Denying Individual Efficacy: Resolving the Problems of Freedom and Identity

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Abstract

The claim of personal causal efficacy in humans and other living things is not falsifiable, but has considerable counter-evidence from studies of consciousness. Still, there are benefits to rethinking the problem entirely. By considering the problem of assigning things identity, both in philosophical terms and in light of theories of quantum mechanics, we can establish that the 'person' in personal volition does not rightly exist; if generally accepted, this view would prompt a complete overhaul in our perception of ourselves.

"Free will" is a misleading term. There is a difference between willing something, and causing something to happen. It is quite obvious that thoughts arise in conscious beings to the effect of "wanting" or "willing" for something to happen. But the more interesting problems are "Were these wants or wills created in the person who experiences them or caused by something outside them?" and "Do these wants or wills have any effect on what then happens?" These are actually two phrasings of what is essentially one question: "Does the individual him or herself have any way of intentionally causing something to happen?" I will proceed to call this the problem of personal causal efficacy, or PCE – the problem of whether one can bring something about "of one's own volition" – and it is a problem that has been discussed for millennia.

At the extremes, there are claims that conscious human volition causes everything in the universe (these are theories of strong idealism – the concept of the primacy of the mind); and there are claims that humans have no PCE at all and are in fact nothing more than elaborate organic machines that respond in ways that are completely determined by their environment (theories born of material realism – the doctrine that only matter exists). There are then positions in between these two extremes, such as believing that people are both strongly affected by determined factors and have some effect over them (what we might call a position of ambivalence); and so-called 'compatibilist' ideas, in which free will and determinism supposedly coexist.

Instead of starting with existing views, we might analyse the problem by removing living or conscious beings from the equation and considering the problem just for inanimate things. Can we attribute PCE to a rowing boat, for example? This might seem like an odd way to approach the question, but if we can establish an answer to this question then we can compare rowing boats to humans, and if there are any reasonable similarities we can claim some sort of inductive evidence. Let us then consider the example of an empty rowing boat floating on its own at sea. Does the rowing boat control where it goes? Certainly it is the movement of the water that causes the boat to move – it floats away, not because it wants to, but because of the currents of the water. We assert this with confidence, even though the will of the rowing boat is not falsifiable; we could get an army of rowing boats and set them on the water at the same time on the same body of water and observe that they all do roughly the same thing, but we cannot prove that one day a rowing boat would be placed there that soared into the sky instead of staying on the surface of the water (for example). Obviously there will be differences in the movements of each rowing boat: they can be attributed either to differences in the rowing boats' constructions, or to differences in the current of the water due to either the positions in space or time of the boats, or to the boats having different ideas about where they might like to go. The objective reason why the latter is so unlikely is that there are empirical (that is, scientific) tests that we could conduct to establish firmer statistical and physical links between water currents and objects that float in them.

Boats don't have PCE, and for similar reasons, planets don't decide how they wish to orbit their parent star, volcanoes don't erupt merely when it takes their personal fancy, light bulbs do not light when they feel like it, and it isn't too much a stretch of the imagination to realise that plants do not use PCE to decide when to respire and when to photosynthesise or when to take up water from the soil. A plant will act in response to its surroundings – such as bending itself in response to sunlight – in much the same way that a planet will 'respond' to the presence of an even larger body by being attracted to it, or a light bulb will 'respond' to the presence of an electric current by giving out light. There are particular causal stages that we can identify and even isolate between the stimulus and the response. We can, for example, isolate particular genes in the plant that cause it to exhibit a particular property, or change its conditions to note what behaviour continues to occur and what behaviour stops; we can repeat these experiments with other plants to confirm that what we are changing really is the factor that adds or removes a particular effect. Again, we could attribute these changes in behaviour to subtle and unnoticed differences in other conditions, or to the 'freedom' of the plant to do something different because it would like to, but as evidence mounts, the probability that 'volition' really has causal efficacy diminishes[1].

