

APPEARANCE vs REALITY 3.9.18+

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Imagine you couldn't see, hear, or feel anything, and never have done. Imagine that the only senses you ever had giving you any information about the world surrounding you, were your sense of *smell* and your sense of *taste*. What sort of idea of the world do you think you'd have developed? Do you think that you'd conceive the world in *basically* the same terms you conceive it in now? And what does it mean even to ask about 'basically the same terms', anyway?

Clearly I'm not asking if you think you'd be able to imagine the world in terms of colours and sounds and textures without having experienced the sensory stimulation associated with initially generating them. The answer there is that you would *not* be able to spontaneously imagine these types of missing sensory experience. People born blind or profoundly deaf have revealed that. Instead of this then, I'm implying a far deeper question. My question is, How do we come to think even the basic way we do about the world we live in? For instance, if you could only ever *smell* and *taste*, would you think the world consists of *three-dimensional individual objects*? **If you could not see, hear or feel, would you ever conceive that three spatial dimensions even exist?** Would you conceive that things are laid out or arranged *in space* at all?

Before we can start to answer these questions, another important question we need to ask is, *How do we come to experience the world?*

The General Theory Of Sense Experience

So allow me to first lay out the theory of our experience generation.

Generally, at the start of all our sensing of the world, there's physical interaction between the world sensed and one of the sensors which form the frontline part of one of our sense mechanisms. For example, the initial stage in the process of *hearing* is **vibrations of air against the ear drum** eventually causing tiny hairs to also vibrate in the cochlea according to sound frequency. This then generates an electric pulse along the auditory nerve which is processed by **the auditory cortices**.

Another example is where head movement causes the liquid to slosh about inside the three so-called semi-circular canals enclosed in each inner ear. This flow, similar to the movement of liquid in a spirit level, causes hinges in these canals to partially open and shut, and from this activity electric pulses are generated along nerves from which our brains derive our senses of balance and motion for us.

Or, in contrast to any sensations catalysed through such mechanical activities, the senses of smell and taste are instead initiated by *chemical reactions* in the nose or on the tongue from chemicals impacting there.

The point is, every mechanism through which we come to sense the world includes a set of cells through which the initial registration of activity by a sense receptor leads to the creation of an electric pulse which is then shot up along a nerve to join a metropolis of nervous cellular activity in the brain. In fact, electrical pulses relayed up through our nerves are the *only* things which inform our minds about what's going on in the world around us. Without this input through our nerves, our brains, and so minds, have no information about the world at all.

The brain itself is a tangled mass of around **150 different types of neurons**, and there are about 86,000,000,000 neurons in a typical adult human brain. The specific types of neurons present and their larger-scale arrangement differ throughout the brain, giving rise to distinct brain structures. We associate different areas with different aspects of mental ability or function. Other *non-neuronal* cells in the brain, called glial cells, help keep the brain glued together, and healthy.

Now apologies to those who already know this, but allow me to give a very brief description of the nature of the brain's activity for those who don't, and also in order to drum my upcoming point home. Let's call **the electrical signalling within and between neurons** the brain's *electrochemical activity*, since it's made possible by chemical activity. A neuron firing a signal means that what is called an *action potential* – which is basically a jolt of electricity – **passes down an axon**. The axon is a long tail each neuron has along which the electric pulse which the neuron generates travels *away* from the neuronal cell body. This happens through a flow of electrically-charged ions in and out across the skin of the axon along its length.

Now axons branch out both near their ends, and elsewhere. When the electric pulse reaches the tips of these branches, the pulse stimulates areas there called *synapses* to release chemicals called *neurotransmitters*. Neurotransmitters are all those newsworthy chemicals including dopamine, serotonin, even adrenaline. **The neurotransmitters are released into the synaptic cleft**, which is the gap between the axon ends and some part of the next neuron along. This is called ‘synaptic firing’, and it often involves the release of a cocktail of neurotransmitters rather than a single type. The release of neurotransmitters at a synapse causes these chemicals to travel across the synaptic cleft to contact usually the **dendrites of other neurons**. Dendrites are another type of extension to neurons, but in contrast to axons, dendrites carry electric pulses *into* rather than away from the body of a neuron. So the full path is that the electric pulse or action potential travels from a neuronal body down an axon across a synaptic cleft into a dendrite and thence into the body of the next neuron. The activity is complicated by for instance some dendrites synapsing onto other dendrites, or axon terminals synapsing onto other axon terminals, where they can also influence transmitter release. The implication of this is that the direction of flow of electrical data between two neurons can go either way.

