

# 20 Big Questions in Philosophy

A personal view inspired by

'The Big Questions in Philosophy' by Simon Blackburn

Quercus Books 2009

In his excellent and popular book 'The Big questions in Philosophy' Simon Blackburn discusses 20 important philosophical issues. Naturally he is careful to say that there are no definitive answers to these questions; if there were, he would be out of a job. As for me, though, I am under no such obligation. Indeed as a practising human being, I have to live my life as if there were indeed definitive answers to these questions. If I was a theist, these answers would be couched in religious language; if I was a solipsist or a mechanist, my answers would be very short (and my behaviour very different) but in fact I am none of these. I do not believe in a God; I do not believe that I am the only conscious being in the universe and I do not believe that the universe – and me in it – is run by clockwork with a predestined future.

So what do I believe?

Just as a mathematician, in creating a body of consistent theorems must start from a set of carefully chosen and precisely defined axioms, so must any rational being set out a list of fundamental assumptions on which to build his philosophy. My list looks like this:

- **The existential axiom:** *There exists an objective reality which exists whether or not it is inhabited by conscious beings. Conscious beings are part of that reality and interact with it as both affective and effective agents.*
- **The temporal axiom:** *One feature of that reality is a temporal dimension which, from the point of view of any event E in that reality divides all other events into one of three categories – 1) those events which are in the absolute past, 2) those events which are in the absolute future and 3) all other events as defined by the laws of Relativity (i.e. which are outside the light cone of the event E).*
- **The axiom of uniformity:** *There exist certain physical laws which govern the way real entities interact. These laws are the same everywhere in space and do not change with time.*
- **The axiom of indeterminacy:** *These laws often enable us to predict the future from events in the past but they are not completely deterministic. Our best guess at the nature of these laws is currently Quantum Theory.*
- **The axiom of materialism:** *The 'spiritual' world does not exist. Conscious beings (like myself and, presumably, other similar humans) differ from unconscious beings (like plants and computers) only in the way their information processing systems work. They do not possess 'selves' or 'souls'.*

It is possible to deny any of the above assumptions but denying any of the first four leads to nihilism, solipsism or fatalism. Denying the fourth assumption is, however, widely practised and leads to a very different outlook on the world.

Let us see how far we can get in answering Blackburn's 20 questions on the basis of these 5 axioms.

## *Question No 1: Am I a ghost in a machine?*

For thousands of years human beings on every continent have assumed the existence of a spiritual world alongside the material one and this belief has profoundly affected both their daily lives and the way they treated their dead. The origin of the idea lies in our everyday experience of consciousness. When we pause to look around our immediate surroundings – the chair we are sitting on, the view out of the window etc. – it is almost impossible not to think of these things as separate and totally different from the conscious mind which is perceiving these things. It is a short step from believing in our own independence from the world outside to ascribing animate spirits to other humans, to animals, to trees, to volcanos, to storms – to Gods. But advances in science and medicine during the last 400 years have revealed that storms, volcanos, animals and even the various organs of the human body are essentially machines which obey well-known laws of physics and chemistry.

The exception, of course, is the human brain which, in spite of the huge advances made in recent years in neuroscience still remains largely unexplained. Naturally this assertion will be flatly denied by any professor in that esteemed field of study but ask him what his telephone number is and then ask him where and in what form in his brain that information is stored and you will have made your point.

It is for this reason that the idea that the mind is somehow separate from the brain and is evidence of a 'spiritual' dimension to the world remains hugely popular.

This possibility is ruled out by the axiom of materialism. Nevertheless, it is incumbent on me, as a believer, to demonstrate that this axiom is not inconsistent with the existential axiom which allows for the existence of conscious beings which can perceive and interact with the external world and to explain how consciousness could arise in a world without a 'spiritual' dimension.

Blackburn focuses the issue by referring to three arguments which seem to imply that there has to be something special about conscious beings which cannot be explained in mechanistic terms.

Firstly he discusses the possible existence of zombies – creatures which behave exactly like rational humans but which are not conscious. In fact it is not difficult to imagine a future in which such creatures exist – indeed there is a whole industry dedicated to making money out of the idea whether through books or films. The idea here is that if zombies could exist, there must be something which distinguishes us from them. Ergo: we must have souls and they don't.

Now there are three logical possibilities to consider:

1. It is possible in principle (and may actually happen sometime in the future) to build a machine out of inorganic materials which behaves exactly like a conscious human being without actually being conscious (i.e. a zombie).
2. it is possible in principle (and may actually happen sometime in the future) to build a machine out of inorganic materials which is actually conscious but which is not necessarily human-like (i.e. a conscious computer).
3. It is impossible (even in principle) to build a machine out of inorganic materials which is actually conscious.

A hard-line materialist will insist that zombies and conscious computers are perfectly possible because in his view, human beings are essentially just zombies anyway. He will, naturally, reject option 3 on the grounds that, if we knew exactly how the human brain worked, we could construct a machine which was functionally identical and which was therefore, by definition, conscious.

A spiritualist, on the other hand, would insist on the impossibility of building a conscious machine. He might be prepared to accept the possibility that you could build a zombie but he would have to reject the idea of a conscious computer because at some stage in the construction of the machine that magic 'spiritual' ingredient which switches on consciousness would have to be added.

(The problem here, of course, is that, with the birth of every human child, we seem to have a situation where the action of the laws of physics and chemistry alone result in a conscious individual. Where and when was the magic ingredient added? At conception? At birth? At the formation of the ovary? At the moment the baby first opened its eyes?)

My own preference is for a half way house. As a (soft) materialist, I could consistently accept any of the three of the listed possibilities but I would have to choose between possibilities 2) and 3). As things stand at the moment, I am pretty confident that our current understanding of the laws of physics is insufficient to allow us to construct a conscious machine (In other words, I do not believe that computers constructed out of silicon chips could ever be conscious) but I am not prepared to accept that it will *never* be possible to construct such a machine (e.g. along the lines of a quantum computer). My preference is therefore to accept the second possibility. (For a further discussion of this issue see question 9 'Can machines think?')

This leads us to a further consideration of the first possibility. If it was indeed possible to create a machine which behaved exactly like a conscious human being (i.e. with the capacity to fall in love, write poems, sympathise with someone in distress, make jokes, create mathematics etc. etc.) I believe that it would have to *be* conscious. It would take too long to discuss my reasons for this belief here but my main argument is that evolution has produced conscious creatures because consciousness must give its possessor some evolutionary advantage – the advantage being the ability to think ahead, work as a team, empathise with others and form lasting relationships with other members of the species.

In other words, I do not believe that zombies (i.e. unconscious machines which behave exactly like humans) could possibly exist. If this is true, then the zombie argument for the existence of a spiritual dimension to consciousness is rendered impotent.

Secondly he raises the issue of whether other conscious beings have the same sort of experience as you or I do. Specifically he mentions 'spectrum reversal' – the possibility that you might see red as, say, green and vice versa. I think the argument here is that, whereas two different cameras pointing to a red flag will respond in essentially the same way (i.e. certain transistors will respond and others not) two different people might have totally different conscious *experiences*. Ergo conscious experiences are nothing like material responses.

This is a red (or is it green?) herring. Obviously the actual experience of seeing red is unique to the individual having that experience. It therefore makes no sense to ask whether A has 'the same experience' as B when they are both presented with a red object. The question only has spurious validity because we can, sort of, imagine seeing all red objects as green and vice versa; but suppose I invited you to see all objects as upside down or inside out? This kind of inversion is impossible. In the case of someone who is red/green colour blind, we know that their experiences *must* differ from ours but, apart from some minor inconveniences, such people get on with their lives much as we do. They can still enjoy a sunset and recognise the difference between a tomato and a pepper. Asking whether my experience of red is the same as yours is like asking whether Lara's love for Zhivago is the same as Elizabeth's love for Darcy. It is the same sort of thing but it applies to different objects and therefore cannot possibly be 'the same'. You could even argue that the 'experience' which a Nikon camera has is 'nothing like' the 'experience' which a Canon camera has.

On the other hand, you can just as easily argue that the response of my eye and brain is at least as like your response as is the response of the two cameras. It is possible to identify individual neurons in each brain which respond to the red object in exactly the same way. Indeed, as regards visual responses is concerned, two healthy human brains respond in such similar ways that it is, in my opinion, perverse to maintain that your experience of red is, or could be, completely different from mine. It is much more economical (though not provable) to maintain that we all experience colours, sounds, smells etc. etc. in essentially the same way and where the experiences are demonstrably different (e.g. with colour blindness) the individuals can be expected to behave in demonstrably different ways (e.g. in reading a colour chart)..

Finally we come to Frank Jackson's 'Mary'. Mary is an intelligent child who, owing to a defect in her vision, has been brought up and educated in a totally monochromatic world. She has learnt about colour and wavelengths of light and she knows that other people can distinguish certain colours which are indistinguishable to her. One day she has an operation which miraculously restores her colour vision. On opening her eyes she sees a banana. 'Ahha!' she says 'So that's what a banana looks like!' On the face of it Mary has gained new knowledge which was previously denied her. The implication here is that no amount of knowledge of the physics of vision could ever prepare her for the actual experience of seeing a banana and if you cannot, even in principle, predict a phenomenon, you obviously cannot explain it. Ergo: conscious experience is not just a material phenomenon.

