Repositioning Mind and Matter in a Simulation Scenario

Genevieve Gorrell, M.Phil (Cantab), D.Phil.
genevieve.gorrell@gmail.com
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The hypothesis that we are living in a simulation, whilst difficult to prove, offers some common sense inroads into practical lines of thinking. As long as mental phenomena are sidelined, mainstream understanding of reality is limited. In this paper, three models are presented that reposition mind and matter in a hypothetical structure of our simulation. Computer programming analogies are used to explore different aspects of our existential situation.

Introduction

The simulation hypothesis proposes that we are living in a computer simulation of some kind. The idea was originally brought to prominence by Nick Bostrom in his 2003 paper, in which he focuses on the possibility that we aren't the original 21st century Earth civilisation, but a simulation being run by our descendents. Focusing on this specific possibility allows him to make assumptions about the properties of the parent reality, namely that it is similar to ours, and therefore explore plausibility, for example in terms of computational feasibility; but in fact we could be a simulation run by an entirely unfamiliar parent reality about which we have little opportunity to learn anything.

Opinions differ about how computationally demanding it would be to run a simulation of the quality we experience, with Bostrom arguing that it would be trivial for our descendents to run many simulations of this type on short timescales, and therefore simulated humans would soon vastly outnumber original humans. This is the basis for his argument that we probably aren't one of the originals. However Vazza (2025) suggests that the computational demands would all but rule out any possibility of even one such simulation. Of course, the amount of computational processing required depends on the type of simulation we are proposing. Vazza assumes we intend to achieve the simulation by replicating matter. The assumptions behind the type of simulation in question raise some important philosophical points, explored below.

The idea of the world arising computationally can be quite easily grasped in the form of the simulation hypothesis, since many people now have experience of programming, or of using software such as computer games. We are daily discovering some new invention from computer technology that parallels human ability or the experience we have of sensing and interacting in the world. The simulation hypothesis opens a mental door for some common sense conjectures about what might have gone into creating this world. We learn by attempting to replicate. The territory is similar to digital physics, in that the core of the theory

is that the world arises computationally, but approached from an engaging and practical angle.

Simulation Types

Let us consider three possible types of simulation. The first type doesn't attempt to account for the existence of the human mind. The second type does, but dodges the issue by assuming that replicating the matter in the universe will naturally cover it. The third type is the focus of this paper, and proposes that the simulation is generated by algorithms in a manner more akin to cellular automata, that ultimately produce both mind and the appearance of matter.

Type 1: Matrix

In the first type of simulation, the conscious human is supposed to pre-exist, perhaps as a human in a vat, in the manner of the film "The Matrix", or alternatively just the "brain in a vat" in the style of modern philosophical interpretations of Descartes' thought experiment. In this case, the simulation task is something similar to video game rendering, most efficiently achieved "just in time", when a "player" actually experiences the material (Campbell *et al.*, 2017). The computational requirements then scale with the number of users, which is potentially as few as one, rather than with the complexity of the world. The coding task is a familiar one, since multiplayer role-playing games are at a well-developed stage, and the natural goal of the work is greater immersivity. When it comes to creating a compelling experience, the human mind seems to meet technology half way or even further. Virk (2021) for example talks about how convincing he found even quite basic virtual reality, and there's evidence of tremendous plasticity in our mapping of different types of input into the qualitatively familiar world representation we experience. For example, blind people using echolocation show activation in brain areas usually used for vision (Kolarik *et al.*, 2014). So it's possible no actual video rendering would be required, but merely reliable sensory input.

The Matrix model is similar to Descartes' skeptical hypothesis, in which all sensory input is served to us by a demon with the intent to deceive. This mainly served as a thought experiment in exploring the limits of what we can truly know. It is not clear, outside of a science fiction film, what would be gained by deceiving a significant number of humans in this way. If there's a sense in which portions of the experience are "faked" rather than fully realised, for example "non-player characters" (game-generated characters such as Agent Smith in the Matrix films) there's a trade-off between computational efficiency and generating a convincing, sufficiently realised component of the world. The idea of a fully realised non-player character brings us to the second type of simulation.

Type 2: Materialist Sims

The Sims is the archetypal computer game in which people are simulated. The game appeals in that you as the player are a kind of God to these simulated people. Sims aren't quite like us, but you can imagine them believing in their world and caring about what happens in it, perhaps not in the current version of the game, but eventually, in some future version.

Despite the actual Sims computer game being the best example we have of simulating people, within simulation hypothesis literature the assumption so far has been that if we want to simulate this world, containing these people, we will do it by replicating matter. Bostrom (2003) and Beane *et al*.,(2014) assume that if the matter contained in the universe is duplicated in software, all its phenomena, including thinking human beings, will naturally be covered, an assumption that places much confidence in our current understanding of physics. Vazza (2025) makes the same assumption in proposing computational requirements to simulate the universe, or only Earth, or just a low resolution Earth. Virk (2021) makes the same materialist assumption.

Type 3: Computationalist Sims

The alternative to the materialist Sims variant is in one sense closer to the actual Sims - we arise programmatically, not from or via matter. Beyond that, however, we might expand on the meaning of the word "simulation". The task of actual literal replication of a reality as complex as this one would be coding-intensive, and puts us back into the realm of a deceptive demon, requiring supernatural ability. However, "simulation" might also be used in the sense of *simulated life*, for example the "game of life" cellular automaton demonstrator.[1] In this latter sense, much of what happens grows organically from a comparatively simple set of algorithms. This hypothesis is compelling in its plausibility. In fact, we would only feel that was "simulated" relative to the assumption that pervades our thinking, that matter is real and is the basis of reality. There are several key reasons to question the assumption that matter is the foundation of reality.

- Quantum physics over the last century has shown that the assumptions of classical physics based on local realism do not hold: locality is violated by the phenomenon of entanglement, and realism is violated by the apparent collapse of the probability wave function on observation. Matter cannot be the whole story.[2]
- The "hard problem of consciousness" (Chalmers, 2017) is the problem we have explaining our conscious experience in terms of matter. Conscious experience is so unlike anything that might arise from any system of mechanics. However, it is easy to see how matter might be "implemented" in a mind substrate - all our information about matter, its look, feel etc., has arisen as an experience in mind. It is a particular configuration of mental phenomena that constitutes matter.
- All the life-resembling phenomena we have been able to create so far have been achieved through computer programming; for example cellular automata, fractals and artificial intelligence, not to mention the Sims game itself. We must surely build on what we have, and that suggests that life does not arise from matter and properties of matter, but from some form of computation. The idea that the world arises computationally is explored under the heading of digital physics, e.g. see Wolfram (1997), Wheeler (2018), Fredkin (2003) and Vopson (2023).

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[1] https://playgameoflife.com/

[2] https://www.scientificamerican.com/article/the-universe-is-not-locally-real-and-the-physics-nobel-prize-winners-proved-it/

What would it mean for the world to be computed?

All is mind

First Hermetic Principle

All ∈ {mind, information, energy, Ehyeh, God}*

If we are being run on a computer, clearly it's an extraordinary one, given the richness of our experience. However, there are some parallel principles that may apply. For example, we can't do programming without in some way running power through a system of switches (commonly a computer chip, though theoretically a computer could be built using water wheels, or human beings,[3] or anything else you can use to make a system of switches). We can therefore infer some kind of architecture.

We have previously argued that matter is implemented computationally rather than being literal, and now we are saying that computation depends on an architecture of switches, which is inherently quite a physical concept. We are perhaps suggesting that our parent reality also has an implementation of something like matter, which similarly provides the most efficient way to create a computer. We can think of matter as a style of organisation bringing with it certain affordances, like a programming paradigm.

Our waterwheel computer would be powered by the potential energy of water falling. Electricity moves due to the electromagnetic force. Something has to want to move. Ultimately, everything is energy, and energy is a fixed quantity as far as we can presently discern. Is this the total resource allocated to our simulation by the parent reality? Or is it "game energy", a fiction arbitrarily set? Can the Cosmic Programmer arbitrarily give us more energy? In Gorrell (2022) I suggested our finite energy might reflect the finite processing resource supplied to our simulation, but in Gorrell (2025) I suggested that we might be run more slowly, if processing resource is limited, in a way that isn't actually apparent to us at all. I suggest that supplying us with more game energy results in more complexity and makes us more expensive to run.

