

Re: Why physicists should pay attention to the mind

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- *From:* Ben Rudiak-Gould <br276deleteme@xxxxxxxxxx>
 - *Date:* Thu, 26 May 2005 19:07:36 +0000 (UTC)
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I hope you'll forgive me for making only a few scattered comments on this 6000+ word essay. I did read the whole thing.

You set followups to alt.philosophy.debate, but (a) that group doesn't look like a hotbed of intelligent philosophical debate, and (b) I'm more interested in the physics side of things anyway. I hope that spr readers who don't like this stuff will not have too much trouble killfiling the thread.

First of all, your thesis is that physicists should pay attention to the mind. Presumably you would not ask the same of, say, mechanical engineers. What's the difference? We have layers of abstraction in science, so that we can work at different levels in parallel without having to worry about what's going to be discovered above and below. I think that there should be some physicists thinking about epistemological questions, and the rest should think about other things. Which is pretty much the way it is now. Parochialism is bad, but I don't think it's disastrous.

rof@xxxxxxxxxxxxx wrote:

- > Physicists who are realists
- > consider themselves opposed to those stupid people who
- > think the world isn't real. They invite such people
- > to jump out of the window if they really believe that
- > the world isn't real, and thereby discover just how
- > real the world is.

I think that such invitations are directed at the stupid people who think that the law of gravity is a social construct. Not at epistemologists.

- > Appeals to authority in physics should always begin with Einstein:

You quote Einstein a lot. I like his outlook on physics, and to that extent I agree with you. But most useful physics isn't done that way. Some is.

- > I assert that the
- > widespread rejection of the "wavefunction represents
- > knowledge" position by modern physicists, and the
- > subsequent arising of the "measurement problem",
- > stems from the fact that modern physicists refuse to

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- > think about epistemology, because it has something
- > to do with the mind.

The measurement problem is that quantum mechanics can't predict the behavior of some systems, because it says that measurement causes a reduction from a pure to a mixed state, but it doesn't say what measurement is. It's a real predictive failure of the theory. The experiments where this becomes an issue are rather implausible, but they're not excluded by known physical laws, so the quantum formalism can be said to predict its own downfall, if not as definitively as GR does. The post-Copenhagen interpretations make unambiguous predictions for these experiments, though the measurement problem remains because we don't know which prediction is correct.

- > The material objects with which physics deals are not
- > simply detected by the mind. The things which the
- > mind simply receives are sensations.

The material objects with which engineers deal are not easily constructed from the quantum fields of the standard model. Which is why engineers should *not* think about the standard model, as a rule.

- > The hope that,
- > somehow, sometime, somebody will find a particle moving
- > along a certain type of curve, or an electric field
- > oscillating in a special way, and that that discovery
- > will explain phenomenal experience, is a severe self-delusion.

Sorry, I just don't believe that this is true (nor that it's false). The trouble with the philosophy of mind is that there are convincing arguments for the absurdity of every position one can take on the issue. One of those arguments has gotta be wrong.

For what it's worth, here's a counterargument. Mental phenomena (consciousness, qualia) can influence the physical world, because otherwise we wouldn't be able to talk about them (or type, as the case may be). We can in principle use the methods of physics to track down the nature of that influence. Whatever we discover will surely tell us something about the nature of phenomenal experience.

- > The thing which is called "the system" and
- > which is represented by a Hilbert space can continue to grow and
- > take in more and more of the mediate instruments which we use to
- > make detections until it goes into our eyes and then into the brain,
- > as Wigner pointed out.

That's true classically as well. It's a stronger argument classically, because in the quantum case the reduction to a mixed state might occur at some earlier point in this process for all we know, whereas classically it doesn't matter.

I think Wigner's paper is worthless both as philosophy and as physics. The

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only question he talks about is whether human consciousness can have an effect on the physical world — as though anyone (except Descartes, I suppose) thought that it didn't. The point of contention isn't whether consciousness can influence the physical world, or whether conscious perception can cause a collapse of the wave function. It's whether **only** conscious perception does so. Wigner never addresses that question at all.

- > With due respect to Aaron, I advocate not surrendering, not
- > being humble, and walking unafraid into the field of philosophy
- > if that is what is necessary to make progress.

Many people have done this. Progress has not been made. I'm willing to continue supporting a few of these people with my tax dollars, and I eagerly await reports of interesting results.

- > One must conclude that if you were
- > really looking at a curved world with things moving along curved
- > trajectories, your perceptual apparatus would "adapt", and make the
- > trajectories, which you see traced out again and again by various
- > objects, look straight. If you find this shocking, then you understand.
- > If you find it confusing, you don't.

I find it neither shocking nor confusing. (What does that make me?) What you've described is the reason that physicists deal only with visual evidence that is invariant under continuous distortions of the visual field. They are aware that their eyes can play tricks on them, and so they design measurement devices to mediate between their senses and the world. The measurement devices produce discrete results. A three is always a three, unless you're in a highly altered state of consciousness.

In other words, physicists **do not trust the evidence of their senses**, except in a carefully prescribed domain. And that domain has survived unchanged through the paradigm shifts of the last century. What changed was our understanding of the measurement devices.

— Ben

- ***Follow-Ups:***

- ◆ ***Re: Why physicists should pay attention to the mind***
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- ***References:***

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