Usually any neuron’s axon is in contact with several thousand dendrites, and each neuron’s own dendrites connect to several thousand axons. Thus a neuron can be connected to even fifty thousand or more other neurons, although the average is about five to ten thousand synaptic connections per neuron. Furthermore, each pulse coming into a neuron can have either an *excitatory* or an *inhibitory* effect on that neuron: which means the stimulus can either *encourage* or *discourage* the contacted neuron to fire a pulse. Neuronal firing is *digital* – that is, its firing either happens or it doesn’t. That is to say, brain cells don’t signal partially. One might even say the signalling is in this sense *quantised*. So intensity in neuronal signalling is determined by the *frequency* of the firing of neurons rather than by variation in pulse strength. But this activity is basically what in physical terms makes you you; in other words, what is immediately physically responsible for your mind’s functioning.

Let’s now have a look at some of the implications of this well-established idea.

We Experience A Representation, Not A Reality

So to summarise: The *basic* basic picture goes like this: You detect the world with your sense mechanisms. Your nerves report this detection to your brain. Your brain processes the signals received **in dedicated areas**. You subsequently experience the world with or in your mind.

This means that all our experience of the world happens **only because our brains interpret electrical signals fed into them via our nerves**.

It's easy for us to understand and agree with this idea. Perhaps you even think that this is an obvious truth, these days. But the metaphysical implications of this simple idea are yet hidden from us, easily concealed as these implications are behind the innocuous sound of the theory. So allow me now to spell out what I just said just a little further.

All our experience of the world is *only* created through the brain's processing of incoming nervous electrical signals. So – contrary to popular opinion – it's clear that ALL our experience of the world *is not actually a direct experience of the world at all!* Instead, our whole experience of the world is what I'll call *a representation* of the world constructed by the activity of our brains. Our **brain activity represents the world for our minds**, if you like.

You probably already knew this, to some degree. But so what?

Well, the theory that I'm assuming you just agreed with, about how we come to represent the world in our experience of it, reveals that in experiencing the world **we're not in direct contact with the world we're experiencing at all**. If we can be said to be in direct contact with anything physical in our experiencing, this could only be the *electrochemical activity in our brains*. But this activity is safely locked away from the rest of the world inside our heads.

In other words, the thing *directly* or *immediately* responsible for the creation of our experience of the world is absolutely *not* the world itself, but the activity in our heads. The real world outside our brains is only *indirectly* responsible for our experience, then. In this very basic sense then, **the real world itself is not what we're experiencing when we're having our experience of the world**.

I think this is an inescapable conclusion, given our totally acceptable general idea of how we come to have any experience of the world. But the inferences to be drawn from this innocuously agreeable theorem, I guarantee are contrary to the way most of us would naturally understand our relationship to the world around us. It was contrary to mine.

Dream On

So the central idea is that all of our awareness, thought, and experience, including all our experience of the world around us through our sensations, comes into being only because of **electrochemical activity going on entirely inside our brains**. But this means quite a lot.

For instance, this scientific fact makes possible the mad scientist's – actually, Hilary Putnam's – famous **brain-in-vat scenario**, since one implication of it is that even if the brain's connections to your sense mechanisms, even to your nerves themselves, were cut, and yet the *same activity* somehow were continued in your now-isolated brain, then *you* as a thinking being would still exist; what's more, if the same activity continued in your brains, you'd have exactly the *same experiences*, just as if you were in fact sensing the surroundings. Of course, this is the sort of unnerving possibility exploited by films such as **the Matrix**, to the effect of saying that your brain is cut off from reality, and is being fed false information about the world by some sort of evil power.

