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 Who’s Pulling our Wires?: Are We Living in an Imposed ‘Matrix’ Simulation? [[1]](#footnote-1)

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Nobody can take our memories and fundamental beliefs away from us. **They are ours**. Or are they? According to some people they may not be! This suspicion that the reality we live in (and perhaps the contents of our minds) may not be what we think they are has a long history. But, if so, who or what could be imposing this counterfeit, non-Kansas sensory reality on us? And how extensive is this counterfeit reality---is everything we experience real, or are just some parts and how would we know? And who is this ‘we’? The answer given depends to some extent on the dominant worldviews of the time-period. In 17th century Europe, when the French philosopher Descartes was writing, the Catholic world-view was predominant and Descartes brought up the possibility that maybe we are all deceived by our senses, the contents of our minds may be imposed (e.g our beliefs that arithmetic gives us certain information) and that maybe physical reality is not what we think it is. How did he arrive at this crazy view? According to Descartes, most of what we know about the external world (the world of cars, cats, and products like Beano) comes from our sensory experiences (the sounds we hear, what we see, etc.). OK so far. But what causes our sensory experiences, which are in turn interpreted by our mind/brain? **External objects, of course!** I see the cup, bring it to my lips and guzzle down the tea. Further, from the day we are born we automatically react to what we perceive to be outside ourselves. The rattle hits us in the face and it hurts.[[2]](#footnote-2) As we grow up family members ask us to stay away from the cookie jar, to finish our supper and not to tease the dog. In learning about the world, few, if any doubts are brought up. Nobody asks us to sit on what *appears* to be a chair, etc. So, where’s the problem? Where else could our sensory experiences come from if not external objects? A key point here is that, according to Descartes, and most contemporary people, our sensory **experiences** are all just in our minds. (I can’t feel your pain, or directly read your mind). This means that while we naturally accept that external objects and events cause our inner sensory experiences, it could philosophically be something else. This isn’t totally beyond the pale. After all, we know that, when we dream or have hallucinations, we can often have seemingly realistic sensory experiences that are not directly caused by external **objects**.

We directly know our sensory impressions, but only through them do we know about the external world.[[3]](#footnote-3) What could we know or learn about the external world without any sense organs to receive and interpret information from the external world? Descartes therefore hypothesized that it was philosophically possible that an evil demon (are there good demons?) was responsible for our sensory experiences of the world. This demon could be directly and deliberately implanting false sensory and thought patterns in our minds.[[4]](#footnote-4) Does this mean that it **could be** an illusion that there are cars, houses, other people, the size of your hands, and products like extra-strength Viagra and their effects? Is the only “good news” (is it good news?) that the money we use to pay for some of these things would also be illusory? Is “illusory” the right word? Who could ever, outside of long, lonely nights in the bar, believe this? Well, the fact that a number of prominent people are considering the possibility that our reality is a simulated one makes it worthy of our attention. Some newspaper reports claim that, at the least, our external reality [[5]](#footnote-5) is fake and further tell us the Bank of America has said that there is a 50% chance we are living in a simulation imposed by aliens or advanced computer geeks from the future! [[6]](#footnote-6) If you can’t trust bankers, who can you trust?

The aptly called “simulation hypothesis” is the latest version of this historical skepticalphilosophical speculation. The simulation hypothesis in its contemporary form is tied to simulated sense inputs from sources (typically technologically based) other than external objects in the immediate environment. Let’s explore this: so why might some people take the modern-day philosophical simulation hypothesis seriously, and others think it is a bunch of covfefe?

 Contributing factors to our contemporary interest in the simulation hypothesis

A number of different reasons might be given for why these days we are taking this latest simulation scenario more seriously than earlier philosophical scenarios and talk about how many angels can dance on the head of a pin, or whether Woody Allen can correctly guess any card being thought of by a parrot.

First of all, keep in mind that the philosophical claim that “our empirical ‘reality’ is not reality” is not new. Generations of students in Western philosophy have been introduced to Descartes evil demon and to the claim by18th century Irish philosopher George Berkeley that the Christian God directly implanted our sensory experiences in our minds.[[7]](#footnote-7) [[8]](#footnote-8) Idealism in various forms has been part of philosophy for some time.[[9]](#footnote-9) So the view is not something that has recently come out of nowhere. Philosophers have updated Descartes’ and Berkeley’s hypothesis in various ways depending on the state of our science and technology. Instead of evil demons or God, we now have mad doctors, aliens, trans-human descendants and Artificial Intelligences (AI’s) imposing simulated “realities” on us. Theoretically, what we experience could be the same in all these scenarios. Here is one example:

Suppose I suddenly find myself on an operating table surrounded by laughing surgeons, who tell me the course of my experience hitherto was simply programmed by a computer, that it was really an illusion, that only now am I walking into the real world (Roberts, 1974, p. 145)

Here is another version: we could just be brains lying in a beer-tub connected to wires through which our experiences are provided through external neural stimulation of our brain. While some may not see a downside to this, many will. This was dubbed the “brain-in-a-vat” hypothesis by the American philosopher Hilary Putnam (1981). [[10]](#footnote-10) While such scenarios have been common in philosophy classes (largely when considering the topic of skepticism), **why is there a larger public interest today**? While such scenarios have always been percolating in our cultural background, and have long been a part of science fiction, the earlier philosophical views do not typically feature in popular magazines and newspapers or popular online blogs, as do discussions of the present-day simulation speculation.

A second, recent contributing factor, and likely one of the strongest contributing factors to the larger public interest in world-scale simulation possibilities is the popularity of the blockbuster movie The Matrix (1999) and sequels where advanced artificial intelligence entities, which humans themselves have created, take over and use humans as energy batteries. To keep us ignorant of this they have immersed us in an artificially created reality by simulating our sensory inputs to make us think we are living ordinary lives on earth. [[11]](#footnote-11) The movie likely also fits in with the present-day existential concerns that many people have about artificial intelligence and technological advances. [[12]](#footnote-12)

A third contributing factor to the present-day popularity of the simulation idea is the well-thought out, and widely publicised, work of philosopher Nick Bostrom. His views are known not only in the philosophical community, but also in the computer science and mainstream science communities. The difference between his version and earlier versions of the simulation hypothesis (e.g Descartes) is that Bostrom’s view is more or less tied directly to recent technological advances, and his views have not been invented as a philosophical foil to critically examine global scepticism, it is instead a serious discussion of a metaphysical possibility. On Bostrom’s view, computers and technology are advancing at an unprecedented rate and we are continually increasing the sophistication of the simulations used in both science and entertainment. [[13]](#footnote-13) Given that in the future many large-scale simulations will likely be created by trans-humans, we could be living in such a simulation – perhaps an ancestor simulation. Our living in a simulated universe need not require a Full-Monty Simulation, according to Bostrom (2003), but only a partial one.

Simulating the entire universe down to the quantum level is obviously infeasible, unless radically new physics is discovered. But in order to get a realistic simulation of human experience, much less is needed – only whatever is required to ensure that the simulated humans, interacting in normal human ways with their simulated environment, don’t notice any irregularities. The microscopic structure of the inside of the Earth can be safely omitted. Distant astronomical objects can have highly compressed representations: [accuracy] need extend to the narrow [set] of properties that we can observe from our planet or solar system spacecraft. On the surface of Earth, macroscopic objects in inhabited areas may need to be continuously simulated, but microscopic phenomena could likely be filled in *ad hoc*….This presents no problem, since our current computing power is negligible by post-human standards. Moreover, a post-human simulator would have enough computing power to keep track of the detailed belief-states in all human brains at all times. Therefore, when it saw that a human was about to make an observation of the microscopic world, it could fill in sufficient detail in the simulation in the appropriate domain on an as-needed basis. Should any error occur, the director could easily edit the states of any brains that have become aware of an anomaly before it spoils the simulation. Alternatively, the director could skip back a few seconds and rerun the simulation in a way that avoids the problem.

A fourth factor is the contemporary prevalence of the physicalist/materialist belief that our mind **is** our brain and the associated belief that all our mental states are expressed in neural connections. While for both Descartes and Berkeley the mind was a non-physical substance about which little or nothing could be known about its nature, we do know many things about the physical brain. [[14]](#footnote-14) This increases the surface plausibility of physicalist hypotheses that bypass non-physical unknowns and can give more credence to simulation scenarios. This is famously expressed in The Matrix, when Morpheus, the leader of the resistance against the AI purveyors of the artificially imposed reality, asks:

What is real? How do you define “real”? If you’re talking about what you can feel, what you can smell, what you can taste and see, then “real” is simply electrical signals interpreted by your brain.

While this reductive view would not have gained much purchase in Descartes’ time, it expresses a default view for many today. **If** what we consider our mind and consciousness to be just “electrical signals interpreted by your brain,” then these “electrical signals” can be caused by physical objects or anything else that can impinge on our neurons in the right way.[[15]](#footnote-15)

 A fifth factor might be, for some, contemporary reflection on the ‘fine-tuning’ in the universe. In other words, some may accept the well-designed notion of the universe advocated by many religious beliefs but reject both the supernatural and present-day scientific consensus of the reasons given for this particular design.[[16]](#footnote-16) Certain physical constants seem to be required for life to exist in the universe, and even minute departures from these constants would mean life would be unsustainable. Traditionally, religious appeals to God have been advanced to explain this extraordinary set of facts. The most common alternative explanations put forward by naturalistic (non-religious) scientists and philosophers have been the anthropic principle (basically, the idea that we wouldn’t even be able to acknowledge fine-tuning if we didn’t find ourselves in a universe having these particular constraints) and the multiverse idea that conceivably many (perhaps an infinite number) of universes co-exist with differing physical laws and constraints and we happen to be in one with the particular laws and constraints we have. [[17]](#footnote-17) Some may prefer to adopt the contemporary philosophical simulation hypothesis over its religious and non-religious rivals even though it only pushes the problem back a step.

A sixth contributing factor might be particular empirical anomalies of a weird sort. I’m not thinking of shaving,[[18]](#footnote-18) bell-bottomed pants, or your bizarre uncle Festus, but real oddities of various kinds.[[19]](#footnote-19) What’s a real oddity? A good question. Thank-you for asking. What if we looked up one day and saw writing in the sky all over the world that said “Hey, carbon-based weirdos, you are all sims in my video game!” While that might give many pause, most (I suspect) would be unpersuaded. After all, it could be a joke by aliens or some “high” scientists having fun showing off some new technology. OK, but what about down-to-earth oddities? Perhaps some possible glitches in the simulation are paranormal phenomena (if they could be demonstrated to the satisfaction of most philosophers and scientists). You can add your own ideas here. [[20]](#footnote-20)

A seventh contributing factor is the view that the universe is governed by mathematical laws, information or algorithms. If the universe is, at bottom, information as some physicists contend,[[21]](#footnote-21) a language that is the ultimate reality in the universe, then it may not be a large step to go from using information to simulating a universe. If bits of information are the ultimate reality then it is not elementary particles as commonly believed.