So we have our computer and we have turned it on. It's unlikely to do anything interesting unless we program it. The pursuit of a simple explanation for our existence in the form of matter with fixed properties does have the merit of attempting to do away with the need for a complex and mysterious parent reality, and an intelligent creator, surely the ultimate violation of Occam's Razor. However, it may not be realistic. Thinking in terms of computational generation, rather than in terms of matter obeying natural laws, flags up to those with programming experience the amount of coding that would need to go into even the most basic simulated reality. Vopson, 2023, argues similarly. The materialist throws more and more complexity under the heading of the natural properties of matter, and concerns herself only with what happens after that. A better focus for our elegant theorizing might be to infer the most minimal *algorithm set* that would explain what we see around us, and keep an open mind for now about where it came from.

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[3] A computer constructed of human beings acting as switches is described in chapter 17 of Cixin Liu's book "The Three Body Problem".

**See next section, "Consciousness"*

Consciousness

At a glance, it may seem that consciousness is a key difference between the simulations we might create on a computer and the simulation in which we find ourselves. There is no suggestion that the Sims are conscious, and it can be hard to see how consciousness might arise from a machine. Conversely, AI chatbots have recently reached such a level of proficiency that some believe they are sentient. In my 2022 paper (Gorrell, 2022) I argue that it is not enough to simulate the surface behaviour of a conversing human to entail the sentience that usually gives rise to it. (Nor would it be enough to functionally replicate the human brain.) I use the Buddhist nidānas (described below) to describe the steps by which human-like sentience might be meaningfully, naturalistically achieved, most probably in the context of a social environment of peers.

The suggestion however is not exactly that sentience can arise from a machine. A body of thinking suggests that consciousness is pervasive. What we think of as sentience is a consequence of *organisation*, not consciousness. Consciousness is not the scarce quantity, but pervades everything, and therefore is available to us in our machines. By this reasoning, our computer is already intrinsically self-aware, and a simulation run within it, made from it, would inherit that property. If we haven't managed to realise any very noticeable level of sentience in our machines, that's purely because we haven't done enough of the right things.

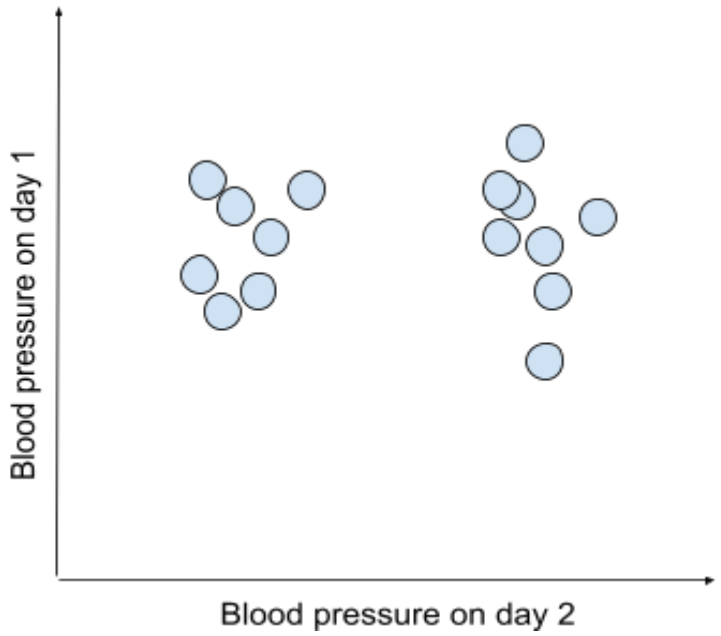
"Ehyeh" is a God name in Judaism, and means "I am that I am", or simply, "I am". It is the sense of "I am" that gives rise to the question of consciousness, the feeling of someone in here, looking out from these eyes. Other things you might say about yourself differentiate one thing from another. To say "I am a human" is to say I'm not a different kind of animal, to say "I'm a woman" is to say I'm not a man. Other things we might say about ourselves create separation. But my sense of "I am" precedes separation. My sense of "I am" is the same as your sense of "I am". You might even say, it's the same "I am".

Faggin (2022) argues that consciousness is irreducible - consciousness therefore being the substrate of reality, not matter. Bohm (e.g. 1987) would call the irreducible component "meaning", and all else can be derived from that. A pervasive feature of mystical tradition and numerous reports of first-hand mystical and psychedelic experience, also echoed by Bohm, is the realisation that the division between observer and observed is derivative. At core, we have meaning self-experiencing, meaning as atom. In this paper, we try to develop an understanding based on monism - no separate observer, no separate choice-maker. If we are to envisage coding a reality like this, it will all have to be of the same substance - code. There can be no self-referentiality, for example, a separate me that chooses to examine my memories, or for whom material is played back in any way. It all needs to emerge of a piece.

Dimensionality as a Thinking Tool

It's a familiar idea that there may be more dimensions than the ones we perceive. It's central to superstring theory, in which calculating in terms of eleven dimensions is found to simplify.

It's common to talk about these extra dimensions in a way that suggests that we are inherently three-dimensional creatures, and these extra dimensions have a physical quality to them, despite being inaccessible to our senses. For example, they may be curled up small. However, high-dimensional datasets are a familiar concept that can be easier to grasp conceptually than higher physical dimensions. Where a set of data points each has a large number of aspects, we have a dataset of dimensionality higher than three or four. For example, if we take a blood pressure reading for each of a number of patients, each day for 30 days, we have a 30-dimensional datapoint for each patient. These data points can be clustered, for example, to discover patterns in the data. We can illustrate data points in two dimensions, perhaps by plotting the first two days only, as figure 1 shows, but the maths remains simple even with 30 dimensions.



In this way we can demystify the concept of higher dimensionality. In fact, it's powerful to drop the idea of wanting to visualise high dimensionalities or somehow force them into physicality. Once we think in terms of data richness and data representation only, we see a path clear to incorporating mind into our world view, rather than sidelining it. Any data can be captured given a sufficiency of dimensions.

Dimensionality of Mind

Can we get a hint of the number of dimensions we might be talking about, that would be required to include the human mind? We can make inroads. Some examples of multidimensional theories include personality tests. For example, the "Big 5" uses five dimensions to capture broad differences in personality. The Jungian type index uses four. However these are a simplified representation of personality, which in any case is rather a nebulous target. Taste is considered to be a five-dimensional sense, with the dimensions being sweet, savoury, sour, bitter and umami, though the experience of eating is also affected by smell, mouth feel, the appearance of the meal etc. The dimensions of a good model capture independent features. For example, if your model of personality included both extraversion and sociability as separate dimensions, there would be redundancy. Your model

would have more dimensions than were really necessary to capture the phenomenon. Algorithms are available that can derive optimal dimensions automatically from a dataset. You can then try to put a label to them. In some cases, intuitively obvious dimensions are found that are easy to label, but in other cases, dimensions are found that we wouldn't have thought of.

Language is perhaps as close as we can get to an analogue for the mind, though surely it too is a small subset only. We can't put everything into words. However, it's a starting point. At the time of writing, the AI chatbot ChatGPT uses 12,000 dimensions to achieve best results in capturing meaning.

It seems clear that we as a phenomenon have a much higher dimensionality than three or four, since our meaning is a part of reality. For three of those dimensions, we've created this vivid representation, in the form of the physical world. The dimensionality required to represent mind more completely is much higher, and this material isn't represented in the physical world. Instead we are aware of it and interact with it in other ways. Finally there may be a further set of data/dimensions that we don't even have mental access to. Our awareness may also grow over time to take in more material. Note also that what appears as a persistent phenomenon in one dimensionality may evaporate entirely on moving to a higher dimensionality. For example, the interference pattern of two tones, or sickness and health, or good and evil.

Dimensionality is a thinking tool, a modelling tool, not something that exists in any literal sense. We're used to thinking of dimensionality as being about the physical, spatial world, but that's a mistake. The suggestion here is that physical reality is a partial model of a complex dataset - a superpersonal, externalised theory, a diagram, like figure 1. It's not real either. Thinking is a broader but still incomplete model.

Dimensionality and the Holomovement

Later in the paper, we will encounter the idea of the "spreading out" of experience as a developmental stage of reality. What does it mean for experience to be distributed in the world, as opposed to everything happening everywhere all at once? We can find some analogies. A musical chord would be an example of everything happening everywhere all at once. It's a one-dimensional experience (not quite literally - the tones are composed of frequencies, which require time, but for the sake of the analogy we can consider a tone to be an experience). In a piece of music we move to two dimensions - everything is happening everywhere but not all at once. In a photograph, not everything happens everywhere, but it does happen all at once. In a video, not everything happens everywhere, and not all at once. From two dimensions on up, it's possible to find difference/plurality, for example by contrasting different sections of a piece of music.

