

Who or what makes your decisions?

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Section 1 Introduction

Pre-amble

The freewill issue is extremely difficult to understand. Why is this?

1. Most people most of the time do not think much about freewill or whether it exists. It always feels like we have freewill.
2. Freewill could only be discussed by philosophers for thousands of years because no-one had any understanding of how the brain functioned. Only in the last 100 years [perhaps in the last 50 years] has neuroscience provided scientific information on brain processes. These thousands of years of philosophical pondering without science has created our current 'colloquial' conversations - still without science.
3. Early in religious thinking - again thousands of years ago freewill became a major basic theme religions. And it continues: freewill is taken as truth.
4. There are also problems with the use and understanding of language. "My" dog actually means you own the dog and are responsible for managing it. "My" liver means it is part of my body but it does mean you manage it. In fact from moment to moment we have no knowledge of the ongoing liver processes.

"My brain" is the same: your brain is part of your body, but you are completely unaware of its processing and you cannot manage or control it.

Visual 3

The Earth goes around the sun.

You all know that. Yet humans took millenia to figure it out. Why? Because every day their perceptions told them the opposite. But it was an illusion.

That illusion probably has done slight harm to human societies.

Today I am speaking about another illusion which has caused huge and continuing harm to human societies: **the illusion of freewill**

In July 2009 when I gave a talk on 'Brain and Mind', those of you with good memories will remember . . . both of you ... I quoted the Red Queen:

Visual 4

"Alice laughed: 'There's no use trying,' she said; 'one can't believe impossible things.'

"'I daresay you haven't had much practice,' said the Queen. 'When I was younger, I always did it for half an hour a day. Why, sometimes I've believed as many as six impossible things before breakfast.'"

-Lewis Carroll, Through the Looking Glass

In that talk I touched on freewill, but only as one of many issues re brain and mind. Today I will offer a deeper analysis of freewill.

The ground we are covering is not difficult - no maths, no quantum mechanics, no periodic table. However, it will probably fly in the face of what seems common sense to you. It may well clash with what you have believed all your life.

That just can't be true, you may say.

But I assure you, everything I present here is well-substantiated by scientific research.

Some speakers finish with an examination. Today we start with one.

Question 1.

Who or what - makes your decisions?

You may not answer 'my spouse' or equivalent.
Write down your answer now in less than seven words.

Question 2.

Do you have freewill?

You may not confer.

Will those who believe they do raise a hand.

You are not alone. It's a fair bet that all over the world most people believe they have freewill. It certainly feels like we do.

And now for the most important question

Question 3. How important are these questions - on a scale of 10 = very important.

Section 2 Brain-mind function

To unravel the brain - mind issue needs clear thinking, Part of the problem is that we are all so used to the colloquial ideas - convenient but often in error - that the scientific explanations seem impossible.

In my previous brain-mind talk I went into considerable detail. I am not repeating that today. Rather I will set out the key ideas in relation to freewill.

YOUR BRAIN is an organ of the body. (the Central Nervous System consists of the brain and the spinal cord. The Peripheral Nervous System connects the spinal cord to all parts of

the body. Throughout this text I use 'the brain' to mean the C.N.S. This has no bearing on the thrust of the paper)

Your brain is a physical organ, in the same way as are your heart, liver, pancreas and kidneys. Each has a specific function in the body. The difference between the brain and other organs is fundamental, **it manages us.**

Visual 5

The brain is probably the most complex object in the world. It has enormous processing power. In particular it continuously provides every experience you have - perceptions, thoughts, and much involved with emotions, and memories.

What the brain does seems miraculous but it all follows from fundamental principles well established by science.

Visual 6

YOUR 'MIND' IS A CONCEPT

On the other hand the mind is not an organ, it seems not to have location. British philosopher Gilbert Ryle, famous for his 1949 book, *The concept of mind*, has been influential in this arena. He said "idea of Mind as an independent entity, inhabiting and governing the body, should be rejected as a redundant piece of literalism carried over from the era before the biological sciences became established."