 Skepticism about the simulation argument

Most people resist the simulation hypothesis. As philosopher David Hume contended several centuries ago, our in-built, instinctual (rationally unjustified) belief in an external world is too strong to be over-ruled by any abstract reasoning.[[22]](#footnote-22) So, “Just say No!” This isn’t that satisfying, even though our behavior (outside of classrooms and bars) in everyday life is consistent with our not taking skeptical hypotheses about our everyday reality seriously. So, what about common reactions to the simulation hypothesis (which tend to be rhetorical or circular) and philosophical arguments that resist the claim we live in a simulation? In this section I’ll restrict responses to the most popular ones. The philosophical and scientific responses would require a book so the references will be useful in this regard.

One “off the top of our heads” response is to appeal to our everyday experiences. Don’t we live in a world of cars, houses, and people with hands of differing sizes? In everyday life we all distinguish between dreams and waking states, and between veridical states and illusions and hallucinatory states. It flouts serious verbal conventions and our everyday life experiences to talk of “all life being a dream” or “all of reality being something completely different from what appears to our senses.” So, why can’t we just straightforwardly appeal to our sensory experience to resolve the issue? After all, we can check out odd sensory experiences like whether the stick in the water is crooked or not by taking the stick out of the water and looking at it, or measuring the length of the lines in the visual Muller illusion. Similarly, we distinguish between dream happenings in everyday life by contrast with what we can do after we wake up. We fly and jump over tall buildings in our dreams (at least I do) but fail the same attempts after breakfast (at least I do). The down-to-earth British philosopher (18th century) John Locke thought we could appeal to such everyday experience to defuse wide-ranging, global skepticism at the start, claiming, basically, that only someone who was joking or smoking something, or who belonged in a mad house, could be skeptical about our common-sense lived in reality.[[23]](#footnote-23) Locke tries to keep any global skeptical hypothesis from even getting off the ground by telling skeptics to just go and[*stick their hand in a fire*](http://www.philosimply.com/comedy/third-annual-philosopher-obstacle-of-course-competition)*.* If they are still not convinced, “Just go away.” A difficulty that arises here is that the responses use our experience to defend our experiences. The tests conducted are *within* our experience and therefore circular. The simulation hypothesis is outside our experience or “beyond experience.” It deals not so much with the experiences themselves but what ultimately causes the particular experiences. Patterns of experience allow us to tell truth from falsehood and to identify sensory illusions when we are immersed in our experiences but not when we metaphysically consider our experiences as a whole. The wide skeptical and simulation speculations are based on the view that we are ‘trapped’ in our world of experiences.

A second response involves variations on the “it’s all too complex to make a persuasive simulation” argument. The complexity of the world would seem to make any universe simulation impossible. This most certainly has intuitive appeal. Basically, while virtual simulations (such as Sim-City) and specific large scale computer simulations (online games such as Wildstar) along with advances in virtual technologies are impressive, critics contend it is *something else* entirely to simulate an entire universe that includes large scale objects (suns, planets, galaxies), medium sized objects (cars, rivers, mountains), intelligent creatures (humans, apes, elephants, dolphins, etc.), and microscopic components (atoms, elementary particles, viruses, prions, DNA, etc.), all governed by physical and biological laws. And simulating consciousness in sims seems unlikely.[[24]](#footnote-24) As American philosopher Alexander Pruss (2017) puts it,

We would expect most computer simulations to be of pretty poor quality and limited in scope. If we are in a simulation, the simulation we are in is of extremely high quality and of great scope. That’s not what we would expect on the simulation hypothesis. So, probably, we don’t live in a computer simulation.

The “we are stuck in a goldfish bowl” responses are variations of “**If** we are in a simulation, it makes no sense to even state the hypothesis, since everything outside the simulation may be operating according to completely different natural laws and so may be very different from what is inside the simulation.” We are in the position of Kant’s philosopher trying to think about the noumenal world.[[25]](#footnote-25) So why waste time even considering it. This doesn’t criticize the hypothesis as much as ignore it.

A related objection is the “comparatively we humans are dumber than a bag of hammers” complaint. In this case the limitations would be empirical rather than imposed by the innate structure of our minds (Kant). Whatever is able to make such a complex simulation is so imaginatively beyond us that we cannot even talk about it in any meaningful way – we are in the position of insects confronted with the theory of quantum mechanics. So, let’s shelf the whole idea. Whatever is going on, talk of “simulations” (based on analogies with our video games like “Sim City”) is the only way we cognitively-impaired humans can think about such issues, and this may be completely off base. As philosopher LaBossiere (2016) puts it, we would be somewhat in the position of “the intelligent inhabitants of a Pac Man world trying to draw inferences from their game to our world,” or a frog at the bottom of a well believing that where she exists is the whole world.[[26]](#footnote-26) [[27]](#footnote-27)

The “what kind of a mind would do this” response emphasizes that in postulating the simulation hypothesis we are anthropomorphizing the mind of the simulator. The implication seems to be that while this all is an interesting possibility to us humans, it isn’t something that might even occur to anything else. Indeed, while to many of us, humans are the center of the universe, in the case of future humans in a trans-human world (or creatures in an extra-terrestrial world) there may be a variety of different kinds of intelligences without a hierarchy involving whatever is the most top-valued species. As philosopher Justin Khoo says, perhaps an extraterrestrial alien species only cares about “maximizing the number of equilateral pentagons in the universe.”[[28]](#footnote-28) On this objection, why would post-human or extraterrestrial alien interests coincide with ours? Maybe **we** present-day human beings would be interested in conducting ancestor simulations if **we** could, but why would it be on the bucket list for post-humans or ET?

The “reprobate to saint” objection contends that human beings have been, overall, becoming more moral over time, so it is unlikely that whatever is advanced enough to be capable of constructing such simulations would ethically make them. Worldwide, fewer people are in poverty, childbirth deaths have decreased, we are living longer than ever before, and more people than ever are living in peace. We are also more concerned with human rights and the rights of animals than ever before.[[29]](#footnote-29)It is plausible (so it is argued) to believe that this will continue into the future, which means that our post-human descendants will continue to advance morally. If our descendants are responsible for a simulation, it would therefore be very unlikely that the simulation would have the suffering we find in the world we live in. Hence, given the problematic world we live in, it is unlikely that we are living in a simulated universe/world. We might also expect the same for any other advanced extraterrestrial intelligent civilization. In other words, they would likely have, over time, extended their moral concerns to other life forms and nature, making it also unlikely that they would create a simulation with the problems and suffering we find in our world.[[30]](#footnote-30)

Then there is the “Get a Life” response. This approach, similar to those above, isn’t an attempt at direct criticism of the hypothesis itself. Instead, it views the simulation hypothesis as a “waste of time” rather like spending money and time investigating Elvis or Socrates sightings. On this view, don’t we have more pressing issues to deal with than unprovable philosophical speculations? Given this objection, admittedly the contemporary simulation hypothesis is more plausible than the Descartes etc. global skeptical philosophical stories, but such far-out “thought experiments” should only entertain us at the bar, provide thinking exercises in philosophy classes, or give bored rich people something to wax on about. Further to this line of thought, our priorities should instead be focussed on climate change, wealth inequalities, world hunger, immigration crises, resource shortages, possibly curing baldness, etc.[[31]](#footnote-31)

 But what if think we **ARE** in a simulation?

Okay, the philosophical speculation around living in a simulated world is a bit much for most of us in sober moods, but let’s down a few beers and enjoy ourselves. Here things get even more interesting. In the ‘Matrix’ simulations, we already exist as independent existing beings that have been deluded into thinking we exist in a different world, but it might be quite different if we are created as new conscious? entities in a simulated world made from scratch.

 So, if we were convinced we were living in a simulation, what’s next?A number of overlapping speculative questions would arise. We would need to first of all distinguish between the questions Are we living in a simulation? and Which particular simulation? The likelihood of the first question being higher than any answer to the second question while reasons are given and can be evaluated for the first scenario (e.g, Bostrom) it seems that only logical possibilities are available to the second question. But we have the free time, so let’s let loose our minds.

**Could you break out of a simulation**? One of the first questions we might ask is, if we knew we were living in a simulation, could we break out? How we view the plausibility of breaking out may depend to some extent on how the hypothesis is initially stated or framed. In The Matrix, breaking out is just a matter of taking the right pill. The protagonist Neo is offered a choice of taking the red pill or the little blue pill. Neo chooses the red pill, meets the attractive Trinity… and nothing xxx-rated happens between them. But, on the positive side, the red pill allows him to break out of the simulation into the real world. If it were only this simple! Bostrom contends that breaking out of a simulation is extremely unlikely. After all, the simulators could modify our thought patterns, interfere with our memories or put other obstacles in place whenever we came up with ways of trying to get out.[[32]](#footnote-32) On the other hand, if our existence is only in the simulation----we are ourselves sims--- breaking out of such simulations may be impossible, similar to releasing Goofy from a Mickey Mouse cartoon.

Of course, **we also have the problem of what we would break out into.** The “real” reality we find ourselves in might be similar to our simulated reality or wildly different. In The Matrix, the real world is not much different from the simulated reality, only more trashed. But things could get weird: could there be simulations within simulations? Maybe we just end up breaking out into another simulation – from the frying pan into the fire. We might end up confronting a more complex simulation, one with different natural laws, one in a state of decay, etc. Maybe there are simulations inside simulations like a Russian nesting doll, or overlapping ones or co-existing ones.[[33]](#footnote-33) Maybe some simulations are even worse in many ways than the Matrix! [[34]](#footnote-34) [[35]](#footnote-35)

**How does the simulation relate to the real world behind the veil?** Indeed, the simulated reality might not be wholesale and constant, and may be only periodically intermeshed with our everyday experiences. Why would it have to be wholesale one way or the other? In other words, our reality might at bottom be real but at times interact with simulated intrusions from elsewhere.[[36]](#footnote-36) In this case, the intrusive effects would be in our simulation but the causes from outside the simulation. This might partially “explain” some of the most bizarre, unexplainable actions we all engage in at times, or those very unpredictable events that happen to us. We might also find the simulation contains more than is found in the behind-the-scenes “reality” (or vice-versa), which would complicate things (as an analogy, we can have simple video games within more complex video games). [[37]](#footnote-37)

**Would the nature of the simulation give us any indication as to who or what the simulators are like?** Would the kind of simulated reality we live in (assuming we are living in one) suggest anything about the nature of who or what created the simulated reality? What are the possibilities here? Is it an evil demon, an alien mind, some kind of artificial intelligence (AI), or our own trans-human descendants? For a start, we would have no idea whether there is one simulator, or several, or a group mind of some sort, or whether it was consciously designed to be the way it is, or some accidental by-product. We also don’t know whether the originators are still around (perhaps they or it went on to new projects or died or became something else). Maybe they/it just set up the basics so it would run and evolve by itself, without ongoing tinkering.[[38]](#footnote-38) How might we **view** the simulators themselves/itself? The philosopher Chalmers says:

Whoever created our universe—the simulator—in a way, that’s our god, our creator. This being might be all-powerful, able to control our universe, all-knowing. Some people have even proposed that we should be forming religions around the idea that our simulator is our god….. This being would count as a creator; it would be all-powerful, all-knowing. But at the same time this would all be naturally explicable in terms of, say, the laws of physics of the next universe up. There’d be nothing supernatural about it. To be a religion, there’s got to be something like worship or some deep spirituality involved. We might have respect, maybe even a kind of awe, for a being who creates our universe by a simulation, in virtue of knowing everything and being all-powerful. But I’m not going to worship that being. Who knows? Maybe it’s just a teenage hacker in the next universe up that’s created this universe for fun. Great, I’m glad that I exist, so thank you, but I refuse to worship you.[[39]](#footnote-39)

**How would /should we act if we really believed we were living in a simulation?** There **is** something odd around words like “belief” and “probability” in such academic/philosophical contexts.[[40]](#footnote-40) It’s all very well that the Bank of America says there is a 50% chance we are living in a simulated universe (as reported in several American newspapers), but what follows from saying this? Nothing, it seems! Either way, the Bank of America (assuming they are being serious) has to make no changes in the way it acts. The rest of us are not given a break with lower loan rates or gifts of money as a consequence. Isn’t this odd? For our everyday beliefs, there are different consequences to a belief and to its opposite – you expect a conservative government to act differently in some ways from a leftist government. If you believe it will rain today you will dress differently than if you don’t think it will, but the belief about living in a simulated reality doesn’t make much (if any) difference to our lives apart from our being inclined to utter a particular string of words. Similarly, if I sincerely believe I love X, then certain implications follow – you won’t typically expect me to send them parcels full of doggie dung, or sabotage the tires on their car so that they fall off when they turn a corner. However, Bostrom (2003, 2011; also Baggini, 2017) contends that even if we **really believed** that we were living in a simulation, it should *not* make much difference to how we are now living. So, who cares! One can understand why they would say this. After all, we only know one empirical reality – you will go to the bathroom if you have to, avoid the speeding cars on the road, get dumped by lovers, interact with sock puppets on the internet, and feel misunderstood by the neighbour who calls you a demented rogue, no matter whether we live in a simulated reality or not.[[41]](#footnote-41) Bostrom (2017) says,

Supposing we live in a simulation, what are the implications for us humans? … the implications are not all that radical. Our best guide to how our … creators have chosen to set up our world is the standard empirical study of the universe we see. The revisions to most parts of our belief networks would be rather slight and subtle – in proportion to our lack of confidence in our ability to understand the ways of [the post-human simulators]. Properly understood, therefore, the truth [that we are in a simulated world] should have no tendency to make us “go crazy” or to prevent us from going about our business and making plans and predictions for tomorrow.

Others disagree and contend that if we seriously believed that the world of our experiences was a simulation we would value other people, the environment, other creatures, and our own lives, less than we do at present. Kassan (2016, p. 39) says,

Should we treat everyone around us as if they’re just a figment of someone else’s imagination, shamelessly manipulating them for our own pleasure or gain? Should we take careless risks knowing we’ll live again in another simulation or after a reboot? Should we even bother to get out of bed, knowing that it is all unreal?

Eggleston (undated) adopts a different, survival oriented view:

Assuming that we don’t want the simulation to be turned off (as this would cause us to cease to exist), we should do everything in our power to keep whoever is simulating us interested in the simulation. This might cause us to pursue actions that are more likely to cause very dramatic events to happen. Also, if we believe that our simulators are willing to punish/reward people for certain behavior within the simulation, we should try to figure out what behavior they are going to reward and act on that. Thus, knowing that we are very probably living in a computer simulation should have a profound effect on the way we lead our lives.

**Would** a belief that we live in a simulation make the world a worse place? After all, there would be, as far as I can tell, no compelling reason to believe that any creator of a simulated world would design it to be an overall good place (however one defines good). If they are post-humans, why would we expect them to share some or many of the same concerns or emotions as we presently do, including caring for their simulated ancestors or other creations?

For those who like to mix their drinks, we can go further. **When was this simulation we “live in” put into place?** Maybe it was set up five minutes ago, complete with a fake past? [[42]](#footnote-42) Are there natural limits to what we can do in our simulated reality that could be transcended if we were living in other simulations? After all, I can’t walk through walls in many computer games. Have the simulator(s) of our universe set it up so that we can’t go beyond the speed of light or live to be three-hundred? Will they thwart our attempts to transcend such limits? If there are different simulations with different natural laws, could there be worlds in which there are dragons, fairies, honest politicians, and students who always find our lectures fascinating? Could the simulator(s) decide to shut it all down? Could they hack around with the present laws of nature and suddenly modify or program new ones? Could a simulated world have only two dimensions? [[43]](#footnote-43) Could the reason why no ET has contacted us be because there are no ET’s, there is just a simulation with only us in it?

The simulation hypothesis, while philosophical, seems to have a degree of plausibility, at least at first glance, that “Maybe my neighbour is a shape-shifter” does not. [[44]](#footnote-44) Is it more than just a “dummy hypothesis” – empirically empty – as many contend? [[45]](#footnote-45) It seems to be a doubly-problematic view. First, as typically stated, it seems compatible (or can be made compatible) with whatever physical evidence (e.g glitches) can be obtained (Birch, 2013, Huemer, 2016) and however weird a glitch seems, we never know whether future science might be able to explain the ‘glitch’ with future theory, dissolving its status as a glitch. What is considered a ‘glitch’ is relative to the knowledge we have at a given time. Second, any ‘quirks’ taken seriously by scientists come up against the alien mind’ problem. Quirks would be so identified from the perspective of our **human minds**.[[46]](#footnote-46) Even appeals to future post-human minds won’t help since we have potentially a large number of alternative possibilities (alien extraterrestrial minds, AI minds made by?) with no plausible way to adjudicate among them (see also Schwitzgebel (2017)). We would not know if the quirks were deliberately placed there to confuse us, to lead us down blind alleys, or there for the fun of it.

But assuming the simulation view can be clearly stated (a big IF) either there is a world that is not a simulation or we end up with an infinite hierarchy of simulated worlds.  The latter is impossible.  If there must be a world that is not a simulation, why not this one? My present view is closest to that of LaBossiere (2016). It seems reasonable to speculate that some worlds cannot be simulations at all. If all worlds were simulations (does this even make sense?), how would the simulations get started in the first place? Given that our default view is that we are living in base reality (a non-simulated reality), the onus is on those who disagree to somehow make their case.

 **WHAT DO YOU THINK?**

**References (by publication date) for those who want to explore the topic further**

A number of the points I’ve brought up or hinted at are explored in more detail in the following articles.

-----Roberts, G.W. (1974) “Incorrigibility, behaviourism and predictionism.” In R. Bambrough (Ed) Wisdom: Twelve Essays. Basil Blackwell, Oxford, pp. 125-150. A book dedicated to late British analytic philosopher John Wisdom (my favourite philosopher when I was an undergraduate). The chapter by Roberts is a critique of behaviourism based on John Wisdom’s writings on “Other Minds” (famous in the early 1950’s). The chapter focuses on the status of statements about sensory experiences and beliefs about an external world.

-----H. Putnam (1981) Reason, truth, and history. Cambridge University Press. Like Descartes, Putnam considers a thought-experiment regarding global scepticism. In this book, he imagines someone or something taking your brain out of your skull and putting it in a vat filled with a special kind of “soup” full of life-sustaining chemicals. Your brain is connected to electrical wires which stimulate the relevant neurons to produce the same experiences you would get from external objects. Putnam himself is skeptical about the soundness of the “brain-in-a-vat” hypothesis. While the speculation goes way, way beyond present day surgical and medical science, it does rest on some science. For example, Canadian neuro-surgeon Wilder Penfield in the later 20th century found that memories and past experiences could be triggered in patients by electrically stimulating parts of his patients’ brains. See <https://www.mcgill.ca/about/history/mcgill-pioneers/penfield>

Further, we already use medical devices to bypass external sensory inputs and communicate directly with the brain …think of cochlear implants and neuro-stimulation used with Parkinson’s patients. (2017) “What is a brain computer?” The Economist, May 26. http://www.economist.com/blogs/economist-explains/2017/05/economist-explains-6

-----G. Yeffeth (Ed) (2002) Taking the red pill: science, philosophy and religion in *The Matrix*. Smart Pop. A variety of essays on topics such as religious symbolism in the Matrix and thoughts on virtual reality, artificial intelligence, science fiction and glitches in the Matrix. Well-known contributors include Robert J Sawyer, Ray Kurzweil, Bill Joy, and Nick Bostrom. All essays are worth reading.

-----W. Irwin (Ed) (2002) The Matrix and philosophy: Welcome to the desert of the real. Open Court. A set of essays on a variety of issues that arise from The Matrix, including religion, reality, mind and matter, and fiction. A bit academic in places, best for those with some background in philosophy.

----M. Rowlands (2003) SCI-PHI: Philosophy from Socrates to Schwarzenegger. St. Martin’s Griffin. An enjoyable introduction to philosophy through science fiction movies such as The Matrix, the first two Terminator movies, Total Recall, Minority Report, Independence Day, Star Wars, and Blade Runner. The chapter on The Matrix ties the AI in The Matrix with Descartes demon, the brain in a vat speculation, scepticism, and idealism.

--------N. Bostrom (2003) “Are you living in a computer simulation?” Philosophical Quarterly, 53/111, pp. 243-255. Available at: <http://www.simulation-argument.com/simulation.pdf>

Also, “Nick Bostrom on the simulation argument” Philosophy Bites (auditory), 2011. <http://hwcdn.libsyn.com/p/5/e/4/5e46985a00186b04/Nick_Bostrom_on_the_Simulation_Argument.mp3?c_id=3612374&expiration=1484957808&hwt=1b981b30a2f98ca27cbd31e5ff4a1d5c>

Also see (dated 2011) <http://www.simulation-argument.com/faq.html> for Bostrom’s replies to common criticisms of his simulation argument. Bostrom’s 2003 article brought the simulation hypothesis out of the realm of “just philosophical speculation.” Bostrom is *not saying* we *are* living in a simulation, only that it is a more serious possibility than most realize. The 2003 article covers a wide field, but basically contends that if technological development continues at the breakneck speed it has over the last few decades, it is likely that we will be able to create a variety of simulated worlds that contain conscious beings and it is further likely that (given that this development continues and that mental states can occur in physical creations other than biological ones), we could be living in a simulated world. His website is available at http://www.nickbostrom.com/

-----W. Irwin (Ed) (2005) More Matrix and philosophy: Revolutions and Reloaded decoded. Open Court. A follow-up to Irwin’s earlier edited book The Matrix and Philosophy (2002). Covers all the films in the Matrix movie trilogy; the original The Matrix (1999), The Matrix Reloaded (2003) and the last in the series The Matrix Revolutions (2003). New topics are discussed such as the meaning of life, faith, love, cynicism, post-modernism and religious themes.

-----A. Crau (2005) Philosophers explore the Matrix. OUP. A really good quality group of essays for those with a background in philosophy. Topics covered are largely those covered in introductory courses in philosophy such as ethics, freedom, values, belief and truth, religion, skepticism, metaphysics, and robots. Those topics covered are tied in with contemporary philosophical debates over the status of beliefs for those living in the Matrix along with Nozick’s “Experience Machine” and Putnam’s ideas.