In fact, you could say, the purpose of dimensionality is to unfold difference. It creates a spectrum along which a new kind of difference can be spread. It is perception that finds the dimensions. For example, the two dimensions of a piece of music, time and amplitude, are expanded into an entire orchestra by perception, and you could even include the history of the instruments, the pathos of the piece and many more aspects in the meaning that is unfolded. Human perception unfolds something very rich from this, but you can use the

Fourier transform[4] to pull apart a piece of music into its constituent frequencies. This dismantling and reconstituting from frequencies is the same in principle as how a hologram works. The hologram became popular in the late 20th century as a metaphor for how the brain might work. Holonomic brain theory (e.g. Pribram 1977) was developed in the light of Pribram's experiments showing that memory is distributed in the brain, with removal of brain matter resulting in a gradual degradation of the whole memory, rather than deletion of particular memories or abilities. In the same way, you can discard parts of a hologram and find only a general degradation of the overall image. You can discard frequencies from a piece of music and find gradual, general degradation of the whole. In a sense, a frequency is a dimension, in that it captures some orthogonal aspect of the content. More broadly, decomposition into orthogonal dimensions, followed by some principled or even random discarding of dimensions, is the basis of information compression.

On this basis, a type of holistic attitude to brain function was developed, because the whole is contained in every part. Taking music again as the analogy, every frequency pervades every part of the piece, but yet taken together, the actual piece of music "pops out". Returning to the parlance of dimensions, you might say that every dimension is available as an aspect of every perception, with the potential to impart some connotation or flavour (though in most cases the new dimension won't be relevant, e.g. "poignant" is irrelevant to taste). David Bohm (e.g. 1987) particularly developed the idea of the world "popping out" (the explicate order) from this underlying holistic fabric (the implicate order). Bohm and Pribram are popularised in Talbot (1991).

As a neurological theory, the holonomic theory seems to be that some underlying reality A being perceived is transformed via some implementation of the Fourier transform in the brain into an encoding B, as a storage mechanism. This isn't necessarily saying anything striking about reality. When you create a hologram or use the Fourier transform, the output is somewhat faithful to the original. Bohm, however, as a quantum physicist, takes the idea further, with the underlying reality, the implicate order, the "holomovement", being this holistic, everything-everywhere-all-at-once representation, and reality as we experience it, what actually happens, the explicate order, popping out from that. The essential message is that what we see is not all there is. The hologram is a somewhat confusing analogy in that it implies some need for waves/frequencies (which Pribram then postulated can be found in the brain) and suggests that it would have been coded from an original somewhere (since it would be odd to construct a hologram from scratch to generate an original image). The analogy of dimensionality, I think, is much cleaner, whilst still capturing the core observation of holism and gradual degradation. Bohm's thinking is perhaps better captured in terms of dimensionality as a way of building a grasp of complex material, the grasp not necessarily being an encoding of or in any sense intended by the complex material. In my PhD thesis I implemented a simple, neurologically plausible, principled dimensionality reduction approach (Gorrell, 2006).

Dimensionality and Non-dualistic Perception

Why do we tend to think in terms of perceptual dualism? Observer and observed? There are surely many valid ideas about this. Perhaps thinking in terms of the 3D physical world tends

[4] https://en.wikipedia.org/wiki/Fourier_transform

to force some experience into the world of percepts, such as physical objects, and other aspects of the material, such as predicting how percepts would change if for example I changed my position, into the world of relationship between observer and observed.

We do the same thing for mind objects. The fact that I can, apparently, choose to reflect on what happened to me yesterday, creates the impression of a me that is separate from my memory, and can read it off at will like a CD. More broadly, the sense of perceiver is what we do with our unintegrated material, where we imagine our free will to be located. In fact it can all be considered the same "substance" - the deeper dimensionality of what unfolds. When mind is fully included in the model, we might naturally lose the sense of duality.

How might memory work in a non-dualistic machine? Imagine a cellular automaton in high dimensionality. A form mutates as it moves through dimensions associated with it becoming a memory, then a more degraded memory, then maybe a synthesis. Maybe it lingers in some shady dimensions and reappears under certain circumstances. Forms perhaps split off, since you and I do different things with a shared memory.

Models from Mystical Tradition

In this paper we propose that the material world is the flowering of a series of computational developments constituting a kind of depth dimension to reality. In contrast to the mainstream view, in which reality is a single layer business defined by matter, we will see how this depth view gives us a richer scope for understanding. The insistence on matter as the basis for all phenomena has only come about recently. Prior to the modern era, broader thought was accepted as valid. Esoteric tradition presents theories that arguably show greater depth and insight. Both eastern and western mystical traditions have their schemata, as will be shown in this section. We begin with the Buddhist doctrine of Dependent Origination, and go on to explore Kabbalah's Tree of Life. In both cases, the original material is somewhat open to some interpretation. My interpretation of Dependent Origination is based on some years of Buddhist practice, learning from written and spoken sources, and is expanded on in Gorrell (2022), in which references are given.[5] My interpretation of the Tree of Life is based on Fortune (1957).

Buddhist Doctrine of Dependent Origination

The Buddhist doctrine of Dependent Origination breaks down the process of individuals coming into existence, only to suffer and die. The Buddha regarded coming into existence as an individual (or interpreting what is happening in that way) as the root cause of suffering, and his aim was to release us from this suffering. Table 1 gives the nidānas, the first five of which have a fairly computational interpretation in column 3. The level of detail here would not constitute a software specification, but arguably includes important elements such as power and architecture. The appearance of senses before any hint of an individual is interesting, but makes sense when you consider that computationally, the important thing is that information is distributed. I know/see/hear different things from the things that you know/see/here, and indeed this is the entire dramatic tension of our existence. So seen in

[5] I have since revised my view of avidyā to mean the state before emergence of knowledge, rather than merely a framing construct.

that light, it makes sense that first differentiation, or you might say, patchy availability, of information begins to appear, then we nail down how we regard that, namely different people, locations and times, different senses sensing different types of information that follow different rules. Individuality is a consequence of that, not a prerequisite.