It is true that when she first sets her eyes on the banana, she has an *experience* which she has never had before – but it does not therefore follow that she has suddenly acquired *knowledge* of some new fact which her extensive knowledge of the laws of physics could not have predicted. Knowledge is something which can be passed from one person to another. But as we have seen, the experience of colour is unique to the individual and cannot be passed on to someone else. It is therefore not knowledge and it is at best misleading and a worst incorrect to say that Mary now 'knows' something that was previously unknown to her. What she has gained is a new *memory*. Indeed, this is what we all wish to gain when we book a holiday to a new destination. The first time you see the Himalaya or a wild elephant you may be tempted to exclaim "Good heavens! I didn't think it would be like that!" but you will never be able to give that experience to anyone back home – only second-hand descriptions of the experience. You could say that Mary's new 'knowledge' is exactly the same as the 'knowledge' acquired by a camera when it takes a picture of the banana. Neither situation has any bearing on whether consciousness is a material or a spiritual phenomenon.

[Incidentally, I disagree totally with Blackburn's supposed resolution of this issue. He seems to think that humans have a four colour vision system and in any case misses the point about experiences being unique.]

Now it is one thing to shoot down those arguments which seem to point to a spiritual dimension to consciousness; it is quite another to advance arguments in favour of materialism. The main argument in favour of a materialistic view is the one alluded to earlier – namely the fact that human children acquire consciousness apparently gradually over a period of months extending well after the actual birth. But then our own everyday experience of sleeping and waking indicates that consciousness is not an all or nothing affair. There are degrees of consciousness and there is evidence to suggest that the degree of consciousness is related in some way to the kind of neuronal activity going on in the brain. It is tempting therefore to suggest that consciousness is nothing more than a certain kind of neuronal activity. If this were indeed the case, then we could potentially construct a conscious computer by mimicking this activity in silicon. It has been suggested that the only reason why the current generation of computers are not conscious is because they are insufficiently complex and therefore incapable of supporting the kind of activity which will result in consciousness. But to me the gap seems to be much wider than this. It might be possible in the future to programme a computer to talk so intelligently about Beethoven's late string quartets but I cannot imagine any computer however complex and sophisticated having an *emotional* reaction to them.

In my view, the features which distinguishes a conscious being from an unconscious one are the capacity for *intention*, *empathy*, and *emotion*. I do not believe that an unconscious machine could be happy or get depressed; I cannot see how a machine could fall in love or burst into tears; I can't imagine a machine sympathising with a bereaved widow or laughing at funny joke. Similarly if you see a creature displaying obvious signs of empathy, you can be pretty sure that it is conscious. The elephant which mourns the death of a matriarch is almost certainly conscious; the grebes who mate for life are very likely conscious to a degree. So are the lions who cooperate in the hunt and the dog who gets up instantly he hears his master at the front door.

On the other hand, although many creatures can perform remarkable feats – a spider can build a web, a colony of bees can cooperate in building a hive, a Monarch butterfly can migrate thousands of miles, a salmon can navigate its way to its own exact spawning ground etc. etc. – I do not believe that any of these actions require conscious thought any more than does a robot which builds a car or a cruise missile which finds a target. The salmon does not 'intend' to return to its birthplace – it just goes there. The bees do not 'empathise' with their neighbours – they just cooperate. The aggressive spider is not angry with its prey – it just is programmed to kill it.

But these examples only highlight the 'explanatory gap' which, by shooting down the traditional arguments for a 'spiritual' explanation for the mind/body problem, I have so far been at pains to minimise. I am a materialist and I believe that there is a material explanation for the phenomenon of consciousness. But I also believe that our current understanding of the laws of physics is not yet up to the task of providing that explanation. The difference between a conscious human being and a spider is not that we have souls and spiders don't – it is that our brains are organised in a fundamentally different way from a spider's brain.

### Question No 3: Am I free?

If there is one question which has haunted mankind ever since Newton's day it is the question of whether we have free will. Before Newton, nobody doubted it for a moment; but when the implications of Newton's ideas became clearer, the suspicion grew that, like the motions of the planets, the motions of molecules and even the behaviour of men were completely proscribed by the laws of Physics and that our apparent ability to change the course of events was an illusion.

The advent of Quantum Theory in the 20<sup>th</sup> century did not really change much except to add the possibility that some events might be completely random. But even if quantum events in our brain can cause us to 'choose' to do X rather than Y, if the choice is ultimately random, we are no better off.

Even if you subscribe to the idea that conscious beings have 'souls' which are independent of the physical world and which can make choices and decisions, you still have the thorny problem of explaining how the soul, having made a decision to make a cup of tea, can actually move the requisite objects in defiance of the laws of physics.

Blackburn tries to rescue the situation by defining freedom as the ability to make choices on the basis of complex reasons. Unlike a thermostat which can only respond to temperature, humans can weigh up a multitude of factors in coming to a decision. He describes this process as 'the constitutional government of a massive neurological and anatomical system working in harmony and responsive to reasons.' Now when a philosopher has to resort to ill-defined phrases like 'constitutional government' you know he is trying to hide his ignorance. In fact, whenever a website such as Amazon tries to tempt you to buy something by listing a number of items which it thinks you might be interested in depending on what you have bought so far and what other people who have bought what you have bought also bought in the past, and what items the company needs to shift because it overstocked them etc. etc., we have a good example of a 'massive electronic system working in harmony and responsive to reasons'. So is the website a free agent? I do not think so.

The factor that Blackburn has missed out is the obvious point that *only conscious beings can have free will*. It is worth while pausing a minute to ask ourselves why Blackburn – and virtually every other philosopher who has considered the issue – has ignored this crucial observation. For a start it has been tacitly assumed that when we are talking about free will, we are talking about free will in humans. Almost no one has considered whether and to what extent animals enjoy this facility. Often it is argued that we humans must have free will because otherwise we would be no different from animals – completely ignoring the possibility that (some) animals might have conscious minds and be capable of exercising free will too. The crucial thing to look for here is *evidence of intent*. The dog that barks and throws a rubber ball at his master's feet is clearly showing

his *intentions* and I believe this is sound evidence that the dog is conscious and has free will. Problem solving and the use of tools as shown by many other mammals and some birds also seems to imply forethought and hence, to my mind, implies a degree of consciousness and a free will.

Another point which is frequently overlooked is that we humans only have free will when we are conscious. You cannot make decisions when you are asleep or in a coma. When we are asleep our bodies continue to function in exactly the same way that a pre-programmed robot functions; we continue to breathe and we can respond in simple ways to external stimuli such as turning over when someone switches on the light – but we (i.e. our conscious minds) have no say in the matter because we are unconscious.

It follows, therefore, that in order to explain if and how we do in fact possess free will, we must know exactly what causes consciousness in our brains. Unfortunately, as I have argued earlier, we are not quite at that point yet – but we are getting close. When we have solved the problem of consciousness, we will also have solved the problem of free will.

So what kind of solution are we looking for? What exactly is the miracle change which occurs in the brain when we wake up from a good nights sleep and are suddenly able, apparently, to change the course of the future? Is there anything in modern theories which could give us a clue as to where we should start to look?

The first thing to note is that our best guess as to how the universe works (Quantum Theory) is not a deterministic theory. Its predictions are only probabilities. There are some who maintain that this is a defect in the theory but most physicists are agreed these days that Nature herself is not deterministic and that, on a microscopic scale at least, events such as the decay of a radioactive atom or the detection of a photon on a screen are essentially random events. This is the justification for my axiom of indeterminacy. But many will argue that this indeterminacy is confined to the microscopic world and that it has no relevance to the behaviour of large objects like billiard balls and brains.

If it turns out that quantum effects play no significant part and that our brains are indeed just very complicated classical computers, then we may have to conclude that free will is indeed an illusion; all our actions are essentially programmed into us from birth. But if it can be shown that quantum effects play a crucial role in the workings of a (conscious) brain, then we might once again be able to accept the luxury of being able to decide on our futures, and also, the burden of having to accept responsibility for our actions.

Now it will be argued that even supposing that quantum effects in the brain are indeed relevant, this will only introduce an element of randomness in our behaviour, not free will at all. My answer to this is as follows. An essential difference between a classical system and a quantum system is that in a classical system, the whole is strictly equal to the sum of its parts. A transistor in a memory chip, for example, will flip its state whenever it is given the correct inputs regardless of what is happening in the rest of the computer. In a quantum system, however, this is not the case. The behaviour of any part of the system depends in some degree on *everything* which is happening elsewhere in the system. For example, when an electron travels from A to B across a television tube, the place where the electron lands on the screen is not just determined by the original speed and direction of the particle when it started out. In quantum theory, you have to factor into the calculation *every* possibility – including some extremely unlikely ones such as the possibility that the electron escaped from the tube, travelled twice round the living room and then jumped back inside the tube again. In practice, the contribution this possibility makes to the final result is absolutely negligible but in principle, it should be accounted for.

