Minds, Souls, and Free Will

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Claims about the existence of the mind or the soul often imply some kind of duality. But what is supposed to be the nature of this duality? Surely there will be many answers, hence many things to criticise if one wanted to. But let us suppose for a moment that it is a division into physical and non-physical things. Then there are already problems. For why should we condemn the mind or soul to be non-physical? Do we have a hidden agenda? And what could it mean for them to be non-physical?

Regarding the first, one possibility is clear. We would be pleased if the mind, or at least the soul, were able to survive death, which is a physical end to us. But it could be that the non-physical 'we' only exists, insofar as it does exist, when it has a suitable physical support. One could indeed conceive of a 'self' as being non-physical, in the sense of being just something we conceive of intellectually, but it looks as though that would die with our brain. On the other hand, could it be that the right kind of *physical* thing, if such there be, could go on existing after death? Why should there not be such a thing? One answer is just that there is no evidence for it.

Regarding the second question, it is not clear at all how the mind or soul could get away with not being a physical thing. After all, we would like them to interact with the physical world and that strongly suggests that there must be something physical about them, or rather that it would be better to understand them as physical. That raises the question of how we are to understand the conceptual 'self' as interacting with the physical world?

All this discussion is indeed about how we might understand the world, and in particular ourselves and the way we participate in it. Concerning the latter, the scientific method is at last turning its attention to that in a serious way through neuroscience and cognitive psychology, making conjectures, then attempting to falsify them through observation, experiment, and reasoning, keeping only those hypotheses that have not yet been refuted. This will provide new matter for philosophy.

The *Fontana Dictionary of Modern Thought* says that the term 'philosophy' covers "a wide variety of intellectual undertakings all of which combine a high degree of generality with more or less exclusive reliance on reasoning rather than observation and experience to justify their claims". But reasoning itself at least correlates with a physical thing going on in the brain and this may spell the end for philosophy in the above sense, just as it may spell the end for the mind

as a separate non-physical entity with an ability to act on the physical world in a way that is somehow not simply caused physically by what was going on in that world.

In a short formula for philosophy, also provided by the *Fontana Dictionary of Modern Thought*, philosophy is thought about thought. However, it is beginning to look as though the most fruitful way to do this, i.e., think about thought, may just be to think about the way thought evolved, and this is a very experience-based thing indeed.

I put these ideas forward merely as a recommendation. After all, there must be things that we will never understand. There must surely be something we might call 'our way of understanding the world', beyond which we cannot go. And we could even hazard a guess as to why that might be, with the help of the Darwinian algorithm. For 'we', the physical 'we' incarnated by our species and all its ancestors, have evolved with our environment and all the other species that have populated it, and we have evolved to cope, in principle, only with those aspects of this situation that affect our ability to reproduce. That in itself does nothing to guarantee that we shall discover a 'theory of everything'.

There is every reason to expect that we shall not. And outside of our realm of comprehension, however we might one day extend it, there will be a kind of ultimate mystery that may comfort some. We should say humbly to ourselves that this is the best we can do. So let us know our place, and staying within that realm, see just how far we can go. The theory of evolution which I often promote is merely an algorithm that gets enacted when conditions are right. How the conditions got right is another matter and leaves plenty of leeway. And there is another point: all our explanations are only *our* explanations, suited to the functioning of our brains. But in the meantime, why not apply this method known as science, which has generated so much reliable knowledge, and see where it can take us?

Science always proceeds at some point by considering the evidence, the physical evidence in the real world we know and love. There is a reason for this: it is concerned only with things that everyone can check for themselves, and eventually agree upon unanimously whatever their cultural background. So what about the soul? The most obvious example of a phenomenon which strongly suggests that there is no non-physical soul or mind, existing independently of our bodies, is that the evidence for these things, if ever there was any, appears to evaporate upon the death of the individual. Naturally, there are those who claim to communicate with souls of the dead, but the evidence there is very shaky indeed. It seems that this kind of evidence can only ever be verified by the 'chosen' few.

