

# Determinism & Chaos Theory

**Post by “Don” of May 3, 2024 at 8:17 AM**

[https://youtu.be/zkP7dmpHm\\_c?feature=shared](https://youtu.be/zkP7dmpHm_c?feature=shared)

Just watched the above video from Kyle Hill, and it struck me ... Physics (modern physics) does seem to say we live in a deterministic universe due to physical laws. However, that doesn't mean we live in a fully predictable universe per chaos theory. I felt this had an echo of Epicurean philosophy.

Take a look at the video. Curious to hear thoughts.

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**Post by “TauPhi” of May 3, 2024 at 10:08 AM**

[Quote from Don](#)

Physics (modern physics) does seem to say we live in a deterministic universe due to physical laws. However, that doesn't mean we live in a fully predictable universe per chaos theory.

It also doesn't mean we DON'T live in a fully predictable universe. It only means we don't have sufficient knowledge and processing power to determine chaotic predictability with perfect accuracy. For this reason, whether we live in a deterministic universe under the illusion of free will or we truly have free will is indistinguishable to us - at least for now.

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**Post by “Don” of May 3, 2024 at 12:34 PM**

[Quote from TauPhi](#)

It also doesn't mean we DON'T live in a fully predictable universe.

I guess it depends on one's definition of "predictable" in any given conversation.

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## Post by “TauPhi” of May 3, 2024 at 1:04 PM

### [Quote from Don](#)

I guess it depends on one's definition of "predictable" in any given conversation.

In any given conversation with me you don't need to guess my definitions of words. I don't redefine words for my personal needs. I stick to 21st century English as it is generally accepted. That said, I am not a native speaker so I muddy the waters sometimes. When I do, it's because I haven't mastered the language properly not because I feel like *vasring deemerorus adere offdac zxxcxxcvggg*.

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## Post by “Don” of May 3, 2024 at 1:53 PM

Oh, I didn't mean in any language proficiency way or idiosyncratic way! Sorry if I implied that.

I was thinking literally as in "predictable" in a theoretical way or "predictable" in a practical way.

If - in a given conversation - someone wants to say, theoretically, that in the future some far-advanced hyper-super-quantum computing machine is able to plot the current state of all matter in the universe at every given microsecond... then, yes, *theoretically*, all future states are "predictable" due to the laws of physics; and the three-body-problem and all other issues raised with chaos theory go away.

If - in another conversation - someone wants to say that "practically-speaking", chaos theory makes it "practically impossible" to predict future states of a given phenomenon outside a given predictability horizon, then it seems it turns into a matter of predictability in a "we'll never be able to predict this 'in our lifetime'" or "we can't predict this" scenario.

So, given all that...

### [Quote from TauPhi](#)

For this reason, whether we live in a deterministic universe under the illusion of free will or we truly have free will is indistinguishable to us - at least for now.

I would tend to agree with your assessment in your quote there...at least right now as I type this in this conversation 😊

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### Post by “TauPhi” of May 3, 2024 at 2:46 PM

#### Quote from Don

Oh, I didn't mean in any language proficiency way or idiosyncratic way! Sorry if I implied that.

Don You're such a good guy it never even crossed my mind you could want to say something inconsiderate. Nothing to be sorry about. I was just trying to make a (bad) joke and explain that I'm not a dude who likes conversations like:

Someone: -It's a nice weather.

Definitely not me: -Well, but what do you mean by 'nice' and 'weather' and 'it's'.

And yes, I pretty much meant what you said above. 😊

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### Post by “Martin” of May 5, 2024 at 6:54 AM

#### Quote

Physics (modern physics) does seem to say we live in a deterministic universe due to physical laws.

Some physicists interpret the known physics such that the universe is deterministic, others (including me) interpret it such that it has fundamental indeterminacy, not just difficulty for prediction.

#### Quote

... that in the future some far-advanced hyper-super-quantum computing machine is able to plot the current state of all matter in the universe at every given microsecond... then, yes, *theoretically*, all future states are "predictable" due to the laws of physics; ...

Such a computer is not conceivable because it would be like a 1:1 scale map of everything, that means the universe would be used to calculate itself, which makes it pointless. A fundamental indeterminacy at the present can only be resolved by waiting for the future to see which way the system has moved.

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## Post by “Don” of May 5, 2024 at 7:26 AM

Great thought-provoking post, [Martin](#). Thank you!

In a quick search, I see there's been some academic papers on the topic... Most beyond me in a brief scan of the content 😊 so, turning to Wikipedia:

[Indeterminism - Wikipedia](#)

"Interpreting causation as a deterministic relation means that if A causes B, then A must always be followed by B. In this sense, war does not cause deaths, nor does smoking cause cancer. As a result, many turn to a notion of probabilistic causation. Informally, A probabilistically causes B if A's occurrence increases the probability of B. This is sometimes interpreted to reflect the imperfect knowledge of a deterministic system but other times interpreted to mean that the causal system under study has an inherently indeterministic nature." (PS. I just realized that article mentions Epicureanism!)

I like where that is headed and would have been (at least consciously) unaware of it without [Martin](#)'s post.

### [Quote from Martin](#)

Such a computer ... would be like a 1:1 scale map of everything

I would go beyond that and offer that you might need multiple universes to compute the outcomes in one universe... It's "conceivable" (ie, I just conceived it 😊) but completely impractical and maybe useless IF indeterminacy is the way things are.

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## Post by “Bryan” of January 25, 2025 at 9:01 PM

Throwing in this clear and simple quote from Epikouros against determinists:

"...While you all simultaneously make everything have its cause [of movement] from its former movement and turn reasoning upside down..."

...ἅμα ποιοῦντες πάντ' ἀ[πὸ] τῆς προτέρας κινήσε[ω]ς τὴν αἰτίαν ἔχειν καὶ περικάτω τρέποντες τὸν λόγον...

Book 25, P.Herc. 1420 col. 4 (fr. B 12)