inside before it can function and participate in reality and thereby be perceived by others and only then does it come to have an outside. From your perspective you seem to say that there is a vast rule processing engine that generates rules and uses them to conjure external views on demand for a select audience who are real, whilst most participants are just empty shells - like current computer generated game characters that lack any 'inner' dimension.

Re: "In the small number of cases where an autopsy is done, then at every step requiring more information, another random draw is taken from the appropriate probability distribution and new information (new rendering) is added to the surgeon's datastream."

Wow - that is a rather novel approach... but how do you account for the fact that by taking a drug or

getting brain surgery we can significantly alter our consciousness in reliably reproducible (mechanical) ways - with known impacts on brain chemistry or brain structure and known correlates with altered states of consciousness? Is that all just written into the script and conjured into the appearance of happening? Surely it is not just arbitrary decoration, there must be a functional reason for the sub-systems to exist.

Why is it necessary to propose an abstract rule generator/processor/conjurer when it is far more likely that the systems that we see doing the information processing are in fact doing the information processing? They are virtual systems which implement virtual processes just like the virtual machines on my computer.

When I run VirtualBox and boot up Windows it is more reasonable to propose that the virtual machine implemented by VirtualBox is in fact processing the information and thereby running the Windows OS - that is why I can write code in Windows to program the virtual hardware to implement various processes, and I can see the effect of code changes on the program's outputs via the altered behaviour of the virtual machine.

It seems quite unreasonable to suggest that really there is no virtual machine there in any functional sense, instead there is a vast cosmic rule processing machine that is conjuring an illusion that fools me into believing that I am actually writing programs on a Windows OS, within a linux OS.

Surely this latter proposition could never survive Occam's razor... it is a very creative idea but it seems so contrived and unnecessary... no offence intended - just being honest.

Re: "I would say that every rock and virtual brain and body is a product of consciousness in that consciousness is the server that produces virtual world by creating a process... Your body and the rocks and your brain are all the same sort of products of consciousness – all are virtual. All are simply data in a computer. None are more or less alive or real than any other. A brain and a rock are just different data in a computer"

I agree with all of that... everything that is perceived and everything that perceives is virtual. Furthermore, the most primal levels of consciousness are so basic we have come to think of them as computation or energy etc - you seem to feel that computation is devoid of consciousness and thus an external added ingredient is needed (the external players) - but this leads straight into the problems of mind / (virtual) body duality. I see 'computation' as a powerful homology (not 'just' a metaphor) via which we can comprehend some of the most basic levels of consciousness, which are the processual foundation from which all higher level processes emerge. What we experience as our consciousness is a very high level information process implemented by a very high level complex virtual system. Shutting down my brain would be just like shutting down VirtualBox for the person (main program) running within the virtual OS (mind).

Or I could use the example of dissecting my finger, cutting a tendon and noticing the loss of movement. I would say that I interfered with the functioning of the virtual sub-systems (the tendon) so the super-system's emergent behaviour (bending a finger) can no longer be implemented. You seem to be saying that my finger stops bending because a cosmic script has changed and I'm now receiving a datastream that portrays the illusion of an injured finger. That seems like an unlikely idea to me.

Back to the VirtualBox scenario:

Say that I run Windows within VirtualBox and run a Visual C++ IDE and peer into the code of some Windows program, make some changes and see the resulting difference in the program's behaviour.

I am proposing that there is a functioning virtual machine that is processing the code and thereby implementing that program. Thus if the virtual machine was to stop then the program would stop because the virtual machine was what was implementing the program.

It seems to me that in the same scenario you are suggesting that there is some other process - the

rule generator / processor / conjurer, which is generating screen shots that fool me into thinking that I am viewing and modifying the code and witnessing the difference in behaviour. Really there is no virtual machine and no code in any functional sense - those are just part of the script that is encoded in the rules that the rule generator is processing in order to conjure the right screen shots. So if the virtual machine was to stop, the program would also stop but only because that was part of the script and not because the virtual machine played any functional role in implementing the program...

This seems to be another fundamental aspect of the difference between us. I say the virtual systems are performing necessary functions, you seem to be saying that they are just decorative features of an unfolding narrative. This leads to a useful distinction between what I might call functional simulation and cinematic animation. The former is like VirtualBox seems to be, or SMN, they actually implement a virtual system and not just portray its appearance. Meanwhile cinematic animation is about scripted appearances, which is like VR games, Hollywood CGI, cartoons, etc. I am talking about a computational metaphysics involving AR-model functional simulation, whilst you are talking about a computational metaphysics involving game-model cinematic animation.

Do you believe that whilst the developers were building VirtualBox and implementing the virtual machine and testing it, in fact they didn't produce a functioning piece of software at all, instead what happened was that rules accumulated and altered a cosmic script such that whenever anyone double-clicks on the VirtualBox icon they are then fed a data stream portraying a functioning virtual machine. However there is nothing there that is in any way functioning like a virtual machine - i.e. there is no information processing related to actually implementing its functionality, there is just abstract rule processing and data stream conjuring - i.e. information processing related to creating the illusion of its functionality.

Can you see why this seems so contrived and unnecessary? Why would I propose such a thing? It is very creative and not totally implausible, but why is there any reason to consider it as part of a scientific theory? Surely Occam's razor would not be kind to this sort of idea.

Re: "In my theory, there is no mind body dilemma and there is no hard problem – those issues are both conclusively solved."

Please explain how - I can't see how that is possible. You have retained the Cartesian cut between a virtual body (avatar) and a totally separate and independent consciousness (the player). How do you then resolve this schism? In the approach that I describe there is no Cartesian cut - the unity is never lost thus there is no artificial schism to heal.

Re: "I would say that Eastern religions have taken the fact that everything is a product of consciousness (created by consciousness, generated form consciousness) – the fact that consciousness is the one ultimate source, and then jumped to the erroneous belief that therefore everything must be conscious."

It is almost universal that minds embedded in a Western world view have extreme difficulty in comprehending the Eastern perspective - although it seems equally universal that at the time they staunchly believe that they understand it just fine - yet their objections indicate they are arguing against subtle misconceptions. This seems to be very much the case here, we will need to be extremely cautious to avoid complete confusion between us around this topic.

Re: "(Eastern viewpoint?) delivers nothing to the Theory of Everything that can’t more simply and directly be achieved without stretching the word “conscious” to include rocks. I invoke Occam’s razor -- Anyway, that is my reasoning."

That is not correct, what it delivers is the chance to retain the natural unity and avoid creating an artificial division. It means that we don't have to impose an aitificial Cartesian cut, that divides reality into totally separate parts that miraculously come together at some later stage. That approach is essential to the physicalist paradigm, with mind and matter its core articles of faith. There is no

reason to maintain this arbitrary divide within a computational paradigm - except to accommodate the physicalist implications of the game-model. I invoke Occam's razor to remove the unnecessary divide and restore our understanding of the actual unity and wholeness. Anyway, that is my reasoning.

Re: "I will respect your take on it. The value you bring to the table is in no way dependent on your definition of the word consciousness."

Ditto. It is important to make sure that is clearly understood between us :)

Re: "Yes, I can appreciate different definitions. But all definitions are not equally useful. I can understand what you are saying, but I cannot see any logical reason behind it."

Ditto! Why must you introduce an arbitrary divide between the streams of consciousness and the VR? That is a very problematic approach. To me they both mutually co-arise as part of the one process. Which is vastly more elegant, rational and closer to the facts than proposing a cosmic rule generator / processor / conjurer only to maintain an artificial Cartesian divide.

Re: "It seems to me to be a statement of belief that is contrary (or at least confusing) to the basic nature of a virtual reality."

Using the distinction between game-model and AR-model and also cinematic animation and functional simulation, do you now see how my statements describe a computational model of a virtual reality, but not like our current technological implementations of VR games. I believe that AR with emergent virtual agents that are functionally simulated is a far more realistic model than external players and a cinematically animated VR world. I don't see any rational reason to introduce such an idea... it seems to be a belief that is contrary (or at least confusing) to the basic nature of computational metaphysics.

Re: "I don’t see its logical necessity and it seems to make more of a jumble to explain (conscious rocks) than it creates elegant simplicity."

I feel that an AR-model with functional simulation is the most elegant and simplistic approach. Recall my example of modifying a program that is running on Windows in VirtualBox?