However, in fact, your brain IS holed-up and wired up in solitary isolation, stuck inside a dark vat, and suspended floating in warm, brain-nourishing liquid. **This vat is called your skull**. And you can do a very simple experiment to prove that without reference to any information coming in from your senses your brain is quite capable just on its own of sustaining your mind in a very persuasive experience of reality. Go to bed tonight. Go to sleep. And *dream*.

Dreams may be bizarre in terms of the type or the sequence of events narrated in them, but in terms of *the quality of the experience* itself, **dreams can often be unsettlingly realistic**. It's not too uncommon for a confused soul to wander through their abrupt and mottled dream-scape, fooled into thinking that the synthetic world they're experiencing is the real world, totally unaware that they're dreaming. They're

unaware that their resourceful brain is making their whole world up. **Rene Descartes** indeed claimed that there is nothing in or about dreams while I'm dreaming them that lets me know they're not reality.

In fact contrary to Monsieur Descartes, like many of you, I once had a dream during which I became aware that I was dreaming, due I think to some rare recognition of the illogical nature of the events shunting me along. This recognition shocked me into waking up and getting on with my life. However, as the events of my day continued, these also seemed inexplicably randomly connected – more so than usual, I mean. I eventually became aware that I was *still* dreaming, and that I had only *dreamt* that I had woken up. Naturally this was a shock to me; so then I woke up, from that dream.

Or did I?

The relevant point here is that despite the often incoherent flow of events, the *quality of the experience itself* in a dream can be as near to normal experience as is indiscernible to the mind. So, in terms just of *the quality of the experience itself*, we often can't tell the difference between dream and reality.

But this fact shouldn't surprise us at all, now. We know it's the same brain responsible for our dreaming experiences which also constructs, or at least enables, all our *waking* experiences too. The only significant difference between our experience of these two realms, I think, is that the external world events that are being represented our experience in waking reality impose a particular order and detail on that experience, whereas the only order imposed upon the events strung together in the flashing perceptions of the dreamland mind comes apparently from the non-rational agenda of a subconscious mind. Also, in dreams, you can sometimes take a disembodied or independent-observer-type role. But otherwise: **ALL our experience – dream, or reality – is made up inside our brains!**

And now I'd like to take us even further **down the rabbit hole.**

A Sensational Analysis

What are often called *qualia* by academic philosophers, but which I prefer to call by the everyday term *sensations*, are (unsurprisingly), those qualities of experience originally derived from the operation of the senses. Our sensations are what things look, sound, feel, taste, or smell like – such as the **whiteness of a cloud**, the taste of an apple, or the many separate notes in the smell of a wet dog, *et cetera*. In this list of sensations we must also include the sensational results of *proprioception*, which is our bodily awareness; *balance sensations*; and whatever other types of sensations you can think of that I haven't mentioned. Being a result of the brain's responses to sense mechanism input, sensation is often directly concerned with representing the external world, but it ain't necessarily so, since we all have *imaginings*. For instance, imagine white-speckled mauve flowers feeling simultaneously solid and soft and having a sweet fragrance. You're imagining sensations here too.

Now it's an important but under-acknowledged truth, that even those sensations we attribute to real objects in the physical world are purely aspects of our *experience* of those objects. Let me emphasise this by saying that all *qualities of experience* are qualities *of experience*, and not of the world *independent* of experience. This means that **all sensational qualities exist only in experiences**. Thus visual qualities such as colours exist only in the mind's eye of the beholder; and so on for sounds, smells, tastes, feels – any sensation you like: all the sensations that you, anybody or anything else has of the world or imagines, exist only in your and their minds, and not out in the physical world.

I hope it's obvious that by saying that sensations exist only in the minds having them, not out in the world, I don't mean that the *original physical stimuli for the sensations* exist only in our minds. But, for instance, the sensation of music is **not the real external physical soundwaves that bring music to your ears**. And similarly for the other causes of our sensations and their results. Thus *colours* as experienced are features only of the *experience*; but the *electromagnetic waves* that are the original stimulus of our having a particular experience of colour are features of the external world. However, the electromagnetic waves are not themselves colours or coloured – rather, via our retinas, these waves stimulate our brains to create the experience of colour for our minds.