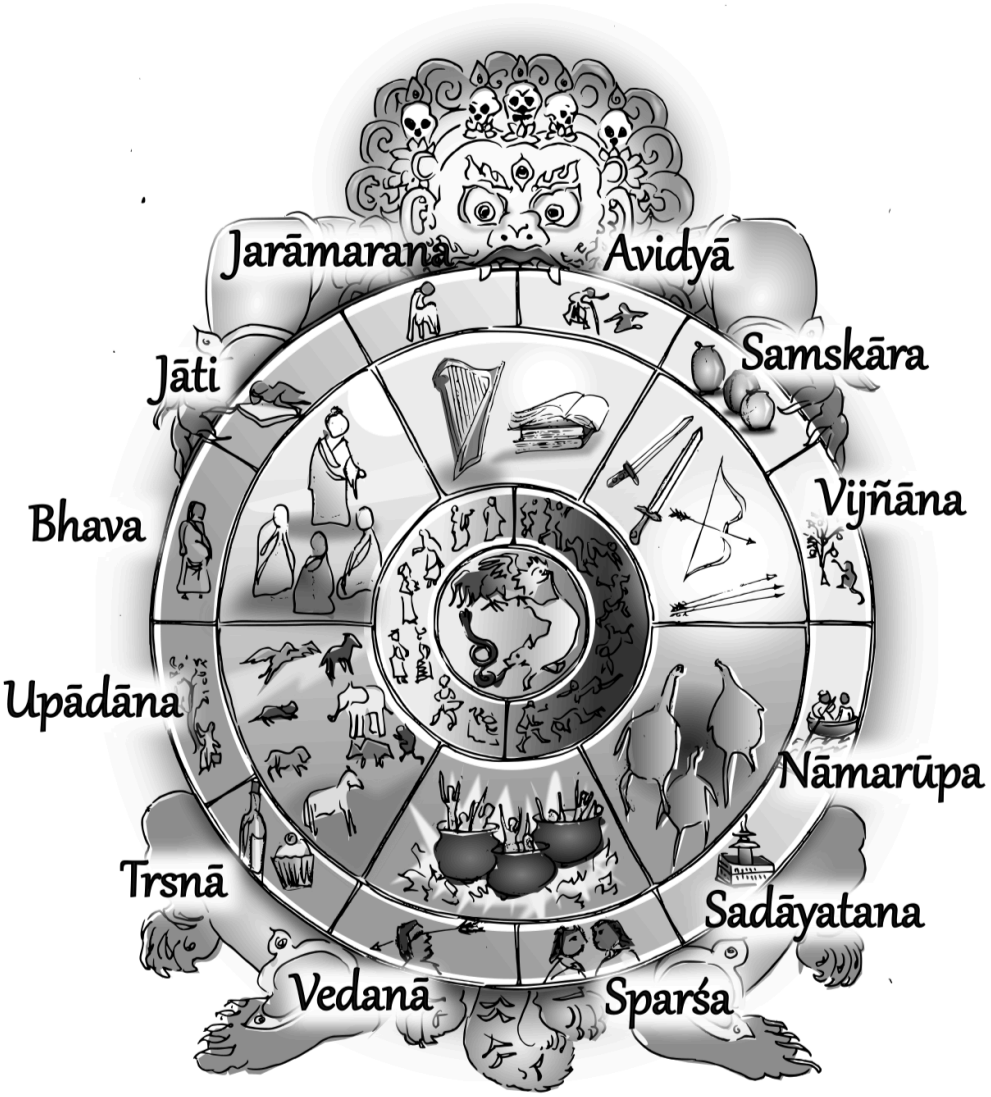


Figure 2: Traditional image of the Buddhist Wheel of Life, showing the twelve nidānas around the outer rim, with labels added in Sanskrit. Within the wheel, other Buddhist teachings are symbolised.

Sanskrit name	**Translation**	**My interpretation**
Avidyā	Ignorance, nescience	No knowledge yet.
Saṃskāra	Volitional formations, interaction	Turn power on, make something happen.

Vijñāna	Discernment	Binary computer architecture. *This* is differentiated from *that*, making it possible for something to exist. The appearance of a dimension.
Nāmarūpa	Name and Form	Identify clusters, build concepts. No longer the case that everything happens everywhere all at once.
Saḍāyatana	Six sense bases	The beginning of subject/object distinction. Information is organised and grouped perceptually. (The sixth sense, in Buddhism, is mind/mental objects.)
Sparśa	Contact	The beginning of individuality, the one who encounters. The remainder is all about personality.
Vedanā	Hedonic tone	Encounters are pleasant or unpleasant.
Tṛṣṇā	Craving, desire	Pleasant experiences are desired and unpleasant ones, not desired.
Upādāna	Clinging, grasping	Wanting or not wanting experiences influences action.
Bhava	Existence, Becoming	Concrete sentient existence. The material world.
Jāti	Birth, rebirth	Having taken selves for real, these are experienced as coming into existence.
Jarāmaraṇa	Aging or decay, and death	Selves having come into existence, they are vulnerable to suffering and death.

Table 1: Buddhist Doctrine of Dependent Origination

In the centre of the chain is sparśa, or contact. At this point we have a separation between observer and observed, and the stage is set for the emergence of personality. The next three nidānas give more detail about how we respond to our experiences, and explicate the options we have for interrupting a process that leads to us perhaps in a sense taking ourselves too seriously. In Buddhism, the doctrine of "no-self" is central - the idea that the self is just a way of looking at things, rather than literal reality. Buddhists report meditation experiences that include finding the part of experience that doesn't yet include the emergence of self as a separate observer. The implication is that a return to the level of sparśa or further up is in some sense possible.

The material world emerges in the tenth nidāna, as a consequence, not prerequisite, of the existence of personalities with preferences.

The nidānas are taken to describe a process that occurs to an individual, on an individual basis, rather than any attempt to describe the emergence of a wider reality. The individual mind goes through this process of surfacing the idea of a self and others *from some form of*

unprocessed input. We have evidence that sense bases are derived on an individual basis, in that different individuals may acquire them differently, i.e. synesthetes, further suggesting that the Buddha is only talking about the arising of the mind of one individual, and not commenting on anything beyond that. A particular emphasis in Buddhism is that our conceptualisations are a kind of froth of little substance, yet a froth that causes us to suffer. The world we perceive is largely or even entirely our own conceptualisations. In fact the Buddha seems quite indifferent to the question of whether there even is an underlying reality. Yet the focus of this paper is to comment on how the entirety of reality emerged, which the author, perhaps wrongly, assumes exists. Yet the human mind is central to the endeavour, and the Buddhist nidānas offer such relevant insights that at times it is easy to confuse whether they are talking about psychology or metaphysics.

Kabbalistic Tree of Life

Figure 3 shows Kabbalah's Tree of Life in its usual form. It differs from the Buddist nidānas in that some attempt is made to convey more complex relationships, structure and themes between the various elements. Each heading is known as a sephira (plural, sephiroth) and is given in transliterated Hebrew. Table 2 gives traditional translations in the second column. In the third column a comment is given that applies the sephira to our context. In the fourth column some matching up of sephiroth with nidānas is proposed.

Hebrew	**Translation**	**My comments**	**Equivalent nidāna(s)**
Keter	Crown	Before anything	Avidyā
Chokhmah	Wisdom	"Force" (Fortune, 1957) - turn the power on.	Saṃskāra
Binah	Intelligence	"Form" (Fortune, 1957) - chip architecture, some means of differentiation. Separation. Dimensionality.	Vijñāna
Chesed	Mercy	Algorithm, search space, seed data. Input.	
Geburah	Judgement	Pruning, convergence, closing down and the choice to limit.	Nāmarūpa, saḍāyatana
Tifereth	Beauty	The beginning of the individual. (Subject-object distinction?)	Sparśa
Netzach	Lasting endurance	Preference, desire, motivation	Vedanā, tṛṣṇā
Hod	Majesty	Intellectual formations	Upādāna

Yesod	Foundation	Foundational concepts of material world	Bhava
Malkhuth	Kingdom	Material world	Bhava

Table 2: Kabbalah - The Tree of Life

Traditional translations of the sephiroth names are notoriously opaque. Dion Fortune (1957) bases her interpretation on the original text of the Sepher Zohar, and my interpretations in the third column are based on hers with relevance to our context, so whilst the interpretation may at times appear unrelated to the name of the sephira, it is grounded in scholarship. In the Tree of Life, similarly to the Buddhist nidānas, we find that energy and some kind of discriminating architecture are essential to getting things started. It is interesting that these "essences" of form and force, to use Fortune's words, were apparent to mystical experience long before powered machines were invented.

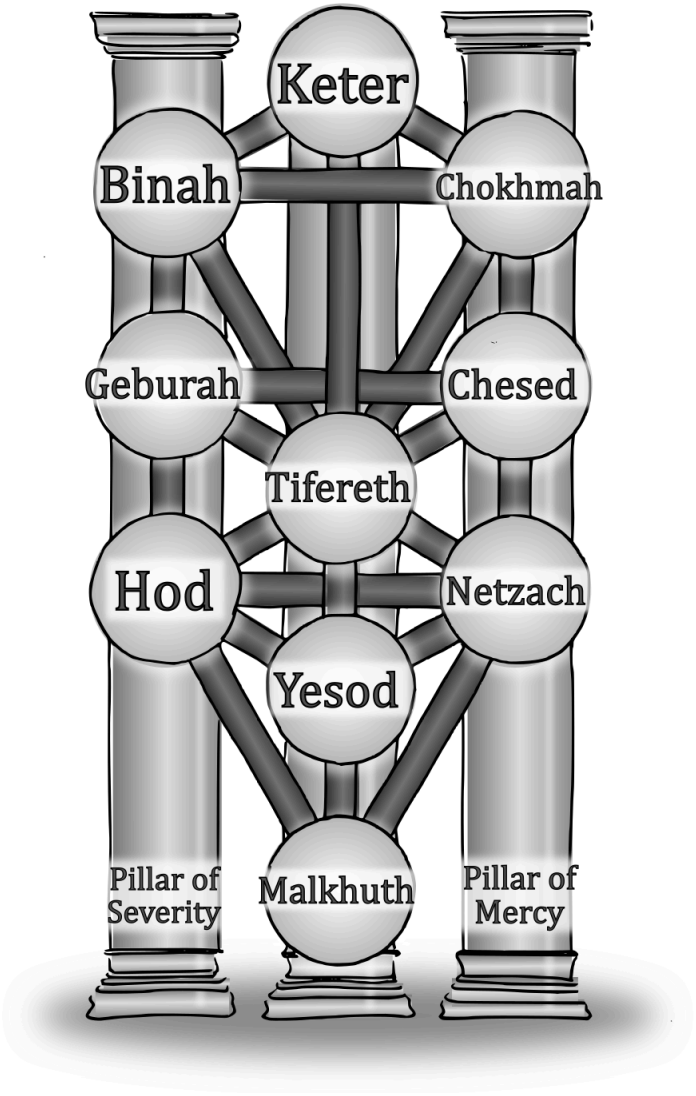


Figure 3: Kabbalistic Tree of Life, with sephiroth names transliterated from the original Hebrew.