Which is a more elegant and simplistic explanation? That there is a virtual system processing information and interacting in a virtual context? Or that there is some cosmic rule generator / processor / conjurer that is making perceptual "screen shots" that fool me into thinking that there are some systems interacting together.

Which is more elegant and simplistic? Surely it is the first one. That is the gist of our differences on this issue and I really don't see how you justify yours as elegant or simplistic? I can say ditto to "I don’t see its logical necessity and it seems to make more of a jumble to explain (rule sets, conjured illusions and external players) than it creates elegant simplicity."

We obviously have very different ways of thinking about this topic ;)

Re: RAM-like memory... "the rule-set did not evolve that characteristic in humans and if it had, we would have fewer constraints and be cognitively different than we are now. But, in generating a model of reality that describes PMR we must remain consistent with the logical results of the rule-set."

Are you saying that we are unable to develop that technology until the rule-set writes that into the script? I say that we can develop that technology as soon as we know enough about the relevant sub-systems and how to integrate such an implant into the human cognitive process. We don't need to wait for some cosmic script writer to define the event and a cosmic screen shot generator to conjure the illusion of the event. We are virtual systems processing virtual information and we can interact with other virtual systems and re-engineer them via our interactions with them. It is all just virtual interactions between virtual systems within a virtual systemic context - that is the essence of the AR-model, which accords perfectly with the observed conditions of our existence, without

having to introduce unnecessary elements such as the rule generator / processor / conjurer.

Re: "This process: “via many levels of meta-system transitions…” sounds like “smoke and mirrors”…."…and then, a miracle occurred” J."

Haha - really?

Have you never fallen in love and felt what it was like to become part of a couple? Did you notice how many things subtly changed when that happened? Do you feel any sense of belonging in your family or community? Don't you feel how we influence each other in all sorts of subtle ways as well as ways such as obvious social conditioning? Can you really define exactly where 'you' start and 'society' ends?

Do we not have all sorts of conceptual categories for types of groups? Are not groups relevant phenomena, are they not more than just simple assortments of individuals? Are we more than just simple assortments of cells? Is society more than just a simple assortment of people?

Are we not individuals which can be observed to be composed of individuals and which interact as parts of other systems which from some perspectives can themselves be seen as individuals?

Surely you accept these observational facts?

Where is the miracle???? It is basic system theory, stating obvious facts. Please tell me where the miracle is, I don't see it at all.

The only miracle I see is the rule generator / processor / conjurer... How is that not a miracle? What possible reason is there for proposing such a thing? Back to the VirtualBox example, why must some cosmic script be written and screen shots generated instead of just processing the virtual information and executing the code? That would be so much simpler.

Re: "That statement gets you out of an obvious bind J but it doesn’t explain the logical necessity for conscious rocks."

It gets me out of the logical necessity to explain why reality is broken into two separate pieces which need to be put together in some arbitrary way and it also gets me out of the bind of having to propose a cosmic script writer and conjurer, instead things function in a far more rational and realistic manner.

Furthermore it does explain the logical necessity for virtual systems to actually process information and be influenced by it, rather than just be cartoon characters being scripted by some cosmic rule-based script writer.

Either:

A) virtual systems interact because they exchange information and thereby change state,

OR

B) virtual systems interact because it is written in a cosmic script and a cosmic conjurer sent me a data stream that will fool me into thinking that those systems interacted.

IMHO (A) is far more realistic than (B) and I don't see how anyone could argue otherwise. What you have said so far has expressed your position in support of B but I have not seen anything that constitutes a rational reason for this position.

Re: "Consciousness is a large, finite, self-organizing digital information system. It began as a field of potential (primordial consciousness) that developed to be able to perceive two different states, on and off, 1 and 0… Following the typical evolution paradigm, random mutation eventually leads to complexity which eventually leads to purposeful evolution..lower entropy states..[which eventually leads to what we think of today as consciousness and to Virtual realities such as PMR]... In the beginning, there was only a field of potential that we choose to call "primordial consciousness" because one day consciousness (as we know it today will evolve out of this potential. This "field of

potential" is called that because it had the potential to discriminate one state of its being from another i.e., to evolve information in the form of bits (1 and 0). This system of potential that is able to evolve bits (one may call it an information field now if one wants to -- or, equivalently, one may call it primordial consciousness) continued evolving to form patterns of its bits and more bits and more patterns of patterns and then sequences of patterns as it lowered its entropy (gained useful information, structure, and complexity). Consciousness, being a data system, and thus, an information system, and eventually a social system (as it evolved to a many "celled" thing), defines a much lower entropy configuration of bits than any other arrangement. In other words, the LCS evolved, from a simple but large potential with only a few bits, to be what it is today. "

I totally agree with that...
I think we are in close agreement at the computational levels and within the virtual context (so long as we don't discuss consciousness or how anything functions).

Re: "you can call it "god" if you want, but it is a natural self-changing, evolving digital information system that is finite and imperfect and just trying to stay alive by continuing to evolve. It eventually evolved a finite decision space and a free will that enabled it to choose from a limited set of known alternative possibilities. (Usually there is not enough information for a definitive solution). To create diversity and novelty and many more channels of evolution, it created more or less independent interactive subsets of itself which I call individuated units of consciousness (IUOC). Eventually, it evolved many experiential VRs, of which our PMR is one, to aid the IUOC's and thus its own evolution process."

More close agreement :)

We seem to agree on all the general principles but differ where you imagine the system architecture as being quite like contemporary multi-player gaming technology, whilst I imagine it via the mathematics of SMN and see it as a totally self-contained cosmic process, where all manifestation occurs within the information space of the manifesting process and nothing is external to it. It unfolds according to its nature, which includes the making of decisions, which is just what it feels like to be a virtual system processing information in certain situations. Everything arises from the information processing, both the appearances and that which apprehends the appearances. They are not separate, like external players interacting with a VR game.

Re: "The point was to show a different model that has no need for conscious rocks or "via many levels of meta-system transitions…" in order to arrive at what we normally call consciousness in the West."

I fully agree that to arrive at the normal Western understanding one must insist on the Cartesian cut, i.e. arbitrarily dividing reality into animate and inanimate aspects; which is just a throwback to the physicalist and egoic paradigms. However that understanding is only useful within a very specific context (the physicalist and egoic paradigms) and beyond that the broader context is encompassed by the more Eastern understanding, which includes the Western understanding within its appropriate context.

Yes you have illustrated that model well - I can see how it is not implausible. However it is also not implausible to explain particle physics by proposing that invisible fairies are carrying them around as if there were forces acting on them - it could be presented in a manner that is hard to disprove - however, how much cause do we have to seriously entertain it?

I haven't seen anything that says why your theory is necessary. In fact it opens up several large explanatory gaps and relies on miraculous entities and processes. Furthermore, it ignores our observations of the way that processes are implemented by processes, claiming that this never really happens. It seems quite far fetched to me ;)

I have also tried to show you a different model that has no need for arbitrary divisions of reality into animate and inanimate. Stemming from the physicalist paradigm, this distinction is still enshrined in

the game-model approach to VR metaphysics. However the AR-model can overcome those limitations and help us to comprehend the systemic and holarchic structure of the virtual context.

Existence isn't just an interactive movie about people on a planet that is controlled by some rule-based script. Reality operates at all levels, it is a fractal, systemic, holarchic virtual reality that is totally self-contained and self-referentially interacting within itself from the perspectives of myriads of virtual processes within processes. Our perspective is just a small slice of that much vaster virtual context.

Re: "Hopefully this will allow John to see where I am coming from and to perhaps (hopefully) find connections between his story and mine – that we are just calling the same concepts by different names."

In this instance we are not just using different names. The game-model / AR-model distinction shows (me at least) where and how there are fundamental differences. So too the cinematic animation / functional simulation distinction. We are of course both talking about computational models so there is a lot of commonality, but there are also these fundamental differences.

Re: "IN my theory, the rock is visible and there because that is the way our PMR evolution worked out (digital simulation that started with the big digital bang when the “run” button was clicked and the rule set began working on the initial conditions -- high temp and pressure in a small volume….). The rock doesn’t notice the kick because it isn’t conscious, but it is a product of the simulation and must obey the rule-set as all things in the VR must. The rule set subsumes Newton’s laws and computes the rocks reaction (actually it randomly selects from a probability distribution of possible/probable reactions – but that detail just complicates my answer and by now you know that is what I am talking about."