There are many discussions of the so-called near-death experiences that are so popular these days, in part because doctors can today bring people back from such states. In the typical case, these people report that they appear to rise up above their body and see their friends and relatives huddled round the hospital bed. But neurologists who have spent their lives working with real patients will point out that the brain is well known to go into hallucinations when under great physiological stress. That makes this 'evidence' very unreliable indeed.

In any case, the picture of the non-physical soul floating out of the body has something absurd about it: if it is non-physical, then presumably it is not, or does not need to be, localised in space. But could there be an immortal *physical* soul? Could it be 'made' of something other than matter and energy? How then does it interact with matter and energy in the body? A whole new physics is needed here, and that's an expensive hypothesis.

There are cheaper ways to explanation here, but they are confronted with a problem. This is the fact that, up until recently, we have only had 'the way things seem to us' to go on when it comes to understanding our own consciousness. The trouble is that things are not always the way they seem. But recently, we have been able to correlate 'the way things seem to us' with physical measurements of 'the way things are' (physically) in the brain while they are seeming that way to us. The fact that there are correlations, and that we are gradually building up an understanding, is really what spells the end to dualism, at least from the ontological point of view, i.e., it is gradually becoming unnecessary, and Ockham's razor waits in the wings.

So one problem today is to do the science, i.e., apply the scientific method of conjecture and refutation, with careful observation and measurement of the brain, in order to understand those correlations by gradually improving our conjectures. The other problem is to understand why things seem the way they do to us.

We might begin with the following simple factual observation: we have no sensory nerves in our brain. Not only do we not need them, because we have evolved a solid box around our brain to protect it from assailing physical objects, but we could not have them, because there would then be an infinite regress of information processing within the brain, sensing the sensors sensing, and so on. But this lack of any impression that things are happening physically within the brain must surely leave us with another impression, viz., that what is happening is non-physical. And we know *something* is happening, because we think!

Death is an extreme case of the demise of the mind and soul, but there are still more convincing ones: brain damage, caused by either accident or disease. Observation of a relative with dementia should be sufficient to convince anyone that the soul is very heavily dependent on the brain. A humble hypothesis would be that we *are* the present state of our brain. This is an economical starting point which avoids expensive hypotheses, even though there may be a very long way to go to flesh it out.

It is probably not politically correct today to 'get rid of' the mind in this way, i.e., relegate it to the seeming, conceptual part of 'what there is'. Who knows, even neuroscientists who draw the obvious conclusion described above may be few and far between. The fact is that we don't want to die. But actually, death may be less frightening, or even not frightening at all, if we consider that we simply cease to exist, that is, if we return to the state we were in before birth. Those who convince themselves that there are gods may be afraid of death because that is when they pay for all their misdeeds. Non-believers need only be afraid of the run-up to death.

Concerning belief and faith, it seems that 'true knowledge' can be obtained

by the following argument: I am convinced of it so it must be true, while science would presumably proceed by the following approach: I am convinced of it, perhaps, but I can't leave it at that. I have to put it to the test. Science does not need to attain truth, only keep moving toward it, in a humble sense of getting more reliable descriptions of what goes on around us, by improving conjectures or replacing them with ones that hold out for longer. It also holds that we cannot attain truth just by believing something. To some, this is so obvious that it's hardly worth saying. But perhaps those with faith feel that the truth has simply been inserted into them by the divine, and that seems obvious to them. We cannot argue against that. Those people should be left in peace, provided they agree to reciprocate.

Another thing that it is even less politically correct to do away with is free will. The reason is partly to do with the fact that it concerns morality, the way we behave in our society. For without free will, how could we be responsible for our acts, and in particular the ones that harm others? That is certainly a very important question that I shall not comment on. But the fact that there might be a problem here should in no way influence our examination of the issue itself. It is not because we really want something, or need something, that it must necessarily be there for us, and there is still hope for a good judicial system to keep things in order.

The question of free will has been closely tied in with an issue in physics, viz., whether the world is deterministic or indeterministic on the physical level, and this since the discovery of quantum theory which seems only to deliver probabilities that things will happen. Most physicists would say that the world is intrinsically indeterministic, whatever that means, but it should be noted at the outset that there exists a fully deterministic microphysical theory known as Bohmian theory which makes exactly the same physical predictions as quantum theory, and even though those predictions are still only probabilities, they are not the result of any *intrinsic* indeterminism, merely a consequence of the fact that our macro-statements about the world always allow a whole range of micro-realities that would correspond to them.