When it comes to the workings of the conscious brain I envisage that when the brain makes a decision to fire a gun, the neuron which sends the signal down the arm to pull the trigger is not being affected just by those neurons to which it is physically connected; I believe that the *whole brain* is involved simultaneously in some kind of quantum entanglement. Now I am well aware that

to any one who has tried to preserve quantum states in anything larger than a collection of a dozen molecules at temperatures higher than a few degrees kelvin, the idea that 1.8 kg of squishy porridge at a temperature of 37 degrees could exist in a coherent quantum state will sound ridiculous – but then, all revolutionary ideas have sounded ridiculous at first. How many people in the year 1700 would have believed that the Earth was billions of years old? How many people in 1800 would have believed that all matter was made up of tiny atoms of 92 different elements? How many people in 1900 would have believed that all our physical characteristics such as eye colour etc. were encoded in a single molecule contained in every cell in our bodies? And when it comes to the year 2000, how many quantum scientists can truly say that they understand high temperature superconductivity?

So let us proceed on the assumption that we do not know everything there is to know about quantum theory and that it is indeed possible for some exquisitely crafted structures to exhibit quantum behaviour as yet undreamed of, let us examine the brain of the man holding the gun. Part of his brain is holding the image of his wife, naked in the arms of another man; part of his brain is consumed with anger and rage; part of his brain is remembering his wife's radiant face on her wedding day; part of his brain is trying to work out how he could escape justice if he were to pull the trigger; somehow, all this information is processed and in a heartbeat a decision is made.

It is essential to realise that, because the process is essentially a quantum one, the outcome *cannot be predicted in advance*; even if we knew the exact state of every neuron in the brain, it would be quite impossible to determine whether or not the man will pull the trigger. But neither is the outcome random because the *whole conscious brain* is involved in making the decision. The difference between the man deciding whether or not to shoot his wife and the decision the Amazon computer makes when it decides to send you a picture of some garden shears is that the brain uses some as yet unknown physical process which we recognise as consciousness to make the decision but the computer uses well understood classical processes.

Now if (and when) we discover how the human brain pulls off this trick, this will open up the possibility that we might be able to build electronic or other such systems which are also conscious and which also, according to my theory, have the potential to possess free will. But whether this discovery will come next week or next century (if ever) is anyone's guess.

## **Question No 2: What is Human Nature?**

Blackburn asks: 'is it in human nature to be rational or emotional, selfish or altruistic, short-sighted or prudent, aggressive, pacific, promiscuous, monogamous, murderous or moral ...?'

It seems to me that, insofar as this is a sensible question at all, it can only be answered in the light of your response to the question of whether or not we have free will (which is why I have discussed Question 3 before question 2). If you think that free will is an illusion and that all our actions are determined by previous events, then the concept of 'human nature' becomes irrelevant. It would be like asking whether it is in the nature of a car to be temperamental or reliable – or whether it is in the nature of a light bulb to be bright or dim. Some cars are temperamental, others reliable – but it is not in the nature of a car to be either, it is just the way they are built. Likewise with light bulbs and, if you are a hard-line materialist, with humans.

If, on the other hand, you believe, as I do, that humans have free will and are therefore responsible for our actions, then it becomes legitimate to ask, given that a person has a certain trait, to what extent they can be held responsible for that trait. We cannot really blame a car for breaking down on the motorway but we can blame a man for beating up his wife; we cannot blame a light bulb for being dim but we can blame an idle teenager for failing to do his best in an exam. Some of our traits are genetic in origin while others may have been conditioned in us by our upbringing and environment. But when it comes to assigning responsibility for our actions, the 'Nature versus Nurture' debate is irrelevant. What is important is not how our natures were acquired but what, if anything, we can, or should, do to change them.

Our attitudes to many traits have changed dramatically over time. Only a few decades ago, men were blamed for being homosexual or 'lacking moral fibre'. We now realise that Nature has a large part to play in determine a man's (or a woman's) sexuality and that veterans with severe PTSD cannot be blamed for their condition. On the other hand, in Victorian times it was regarded as quite normal for women to be weak and 'hysterical'. These days, however, a girl who fainted or threw a tantrum on receiving less than her expected A level grades would probably be told to 'stop being stupid' and consider her options more rationally.

Blackburn goes on to discuss the issue of whether we should attempt to 'improve' human nature and argues (correctly in my opinion) that we should not, other than by the traditional methods of education and cultural influence.

### **Question No 4: What do we know?**

Everything that we know comes via our senses but our senses are notoriously unreliable. It is possible, therefore, to argue that we do not actually *know* anything. This is, to my mind, an unnecessarily extreme position to adopt. Plato said that we can know X is true if a) we believe it to be true; b) it *is* true; c) we have good reasons for believing that it is true. Blackburn questions the necessity for the third condition but my issue with this is not condition c) but the second one, condition b). If we insist on requiring that X actually *is* true, then we cannot know anything because we can never check the statement 'X is true' independently. If I believe this object in front of me is a piano and I have good reasons to think it is a piano (it looks like one and plays like one) then I am fully justified in my belief that this is a piano. That, to me, is what knowledge is. For me the phrase '! know that X' is simply shorthand for 'I believe that X and I have good reasons for believing that X'. If the object in question subsequently turns out to be a hologram, all I have to do is say 'OK, I was wrong' and carry on with my life. I shouldn't have to worry about whether I did or did not 'know' whether the object was or was not a piano.

Having admitted, therefore, the small possibility of error, let us accept that when an alert and sober person sees a piano in front of her on which she has just placed a vase of flowers and which makes a familiar sound as she presses the keys, there is in fact a piano there. We can, however, legitimately ask how she came to acquire this knowledge for, to be sure, she was certainly unable to recognise the piano for what it is when she came into this world as a baby. Knowledge like this is the result of previous experience and experimentation. In fact the process is only an everyday version of the so-called 'scientific method' described by Karl Popper. The first time a child bangs her fist on the keys of a piano she may be surprised – even frightened; but it will not be long before the little devil is banging on the keys of every piano she comes across.

The surprising thing is not how we come to acquire knowledge by experience but why so little experience is deemed necessary. The child does not need to experiment with 100 pianos or even a dozen. One will probably do. It seems that humans have an innate over-confidence in the law of induction – if it happens like this once, it will always happen like this. I suspect that this over-confidence is a product of our evolution. It has paid the human species to be adventurous and daring. If our ancestors had always waited for a chance lightning strike to cook a meal for them by accident, they would never have discovered the advantages of keeping a fire and cooking meat to eat on a daily basis.

Although it is true to say that all our knowledge comes via our senses, much if not most of our knowledge is second-hand. How do I know that the President of the United States is Donald Trump? I know this because I see and hear his image on the TV, I read about him in the newspaper and discuss his pronouncements with other people. The evidence that he exists and is indeed (however incredible that may seem) the President of the United States of America is very substantial. Ultimately, however, my belief in his existence is justified in the same way that I believe in the existence of the piano in the room next door. They both fit into a comprehensive

world-view which I carry round in my head. I do not really need this world-view to be confirmed every time I play the piano or watch the news – but if something happens which is contrary to the world-view – e.g. the piano is removed or Trump is impeached – I can quickly update it.

## Question No 5: Are we rational animals?

Blackburn divides this issue into two; do (or can) we *think* rationally and do (or can) we *behave* rationally.

In discussing the first, Blackburn cites two examples where a priori reasoning has apparently proved false in the past. One is Euclid's assumption that parallel lines could never meet. Now it is a serious error to think that the discovery of non-Euclidean geometries has proved that Euclid was wrong. Euclid did not say that parallel lines could never meet; what he did was to list this postulate as an axiom. In effect he was saying 'if we make the (very reasonable) assumption that parallel lines can never meet, then .....'. His logic is impeccable. If he made a mistake, it was not in his logic, it was the failure to realize that, if he made a different assumption, he could create a completely different, but equally consistent, geometry.

Exactly the same comments can be made about Blackburn's second example which concerns the discovery of Relativity. Newton did not make a *logical* error in assuming that Time was absolute. He just missed an alternative possibility.

It is true that Newton and Euclid were unable to 'think outside the box' but they were not guilty of thinking outside the box of logic and mathematics. That is, indeed, impossible. No amount of imaginative thinking will ever persuade me that it is possible to arrange 7 objects in a perfect square or that a three sided object can have four corners. The box which constrained their thoughts was the box containing the assumption that the mathematical model which they had constructed corresponded to the real world.

What I am saying is that, while it might be possible to imagine worlds with 5 dimensions or worlds in which gravity is repulsive, it is impossible to imagine a world in which 7 object can be made to form a square or a world which contains square triangles. It is our good fortune that our brains have been constructed in such a way that we are able to see these logical necessities and make valid deductions from them. In this respect, therefore, we are indeed rational animals. It is an interesting (and important) question as to whether any other animals also have this capacity. My own personal opinion is that with carefully designed experiments, we will very probably discover, if we haven't already, that there are many other species of animals with rational facilities (albeit limited compared to our own). It is, however, quite impossible to imagine, for example, an alien species from a distant galaxy who can 'see' that 7 is a square number or that a 3-sided figure has four corners.