The difference between a rowing boat and a plant, we might say, is that a plant acts in the way that it does because it has some other function in mind – namely, survival. It turns itself to face the sun not just because there is both light and a relevant genetic precursor present, but also because all of these things help it to continue to survive. A rowing boat has no such concerns, and will happily fall down the waterfall to smash into pieces on the rocks below. However, what we are concerned with here is whether the plant itself is directing its activity. To put it rigorously – neither a reductionistic nor a holistic system requires PCE to do what it does. A planet is an example of a reductionistic system, in that we call it a planet because lots of smaller lumps of rock have stuck together to make something larger, and those smaller lumps were made from even smaller particles of dust. The whole system – the planet – has been totally determined by its parts: the smaller lumps came together because of gravity, and not because they had a shared desire to form a planet. A plant is an example of a holistic system, in that it all of it parts work for a common goal – the survival of the whole plant. The parts came together as they did in order to fulfil this function. We could not reasonably say a rowing boat is also a holistic system, because although humans put it together with a particular function in mind, it does not act according to that function: the way it acts determines the function and not the other way around. This is why reductionism and holism are summed up by the useful maxims "the parts determine the whole" and the "whole determines the parts" respectively. In both cases, notice, there is determinism.

You might argue of these examples that the sun has PCE over the plant because it causes it to turn to face it, or that the water has PCE over the rowing boat because it causes it to move with its currents. However, it is not the sun that causes the photo-tropic behaviour of the plant, it is the light from the sun, and this light is caused by the nuclear reactions that occur in the star as a result of the chain of events that caused the star to begin fusing hydrogen in the first place – a chain of events that ultimately must be traced back to the big bang, and even before that. The water moves for a variety of reasons – notably the actions of the wind, the moon and the sun. If we can attribute the movement of the water and the shining of the sun entirely to prior causes, then the probability that the water and the sun have their own kind of freedom tends to zero, and hence we cannot grant them the label of PCE.

We are now charged with the task of comparing a rowing boat (or for that matter, water and stars) to living creatures – and we may as well cut to the chase by considering the human. A human, like a plant, will act for its survival. However, it will also act in other ways that don't have anything to do with surviving, such as reading a book or writing an essay, and it may occasionally act in ways

1 Most of science is not actually about 'proving' something, so much as providing enough evidence that the alternative explanations are vanishingly improbable.

detrimental to its survival, such as smoking tobacco, taking drugs or throwing itself in front of an oncoming vehicle. This is where we have to consider a third type of system – one that is both reductionistic and holistic, such as by being a composite of some reductionistic systems and some holistic ones. A man-made product is probably a good example: disparate functions in a computer program will always work together to produce a desired output, but they will also only act in ways permitted and in fact determined by the physical circuitry of the machine. In some sense, everything falls into this category. A plant does not always act for its survival, as evidenced by the fact that it dies. So we might say that there is a spectrum of systems ranging from reductionistic to holistic.

As we have already said, both reductionistic and holistic systems are causally determined and do not have PCE, which means that if we are to suggest that humans have PCE, they must exist outside this spectrum. It is clear that to some extent they are part of the spectrum: it is hard to deny that someone withdraws their hand from a hot object because there is a neurally-induced reflex action, as hard as it is to deny that all the organs of the body work simultaneously to remove any harmful material and maintain the survival of the whole organism. We cannot claim that the sun was not a causal factor when we see a human remove an outer garment while strolling through an un-shaded area. What we can claim is that the human had the choice, or freedom – that is, the PCE – to keep the garment on, despite the sun. This is analogous to claiming that a planet is influenced by the gravitational attraction of a star but retains the freedom not to orbit it if it wishes not to. We might similarly claim that although a plant would be well-advised to turn so as to collect light from the sun, it retains the freedom to stay as it is. If we saw such a plant, then we might look to attribute its timidness, or perhaps obstinacy, to some other factor, such as a genetic disadvantage or the fact that it has been tied to an upright stick. We would not suggest that it chose its behaviour itself.

Humans are in fact very particular about the things to which they do and don't ascribe PCE. Plants, bacteria, fungi and all inanimate matter are never granted PCE. The existence of PCE in non-human animals is often the subject of debate. Are predators compelled to kill their prey for eating or do they weigh up the situation and make a personal decision beforehand? It seems that most of the time, only other humans are exalted to the status of "having PCE". We must address two issues: what does it mean to have PCE, and why would humans only attribute it to themselves?