One can easily see the problem in a deterministic world. It is simply that everything is predetermined by things that happened earlier. Worse, everything that ever happens was already 'written' at any earlier time. We only (sic) need to know the state of the universe everywhere at some given time and we can already predict what we shall get for Christmas next year. At first glance, this would appear to throw serious doubt on the free will of those who present us with gifts.

But even if our physical world were intrinsically indeterministic in some sense, that would not save our impression of having a free will. The point is that our free will only gains the possibility of escaping determinism by some completely unpredictable probabilistic process, hardly the way we would like to feel that we make our choices! Of course, what appeals to the religious feelings of the esoterically minded, and even the feelings of some esoterically minded physicists, is the idea that the free will of the individual might be able to manipulate whatever is left undetermined in non-deterministic quantum

outcomes. But there is no hope for this idea, because if we can manipulate it, it becomes deterministic, determined by our manipulation, at least insofar as we can manipulate it, and the idea is only interesting insofar as we can manipulate it. We also need to ask what we understand by 'intrinsically indeterministic'. If it is defined negatively, that is, if it just defined to mean 'not deterministic', we need to ask whether we can understand anything by that.

A notable scientist who goes all out to prove that determinism is a thing of the past is Gisin, who has shown, almost, that there can be no covariant extension of a deterministic theory like Bohmian mechanics, i.e., no extension that would be at least in the spirit of relativity theory. (There is a way out, but it is not quite in that spirit!) In his elegant and insightful book *Quantum Chance*, Springer (2014), Gisin argues forcibly in favour of an intrinsic form of chance, but his motivation deep down seems to be to save what he calls free will, and his argument for this is the same, if I understand, as Zeilinger's:[1]

> [W]e always implicitly assume the freedom of the experimentalist. This fundamental assumption is essential to doing science. If this were not true, then, I suggest, it would make no sense at all to ask nature questions in an experiment, since then nature could determine what our questions are, and that could guide our questions such that we arrive at a false picture of nature.

I find this a surprising argument. It makes nature sound very devious. Indeed it raises the pressing question: why should nature so deceive us? Nature seems unlikely to care particularly about human beings. But even if that were the case, that nature were systematically trying to deceive us, wouldn't that vast deception actually be what we know as nature? If so, such deception wouldn't matter because it would be all that would ever happen to us, all that we should ever want to know or predict. The problem would only come if nature decided in its wisdom to stop deceiving us from time to time and in a completely unpredictable way. Personally, I view this kind of argument as a relic of the god picture.

Elsewhere in *Quantum Chance*, Gisin says it doesn't matter what any philosopher says, he *knows* he has free will. Fortunately, he doesn't use this form of proof elsewhere in the book! But one gets the point. We do harbour a strong feeling that we have free will. 'We', the non-physical 'we' that we take to be our *self*, is an active causal agent in the life of that self, at least in the picture we each make of that self. But we can begin to understand this. We can assume that that is how we have *evolved* to make sense of the complex process that 'follows us around', and other similar complex processes we take to be other selves (unless perhaps we suffer from autism).

This is the way things seem to us. So why not say that this is the all-important, even essential, *illusion* of free will, whether the world be deterministic or indeterministic. The word 'illusion' may look derogatory, but if it is useful, and it clearly is, because we make use of it all the time, then where

[1] A. Zeilinger: *Dance of the Photons*, Farrar, Straus and Giroux, New York (2010) p. 266.

would be the problem? An illusion is not nothing. Our whole visual perception of the world could be viewed as an illusion, but would we worry about that?

The issue of free will has been brought into a specific situation in physics, one which Gisin and Zeilinger are intimately concerned with, namely, experiments to demonstrate the revolutionary phenomenon of nonlocality associated with entangled quantum states. The point is that, by doing something in one place, we seem to cause something else to happen at another simultaneously, something that is anathema at least to the spirit of relativity theory. Logically speaking, though, there is a loophole: whatever caused us to do what we did in the first place may, if it was sufficiently long ago, have caused the other thing to happen, without any need for simultaneous causation.