Yes! I really do see what you are saying... you are talking about cinematic animation so the virtual forms are pure appearance, whilst I am talking about functional simulation so they are functionally simulated into virtual existence. To you systems just look as if they are processing information to implement behaviour - whilst to me they actually are. To you VirtualBox is really a set of rules in a cosmic rule processor and a set of conjured appearances that creates the illusion of virtual operating systems, whilst to me it is a piece of software that implements a virtual machine sufficiently for other operating systems to run on it.

Re: "So far Science and I agree 100 % and rocks are just dead rocks (though virtual rocks) and nothing more. Saying that rocks move because they are conscious to anyone outside your inner circle would just ruin your credibility, minimize your audience, and provide no compensating benefit."

I think science would be more likely to agree with the software explanation of VirtualBox rather than the cosmic rule based conjurer explanation. And that applies to all virtual systems and how they operate. Science would not look favourably on a cosmic rule based conjurer. BTW forgive me if that label seems disrespectful - I don't mean it that way - I'm not sure what to call it so I'm just trying to describe how it seems to me.

As for your close agreement with science about rocks - of course! Contemporary science is deeply entangled in the physicalist paradigm, thus things like inanimate rocks and animate minds are fundamental articles of faith in that paradigm. There is no rational reason for this belief, it has no meaning outside of the physicalist paradigm and there is no evidence whatsoever to justify it. That is why it is maintained by the kinds of irrational tactics that you described - "ruin your credibility" etc.

There is a mass of data which has been interpreted through the physicalist paradigm (and naive realism in general), which has formed into a self-reproducing closed loop of hidden assumptions. This creates the illusion for some of evidence and justification when really there are just faulty interpretations due to epistemological naivety. Reinterpretation of this same data from the

perspective of a computational paradigm yields a far more coherent and consistent explanation of the data.

Naive realism is still an all pervasive social dogma that is so deeply taken for granted that it is almost invisible to its believers. In Western culture it is really only at the core of quantum mechanics, the East/West dialogue and in some very rare mystics that there is sufficient epistemological awareness to overcome naive realism, physicalism and egoism in order to apprehend reality from a more realistic perspective. Knowing reality as ones inner most nature, known through direct subjective experience - which is the core of the Eastern view of consciousness. There is no divide between the knower and the known like you suggest, there is a unity at the core of our being, there is one Source, not two.

Those who speak about the Western view of consciousness are speaking about a very particular type of consciousness and thinking that this is all there is. There is so much more to consciousness, which can be discovered via the introspective sciences such as yoga / meditation.

Re: "I would say that all systems are part of an experiential process, that they have an experience is an assumption that is not logically necessary."

I can accept that but only if we are talking about VR as a "cinematic animation", with a rule-based conjurer of appearances.

If we are talking about VR as a "functional simulation", with virtual systems that process information in order to implement the virtual dynamics, then I would say that “they don't have an experience” is an assumption that is not logically necessary. NOTE: given the definition that at the most fundamental level information processing and experience are ultimately different aspects of the same underlying process and are not truly separate or distinct. It is only in our habitual use of words that they come to seem separate.

Hence, putting aside any words that we are most likely to misunderstand due to our differences... what I am saying is that the virtual systems within a functional simulation do actually process information in order to implement the emergent behaviour of the virtual super-systems. That is how a functional simulation works - it is not a cinematic animation.

Where we really differ is whether reality is a cinematic animation with a game-model architecture, that is operating within a larger computational space - or is it a functional simulation with an AR-model self-contained virtual cosmos, where everything exists within it and nothing outside it.

Re: "In my model, consciousness is fundamental... All consciousness is one and all is fundamental. All else is virtual."

I see why you say this from your perspective... to me all individuated streams of consciousness are virtual. Only the unified Source is fundamental. By its nature it naturally gives rise to myriads of individuated streams, however these are emergent virtual streams. This is what SMN models, amongst other aspects. All of what I say can be traced back to aspects of SMN. It is more elegant and simple to have a single process that naturally gives rise to many interacting virtual processes that interact within the common context provided by the unified process, rather than having myriads of fundamentally real and separate processes that somehow manage to interact without any unified context.

Re: "My model is pretty close to your model in the most important ways, but we break things out differently and my rocks are dead."

I think we agree somewhat at the computational level and the level of the appearance of the game play, however we have totally different models of the simulation process and the overall system architecture. There is no common ground in relation to those aspects.

You see reality as being like a cinematically animated VR-game with external players, whilst I see it as being like a functionally simulated AR cosmos that is totally self-contained and self-referential.

That is probably the most concise and meaningful statement in my response!

Re: "A consciousness system like the LCS can evolve to the point where the players evolve or develop a very advanced (evolving) WOW game with conscious elves (no outside people with computers needed..."

Yes, that is what I have been talking about the whole time - the AR-model.

Re: "I find the exclusiveness of a one and only source that is the source of just our universe to be narrow and self focused."

Whoa! That is a big misunderstanding of what I have been saying!! ;)
I have never suggested any such thing... where did you get that idea?
The Source is the source of everything. There is nothing, absolutely nothing that is not an emanation from the one Source. That is what I am saying... it has nothing to do with "our universe" and any such limited ideas... I am talking about the whole of manifest existence and the very "process of manifestation" itself.

Re: "Ah, we finally get to the crux. There is no living virtual cell, a virtual cell is just information, just data in a computer like any data in a computer. Just as I am a living virtual person. You are not a living virtual person – "living" and "virtual" are mutually exclusive. Data sitting in memory registers within my computer or any computer is never living."

Yes this is a crux... I hope you now see where I am coming from - i.e. with the AR-model and functional simulation... don't you see how much more sense they make?

For now forget about the word 'living' (also 'consciousness' and 'experience') - we have such profoundly different understandings of those terms to the point where those words are useless to us - worse than useless they can only mislead us.

I will state the crux of the above point in neutral terms that I hope we will both understand roughly in the manner in which they are intended.

I claim that there are virtual cells processing information, which is necessary for there to function a virtual person. This is no different to the VirtualBox scenario, where there are virtual entities processing information to produce emergent phenomena.

That is the crux of our difference. You claim that there are no virtual systems processing information, instead there is a cosmic rule-based process that is manipulating my datastream to conjure the illusion that there are virtual systems processing information.

Re: "You (the nonphysical you) are a piece of the LCS which is "living" fundamental conscious with free will"

We differ here too. To me the experience that we having which we call "free will" is part of the narrative of the 'person', which is a virtual control system that emerges within a complex mind such as ours and whose job it is to believe that it is in control. That cognitive illusion is what operates at the core of the egoic paradigm. With deep meditation one can see through it and go beyond it.

The mind is its own fractally nested self-similar manifestation of the cosmic process - at a subconscious level it simulates a virtual world (the perceptual field) and a virtual avatar (the person) and this is what the virtual system apprehends as its self and its world.

Thus only very complex virtual systems, with ego's have the cognitive functionality to experience "free will". The more basic levels of consciousness are more like pure awareness, the witness, detached penetrative insight. At an intermediate level of complexity are cognitive processes such as instinct, reflex, compulsive desire, and so on. Processes such as sentient self-knowing, rational decision making, free will and so on are extremely complex processes that require a great deal of virtual system complexity to implement. They are certainly not fundamental - suggesting that the human mind is fundamental is like suggesting that the Windows OS is fundamental.

The ground of being itself if far more basic - so basic that you are claiming that it is of an entirely different nature to consciousness. However I am saying that it is not of a different nature, it is just vastly more basic. The difference in complexity is vastly greater than the difference between the Internet and a single boolean logic gate. That is nothing compared to how much more complex our everyday mind is compared to the primal consciousness out of which everything is woven. One can get a direct experiential understanding of this via meditation.

Re: "The biggest difference is that my theory lines up perfectly with science (data in a computer (digital information system) is not living and rocks are not conscious) I am a scientist with as much experience in NPMR as PMR so my theory matches perfectly from start to finish with science (given the concept of a virtual reality – which science is embracing more and more) and with the observables of metaphysics, theology, and the everyday world."

Ummmm, no. It doesn't line up with science at all, except in that it enshrines the same physicalist misconception that is rife within the scientific community at present. I.e. the idea of dividing reality into inanimate and animate, then splicing them back together again using some sort of unexplained miracle.

You are in deep and fundamental disagreement with science when you introduce the rule-based conjurer to perform all the smoke and mirrors to make it look as if something is happening, when really it is just a cinematic animation being interacted with via a multi-player gaming interface.