Personal causal efficacy, properly defined, is a denial of prior causes. If X has PCE and performs action A, then the ultimate causal reason for A's occurrence is X. There may have been other factors that influenced the occurrence of A, or that needed to happen for it to be possible at all, but X had the final say; it had the ability to produce A or not to produce A in spite of the influencing factors; it had the deciding vote. In this sense, X can deny all previous causes and produce A entirely 'by itself'. Quite often, we allude to a process by which X considers the influencing factors – the surrounding conditions – and then 'decides' on a course of action, which it proceeds to put into effect, by virtue of having of PCE. If X is human, and called Jim, and if A is knocking a book off a table, then we must remember that X definitely had causal efficacy over A ("the book fell off the table because Jim pushed it off") but whether or not he had *personal* causal efficacy is in question ("Jim decided to push the book off the table, and that's why it fell off"). The first example is equivalent to "the plant moved because the sun moved"; the second is equivalent to "the plant decided to move and that's why it's currently in that position". The second example does not mention the sun, but likewise the first example does not mention the causes of the sun moving; however the implication with "Jim decided" is that nothing had causal efficacy over his decision; the whole point of his deciding was that he had some sort of 'freedom' from prior causes to do one thing out of a number of possible things.

Of course the reason why humans think that only they are blessed with this 'freedom' – this divine 'will' to go one way or the other with nothing to compel them either way – is consciousness. We think to ourselves "I shall knock that book off the table", and a few moments later we observe that our hand is colliding with said book with the result that it exceeds its supporting threshold. We do not 'feel'

anything compelling us to think this, and we do not 'feel' anything compelling us to push the book, not in the same way that the book would feel our hand if it had the relevant neural systems. Thus we consider that our own personal volition caused the behaviour, because we didn't *feel* anything causing it.

Psychological studies dispute this on two levels – on a behaviouristic level, that you were positively reinforced by a book dropping on the floor in the past and so given the opportunity to do it again, you do so; and also at the neurobiological level, that your brain, with all of the necessary genetic conditions in place, was disposed to push the book, and so produced a conscious experience both of the intent to push and the act itself. Evidence for behaviourism is mostly from experiments with non-human animals, so we won't analyse it here, but experiments have been conducted with humans that demonstrate an unusual feature of our experience: that we do not act after we have thought about acting, but rather the brain sends out a signal for our body to act, and then consciously thinks about performing the action while it's waiting for the signal to arrive – and in some cases, the brain actually manages to send a conscious experience back in time.

In the 'precognitive carousel' experiment, subjects have a slide projector and are told to press a button when they wish to advance the slide. Curiously, however, they report that the slide advances just as they were 'about to decide' to press the button. The reason is that they have an electrode inserted in their brain, which detects increased electrical activity and controls the advancing of the slides. The button is a dummy. Numerous other experiments that detect the brain's electrical signals confirm that these signals precede a subject's conscious decision to do something, by about 0.8 of a second (Pickover, 1998). Yet more surprisingly, we do not consciously experience things in the order they occur: the brain needs a small but finite time to process sensory stimuli, yet we perceive them immediately. Somehow, the brain can send conscious experiences back in time. (Dennet & Kinsbourne, 1992).

Of course, if conscious thought is triggered after the neurobiological precursors to performing an action, then that thought cannot be part of the cause of the action: it may well be the case that behaviour causes conscious decisions, rather than conscious decisions causing behaviour as we are used to believing. Then why do we need consciousness at all? Studies do show that people respond to things that they don't perceive consciously, but they also demonstrate that these responses are slower than conscious perception (Marcel, 1980), and they necessarily occur without 'visualising' or in any way 'experiencing' things, which has its disadvantages. An interesting idea for the purpose of conscious experience is that it creates the idea of the passage of time and hence also forms the basis of how we remember things (Chown, 2004; Hartle, 2004) – but whatever consciousness is good for, it doesn't include making decisions!

The picture emerging from this is that we have environmental and genetic factors that collaborate to stimulate neurobiological processes that set in motion the causes of carrying out the best course of action, and then create a stream of conscious thought to match the behaviour in order to establish it in our memory and construct a useful illusion of the flow of time. Is this enough to deny personal causal efficacy? If not, then the problem of identity certainly is.

The Problem of Identity

The 'identity problem' is probably best summarised by the classic "when does a heap stop being a heap?" Imagine, for example, a heap of one thousand strawberries. If you remove one strawberry, it's still a heap. Remove two strawberries and it is still a heap. But at what point is it no longer a heap and perhaps just a pile? Two strawberries certainly don't make a heap; neither do ten, really.