----B. Eggleston (undated) ‘Review of Bostrom’s simulation argument. Stanford University,

<https://web.stanford.edu/class/symbsys205/BostromReview.html> A critical examination of the probabilistic analysis underlying Nick Bostrom’s arguments for the possibility that we are living in a simulated universe. The author contends that how we view Bostrom’s view depends on the “prior probability that we assign to the existence of universes other than our own”.

----P. Jenkins (2006) “Historical simulations: motivational, ethical and legal issues.” Journal of Future Studies, 11, 1, 23-42. Contends that in the near future we will be able to create historical simulations that will include artificial intelligences. It is therefore highly likely we are living in one of those simulations.

----A. Hammarstrom (2008) “I, Sim: An exploration of the simulation argument.” Masters Thesis. Umea University, Sweden. <http://www.simulation-argument.com/hammarstrom.pdf>

An academic discussion of Bostrom’s simulation hypothesis, most suitable for those with a background in philosophy and familiarity with recent debates over the mind-body problem. Contends that given our current stage of technological development and limited knowledge of the world we live in, Bostrom’s position is, in principle, irrefutable. Further, if we are living in a simulation then either epiphenomenalism or idealism is true.

----B. Silby (2009) ‘The simulated universe’ Philosophy Now, 75, Sept/Oct. https: philosophynow.org.issues/75/The\_Simulated\_Universe. A very readable introduction to the idea of a simulated universe. Provides an overview of arguments in favor of our living in a simulation (Bostrom and Frank Tipler) and some problems associated with the idea: the problem of morality, the related Cosmological argument failure, and the Occam’s razor objection. The author rejects the simulated reality idea.

-----J. Stangroom (2010) “Maybe we’re not living in a simulation.” Talking Philosophy, Jan 20. <http://blog.talkingphilosophy.com/?p=2063>

Strangroom argues that if we are living in a simulation then what we say only makes sense within our simulation and, second that an alternative to the simulation speculation is that we are living in a “baby” universe – an existing physical universe that we created within our universe. [For more on the ‘baby universe’ idea, read Z.Merali (2017) ‘The idea of creating a universe in the lab is no joke’ Aeon magazine, <https://aeon.co/ideas/the-idea-of-creating-a-new-universe-in-the-lab-is-no-joke>. ] Very interesting exchanges in the comments section.

-----D. K. Johnson (2011) “Natural evil and the simulation hypothesis.” Philo, 14/2. <http://www.simulation-argument.com/johnson.pdf> Johnson contends the natural evil in our world is better explained by our living in a simulated world than by appeals to the Christian God. See also Mizrahl, 2017.

------E. Schwitzgebel (2011) ‘On Bostrom’s argument that you may well be a computer simulation’ The Splintered Mind, Aug 30. <http://schwitzsplinters.blogspot.com/2011/08/on-bostroms-argument-that-you-may-well.html> Bostrom’s view cannot be rejected but it is just one of many ‘crazy’ possibilities from philosophy and physical cosmology that we cannot decide among. Further, we should be cautious about projecting current computational power trends into the future. Also, Bostrom’s response to S and S counter-response. http://schwitzsplinters.blogspot.com/2011/09/bostroms-response-to-my-discussion-of.html

 -----M. Mahin (2013) “Why you are not living in a computer simulation.” Future and Cosmos Blogspot. <http://futureandcosmos.blogspot.ca/2013/10/why-you-are-not-living-in-computer.html>

Provides several reasons to doubt we are living in a simulated universe. First, the view assumes human-like consciousness can be produced on a computer, but simulating a universe is more complex than those advocating the claim believe. Second, there are no plausible motives for making such a simulation in the first place. Third, we would expect to come across more anomalies in a simulated world than we do. For example, powerful telescopes might not provide any more detail than everyday observation of distant objects. Fourth, it would be easier to produce a simulation with one conscious being than one with many so it seems to lead to solipsism.

-----J. Birch (2013) “On the “simulation argument” and selective skepticism.” Erkenntnis, 78, 1, 95-107. The point of the article is that we do not know if the laws in our (supposedly) simulated world would reflect in any way the laws outside the simulation, so even the assumptions the simulation hypothesis relies on may not provide any basis for grounding the simulation hypothesis in the first place. If the physical laws in a simulated universe are very different from those outside the simulation, then we have no foundation for talking about limits of what can happen in computer development or anything else outside the simulation.

----M. Arvan (2014) “ ‘Anew theory of free-will’ and the peer-to-peer simulation hypothesis’ The Philosopher’s Cocoon, <https://philosopherscocoon.typepad.com/blog/2014/03/a-new-theory-of-free-will-and-the-peer-to-peer-simulation-hypothesis.html> Aryan puts forward a new form of the simulation hypothesis in that our ‘reality is structurally identical to a peer-to-peer networked computer simulation’. The author contends his hypothesis provides a unified explanation of several traditional philosophical problems (those of the mind-body problem and free-will0 along with demystifying several basic quantum mechanics issues. The comments section is also worth reading.

-----E. C. Steinherst (2014) Your digital afterlives: computational theories of life after death. Palgrave Macmillan. A wide ranging trans-humanist speculative review of how computer science (digital) ideas can revise our thinking about ghosts, reincarnation (as in nested simulations) and an afterlife (very differently conceived than traditional theological views). Contends our future identities will be quite different from our bodily biological identities.

-----S. R. Beane, Z. Davoudi, & M. J. Savage (2014) “Constraints on the universe as a numerical simulation.” European Physical Journal, 50, 148. A paper for physicists! Contends that there are likely some physical glitches in any simulated universe. They suggest a glitch might be found regarding cosmic ray energies.

----R.L Kuha (2015) “Is our universe a fake?” Space.com, July 31. <http://www.space.com/30124-is-our-universe-a-fake.html>

This article includes engaging interviews with some of the top minds in the science community on the simulation hypothesis – Nick Bostrom, astronomer Martin Rees, artificial intelligence pioneer Marvin Minsky, technology visionary Ray Kurzweil, and David Brin, space scientist and sci-fi writer. Kuha thinks the problem of whether consciousness can be simulated in a computer to be the main hurdle to the plausibility of the simulation hypothesis. Also, its credibility rests on a number of assumptions regarding the existence and survival of intelligent civilizations. He maintains that a skeptical agnosticism should be the default view on the topic.

----A. Z. Jones (2015) “Are we living in a computer simulation?” The Nature of Reality,**PBS**, Jul. <http://www.pbs.org/wgbh/nova/blogs/physics/2015/07/are-we-living-in-a-computer-simulation/> Good outline of Bostrom’s simulation argument. Suggests that the universe will be incompletely known even to advanced civilizations and that “our entire known universe is itself [may be] only a small part of a grand experiment to understand the fundamental mysteries of the universe.”

---- S. Schneider (Ed) (2016) Science fiction and philosophy: From time travel to superintelligence. Wiley-Blackwell. Part One of this engaging book covers the topics of skepticism along with the consideration that we might be living in a computer simulation. Some of the possible downsides of living in a simulation are described in two short stories. Papers by the stalwarts Nick Bostrom and David Chalmers are, of course, included. Chalmers contends that even if we are living in a simulation (here he agrees with Bostrom), it doesn’t lead to full-blown skepticism about everything. We can still learn things, do research and know things (even if it is only about the simulation we are living in).

----J. Baggini (2016) “We are simulations living in a virtual realm, says Elon Musk. But why do we like the idea?” The Guardian, June 3. <https://www.theguardian.com/commentisfree/2016/jun/03/uploads-universe-simulations-virtual-world> Interesting speculations on why many people find the possibility that we are living in a simulation thrilling, even though it seems flawed in a number of ways. He agrees with Bostrom and Chalmers that even if we believed that we were living in a simulation nothing would change: “Your joys, heartaches, pleasures and pains feel the way they feel, whether they’re experienced in silicon or carbon.” He suggests that the fact that life remains the same whatever we believe on this topic might be part of the attraction of the idea, and that such a belief might make life more interesting.

----M. LaBossiere (2016) “Simulated living.” Talking Philosophy, Aug 22. <http://blog.talkingphilosophy.com/?p=9793> La Bossiere contends that taking into consideration the total evidence it is more reasonable to believe we are **not** living in a simulated world. On the basis of Occam’s razor it seems simpler to accept that the world we live in is real rather there being “a real world on top of this one.” The comments section is also worth reading.

----M. Huemer, M (2016). "Serious Theories and Skeptical Theories: Why You are Probably Not a Brain in a Vat" Philosophical Studies, 173(4): 1031-1052. Given that simulation hypotheses are compatible with any set of possible evidence, they are very poor explanations. We should only take hypotheses seriously that provide us with specific future expectations.

----R. Manzotti & A. Smart (2016) “Elon Musk is wrong. We aren’t living in a simulation.” Motherboard, June 20. http://motherboard.vice.com/read/we-dont-live-in-a-simulation

The authors contend the simulation argument is confused from the start. It is just an updated version of the old, dated conundrum about the difference between reality and appearance that found the difference in some imagined immaterial reality. Simulations, whether those in computer games or the idealistic models scientists use, are not non-physical but aspects of the physical reality we live in and when we expand talk of simulation to encompass all of reality we are making a category mistake, viz., talking as if “nobility” is something non-physical beyond the labels and conventions we give to some people. We live in a physical world and consciousness and associated feelings and thoughts are tied-in with our physical bodies. There is no good evidence that consciousness can be realized in computational processes.

----J, Rothman (2016) “What are the odds we are living in a computer simulation?” The New Yorker, June 9. <http://www.newyorker.com/books/joshua-rothman/what-are-the-odds-we-are-living-in-a-computer-simulation> The author does not attempt to criticize the simulation argument so much as place it in a cultural context of recent science fiction and theological speculation.

---C. Moskowitz (2016) “Are we living in a computer simulation?” Scientific American, April 7. <https://www.scientificamerican.com/article/are-we-living-in-a-computer-simulation/>

Moskowitz reports on a debate between those sympathetic to the simulation hypothesis and those skeptical at a debate at the American Museum of Natural History. Advocates point out that extrapolating from present technology, it is reasonable to think advanced civilizations will have the computer capacities to engage in such simulations. Others are skeptical: the probabilistic talk of being in a simulation is ill-defined claim some skeptics while others contend this concern with simulation is overly focused on ourselves as well as being untestable.

----L. D’Olimpio (2016) “Is reality an illusion? Scientists says we may be living in a computer simulation controlled by an evil genius.” Mail On Line, Aug 2. <http://www.dailymail.co.uk/sciencetech/article-3718312/Is-reality-ILLUSION-Scientist-says-living-computer-simulation-controlled-evil-genius.html>

An enjoyable read through Descartes” evil demon 17th century speculation and Putnam’s 20th century updated brain-in-a-vat hypothesis. Happily, neither Descartes nor Putnam believed in their scenarios. The author points out, the only thing that follows is that we cannot be absolutely certain (whatever that means) that we are not living in a simulation, but we can be certain that we are thinking.