Not only does science profoundly disagree with that - you are essentially saying that science and technology don't actually happen, it may look as if we are peering into the deeper levels of manifestation and re-modelling things to make awesome new technologies - however in reality there is just a cosmic conjurer creating a show for us that makes it seem that way.

Meanwhile my approach is in perfect agreement with all factual aspects of science and technology (but not all the usual interpretations). It fits perfectly with all the accumulated evidence. Science studies the dynamics of the virtual systems, whilst technology manipulates them. We are virtual beings emergent within a simulated AR and we are performing virtual science and technology on functioning virtual systems which are not just conjured images made to look like there is something happening, there really is something virtual happening.

Science and technology presuppose a functional rather than cinematic mode of manifestation. Why bother opening the bonnet of your car if it is just an image of an engine whilst the car still runs anyway. Any VR theory that was compatible with science and technology would have to propose a functional simulation rather than a cinematic animation. The latter is conceivable (and useful in the gaming industry) however it goes against everything that science and technology have told us so far about reality and themselves. There is no compelling reason to take such an idea seriously whilst there is a much more plausible explanation. It is vastly more plausible that virtual systems function and serve necessary roles in the emergence of more complex virtual systems, they don't just appear to function and only serve as decoration - they are there for a reason.

In a very functional sense a virtual car needs a virtual engine to run - it cannot run on just an image of a virtual engine combined with the image of the car running. A VR is more than just a cartoon. That is fine for a cinematic animation being view by an external audience, but it is not sufficient to actually implement the whole of manifest existence. Only an AR-model using functional simulation can do that.

Furthermore, science has moved away from phrasing ideas in the manner of "the particles are obeying physical laws" and towards phrasing things like "the particles are interacting" or "the particles are exchanging messenger particles" and so on. This indicates a major long term movement away from ideas such as yours and towards ideas such as mine. There is also a long term trend of growing acceptance that consciousness runs much deeper than just the everyday mind; it comes in much more primal forms and it plays a more fundamental role in reality than the Cartesian dualist paradigm can comprehend. These are all emerging trends driven by our growing

understanding, whilst what you propose resonates only with the ideas that are gradually being superseded.

Re: "and yours lines up with Eastern Religious or metaphysical concepts... Your theory also matches the observables of metaphysics and theology and the everyday world."

Yes it lines up perfectly with those, and also with science and technology in all fundamental respects. Whereas yours contradicts science and technology in all fundamental respects. The one area where mine contracts and yours accords is with a common misconception that is related to Cartesian dualism and the myth of inanimate systems, which stems from naive realism, egoism, empiricism, physcialism and classical objectivism.

BTW unlike most of your work this aspect of your theory is in line with all of those isms, whilst all aspects of mine, and I believe all aspects of any true computational paradigm contradict and profoundly clash with all of those isms.

Whilst ever naive realism reigns as the ruling cultural dogma any true computational paradigm will be misunderstood and re-imagined in physicalist ways. This is why mystic wisdom keeps giving rise to religious dogma, and why classical objectivism is putting up such a staunch defence in the face of what quantum mechanics is telling us about reality. So long as naive realism and its consequences (egoism, empiricism, physcialism, classical objectivism, Cartesian dualism, etc) hold sway in a mind that mind cannot clearly comprehend anything that is genuinely outside of this closed loop of self-reinforcing hidden assumptions.

Re: "My theory predicts and explains the detailed results of QM experiments like double slit, and PEAR labs, placebo effect, particle tunneling, and a whole host of experiments and experiences that have no explanation in “traditional” physics."

Your theory could predict anything whatsoever with a simple statement along the lines of "it was required by the rule set to be part of the script". If we discover flying pink elephants then - it was part of the script... That can explain anything at all without actually providing any explanation for anything. It is no more scientific than "God did it". Instead we are to accept that the rule-based conjurer makes it look like something happened, but really none of that activity is actually happening in any sense at all, not even in a virtual sense. In fact, it is happening, but only in a narrative sense, as part of a cinematic show.

Re: "Does your theory do that too?"

My theory doesn't require a cinematic show driven by a rule based scripting engine - instead my theory proposes a functional simulation of an AR-based self-contained self-referential virtual reality.

Such a theory covers all of those areas you mentioned, most of which naturally arise from the mathematics of SMN. It also explains how complex consciousness emerges from simpler forms and evolves high level functionality like that which we possess. It explains why we have the deeper, more primal levels of consciousness that the Western mind typically denies exist, but which any of us can experience through deep meditation and many of us do. It explains how and why systems integrate and disintegrate and evolve into whole new levels of complexity and integration. It explains how consciousness relates to reality, not as an added extra but as emergent from the Source and evolving into complex manifestations. It explains biology and evolution, not as a story being told, but as complex systems interacting in scientifically knowable ways and evolving into more complex systems with more complex functionality. It explains why we experience things like birth, life and death. It explains why all the paradoxes of QM are not paradoxical in a computational context. It explains how the common misconceptions arise and why the naive realist, physicalist, egoic paradigms are an obvious early strategy for humanity. It also explains exactly how and why those paradigms are limited and how ones understanding can be broadened to eventually encompass the whole of reality.

A particular difference is that a functional approach gives meaningful explanations of virtual phenomena, it doesn't just say "something made it look that way", it says precisely which virtual systems interacted in which ways to implement the virtual phenomenon - using the same general approach as science and technology.

It doesn't just say that it looks like VirtualBox is running because that is part of the script - it explains exactly how a virtual machine works and why the execution of the VirtualBox code results in the creation of a virtual operating system running on a virtual machine. It is a functioning virtual machine rather than a cartoon of a virtual machine.

This is a detailed description, which can be defined right down to models that can be simulated - as a functional simulation in which all virtual systems participate as virtual systems rather than as a cinematic animation for a select audience.

Re: I said: "If you claim that about cells then why not about people?" and you said: "Because you, a virtual person only because we interact exclusively through data exchange, appear to be conscious (have original ideas, respond to me both intellectually and emotionally, type on a keyboard. Cells don't have those same properties, so it is easy to distinguish the difference – they have no decision space. I knew you weren't a cell or a rock from the moment I first met you J"

Of course you know that I'm not a cell or a rock - that was not the issue.

Of course people interact in ways typical of people, whilst cells interact in ways typical of cells, and so on. That was not the issue.

The issue was, why do you assume that interacting with me can inform you that I have an occupied perspective (so I actually experience things), whilst interacting with a cell can inform you that it has an unoccupied perspective (so it cannot actually experience anything).

All your comments imply is that you are familiar with people. That you prefer interacting with people... that you are comfortable with assuming that they do experience things. However nothing you say says anything about whether people are more real than cells.

A cell is just as unfamiliar with you as you are with it... does that mean that from its perspective you are not real?

I don't see any logical connection between things being familiar and them being real. Of course that is a central feature of the naive realist paradigm, but it serves no purpose within a computational paradigm or any rational paradigm.

Re: "Don't confuse what is in the simulation with anything real or living."

Yes, I agree. That is why many mystics claim that we are not really alive right now - not in the way that the word 'life' is usually meant by naive realists.

E.g. Nisargadatta says "The unreal never lived, the real never dies." (We are only virtually alive, whilst that which animates us is the Source and foundation of all manifest existence). That which we call 'life' is just our way of comprehending the experience of manifest existence - life is not what we have fantasised it to be within the physicalist and egoic paradigms.

Ramana Maharshi says "If you ask who and how you are now these questions of birth, death and after death will not arise... Reincarnation only exists so long as we believe we are the body... There is no incarnation, either now, before or hereafter. That is the truth."

From my perspective, there is nothing outside the simulation. The whole of manifest existence is simulated within the simulation. It is true that nothing is alive in the usual sense (which is really just an outmoded physicalist misunderstanding anyway). However it is true that we are alive in some sense, in a virtual sense, which can only be comprehended within a genuine computational paradigm rather than a physicalist or egoic paradigm.

Re: "Data in a computer has no perspective to occupy."

I would strongly disagree. I regularly create networks of interacting virtual systems, each with their own perspective, each passing data around and interpreting it in their own ways. That is exactly what SMN does, it enables a computational process to simulate a network of virtual perspectives, each of which is occupied by a computational process, which operates through that perspective and animates the virtual system into existence within a virtual context.

