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## Reality: How does consciousness fit in?

03 October 2012 by [Michael Brooks](#)  
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*Some theories hold that reality and consciousness are one and the same. Is the universe really all inside your head*

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DESCARTES might have been onto something with "I think therefore I am", but surely "I think therefore you are" is going a bit far? Not for some of the brightest minds of 20th-century physics as they wrestled mightily with the strange implications of the quantum world.

According to prevailing wisdom, a quantum particle such as an electron or photon can only be properly described as a mathematical entity known as a wave function. Wave functions can exist as "superpositions" of many states at once. A photon, for instance, can circulate in two different directions around an optical fibre; or an electron can simultaneously spin clockwise and anticlockwise or be in two positions at once.

When any attempt is made to observe these simultaneous existences, however, something odd happens: we see only one. How do many possibilities become one physical reality?

This is the central question in quantum mechanics, and has spawned a plethora of proposals, or interpretations. The most popular is the Copenhagen interpretation, which says nothing is real until it is observed, or measured. Observing a wave function causes the superposition to collapse.

However, Copenhagen says nothing about what exactly constitutes an observation. John von Neumann broke this silence and suggested that observation is the action of a conscious mind. It's an idea also put forward by Max Planck, the founder of quantum theory, who said in 1931, "I regard consciousness as fundamental. I regard matter as derivative from consciousness."

That argument relies on the view that there is something special about consciousness, especially human consciousness. Von Neumann argued that everything in the universe that is subject to the laws of quantum physics creates one vast quantum superposition. But the conscious mind is somehow different. It is thus able to select out one of the quantum possibilities on offer, making it real - to that mind, at least.

Henry Stapp of the Lawrence Berkeley National Laboratory in California is one of the few physicists that still subscribe to this notion: we are

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If a tree falls in the forest and there's nobody there, maybe there isn't even a forest (*Image: KeystoneUSA-ZUMA/Rex Features*)

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**Wasp has hints of a clockwork brain**



10:00 06 October 2012  
The tiny greenhouse whitefly parasite has brain cells so slender, they may not behave like normal neurons – and may work

"participating observers" whose minds cause the collapse of superpositions, he says. Before human consciousness appeared, there existed a multiverse of potential universes, Stapp says. The emergence of a conscious mind in one of these potential universes, ours, gives it a special status: reality.

There are many objectors. One problem is that many of the phenomena involved are poorly understood. "There's a big question in philosophy about whether consciousness actually exists," says [Matthew Donald](#), a philosopher of physics at the University of Cambridge. "When you add on quantum mechanics it all gets a bit confused."

Donald prefers an interpretation that is arguably even more bizarre: "many minds". This idea - related to the "many worlds" interpretation of quantum theory, which has each outcome of a quantum decision happen in a different universe - argues that an individual observing a quantum system sees all the many states, but each in a different mind. These minds all arise from the physical substance of the brain, and share a past and a future, but cannot communicate with each other about the present.

Though it sounds hard to swallow, this and other approaches to understanding the role of the mind in our perception of reality are all worthy of attention, Donald reckons. "I take them very seriously," he says.

**Michael Brooks** is a consultant for *New Scientist*, and author of *The Secret Anarchy of Science (Profile/Overlook)*



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### What Is Consciousness?

Fri Sep 28 23:47:32 BST 2012 by **Damir Ibrisimovic**

I have only one question: What is consciousness?

Consciousness seems to be another big word physicists like to use easily. It also seems that they are using mind as synonym for consciousness. Let me therefore rephrase the question: What is consciousness or mind?

Heretically yours,

Damir Ibrisimovic

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**What Is Consciousness?**

mechanically instead

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17:36 05 October 2012

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for the smaller males

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19:00 04 October 2012

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17:48 04 October 2012

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There is a growing group of philosophers suggesting that consciousness and mind are illusions. The Copenhagen interpretation of Quantum Mechanics seems to fly in the face of centuries of scientific progress which has steadily moved humans from the centre of the universe. It almost seems to go back to Bishop Berkeley's idea that our minds make up reality as we go along.

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### What Is Consciousness?

Tue Oct 02 05:49:49 BST 2012 by **Damir Ibrisimovic**  
<http://home.pacific.net.au/~damir-dsl/>

Dear Ullrich,

Luckily, you used plural --- minds. Indeed, our cultures determine, to a great degree, what is real. In this, we can also speak about physicists' culture with Copenhagen school as a subculture. In other words, we together make up the most of our reality as we go...

However, there is an elusive foundation to realities of all of our cultures. The foundation is elusive for a very simple reason: Each of our cultures would like its reality to be the only "real" one --- including Copenhagen's one. Because of that, we never really looked at foundations...