----S. Kriss (2016) “Tech billionaires want to destroy the universe – seriously.” The Atlantic, Oct. <http://www.theatlantic.com/technology/archive/2016/10/silicon-valley-is-obsessed-with-a-false-notion-of-reality/503963/> A blunt and satirical look at the simulation speculations and the people sympathetic to it. The author tells us a super-rich guy says that many of those working in Silicon Valley are obsessed with the idea that we are living in an artificial computer-generated reality, and that some want to break out of this simulation. But apart from the *computer-generated* aspects of the simulation speculation, Kriss points out that variations on the simulation idea have been around for millennia so it’s nothing new, and is not sure what these contemporary people are really on about. After all, the billionaires who, if you can believe them, *want* to break out of the simulated reality are already doing pretty damn well inside it, unlike many of us. If these guys think we are really living in a simulation maybe they should be more concerned about the big honchos pulling the plug on us rather than spending money on trying to break out into who knows what!

-----P. Juli (2016) “Debunking the simulation argument.” Human Economics, Oct 23. <https://patrickjuli.us/2016/10/23/debunking-the-simulation-argument/> A captivating paper in which the author provides a moral argument against us living in a simulation created by our descendants (as advocated by many of those sympathetic to the simulation argument). Basically, the author contends that over time human beings have become more moral in that we have expanded our moral concerns for both other human beings and other creatures. It makes sense to think that this will not be reversed but will continue into any post-human future. If this is the case, then post-humans in our future would not create the world of suffering that we presently live in. Further, the author provides arguments from physics to undermine the simulation argument. The laws of nature don’t seem to be of the type that can be reduced to algorithms or “computable functions.” He also appeals to the complexity argument – the amount of data alone that would be required to simulate the universe down to what happens at the nanometer and femtosecond level would be extraordinary, and besides, surely they would have better things to do. The author concludes that the probability that we are NOT living in a simulation is at least 99.9%.

----E. Cobb (2016) “Computer simulation as the best explanation for the nature of reality.” Dissertation for BA Philosophy Honors Degree, Oxford Brooks University. <http://oxfordbrookes.academia.edu/ElliotCobb> A spirited defence that the simulation hypothesis based on ideas taken from Bostrom and 17th century philosophy George Berkeley is the best available explanation of our reality. Cobb considers the assumptions underlying the simulation hypothesis to be plausible given contemporary materialist (functionalist) theories of mind and the likelihood of our technological advancements continuing at an accelerated rate.

----P. Kassan (2016) “I am not living in a computer simulation, and neither are you.” Skeptic magazine, 21/4, pp. 37-39. A short article that briefly introduces a large variety of arguments against the belief that we might be living in a simulated world. The objections include its being untestable, anthropocentric, and solipsist, and that world/consciousness is too complex to simulate, and intuitively silly. A nice, quick, overview for the skeptic.

----B. Nye (‘the Science Guy”) (2016) “Is “we are living in a simulation” a testable hypothesis?” Big Think. Video: <http://bigthink.com/paul-ratner/scientists-find-first-observed-evidence-that-our-universe-may-be-a-hologram> Nye says the whole idea of us living in a simulated world is untestable and unknowable since who/whatever is doing the simulation could thwart us at every attempt to test the idea. While we can imagine that we are living in a simulation (after all, many science fiction stories refer to the idea) it is just unknowable to us, so get on with your life.

-----O. Solon (2016) “Is our world a simulation? Why some scientists say its more likely than not.” Guardian, Oct 11. <https://www.theguardian.com/technology/2016/oct/11/simulated-world-elon-musk-the-matrix> This article is one of the better newspaper reads on the topic. It points out that some people in Silicon Valley take it seriously, people such as Elon Musk and Rich Terrile (NASA Propulsion Lab). The case for it includes the observations that we have come so far in video games in forty years that future games will likely include simulated minds, and that we might be part of one. Further, the universe conforms to mathematical laws and has small parts (elementary particles) just like the pixels in video games. Skeptical scientists are also interviewed. Max Tegmark (MIT physicist) points out that the arguments for living in a simulation are based on the laws of physics but that is a non-starter if we are living in a simulated universe since our laws would themselves be simulated laws and not real laws.

----Ding-Yu Chung (2016) “We are living in a computer simulation.” Journal of Modern Physics, 7, 1210-1227. An article for physicists. The author contends that conventional physics cannot clearly explain the physical reality we live in, while a physics of the sort to be found in a simulated reality would make better sense. <https://www.scirp.org/journal/PaperInformation.aspx?PaperID=67750>

---S.C. Goldberg (ed). (2016) The Brain in a Vat. Cambridge University Press. Fourteen chapters on Putnam’s anti skeptical brain in a vat speculations (Putnum thought the brain in a vat speculation was necessarily false). The chapters cover the implications of Putnum’s views on a wide variety of topics, including mind, meaning, naturalism, truth and science. Not for beginning philosophy students.

----E. Schwitzgebel (2016) ‘If you/I/we live in a Sim, it might be a short-lived one’. The Splintered Mind (Blog), June 6. <http://schwitzsplinters.blogspot.com/2016/06/if-youiwe-live-in-sim-it-might-well-be.html> If we think we are living in a simulation, we need to ask other questions---is it a small or large sim (how much of the world is simulated?) and is the sim stable or unstable (long or short lasting)? We have no way of knowing.

----B. P. Blackshaw (2016) ‘Countering the simulation argument’. The Philosophical Apologist,

<https://philosophicalapologist.com/2016/06/08/countering-the-simulation-argument/> Contends the simulation hypothesis is one that both theists and naturalists need to take seriously since if the hypothesis is true is makes both our theological and scientific histories problematic. Concludes that the simulation hypothesis advocated by Bostrom assumes that strong AI is possible (that Artificial intelligence with one-day have wide ranging general abilities) and that some form of physicalism is true (everything that exists is physical). See also Beltramini (2018)

----D. Chalmers (2017) “The mind bleeds into the world.” Edge, Jan. https://www.edge.org/conversation/david\_chalmers-the-mind-bleeds-into-the-world

Also check out this podcast (Dec 23, 2016) with Chalmers: <https://www.theguardian.com/technology/audio/2016/dec/23/constructed-consciousness-are-we-living-in-computer-simulation-tech-podcast> A wide-ranging and very readable interview with Australian philosopher David Chalmers that covers the implications of virtual reality and developing technologies for our way of considering many central philosophical questions. He contends that virtual reality is just as real as the physical world and that, relatedly, a simulated world would be just as real – the only difference is that a simulated world would be grounded in information. Multi-universes might be simulated worlds, we might consider the simulators of our universes local “gods” (but not worthy of worship), and life would still be meaningful even if we lived in a simulated world.

# --- A. Gopnik (2017) “Did the Oscars just prove that we are living in a computer simulation?” The New Yorker, Feb 27. <http://www.newyorker.com/culture/cultural-comment/did-the-oscars-just-prove-that-we-are-living-in-a-computer-simulation>

# An enjoyable tongue-in-cheek article. The recent (February, 2017) Oscar mix-up regarding the “Best Picture” and the subsequent confusion and panic is obviously evidence of a super-glitch in the Matrix-simulation we are living in. The recent unprecedented events at the Super Bowl can only be further evidence that we must be living in a simulated universe.

-----[M. Gleiser](http://www.npr.org/people/336057477/marcelo-gleiser) (2017) “Why reality is not a video game — and why it matters.”NPR, March 8. [https://flipboard.com/@flipboard/flip.it%2F9qfkKy-why-reality-is-not-a-video-game--and-wh/f-b60f63d5fe%2Fnpr.org](https://flipboard.com/%40flipboard/flip.it/9qfkKy-why-reality-is-not-a-video-game--and-wh/f-b60f63d5fe/npr.org) Gleiser does **not** find Gopnik’s article (above) very funny. Believing that we are living in a simulated reality has negative consequences for us. It assumes that future advanced civilizations would be interested in doing ancestor simulations, which is unlikely. After all, they would already have more knowledge about the world and past than we do and would more likely be focused on learning even more about the world than looking backwards. Believing that we are living in such a simulated reality also conflicts with our beliefs in free will and freedom of choice which “abdicates our right to fight for what we believe in.” Let’s focus on our social-political realities rather than waste serious time on such philosophical speculations.

-----S. Hossenfelder (2017) “No, we probably don’t live in a simulation.” Back ReAction, March 17. <http://backreaction.blogspot.ca/2017/03/no-we-probably-dont-live-in-computer.html>

The author (a physicist) contends that the simulation speculation is incompatible with our contemporary understanding of the natural laws governing the universe as shown in the standard model and general relativity. We would not be able to reproduce these laws on a computer; at best we could only approximate them. Those with a science background will find the argument and accompanying comments of interest.

-----M. O’Gieblyn (2017) “Ghost in the cloud: Transhumanism’s simulation theology.” N + 1 magazine, 28 (Spring), <https://nplusonemag.com/issue-28/essays/ghost-in-the-cloud/>

Ideas evolve out of other ideas. O’Gieblyn contends that trans-humanist ideas and those associated with simulated worlds are secular ideas that evolved from Christian escatology. The author ties in many of the debates within trans-humanist circles to earlier debates within Christianity. (See also B. Singler (2017) “FAIth” Aeon magazine, June, https://aeon.co/essays/why-is-the-language-of-transhumanists-and-religion-so-similar)

-----A. Pruss (2017) “Are we in a computer simulation?” Alexander Pruss’s Blog, April 25. <http://alexanderpruss.blogspot.ca/2017/04/are-we-in-computer-simulation.html>

While the main focus of Pruss’s points is the implausibility of materialism, he does make some observations relevant to the simulation hypothesis. He contends that the world we live in seems too high in quality, detail and too large to be simulated. Further, our consciousness is likely too complicated to be simulated by a computer.

----B. E. C. Crew (2017) “Things are super-weird right now, but it’s not a glitch in the Matrix, says Harvard physicist.” Science Alert. Com, March 3. <http://www.sciencealert.com/things-are-super-weird-right-now-but-it-s-not-a-glitch-in-the-matrix-says-harvard-physicist>

Focuses on the skeptical views of Harvard physicist Lisa Randall, who contends the likelihood of us living in a giant simulation is “effectively zero.” There is much wrong with the simulation hypothesis; it is untestable, the probabilities stated as positive evidence for it are poorly defined, we are being overly egotistical even in bringing it up (we are not that interesting as a species), and weird things happen all the time (that’s just the way the universe is). We don’t need to postulate weird scenarios like simulation hypotheses.

----M. Mizrahl (2017) “The fine-tuning argument and the simulation hypothesis.” Think, Summer, 93-102. If we have several competing alternative explanations of the same event, then our confidence in any particular one of those hypotheses may be reduced until more evidence is available to make a more informed choice. We can agree that the universe looks “fine-tuned;” the parts fit together and seem to be “designed” for life. Mizrahl contends that the simulation hypothesis would be a strong and preferred competitor to the hypothesis that a God designed the universe on grounds of simplicity and overall predictive sense since it does not require a “supernatural” creator. See also, Johnson, 2011.

----L. Randall (2017) “Does dark matter harbor life?” Nautilus (online), May 11. <http://nautil.us/issue/48/chaos/does-dark-matter-harbor-life>

I’m not sure how relevant this article is, but it sure got my interest. Most scientists would consider dark matter as part of our universe, so if our universe is simulated so would dark matter.