A more advanced philosophical problem in this regard is that of Theseus' ship. Theseus (of Minotaur

fame) was a king of Athens in Greek mythology. The ship that he used to return to Athens after his ordeal was supposedly re-used by the Athenians and was well-known as the "ship of Theseus". However, philosophical ambiguity ensued when it transpired that every time one of the ship's wooden planks rotted, it was replaced with one of identical size and shape, and put in with fresh nails. After many years, it was doubtful whether any of the planks in Theseus' original ship survived, and hence whether or not it could still reasonably be called the ship of Theseus.

Some claim that it was indeed the same ship, believing that if the parts are recreated using the same craftsmanship and put together in the same arrangement, then the ship retains its identity. However, suppose that as each old plank is discarded, a scavenger collects it up and begins to put a ship together using these parts. Isn't his ship more likely to be the ship of Theseus? If the new ship is also Theseus's, then there are now two of them! If we take the opposite view, that the new ship is not the ship of Theseus, then we have to ask ourselves, and what point did it change? Was it after the first plank was removed (what if Theseus himself changed a plank)? Was it after all the planks had been replaced? Or was it as soon as Theseus left the ship?

When we say that someone "has the same bag" as us, or the "same shoes", we don't mean that the particles in both items are one and the same, and we certainly don't mean that there is some ethereal soul that permanently links together all products made in the same production line. It would, of course, be a hassle (but a pedant's delight) to have to say “you've got shoes that came from the same production line as mine!” But what if the production line broke down after your pair of shoes was made, and all of it had to be replaced? Is it still the same production line? What if the company had to relocate? What if the product had been discontinued for a certain length of time, then made a comeback after the company had been taken over by another and had all of its factories outsourced? Then it would be necessary for us to say, “the pattern of atoms in your pair of shoes is approximately identical to the pattern of atoms in mine!” (You might think it would be easier just to say “Our shoes look the same”, but that is a different matter – if one person's shoes were caked in mud, for example, they would not look the same, but if they're the same model we might still consider them to be the 'same' shoes).

Clearly the arrangement of the constituent parts of an item features prominently in our use of the concept of identity. If we could somehow replace each individual atom or molecule of our shoes with new ones (so that we don't have to bother with cleaning or repairing them, of course), then we have a Theseus' ship problem. If however we dispense with the gradual replacement and just buy a new pair of shoes of identical (or approximately identical) construction, then it is much easier to see why it's not helpful to consider them the 'same shoes' (because you'll have an old pair of shoes as well).

So what conclusion can we draw? What constitutes 'identity'? How can we rigorously pinpoint when two things are the same? The point is, we can't. We can discuss two reasons for this: the concept of change, and the concept of matter itself.

Firstly, let us imagine a flip-book representation of the Theseus' ship puzzle. Imagine a drawing of the ship on the first page. We'll simplify the whole idea by using colour-coding: a plank of wood in the original ship will be brown, a decaying plank will be black, and a replaced plank will be orange. On the first page we have an all-brown ship. On the next page, one of the planks has turned black, and on the page afterwards this plank has turned orange. If we flip through the whole book, we will see the ship gradually change from brown to orange after a sporadic development of black patches. In this flip-book, every page has a different drawing: this matches the real world in the sense that even if you can't see a change occurring, subtle changes to the ship are happening all the time (if nothing else, the particles in solids constantly vibrate). Since every page is different, we might reasonably conclude that none of the ships constitute Theseus' ship except the first. But of course, the beginning of our flip-book is at an arbitrary point in time: we could extend it backwards to show the original

construction of his ship and Theseus' eventual use of it. All of these pages would be different too. Here we begin to suspect that Theseus' ship never exists!

Notice the usefulness of this analogy. The thickness of the flip-book represents the time dimension. The width and length of each page represents space. However, we could easily change our perspective so that the width of a page represents time and a cross-section along the width represents space. Or we could say that each page constitutes a different part of space and that no time is represented: in this perspective, we have a sequence of different-looking ships, which we might intuit as a shipyard housing various ships; unquestioningly, the ships are not the same. In other words, swapping time and space makes no difference. This is what happens with the scavenger whom we met above – he moves an earlier version of the ship into contemporaneous existence with the current version.