So SMN not only describes how but also it is an algorithm that implements a process whereby data in a computer is transformed into occupied virtual perspectives that can dynamically interact with each other. That directly contradicts the statement that "Data in a computer has no perspective to occupy."

Re: I said: "We seem to have very different ideas about how much is necessary. Much of what you call "wholly unnecessary" is to me totally necessary." and you said: "Yes, I see that, and I am glad I am on the Occam's parsimonious end of that fact (the end that uses fewer computer resources and has fewer assumptions but still reaches the desired endpoint: a scientific model of reality that fits all the directly observable data points."

We were actually talking about the opposite of Occam's razor, the issue of sufficient complexity. A theory should be as simple as possible and NO simpler, otherwise it is an over simplification. One can have a truly parsimonious theory by saying "God did it" or "a rule-based conjurer made it look that way", but this lacks sufficient complexity and is not a real scientific theory.

Especially if it also proposes that science and technology are themselves at least meaningless and perhaps even impossible. Perhaps you are right that we never discover any genuine details about reality or implement functioning devices, instead there is just an evolving rule-based story that portrays scientific discoveries and technological advancements. If that is true then why do we bother striving to know about and manipulate things which we believe don't exist and that play no functional or meaningful role in the outcomes anyway - they are essentially just there for decoration - like the image of an engine that is part of a cartoon car.

Also, why fix my car engine when I can get it going again by editing the script. In fact, that would be the ultimate technological application of your ideas. We could access the rule-based script in such a way that we could write into existence anything that we wanted? If nothing needs to be functionally implemented - it can be just like the cartoons, where stuff just happens because it is in the script, no matter how impossible it might be to actually implement. None of those implementation issues would ever trouble humanity again - the world would truly be a stage then and we would be the new script writers, able to conjure anything that we know how to encode in a rule-set that influences the evolving script...

One would never have to discover or invent anything in the traditional way again - we could just edit the script to include whatever it was that we wanted to discover or invent and it would just appear and function without having to have been implemented or to even be possible to implement.

That is an interesting sci-fi scenario but I personally don't see any metaphysical, scientific or technological value in it... (except in the gaming industry) that is my honest assessment, sorry if it seems rather critical :(It flies in the face of everything that we know about how the virtual context functions - we clearly do conduct science and technology and there is clearly some utility to this activity.

Re: I asked: "... Why would such a proposition survive Occam's razor? Why is it necessary?" and you answered: "I think I have answered all these above a few times over."

I now understand your position a lot more. You have stated it very well. But I have yet to see anything in your comments that answers those questions. For instance, you have explained that you do believe it to be necessary however none of your comments amounted (for me) to a rational reason why it is a necessary feature of a computational metaphysical theory of everything.

One possible reason is that it is related to the game-model architecture, but that is arguably not the

most realistic model. An AR-model eliminates all of the problems that the game-model encounters. So why is it necessary? I'm still not sure...

I suspect that it is just an over reliance on the metaphors of the game-model and cinematic animation, combined with an oversight of the existence of AR-models and functional simulation. This is likely caused by some vestiges of old paradigm misconceptions in your thinking and the utility of the game-model in enshrining deeply held Cartesian dualist misconceptions. I cannot think of any other rational explanation for your position - that is the only way it makes sense to me. It seems entirely out of character with the rest of your ideas, which seem eminently sensible and reasonable to me.

Re: "Our models are very different at the causal root. We understand the word virtual very differently."

OMG yes - I have briefly passed by these sorts of ideas in my research but I have always felt the VR gaming technology metaphor and cinematic animation were far too problematic and corrupted by naive realist assumptions to be worthwhile conceptual approaches. I naturally gravitated towards the AR approach with functional simulation of a wholly self-contained virtual reality in which all virtual forms emerge within it, just like we experience. This seems vastly more elegant and reasonable to me.

Re: "To me virtual reality is a computer simulation just like any other computer simulation"

No actually, you were thinking only of the cinematic animation style of simulation - which is common to VR games and Hollywood CGI. However there are also functional simulations, such as all the scientific models, engineering models, virtual drug models, weather models, etc. All of these are functional simulations. They actually need to create virtual processes that process data in ways that implement the simulated behaviour. Just like VirtualBox does. It is not just about creating the appearance as if lots of data was processed - they actually have to process the data otherwise the emergent behaviours or features are not computed.

For instance, one can easily create a cinematic animation of a jet, however to create a functionally simulated jet we create a functioning virtual jet in a simulator. This is a functional recreation and not just a cinematic animation - hence we can use the virtual jet to test and measure its performance before building it. We need to create a working simulation of its components, with working functional relationships between them, with enough aerodynamic lift to fly and so on. If it was a bad design it couldn't fly, because the simulation is not just about writing a script that say that it flies, it is about enacting the low level processes that actually implement its flying.

The two types of simulation are very different. In one type anything is possible but nothing actually happens it only appears to, like in Hollywood CGI, whilst in the other type any virtual system must be implemented into virtual existence and things actually happen as they appear to happen - i.e. there are functioning virtual sub-systems that actually process information to implement the emergent virtual super-systems. Just like VirtualBox - it simulates a virtual machine, which is functional enough that the guest OS doesn't even realise that it isn't running directly on a physical machine. That is not just a cinematic animation of a virtual machine - it actually functions as one as well as appears to function as one.

Re: "It has been fun…I think we have learned a lot about each other's approach. All the best to you also. Viva le difference!"

Oh yes! I feel I know your position so much better. It is a brilliantly creative and not implausible idea. However I cannot see how it is useful as anything more than a stepping stone toward a more realistic and complete AR / functional approach - that is how I see it.

I fully respect you and you've done a fabulous job of mapping out this model, but don't you see how it is quite limited, for all the reasons that I have pointed out? Can you see how an AR based, functional simulation fits the requirements so much better?

Awesome conversing with you! ;)
John

From: Brian Whitworth
Date: Mon, Mar 24, 2014 at 6:30 PM

Dear John and Tom,

Been following the discussion with interest, but each time I read some ideas, more pages followed. Finally caught up, and here is my point of view.

John raises a good point in a cogent way: If the physical world is a virtual reality, *which pixels* represent *players?* In our games, some pixels represent background grass and buildings, and some are *Non-Player-Characters* (NPCs). If the physical world is like that, where is the line between and NPCs and players?

It is important, as if say animals are just pixels, then chicken and pig factory farms are ok. If bacteria are just pixels, then the single cell zygote we all began from can be aborted. But as an aggregate of cells grows into a baby, when is a "being" consciousness channel opened up? Or if a collection of mindless neurons can form a mind, what about Lovelock's Gaia hypothesis, that we are just "cells" in an Earth consciousness? If consciousness is about complexity, did our universe run for billions of our years before some one decided to play? This is no minor difference in words or definitions.

It is also a slippery slope. Most people just draw a convenient line, above rocks and below us, and move on, as Tom does, but *drawing an arbitrary line on the continuity of evolution* doesn't fit the facts of biology. If consciousness is a decision space, then a radioactive rock has it, as only it (by quantum theory) "decides" when to radiate a photon. To make the definition to be only decision spaces "like mine" just gives the trivial statement that a rock is not me. Lots of people have drawn such lines but none have really worked.

In John's continuum, at the one end is physical realism where 99.9999…% of the universe is not conscious, in the middle is Tom where only beings like us are players, and at the other end is me, with the view that everything is "conscious". The justification for this position is Conway' Free Will theorem, which states that you cant sit on the fence on this. My definition of consciousness is *that which acts and observes,* i.e. the origin and terminus of every data flow.

Like John, I see reality as actually being simulated, not some cosmic Peter Jackson movie where dinosaurs and quantum particles are continuously added for our amusement.

On the other hand, I agree with Tom that consciousness cannot arise from mechanical processing. That consciousness somehow "emerges" miraculously from complexity has no basis in either empiricism or logic. It is also contradicts the eastern view that consciousness is real, as if it emerges from complexity it comes and goes, and what comes and goes is not real. One just has to read Maharshi to understand this.

