Intro

Metaphysics of Physics is the much needed and crucial voice of reason in the philosophy of science, rarely found anywhere else in the world today. We are equipped with the fundamental principles of a rational philosophy that gives us the edge, may make us misfits in the mainstream sciences but also attracts rational minds to our community.

With this show, we are fighting for a more rational world, mostly by looking through the lens of the philosophy of science. We raise awareness of issues within the philosophy of science and present alternative and rational approaches.

We are your hosts and guides through the hallowed halls of the philosophy of science. Dwayne Davies, my husband, is the founder, primary content creator and voice for Metaphysics of Physics. I am Ashna and I help out however I can. You can find out more about us on the About page of the website.

You can also find all the episodes, transcripts, subscription options and more on the website at metaphysicsofphysics.com.

Hi everyone! This is episode nineteen of the Metaphysics of Physics podcast and Today we are going over the Bill Gaede video "What is Physics".

If you want to know what a math-magician is, you are going to have to keep listening until right before the end of the segment covering the Bill Gaede video.

After that, we will discuss the Thanos bit and you can see how that is relevant.

Let's start by diving into the video, shall we?

Math-Magicians

Bill Gaede starts off by discussing answers to a question he asked on some internet forum. The question went something like:

"Is Quantum Mechanics irrational and illogical?"

This is a good question. It sure seems that it is irrational and illogical. If you have listened to this show before, followed us on Facebook or read

our blog, then you might know that we certainly think quantum mechanics is both irrational and illogical.

Unless you think this is somehow not illogical or irrational ...

What kind of answers do you suppose he received to this perfectly valid question?

Well, Mr Gaede states four such answers given to him:

1. "Why do we, humans, want everything to be logical?"
2. "It is NOT irrational and illogical ... just non-intuitive."
3. "Why should human logic and rationality apply to quantum mechanics?"
4. "It's man's comprehension of such phenomenon that is illogical and irrational."

We have heard all these responses in some form or another several times. And we imagine Gaede has heard them several times since he encountered them in that forum post.

Let us provide my thoughts on these answers.

1) "Why do we, humans, want everything to be logical?"

Not all of us do. Many of us are perfectly happy with illogical answers. Even though illogical answers do not help us understand the world. Even though such answers generally impede our ability to understand the world.

However, many other people do want everything to be logical, certainly when it comes to science. We know that the only answers which are of any use are those which are true. Those which are reached according to valid, well-supported chains of reasoning and which are in agreement with reality. That is, those which are logical.

Damn Aristotle for making us think science could be logical ...

What is the alternative? Answers which are not based on sound reasoning and which do not agree with reality? What use are those? If the answer is not true, then it is of no value. Even if it happens to be true, if it is not based on sound reasoning, then we cannot know whether or not it is true and we have no reason to believe that it is.

That is why some of us want our knowledge to be logical. Because we want answers which are true and we want a basis for knowing whether they are true or not.

2) "It is NOT irrational and illogical ... just non-intuitive."

First of all, it is irrational and illogical. What else would you call it? It asserts all sorts of contradictions, impossibilities and mutually exclusive things. Such as particles being in mutually exclusive states, properties not definitively existing unless observed, things magically traveling from A to B without covering any of the intervening space and so forth.

What else would you call something that makes claims which openly defy what we know to be true about reality? For no reason and against all reason. And against reason on purpose!

Don't believe us that quantum mechanics is irrational on purpose? Well, listen to our discussion of Niels Bohr, one of its founders. And then consider that essentially everyone in the field agrees with him and holds to very similar philosophical premises.

Refer to: https://metaphysicsofphysics.com/episode-seven-bohrs-philosophy/

So, yes, it is in fact very illogical, which means it is also irrational. And doubly irrational for trying to be illogical and to pretend reality is not what it is.

Whether or not something is intuitive is rather irrelevant when it comes to science. Conclusions based on anything other than logic and reason do not matter. Your initial emotional reactions do not really matter. What matters is what you can show to be true using reason.

3) "Why should human logic and rationality apply to quantum mechanics?"

Because logic and rationality apply to everything. Logic is the process of applying elementary methods of thinking in order to identify things as they are. Principles such as the Law of Non-Contradiction. Laws which apply to thinking about everything, be it the tiniest quantum particle or the most massive galaxy.