Dematerialising Matter

Now we consider the concept of matter itself. The things familiar to our experience such as tables, plants and people are composed of chemical compounds. These are made of just three types of thing: quarks, electrons and gluons – all of which are called particles. Gluons pop into existence out of a 'quantum vacuum' in order to hold together quarks in groups of three called baryons. The baryons are held together by the exchange of spontaneously created particles called pions. A group of baryons surrounded by a cloud of electrons is called an atom. You can get different types of atom simply by changing the number and type of baryons it contains; these types of atoms are known as elements. The way that the electron clouds of neighbouring elements interact gives rise to chemical bonding: at a fundamental level these interactions occur by the means of an electromagnetic force.

The fundamental particles themselves – the electrons, quarks and so on – are classically considered to be zero-dimensional points and hence indivisible. Yet they possess a number of mathematical properties such as electric charge, angular momentum (or 'spin') and most curiously, mass[2].

But particles have an even stranger facet, which is expressed in the concept of wave-particle duality. All particles exhibit behaviour reminiscent of waves, and so they are often described as such. Particles are variably described using a particle model or a wave model: both models are mathematically constructed and do not literally refer to 'very tiny golf balls' (as is the classical depiction of a particle) nor 'vibrations of a medium' (like most waves are). There is no consensus on what particles actually are, and there is a considerable school of thought that scientific endeavour should deliberately avoid the issue because it isn't relevant and hasn't hindered our development so far.

99.95% of the total mass of the atom is held by the baryons in its centre, or nucleus. A hydrogen atom has a diameter of roughly one ten thousand millionth of a metre; its nucleus has a diameter of roughly one thousand million millionth of a metre. In other words, 99.95% of the mass of an atom is concentrated into 0.001% of its size. Most of the atom is therefore 'empty'. Combine this with the fact that the true nature of the small amount of stuff that's there is actually unknown, and we have a material world that looks surprisingly non-material.

The term 'wave' in the wave model is misleadingly used because the particles do not literally turn into waves, neither do they behave anything like water waves or sound waves (and even a light wave is slightly different). The waves that are meant here are in fact 'wave functions' – probability distributions showing how likely it is that the particle will be in a particular state following an observation. Prior to an observation the particle's behaviour is determined by taking a composite of all

2 The ability for a point-particle that has neither constituent parts nor spatial extent to have a mass has prompted physicists to propose the existence of a universal substrate called the Higgs field – roughly analogous to an even spread of treacle across the cosmos that causes things to slow down when they try to accelerate in it (hence inertia, the intuitive concept that a heavier thing is more difficult to move).

the different possibilities, but it cannot be said to be in any one state more than any other. If two electrons, 1 and 2, exist in states A and B respectively, and then a minute later we find two electrons in states X and Y, then provided there has been no intervening measurement, it is impossible to say that electron 1 changed either from state A to state X or from state A to state Y (Mohrhoff, 2007). It is impossible to do this not because we don't have enough data, but because the particles did not literally exist in any definite states in the intervening time, and the different probabilistic rules that apply in the cases of having and not having the data allow us to confirm this strange result empirically.

The result relies on the fact that all electrons are identical – and in fact, all particles of the same 'species' are identical – except for the wave-function that determines the probability of finding them in particular states (such as their position, momentum and energy), which is what changes (Greene, 2004). Greene asks a difficult question: if a set of particles in a distant place were to have their quantum states manipulated so that they matched the states of all the particles making up your body, simultaneously destroying the states of your own constituent particles[3], would that set of particles now be you? Would you have literally been teleported or would it only create some lifeless clone? If indeed it is 'you' after the teleportation then this suggests that identity is vested in the sum total of the quantum states of a thing's constituent particles, but these states are always changing, so presumably if the teleportation had a few errors it still wouldn't matter – but after how many errors would it start to matter?

The state of atoms is indeed constantly changing. Gluons and pions (as types of force particle called 'bosons') are constantly being brought in and out of existence. Quarks are categorised into three types called 'colours' as well as six other classes called 'flavours'; these have nothing to do with colour or taste respectively. The exchange of gluons causes quarks to change colour. The exchange of pions causes quarks to change flavour. The effect of changing a quark's flavour is to change the type of the baryons: two types of baryon exist in the atomic nucleus, called protons and neutrons. When a quark's flavour changes, a proton turns into a neutron or vice-versa (but the number of protons and neutrons remains constant throughout). Another type of boson, called a weak gauge boson, causes protons to turn into neutrons (or vice-versa) without conserving the number each type of baryon, and this necessarily changes the element into another one: this is called radioactive decay – a process from which no atom is immune and which could occur at any time. In addition, many chemical bonds habitually break and then re-establish themselves, and in metals, the clouds of electrons spread out across the whole substance so that each atom loses any special claim to particular electrons. As already noted, even solid matter continually vibrates and it is not thermodynamically possible to stop it; in addition, even supposedly empty space will spontaneously produce things.