In this view, and in my view, mind is a concept.

I come now to a crucial point .

YOUR BRAIN CREATES EVERYTHING THAT OCCURS IN YOUR MIND - YOUR PERCEPTIONS and THOUGHTS and has major influences on emotions and how you react emotionally.

Note that every perception or thought which comes into your mind has been PREVIOUSLY generated by your brain.

This means incoming data effects the brain and its functioning before the perception is known to the person, that is becomes conscious, in the mind. Therefore the running experience of what is happening to us and around us is always delayed slightly.

PERCEPTIONS

One aspect is vital in the freewill problem - the production and reliability of perceptions.

It is not hard to imagine that inside your head sits a little you staring out through holes - your eyes. But of course this is not so.

After a signal is received at the eyes there are several transformations of that signal before the brain creates an image which arises in our minds.

As I have already said the mind is best thought of as a concept. 'It has entered my mind' = 'I am aware of' = 'I am conscious of'. All these formulations, and other similar ones, involve -

CONSCIOUSNESS.

Consciousness is extremely difficult to understand. While we are awake we have consciousness. When we are asleep, in a coma or anaesthetised 'we lose consciousness'. [Of course there are levels of consciousness but this does not effect the argument]. It is widely accepted that the brain produces consciousness when specific neuron circuitry is engaged.

Processing within the brain never comes into consciousness. Put another way: we never have awareness of the brain's processing.

It is absolutely clear: whatever the mind is, whatever consciousness is, they are produced by the brain. The mind only exists in consciousness: There is no such thing as an unconscious mind, only an unconscious brain. Without consciousness we have no mind, we are aware of nothing.

It also means that every thought you have has been generated **previously** in your brain. Same for every utterance, every action. The brain is in command.

This means the mind [a concept] can not influence the brain. This is extremely difficult for us to accept.

We are not authoring our thoughts - more on this later. We can't know our next thought. That would require we think our next thought before we think our next thought. You get the drift.

One concept that is especially perplexing to many people. You are not in charge of your brain, you are not responsible for what your brain does. You are not responsible for what perceptions, or thoughts the brain causes to 'come into your mind'.

The brain produces ALL your perceptions. But we need to note that although the brain is astonishing in presenting to us an excellent visual and audio picture [and other sense channels] of the world out there, it also is deceiving us all the time. It is producing illusions which are accepted as reality by humans.

Three linked illusions are central to our concept of ourselves.

Visual 7

1. Illusion: the 'I', that we use so frequently is in control.
2. Illusion: (a variant of Illusion 1) the mind is in control - of our thoughts, speech, actions.
3. Illusion: (another variant of 1) The 'I' has agency.

It certainly *feels* like all three of these are true. But they are not.

You will no doubt see an emerging theme: all our perceptions are generated by the brain. Of sights, sounds, smells, tastes and felt textures. Question: because a perception feels 'truthful', is it. This is a deep issue and is under continuous debate. My summing up is: because you are convinced that a perception is 'the real thing' it may not be.

We feel 'I' am in charge but 'I' is in charge of nothing. You are not in charge of anything.

Visual 8

This is a 'that can't be right', moment. But it is.

From considerable research over 30 + years it is known that the brain always takes decisions at least 1/2 second before it is known by the mind - by the 'I' - you. In recent carefully designed experiments researchers watching running brain scans can in some cases predict direction of a decision up to 7 seconds before the subject consciously takes the decision. Currently there are many such research projects under way.

Thus our decisions, as they are known to us [the 'I' in the 'mind'] - in consciousness were taken by the brain previously.

All this vast processing operation of the brain is always outside of our consciousness and IMPORTANTLY we have no conscious control over it.

Visual 9

You can not choose what comes into your mind; your brain makes those choices.

Your mind, ie you, can have no influence on your brain.