I am also utterly convinced that the ability to 'see' a logical necessity and to make valid deductions from it is intimately connected with the fact that human (and probably other) brains have the capacity for conscious thought. Notwithstanding several famous apparent examples to the contrary, nobody has ever proved a mathematical theorem in their sleep. (If they have had a crucial idea while in bed it is because they were dreaming at the time – a state which there is strong evidence to suggest is very close to consciousness)

So while we humans are capable of rational *thought*, are we capable of rational *behaviour*?

The study of what constitutes rational behaviour is called psychology and libraries of books have been written on the subject. Here I should just like to contrast the typical behaviour of a conscious subject like an alert human being and a non-conscious subject like a computer. But first, a little story about a wasp of the Genus *Sphex*. In 1879 the entomologist Henri Fabre recorded an observation concerning these wasps which was later used by Douglas Hofstadter and others to typify the supposedly irrational behaviour of presumably unconscious creatures. When its prey was

repeatedly removed from the entrance to its nest while the wasp was inside, the wasp would repeatedly move it back again and then check the nest, allowing the experimenter to move the prey away again. Apparently the wasp was unable to make the simple deduction that it would be better if it pulled the prey into the nest straight away, not giving the experimenter the chance to move it away. This story has often been repeated but it has been widely criticised for not making the point that Hofstadter wished to make. In the first place, the experimental evidence is not as clear cut as Hofstadter makes out; the behaviour of other Spheex wasps (who do not wait at the entrance) could be used as evidence that the wasp *is* capable of rational thought. But the real objection to the story is that the expectations we are imposing on our poor little wasp are far too high. Consider the behaviour of the gambler who continues to pump money into a slot machine in the confident expectation that he '*must* win next time'. If humans can fall for this trap, we can hardly expect a wasp to reason: 'the last time I checked the nest the prey was moved; oh dear, it's happened again; there must be some agent which is moving the prey; if I take the prey straight into the nest I can fool that agent. Yes, that's what I will do next time.' Indeed, it might be considered more rational for the wasp to continue playing the game until the experimenter gets bored. Who wins then?

Rational behaviour can be defined as any behaviour which optimises some desirable goal. When a human being optimises their happiness by spending money on a good meal instead of wasting it in a slot machine, that is rational behaviour. The behaviour of the Spheex wasp is not as rational as it could be, but it is, nonetheless, a successful strategy so it can't be ruled out as irrational. On the other hand, a computer does not behave rationally, even when it is playing a Grand Master at chess, because it has no goals to optimise.

In summary, conscious beings are capable of behaving both rationally and irrationally; the behaviour of non-conscious beings is neither rational nor irrational – they just do what they are programmed to do. Whether the Spheex wasp is capable of rational behaviour or not depends on its capacity for conscious thought. That question is, as yet, undecided.

## ***Question No 6: How can I lie to myself?***

Blackburn cites some persuasive examples of situations where people apparently act on the basis of something that they know to be false; e.g. the motorist who drives home from a party knowing himself to be drunk. The problem here is, according to Blackburn, that person doing the deceiving is the same as the person being deceived. He rejects the idea that there can be two parts of the brain (e.g. Freud's unconscious) which deceive each other and attempts to resolve this apparent paradox by making a fine distinction between the factors which *motivate* us to deceive ourselves and the deliberate *intention* to deceive ourselves.

With the exception of schizophrenics or people whose corpus callosum has been surgically severed, I too reject the idea that one part of the brain can deceive another. In fact I go further. I believe that, in normal circumstances, the conscious human brain is a single holistic entity and it makes no sense at all to talk about the brain deceiving itself. What happens when the drunken motorist walks over to his car is that his conscious brain weighs up all the factors which are relevant to the problem of how to get home and his quantum brain either chooses to get in the car and drive or call a cab. There is no deception involved. How can there be? There is no 'self' to deceive. There is just a sophisticated brain making a complex decision.

In spite of this truth, novelists and psychologists will continue to explain the action of a woman who marries a man, knowing him to be an unfaithful cad, in terms such as 'her emotions got the better of her' or 'she was deceiving herself' but concepts such as 'emotion' and self-deception' are what a physicist would term 'emergent phenomena'. They are very useful high-level concepts which can be used to summarise the behaviour of a complex system in a few short words – but we must be very careful not to lose sight of the fact that they are nothing but shorthand descriptions of phenomena whose explanations are either too tedious to spell out in detail or (as in the majority of

cases involving the human brain) completely unknown.

## Question No 7: Is there such a thing as society?

Blackburn defines 'society' as a 'set of individuals bound together by a complex web of *mutually beneficial* relationships.' (The addition in italics is not in the original quote but it is clearly implied by the rest of Blackburn's essay.) The philosophical problem here is known as 'the prisoner's dilemma' which boils down to this: why do individuals accept restrictions on their behaviour such as obeying laws and paying taxes which benefit society as a whole but which, in the short term at any rate, would appear to act to an individual's disadvantage?

A number of more or less relevant observations should be born in mind:

- Some individuals do not obey the laws or pay their taxes
- Some societies which have existed in harmony for decades may suddenly break up (e.g. India before partition, Yugoslavia etc.)
- Societies are not restricted to humans
- Some otherwise apparently intelligent animals live in herds or colonies but do not form 'societies' as defined above. (e.g. deer, bees)

Firstly we should realise that the existence of societies is contingent on consciousness (and free will). As I have said, I believe that bees are programmed to behave the way they do; they do not consciously cooperate with the other members of the hive so the hive is not a society. On the other hand, there can be few people these days who would deny that a troop of primates foraging collectively in a forest, anticipating danger and looking out for each other is a society of conscious individuals. (Deer display few if any of the defining characteristics of a conscious animal – intention, empathy and emotion – but even if they are conscious creatures, a herd only exists for mutual protection; it does not consist of a complex web of relationships and therefore does not qualify as a society.)

Secondly, societies can be held together in different ways. Human societies are held together by the rule of law (and can break down when that law ceases to command respect). Animal societies are more difficult to explain but I believe the answer may lie in the third and most puzzling characteristic of a conscious being – the ability to experience *emotion*. Why do dogs *enjoy* retrieving sticks? I do not believe they are just programmed to do it; I truly believe (and all dog owners will agree with me) that they get intense pleasure out of it. Why do elephants mourn their dead? There can be no benefit for them in this action so why do they do it? And most importantly, why do parents love their children (and vice versa)? In all these cases we observe an *emotional bond* between individuals which is the basis for a mutually beneficial partnership. And once you have a collection of individuals, each of whom recognise and have a relationship with the other individuals in the group you have a society.

If you accept this theory for the formation and stability of animal societies, the requirement that every individual should be able at least to recognise other members of the society puts a limit on the maximum number of individuals which an animal society can contain. Human societies, however, have no such limit. As soon as you have an individual with sufficient authority (or a sufficiently large band of loyal thugs) to impose his will on his fellows, you have the beginnings of a 'licit' society (i.e. one based on the rule of law.)

## Question No 8: Can we understand each other?

The question of how words come to have meaning and how we can be sure that they have the same meaning for different people has exercised philosophers for centuries but it is all too easy to create imaginary difficulties which may not in fact exist. The trick is, as Blackburn points out, to consider a few homely examples. In the first place, we humans are by no means the only species to

communicate using symbols: Whales and dolphins use clicks, birds use song, bees use the waggle dance, ants use pheromones, computers use binary, old fashioned telephone systems used electric currents etc. etc. All these agents effectively exchange information by using a symbolic code. The big question is: how do the rules of the code come to be established and how do new members of the species come to know the rules and thereby understand what is being communicated?

In the case of the telephone exchange and the computer, the rules are devised by the designers of the system and written down explicitly in a technical manual.

Ants and bees (which, for the sake of argument I will assume are unconscious creatures, totally hard-wired to perform in a certain way) do not 'understand' the message which is being communicated. They simply respond to stimuli in the way that they have been pre-programmed.

When it comes to higher animals such as birds and mammals, the jury is still out on the question of whether they are or are not conscious but the balance of opinion is moving strongly towards the view that, for example, dolphins are conscious and that they do 'understand' the 'meaning' of the clicks they make in a way that is strongly analogous to the way we understand the meaning of words which others speak to us.

Another important difference between the language used by conscious animals and that used by unconscious ones is that whereas the language of the latter is (probably) innate, the young dolphin, like the infant human, acquires language by learning from its parents. This is why different pods of dolphins use different 'dialects'. There is even some evidence that killer whales can learn to 'speak dolphin' (though whether they are actually communicating with the dolphins or simply trying to confuse them is another matter).

So the question boils down to the following: 'how do human infants (and other conscious creatures) learn the language of their parents and is there anything inherently paradoxical about this process?'