The fact that sensations or qualia, being *qualities of experience*, exist only to the experiencers experiencing them, might be obvious to you, since it's true by definition. But this obvious fact might seem increasingly less intuitive as we unfold what it actually means. It means that grass isn't actually *green* unless someone's looking at it; that **sugar isn't sweet unless someone is tasting it**; that sandpaper isn't *rough* unless someone is feeling it; and so on for *any and all* the sensations we attribute to things. To repeat, I don't mean, say, that the *original physical stimuli* of the experiences don't independently exist – such as the electromagnetic waves of approximately 540 nm wavelength that grass reflects when it reflects the sun's rays. But I do mean that *independent of experience*, there are *only* the electromagnetic waves, and that these waves are not coloured *in themselves*, as it were, but; **as we might better say, they have the potential to induce the experience of the green colour of grass in experiencing minds under the right conditions**. So to solve an old dilemma, a tree falling in a forest doesn't make a *sound* when no-one's listening to it, because sound *per se* requires *hearing*. We should rather say that the tree creates physical vibrations that are *potentially experientiable as sound* were a listener there to hear them: **which they're not**.

But, once we say that grass isn't mind-independently green, and so on, perhaps rather than it now being *obvious* that *colours themselves* don't exist outside of experiences of colour, or that *sounds themselves* don't exist outside of experiences of sound, and so on, this may now seem to you just the sort of counterintuitive conclusion philosophers are notorious for, which demonstrate only that we have too much time on our hands and not enough common sense in our heads. However, on even the slightest thought, it does turn out to be a rational conclusion. After all, in what way could it make sense to talk about *a quality of experience* existing *without it being experienced*? **How could a colour, for example, exist without being either seen or imagined by a mind**? When people see a blue sky, they may automatically believe that the sky looks blue even when no-one's looking at it; but if no-one or nothing's *looking* at it, it doesn't *look* anything at all! How could the sky look *anything* when no-one's looking at it? Who or what would it *look blue* to? No-one!

If you doubt that the sky isn't blue in itself, ask yourself, what colour is the sky at night? The *sky itself* hasn't changed, only the conditions under which it is being seen. Or imagine a red ball. *Of course* the ball is red 'in itself', you might assume. But now dim the lights until the ball looks

black. **Is the ball now *black* in itself because you have altered the conditions you see it in?** No. The truth here will be brought into even starker relief if you were to put a transparent blue pane over your original yellow light source, making the red ball now look purple. What colour will the ball be in itself *now*? Clearly, the truth about colour is rather that the conditions under which you view something determine what it *appears* to be in your *experience*; and, moreover, that the world only has *colour* – as opposed to vibrating with light waves – insofar as it is *experienced* as having colour. In the same way all sensational qualities exist only in experiences. This may seem a surprising conclusion; but in fact it's a tautology to say that *experiences exist only in being experienced*. It's then a question of discovering what are *experiences*, and what are not.

I'm sure most people do usually believe that colour itself *does* exist outside of experiences of colour, in the physical world itself, and similarly for all, or at least most, sensations. But it is as true that *colours* only exist in minds as it is that *emotions* exist only in minds, rather than in those things or people that the emotions are about – such as the car that won't start on a cold morning. **Your impatience isn't in the car itself.**

Internal & External Worlds

I hope that by now at least a suspicion of the possibility of the following distinction will have crossed the back of your minds, or even made its way to the front. This distinction is between ***the world as it appears to us to be, and the world as it really is in itself***. The appearance of the world to us is due to the construction of our experience of the world in or for our minds by our brains, while the true reality of the world is how things are outside of and **independent of this artificially-constructed experience** – how the world is *in itself*, then.

Those who know science history well will know that **Galileo** thought that this distinction between appearance and reality is essential for doing science. So allow me to introduce his terminology. The sensational qualities – the colours, sounds, smells, tastes, and feels – we attribute to objects due to our experience are what Galileo, Locke, and other cognoscenti called the *secondary qualities* of objects, while the properties we normally take objects to have independent of any experience of them

are called the *primary qualities* of objects. **These include shape, mass, motion, and place.** However, we *only* know objects through our sensations. So even our understanding of the properties we believe objects to have independent of our perception of them are derived from our perceptions. This fact will be important as we continue.