People often say ' I ' take my decisions. When they understand that their brain is taking their decisions, they will often say "I take the decisions because my brain is me"

But each of your organs is busy all day doing their thing. Your liver is your liver. But in no way are you managing it, nor can you be responsible for what it does. Same for your pancreas, heart, blood and so on. They are 'yours', but you have no control over them, and not responsibility for what they do.

The brain is the same. It is processing continuously but you have no control over it and no responsibility for what it does.

There is another important argument against freewill.

Section 3 Determinism

We live in a world of cause and effect. Everything follows from a long chain of previous events. Nothing springs into being spontaneously; there have to be previous events.

At every moment in your conscious life your senses - vision, hearing, tastes, smells, touch - are receiving data from the world around you which is conveyed to the brain. Think for a moment of that huge quantity of data via conversations, books, media, films, computers and so on.

At any moment the millions of neuron networks in your brain are in a specific state say state one. As the many streams of data enter the brain and are processed, in some way not yet fully understood, the neuron networks are being continuously changed to state two, to state three, and so on. At some moment your brain makes conscious to you a perception or thought [or idea, or decision]. It comes into your 'mind'.

Your 'mind' has taken no part of this sequence, and neither have 'you'.

At any moment, say now, you [in your mind]cannot come up with a new idea, decision, or action.

That would mean overcoming the current brain state. Not even the brain can do that. Your next thought will be generated by your brain as directed by its specific data state. And it may be an entirely new idea to you.

Let's look at that from some practical examples.

What does to have freewill actually mean? It surely means that whatever a person choose to do, he could have chosen otherwise. He chose to be a carpenter, but he could have chosen to be a car mechanic, she choose vanilla, but she could have chosen chocolate.

However, if we were able to analyse their brains in ultimate detail we would discover the only decision their brains could make were the ones they made. They, and we, thought they had freewill: they [in their minds] could choose freely. But they had no choice. The brain made the decision. But even that is wrong: the brain had no choice either. The choice followed the deterministic trail of cause and effect.

Consider a man who committed a brutal murder. Is he responsible? The court finds him guilty.

But soon after a brain scan reveals he has a brain tumour in exactly the location which would have caused him to commit a murder. Is he still responsible? He is acquitted.

Although we are a long way yet from detailed analysis of the brains' state, it is argued that if we could know the long string of prior causes - bad genes, awful childhood, history of mental problems, marital breakdown and so on the sense of culpability disappears.

A story. Say you were lying on the grass in Sandford park on a sunny day and drifted asleep. You wake up to find a crocodile three feet from your face. It is fairly easy to see you have a problem.

Now change the scene. No crocodile. Instead there is a man with an axe in his hand lifted above his head. The problem changes in interesting ways.

Let's say you survive the ordeal but lose a hand.

Now imagine you on the witness stand are confronting your attacker. No doubt you would feel feelings of hate towards your attacker - which might persist for years.

How much time would you spend hating the crocodile if it was your attacker? You might even go to the zoo with friends or children and point out the crocodile - this is the beast that nearly killed me. [Perhaps with the other hand.]

Which state of mind would you prefer to have?

The idea of freewill accounts for the difference. You probably would think the croc had no freewill - it did what crocs do. But you would assume the man had freewill - he could choose whether he attacked you or not.

Section 4 Who or what is authoring your thoughts, speech, actions?

I am arguing you [the ' I '] are not the author of your thoughts, speech and actions. Your brain is.

But the problem of freewill is deeper than we may think. Your thoughts just appear in consciousness, in your 'mind'. What are you going to think next? What are you going to say next? It is happening here and now. You are here no doubt to hear a talk, and of course to chat with friends.

But as you try to listen, thoughts just appear in your mind. Haven't you noticed. "John is certainly getting older". "I must really get more exercise" and so on. We are not authoring them. We can't know our next thought. That would require we think our next thought before we think our next thought. You get the drift.