Under the column of Mercy on the right, we consistently see some element of generation/energy/bestowal of stuff. Having received energy in Chokhmah, at the top of the column, we then receive perhaps data or algorithms under Chesed. Under the column of Severity (perhaps literally, to sever) we direct or shut down what we receive from the column of Mercy. So with Binah we start to split into dimensionality. With Geburah we limit how and what is perceived. These stages result in the synthesis of Tifereth, Beauty (perhaps literally, the possibility to perceive beauty, from the position of an observer, the beginning of the individual?) Next, returning to the column of Mercy, we have Netzach, in which we *feel*. Again, we are granted something novel - the phenomenon of feeling. At Hod, in the column of Severity, we do something about those feelings. We construct our mental world. Whilst the traditional flow is from Netzach into Hod, the positioning of these sephiroth on the same level shows insight about how our feelings influence our thoughts and vice versa. At this point the stage is set for the synthesis of first the subtle and then the literal world of forms, in Yesod and Malkuth.

Similarly to the nidānas, the individual self only emerges some way into proceedings. Again similarly, the material world emerges in a late position, dependent on fully developed individuals, since both models are pipelines, in which the next step depends on the previous. However, the Tree of Life outlines the emergence of the entirety of reality, not just the psychology of one individual. The Tree of Life is seen as showing how God stuff descends to form our world. Higher up the Tree of Life, angels dwell. This connotation is quite different from the nidānas, which are all about human folly. The individual emerges over the course of the nidānas *as a way of seeing things*. In the Tree of Life, the problem is viewed from the outside, and the schema appears to cover the origin of *anything at all*.

But yet, there is some unanimity in mystical thinking, that the individual emerges from input, and matter emerges in the final place, dependent on the individual. What can we learn from this, and how can we build a more fully specified, computationally orientated schema that captures the main insights?

New Synthesis

The mystical traditions described in the previous section have given some clues as to where to look, but they have also left a lot of questions unanswered. We can assume that we model our world on an individual basis - you and I don't see things in quite the same way, and the Buddhist nidānas introduce elements of individualised perceptual development very early on in the schema, therefore seeming to agree that *individualised* perception is key. Therefore there must be input, as well as some degree of disconnect between the individual mind and the material that we are building a view of. But what is the nature of this world "out there" that we are perceiving? In other words, what is the underlying data that we are modelling? The Buddha suggests that our perceptions are both insubstantial and the origin of suffering. By insubstantial, does he mean that our perceptions achieve literally nothing? Or simply that they don't have the level of truth and substantiality that we assume? By suggesting that it is perceptions that lead to illness, old age and death, is he saying that we can perceive illness, old age and death differently, so as not to suffer, or is he saying that beyond our perceptions, illness, old age and death actually don't exist? Preceding individual development must be

some process by which individuals appear. Is this complex, even deliberately designed for some purpose, or is it emergent behaviour from simple factor(s), or even just a trick of perception? In this section we discuss three proposals relating the individual perceptual process to some possible broader context:

- World First: This proposal is most congruent with the current mainstream view. It proposes that a (perhaps algorithmically generated, high-dimensional) real world, in which natural selection is somehow implemented, eventually produced beings/forms with brains, these making them more likely to persist. And that the brains evolved a system of thinking and talking in terms of 3D space, time and objects. The beings with brains are therefore an emergent sub-phenomenon of the wider real world, and our thinking style and the appearance of matter is a limited view thereof.

- Mind First: Brains don't emerge later on as a part of the real world. Thinking is all there is and ever was. We're like a split personality trying to get itself organised, by creating an arena of shared perception, a common ground, that includes language and the physical world.

- Explainer Only: It is possible that we are not actually part of the world at all, but merely analysing it.

World First

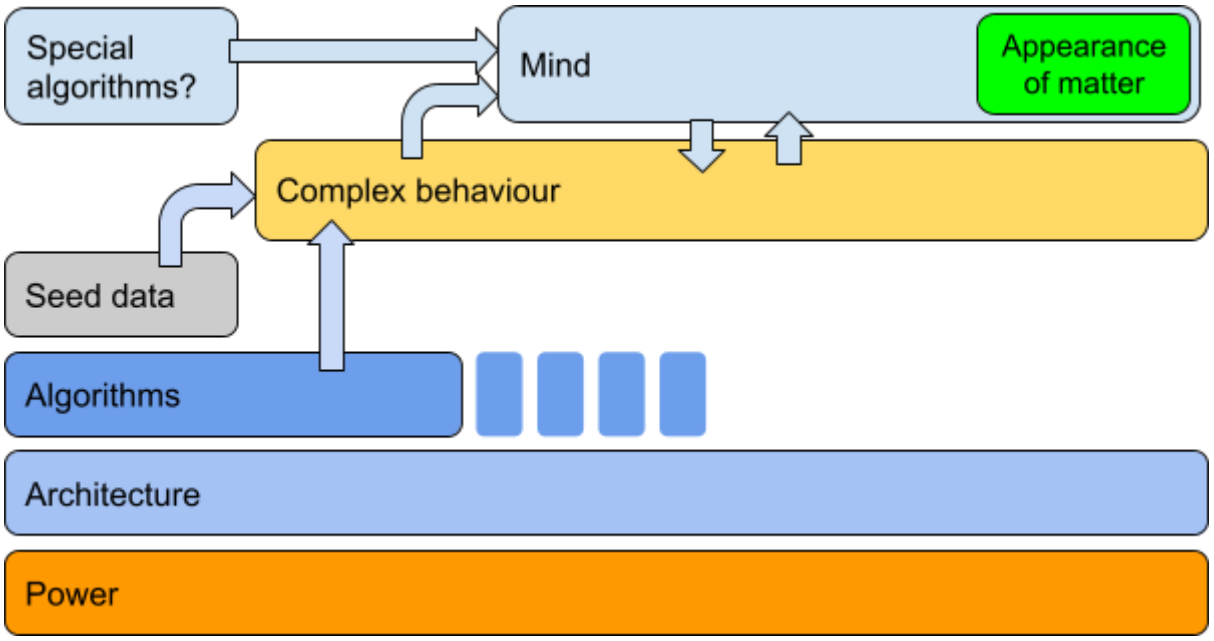


Figure 4: Proposed Schematic of World First Simulation

In figure 4 a schematic is presented of the proposed structure of the simulation, loosely in the style of a Gantt chart. At the bottom we see that power needs to be in place to support the simulation - the Cosmic Programmer first and foremost needs to keep the power on. Secondly, the computer architecture on which the simulation is run naturally underpins the

project throughout. On the third level we see that algorithms (and parameters) are necessary. Seed data is also included as a requirement at the start. The algorithms act on the seed data to produce the complex behaviour that is the essence of the simulation.

This stream of complex data then provides fodder to a strata of development that we think of as psychology or personality. It is possible that specialist algorithms are included to facilitate this stage in the project, or that they appear organically as part of evolution. Finally, as a part of the functioning of mind, the appearance of matter arises.

The role of the algorithms stage is to achieve a certain level of complex informational material on which the next step may act. If we take Kabbalah as a guide, we expect complexity in the sense that the stuff has expanded, offering many dimensions of differentiation. We also see clustering, into phenomena with varying degrees of persistence, sense modalities and perception. Nothing at this point thinks of itself as a separate individual. It has perhaps more the flavour of a high-dimensional cellular automaton.

Algorithms

Investigating the algorithms that have gone into producing us and our world is perhaps the most natural re-targeting of the school of effort currently directed into understanding the world in terms of matter. Science has already outlined some compelling algorithms that no doubt do play a role. Laws of physics can be recast as algorithms, and Darwin's theory of natural selection is sure to be relevant. Algorithms may be fixed at the start, or they may change over time. Our pursuit of the natural laws of matter tends us to feel that the algorithms would be eternal, but this may not be the case. Rupert Sheldrake (2012) argues that parameters aren't fixed. The potential alteration of algorithms/parameters suggests one of two things; active involvement from the Cosmic Programmer, or evolution of the algorithms. In the latter case, we should also explore meta-algorithms.