This is the superdeterminism loophole. The argument involves *ourselves* as a causal agent, hence the usefulness of free will here, if we could have it. For the idea is that, somehow, our choices are not caused, or not fully caused, at least, not by anything in the physical world. Then the superdeterminism loophole evaporates.

However, one does not require such a radical solution. Physical independence between the choices made by experimenters and what is going on in the *subject* of the experiment, the entangled state, is enough. But do experimenters need free will to make such physically independent choices, as Gisin implied? Put another way, what would it mean in this situation to say that they did not have free will? Would that rule out the possibility of making choices independently of the state under investigation? Of course, one is supposed to think that, without something called free will, one doesn't actually make a choice. But the problem in this context seems rather to be one of the independence of what they do, which seems distinct. Put another way, it is not clear that the notion of free will is relevant here.

Bell also argued that this loophole was implausible. Even if the measurements performed are chosen by deterministic random number generators, the choices can be assumed to be effectively 'free' for the purpose at hand, because the machine's choice is altered by a large number of very small effects and it is unlikely that the entangled pair would be sensitive to all the same small influences that the random number generator was, or the random number generator somehow controlled by the entangled pair. Nature would have to be devious, and that's an expensive hypothesis.

This idea of independence, inspired by the assumption in the nonlocality experiments that we have a 'free' choice to set the polariser, may throw light on what we require of 'free will'. In the experiment, all we require is that this choice should be very largely independent of what was happening *within* the subject of the experiment, in the entangled quantum object. Perhaps likewise everything we require of 'free will' is somehow related to an independence between the chain of events that our brain participates in and the things that were going on outside us up to the point where that chain of events began to influence, or act on, what was going on outside. This in turn makes our brain a major *actor*, sometimes *the* major actor, in whatever happens around us, and in particular in whatever happens to our body.

The best working hypothesis we have about ourselves is that we are complex machines, but those who focus, naturally, on the word 'machine' should not make the mistake of comparing any living machine with the kind of simple devices we build ourselves. This said, computers show the way. Computers can beat chess grandmasters and write music that sounds like Mozart. But the word to focus on is nevertheless 'complex'.

The idea here is not that complexity would somehow make our world open-ended, if it is deterministic. It just means that we can interact with it in a way that gives us an impression of control, and the impression is all we require here. What more do we really ask of 'free will' than that we should be active *participants*, in subtle and complex ways, in the chains of events involving our bodies? Participants who can even act on the extent and nature of our participation.

'Free will' may well just be an impression in a deterministic world. But it is nevertheless a crucial one, since our brains play a crucial role in our survival. Scientific research aims to understand what is happening physically in our brains, but we also need to understand how this corresponds to the way things seem to us when those things are happening, and that will be the difficult part, because we only have the seeming with which to analyse it. We need to understand why things should seem to us the way they do, but since the seeming is something that evolved, it should be possible to get explanations of sorts in terms of the Darwinian algorithm.

The seeming plays a role in the complexity of the brain, especially since we talk to ourselves and each other about this, whereupon it can cause actions itself. Part of what our brain does is to understand how it itself fits into the causal chains of events that involve it. This is presumably one of the things that lifts us from the realm of the inanimate, and lifts what we call our mind from the realm of the incogitative.

People may feel robbed by the research programme of neuroscience and cognitive psychology. But they do not need to. As long as we still have the impression of mind, and free will, and as long as those ways of understanding things are still useful, which seems to be the case because that is our primary way of understanding ourselves, the existence of other explanations changes nothing. Likewise, if one day we can fully explain 'love at first sight' in terms of chemicals in the brain, why should that change our lives? We can still just get on with it. Physicalism certainly does not mean that only *one* explanation is worth having. The explanation of what is happening physically within my computer right now, or my brain, would be of little use to me for most purposes.

This is just a matter of satisfying curiosity with a *unified* world view that includes understanding what we are.