There are a few more observations I will make in case your conception of the universe has not yet been drastically overhauled:

- So-called 'entanglement' allows the quantum states of particles to become connected across arbitrary distances: as soon as the state of one particle is change, the other instantly changes as well (usually in order to be in the opposite state of its partner). To what extent is a particle's quantum partner still a 'different' particle?
- In order to explain a phenomenon called 'radiation resistance', the Wheeler-Feynman absorber theory posits that every time a particle of a particular species is moved, it instantaneously sends to, and receives a response from, an adjacent particle, which does the same thing, with the process repeating across every particle in the universe, until they all know about the original movement. (Gribbin, 1998).
- Interpretations of quantum mechanics have to take these things into account. The transactional interpretation takes up the Wheeler-Feynman idea and explains all quantum interactions in terms of instantaneous messages between groups of particles. The sum over histories interpretation of Feynman requires that particles in some sense take every possible path

3 This is what happens during 'quantum teleportation' – a process successfully carried out for individual particles.

available to them, all of which contribute to the final outcome. Ulrich Mohrhoff (2007) claims that quantum effects are best understood by dispensing with the idea of separate particles and considering a single entity with multiple simultaneous states. This effect is already observable in the case of the Bose-Einstein condensate: a group of particles that behaves like a single particle[4]. And lastly, the spirit of this idea has been suggested in the form of the 'wave function of the universe' – a way of treating the whole cosmos like a single particle.

These instantaneous connections between distant particles make it difficult to establish that one particle is really separate from the totality of particles, and hence to pinpoint its identity. We have additional proven that the ultimate constituents of familiar items (and unfamiliar ones too) are never staying still: to return to our analogy, every page of the flip-book of time is different from the last and from the next. The concept of 'identity' is a convenience, or a convenient illusion. When you look at matter as close as its fundamental constituents, you find that the same parts are common to all things. A calculator and a tambourine are not distinct items because they contain completely different things – they are simply the manifestations of the way in which the sum total of particles in the universe happens to be arranged at the time of your observation. Eventually this arrangement will be so different that the vision of a calculator and a tambourine will no longer be present. The way that humans perceive things makes it convenient to invent the notion of things having identities; in fact, they have none.

Human Identity

To what extent does this apply to humans? Surprisingly, it applies more strongly than it does for calculators and tambourines. In order to stay healthy, the cells of the body have to copy themselves (mitosis) and eventually 'die' (apoptosis). 'Dead' cells are discarded (we see them as dust) and new ones are formed from material we call nourishment. This process happens remarkably quickly: we get a new stomach lining every five days, a new skin every month and a new head of hair perhaps every three years – but it is a continual replacement; in other words, a very fast version of Theseus' ship. 98% of the body has been replaced after a year; but because of the longevity of heart and brain cells, a person will only have a completely different composition roughly every decade. Even the genetic information contained in every cell is subject to mutation.

By taking in food, drinking water and breathing in oxygen, we re-construct ourselves several times throughout our lives and leave behind the debris in the air and in sewers. Every time a cell copies itself, it has to duplicate the genetic information; but after so many replacements this process is prone to errors, and this is thought to be the ultimate reason why we have to die. It is not too hard to see that the development of a human from conception through to birth – from the nourishment, water and oxygen that the mother takes in – is not much different from the way we regenerate ourselves through life. Likewise, the way that the body decays after death is not much different from the way that our waste materials go into the environment when we are alive. As we have seen, every moment in time is different from every other, and so none of these points in time should have any special claim to the 'start' or 'finish' of 'identity'.