----A. Masterson (2017) ‘Physicists find we’re **not** living in a simulation’ Cosmos, Oct 2. <https://webcache.googleusercontent.com/search?q=cache:vnl1NP0S-WwJ:https://cosmosmagazine.com/physics/physicists-find-we-re-not-living-in-a-computer-simulation+&cd=4&hl=en&ct=clnk&gl=us> The author contends that a paper by physicists published in Science Advances shows that constructing a computer simulation of reality is impossible because of the complexity required. The paper referred to is Z. Ringel & D. L. Kovrizhin (2017) ‘Quantized gravitational responses, the sign problem, and quantum complexity’ Science Advances, 3/9. Sept 27. http://advances.sciencemag.org/content/3/9/e1701758.full

----M. Avan (2017) ‘Did physicists show we’re not living in a simulation? NO.’ The Philosopher’s Cocoon, Oct 3. <http://philosopherscocoon.typepad.com/blog/2017/10/did-physicists-show-were-not-living-in-a-simulation-no.html> . Avan contends that the science paper only shows that ‘a ton of processing power’ would be required to do such a simulation and this may not be a problem for future science. Read comments responding to this post.

----A. Thompson (2017) ‘Sorry, scientists didn’t prove we’re not living in a simulation.’ Popular Mechanics. Com. Oct 4. <http://www.popularmechanics.com/science/news/a28505/scientists-dont-prove-were-not-living-in-a-simulation/>. A more detailed critique of Masterson along the same lines as Avan (above). The paper in Science Advances only shows that we won’t be able to simulate a quantum computer, but this is irrelevant to the hypothesis that the universe is possibly a simulation because we do not know the computing capabilities of future computers.

---E. Schwitzgebel (2017) ‘Kant Meets Cyberpunk’ Draft copy. Oct 16. <http://www.faculty.ucr.edu/~eschwitz/SchwitzPapers/KantMeetsCyberpunk-171016.pdf>

The 19th century philosopher Kant infamously (?) held that the mind contributes the space and time framework within which we live our lives and that what we receive from ultimate reality is modified by our minds to be understandable to us. This is difficult to get one’s mind around and not easily explainable. Schwitzgebel suggests we might understand Kant’s transcendental idealism through parallels with the simulation reality hypothesis. The second part of this paper includes some wide-ranging possibilities about some forms such a simulation might take.

---C. McGinn (2017) ‘The Simulation Game’ in C McGinn  Philosophical Provocations : 55 short essays .The MIT Press. A creative take on the simulation idea, in the suggestion that the designers have made a game in which in-built cues allow ‘players’ to discover that they and their world is a simulated one.

----E.J. Winner (2017) ‘Simulation or mere semblance (of an argument’)? The Electric Agora,

<https://theelectricagora.com/2017/01/02/simulation-or-mere-semblance-of-an-argument/>

Winner elaborates on the views expressed earlier by Eggleston (undated). Winner considers all versions of the simulation hypothesis to be contemporary versions of Pascal’s Wager and logical possibilities only. We shouldn’t waste valuable time on it. Do read the comments section.

----C.S Powell (2018) ‘Elon Musk says we may live in a simulation. Here’s how we might tell if he’s right’ MACH. <https://www.nbcnews.com/mach/science/what-simulation-hypothesis-why-some-think-life-simulated-reality-ncna913926>. An interesting paper suggesting some ways subtle physical bugs’ in any program simulating reality that might be uncovered. Some creative possibilities. The problem that arises is that it would be difficult to know whether we have uncovered a new aspect of the one reality we live in or a subtle glitch in a simulated reality.

----A. Jain (2018) ‘World is a simulation—and ‘God’ is the machine’. Thoughts and Ideas for People who think. Feb 27. <https://medium.com/indian-thoughts/world-is-a-simulation-and-god-is-the-machine-d6e000aa21c6> A short readable description of some philosophical and religious ideas that are forerunners to present-day ideas about living in a simulated reality.

----D. Bonderud (2018) ‘Is our entire universe just a simulated reality?’ Now. Sept 14. <https://now.northropgrumman.com/is-our-entire-universe-just-a-simulated-reality/> The author writes that while advances in computer gaming, virtual reality and robotics increase somewhat the plausibility that we are living in a simulated reality, the same evidence would also point to the complexity of the universe we live in.

----- D. E. Machuca & B. Reed (ED). Skepticism: From Antiquity to the Present. Bloomsbury. Given that the simulation hypothesis is expressed as a skepticism about the underpinnings of our everyday reality, a background knowledge of types of skepticism and responses to such skepticisms would seem useful. This book contains 50 chapters on the history of skepticism, types of skepticism, along with contemporary responses to skepticism. Chapter 44 (pp. 634-651) provides an overview of the considerations that generate external world skepticism with arguments that are relevant to the simulation hypothesis ( e.g arguments from fallibility, underdetermination, closure and responses to these arguments). The last section of the book (part IV) provides a philosophical background for those interested in the latest thinking on the topic of external world skepticism.

-----E. Beltramini (2018) ‘Simulation theory: a preliminary review’. European Journal of Science and Theology, 14/4, 35-48. An overview of the simulation hypothesis as viewed theologically and from a naturalistic perspective regarding the status of the simulation and the simulators. The author considers a theological view of the simulation hypothesis a more positive approach than a naturalistic one. (see also Blackshaw, 2016).

----M. Stieb (2019) “15 Irrefutable Reasons Why We Might Be Living in a Simulation”. Vulture, Feb 8. <https://www.vulture.com/2019/02/15-irrefutable-reasons-we-might-be-living-in-a-simulation.html>. Suggests a variety of debatable tongue-in-cheek reasons why we might be living in a simulation, varying from the “plausible, to the semi-plausible, to the maybe not so-plausible”, including considerations of people’s misremembering world events, misbehaving electrons in double-split experiments, and so on. A fun read.

# ---C. Farquhar (2019) “There Is Solid Evidence We’re All Living In A Simulation” January 19, Junkee, January 19, https://junkee.com/living-simulation/189734 The author is agnostic about whether we are actually living in a simulation or not, and suggests the idea is comparable to many religious beliefs since ultimately, such a belief is based on faith, although some arguments (Bostrom) are somewhat suggestive.

# ---D. Robitzski (2019) “Famous Hacker Thinks We’re Living in Simulation, Wants to Escape” Futurism, March 11, <https://futurism.com/famous-hacker-living-simulation-escape>

# Tells us a famous hacker, George Horz contends that we are living in a simulation and says “There’s no evidence that it is not true’. He further contends that religious and spiritual beliefs are more consistent with the simulation belief than science and suggests starting a church with a goal of escaping the simulation.

# ---K. Houser(2019) “Philosopher Hadn’t Seen ‘The Matrix’ Before Publishing Simulation Hypothesis” Futurism, Feb 6 <https://futurism.com/matrix-simulation-argument-nick-bostrom> Philosopher Nick Bostrom contends even if we believe we are living in some kind of computer simulation it would not be a good idea to try and break out of it. Our changes of success would be small and we would need to seriously consider what we would be getting ourselves into.

# -----D. Furness (2019) ‘Are we living in a simulation? This MIT scientist says its more likely than not’. Digital Trends, April 9, <https://www.digitaltrends.com/cool-tech/we-spoke-to-an-mit-computer-scientists-about-the-simulation-hypothesis/> MIT scientist Rizwan Virk mentions that the recent interest people have in the simulation reality theory is due to a number of reasons connected to advances in technology---advances in video-game technology now allow us to represent 3D objects in 3D worlds, making it increasingly difficult to distinguish what is real from what is simulated. He also appeals to Bostrom’s 2003 arguments that we might live in a simulated reality. (See also, Virk below)

-----R. Virk (2019) The Simulation Hypothesis: An MIT Computer Scientist Shows Why AI, Quantum Physics and Eastern Mystics All Agree We Are in a Video Game. Bayview Books.

Virk makes the case that we are living in a simulated video-game-like reality. The book is very readable and ties together a wide range of topics that the author contends all point toward this hypothesis---including eastern mysticism, quantum mechanics, karma, spiritualism, computer game technology, and popular culture. He contends the simulation hypothesis is not a recent view, but has a long history in religious belief.

-----S. Stapleford (2019) What’s the point of a dreaming argument? Think, 52, 31-34.

An examination of the skeptical dream argument put forward by Descartes and Berkeley. While people find this argument bewildering, it is logically consistent with contrary alternatives from which it cannot be distinguished, so the conjecture is not enough for us to take seriously.

**----M. Silcox, (2019)**A Defense of Simulated Experience: New Noble Lies***.* Routledge.**

**A philosophical examination of the concept ‘simulated experience’ and its range (such as can be found in art, video games and make believe). Argues that simulated experiences are fundamental human goods. Engaging chapters (3 and 4) on the role of simulated experiences in political philosophy.**

**----** P. Greene (2020) The termination risks of simulation science. Erkenntris, 85/2, 489-509.

If we believe we are living in an ancestor simulation, what are the costs and benefits of our finding out we are living in such a simulation? (See also: P. Greene (2019) Are We Living in a Computer Simulation? Let’s Not Find Out. New York Times, August. https://www.nytimes.com/2019/08/10/opinion/sunday/are-we-living-in-a-computer-simulation-lets-not-findout.html?action=click&module=Opinion&pgtype=Homepage)

----T. Hyland (2019) Adventures in the Matrix. Scholars Press.

An in-depth manuscript that would be of interest to teachers at the high school and undergraduate university level. A wide-ranging read that covers not only arguments for and against the simulation hypothesis, but ties in the discussions with topics from history, education, mindfulness, ethics, the social construction of reality, philosophy of science, and spirituality. Highly recommended.

----H. Whitnall (2020) A survival guide for living in the simulation. Philosophy Now, 139 (Aug/Sept). If you discovered proof that you were living in a simulation, it might be best if you kept this to yourself and just “stop worrying [about it] and simply live your life”.

----J. Vindenes (2020) Virtual reality as a catalyst for thought. Philosophy Now, 139 (Aug/Sept)

We are on the threshold of being able to engage in virtual realities that are indistinguishable from the reality we live in. Where should we go from here? “If we could do anything we liked, what would we do?”

----B. Dainton (2020) If life is a video game, does that solve the problem of evil? The Conversation, July 30, https://theconversation.com/if-our-reality-is-a-video-game-does-that-solve-the-problem-of-evil-141086. If God designed our world, couldn’t he have done a better job, or perhaps he isn’t all powerful. There are other possibilities, perhaps our universe was made by a ‘physicist hacker’ or maybe we are part of a video-game run on a ‘super-powerful computer’. (see also, Johnson, 2011).

----The physics arXiv Blog (2020) This equation calculates the chances we live in a computer simulation. Discover, Aug 28. https://www.discovermagazine.com/mind/this-equation-calculates-the-chances-we-live-in-a-computer-simulation. While the famous Drake equation provides us with a way of estimating the number of intelligent civilizations in the universe, a modified formula might provide us with a way of estimating the likelihood we are living in a simulated world. Where would we go from here? It would depend on the creators of our simulated world---indeed, we may be forever trapped in such a simulation.