Let's do some research. I am going to ask you to make a choice. During the choice process I would like you to notice what is going on in your mind.

I would like you to choose a city. Any city in the world, without constraint. Take your time.

Does everyone have a city?

Now for everyone here there will be a large number of cities that you have never heard of , probably hundreds in China alone. So you couldn't think of one of those. Your brain just does not have the data.

How many DID come into your mind, into consciousness.

Think of this: were you free to choose any of those cities which did not come into your mind? Obviously not.

Probably up to half a dozen went though your mind. How many for you? Which one did you choose? Why did you make that choice?

But do you really know why you made your choice?

In lab experiments of this type subjects sometimes have an explanation of why they made that choice - but do they really know? Note that in experiments where subjects are forced to make a decision which they think they are making freely, they always have an explanation and it is always - by definition - wrong.

Few of us think about the process going on as we make a decision. It just happens - we think. Actually the brain is making the decision from its data base and its immense processing power. And you, through the 'I', through your mind, have no way of influencing the brain.

Not also how difficult it is on some occasions to 'bring to mind' the name of that uncle in Bridgewater, or where you left your keys, or where you arranged to meet your partner in 30 minutes time. No matter how you try it just won't come. You can't get your brain/memory to deliver. Where's your freewill?

Everything is just happening. Your brain doesn't think your thoughts first either. It is continuously processing huge quantities of data but it makes conscious a very fraction of the end product of this. But note the brain has no freewill either. It is always obeying determinism - endless causes and effects.

Note that determinism is not fatalism. Fatalism, and similar ideas like fortune telling, say that your whole life is foretold and you must follow that path. Fatalism is false.

Your life unfolds second by second but can be changed at any point by circumstances and events. You have lived in Cheltenham for eleven years. Suddenly your job folds and you find a new post in Aberdeen. You meet new friends, you are sent on a course which opens new fields for you. You have to fly to the U.S. once a month etc. Your brain has received a huge batch of data quite different from its normal feed. You are changing. But it is still determinism that does it.

Take Home list of ideas:

1. The brain is an organ of your body.
2. The brain has super-massive processing power.
3. Your brain is a part of you, but you can not know or manage any of its processing, nor can you be responsible for that processing, or for any decision it makes.
3. Your 'mind' is a concept and is same as 'I am conscious of.....'.
4. YOUR BRAIN CREATES EVERYTHING THAT OCCURS IN YOUR MIND - YOUR PERCEPTIONS and THOUGHTS.
5. ALL perceptions and thoughts are generated in the brain BEFORE you are aware of them.
6. THE 'MIND' CANNOT INFLUENCE THE BRAIN.
Consciousness is extremely difficult to understand. No-one does.
7. We live in a world of cause and effect. Everything follows from a long chain of previous events.
8. Data is streaming into the brain every minute while we are conscious, adding to a vast amount already in storage in some form. At any unpredictable moment the brain may generate new ideas or decision.
9. Thoughts and ideas 'just appear' in our 'minds'. You do not know what thought will become conscious next or why.
10. Similarly, in free conversation, you never know what your next sentence will be.

Section 5 The enormous influence of the illusion of freewill

Here we look at why the illusion of freewill has had and still has an enormous influence on us all, on societies.

The question of freewill has perplexed philosophers and theologians for millennia and still does. Not surprisingly the philosophical consensus long ago was that humans had freewill and therefore they are responsible for what they do, and therefore must answer to the law in this world and to God after death.

These 'principles' are of great importance in 'morality'. Also whether or not we have freewill is crucial to what most people care about - religion, public policy, law, a just society, education, politics, feelings of personal accomplishment, emotions like guilt, remorse and pride. So, much of our lives depends on us viewing others and ourselves as conscious agents with free choice.