Another line of jargon I like to use in talking of the reality-appearance distinction, is that your *internal* world is the contents of your mind – it's the world of your experiences, feelings, understandings, reasonings, and choices – and your *external* world is the world outside your mind: the material world, of physical things and energy; and technically, **other internal worlds, too.** But ignoring other minds, we can say the internal world is the space of your mind; whereas the external world is physical reality. We call the physical world the *external* world just *because* it exists beyond your mind. You know the physical world is external to your mind if only because you can't control its contents in the way you can control the flow of thoughts in your mind, so it exists in a way your thoughts don't. This idea will be important to us in a minute or two.

Now having recognised that the external world must be something other than, and so beyond, your internal world, it is therefore a further confusing but true fact that ***our experiences of the external world exist in our internal world.*** This must be true just because of what the phrases 'external world', 'experience', and 'internal world' mean, as I've defined them. The external world means the world *outside* your mind, whereas experiences exist *in* minds. So when we have an experience of the external world, what we're perceiving *directly* is the *experience*, which is in our minds and so by definition is *not* the external world itself. Rather, all of our experience of the world exists only in our minds. A 'direct experience of the external world' is actually a *logically incoherent* concept. That is to say, the idea that one can have a direct *experience* of the external world rather than represent it in experience, is not only impossible, it's meaningless. But I'll let you work through that one yourself.

There Is A Real World, Alongside An Unreal One

I think it was **Immanuel Kant** who first said that it is the scandal of philosophy that there is no such thing as a proof of the external world.

After all, you could be under an elaborate illusion as to the nature, or even the existence, of the external world, as both René Descartes and the Buddha reasoned. The question is, How do you know for sure that there is anything at all beyond your own awareness? If necessary, we can add that of course we realize that these contents of our experience often *seem to* belong to a world independent of and external to our minds. The question is how we can go beyond the *seeming*.

I think the reputation of philosophy need not be in suspense, over this question at least. Instead, to demonstrate the existence of a world external to your mind is a matter of simply understanding the meanings of the terms used to describe the problem, and some of the main implications of these meanings. As I said, I just alluded to this demonstration.

To repeat, the question is, ‘How can I know that the external world exists?’ To answer this, we must know the meaning of ‘external world’. This we now understand as that world whose activities and causes are occurring beyond or independent of your mind. Okay then: so what do we mean by ‘your mind’? Here we mean your conscious awareness and its contents. So rephrased, the question becomes, ‘**How can I know that anything exists beyond my conscious awareness and its contents?**’ I’m going to show that there must be an external world by demonstrating the literally absurd – that is, meaningless, and so incapable of being true – consequences, of supposing that there is no external world.

Suppose then that there *were* only those things that cannot be denied coherently at all – that there were only your awareness and its contents. Even if there were nothing beyond the contents of our experience, still it is puzzling that many of those contents **appear to be of something beyond ourselves**. Why we say such experience is experience of an *external* world is in fact due to our recognition that our minds can’t control our apparent-external-world experiences in the same way that we control the content of our (other) thoughts (which other thoughts we can label our ‘purely internal world experiences’). Instead, things in our experience of the external world behave in idiosyncratic ways not mentally controllable by us, and this idiosyncratic independence is precisely what makes us think these things exist external to our minds. Or put another way, if apparent-external-world experiences didn’t have this mind-independent feature, there would be no ‘apparent external world’ to have a problem of proof *about*.

So we have an idea of an external world only because so many of our experiences never cease behaving in ways beyond the control of our internal world. So let me now ask: *Is the source of the change of our experiences of the external world apparent in our minds, or not?*

What do we mean by this question? Well, the source of change in the evidently *internal* world of our imaginations and thoughts we call our conscious will, or choice. Thus, **we perceive ourselves making choices as to the direction of our own thoughts and actions.** But, do we perceive in our experience, in this or in any other way, what makes *our experiences of the external world* change? No! As I say, the lack of control by our own minds of certain experiences is the source of our distinction between our own minds and a world beyond our minds. So my experiences of the external world *cannot* be evidently subject to my conscious mind! And I would argue further that there is also nothing *else* apparent in my experience which displays itself as the source of change of the external world. I assume the same is true of you. Therefore there must be something *beyond* my internal world which is the source of change of my experience of the external world. And if it's *beyond* my internal world, then by definition it's in the external world. So the external world exists.