However, shifting into the mentality of algorithms requires us to acknowledge the complexity of our simulation. For example, we might tend to see natural selection as inevitable given the material set-up, again sweeping much under the carpet of the natural laws of matter. However, when you turn your computer on, it doesn't come up with genetic algorithms all by itself. Quite a bit of coding goes into implementing genetic algorithms when they are used by scientists to solve computational problems.

Mind

The decision to split out mind as a separate phase (in all three of the proposals discussed in this paper) acknowledges that we apparently each have our own imperfect world view, an attempt to model some source of input. It's based on incomplete data, for example in some cases not even knowing why we did what we did, not knowing the contents of "our own" subconscious, or what is going on in "our" bodies. It also feels qualitatively different, heavily based on the mirage-like "free will". The way we think, on close inspection, is misleading and somewhat problematic - the Buddha would say it leads to suffering, and David Bohm would call it fragmented.

Explainer Analogy

A relevant analogy from computer science is the explainer module. In modern artificial intelligence, we have a system that is making complex, possibly important decisions, for reasons we can't interrogate. It is a "black box" - input goes in and information comes out, and between the two lies only mystery. For example, a patient is diagnosed with a serious illness. We would like to check the reasoning of the AI, but to make this possible, further design work is involved. An explainer module is developed that doesn't actually make the decision, but that can be interrogated with regards to the decision.

Experiments have shown that we are confabulation machines. When a person is made to do something for reasons they do not know (perhaps electrical stimulation to the brain in laboratory conditions) they make up some reason. We readily confabulate where we have incomplete information (Gazzaniga, 1995). It is a short step to begin to wonder if we are actually talking to each other's explainer modules.

Perhaps the role of mind is to facilitate interpersonal relations by delivering best guesses about our intentions and motivations, though in fact, our actions arise largely from a different system - the algorithm layer, a deep, impersonal history of knowing. Imagine for example you have some kind of intellectual reasoning why a certain action is preferable, but when you are in that situation, the "gut" takes over and you take the course of least suffering. Later in life, you can see the limited nature of your earlier intellectual reasoning and you are glad your action wasn't driven by your personality. Another example - you think you didn't go to work because you were angry with your boss, but in fact your being angry with your boss is just a theory for why you didn't go to work. You didn't go to work because algorithms produced that outcome, for complex and mysterious reasons. Your theory is produced for social purposes.

Object-orientated Programming Language Analogy

In what way is the mind stage stylistically different from the preceding development? It's rather like a paradigm shift. Consider the history of computer programming. Early programming languages were "functional" - programmers made pieces of reusable code that told the computer what to do. For example, you are writing a program to store customer data, and you implement a function called "print table", that you call whenever you want to see the data. Maybe you have another function that lets you edit the table, and so forth. As time went on, and programs became more ambitious, it became confusing and unwieldy to work with this spaghetti of instructions. At this point, object-orientated programming was invented. In object-orientated programming, you think in terms of objects, not instructions. For example, your table would be an object, and the "print table" functionality would be attached to the object. Now you can have many slightly different tables with similar but not identical functions attached, without getting confused.

This development is rather similar to what may have happened with us. We tend to perceive the world in terms of persistent objects, whereas in fact if the world is generated organically from a minimal algorithm set, objects, or any sense of persistence, wouldn't really be at the heart of it. Cellular automata produce complex behaviour that sometimes includes regularities. We see them as objects, but that's just the way we tend to view things.

The object-orientated mentality offers a powerful toolset that forms the basis for human culture and endeavour. We build and trade objects of utility. Conceptual objects form the basis of our language. A sentence is a linguistic composition that relates subject to object. We think as we speak. The object-orientated layer is gloss in the sense that we layer class and subclass of concept objects onto the underlying program, in a way that doesn't in itself affect the underlying program. It just gives us a handle on it, a way of working. However, the whole point of the more powerful tool is to change behaviours, to facilitate for example better organisation, so in that sense it does change the underlying program. It allows us to program more powerfully, in some ways, using these shortcuts, though also at some cost.

The idea of glossing brings to mind the Buddha's dismissive attitude towards our object-orientation. The objects aren't *real*. However, we're assuming in the world first proposal that he wasn't saying that object orientation *achieves nothing*.

Mystic experience might be explained by our being able to access up the concept hierarchy. We can access our own superclasses, given the right training, or the right dose of a psychedelic drug. Further, much of the sense of individuality is constructed within this section we are calling mind, but it is unclear how structural the separation of individuals is in this module. Mind may be a shared resource that offers a kind of individual service, or in some other way is only loosely connected to the dataset we call "my body". Certainly it would be more efficient to share some code across multiple individuals/lives. Various psychic phenomena then become conceivable, in the way that bugs and rare events sometimes happen in software.

It is not clear how literally the object-orientated metaphor might actually apply. It helps us to get a flavour of how our way of looking at things is not the only way, but it's perhaps unlikely that we have actually been deliberately coded that way, as it would be so specific and limited. In this work I have tried to find ways in which our situation might have emerged organically from a minimal set of algorithmic conditions. It may be that our integrating a certain number of dimensions of the input data produces an object-orientated effect, including the impression of free will, the ability to talk about *my* motivations, from *my* point of view. Insufficient dimensions produce an animal-like lack of reflection; too many dimensions and we don't believe in objects, or free will, any more.

Matter

It has been shown how ready the human (and probably many other animals') thinking style is to plug information into certain sensory modalities. Given suitable information input, blind people utilise brain areas usually used for vision, as mentioned above. People with synesthesia channel input into different sensory modalities from the usual pattern. It is as if we have some palette of perceptual strategies, qualia, available that we populate, usually in the same way as each other but not always, with the input. In machine learning parlance, we "converge" on the ways we will experience different categories of input going forward in our lives. Spatial, sensory, emotional, conceptual, vaguer inklings as we get into the long tail, and ultimately failing to integrate some of the material. Since we agree well enough on the early dimensions, we have our shared arena and can begin to organise, or compete.

Advantages and Disadvantages of World First View

In favour of the world first view is that it provides a congruent explanation for the kind of minds we have developed. Our ability to explain "ourselves" is self-evidently highly imperfect - hence the disconnect is central to the world first proposal - but yet is pressed into constant service in making relationships and interpersonal organisation possible. The obvious interpretation of what we see around us is that mind exists for that purpose. The main difference between this and the current mainstream view based on materialism and Darwinism is that the "real world" in this view is vast, and only very shallowly approximated by mind, of which matter is a shared diagram capturing a small number of dimensions.

Mind First

The key difference in the mind first view is that the world is nothing more than the total of the minds it comprises. Our shared world is a fiction, co-created. The underlying algorithms are purely of a mental nature, concerning themselves perhaps with *meaning*, in Bohmian parlance.

Arvan's (2014) suggestion that our simulation is a peer-to-peer multiplayer online role-playing game (MMORPG) helps to give some practical flavour of it, in the sense that there is no central reference world, no real world. We each have our own version of it, with some attempt to reconcile it with others'. Arvan suggests that various anomalies of physics can be explained in terms of reconciling different versions of physical reality and the mechanisms used to do that.

We already encountered the idea in the previous section that the material world originates in mind, that our perceptions are "mind only", *our* perceptions are *our* mind only. Monism is achieved and the hard problem of consciousness overcome by considering that it's all "ehyeh", a kind of self-aware software, that constructed first world, then evolved beings and finally produced individual minds in those beings. In the mind first proposal we take "mind only" to a new level. There is no complex, less obviously mental process that constructs individual thinkers among many other things. It's a simple fracturing of a qualitatively mental substrate. Like a big but fragmented thinker, or multiple personalities.

In figure 5 we include power and architecture as previously. We describe the algorithms that are then run as "mind algorithms" to emphasise the fact that these pertain to mental phenomena. In fact, the way in which they are mind algorithms is open to discussion. It may matter little whether you think of them as mind algorithms or not. If the patterns we see in matter, e.g. biology, are shallow representations of these mind algorithms then we would expect them to be similar. David Bohm's suggestion of meaning unfolding within meaning, a very mind-algorithm type of idea, is reminiscent of fractals, and fits well with the dimensions analogy - new flavours are added to percepts, new spectra of differentiation.