If humans do **NOT** have freewill the foundations of religion and of law collapse. For if humans cannot consciously decide what they do, what they say, how they live, what would be the meaning, what would be the point, for them to be judged by God or the law? Similarly, how we understand ourselves, how we relate to others, what public policy should be embraced, social psychology at large, would be heavily shaken, and require radical re-orientation.

So at the very heart of culture and society there is a deep paradox. Most if not all western institutions - capitalism, the law and justice system, education, etc are all based on the assumption of freewill. Yet the mainstream neuro-scientific paradigm points to the conclusion that freewill is an illusion.

Thus, the question of whether humans have freewill is NOT trivial. If it could be shown conclusively that we do not have freewill it would have enormous effects on most facets of all societies.

So how have humans become so convinced they have freewill. The answer is obvious: because it seems that way. Our perceptions seem to confirm continually we have freewill. And this has been the case throughout history. Having freewill seems obvious to us all and is powerful. **But remember the earth goes round the sun, yet the opposite was also a powerful illusion - and wrong - and persisted for millennia.**

Section 6 Things are changing: Neuroscience and the Law

But things are changing. The incredible advances in neuroscience over the last fifty years means that the functioning of the brain is now becoming revealed - for the first time in human history. Freewill is being examined and challenged. Most of the leading universities in the world are researching this arena and many universities have departments of Neuroscience and Law. There are many conferences on this subject and an increasing stream of professional peer-reviewed papers on the subject.

Neuroscientific evidence increasingly comes into legal trials.

The internet is buzzing with this subject. I finish with a quotation from Baylor College of Medicine, U.S. 'Initiative on Neuroscience and the Law'. Baylor is a Christian University in Houston, Texas. I use this example to show how far these ideas have spread.

Visual 10

"Because most behaviour is driven by brain networks we do not consciously control, the legal system will eventually be forced to shift its emphasis from retribution to a forward-

looking analysis of future behaviour. In the light of modern neuroscience, it no longer makes sense to ask "was it *his* fault?"

Visual 11

Instead, the only sensible question can be "what do we do from here?" -- in terms of customized sentencing, tailored rehabilitation, and refined incentive structuring."

Further Reading

The quest for Consciousness, Christof Koch 2004. For neuroscientists. Difficult to read /understand.

Making up the mind, Chris Frith, 2007. For general public, easy to read and understand.

The Conscious Mind, David J. Chalmers, 1996. For academics, a classic.

Journal Of Consciousness Studies, 2002, Special Issue: Is the Visual World a Grand Illusion? 14 papers by key researchers in consciousness arena.

Conversations on Consciousness, Susan Blackmore, 2005. A must read of challenging conversations between Blackmore [researcher] and some of worlds' leading scientists and philosophers in neuroscience.

The Wayward Mind, Guy Claxton, 2005. Wide-ranging polymathic enquiry into the unconscious. Perhaps over-rambling.

Hare Brain, Tortoise Mind, Guy Claxton, 1998. Quick read now somewhat dated.

Science, Order and Creativity, David Bohm and F. David Peat, 1987. Not strictly on neuroscience, but challenging our views of the world in many dimensions. David Joseph Bohm FRS was an American theoretical physicist who contributed innovative and unorthodox ideas to quantum theory, philosophy of mind, and neuropsychology.

ADDENDUM

At the Society for Neuroscience annual meeting Nov 9 -13, 2013 San Diego, California (the largest meeting for neuroscience in the world), Professor Nita Farahany J.D., Ph.D., who sits on Obama's bio-ethics advisory panel spoke about her research into 1,500 judicial opinions between 2005 and 2012.

Increasingly, defendants were using neurological evidence in an effort to show they were not responsible for criminal actions.

Despite the fact that the neuroscience was often poorly understood, the evidence had succeeded in reducing sentences and in some cases cleared defendants of guilt altogether.

Farahany said judges and lawyers urgently needed educating in neuroscience.

As far as I can understand the cases involved issues in the brain shown by imaging. Arguments regarding freewill are yet to come.