I have summarized all this in the attached review. This discussion has been very useful to outline the options. In case you don't read it, following is a table that summarizes the main differences in the points of view:

	Traditional Views		Virtualism			
Question	*Physical Realism*	*Dualism*	*Matrix Option*	*Simulation Option*	*Universal Mind*	*Virtual Realism*
Does the physical world self-exist?	Yes	Yes	No	No	No	No
Are there two self-existing realities?	No	Yes	No	No	No	No
Does classical bit processing generate physical events?	No	No	Yes	Yes	No	No
Do quantum waves spread and collapse as quantum theory says?	No	No	No	Yes	No	Yes
Is there a world apart from our experience?	No	Yes	Yes	Yes	Yes	No
Does consciousness "emerge" from what is not conscious?	Yes	No	No	Yes	No	No
Do physical events have non-physical causes?	No	Yes	Yes	Yes	Yes	Yes
Can this view predict new physical facts?	Yes	No	No	Yes	No	Yes

Table 1. How various views of reality answer key questions

All the best

Brian

From: John Ringland
Date: Wed, Mar 26, 2014 at 2:50 PM

Hey Brian and Tom,

Brian, thanks for your valuable input. I'm glad you're finding this interesting too :)

First a clarification and then some comments...

The one word 'consciousness' is used to signify very different yet related concepts. There are three main interpretations of the term 'consciousness' which derive their meaning from three different paradigms:

- Dualism (matter and consciousness are fundamental)
- Materialist Monism (only matter is fundamental)
- Panpsychist Monism (only consciousness is fundamental)

When one meaning is applied within the context of another paradigm it makes no sense, hence they need to be kept distinct within the discourse otherwise confusion arises.

- When people talk about 'consciousness' within a **dualist paradigm** they are speaking only about the particular and very complex form of consciousness that we exhibit, and they are ascribing to it fundamental self existence. Furthermore, the other half of the duality is believed to be entirely 'mechanical'. This form of consciousness I label consciousness[D] (D for dualist).
- When people talk about 'consciousness' within a **materialist monist paradigm** they are speaking only about the particular and very complex form of consciousness that we exhibit. They believe that only mechanical processes operating amongst material objects have fundamental existence and that consciousness is somehow emergent from these. This form of consciousness I label consciousness[M] (M for materialist).
- When people speak about 'consciousness' within a **panpsychist monist paradigm** they are speaking about the most simple (primal) form of consciousness, to which they ascribe fundamental existence. From this there emerges a holarchy of more complex forms of consciousness (such as that exhibited by cells, organisms, organisations and so on) via a process of system integration and successive meta system transitions. In this paradigm primal consciousness is universal, it is the animating process underlying all manifest existence; so nothing is 'mechanical'. This form of consciousness I label consciousness[P] (P for panpsychist).

For a brief explanation of consciousness[P] consider this:

> "... every system might be conscious at some level. Consciousness might be universal, an idea called panpsychism. The idea is not that photons are intelligent or thinking, or wracked with angst. Rather, it's that "Photons have some element of raw subjective feeling, a precursor to consciousness." ...
>
> ... a simple way to link consciousness to fundamental laws is to link it to information processing. It's possible that wherever information is being processed, there is some consciousness. Chalmers put that idea forward about twenty years ago, but at the time it wasn't well developed. Now a neuroscientist, Giulio Tononi, has created a measure, phi, that counts the amount of information integration. In a human, there is a lot information integration. In a mouse, still quite a lot. As you go down to worms, microbes and photons it falls off rapidly, but never goes to zero. "I don't know if this is right, but right now it's the leading theory.""
>
> http://blog.ted.com/2014/03/19/the-hard-problem-of-consciousness-david-chalmers-at-ted2014/

Giulio Tononi's work on Phi is discussed in this article:
http://www.scientificamerican.com/article/a-theory-of-consciousness/
It is a very interesting and relevant read...

I, Brian, David Chalmers, Giulio Tononi, many mystics and an increasing number of philosophers and scientists are talking about consciousness[P]. Tom seems to be talking about consciousness[D]. And most of science and modern culture seems to be talking about consciousness[M]. Yet we all use the word 'consciousness' and often come to misunderstand each other. I hope we three will be able to avoid these misunderstandings.

Re: "Like John, I see reality as actually being simulated... On the other hand, I agree with Tom that consciousness cannot arise from mechanical processing."

You don't need to say "On the other hand" because I also agree with you and Tom on this point.

I agree with you Brian that consciousness[P] "is that which acts and observes, i.e. the origin and terminus of every data flow." That is the essence of the panpsychist monist paradigm, in which there are no mechanical processes or inanimate systems or unoccupied perspectives (these ideas only have meaning within a dualist or a materialist monist paradigm).

Re: "consciousness cannot arise from mechanical processing. That consciousness somehow 'emerges' miraculously from complexity has no basis in either empiricism or logic."

I totally agree that the complex consciousness that we exhibit doesn't emerge via the increasingly complex integration of mechanical processes. The panpsychist monist view is that there are no mechanical processes and the more complex forms of consciousness emerge via the increasingly complex integration of simpler forms of consciousness[P].

All information processes involve some degree of consciousness. They still operate on discernible differences, which can be understood using bit/qubit concepts - however that does not mean that they are mechanistic. In the panpsychist paradigm the simplest forms of consciousness[P] are so simple that we can easily mistake them as being mechanistic because they are regular and ordered. However they still have an "element of raw subjective feeling".

Thus simple information processes are mechanistic-like in the sense of being regular and ordered, however they are not mechanistic in the sense of being devoid of the "element of raw subjective feeling".

In my own work this is implied by my definition of information as "discernible difference". It must be discerned by some information process in order to exist. Thus the role of a discerner is vital to the existence of information and the functioning of information processes. Hence in this view information processes are not mechanistic and devoid of consciousness. Whether simple and ordered or complex and chaotic, they are all different forms of consciousness.

This is in full agreement with logic, system theory and the Eastern view as well as the emerging scientific view. Although it is difficult to understand and often seems rather 'mystical' from the perspective of a dualist or a materialist monist view - mainly due to misinterpreting consciousness[P] as either consciousness[D] or consciousness[M].

Re: "consciousness cannot arise from mechanical processing... It is also contradicts the eastern view that consciousness is real, as if it emerges from complexity it comes and goes, and what comes and goes is not real. One just has to read Maharshi to understand this."

The Eastern (and emerging scientific) view is that consciousness[P] is fundamental and without beginning or end, whilst all the more complex forms of consciousness are emergent and thus have a beginning and an end.

Re: the table...

My ideas fit with "Virtual Realism" except for the third question. Or with the "Simulation Option" except for questions 5 and 6.

Re: the attached doc...

Great stuff!!! It sheds a lot of light on how the various ideas relate to each other.

Although it seems to only take account of the dualist and materialist monist paradigms, thus its treatment of virtualism still has influences related specifically to those paradigms. If it also took into account the panpsychist monist paradigm that would add another level of detail that you could draw out and analyse.

For instance, in relation to the simulation option you say: "If everything is software, consciousness must arise when it reaches a certain level of complexity, but no evidence at all supports this view."

That is only true in relation to the materialist monist paradigm where software is a mechanistic process that is totally devoid of consciousness. In a panpsychist paradigm where "consciousness is

that which acts and observes, i.e. the origin and terminus of every data flow" then the information processes at the core of reality cannot be thought of in a mechanistic sense as "just software", instead they need to be understood as conscious information processes. Hence complex consciousness emerges from simple consciousness rather than from mechanical processes.

If this and other implications of the panpsychist paradigm were incorporated into that document then it would be quite comprehensive and it would connect with many of the ideas emerging at the cutting edge of consciousness research, interpretation of quantum mechanics, computational metaphysics, integration of Eastern and Western philosophy, etc. Then it would be really awesome IMHO ;)

One last comment for now:

In that doc you make the distinction between:

- Dualism (matter and consciousness are fundamental)
- Physicalism (only matter is fundamental)
- Virtualism (only information processes are fundamental)

Above I made the distinction between:

- Dualism (matter and consciousness are fundamental)
- Materialist Monism (only matter is fundamental)
- Panpsychist Monism (only consciousness is fundamental)

If these distinctions are compared side-by-side Virtualism neatly overlaps with Panpsychist Monism, which is indicative of the way that consciousness in some sense overlaps with information processes. David Chalmers and Giulio Tononi have noted this too i.e. "a simple way to link consciousness to fundamental laws is to link it to information processing. It's possible that wherever information is being processed, there is some consciousness."

It seems to me that virtualism and panpsychism fit very nicely together... What do you guys think?

All the best :)
John

From: Brian Whitworth
Date: Thu, Apr 3, 2014 at 4:06 PM

Hi John,

Talking to you his fruitful interchange has helped me clarify both what I am thinking and what you think. Your point about eastern and western ideas of consciousness is a good one, but the panpsychist label damns it, as both naturism and psychic. The definitions are fine, but I prefer the term *cosmic paganism*, i.e. all is conscious on a cosmic level.