We also do not like to question some of our basic assumptions --- habitual thoughts repeated countless times not only by us -- - but by generations before us. The typical example is determinism --- believe it or not --- still prevailing habitual thought in the academia. To determinists, we are simply speaking --- puppets on strings pulled by causes...

In this, even my "joke" does not help. All empirical evidence, my "joke" offers --- is easily countered by speculations like: "There must be a hidden cause." Fortunately, smart people realise that they cannot offer empirical evidence --- and keep quiet. Only "defenders of the faith" (inquisitors) get emotionally disturbed and start ranting...

As with any other habit --- habitual thoughts are hard to break...

Have a nice day,

Damir Ibrisimovic

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### What Is Consciousness?

Thu Oct 04 08:54:41 BST 2012 by **Dave Gayler**

If you accept the possibility that there are perhaps many universes, then you are part of the one I choose to inhabit at the moment, and vice versa. That doesn't put me or you at the centre. Secondly, why do you make your underlying assumption that a universe surrounding my consciousness necessarily has me at its centre?

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### What Is Consciousness?

Tue Oct 02 09:24:14 BST 2012 by **Peter Kinnon**  
<http://www.unusual-perspectives.net>

Consciousness can now be seen to be is a rather straightforward biological feature.

In fact, it is simply the navigational facility which enables an organism to interact optimally with its environment. An evolutionary necessity! A significant component of a creature's fitness for its environment that it subject to strong selection pressures. .

The level at which it operates depends upon the degree of interaction with its environment required for optimal function.

For a bacterium, it is minuscule. For, say, a cat, it it moderate.

For our species, whose interactions with the environment (as evidenced by the billions of systems and artifacts we have generated) are beyond compare, it is humongous. Awe-inspiring, perhaps, but certainly not mysterious.

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### What Is Consciousness?

Thu Oct 04 18:50:27 BST 2012 by **Phil**

What about the subconscious? I was crossing a road and broke into a run before I was aware of an approaching car. And as for the 'tree falls in the forest' conundrum, what of the consciousness of foxes, birds, ants, maggots? It is a gross conceit to say that the existence of an external world depends on my consciousness. An important stage of personal development is when one's consciousness moves away from the apparent centre of the universe. It is patronising of Peter Kinnon to say that a cat has moderate consciousness. They may lack our mental abilities, but many felines do have a greater consciousness than many humans.

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### 'scartes Curtailed

Sat Sep 29 08:28:18 BST 2012 by **ullrich fischer**

The quote from Descartes is incomplete. It should be "I doubt, therefore I think, therefore I am". I believe the distinction is important

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### 'scartes Curtailed

Sat Sep 29 18:45:47 BST 2012 by **Eric Kvaalen**

Ullrich, check your facts.

[http://en.wikipedia.org/wiki/Cogito\\_ergo\\_sum](http://en.wikipedia.org/wiki/Cogito_ergo_sum)

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### 'scartes Curtailed

Mon Oct 01 07:41:32 BST 2012 by **ullrich fischer**

(long URL - [click here](#))

Looks like he actually used both forms of that quote. Still, the longer one seems more apt.

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### 'scartes Curtailed

Mon Oct 01 18:00:31 BST 2012 by **Martin**

What Des Cartes actually said was "I drink, therefore I am....", shortly before lapsing into unconsciousness. The remainder of his remark was slurred and unintelligible.

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### 'scartes Curtailed

Tue Oct 02 09:15:09 BST 2012 by **Peter Kinnon**  
<http://www.unusual-perspectives.net>

As I remarked in part of my reply to the main article (mysteriously disappeared!) :

Not really, poor old Descartes had perhaps been on the bottle before making this hallowed pronouncement. One reason being that he had to first assume the validity of logical propositions.

Without that unwarranted assumption the argument (in whichever form) goes up in a puff of smoke!

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### How Typically Ego-centrical

Wed Oct 03 18:04:34 BST 2012 by **Bob**

I would have titled this : an ego-centric universe ?

If man cannot see something, then microbes cannot see it either, and so then the universe doesnt exist?

This is wrong. Microbes were there first and will be there last and they will be the kings of the universe, regardless of wether man is there or not in the meanwhile

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### How Typically Ego-centrical

Thu Oct 04 15:08:37 BST 2012 by **Jimmy**

The thing that is always bothered me is that time doesn't really exist in quantum physics or at least it has no direction, entropy gives it a kind of direction when you scale things up but it's not fundamental. Consciousness perceives time so maybe the universe as we perceive it is completely ego centric as we think time a real thing, if you see what I mean. I may be completely wrong though.

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