Once again, we are immediately confronted with the realization that all our philosophical difficulties are ultimately caused by our lack of understanding of the nature of consciousness and, perhaps even more significantly, the fact that we haven't got the first clue how memories are stored in the brain. I have already hinted that I suspect that the brain cannot be understood solely in neurological terms and that it works by using physical processes, possibly quantum in nature, which we do not yet understand. If and when we ultimately come to a better understanding of our own brains, we may then be able to see how the process of learning a language comes about and our philosophical doubts about the nature of meaning will disappear.

## ***Question No 9: Can machines think?***

The axiom of materialism gives us a definite answer to this question. It asserts that our brains are classed as machines and that since brains have conscious thoughts, there are at least some machines which think. Of more interest, however, is the question 'can machines other than brains have conscious thoughts?'

If we take Turing's argument to its extreme (and probably far beyond where Turing envisaged) we might conclude that when computers become so sophisticated that we cannot distinguish between the computer and a human, then we will have to conclude that computers have conscious thoughts.

Blackburn attacks this argument from two directions. Firstly he argues that the amount of background knowledge that a computer would have to have in order, for example, to behave correctly in a restaurant is so vast that no conceivable computer could possibly fool us for long. Secondly, he cites Searle's well known argument of the Chinese Room which apparently can respond to questions in Chinese even though the occupant of the room knows no Chinese at all. Both of these arguments have serious flaws – not least in view of the fact that we all have an

example of a machine which knows how to behave in a restaurant and which can do symbolic manipulation attached to our shoulders. (You may, for example, be able to divide 924 by 7 without knowing why the method works.)

So do we have to accept Turing's extreme conclusion that it may, one day, be possible to construct a computer out of silicon chips which will have conscious thoughts after all? Obviously the answer to this question depends entirely on what you think consciousness is and how human brains come to possess this remarkable facility. Personally, I believe in the following hypothesis:

- The **mysterian** hypothesis: *A conscious machine such as a human brain differs from an unconscious machine such as a modern computer in that it employs some holistic physical processes which are either only partly described by our current physical theories or perhaps are completely unknown to us. In some important sense, the conscious brain is more than the sum of its parts.*

I call this principle a hypothesis not an axiom because, unlike the five axioms I stated at the start of this essay which can be asserted or denied according to your philosophical preferences, this principle is capable of being proved or falsified. It is a respectable scientific hypothesis. It has the same status as Newton's assertion in 1684 that all bodies attract each other with a force called gravity. When asked to explain what gravity was and how it could act instantaneously over vast distances in a vacuum he replied – I don't know. A couple of centuries later we came to realise that the phenomenon which he proposed had a very different explanation from the one he had in mind but, nevertheless, his belief in the existence of gravity as a universal force was vindicated over and over again. Now it may take another couple of centuries before we can answer the question 'how can a collection of neurons be conscious?' but when we come to that state of enlightenment, then we may indeed be able to make machines out of silicon or some other exotic material which are truly conscious. We will probably also discover that the true nature of conscious thought is as different from the workings of a modern computer as General Relativity is from Newtonian Gravitation.

Now those with a religious disposition will say that my mysterian hypothesis is just spiritualism under another name; and it may indeed be the case that God exists, that human beings have eternal souls and that it is possible to communicate with the dead but I do not believe any of these things. All I am saying is that our current understanding of the laws of physics is incomplete and cannot yet explain the phenomenon of consciousness. The most popular alternative to the mysterian hypothesis is that consciousness is an emergent phenomenon which only becomes apparent when you have an information processing system of sufficient complexity and which is organised in some special way. This is probably what Blackburn has in mind when he speaks of the 'intentionality' or the 'directedness' of the human mind. But even he concludes with an admission that there might be 'something more' to the workings of the conscious brain than mere 'causal co-variation' (i.e. the ability of an information processing system to hold a real-time representation of the world outside and to respond to it appropriately).

## **Question No 10: Why be good?**

I agree with Blackburn that, with the exception of the religious response, it is no good expecting there to be a single answer to this question. He rightly points out that the expanded version of the question – why should I do what I should do? – is meaningless. It is like asking – why are all black cats black? The only relevant questions are specific in nature and every question will have its own different answer. For example, the question 'why should I obey the law?' has, for me at any rate, a simple answer; I don't want the hassle of being taken to court, fined or being imprisoned. There is, in fact, no 'should' about it and I, along with many other people apparently, will happily exceed the speed limit on a motorway if I think that I can get away with it.

In fact, if I examine my own motives carefully and honestly, I find it difficult to find any actions at all which are not at least partly motivated by self interest. I contribute regularly to a

charity – but I only do so because a) I can afford it and b) it gives me an excuse to refuse requests from other charities. The fact that my money actually helps victims of disasters in other parts of the world is an added bonus but, to be brutally honest, it is not the real reason why I contribute.

And yet, having said that, human beings do have one capacity which I believe is unique to all creatures with conscious brains and that is the ability to *empathise* with other creatures. Indeed, I think this is one of the reasons<sup>1</sup> why conscious brains evolved in the first place. If you are going to pair for life with a mate as Grebes do, then you must be able to recognise your partner as an individual with the same sorts of needs and desires as your own; if you live in a social group as apes do, then you must be able to imagine the consequences of your actions to other members of the group. I can imagine my house being demolished by an earthquake and can have sympathy with the victims of an earthquake so, when it comes to the point where I have to decide whether or not to write the cheque to the disaster relief fund, this will be a factor in the decision process which goes on in my brain.

But does this mean that my action was 'good'? Not a bit of it. It is in our nature to empathise with other people and for those of us who are comfortably off and happy it is only natural to do things which help to make other people comfortable and happy. For an atheist, then, the bottom line is that the concept of moral goodness does not exist. 99% of what we do is motivated by self interest and where we appear to act in an altruistic manner, we are doing so only because of the way our evolutionary brains have been wired up.

But is this really the answer? Should we modern atheists really ditch thousands of years of religious teaching in favour of a 'grab what you can get' philosophy? Suppose we invert the question and ask 'Why shouldn't we be bad?' To fix our thoughts we must decide on an action which is immoral (i.e. 'bad') but legal.

Of the Ten Commandments, four are specifically religious rules; three are illegal (murder, theft and perjury); leaving only three which are true moral rules. They are:

- Honour your father and mother
- Do not commit adultery
- Do not covet

Of these three only the second carries much weight these days. (We are expected to honour our parents but some parents do not deserve respect and we do not think it morally wrong for a child of such parents to disown them. As for coveting – our whole capitalist economy hinges on the assumption that we will covet everything in sight!)

I believe that an action is immoral if it causes *unnecessary suffering to another conscious being*. Adultery is immoral because it causes emotional suffering to the spouse. Other examples of immoral (but not illegal) behaviour include humiliation, bullying, sexual harassment, underhand methods of gaining advantage over competitors etc. etc.

My definition specifically refers to *conscious* rather than *human* beings because I believe that conscious animals can suffer too. Cruelty to such animals is therefore, by my definition, immoral (but killing them is not, as killing, if it is quick, does not cause suffering). Incidentally, once again we see the importance of answering the question – which animals are conscious and to what degree?

But what about victimless actions? Is it dishonest and therefore immoral to spend a pound coin which you have picked up in the street on an ice cream? Is it immoral to commit adultery with a married woman who has left her husband by mutual agreement? Is it immoral to indulge in sexual activity with a member of the same sex? One hundred years ago the answers to all these questions would have been yes (though what the boy who picked up the coin in the street was supposed to do

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<sup>1</sup> There are, I believe, two other reasons why consciousness has evolved. I have discussed *intention* in question 3 'Are we free?' and will discuss *emotion* in question 16 'What is beauty?'

with it I do not know. Give it to his parents I suppose.) I think most people in 21<sup>st</sup> century England would accept all these activities as perfectly acceptable – even normal.

So the thousand year old debate about what in practice we should and should not do essentially boils down to a simple rule, well known to the medical profession – do no harm.

### ***Question 11: Is it all relative?***

Blackburn argues persuasively against relativism (i.e. the idea that what is true for me may not be true for you) while conceding the need to respect differences of opinion in cases where the truth is either unknown (as in: does God exist?) or not applicable (as in: Is capital punishment a good thing?).

The trouble is, it is sometimes not possible to accept relativism when conflicts arise between the two points of view over matters of alleged fact. For example, consider the case of a state legislator who campaigns for the teaching of creationism alongside evolution. The problem here is that while the Darwinist and the Creationist can agree (initially) to differ over the question of whether God exists (proposition A), it is impossible for them to agree that the age of the Earth is only a few thousand years (proposition B). But since the Creationist also insists that A (the existence of God) implies B (the Earth is a few thousand years old) the scientist is forced to disagree over proposition A as well. However willing he is to respect the views of others in matters of religion, he is forced to say that yes, God might exist but *your* God cannot possibly exist. And since a whole education system is at issue here, the conflict cannot be avoided.

Relativism may also be untenable in other circumstances too. An astronomer will find the position of a tribal chief who objects to the proposed erection of a telescope on his sacred mountain incomprehensible and almost any right-minded citizen will abhor the actions of a fanatic who destroys an ancient temple on the grounds that it is idolatrous or the terrorist who blows up women and children in the name of his religion.