The laws of logic are not simply conventions of thought. They are not simply rules we impose upon reality because it suits us. They identify

requirements which all thought must adhere to in order to understand reality as it is. The laws of logic describe principles of thought which must be adhered to if we wish to reason about anything at all and be sure that our reasoning is valid.

They identify basic facts of reality which apply to everything that exists. To exist at all is to be subject to the laws of logic. There is no reason why the subject matter of quantum mechanics is outside the realm of logic.

Rationality is the recognition of the laws of logic and an adherence to thinking in terms of these laws. And is required in order to properly understand reality.

So, a better question would be: why shouldn't we expect quantum mechanics to be subject to the laws of logic and rationality?

Once we abandon logic and reason, we get quantum mechanics. Large parts of which make as much sense as the Flat Earth theory.

4) "It's man's comprehension of such phenomenon that is illogical and irrational."

I take it to mean that what we think about such phenomenon is illogical and irrational and is therefore wrong.

This is most certainly the case. A great deal of what we think we know about the quantum world is illogical and therefore wrong. But, not simply wrong. Grossly irrational and entirely without any rational basis.

But what if this is meant to imply that we are just thinking about it wrong? That it *is* the way they say it is and we just must accept it and that it would be illogical and irrational to deny it.

Well, this is wrong. We should not reject the way we know reality to work. We should not reject logic and reason, the only means we must understand the world. Not if we want to learn about the world, understand how it works and deal with reality as it really is.

If someone does so and makes irrational claims, we must not simply accept that is the way it is and that we are wrong about how reality works. We know better than to do this. With a rational philosophy, we can understand the nature of objective reality and our responsibility to

deal with reality as it is, not as we declare it to be or how we want it to be.

Now, let us get back to what Mr Gaede is talking about, shall we?

At about 4.30 (4 minutes 30 seconds into the video), he says this:

"People have this notion out there that, you know, science is not supposed to be rational."

That is certainly true, many people do not expect science to be rational. Not fully and certainly not consistently.

This is not limited to laymen. Many scientists, particularly those in the field of physics, do not expect science to be rational!

"So, if you're wondering why we have big bang, black hole, and some of these fantastic theories out there it is because a lot of these people have been conditioned, since they were children, to believe in these kinds of stories."

Is the Big Bang theory a fantastic theory? Oh certainly, in many ways it is. We cover some of that in episode three of the podcast

[Editorial: The episode says episode two, but this was a mistake, it is in fact episode three as it says here in the transcript]

Refer to: https://metaphysicsofphysics.com/episode-three-the-universe-and-the-big-bang

What about all this stuff about black holes? What is wrong with the theory of black holes? Haven't we seen black holes?

That recent "black hole photo"? It is no more a photo of a black hole than this is.

Well, there are several issues with this. First, black holes are supposed to contain a singularity.

What is that? A mathematical point with infinite density, or so they allege.

A mathematical point? An abstraction? Is that what powers black holes? Well, no. If black holes are real, they certainly do not have mathematical abstractions in them. Saying that explains nothing about the real world.

So, since the concept of singularity is essential to that of the idea of a "black hole", the entire concept is invalid.

"[M]ath-magicians, as I call them, they have not figured out how this universe works."

What does Bill Gaede mean by math-magicians? Well, later we shall see that this is an apt description of what many mathematical physicists are trying to get away with. Let me explain.

Let's take the example of fields in physics. They say that electromagnetism works by means of a field. Great! Now, what is a field? Please explain how this works.

Well, they do not have an explanation. They are not attempting to explain how the physical universe works. They are throwing up a smoke screen in order to obscure the issue. Much like a magician might throw up a smoke-screen as a means of misdirecting the audience. Except in this case they are throwing up a field as an illusion, as a trick in order to try to avoid having to explain how reality works.

So, that is what he means by math-magician. Which is a term we quite like here at Metaphysics of Physics and which you are going to hear more of on this show. Especially when quoting Mr Gaede.

How else should we describe people that try to throw up illusions of doing science? Illusions that attempt to distract us from the fact that they are not doing physics, but mathematics. Even though they are trying to fool us that they are doing physics.

Math-magician indeed...

Here is a math-magicians unintelligible spell book ...

Alright, that brings us to the end of this segment. Yes, we know we barely started discussing the video. But we got a fair bit out of it. We will return to it next episode or the episode after that.

Current Affairs Segment

We have not done one of these segments since the first one several weeks ago. So, let's see what we have for you today.