The development of a human up to birth is a causal chain of events, but it did not begin at conception. There was a causal chain of events prior to this, involving the lives of the mother and father and how they came together, but this chain of events began with the births of the mother and father, which were also the result of similar causal sequences. Eventually in the chain of events we reach the development of the human species itself, and if we go even further back we must consider the evolution of the earth and how that gave rise to species development. The earth did not pop out of nowhere either: it developed from a sequence of events that brought it together from the debris left

4 The particles in this case are 'bosons', one of two basic classes of particle; the other class, the fermions, are forbidden from occupying the same quantum state.

over from an exploded star, and so on. When we get back to the big bang, there is a tendency to think that we can't go any further, but there is no scientific implication that this is the case: there are in fact a number of theories about what may have caused the big bang, but they are understandably rather difficult to test, as all explosions that happened 13.7 thousand million years ago are. It is quite likely that the growth of our universe was caused by the collapse of a universe that existed before, and this universe had a predecessor as well. The development of any given human, then, is quite likely to be the result of a beginning-less series of causal events, and is itself one event that forms part of the sequence that continues causally into the endless future.

Since we can neither assign anything a rigorous 'identity' in time nor in space, the question of "when does life begin?" or any similar questions ("when does death begin?", "when did the universe begin?", "when did I become a fishmonger?") are not answerable – things do not begin, because they do not have any existence separate from the endless causal sequence of ever-changing events[5].

The Elimination of the Individual

It seems as though the original focus – freedom – has been lost, but in fact, we now have the result that we need to make a profound statement about personal causal efficacy: it cannot exist, because the 'person' in 'personal' cannot exist (there are also reasons why causal efficacy may not exist, having to do with quantum mechanics, but that would be another diversion). If there is no individual to exert its will on the world, then we certainly can't assign it the 'magical' property of PCE. This is a fairly unusual way of resolving the debates and paradoxes inherent in discussions of freedom: by denying that there is a distinct person, we can no longer attribute any event or sequence of events to that person.

But this is a fairly radical view is it not? What does it really mean? Firstly, it is not as radical as the suggestion that 'nothing exists'. Rest assured, people exist. What does not exist is the individual person – the 'I' , or ego, as distinct from the rest. The name on one's passport or ID card refers to an entity that has existed from a particular time called one's birth day and that continues to exist now – this is the entity that does not exist – that is, this way of identifying with the person is illusory. Although there is a body that exists, it does not (cannot) retain any identity from one moment to the next.

It is only useful to give things names for the sake of convenience. We call a table a table not because it is one but because it is useful to have a way of referring to the item in our experience – whatever it actually is.

But does this preclude the existence of something that makes humans different? Does it preclude the existence of a personal soul or inner spirit? I will not say that it does, but such concepts are not helpful; they arise out of a desire to make humans 'special' – a desire for an egotistical self-importance – a way to avoid the conclusion that we do not each have any claim to being a 'me'. In a sense, if there is no identifiable ego or 'distinct person', souls cannot possibly inhabit only that distinct person or 'know' when they should arrive there; and how do we establish the identity or identifiability of the distinct soul? We have the same problem. The observable or plausible mechanisms by which such a thing would come into and/or go out of existence at the right moments or how it would interact with the rest of the universe are thin on the ground. The personal soul is an extension of the ego – a way of answering the question “who are you?” without reference to anything else, including the past causes that actually made you. The eternal, *personal* soul is not falsifiable, and neither is it justifiable.

The behaviourist psychologist B. F. Skinner gave the name 'autonomous man' to the entity that we are eliminating here. This is a useful name because it emphasises that we are stripping mankind of its

5 This has the curious consequence that the answers to the questions "who am I?" and "who are you?" are the same.

autonomy. Skinner (1971) devoted much explanation into how there is no sense in believing in the 'freedom' of an 'inner man' that can make decisions and instead proposed that behaviour was entirely attributable to the environment – in other words, to prior causes, as we have already established.

The absence of PCE is not an academic technicality, nor something we need to ignore because we somehow 'rely' on the notion of identity. The concepts of identity, and of free will, are indeed integral to our current society – but far more than is necessary. It might seem as though believing that PCE does not exist leaves us to be helplessly washed along in a series of meaningless events we can do nothing about; the reality is quite the contrary. Lacking *personal* causal efficacy does not mean lacking all causal efficacy – it means that the 'ego' lacks its power and domination. By discovering where causal efficacy really comes from, instead of assuming we exercise it ourselves, we can truly instigate change. As for quantum particles, it no longer makes sense to see ourselves as separate 'selves': to eliminate the individual is in fact to enchant the community.

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