Naturally, as an atheist, I think I know who is right on these issues but it has proved to be surprisingly difficult to persuade what probably amounts to a majority of the population of the world to my opinion.

In respect of non-religious issues I think Blackburn's example of capital punishment was not the best choice. A much more interesting and controversial question to my mind is 'Is democracy a good thing?'. In so far as the standard of living in the democratic countries is higher than that under authoritarian or totalitarian governments the evidence tends to suggest that the answer is yes. But attempts to impose democracy on many countries has been a disaster. In this case what is true (or good) for one country may not be true (or good) for another.

### ***Question 12: Does time go by?***

This question is a direct challenge to the temporal axiom and more time, paper and ink has been wasted discussing it than any other question in philosophy. Now I do not have to justify my axioms any more than Euclid had to justify his assumption that a straight line can be drawn joining any two points. It is possible, I know, to maintain that the universe is static and even to convince yourself that life in a static universe would appear just the same to us as life in a dynamic one but I do not see the advantage of taking this line any more than I see the advantage of pretending that the external world does not exist and that I am just an element in a vast simulated universe.

So what is the problem? Why have so many books been written on the subject? Why are we plagued with so many doubts about the nature of time when we are quite happy to accept the existence and nature of space?

The answer, I think, lies in the fact that time, unlike space, appears to have a preferred

*direction*. The future seems to us to have a radically different existential status than the past. And if this were not so, then our cherished notion that we are free agents and can influence events in the future would be mere wishful thinking. (See Question 3: 'Are we free?') So in order to justify our belief in free will, philosophers have had to seek objective ways of proving that the future really is different from the past and that the difference is not merely one of perspective.

Before Newton the answer would have been obvious. The future is different from the past because events in the past can *cause* events in the future but not the other way round. This argument was dealt a fatal blow when it was shown that, at a microscopic scale, events did not *cause* other events at all – they simply happened in sequence. For example, squeezing a gas does not *cause* the temperature of the gas to rise, the rise in temperature is due to the gas molecules picking up speed as they collide with the moving piston. There is no causality involved, just a sequence of events. What is more, there is no temporal direction involved either because the squeezing and the heating are seen to happen simultaneously. If you reversed the direction of time, it was argued, all the collisions would happen in reverse, the gas would cool as it expanded – which, of course, it does. In other words, in a Newtonian universe, if you were given the precise position and velocities of all the particles in the universe at a certain point of time, not only could you *predict* the future, you could, with equal ease, *retrodict* the past. Past and future are indistinguishable.

Nineteenth century scientists tried to avoid the implied symmetry by pointing out that the behaviour of a gas is rather special because it is reversible. Most physical processes are not like that. When you leave a hot cup of tea on a table, the tea cools and the room warms. The reverse never happens. In order to explain this the concept of entropy was introduced and with it the so-called Second Law of Thermodynamics which states that over time the total entropy in the universe always increases. Philosophers seized on this idea immediately. The future differs from the past, they said, because entropy increases in the future. But this just begs the question – why does entropy *increase* and not decrease with time? If it could be shown that the other laws of physics *forced* entropy to increase, then that would be fine but it proved impossible to prove the Second Law of Thermodynamics from the classical laws of physics for the simple reason that it is impossible to deduce an asymmetrical law from a collection of symmetrical ones. It appeared that the Second Law was a genuine law of physics like the Law of Gravity – a description of how the world happened to work – and it was thought just as easy to imagine a world in which entropy decreased (or, if you like, time runs backwards) as to imagine a world in which gravity was repulsive. In other words, we are back to square one with no *explanation* of why time runs from past to future, only a law saying that it does.

Now the twin discoveries of the twentieth century – Relativity and Quantum Theory – have shed an entirely new light on the debate about the nature of time.

Relativity has taught us that in some circumstances, time and space seem to get mixed up and that events can be put into different orders by different observers. Many philosophers have, however, been thoroughly misled by Minkowski's famous quotation: "*Henceforth space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality.*" into thinking that time is just another essentially spatial dimension and that it should be just as easy to move backwards in time as it is to move backwards in space and that, if you shift your viewpoint, you can make the future appear to happen before the past just as easily as making two trees change their relative positions by walking down the road.. Relativity tells us no such thing. On the contrary, the temporal dimension is mathematically differentiated from the spatial ones by the inclusion of a vital minus sign in the relevant equations; what is more, while it is true that the relative ordering of (spatially) well-separated events can be changed by adopting a different observational position, Relativity expressly forbids the re-ordering of events which are within each others light-cone (i.e. where it is possible to travel from one event to the other at less than the speed of light). In other words, while Relativity has forced us to re-evaluate what we regard as 'the present' it rigorously defines what events lie in the 'absolute future' and those that lie in the 'absolute past'.

But it still does not tell us how to distinguish the future from the past. It is quantum Theory which has told us how to do that.

All the laws of classical physics (including Relativity) are symmetrical with respect to time but, according to the most popular interpretation, Quantum Theory is not. Most scientists believe that whether a single photon is reflected or transmitted at a half-silvered mirror is completely random. The photon enters a quantum superposition of states (reflected and transmitted) until an observation is made at which point the system collapses at random into one possibility or other with a certain well defined probability. There are, of course, other possible interpretations of quantum theory, some of which deny the random nature of quantum events, but my axiom of indeterminacy expresses the view of the great majority of scientists. The random nature of quantum events can easily be scaled up to macroscopic proportions by, for example, arranging that if the photon is transmitted, a vial of poison is released which kills an imprisoned cat. The life or death of the cat now depends on a completely random event.

What has this scenario got to do with the arrow of time? It is this. We have two events separated in time. Event A is the transmission or reflection of the photon at the mirror which occurs at some time  $T_A$ ; event B is the discovery of the cat, dead or alive, some time later at time  $T_B$ . I wish to examine carefully the state of our knowledge at the two times  $T_A$  and  $T_B$ . At the latter time we know whether the cat is alive or dead and from this knowledge we can *deduce* whether or not the photon was reflected or transmitted. But at the former time, quantum theory expressly forbids us to know whether the photon has been transmitted or reflected and we therefore *cannot predict* the cat's fate. Quantum theory allows us to *retrodict* the past with certainty but it only allows us to *predict* the future with a degree of probability. That is the difference and that is the origin of the asymmetry we observe.

It is high time that philosophers, including Blackburn, woke up to the fact that the mystery of the arrow of time is solved. The old arguments about causation and entropy should be quietly forgotten as they have no relevance whatsoever. The only issue here is whether or not you accept the random nature of quantum events. Now I will readily admit that there are a large number of theorists who do not accept the interpretation of quantum theory which I have outlined. There are those who deny that quantum collapse ever takes place and that at each quantum event parallel worlds come into being. According to them, the cat in my example is alive in one world and dead in another. At time  $T_A$  it is possible to predict both outcomes. This is a 'block' universe as all possible outcomes are, in principle, deducible from the start. Another possibility (rejected by nearly every scientist) is that there are 'hidden variables' which do in fact determine what appears to us to be random. I fail to see the attraction of either of these stances. As I said earlier, quantum theory has released us from the tyranny of rigid determinism and has permitted us to adopt a consistent philosophical position which harmonises perfectly with our subjective view of space and time and which gives us the right to believe that we can, in some degree at least, control our own destinies. To me, that appears to be a huge step forward.

I have made it clear that I regard the philosophical issues surrounding the concepts of causality and entropy as irrelevant to the question of the direction of time but that is not to say that these issues are not interesting in their own right. The status of the Second Law of Thermodynamics is a technical one and I do not wish to discuss it here but the issue of causality deserves an extra question of its own.

### ***Question 12b: How do we know what causes what?***

Causation usually starts with a correlation. In 1854 John Snow noticed that there was a strong correlation between people who contracted cholera and people who used a certain water pump in a district of Soho. He correctly deduced that it was the water which the people were drinking which caused the disease. On the other hand, not everyone who used the pump contracted the disease and,

of course, there were many who got the disease who did not drink water from the pump, so how did Snow infer the causal connection?

Centuries earlier it had been noticed that people who contracted a high temperature often developed boils and died. It was equally logical therefore to think that it was the temperature which caused the boils and that the correct treatment for such a patient would be to give them a cold bath.

This example illustrates the obvious fact that mere correlation is not sufficient to establish causality. A may be correlated with B not because A causes B but because both A and B are caused by some other factor C. The extra ingredient that establishes causality is a theoretical framework which allows us to imagine a whole series of contiguous mini-events connecting A and B which, together, gives us a reason why B should necessarily follow A.

Now in 1854 the germ theory of disease was not well established but its precursor, the 'miasma' theory was sufficient to guide Snow to the right conclusion. The idea was that the water contained small particles of foul matter probably derived from rotting meat or anything which smelled bad and it was these particles which caused the disease. Without this fundamental idea, Snow could equally well have deduced that it was because the inhabitants of the district attended a particular church that caused them to get cholera rather than that they drank from a particular pump. His theory was spectacularly confirmed when he disconnected the pump and the incidence of cholera in the area dramatically decreased.