1. The footnotes were not incorporated into the talk. They have been placed here for those interested in various follow-ups of the points mentioned in the talk. The references (but not the content of the talk) were given to those attending the talk. The first draft of this article was placed on Research Gate in June, 2017. [↑](#footnote-ref-1)
2. Even young infants a few months old interact with the physical world in sophisticated orderly ways. See A. Trafton (2011) “Inside the infant mind.” MIT News, May 27, http://news.mit.edu/2011/infant-cognition-0527

While you are at it, read A. Gopnik (2009) The Philosophical Baby: Children’s Minds Tell Us About Truth, Love, and the Meaning of Life. Farrar, Straus and Giroux. [↑](#footnote-ref-2)
3. This view has its challengers. See, for example, the writings on introspection by American philosopher Eric Schwitzgebel at <http://schwitzsplinters.blogspot.ca/>. [↑](#footnote-ref-3)
4. Descartes introduced the possibility that a malicious, very powerful demon exists which is consistently deceiving us about all of reality---there is really no sky, no earth, no bodies, etc. A readable summary of Descartes views and solutions to such skeptical arguments can be found in D. Cunning ‘Descartes and the force of skepticism’, in D. E. Machuca & B. Reed (Ed). Skepticism: From Antiquity to the Present. Bloomsbury, pp. 306-319.Chapter 26 (pp.368-379) , ‘Berkeley and skepticism’ by Margaret Atherton in the same volume is also worthwhile reading. Some of the issues Berkeley was concerned with are still on the agenda of contemporary debates on skepticism. [↑](#footnote-ref-4)
5. The majority of articles on the simulation hypothesis focus on external reality skepticism---the notion that our external reality is a fake one imposed on us. Very few take on the issue of simulated minds and their contents. Perhaps a reason for this is that the issue is greatly complicated because of debates over free-will vs determinism, the status of consciousness, human autonomy and responsibility, artificial intelligence and so on.

 [↑](#footnote-ref-5)
6. F. Furedi (2017) ‘Bank of America analysts think there’s a 50 percent chance we live in the Matrix’ Independent, Sept. <http://www.independent.co.uk/life-style/gadgets-and-tech/news/bank-of-america-the-matrix-50-per-cent-virtual-reality-elon-musk-nick-bostrom-a7287471.html> [↑](#footnote-ref-6)
7. Indeed, we can go back to the writings of Plato. He contended that the objects of our sensory reality were degraded particular instances of abstract, unchanging, eternal Forms that existed in ultimate reality. This view is expounded in his The Republic and several of his dialogues. [↑](#footnote-ref-7)
8. I have chosen to focus on Western skepticism in this article while acknowledging that well-articulated skeptical traditions exist in Middle Eastern and Eastern philosophy. A brief overview of skepticism in classical Indian philosophy can be found in M. R. Dasti ‘Skepticism in classical Indian philosophy’ in D. E. Machuca & B. Reed (Ed). Skepticism: From Antiquity to the Present. Bloomsbury. pp. 145-157. [↑](#footnote-ref-8)
9. **Idealism** is the view that reality is at bottom mind/mental. Those interested in the topic might consult the book by John Foster (1982) The Case for Idealism. Routledge & Kegan Paul. George Berkeley was not the only 18th century Christian philosopher to advocate idealism. See J. Farris, S. M. Hamilton, & J. S. Spiegel (2016) Idealism and Christian Theology: Idealism and Christianity. Vol 1. Bloomsbury Academic. Note that idealism is different from the view that both a physical world and a supernatural world exist. [↑](#footnote-ref-9)
10. A useful review of the implications of Putnam’s brain-in-a vat hypothesis over a wide variety of areas can be found in Goldberg (2016) The Brain in a Vat. Cambridge University Press. It needs too be pointed out that Putnam though the hypothesis was necessarily false. [↑](#footnote-ref-10)
11. ‘The Matrix’ (1999) was the first in a series of three movies. The film instigated a franchise of books, including popular books with a philosophical emphasis. A useful overview of the widespread influence on culture that the Matrix trilogy of films had on religion, philosophy, gender, science, comics, video games, and film studies can be found in M.W Kapell & W. G. Doty (Ed). (2004) Jacking into the Matrix Franchise: Cultural reception and Interpretation. Bloomsbury Academic. [↑](#footnote-ref-11)
12. Indeed, there’s no clear consensus among relevant informed scholars on the time-scale when general AI (artificial intelligence might have super-human capacities over a wide range of skills) might arrive and the dangers it might have for human beings. See for instance the differing views expressed in J. Brockman (2019) (Ed.) Possible minds: 25 ways of looking at AI. Penguin Press. [↑](#footnote-ref-12)
13. #  These advances, notably in virtual reality and 3D technology are described in detail in MIT scientist Rizwan Virk’s 2019 book on the Simulation hypothesis The Simulation Hypothesis: An MIT Computer Scientist Shows Why AI, Quantum Physics and Eastern Mystics All Agree We Are In a Video Game Bayview Books. Especially Chapter one which provides a very readable overview of the development of video games.

 [↑](#footnote-ref-13)
14. The exact relationship between mental phenomena and brain states is still a very contentious issue. See M. Beauregard (2013) Brain Wars: the scientific battle over the existence of the mind. Harper, for a view contrary to the mainstream scientific view that the mind is generated by the brain. For an elegant statement of the dominant view that the mind emerges from brain activity consider J.E. Dowling (2018) Understanding the brain: from cells to behavior to cognition. W.W. Norton. For those interested in the philosophy of mind issue, an excellent collection of debates between advocates of various forms of dualism (who contend the human mind is largely non-physical, perhaps an immaterial substance or emergent non-physical) and physicalists/materialists/naturalists (who contend the mind is completely dependent on the brain) can be found in J. Loose, A.J. C. Menuge, & J. P. Moreland (Eds). (2018) The Blackwell Companion to Substance Dualism. Wiley. [↑](#footnote-ref-14)
15. We need to distinguish roughly between two main kinds of simulated universes here. The Matrix is an example of the first kind where already existing living entities are made to believe they are living in a very different reality. The second kind of simulation would be where the entire universe (including ‘living’ entities) is made by a super intelligent mind from scratch. Here the entities could be programmed with an existing past or just ‘dropped’ into the simulation as part of the sim. The distinction is a rough one because they could overlap in a number of ways. For example, simulated living entities could be placed in other simulated realities and so on. On the other hand, if the mind is, as some contend, somewhat non-physical, it seems to me that this would not result in problems for a Matrix-like scenario, but would create difficulties for a ‘from scratch’ simulation scenario where even the beings in the sim are made as part of the simulation. The result in the latter case would presumably be philosophical zombies (beings that can behave as we do but lack conscious experience). For more on the topic of philosophical zombies, consult R. Kirk (2019) ‘Zombies’ Stanford Encyclopedia of Philosophy. (Spring 2019 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/spr2019/entries/zombies/>. If the mind is physical, then even the contents of minds could be pre-determined by initial causal set-ups. Further, mind-insertions or direct mind control of the sims might be part of such a simulation. [↑](#footnote-ref-15)
16. Basically, this would be a naturalistic version of the ‘intelligent design’ argument. Instead of a supernatural designer of the universe we have a super-advanced alien or artificial intelligence that has created the universe for unknown (to us) reasons. [↑](#footnote-ref-16)
17. S. Friederich, "Fine-Tuning", The Stanford Encyclopedia of Philosophy (Winter 2018 Edition), Edward N. Zalta (ed.), https://plato.stanford.edu/archives/win2018/entries/fine-tuning/.