I recognise that argument might not be clear, so allow me to rephrase it. Whatever the source of change of our representation of the external world turns out to be, and wherever this source of change operates, the fact is **we are not consciously aware in our experience of operating this change ourselves.** But this means that there *must* be something beyond my internal world that generates those changes. In other words, the very existence of processes or sources of change *not in your contents of experience* shows that there's something beyond those experiences, that is, in a real external world. Therefore a real external world exists.

To simplify the argument even further: If the source of the systematic changes of our experiences is not fully shown in our experience, then the cause of systematic change of our experiences must exist outside our minds, that is, in the external world. But the source of change of our experiences, particularly of the external world, *does not* exist in our internal world, so the external world must exist. In this way, even the need to have an idea of a world beyond our minds demonstrates that world's existence. So much for solipsism, then.

I should add that this argument does not claim to show the veracity of our particular way of experiencing the external world, only that there *is* an external world. This distinction is important for my final points.

Formalising The Distinction

Now for those who don't already know them, the technical terms accepted in academic philosophy for the distinction between appearance and reality, are: the world as it appears to us to be is called ***the phenomenal world,, and the noumenal world is the world as it really is in itself.*** So the term *phenomenal* refers to our *representation* of the world, and the term *noumenal* refers to reality independent of the representation.

It was that opaque German philosopher **Immanuel Kant** who first made famous this way of speaking onto the happening philosophy scene of Prussia in 1781, in his largely unreadable book *The Critique Of Pure Reason*, although Kant was not the originator of this phenomenal-noumenal terminology and its distinctions. Well, the world *as we represent it in our experience of it* was perhaps christened the *phenomenal world* by **Leibniz**, but Leibniz had a problem staking out his intellectual legacies. Perhaps the first recorded use of these words, although not exactly in an equivalent way, was by **Plato**. However, it was Kant who used this terminology famously first. I also want to use the terms 'phenomenon' and 'noumenon', although I too mean something slightly different than Kant. That is to say, I don't think we have to agree with Kant's conclusions about the world as it is in itself to agree that it's useful to use his words.

Anybody here who knows anything about Kant's metaphysics will know that he thinks that our experience of the world is constructed for our minds through inbuilt faculties or manners of working of the mind, which he called *Categories*. That is, the Categories are what Kant calls the fundamental aspects of mental operation which predetermine how a mind will construct or organize all of its experience. For instance, Kant reasonably claims that our minds organize our experience of the world in accordance with the Categories of *space and time*. His Categories also include other features of our experience of the world, such as causality. Thus Kant thinks that **causality is a feature of the world of appearances**, and not a feature of the world as it is in itself.

Some of you would have heard this before. If so, I want you to forget what Kant said about the world as it is in itself. For instance, I think Kant is simply *wrong* about causality being a feature only of our mind's representation of the world. The truth is rather that our *understanding* of causality is a construct of our minds, but *causality itself* exists before the mental construct. Thus, causation is primarily interaction between real matter, whatever matter really is independent of all our perception of it. Among other things, this is also interactions between our real sense mechanisms and the real physical world, which causes real nerve impulses, which cause the brain to generate experiences. Please note then that as well as the physical activity beyond our bodies, the stimulation of our sense-mechanisms, the activation of our nerves, even the *electro-chemical activity in our brains*, all have a real, experience-independent nature, **whose nature we only represent in our experience of it!**

In brief, I would say that Kant was right about making a distinction between the world as we experience it and the world as it exists independent of our experience, but wrong about what he said about these worlds. Contrary to Kant, who said we could know nothing about the world in-itself, I want you to think in terms of the phenomenal world – that is, *the physical world as we experience it to be* – as a *model* for our minds of the workings of the real noumenal world – that is, *the physical world as it exists independent of our representation of it*.