Despite Ted, that "information integration" produces consciousness is a fantasy, as consciousness cannot arise from mechanical processing. If "*consciousness is that which acts and observes, i.e. the origin and terminus of every data flow*", it can't come from information. Yet information can come from consciousness. The simulation option is incompatible with the panpsychist paradigm, as processing can't be the source of all things! It baffles me you can't see this. Consciousness has no beginning or end, but processing has a beginning and end. You have to think straight. Classical processing can't create physical events, so that a non-physical processing does is this model.

All the best,
Brian

From: John Ringland
Date: Tue, Apr 8, 2014 at 9:38 AM

Hi Brian and Tom,

Tom, you would have missed Brian's last email because he didn't click "reply all", but I hope you are still with us in this conversation. I am just interested in the clarity and accuracy of the emerging paradigm, which involves testing ideas. I hope our little clash of ideas has been taken as just that and not as anything personal. I feel that we encountered some distinctions and clarifications that are very useful to the ongoing discourse.

I will certainly be going back over this whole conversation to extract the various insights that I have had and publish them. Brian has already done something similar, which has been very informative. If you (Tom) are inclined to do something similar I would be very interested to read it too.

Brian, I hope that the explanation below helps you to clear up your bafflement. What I was saying is very straight forward when looked at from some perspectives but very baffling when looked at from certain other perspectives. Below I try to explain this in detail, to enable you to shift towards a perspective from which you can understand what I and many others say about these issues.

Below is Brian's last email with my comments inserted in blue...

On Thu, Apr 3, 2014 at 4:06 PM, Brian Whitworth wrote:
Hi John,
Talking to you his fruitful interchange has helped me clarify both what I am thinking and what you think.

Me too, it has been a very fruitful conversation! :)

Your point about eastern and western ideas of consciousness is a good one, but the panpsychist label damns it, as both naturism and psychic.

I'm not sure why you think that... here is the etymology of the term.

> "The term "panpsychism" has its origins with the Greek term pan, meaning "throughout" or "everywhere", and psyche, meaning "soul" as the unifying center of the mental life of us humans and other living creatures."[2] Psyche comes from the Greek word ψύχω (psukhō, "I blow") and can mean life, soul, mind, spirit, heart and 'life-breath'. The use of psyche is controversial due to it being synonymous with soul, a term usually taken to have some sort of supernatural quality; more common terms now found in the literature include mind, mental properties, mental aspect, and experience." (https://en.wikipedia.org/wiki/Panpsychism)

BTW when I wish to be exact about my own work I use the more specific term 'panprotexperientialism', which is a type of panpsychism. There are several sub-classes of panpsychist theories.

The definitions are fine, but I prefer the term cosmic paganism, i.e. all is conscious on a cosmic level.

But we are not talking about religion.

> "Paganism is a broad group of indigenous and historical polytheistic religious traditions—primarily those of cultures known to the classical world. In a wider sense, Paganism has also been understood to include any non-Abrahamic, folk, ethnic religion. Modern ethnologists often avoid referring to non-classical and non-European, traditional and historical faiths as

> Pagan in favour of less ambiguous labels such as polytheism, shamanism, pantheism, and animism." (https://en.wikipedia.org/wiki/Paganism)

If you don't mind, for now I will continue to use the standard label 'panpsychism'... you can use the label “cosmic paganism” if you wish and I will understand you, although I suspect most people will not.

Despite Ted, that “information integration” produces consciousness is a fantasy, as consciousness cannot arise from mechanical processing.

I am not talking about consciousness emerging from mechanical processing - I have never stated anything of that kind!! Yet you have repeatedly assumed that I am talking about that, even when I explicitly say that I am not.

When evaluating paradigms they each need to be assessed on their own terms. This is an important point!!!!!

Only genuine supporting evidence (which is not just an endemic misunderstanding that is confounded as evidence) needs to be accommodated by all paradigms. It doesn't make sense to mix-and-match concepts between mutually exclusive paradigms unless there is genuine supporting evidence.

You cannot hold on to unsupported beliefs from one paradigm and look from that perspective across at another mutually exclusive paradigm and expect to be able to properly assess it. One must fully step-into the other paradigm (plus genuine evidence) and look through it to understand its perspective, only then can one decide if the view makes sense. In other words, to test a paradigm one must assume it to be correct and then follow through all the implications to see whether it has self-consistency (lack of contradictions) and sufficiency (explanatory power and compatibility with raw observations).

Note: this is why I speak as if the panpsychist paradigm is correct – not because I am a true believer who is preaching – but because I am fully adopting that perspective in order to properly put it to the test. If I was to consciously or unconsciously cling to any conflicting unsupported concept from another paradigm then I would not be able to properly test it - I would only get myself confused because within the context of the panpsychist paradigm those other concepts are entirely unscientific.

> “The reception of a new paradigm often necessitates a redefinition of the corresponding science. Some old problems may be relegated to another science or declared entirely "unscientific". Others that were previously non-existent or trivial may, with a new paradigm, become the very archetypes of significant scientific achievement.” (Thomas Kuhn)

There is no genuine evidence that there exists any process that is totally devoid of any subjectivity, so the concept of “mechanical processes” is not a valid concept with which to compare paradigms - it is just mixing up paradigms by transplanting unsupported concepts out of context.
Just because the dualist and materialist-monist paradigms believe in "mechanical processing" that doesn't in any way mean that the panpsychist paradigm needs to be compatible with that belief, or to explain it as anything other than a misunderstanding / myth. Likewise, just because Christians believe in a Judeo-Christian God doesn't mean that science needs to explain itself in relation to that belief (unless there arose genuine evidence, of which currently there is none).
The only time that I have mentioned mechanical processing is to state the fact that from the perspective of the panpsychist paradigm mechanical processes don't exist. They are considered to be no more real than the flat earth, phlogiston or Ptolemaic epicycles.

Neither, I, Chalmers or Tononi are talking about mechanical-information-processes within the

context of a mechanistic paradigm (note, in this context I will refer to the dualist and materialist-monist paradigms collectively as mechanistic paradigms).

We are rather talking about conscious-information-processes within the context of a panpsychist paradigm.

It was you who assumed that the processes must be mechanical - however that assumption is only meaningful in the context of mechanistic paradigms. When you consider a system that you believe to be mechanical, why is it that you believe that it is devoid of any subjectivity and that other systems are not? Why do we make these distinctions and hold them with such conviction that we apply them universally to all paradigms as if there was genuine evidence supporting them?

The only compelling answer is that different paradigms have different beliefs and some of those beliefs have become so engrained in our minds that they have become part of the closed loop of hidden assumptions that forms the unconscious foundations of our thoughts. Those engrained propositions seem to be undeniably true whilst conflicting propositions seem to be undeniably false, however there is no rational basis to this seeming, instead it is habitual.

These habitual beliefs result in “non-genuine evidence” when experiences are habitually interpreted in ways that reinforce the belief. This is experienced as evidence when in fact it is just an endemic misunderstanding that is confounded as evidence. A classic example of this is the belief in matter, or any of the 'products' of naïve realism. This leads us to apply certain concepts universally in relation to all paradigms, as if there was genuine supporting evidence, when all there is is habitual, unconscious assumption. A historical example of this sort of confusion is Johnson's failed refutation of Berkeley:

> "Although Berkeley understood his philosophy to be common sense, his readers came to different conclusions. One prominent physician of his day claimed Berkeley was insane. The great Dr. Samuel Johnson dismissed Berkeley's ideas with his famous "I refute Berkeley thus" and then he kicked a rock. Of course, this did not refute Berkeley at all. It only proved Johnson had not understood Berkeley's point. Berkeley did not claim the non-existence of stones or that kicking a stone will not produce sensation. He claimed the rock did not exist apart from the perception of its solidity or the perception of pain when struck, and so on. An oft-repeated epitaph summarizes the general reaction to Berkeley: "His arguments produce no conviction, though they cannot be refuted.""
> (http://www.mindspring.com/~boba4/TreeFall.htm)

Johnson didn't disprove anything, he only reinforced his unconscious assumptions and confounded that as genuine evidence. Due to many people's inability to think outside of their closed loop of hidden assumptions they were unable to comprehend Berkeley so they assumed that what he said made no sense.