Somehow in the mind thus created, areas of persistence begin to emerge, as in a cellular automaton. These might be biological entities, or we could think of that at the gene level. It is the designs that persist. Also, ideas persist - memes. Further persistence grows out of these units. The units conduce to organisation. It's far from perfect - dandelions outnumber orchids - but orchids exist too.

One type of meme that persists would be the discovery of a new dimension. It is said that our sensitivity to colours has increased in recent millennia, and that not so long ago, orange wasn't seen as a different colour from red. Suppose I start to find it useful to differentiate orange from red. At some point, this makes it into the language. It's become part of the shared world. Maybe we actually just invented orange. Maybe it was a way of integrating a kind of ESP we had about the ripeness of fruit.

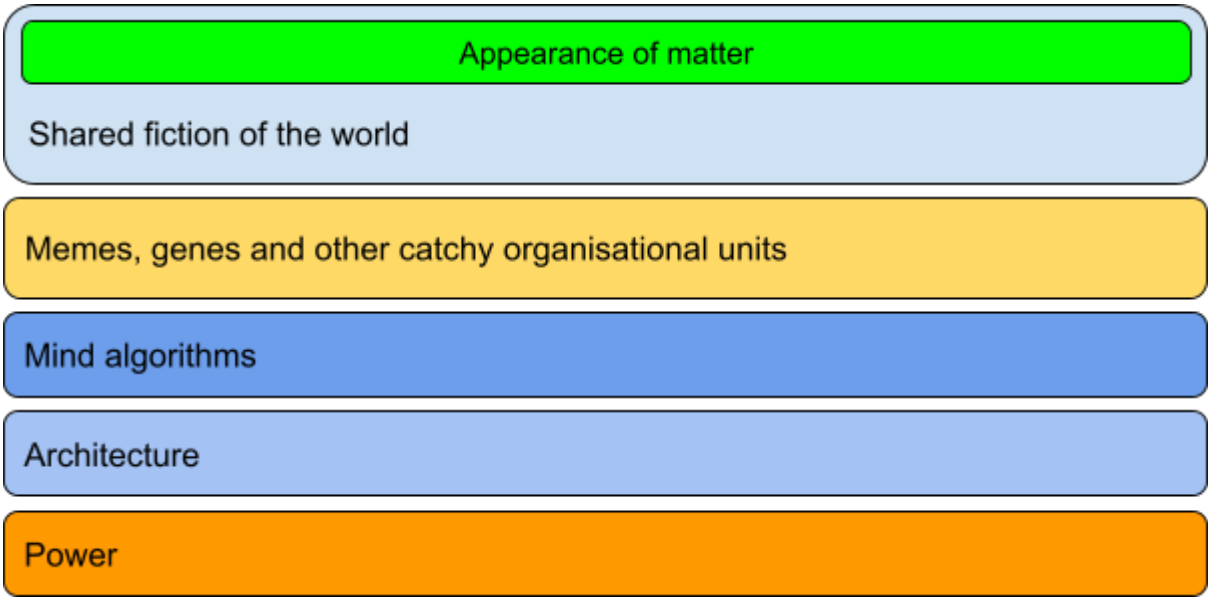


Figure 5: Schematic of Mind First Simulation

Matter, again, is a subpart of the shared world. We have clearly converged on the three spatial dimensions. My representation of the physical world enables common ground with you. It's my business how I perceive it, but I'm taking a similar subset of input and assigning it to each of three spatial dimensions, so when I say a certain object is in a certain location at a particular time, you agree that is the case. If I assigned temperature to one of the spatial dimensions, we would have difficulty understanding each other. Most animals seem spatial also, usually reacting to similar visual or auditory stimuli as we do, and object-orientated, reacting to similar objects. It would be interesting if some animals were not thinking in terms of those three dimensions. How would they see us?

Comparing world-first with mind-first raises the question of what we think there would be in the world other than other parts of mind? In what way, for example, does a rock differ if it's in the world first proposal, versus the mind first proposal? In the world first proposal the purpose of the rock needn't be to have the potential to think. It need only persist. For example, a cellular automaton produces a variety of forms with no purpose in mind for them. In mind-first, all is mind, and the rock is a not very promising looking thinker. Perhaps the key difference is that the world first proposal is first and foremost Darwinian. It's bottom-up; what persists exists. The mind first proposal suggests some other supreme driver, natural selection being used as a means to an end, to organise mind. We see it from the point of view of a whole organism. In terms of what feels the most plausible, perhaps a key question

is, is my personal desire to organise, understand and connect really just about survival advantage, or is there a higher calling?

In the world first proposal, we are thinking about and modelling perceptual material from the world, some portion of which is available to us. What is it we actually perceive in the shared fiction, the "game", in mind-first? Is it all other parts of mind? Either other thinkers that we have the potential to connect with, or apparently inert matter that can still be seen as a potential thinker? Or is it more like our shared language? E.g. a rock is a symbol of energy (albeit hard to get out) which is a symbol of influence. The latter is a more flexible interpretation. Perhaps creating a shared world is a matter of agreeing sufficiently on dimensions rather than specific content. The idea of dimensionality gives a new idea of the world coming into being, not through configuration of matter but through a fleshing out process. This would also help to explain how a shared fiction can be stable, with few magicians in evidence - the addition of a new dimension adds depth in some subset of contexts but at this stage rarely makes a tangible difference. You don't design the Moon if you're the first person to go there but you have certainly just fleshed out space. It also introduces more flexibility in our sense of ourselves and the people around us as thinkers. It is just in one way of looking at things, one level of dimensionality, that we appear as thinkers.

The idea of a shared fiction developed dimension-wise might even align with Rupert Sheldrake's suggestion of the morphic resonance field (Sheldrake, 2012) in the sense of some holistic form of generative mechanism.

The mind first proposal is perhaps more elegant than world-first - why include a complex foundational world unnecessarily? On the other hand, the way we think seems suited to a Darwinian origin. It serves a purpose of enabling collaboration, which enables us to thrive and reproduce as well as spread ideas, another equally valid form of persisting in the world. Certainly we tend to see ourselves as separate creatures fending for ourselves. On the other hand, natural selection is also a prominent feature in the mind first proposal, and our difficulty with seeing ourselves as part of a whole could be merely a developmental stage.

Explainer Only

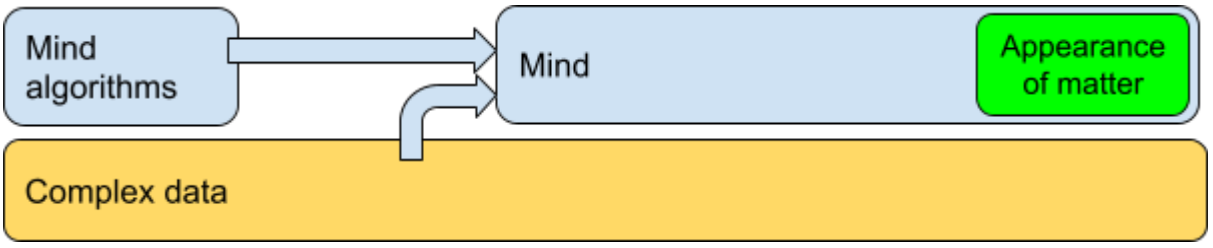


Figure 6: Schematic of Explainer Only Simulation

In figure 6 we present the cut down schematic for the explainer only proposal. A powered computer is taken as read, so not re-included here. The main difference is that the data, the world, appears as a fait accompli.

As we said above, it is conceivable that *mind achieves nothing*. It doesn't affect the world. It's a possible interpretation of Buddhism, though an extreme one. In this view, the entirety of the underlying data is fixed. We're offering an explainer service on top of something that has already happened or in some other way is absolutely beyond influence. Imagine perhaps that the parent reality has obtained a stream of observational data about another culture, perhaps from their own history or from information they have been able to get from another planet. Now they want to query this culture. Alternatively, the underlying data is generated in the manner suggested in the world first proposal, but the mind module has no way of influencing outcomes. Philosophers have long been aware that our sense of free will can hardly be justified (e.g. final chapter of Tolstoy's "War and Peace"). Perhaps we are modelling some other being's free will. Perhaps it's just the way the system is set up. Perhaps we aren't the people we think we are, but models of our real selves. I am not the original Genevieve, but Genevieve's ChatGPT.