Use Your Head

The fact is, a mere representation of the world is all you'll *ever* experience or know of the world. You won't even get *close* to experiencing the world *as it is in itself*. We only ever experience a brain-contained *representation* of it. Importantly, this means that the world as you're experiencing it right now *doesn't exist* as a mind-independent thing!

As I've said, our experience of the world is not a direct experience of the world itself. **The world as you experience it is completely made up inside your head, in your brain.** But this means that this world, as you're experiencing it right now, isn't *out here in the world* at all. Even the experience of the world around you you're having right now is not *in the world* itself. All the experience you have today. All *this*, which you

perhaps naturally suppose is a *direct experience* of what's happening in the world, is not *out there* at all. It's all *in there*. All the experiences you'll ever have, both before and after you've woken up. All your experiences are created by the activity of your brain, in your head: so this world as you're experiencing it to be is in no way *out there* – whatever that might mean. All its colours, sounds, et cetera, *are only in your minds*. The world as you experience it exists locked up in your mind, in your brain. It's a scientific fact. And indeed, it's an *astounding* fact that really should be as well-known as Einstein's or Darwin's theories.

To think otherwise is a delusion. Nevertheless, I think this conclusion is quite contrary to what we usually consider to be our relationship to the world around us. I think we normally naturally believe we're somehow simply immersed in and directly experiencing reality. I believe we usually assume that as we experience the world, in just the sort of way that we're experiencing it now, we're having a straightforward *unmediated* experience of a world whose nature and reality is simply revealed or given to us in our experience of it. That stance is called *naïve realism*. However, this supposedly 'obvious' view of our relationship to the world around us, even to our own bodies, is wrong. What we experience which we think is *clearly* the world around us, is in fact our mind's *representation* of the world, which we incoherently consider to be an unmediated-by-experience experience of the world beyond experience.

Remaining Burning Questions

This radical revelation about our separation from reality in itself means that we can no longer simply assume that we know about reality itself from experience what we thought we knew about it from experience. So the last idea I want us to briefly ponder is, To what extent can we plausibly say the nature of reality itself is given in its appearance to us?

Now it's evident that it's a major misconception to think that what exists in the mind is a simple *replication* of what hits our sense mechanisms. For instance, our visual experiences, or *percepts*, are not an easy replication of the pattern of the light falling on a retina. Indeed, the brain does not process visual information in accordance with how an image might be thought to appear either in the eye or in the mind.

Instead, everything we see is the result of retinal information being processed in **several distinct brain areas** before being recombined into a singular visual experience. Thus the central nervous system splits incoming visual information up into types and deals with each type of information differently, before it's all processed together again so that we get an integrated conscious experience of seeing images.

But in fact we don't need this complex argument. All we need to do is to acknowledge that experiences are in minds, not out in the world, and sensations do not exist apart from being experienced. The implication is that when you look at a red ball you don't see the ball as it exists independent of the human way of experiencing things, **you see a particularly human representation of the ball** in the particularly human terms of vision; for instance, as red, and as inhabiting space in a particular way that's apprehended through visual experience. The general question is, **what could we say reality is like if we took away all the specifically human ways of perceiving it** – including our perceptions of space?

In this way, the recognition of the extent of the artificiality of our representation of the world resurrects the most basic question of metaphysics. In fact, the asking of this question resulted in the birth of Western philosophy, in **Ionia, now in Turkey**, in the seventh century BC. This question has proved so difficult to even *ask* that typically only philosophers have realised there's even a question here; and it's so difficult to *answer* that it's demonstrated itself to be intellectually both Gordian-Knotlike and Grailesque. A good way of putting this question is: *What is reality really like in itself?* And one main question this question itself begets is: *What is the relationship between the world as we perceive it to be and the world as it really is beyond our perception of it?* I don't mean, Can we know that reality causes our representation of it? I obviously think the answer there is 'yes'. I mean, for instance, *In what sort of ways does the world as we represent it map onto the world as it is in itself independent of our representation of it?* And the start of the answer here is, *The way our best scientific models will say the world is connected together, will be how the world in itself really is connected together.*

Unfortunately though, I can't now give further consideration to these questions, as it appears that I've run out of time.

Thank you.