

Re: Why physicists should pay attention to the mind

Source: <http://sci.tech--archive.net/Archive/sci.physics.research/2005-05/msg00512.html>

- *From:* Ralph Hartley <hartley@xxxxxxxxxxxxxxxxxxx>
 - *Date:* Sat, 28 May 2005 09:11:59 +0000 (UTC)
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I don't have time to reply to your whole post right now (and it would be off topic). In this post I will restrict my comments to one point, relating to the interpretation of Quantum Mechanics.

rof@xxxxxxxxxxxxx wrote:

- > Second, I want to set the stage by caricaturing a "debate" in
- > philosophy, namely the debate between ontologists and epistemologists.
- > In physics, there is a corresponding debate between people
- > who call themselves realists and those who don't.
- >
- > Ontologist: I'm examining the things that exist. Really really exist.
- > Like the world. That really really exists. It's really real.
- >
- > Epistemologist: We need to pay attention to the way in which we
- > acquire knowledge, and to the status of that knowledge.
- ...
- > 2. The vast majority of physicists are ontologists.

I don't think so.

The reason physicists don't like to talk about interpretations of quantum mechanics is that they are epistemologists.

Physicists, almost universally, are committed to a **particular** way of acquiring knowledge. Build theories, test with experiment, repeat, try the simple ones first. Some might even claim that's the **only** way to acquire knowledge, but even if it isn't, it's their way.

- > Anyone
- > who calls himself a realist is an ontologist, and most
- > physicists are realists. Physicists who are realists
- > consider themselves opposed to those stupid people who
- > think the world isn't real.

Most physicists are indeed realists in the sense of believing in a real physical world (in day to day life, who doesn't?), but when it comes to what aspects and properties of the world are "real", epistemology comes first. (so much so that I couldn't even think, much less write, "real")

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without scare quotes)

Two theories that agree on all possible experiments are said to be physically equivalent. If you ask a physicist which theory is really true, she's likely to answer, "they are equivalent," and consider the matter closed.

The different interpretations of quantum mechanics are equivalent in this sense. Because they are theories that disagree about what is real, an ontologist would consider them very different from one another, but physicists are such extreme epistemologists that they refuse to acknowledge the validity of any question that cannot be answered by an experimental test.

If someone **insists** on getting an answer to a question like, "is the wave function really really real?" that's when angels and pinheads get mentioned. This may be seriously unfair as a characterization of philosophy, but it does express the extent to which the question is not a question about physics.

Building theories and testing them with experiment is what physicists do, and questions that can (in principle) be answered by that process are what physics is about.

There are some theories that people call "interpretations" that do make different predictions than QM. Those are really different theories, not interpretations at all. They amount to saying, "My interpretation of quantum mechanics is that QM is wrong." Most physicists doubt those theories are correct (they have their own problems), but concede that they **are** right or wrong.

Ralph Hartley

- *Follow-Ups:*

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

- ◇ *From:* Charles Francis

- *References:*

- ◆ ***Why physicists should pay attention to the mind***

- ◇ *From:* rof

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