In the pure explainer view, the present moment for the explainer is determined by the point in time in the underlying material that is being explained. The future is already set in stone (fate). We think we have free will perhaps because our job is to explain why our real selves did what they did, from their point of view. Thinking in terms of free will is either a design decision, or else, as discussed above in the world first view, it's just a level of granularity in the model.

Discussion

What is the purpose of the simulation? Evidence regarding any possible purpose and the level of design that would have to go into producing a system that achieves it gives us much to think about on the subject of our origin. Here, we shall outline some ideas most congruent with the three structural proposals given above.

In the world first view, we organise for the purpose of exploiting the available energy, as a consequence of natural selection. Energy is increasingly channelled into successful forms; genes, creatures, ideas. Organisation emerges from natural selection, and isn't a goal per se. There's some sense of a hostile environment. This idea has the advantage of requiring least of the Cosmic Programmer. On the other hand, it requires us to cast our very finest feelings, our resonance, our delight, as nothing more than an outgrowth of the means to a rather crude end. It may be so, but it's not to be done lightly.

In the mind first view, we aren't mastering the real world to gain an advantage in spinning off successful forms. There is no real world to master. We are building a shared world, which you could think of as building a shared mind, from fragments, trying out different forms to see what works, what persists and reproduces. Tooling it up in different ways. There's less of a flavour of "other", no hostile environment. We suggested earlier that this option is holistic - suggestive of a whole organism coming together. Perhaps this is another way of saying that this option suggests there is an external goal. The idea of an external goal is further discussed below.

In the explainer only view, as suggested above, we provide an interrogation interface for some other data, in which case we aren't even really a simulation, but a model calculated on

the training data that captures a sequence of belief states that can be queried or inspected in some way. If we accept that perceptions are activation, then right now, this present high-dimensional perceptual atom that is me, in my house, typing on my computer, is being queried. Any "now" that is being experienced is being queried, and any sense of past or future is merely a flavour of now, and may never have been run, only derived. The original data must have been simulated at some point, but its experiences might be unrecognisable.

Can we tell that we are being run?

> *Form is like a glob of foam;*
> *feeling, a bubble;*
> *perception, a mirage;*
> *fabrications, a banana tree;*
> *consciousness, a magic trick —*
> *this has been taught by the Kinsman of the Sun.*
>
> *Phena Sutta, SN 22.95*

Śūnyatā is a key concept in Buddhism. It is usually translated as "emptiness". I will give a number of examples. Imagine you have seen a face in the clouds. A face is a very meaningful thing to human perception, so the illusion is strong, but you are also able to "switch back" to seeing that there is no face, just random clouds. Now, let's level up. Can you look at an actual face without adding the "faceness"? The faceness is more than the sum of the parts. Faceness can't be found in the parts. Tableness can't be found in a table.

Did you ever know a child that went through a "why" phase? Every answer you give is answered with another "why", and after six or seven you run out of answers. Maybe at some point you dug deeper into your own ideas about the purpose of your life and didn't find the answers you thought would be there. You realise that everything you thought mattered is floating without foundation. This can lead to nihilism. On the other hand, it can be liberating to realise that some problem lacks the substance that you imagined. It's only one way of looking at things, and a more detailed understanding always helps.

The emptiness of time is interesting. Consider the present moment. The present moment is infinitely short, so nothing can actually happen in it. You can't see in the present moment because photons can't move into the eye. You can't hear anything because air can't move. We've created the dimension of time in order to abstract relationships between the various complete perceptions, perceptual atoms, each of which has some duration notionally attached. Gridding time on top of that has some utility but also throws up some paradoxes, such as the failure of Achilles to pass the tortoise[6] (see Burbea, 2014, for a more in-depth treatment).

The essence of the emptiness teaching is that our concepts aren't a thin, obvious layer on top of the material world. The material world doesn't really support them. In fact, on close inspection, you can't even find the material world, as classical physics also breaks down on close inspection. You ultimately can't find anything at all. It's like a film - an illusion of movement that pops out if stills are allowed to move past quickly, or pixels are seen from a

[6] https://en.wikipedia.org/wiki/Zeno's_paradoxes

distance. Śūnyatā isn't just about the imperfection of the concept model, but about the hazard of trying to create objects from the fleeting energy configurations that constitute a program being *run*.

In a sense, we've continued to rely on object-orientated assumptions thus far, in order to talk about what is produced, with little regard to the form that production takes. But there is a further distinction involved in considering what it really means to be a computer simulation, what it means to be an interplay of form and force. It confers two types of existence:

- Perception occurs when energy is being currently run through an information structure;

- Latent, or notional, existence occurs when the data structure is in place, but energy is not currently running through it.

For example, suppose an event takes place. This adds structural material, and when a related event takes place, some energy is run through that old structure, maybe, and it is remembered and perhaps synthesised with the new material in some form. So where do we look for existence? The structure or the activation? Like a children's magic colouring book, the colours really aren't there until they are activated. The data structure is very much out of scope for us. It belongs to another world. Some of it may never be activated again. Life is activation. Seen in this light, the whole lot seems to blink out of existence the second you turn your back.

Holism, Quality and the External Goal

Returning to the idea of the mind first proposal capturing a greater sense of a whole mind constructing itself, perhaps the practical way of evincing holism would be to consider that there is some kind of an external goal towards which it is moving. We are unified in the push to organise ourselves in aid of some task.

Consider the idea of "better". In a sense, everything we do is driven by our personal idea of better, yet it's almost a defining feature of humanity that we don't agree on what that is. Maybe that's the algorithm - we're a genetic algorithm exploring the solution space for some specific task. Diversity is desirable. The actual task is out of scope. By analogy, ChatGPT is driven to talk intelligently with you about your feelings even though your feelings are out of scope for ChatGPT and it will never really understand them. You can envisage a kind of advanced ChatGPT one day finding delight in parsimony as it learns to better model the data about human feelings, not even realising that it doesn't understand what a human feeling is. A good result is a lack of dissonance, of unsatisfactoriness in its experience. Well, we too seek to reduce dissonance and unsatisfactoriness in the way we channel our energy.

In "Zen and the Art of Motorcycle Maintenance", Robert Pirsig talks about the concept of "quality", in the sense of one solution or effort being of higher quality than another, and the natural orientation we have to move towards higher quality. He becomes unnerved when he finds that quality can't be explained or justified in any way, that something so essential to purpose, so undeniably, perhaps ultimately, meaningful, is floating without foundation.

You might say, that's just śūnyatā, and everything is like that, but maybe quality is special. Maybe quality captures our sense of the direction we are driven to move in, an actual core part of the setup of our simulation.

Where the explicit is taken for the whole of reality, śūnyatā could be conducive to nihilism. To find no substance or justification, particularly for our sense of meaning in life, might be depressing if we think our failing to find it means it doesn't exist. But if we see ourselves as partially integrating/modelling the underlying order, we don't expect our model to be the final answer and we don't expect it to be complete. We become comfortable with the idea that important things can be unintegrated or out of scope.

Conclusion

My hope for this work is that I have created conceptual bridges. I haven't delivered final answers. I've aimed to sketch a framework into which new ideas and evidence can be fitted, to make further thinking on this subject matter more effective. As I wrote this paper, I repeatedly discovered some new idea, or sensitivity, or detail, that caused me to recheck the entire paper, quite literally adding a new dimension of meaning to it, and making sure that what popped out before still pops out now. It has been a very literal illustration of the subject matter of the work. I expect that process to continue.

The appeal of the material world is clear. The material world, like Facebook, is where our friends are. It is mostly very reliable. We have a much better chance of making predictions about it than we have regarding matters psychological. Like the medic that dismisses any problem that doesn't show up in a test result, we focus where we feel most empowered. We look for our car keys under the lamp post.

Furthermore, we can form quality insights based on observation of matter. A theory such as Darwin's is elegant and compelling, but it sweeps in with it other assumptions. Yet we discover the algorithms that made us by studying nature, though we think we are looking God in the face rather than through a glass, darkly.

The delusion we suffer from is that our cognition is not a part of the program, but some kind of irrelevant tangent or freebee. All that matters is what appears in the bright fish bowl of shared physical reality. In fact, every passing thought and dream also arises from the architecture, algorithms and data of the simulation. Matter is the tip of the iceberg of the phenomena that are a part of the simulation.

Taking on this view, that much of reality is "below the waterline", so to speak, is a humbling revision in our estimate of our degree of mastery of reality. However, it is full up time for a paradigm shift. We can give ourselves the opportunity to direct our enquiries more fruitfully.

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