 [↑](#footnote-ref-17)
18. 19th century French writer Gustave Flaubert wrote to Louise Colet, August 1846:  “What stops me from taking myself seriously, even though I’m essentially a serious person, is that I find myself extremely ridiculous — not in the sense of the small scale ridiculousness of slapstick comedy, but rather in the sense of a ridiculousness that seems intrinsic to human life and that manifests itself in the simplest actions and most ordinary gestures. For example, I can never shave without starting to laugh; it seems so idiotic.” Taken from Tim Timmerman’s blog, May 8, 2011. https://abiggerworldyet.wordpress.com/2011/05/08/nicole-johnsons-portrait-of-the-artist/ [↑](#footnote-ref-18)
19. People find oddities in different places. Larson (2011) asks us to consider the everyday experiences of losing socks and misplacing keys and finding them in unexpected places. While Larson calls experiences like this and many other odd experiences “reality shifts” and gives a paranormal twist to explaining them, one might also (with a stretch) consider such experiences glitches in a complex simulated reality. C.S. Larson (2011) Reality shifts: when consciousness changes the physical world. Create Space Independent Publishing Platform. [↑](#footnote-ref-19)
20. A related motivation that may play a background role is the common experience of unbidden thoughts entering consciousness. **Where do they come from?** By itself this would be a very thin reason to jump to any notion that we are living in a simulated reality, but it might be of some influence on entertaining the idea, in conjunction with other reasons. However, this would require the stronger version of the simulation hypothesis since it would require the creator of the simulation to control everything, including our particular thoughts (this is not considered in the Matrix movie franchise where humans still have free-will). Nietzsche was one of the first philosophers to emphasize this interesting aspect of our psyches [ See B. Leiter (2019) Moral Psychology with Nietzsche, OUP, Chapter 5. and also D. Oakley & P. Halligan (2018) ‘What if consciousness is not what drives the human mind?’ TN, Aug 3, <https://www.technologynetworks.com/neuroscience/articles/what-if-consciousness-is-not-what-drives-the-human-mind-307159> ]. There might be some precedent for such a view in the early 16th Calvinist predestination beliefs, and modern views on strict determinism where if we knew the position of every atom in the universe at the big bang we could predict everything that followed, including every thought (if we also adopt the view that thoughts are physical neural patterns**). If** a simulation were constructed from scratch it doesn’t seem a big jump (to me anyway) that thoughts would be pre-determined by the developer (I’m not sure what would have to be done to allow free-will in simulated creations). [↑](#footnote-ref-20)
21. See, for example, A. Ananthaswamy (2017) “Inside knowledge: is information the only thing that exists?” New Scientist, March 29. <https://www.newscientist.com/article/mg23431191-500-knowledge-is-information-the-only-thing-that-exists/> This article provides a good quick overview of the claims and counter-claims on this information-based view. Also, Harari (2016) Homo Deus, especially Chapter 11. A critique of this view of information can be found in D.N. Robinson (2017) “The limits of information.” The New Atlantis, Winter, 17. http://www.thenewatlantis.com/publications/the-limits-of-information [↑](#footnote-ref-21)
22. For those interested, this is discussed in detail in D.C Ainslie (2015) Hume’s True Skepticism. Oxford University Press. [↑](#footnote-ref-22)
23. Locke’s view is actually more wide-ranging that what I have mentioned. See, for example, M. Priselac (2017) Locke’s Science of Knowledge. Routledge. [↑](#footnote-ref-23)
24. If consciousness is impossible to simulate, as some contend, the plausibility of us living in a simulated universe like ours is greatly reduced. Presumably, if so, the only kinds of creatures in a simulated reality would be analogous to ‘philosophical zombies’ that go through behavioural motions but lack an internal mental life. The claim that consciousness is a particularly serious problem for advocates of the simulation hypothesis arises often in debates over a variety of philosophical speculations including talk of mind uploading, etc. Consciousness still seems to be considered an intractable problem for many in philosophy and psychology (but not all). See D. Burkeman (2015) “Why can’t the world’s greatest minds solve the problem of consciousness?” The Guardian, Jan 15. <https://www.theguardian.com/science/2015/jan/21/-sp-why-cant-worlds-greatest-minds-solve-mystery-consciousness>. But see also, M. Milkowski (2017) “Why think that the brain is *not* a computer?” Newsletter: The American Philosophical Association, 16/2, Spring. http://c.ymcdn.com/sites/www.apaonline.org/resource/collection/EADE8D52-8D02-4136-9A2A-729368501E43/ComputersV16n2.pdf [↑](#footnote-ref-24)
25. The 19th century philosopher Immanuel Kant argued that we live in a partially mind-constructed empirical world that is inaccessible to ultimate reality (the noumenal). For Kant, many of the features of our world of experience such as space, time, and cause and effect are not found in reality but are framework contributions of our minds that make our lived reality understandable to us. [↑](#footnote-ref-25)
26. The analogy with the frog is taken from the Chinese philosopher Zhuangzi. B. Ziporyn (Tr.) (2009) Zhuangzi: the essential readings. Hackett Pub Co Inc. An interpretation of Zhuangzi’s thoughts on external world skepticism (which differs from Western perspectives) can be found in D. Maier (2011) ‘Happy fish and philosophical skepticism’ 3 Quarks Daily, March 21, https://www.3quarksdaily.com/3quarksdaily/2011/03/happy-fish.html [↑](#footnote-ref-26)
27. This view would be consistent with those expressed by empiricist philosophers John Locke and David Hume. Famously Locke (1689) says, “Thus Men, extending their Enquiries beyond their Capacities, and letting their Thoughts wander into those depths where they can find no sure Footing; “tis no Wonder, that they raise Questions and multiply Disputes, which never coming to any clear Resolution, are proper to only continue and increase their Doubts, and to confirm them at last in a perfect Skepticism.” (An Essay on Human Understanding, section 1.7 in Peter Nidditch, edited, 1975). David Hume goes further and contends our experiences and their causes (as reveled by science) are all we can go on and speculation beyond this is fruitless. Our belief in the external world is a product of our a-rational biological dispositions. P. Prevos (undated) ‘Hume’s theory of the external world: skepticism about the existence of the external world.’ Prevos.Net. https://prevos.net/humanities/philosophy/external/ [↑](#footnote-ref-27)
28. R. Marshall (2017) “Disagreement: interview with Justin Khoo.” 3AM magazine, May. http://www.3ammagazine.com/3am/disagreement/ [↑](#footnote-ref-28)
29. A good source for this optimistic view can be found in S. Pinker (2018) Enlightenment Now: The Case for Reason, Science, Humanism and Progress. Viking. Pinker argues that science and reason have contributed to our longer lives, healthier lives and freerer lives overall. [↑](#footnote-ref-29)
30. [↑](#footnote-ref-30)
31. This objection, like the others, can take a number of forms. A variation on it is “Isn’t this speculation just science fiction?” In a sense this seems to me correct, but it isn’t a “just.” Bostrom gives **arguments** for his view. [↑](#footnote-ref-31)
32. After all, modifying brain states and thoughts is on the horizon of our present technologies, so Bostrom’s views regarding far more advanced civilizations are far from implausible here. If we can make modifications within a simulation, then what could the all-powerful (to us) simulators be able to do? See M. Ienca & R. Andorno (2017) “Toward new human rights in the age of neuroscience and neurotechnology.” Life Sciences, Society and Policy, 13/5. https://lsspjournal.springeropen.com/articles/10.1186/s40504-017-0050-1 [↑](#footnote-ref-32)
33. How does this relate to the multi-universe idea, the view that there are many, perhaps an infinite number of co-existing over-lapping universes? A useful start to thinking about this might be Mary-Jean Harris (2017) ‘The Philosophy of Other Worlds’ Sci Phi Journal, Aug 6. <https://sciphijournal.org/the-philosophy-of-other-worlds/> See also: D. Zimmerman (2017) “Evil triumphs in these multiverses, and God is powerless.” Nautilus, March 2. <http://nautil.us/issue/46/balance/evil-triumphs-in-these-multiverses-and-god-is-powerless>. Physicist Ray Davies thinks the simulation speculation is incompatible with the multi-universe idea. <http://www.space.com/30124-is-our-universe-a-fake.html> On the other hand, Chalmers (2017) thinks they are compatible. The topic is avoided by most philosophers and scientists. One reason might be that the multiverse idea and even talk of ‘possible worlds’ (by David Lewis) are considered natural phenomena and not part of a simulation. Another reason might be that talk of multiverses and possible worlds is already considered as at the fringes of speculation so why add more controversial simulation world speculation to what is already considered metaphysically controversial? [↑](#footnote-ref-33)
34. Worse in what ways? Perhaps with respect to the suffering of creatures in the universe. This opens up many cans of worms: to answer such a question ,we would need to consider different forms of suffering and how to balance the suffering and non-suffering. Also many different simulated worlds are possible. What about one that has huge suffering for some but lifelong bliss for others? Or what about a simulated world where creations take turns suffering? [↑](#footnote-ref-34)
35. Maybe the multiverse idea is relevant here after all. Highly advanced entities in one universe could create a variety of simulations, including nested simulations. Within each natural universe the created simulations would be causally connected since (I presume) the same natural laws would pervade the **base universe** from which the simulations are constructed. In another universe with different multiverses different natural laws might apply with different highly intelligent entities producing a causally independent series of simulations (from the other universes within the multiverse). [↑](#footnote-ref-35)
36. How such interactions are possible would be a pertinent issue. But this does not seem to be a large impediment for many who believe a supernatural God (who is not part of our world) can periodically interfere with the workings of the world in we live. [↑](#footnote-ref-36)
37. In the Matrix movie (1999) the simulation programmed world was only less beat up than the real AI world. But given the simulators had the capacity to externally influence our perceptions they could have instead placed us in a world with added trolls, goblins and golems. Putting ourselves within the Matrix story, our evolved biology and psychology would likely allow limited deviations from the real world in which we could survive and continue producing energy, This would not be the case if we were created from scratch in a simulated reality. [↑](#footnote-ref-37)
38. These suggestions are influenced by 18th century British philosopher David Hume. [↑](#footnote-ref-38)
39. D. Chalmers (2017) “The mind bleeds into the world.” Edge, Jan.(see references) [↑](#footnote-ref-39)
40. The term “belief” is thrown around a lot here. While in everyday life we don’t have gunfights over the word, for a number of cases, we may not be sure what to say. Consider people who say they sincerely **believe** we are living in a simulated universe (do you know anyone who says this?): what is going on here? In everyday life, when we say we believe something we expect our actions to be fairly consistent with the belief. If I believe Steve is a liar, I will not take everything he says at face value, nor will I act on much of what he tells me. If a friend says they believe in God, we expect they will try to act in ways consistent with the implications of this belief. What happens when people say one thing and do another? While the connection between what we say and our behaviour seems important, it is not easy to know what to say when they come apart. We might say one thing but act in other ways. Schwitzegebel calls these “in-between beliefs.” See E. Schwitzegebel (forthcoming) “The pragmatic metaphysics of belief.” Sept 28 (draft). The opposite might occur, we might act in certain ways but deny belief! Noggle gives the example of obsessive-compulsive behavior. He calls such actions as being tied to “quasi-beliefs” since they don’t fit with the person’s other beliefs. R Noggle (2016) “Belief, quasi-belief, and obsessive-compulsive disorder.” Philosophical Psychology, 29:5, 654-668, DOI: 10.1080/09515089.2015.1130220 Another approach to puzzling beliefs is addressed by Boudry and Coyne, whose concern is supernatural beliefs. For these authors belief is tied to behavior and motivates particular actions, which seems to be lacking in talk of belief in simulated realities. See M Boudry & J Coyne (2016) “Disbelief in belief: On the cognitive status of supernatural beliefs.” Philosophical Psychology, 29:4, 601-615, DOI: 10.1080/09515089.2015.1110852 [↑](#footnote-ref-40)
41. And our lives would still have meaning. M. Ruse (2019) ‘Darwin existentialism: the history---and evolution—of the meaning of life. Alter-Net, April 23, <https://www.alternet.org/2019/04/darwinian-existentialism-the-history-and-evolution-of-the-meaning-of-life/> [↑](#footnote-ref-41)
42. ‘Thanks’ to philosopher Bertrand Russell here. See B. Russell (1921) Analysis of Mind. Allen & Unwin, pp. 159-160.

For those who are losing sleep over this philosophical scepticism, see E. Schwitzgebel (2013) “Empirical evidence that the world was not created five minutes ago.” The Splintered Mind (blog), Feb 13. <http://schwitzsplinters.blogspot.ca/2013/02/empirical-evidence-that-world-was-not.html> or E. Schwitzgebel & A. T. Moore (2015) ‘Experimental evidence for the existence of an external world’, Journal of the American Philosophical Association, pp. 564-582. doi: 10.1017/apa.2014.27 [↑](#footnote-ref-42)
43. Of course, I’m thinking of E.A. Abbott (1884) Flatland: A romance of many dimensions. Seeley & Co. Available online at http://www.geom.uiuc.edu/~banchoff/Flatland/ A tear jerker two-dimensional world where men are polygons and women are lines. [↑](#footnote-ref-43)
44. This is an interesting question in many ways, and there is a lot more to it. After all, what about some of the “crazy” views people have held throughout history regarding the supernatural and metaphysics? See for example, E. Schwitzgebel (2014) “The crazyist metaphysics of mind.” Australian Journal of Philosophy, 92, 665-682, and by the same author, “Why metaphysics is always bizarre.” The Splintered Mind Blog, Sept 19, 2011. <http://schwitzsplinters.blogspot.ca/2011/09/why-metaphysics-is-always-bizarre.html> Of course, human notions of crazy do not exhaust the possibilities. [↑](#footnote-ref-44)
45. My use of the expression “dummy hypothesis” is taken from S. M. Cahn (2017) Religion within reason. Columbia University Press. Cahn considers a dummy hypothesis to be one compatible with all possible empirical evidence and therefore lacking any explanatory power. [↑](#footnote-ref-45)
46. Is the universe 14 billion years old as many scientists think? Why would a universe be made with life only recently evolved with so many millennia barren of life? Is the universe only made to look that old? From a recently evolved human perspective such an ‘experiment’ would seem bizarre, and speculation on motives (human tinged) would seem irrelevant for beings that would do this sort of thing. Human beings would find this puzzling, we tend to prefer stories about fully-formed beings [D.A. Leeming (2009) Creation myths of the world: An encyclopedia (2nd ed) (in two volumes). ABC-LL10.] [↑](#footnote-ref-46)