Since Avengers: Endgame came out recently perhaps now we can talk a bit about the villain of that movie: Thanos. If you have not seen Avengers: Infinity War and do not want *any* spoilers, then you might want to stop listening now. Although, all we are discussing is the main villain's motivation, which is not much of a spoiler. And something a lot of people are vaguely aware of.

If you are still listening, you are about to receive spoilers for the movie Avengers: Infinity War. Last chance to turn back!

Alright, since you are still listening, you know that at the end of the movie, Thanos wants to snap his fingers and destroy half of all the life in the universe.

Using this thing, the Infinity Gauntlet, complete with reality-warping stones.

Why? Because he thinks overpopulation is a universal problem and which is his place to try address. Which seems to be the reason he sought to go to the trouble of acquiring the Infinity Stones and assembling them into the Infinity Gauntlet in the first place.

So, is committing genocide and killing half of the universe justified in order to achieve this goal? Of course not!

Granted, the writers do not seem to want us to think this. We are clearly meant to disapprove of his methods and to judge them as evil.

But, what about his motivation itself? What are we meant to think of that? Is his desire to cure overpopulation a noble one that should be solved using less radical methods?

Yes, it would seem that's what they are going for. Infinity War goes out of its way to make it clear that we are meant to sympathize with his motivation. And with the character himself. It goes to great lengths to make us think that he is a somewhat sympathetic character with good intentions taken too far.

Does Thanos have a valid point? No, not really. This is based on long-debunked and fallacious claims of the scarcity of resources that have never been supported and long contradicted by known facts.

Virtually no resource of great importance has become critically scarce and many become far less scarce as populations grow. This is because

populations can typically only grow to the extent that resources allow them to do so. If resources were as scarce as such theories allege, populations would not be able to reach these levels in the first place.

As resources expand, assuming people are free to use their minds and innovate, we can expand our access to resources and develop or discover new ones. So, even if we were to use all the oil today, we would be able to replace it with a new resource or find a way to do without that resource.

But, more than this, the resources in question have proved to be practically inexhaustible. There is so much oil, precious metals and other valuable resources in the ground that it would take inconceivable amounts of time to exhaust the Earths supply! And most supplies of manmade resources can be resupplied or replaced without great catastrophic effect.

So, it is practically inconceivable that overpopulation could come up. Given that populations only tend to grow as far as their resources allow. The resources available to use allow us to support far greater populations than is likely to ever be an issue.

Notice how similar Thanos' means are to the logical end of environmentalists. The logical conclusion of environmentalists is that humans should all die so that the environment is safe from human impact.

Perhaps all this is a thinly disguised form of environmentalism. Which has never concerned itself with facts anyway. And which wishes to commit genocide on a far wider scale than Thanos the Mad Titan.

His motivations were far less idiotic in the comics. Extremely evil, but not as idiotic. He was "simply" a radical nihilist. He loved Death (an actual anthropomorphic being in the comics) and was trying to get her attention.

Insanely evil plan and one could argue stupid in its own way. But, still a lot less cringe-worthy.

So, why not go with that? Two reasons as far as we can see.

One, they seem to think the comics thing is too much like "Evil for evil's sake", which they apparently do not approve of.

Two, this way they get to make Thanos a sympathetic villain, which the movie makes clear they were going for. And it is very successful in this regard, as it is very hard to miss.

So, we *are* meant to sympathize with the motive for his genocide? Apparently so. Makes you wonder about the makers of the movie. Just how much do these people hate humanity?

Of course, a lot of environmentalists, Malthusians and nihilists would still have been somewhat sympathetic with the comic version if it was in the movie. There are a lot of environmentalists and Thanos' plan was a half-way measure by their standards.

Environmentalists are man-hating nihilists and environmental science is not really a science.

Environmentalism is an anti-technology and anti-life cult. Which would like to do away with industry.

Makes you think, huh?

Okay, let's give a shout-out to our newest patrons: Forbes Scott and Aniket Warty! Thank you for helping us make the world a more rational place!

Alright. That brings us to the end of this episode. Thanks for listening!

Outro

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And as always, you are welcome to send in questions to questions@metaphysicsofphysics.com. Or you can also contact us via contact@metaphysicsofphysics.com if you want to talk to us about

physics, philosophy of science, any of the other sciences or anything relevant at all. We are always looking for more people to interview or appear on the show!

Please tune in for the next episode and start thinking of some questions! Until then, stay rational!