I would define causality, therefore as follows: A can be said to cause B if it is generally/often/sometimes the case that B follows A **and** that we have good theoretical grounds for understanding why B *should* follow A. (Note that the correlation need not be perfect but the weaker the correlation the stronger the theoretical grounds must be.) Once we have grasped this essential fact, it becomes a lot easier to see why statements like 'smoking causes cancer' and 'CO<sub>2</sub> emissions have caused global warming' are so contentious. It is not the correlation which is debated – it is the validity of the theoretical connection between the two events which causes the trouble.

There is, however, a more fundamental philosophical issue which is related to our previous discussion on the nature of time. We usually think of the cause preceding the effect but we frequently use the words to explain events which apparently occur simultaneously. Consider the example I cited earlier – squeezing a gas (A) causes its temperature to rise (B). The cause and the effect are simultaneous. We have perfect correlation (whenever A happens, B happens) and good theoretical reasons for understanding the connection between A and B (the motion of the piston which is doing the squeezing imparts energy to the molecules of air thus raising its temperature) so it would appear that we are perfectly justified in saying the A causes B. But are we? Are we not, perhaps guilty of making the same mistake that the early doctors made? Could it be that both A and B are effects of another cause C? The answer is yes. Both are effects caused by the agent which is doing the squeezing. It was the movement of the piston that squeezed the gas and it was the movement of the piston that caused the temperature to rise.

This example makes it clear that we must be very careful in ascribing causes to events which occur simultaneously. When a moving cue ball hits a stationary red ball we say that the cue ball caused the red ball to move and that the red ball caused the cue ball to stop. But this is a mistake. There is no causality involved here. The red ball moving and the cue ball stopping are different aspects of the same event. Ideally we would have a different word for aspects of events which occur simultaneously. It would be much better to say that the cue ball 'actioned' the red ball to move and the red ball 'actioned' the cue ball to stop. It was the player who 'caused' the collision by propelling the cue ball down the table.

The problem arises more frequently than you might imagine. Consider Ohm's law – the proportional relation between the voltage across a resistor and the current through it. If you double the voltage across a resistor, you double the current through it; but it is equally true to say that if you double the current through a resistor the voltage across it doubles. Does the voltage cause the

current or does the current cause the voltage? In truth, there is no causal relation here at all. The two aspects of the event are simultaneous.

The conclusion from all this is that the cause *must* always precede the effect. And this, in turn implies that our deep-rooted belief in the existence of causes is entirely predicated on the assumption that time flows. If time does not flow there is no cause and effect, there are just events in a four-dimensional continuum – what is often called the 'block' universe.

So what is the objection to the 'block universe'? Undoubtedly as a theory it fits all the facts, but to my mind there can be no place for free will in such a universe. Blackburn tries very hard to deny that fatalism is an inevitable consequence. He points out, quite correctly, that when a stone is thrown into a pond, waves will wash up on the shore a short time later and that there is no example in the whole of the block universe where waves wash up on the shore without there being a corresponding cause. Similarly, he says 'there is no perspective that shows human actions have no consequences'. Of course not. All actions have consequences. That is not the issue. The vital issue is not what caused the waves on the shore but what caused me to throw the stone in the first place. In the block universe, that action was an inevitable consequence of some earlier activity going on in my brain but in my view that action was not inevitable because it involved some processes, possibly of a quantum nature, which were fundamentally unpredictable.

It is my belief that as soon as you accept the unpredictability which lies at the foundation of Quantum Theory, all problems associated with the arrow of Time, the Second Law of Thermodynamics and even free will disappear at a stroke.

### **Question 13: Why do things keep on keeping on?**

There is very little to be said about this question. To deny the axiom of uniformity is to give up on rational argument – which is precisely why a rational being cannot afford to do this. I will, however, just add one further point about the 'block' universe. In a dynamic universe which is governed by the rule of law, there is something deeply unsettling about the idea that the laws of physics might suddenly change. It is possible to imagine a world in which gravity suddenly became repulsive at midnight on the 1<sup>st</sup> of January 2021 – but I do not believe that it is going to happen. But in a block universe the onus of explanation is on the other foot; the problem here is not explaining why gravity remains attractive, the question is – why doesn't gravity fluctuate all the time? What is stopping it from changing wildly every minute? In a dynamic universe governed by the rule of law, order and continuity are natural consequences; in the block universe, however, order and continuity are inexplicable.

### ***Question 14: Why is there something and not nothing?***

In the past, this question has generated much philosophical debate, all of which has, in my opinion, been entirely sterile. In so far as there is a question to answer, it is a scientific one and concerns the origins of the Universe. That, of course, is a fascinating one but as it has no philosophical implications I will not discuss it further.

### ***Question 15: What fills up space?***

As with the temporal axiom and the axiom of uniformity, I do not really have to justify the existential axiom but it is perhaps worth saying that it is not rational for me to deny my own existence. Of course I could be just a simulation in someone else computer game, but, in a way, that does not really concern me. My sense impressions are real to me and that is all that matters. I concede that it is possible to maintain in addition that sense impressions are all that exists but I chose not to for much the same reason that I chose to accept the axiom of uniformity. It is just a lot easier to accept that the things I apparently see and feel all around me actually exist than to deny

them all.

## Question 16: What is beauty?

For some reason which is not entirely clear, human beings are capable of feeling a wide range of emotions. I have earlier referred to my belief that conscious beings are distinguished from unconscious ones by being capable of *intention*, *empathy* and *emotion*. From an evolutionary perspective, the ability to foresee the results of your actions and to carry out those actions with the *intention* of achieving a desirable result is of obvious evolutionary advantage. So is the ability to *empathise* with – or put yourself in the place of – another individual, whether it is to comfort and assist a sick relative or to recognise a weakness in a rival. But it is not clear why a certain sequence of chords should move us to tears, or why seeing a penguin slip on some ice should cause us to laugh. I suspect these emotional responses are mere side effects and have little if any evolutionary consequence. There is, however, one situation which has profound consequences for the individual and for the species and in which emotions play a vital role. I am, of course, thinking of sex.

In the normal course of events, humans fall in love in pairs, have sex and rear children and stay attached to each other for all their lives. (Humans are not the only creatures who pair for life; many birds do the same but these are the exceptions, not the rule). If for some reason a loving couple are parted either by circumstances or by death, the partner will feel a powerful emotional response – more simply they will be *sad*. If the couple are reunited they will feel *happy*. Happiness and sadness are the fundamental human emotions and it is obvious that if we did not feel these emotions, we would be less inclined to stick together to rear our children through the long period during which the human child is entirely dependent on its parents. (It is a fascinating and as yet unanswered question as to the extent to which other potentially conscious animals can feel happy or sad, but the amount of chirping and wing waving that goes on when an Emperor penguin returns to her mate with essential food after a 6 month absence seem to suggest that the answer may be quite a lot.)

*Love* and *grief* are not far away from happiness and sadness and may well have evolutionary consequences too, particularly in those animals which live in societies as defined in Question 7. *Tenderness* and *affection*, *envy* and *jealousy*, *anxiety*, *anger* and *contentedness* may all help to shape such societies too.

But humans have over the millennia developed some curious emotional responses which are not so easy to explain. Why do we find some things *funny*? Why do we find some things *revolting*? And why do we find some things *beautiful*?

The first thing to say is that, unlike the previously mentioned emotions, what we find funny, revolting or beautiful is greatly influenced by the culture in which we were brought up. I may find the sight of an African woman with hugely and artificially extended lips faintly revolting but to a male member of her tribe she may be the epitome of beauty. And, of course, what my children find funny is, to me, just bad taste. Nevertheless, it cannot be denied that, while there can never be a universal definition of beauty, beauty can be recognised by the emotional response which it elicits. Sadly (and perhaps surprisingly) we do not have a simple name like 'happiness' or 'envy' to describe this emotion so I will have to invent one. When I am affected emotionally by a favourite piece of music or a book I shall say that I am '*moved*' and if a work of art or a poem causes you to be '*moved*' then, for you at any rate, that object is '*moving*' or '*beautiful*'.

Now you might object that just inventing a new word or a new definition does not change anything. It still does not help us to explain why some objects are beautiful and others are not. True. But giving something a name is the first step towards recognising its existence and then finding out more about it. 100 years ago dyslexia and PTSD were as common then as now – but until they were recognised and given names, it was not possible to do anything about them. Very little research has been carried out on the neuro-physiological causes of emotions. We have no idea how anger or amusement is represented in the brain but there must be something there which determines whether

or not someone is angry or amused. (Sometimes an emotion is associated with the release of a specific hormone such as adrenalin but it is the emotion which causes the release, not the hormone which causes the emotion.) Likewise there must be something in the brain which determines whether or not you are in a state of being 'moved' so it is not entirely vacuous to define an object of beauty as something which tends to produce that particular state in a person's brain.