Even though an idea may be rational, sensible and logically necessary (within some paradigm) if it contradicts deeply held unconscious beliefs (derived from some conflicting paradigm) then people's minds are unable to assimilate the idea. In general, one must overcome naïve realism to be able to comprehend the emerging (computational / cognitive / processual) paradigm otherwise many aspects of it will seem to be nonsense.

> “The old foundations of scientific thought are becoming unintelligible. Time, space, matter, material, ether, electricity, mechanism, organism, configuration, structure, pattern, function, all require reinterpretation. What is the sense of talking about a mechanical explanation when you do not know what you mean by mechanics? The truth is that science started its modern career by taking over ideas derived from the weakest side of the philosophies of Aristotle's successors. In some respects it was a happy choice. It enabled the knowledge of the seventeenth century to be formulated so far as physics and chemistry were concerned, with a completeness which lasted to the present time. But the progress of biology and psychology has probably been checked by the uncritical assumption of half-truths. If science is not to

> degenerate into a medley of ad hoc hypotheses, it must become philosophical and must enter upon a thorough criticism of its own foundations." (Alfred North Whitehead)

You need to think entirely within the context of the emerging paradigm (plus genuine evidence) and to provisionally look through its perspective in order to think straight about it, otherwise many statements made within its context will seem crooked and baffling. This is true of every paradigm shift and failure to do this is the cause of most bafflement about and resistance to an emerging paradigm.

What I and many others HAVE been saying is that complex consciousness emerges from simple consciousness (not mechanical processes) and that all information processes have a subjective element (even if only at a very primal and basic level). Not that they all have minds (those are very complex emergent forms of consciousness) but that every information process has some subjective aspect. It is from this that the more complex forms of subjectivity emerge, eventually integrating and evolving into complex minds such as ours. If one adopts the panpsychist perspective this makes perfect sense, however from a mechanistic perspective it is utterly baffling.

The paper quoted below only addresses a few levels of complexity underlying our minds, however its general principles apply to the whole holarchy of emergent forms of subjectivity.

> "the essential nature of consciousness is a foundational form of phenomenal experience... the capacity to be aware of the environment and that one is the subject of such externally triggered experiences is already a higher cognitive function, which is ultimately mediated by the ability to reflect upon one's subjective experiences. This hierarchical parsing enables one to be conscious in different ways—e.g., to feel happy and sad, without necessarily having the mental capacity to recognize that one is happy or sad, let alone to reflect upon the objective relations that caused this happiness or sadness. Being phenomenally conscious does not, by itself, require much cognitive sophistication at all." (The "Id" Knows More than the "Ego" Admits: Neuropsychoanalytic and Primal Consciousness Perspectives on the Interface Between Affective and Cognitive Neuroscience: http://www.mdpi.com/2076-3425/2/2/147)

In my own work I refer to the most primal level of consciousness as the experiential process that is the inner aspect of all systems - thus all systems have subjective experience; that is how they interact, i.e. by experiencing each other and reacting (this is what SMN models). At this primal level of subjective experience there are no networks or feedback loops, so these primitive systems don't experience their experiences, and they can't symbolically represent their experiences to themselves so they have no memory or knowledge so they cannot know, let alone know that they know. They have no emergent complexity that leads to chaotic behaviour (as studied by chaos theory) so they are very ordered and predictable (at the most primal level), hence they can easily be misunderstood as being 'mechanical', however they are not devoid of a subjective aspect.

If "consciousness is that which acts and observes, i.e. the origin and terminus of every data flow", it can't come from information. Yet information can come from consciousness.

What is your definition of 'information' in this context?

I have already stated my definition of 'information' before... at its most basic level it is discernible difference, the discernment of which relies upon subjective information processes. Hence consciousness is essential for the existence of information and information is essential for the existence of consciousness. They are not separate things that exist independently of each other - they are just two different ways that we have come to think about mutually co-arising aspects of the one phenomenon.

Trying to figure out which came first leads to confusion because each depends on the other. How can there be information without consciousness and how can there be consciousness without

information? Neither is possible. What is required in order to understand the emerging (processual) paradigm is to refine our understanding of both information and consciousness in order to recognise their intimate relation to each other as part of a single process.

From the perspective of the panpsychist paradigm, the very primal, basic, information processes were misunderstood as 'mechanical' and the very complex, chaotic information processes were misunderstood as "sentient free will". These are not totally separate features of reality, they are just more or less complex information processes.

The simulation option is incompatible with the panpsychist paradigm, as processing can't be the source of all things!

If by "simulation option" you mean a mechanistic interpretation of the simulation option then you are entirely correct. However as I have explained above (and in the previous email), the panpsychist paradigm has no need to accommodate mechanistic concepts (unless there is genuine evidence, which there isn't). So the panpsychist paradigm is perfectly compatible with a non-mechanistic, panpsychist-monist interpretation of the simulation option.

If the information processes involved in the simulation are conscious-information-processes rather than mechanical-information-processes then there is no conflict at all.

My reason for commenting on your document and mentioning the simulation option as an example, was because that document is only a partial analysis because it is interpreted through the lens of a mechanistic paradigm and is thereby oblivious to the implications of the emerging non-mechanistic paradigm.

It baffles me you can't see this.

The reason why you are baffled is because when I, Chalmers, Tononi and others say "information process" we are talking within the context of the panpsychist paradigm where every information process is a conscious-information-process. Yet you think that we are talking about mechanical-information-processes.

I'll use a metaphor to explain how our conversation has proceeded recently:

mechanical-information-processes <==> flat earth
conscious-information-processes <==> ellipsoidal earth
emergent consciousness <==> orbiting satellite

I am thinking within the ellipsoidal earth paradigm and talking about orbiting satellites (which is quite straight forward within that paradigm).

Yet you are thinking within the flat-earth paradigm and you think I am talking about satellites somehow orbiting the flat-earth - which is baffling.

When you object to my claim that satellites orbit the flat earth, I explain that I didn't say that, I only said 'earth', not "flat earth". In my paradigm the earth is ellipsoidal so there is no problem with how something could orbit it.

Yet you still keep interpreting me through the flat earth paradigm, so you restate your position that satellites can't orbit the flat-earth (consciousness can't emerge from mechanical processes) and say "It baffles me you can't see this."

All I can do is restate my position that within the ellipsoidal-earth paradigm there is no such thing as the flat-earth hence I do not need to explain its role in reality because it doesn't exist.

Yes I do see that consciousness cannot emerge from mechanical processes - I don't even believe in mechanical processes. I can also see that satellites cannot orbit the flat earth – which I also don't

believe in.

What I am saying is that complex consciousness emerges from simple consciousness.

Do you see that it is possible that there is no such thing as mechanical-information-processes; that they may actually be conscious-information-processes? One really has to 'grok' this in order to understand a panpsychist paradigm otherwise it seems to be nonsense.

Consciousness has no beginning or end, but processing has a beginning and end.

Consciousness is a process. Consciousness itself has no beginning or end, however the many emergent complex forms of consciousness (such as minds) do have a beginning and an end - they integrate out of simpler forms of consciousness and then disintegrate back into simpler forms of consciousness. Note: one can also replace the word 'consciousness' with 'process' in the preceding sentence.

You have to think straight.

With respect, I think it is you who needs to think a little straighter ;)

The dominant theme of our conversation so far has been you misunderstanding me due to your mixing up of paradigms, then objecting that what I say is wrong because it makes no sense (to you).

This is followed by me analysing and straightening out your thinking, at which point the objection is quietly dropped and we move on to the next misunderstanding whereon you again claim that what I say is wrong because it makes no sense (to you).

My specific advice to you in regards to this is:

- stop trying to measure other paradigms using a dualist or materialist-monist yard-stick,
- bring all of the unconscious assumptions from outmoded paradigms into consciousness and put them to the test,
- fully step into a paradigm (dropping any allegiance, whether conscious or unconscious, to any other paradigm) and look through it to understand things from its perspective before you attempt to put it to the test. Simply looking at a paradigm from the perspective of another mutually exclusive paradigm is only useful when diagnosing common misunderstandings and points of confusion – it is not a valid test of a paradigm.

I hope this has helped to clarify things...

All the best :)
John

From: Tom Campbell
Date: Wed, Apr 9, 2014 at 7:59 AM

Thanks John, I have just been busy. I will get back to it as I have time.

Final Comment:

After 2 months with no further response I consider the discussion to have ended.