This theory (if it can be dignified with such a name) does help to explain why there is a certain amount of agreement among different people as to what is beautiful and what is not but I cannot claim that finding an answer to the question 'What is beauty?' is high on my list of priorities. A much more interesting (and tractable) question would be 'Why do we find *anything* beautiful?' Similarly, instead of asking 'What makes a joke funny?' it would be of much greater interest to know why we find jokes *funny* at all. On the face of it, there seems to be no evolutionary advantage in being able to laugh at a joke or appreciate a painting which is why I suspect that these capabilities are more in the nature of side effects of being conscious. On the other hand, we should recognise that, far from being mere side effects, it is precisely our ability to appreciate beauty and humour that distinguishes us humans from other creatures so we should not minimise their significance.

### **Question 17: Do we need God?**

It is interesting that Blackburn asks the question 'Do we need God?' and not 'Does God exist?' My answer to the latter is obviously no, but history tells us over and over again that the answer to the former is probably yes.

For 50 years, all religion was ruthlessly suppressed in communist Russia – but since 1990 the amount of money which has been spent on restoring and rebuilding churches is staggering. Even in the USA which prides itself on being the most educated and technologically advanced country in the world, according to Pew Research Centre<sup>2</sup> over 60% of the population are certain that God exists and only 9% are certain that He does not. And this is in spite of strenuous efforts on the part of authors such as Richard Dawkins to put the atheists case.

Clearly the need to believe in God is immensely powerful and it is not going to go away. The problem, however, is not a philosophical one – it is a practical one: how do we persuade people with different religious belief to tolerate the beliefs of others? It will, I fear, do no good to shout 'you are all wrong – God does not exist.' But until Catholics can respect Protestants, Muslims: Hindus, atheists: believers we shall continue to have strife in this world.

### **Question 18: What is it all for?**

So far I feel that I have had an answer for pretty well every question that has been thrown at me but this one is definitely going to cause me some discomfort because on this issue the believer in God appears to hold the ace of trumps. Undoubtedly religion has given many people a purpose in life and a reason for living – indeed, that is essentially the purpose of religion.

But perhaps the believer's hand is not as strong as he thinks. The Universe, he says, was created so that we could fulfil God's purpose in it. Quite apart from the difficult question of figuring out what God's purpose is, I am at a loss to know quite why we should spend our lives fulfilling it anyway. I suppose that there would be some point if you thought that God was going to hurl a thunderbolt at you if you didn't but, frankly, I do not find much comfort in the idea that the purpose of my life is simply to gratify the desires of a Supreme Being.

Ah – but that's where you go wrong, our theist friend replies. God desires that we should find fulfilment in our own lives, not just to make Him happy. Well I don't disagree with that. I just don't see what God has to do with it. At the end of the day, both of us have got to find a mode of life

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<sup>2</sup> <https://www.pewforum.org/religious-landscape-study/belief-in-god/>

which gives us fulfilment. If the missionary finds fulfilment in tending to the sick in darkest Africa in the name of God, all well and good. If I find fulfilment in clarifying my thoughts on the meaning of life, typing them up and publishing them on my website, I am equally justified in claiming that I have found meaning in my life.

But of course, this argument is a bit circular. The purpose of life is to obtain 'fulfilment' – but fulfilment is achieved by fulfilling your purpose in life. Both of us – the believer and the non-believer need an independent definition of the concept of 'fulfilment'.

Now, when I was discussing the nature of beauty, I argued that in addition to emotions such as anger or love which have obvious behavioural consequences, our ability to appreciate beauty and laugh at a joke was inexplicable in evolutionary terms. We could, perhaps, add a few more 'emotions' to this list: the feeling of satisfaction we get when we have achieved a goal; the feeling of pride when our children do something extraordinary; the feeling of wonder when you suddenly come to understand something which before was a mystery. These are the emotions which have driven artists to create beautiful things, entrepreneurs and sportsmen to succeed, parents to sacrifice much for the benefit of their children and scientists to explore the universe. These are the emotions which have given many people a purpose in life.

To be fair, we ought to recognise that not all our 'emotions' are necessarily what we would regard as 'good'. The lust for power is an emotion which has resulted in some of the most appalling human tragedies the world has ever seen but for most of us the pleasures of a meal out or walk in the woods is sufficient to make life worth living.

Another point to make, though, is that we in 21<sup>st</sup> century England, are very privileged to be able to enjoy a meal out or a walk in the woods. What gave our prehistoric ancestors a purpose in life? What gives a dog a purpose in life? What gives a snail a purpose in life? What gives a rock a purpose in life?

Well, obviously we don't have to search very hard for the rock's purpose in life because the rock is not living. My point is that it is only conscious beings which require a purpose and that purpose is determined by the kind of consciousness which the creature possesses. I have argued that dogs are conscious but their consciousness is not like ours. They are not conscious of the same things as we are and they do not share the same range of emotions that we do. I think it is clear that they experience pleasure but I doubt if they are much moved by beauty or find things funny. Even our prehistoric ancestors, while equipped with brains exactly like our own, probably did not experience the same range of emotions as we do. Consciousness is not just something that we possess; consciousness is the product of a lifetime of experiences. A new born baby may be conscious in the technical sense, but it is not conscious of very much. Only gradually over time does the child become conscious of its surroundings, conscious of its place in the environment, conscious of beauty and laughter.

What I am getting at, therefore, is a definition of 'fulfilment'. The purpose in life, as I see it, is to cultivate and stimulate our 'higher' emotions. This is why education is so important. If children are not exposed to the widest possible experiences in early life, their ability to find fulfilment in later life will be seriously limited.

Now it may be argued that all I am advocating is an Epicurean philosophy whereby all that matters is your own personal 'happiness' and that if you could find a drug that made you 'happy' then you could simply dispense with the tedious bother of actually living, you could fulfil your purpose in life just by taking this magic drug. The answer to this objection is simple. These higher level emotions are not just patterns of electrical activity in a system of neurons which could, in principle, be triggered by some drug or other external stimulus, they are patterns of activity in a *conscious* (i.e. non-classical) entity which, according to the mysterian<sup>3</sup> hypothesis, is not explicable simply in terms of the behaviour of its individual components. It is not a question of just

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3 See question 9 'Can machines think?'

succumbing to the enjoyment of these experiences; life has to be lived in order to make these experiences possible.

### ***Question 19: What are my rights?***

Blackburn skilfully exposes the weaknesses and contradictions in the idea that human beings (or cockroaches or rivers) have natural inalienable rights and it is easy to think of cases where it is not only accepted but considered 'right' to deny people what would in other circumstances be regarded as a fundamental right. Prisoners are denied liberty; internet trollers are denied the right to say what they like; fundamentalist fanatics are (sometimes at any rate) denied the right to indoctrinate their children etc. But at the end of the day, Blackburn admits that 'it would be nice ... if some highly general and undeniable fact about human beings legitimized at least some entries on the menu of natural rights' and he goes on to suggest that this might be something to do with the fact that 'we are conscious, deliberating, choosing animals'.

I entirely agree. But the conclusions which I came to in the preceding section allow me to go a little further. There I argued that the purpose in life was to 'cultivate and stimulate' our higher emotions. It follows therefore that any action which tends to prevent an individual from doing this is an infringement of their natural rights. And, by the way, I have deliberately talked about 'natural' rather than 'human' rights because my principle applies equally to any (conscious) animal. Dogs have a right to be given the opportunity to chase sticks; chimpanzees should not be kept in isolation for long periods; children should not be denied access to education or food.

Blackburn doubts that 'any such derivation could result in anything very specific' but I think the examples I have given are sufficiently specific to be useful. It is notable, though that my maxim does not allow one to infer that everyone has the right to liberty, absolute equality, unfettered freedom of speech or even the right to a fair trial – though it probably does imply that everyone has the right to choose their own religion (provided, of course, that that choice does not impede the rights of others to do the same).

### ***Question 20: Is death to be feared?***

At last we are on firmer ground again. According to the mysterian hypothesis, death occurs when the brain ceases to be conscious permanently. Now every night, our brains move from a conscious state to an unconscious state, but the only difference between this and death is our expectation that we will wake up again. If we have no fear of going to sleep, we should have no fear of death. Naturally the axiom of materialism rules out the possibility of an afterlife – a possibility which I regard as absurd. Even if I am completely wrong – God exists and we do have souls which 'live on' after our death, one thing I am sure of – heaven (or hell or wherever) will be nothing like whatever we could imagine. What is more, I don't see why our 'souls' should take with them any memory of what our life was like on Earth. If heaven is so utterly different, memories of Earth would be pointless. But if I have no memories, then what is left of 'me'? I have a lot more sympathy with the Buddhist concept of reincarnation that I have with the Christian one of heaven.

Having also rejected the idea of an afterlife, Blackburn patiently explains why it is irrational to fear death. I agree with his analysis wholeheartedly and much admire his willingness to take a very controversial but rational stand on the issues of suicide and euthanasia.

As for myself, I may fear the act of dying but I cannot fear death. If I were to be told tomorrow that I had only weeks to live, I am sure I would be choked with emotion and full of bitter regrets.

But having died I can regret nothing.